Appleford Sidings Oxfordshire 1993-2000

Post Excavation Assessment and Research Design

Oxford Archaeology

May 2003

SU 5200 9251

Client: Hanson Aggregates Ltd.

Issue No: 1
OA Job No: 645
NGR: [redacted] 522 925
SU

Hanson Aggregates Ltd

APPLEFORD SIDINGS, OXFORDSHIRE, 1993-2000

POST-EXCAVATION ASSESSMENT AND RESEARCH DESIGN

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May 2003

CONTENTS

LIST OF FIGURES

LIST OF PLATES

1 SUMMARY

Oxford Archaeology (OA) undertook evaluations of Hanson Aggregates' Sutton Courtenay Pit in 1993 and 1997, and maintained a Watching Brief between 1997 and 2000. All work was carried out ahead of mineral extraction. The aim of the Watching Brief was to monitor topsoil stripping and record any archaeological remains.

The fieldwork revealed extensive Bronze Age, Iron Age and Roman-period landscapes. The Bronze Age features were concentrated in the western and central areas of the site, and comprised rectilinear systems of trackways and enclosures. These were often associated with large pits or waterholes. Iron Age activity is limited mainly to field ditches. Significant activity was witnessed during the early Roman period, consisting of rectilinear field systems, enclosures, and trackways. A high-status enclosure was established in the later 1st century. The level of activity clearly declined after c AD 120. Medieval field systems were also revealed.

2 PROJECT BACKGROUND

2.1 Location and scope of work

Work at Appleford Sidings was centred at NGR SU 522 925 in the eastern part of Hanson Aggregates' (formerly ARC) Sutton Courtenay Pit (Fig 1). The site is located south-west of the Appleford Crossing for the Didcot/Oxford railway line, south of Appleford village and east of Sutton Courtenay. Didcot is located almost 1.5 km to the south.

Oxford Archaeology, then the Oxford Archaeology Unit (OAU), carried out an evaluation in 1993 (OAU 1993), covering areas of gravel extraction (Blocks 5, 8, 9 and 3). An evaluation of an area immediately to the west and south of the 1993 work, covering Blocks 2, 3 and 10, was undertaken in 1997. In light of significant unforeseen discoveries, this work was followed by a Watching Brief. Further monitoring of topsoil stripping and archaeological recording was carried out between 1998 and 2000, which concentrated in the northern and eastern parts of the site.

2.2 Topography and geology

The site is situated on flat land at approximately 50 m OD. River terrace sands and gravels (first flood plain type terrace) form the underlying geology (British Geological Survey 1981, Sheet 253). A silty clay ploughsoil settled on top of the archaeology.

2.3 Historical and archaeological background

Appleford Sidings lies within an area of significant archaeological and historical remains. Investigations over the past 40 years have revealed much of these. Pre-Bronze Age evidence has been restricted largely to chance finds, such as a beaker, a polished stone axe, and ?dagger, all dating to the Neolithic period (Hinchliffe and Thomas 1980, 106). Limited evidence for Bronze Age occupation came to light

during excavations west of Appleford village in 1973 by the Upper Thames Archaeological Committee and the then Oxfordshire Archaeological Unit. A few pits isolated within Iron Age and Roman-period landscapes were assigned to the late Bronze Age, although cropmark evidence, including a double ring ditch, hinted at more extensive remains. More substantial archaeology has belonged to the Iron Age and Roman period. Excavations between 1967 and 1974 by Reading Museum revealed ring-ditches and a polygonal enclosure dating to the early Iron Age (ibid., 18). The 1973 investigations gave a number of domestic enclosures and field systems, previously recorded as cropmarks, a middle Iron Age date. Occupation continued during the late Iron Age and into the Roman period. Evidence assigned to the latter period, essentially dating from the mid 2nd century onwards, comprised a system of ditch-lined trackways and enclosures with associated waterholes. A 4th century inhumation cemetery was also uncovered (ibid., 62-90). Saxon remains within the immediate vicinity of Appleford Sidings have proved elusive, although evidence of national significance is well known to the west at Sutton Courtenay. Appleford village was established by the 10th century to the north east of Appleford Sidings. Medieval farming and later quarrying have kept the site largely free of development.

The area of land subject to the work carried out by OA in 1993/1997-2000 has been little investigated until this time. An evaluation consisting of geophysical survey, fieldwalking and trial trenching was undertaken in 1993. Enclosures of Roman date were identified in the north part of the site, but other landscape features were otherwise undated. An adjoining area was evaluated in 1997 and was subject to a Watching Brief in the same year. In view of the potential importance of the Bronze Age discoveries, the area subject to evaluation in 1993 was monitored during topsoil stripping in 1998, revealing more of the Bronze Age landscape. The Roman-period landscape identified in the earlier evaluation was investigated during Watching Briefs in 1999 and 2000.

2.4 Fieldwork methodology

2.4.1 The Evaluations

The methodologies used during the 1993 and 1997 evaluations are described in the respective reports of that work (OAU 1993 and July 1997), and are summarised here. A total of 35 trenches were excavated in the central area of the site in 1993 (Block 5, 9 and part of Block 3), following a campaign of fieldwalking (Fig 2). In the same year, a geophysical survey was undertaken in the north-west part of the quarry (Block 8). Blocks 2, 3 and 10 of the gravel extraction area) to the west of the 1993 zone was evaluated in 1997. A total of 26 trenches were dug. In both cases, a mechanical digger was used to excavate to the top of the first significant archaeological horizon or the gravel subsoil. A representative sample of features was excavated. A proposal was made to excavate a group of cremation burials identified in Trench 20 in the southern part of the site, although this area has now been placed outside the current quarrying boundaries.

2.4.2 The Watching Brief

The first stage of a Watching Brief was carried out in 1997 during topsoil stripping (Fig. 2; Plate 1). Stripping of an adjacent area to the east, which had been subject to an evaluation in 1993, was monitored in 1998. Expansion of the stripping programme eastwards allowed Blocks 4 and 6 to be investigated in the same way. The north-east

area of the quarry (Block 7), which had not undergone evaluation, was monitored during topsoil stripping in 1999. The final stage of investigation took place in 2000. An area in the north-west part of the quarry was monitored (Block 8).

2.5 Quantification of the archive

2.5.1 Stratigraphic data

Record type	Totals
Context sheets	**2294**
Plans	**149**
Sections	**558**
Small finds record sheets	**6**
Environmental samples record sheets	**51**
Levels sheets	**30**
Colour films	**42**
Black and white films	**51**

2.5.2 Quantification of artefactual and ecofactual material

Material	**No. of pieces**
Pottery	**5275**
Fired Clay	**528**
Worked stone	**8**
Glass	**4**
CBM	**40**
Iron objects	**39**
Copper alloy and lead objects	**2**
Slag	**6**
Flint	**271**
Human Bone	
Animal bone	**4239**
Shell	**2**
Wood	**13**

3 STRATIGRAPHIC SUMMARY

3.1 General Summary

The density of the archaeology was reasonably even throughout the site, although spatial differences were observed between periods. Bronze Age features are concentrated in the western part of the site, thinning out towards the east and north. Roman-period features are located mainly in the northern portion of the site. Overall, the archaeological landscape is characterised by pits and linear features, with much evidence of intercutting. The site has suffered from a high degree of truncation and contamination through medieval ridge-and-furrow and other land divisions. Moreover, ploughing has taken place until the recent times, continuing even between the 1993 and 1997 investigations. These have undoubtedly truncated portions of some features and utterly destroyed others. Further difficulties have arisen with the fact that the distribution of datable material was sparse, being concentrated in relatively few features. The size of pottery groups tended to be small, frequently restricted to a handful of sherds. Along with the probability of a high level of residuality, well-dated stratigraphic sequences are infrequent. Sufficient evidence survives, however, to allow the archaeological activity to be divided into five provisional phases (Fig 4).

3.2 Phase 1 – Neolithic

An isolated pit has been assigned to this phase on the basis of its artefactual assemblage. Pit 5576, excavated in 2000 in the NW area of the site, yielded a coherent assemblage of 126 flint flakes and chips, which has been given a Neolithic date on technological grounds. This was accompanied by some 41 sherds of sand-tempered pottery. Diagnostic rolled rims provide the group with an early Neolithic date (A Barclay, pers comm).

3.3 Phase 2 – Bronze Age

Features dated to this phase were concentrated in the western and central portions of the site. Many of these are likely to fall within the middle to late parts of the period. The Bronze Age landscape is characterised by ditches on roughly E-W and N-S orientations. A north-south aligned ditch dominates the extreme western side of the site. Long and sinuous, the ditch has been recut throughout its course, and runs more or less through the entire length of the excavated area. The course of the ditch mirrors that of another major ditch to the east, and together they display close symmetry in plan. However, except for this, there are few other links between them. Bronze Age pottery was recovered from the former, while the latter yielded no dating evidence. The westernmost ditch must represent a secondary phase of Bronze Age land use, since it overlies a system of rectilinear enclosures. The ditch is itself cut by enclosure ditches and a pit. Perhaps crucially, the eastern ditch cuts Bronze Age features, but is truncated only by modern features. But given their similarities in form, it is almost certain that both ditches were in contemporaneous use as a trackway. However, the life of the eastern ditch appears to have been extended well beyond the Bronze Age, as it is associated with a probable Roman-period ditch running parallel to it.

More enclosures are located in the central, eastern and northern parts of the site. All are rectilinear; some are more or less fully enclosed, while others are open on one or two sides. Considering the level of truncation, determining their original plan and identifying internal features and entrances is problematical. A number of large pits or

waterholes were located within the western area, often associated with enclosures (Plate 2). Taken together, the evidence appears to represent a pastoral landscape: the trackway facilitated large scale movement of livestock to be herded into enclosures. The focus of the settlement is unknown. Severe truncation may have removed ephemeral, but crucial, traces, such as postholes. The focus itself may have shifted over time. The quantity of domestic artefacts suggests that any settlement is likely to be close. Considerable quantities of late Bronze Age pottery was recovered from the 1973 excavation, though few features could be assigned to this date.

3.4 Phase 3 – Iron Age

A small amount of Iron Age pottery, possibly from the early period, was recovered from very straight, shallow gullies in the southern portion of the site. Other features of similar form and on the same orientation, and which cut Bronze Age features (but are otherwise undated), may also belong to this phase. Assuming that such features are chronologically linked, then an extensive, though thinly distributed, early Iron Age field system succeeded the Bronze Age landscape. However, a change in function may be discerned. The Iron Age features serve to divide large areas of land, rather than enclose smaller portions of it, and are perhaps indicative of changing land use or organisation. Late Iron Age pottery was recovered from the north-western part of the site, suggesting a 1st century AD inception date for some of the early Roman features in that area.

3.5 Phase 4 – Roman

Features dated to this phase are located almost exclusively in the northern part of the site. Two enclosures dominate the north-western area. The northernmost feature is a square enclosure, possibly double-ditched on three sides, and triple-ditched on the north side (Plate 4). An entrance is provided through the south side. Post-Roman truncation has reduced internal features to amorphous shapes. These do not form a coherent pattern and are impossible to interpret with certainty, but it is possible that they to relate to an associated building. Pottery recovered from the enclosure ditches and some of the internal features suggests reasonably high-status occupation during the second half of the 1st century AD. A larger enclosure lies immediately to the south. Its entire plan has not been recorded, but it also appears to be rectilinear. It comprised single lengths on its north and east sides. A longer ditch runs alongside both the latter side and the eastern side of the upper square enclosure, appearing to form a connecting trackway. Ceramic evidence suggests that both enclosures were in use at the same time. More Roman-period evidence was identified in the north-east area of the site (excavated in 1999). This comprises a NE-SW orientated trackway that separates rectilinear enclosures. The trackway appears to be overlain by further enclosures, although more work is required to clarify the stratigraphic and chronological sequence. The ceramic evidence spans the late 1st-early 2nd century, hinting that these features were in use later than the enclosures to the north-west.

To the south of these, at the extreme eastern end of the site, a single cremation burial pit was set within a small square enclosure (Plate 3). Its contents included nails from shoes and probably a wooden casket. Another pit, containing burnt material possibly associated with the cremation process, had been cut into a corner of the enclosure. Limited evidence suggests that the use of a Bronze Age ditch at the western end of the site continued into the Roman period. A new ditch was cut parallel with it and followed its sinuous curves. Firm dating evidence is absent from both. Two sherds of

Roman pottery were recovered from the western ditch during the 1997 evaluation (OAU July 1997, 4). Undiagnostic Roman pottery was also found in an associated ditch at the southern end of the much narrower route now defined by the two N-S orientated ditches. If the eastern ditch originated in the Bronze Age, then it represents a remarkable survival of form and function. The alignment of these ditches beyond the northern limit of investigation is unknown, although they may well form part of a trackway excavated in 1973 (Hinchliffe and Thomas 1980). Interestingly, the Roman-period evidence recovered during that excavation dates from the mid 2nd century onwards. Occupation at Appleford Sidings ceased during the first half of the 2nd century, appearing to resume a short distance to the north, although the use of the ditches possibly continued.

3.6 Phase 5 – Post-Roman

The site was used for farming during the medieval period. Remnants of ridge-and-furrow survive across the site. A number of amorphous features particularly in the north-western area may represent earlier medieval land divisions. The small post-medieval pottery assemblage recovered from the site suggests limited post-medieval activity in the area. A few features have been assigned to this period, including an isolated pit at the western end of the site, which yielded a single sherd of pottery and tile fragments, and ditches at the eastern end. A farm building stood in the extreme NW corner of the 2000 area, but was only subject to very limited investigation.

4 ARTEFACTUAL SUMMARY

4.1 Pottery

4.1.1 Prehistoric and Roman-period

A total of 5275 sherds, weighing 54,240 g, was recovered during four seasons of fieldwork between 1997 and 2000. This material was rapidly scanned to determine context dates and to assess the character of the pottery. The ceramic evidence divided into two main periods - Bronze Age and Roman. Much smaller amounts of pottery were dated to the Iron Age. Flint-tempered Bronze Age pottery represented 19% of the whole assemblage by weight. The pottery spanned the period, but the emphasis can be placed on the middle or Deveral-Rimbury phase (1750-1150 BC). This assemblage is characterised by a relatively high proportion of Globular Urns, which are rare finds from this region. A small proportion of sand and clay-pellet tempered fabrics was also present, which may belong to the early Iron Age. However, since such contexts tended to yield just a few sherds each, dating is very uncertain. Together with the late Iron Age material, Iron Age pottery accounted for 5% of the assemblage by weight. Roman pottery formed the largest proportion of the assemblage, taking a 77% share (41,987 g). This was predominantly of early Roman date. Pottery definitely dating after AD120 is sparse by comparison. A few sherds of late Roman Oxfordshire products are present, including a white ware mortarium and Oxfordshire red colour-coated sherds.

4.1.2 Post-medieval

A small amount of post-medieval pottery was recovered, totalling 211 g (representing less than 1% of the site assemblage). The pottery mainly comprised coarse wares, with some glazed red wares also present.

4.2 Flint

A total of 271 flints and 19 pieces of burnt unworked flint was recovered from the excavations. The flintwork includes a small number of Mesolithic and Neolithic flints, distinguished on technological grounds, amongst a predominantly Bronze Age assemblage. A small number of features contained flintwork in fresh condition. The artefacts were catalogued according to broad artefact/debitage type, general condition noted and dating attempted where possible. Unworked burnt flint was quantified by piece and weight.

4.3 Worked stone

The objects were scanned with the aid of a hand lens. The stone is largely unworked but burnt and includes a large number of fire cracked pebbles. Those items that were obviously worked were extracted and examined individually. The worked stone includes a rotary quern, up to two saddle querns, two hammerstones, one possible processor and some possible fragments of building stone. The rotary quern and a possible saddle quern were from early Roman contexts. The majority of the stone was from Bronze Age contexts

4.4 Ceramic building material

Seventeen fragments of tile were recovered. All are identical in terms of fabric, and belong to flat tiles. No roof tiles are definitely represented. Most came from undated contexts, although a post-medieval date for the tile assemblage is likely.

4.5 Fired clay

Most fragments belonged to thick, brick-like objects. A few pieces had curved edges, and probably formed part of ceramic discs. Such objects are not uncommon within the region, having been found at Abingdon, Standlake and Oxford. The remainder of the assemblage is likely to have been used in a structural capacity. An early Roman date can be assigned to the majority of pieces.

4.6 Metal objects

A small assemblage of metalwork was recovered from 3 of the 6 phases of investigations carried out at Appleford Sidings between 1997 and 2000. The assemblage comprises 2 copper alloy objects (one of which is a modern cartridge case) and 485 iron objects. The majority of the iron objects are nails or miscellaneous fragments. The iron work in general is in a very poor condition, many of the objects, especially those recovered from sieving are heavily corroded with little of the original metal surviving. The identifiable objects are Roman in date.

4.7 Glass

The only glass recovered from the archaeological excavations comprise four fragments from a single context from the investigations at Appleford Sidings in 2000. The fragments, from context 5591 appear to belong to a thin walled vessel.

5 ECOFACTUAL SUMMARY

5.1 Human bone

The skeletal assemblage comprised one skeleton (1568) dated to the Bronze Age and three cremation burials (3053, 4138 and 4185). The inhumation was very fragmented but was likely to be female and aged between 18 and 24 years. The cremated bone was all dated to the Roman period. Cremation 4138 consisted of animal bones only and cremations 3053 and 4185 were not of any one complete individual. Cremation 4053 was that of a probable male.

5.2 Animal bone

A total of 4239 fragments (15,930 g) of bone was recovered. Much of the material was fragmentary and the re-assembly of some of the elements reduced the fragment count to 2556. Cattle and sheep appear to have provided the majority of the meat to the inhabitants. A single red deer phalanx was identified and it is probable and some wild species was hunted to supplement the meat diet of the inhabitants. Part of a cat mandible and a bird carpo metacarpus were recovered in addition to a few fragments of frog and rodent bone. The remains of three articulated animal burials were identified from plans from the site. The most complete skeleton identified was a horse.

5.3 Pollen

Twelve samples from the column (217) from a possible Bronze Age waterhole (1312) and 6 samples from column 224 were assessed palynologically. The core, which was 1 m in length, sampled the three fills, 1311, 1317, and 1425. The column was subsampled in the laboratory and the samples prepared for pollen analysis. They were then assessed for palynological analysis by microscopic examination. Very low values of pollen were recorded in all twelve samples. However the very limited dataset does suggests that very few trees were growing in the vicinity of the settlement when the fills of the waterhole were accumulating.

5.4 Charred plant remains

Samples were taken during the 1997, 1998, 1998 and 2000 excavations at Appleford Sidings from Bronze Age, Iron Age, Roman, modern/medieval and undated features. A total of 115 samples were assessed for charred plant remains. Cereal grains were abundant or common in the samples with wheat and barley identified. Crop processing waste products were recorded at low levels and a moderate numbers of weed seeds were identified from arable, wasteland, grassland, and damp conditions. A sample from the waterhole 168 yielded abundant cereals, including wheat, barley, and oats, chaff and weed seeds. A greater range of cereal taxa were recorded in Roman-period samples.

5.5 Waterlogged plant remains

Initially, a total of 35 samples of Middle Bronze Age date were examined for the assessment of waterlogged plant remains. Sub-samples of 1kg, or in two cases 10 litres, were processed by hand and floated onto a 250µm mesh. Flots were kept wet and were submitted for evaluation. Five more samples from APSID 97, 98, 99 and 00 were assessed subsequently. The samples were mostly from the lower fills of Bronze

Age and Iron Age wells and water holes but included a few samples from Roman pits and a ditch.

5.6 Insect remains

The five samples from APSID 97, 98, 99 and 00 assessed for macroscopic plant remains were also assessed for insect remains. Samples of 1kg were washed over onto a 0.25mm mesh to recover waterlogged organic remains and the flots scanned under water using a binocular microscope. Samples of the order of 10 litres were washed over onto a 0.25mm mesh and the flots subjected to paraffin flotation to recover insect remains. Any insect remains observed were provisionally identified and an estimate made of their abundance.

6 STATEMENT OF POTENTIAL

6.1 Stratigraphic

The site yielded significant remains of a Bronze Age landscape characterised by trackways, enclosures and waterholes. Artefactual evidence attests to a nearby settled community, with which some of the enclosures may be associated. In light of the limited evidence from previous investigations, these features make a valuable contribution to the understanding of Bronze Age activity in the region. The value of the stratigraphic data is enhanced by the ecofactual evidence, potentially revealing much about the contemporary environment and farming regime. The middle to late Bronze Age has been viewed as a period of transition, characterised by the appearance of fixed settlement and land division (Barclay *et al* 1996, 6). The landscape at Appleford appears to be pastoral based, like others in the region (Miles 1997, 9), but details of the animal bones and plant remains should help to confirm this. The data can also inform about the physical and social contexts for ritual activities, as evidenced by cremation burials and other structured deposits.

The Iron Age evidence is relatively limited, almost exclusively comprising field boundaries. However, a clear stratigraphic sequence physically linking Bronze Age, Iron Age and Roman-period features is discernible. This supports the dating of these features, and allows the potential for undated features to be assigned to specific periods. Further work to identify such evidence will increase understanding of the extent and use of the Iron Age landscape. The difference between the Bronze and Iron Age features in character, form and orientation suggests that a major change in landscape use occurred, perhaps from a pastoral to arable based economy. This should be further investigated.

Analysis of the Roman-period sequence will refine the phasing and dating of the site, and will provide an opportunity to characterise the occupation. The square enclosure in the north-west area of the site potentially represents a high-status building; further work on the pottery and comparison with early phases of high-status farms and villas, such as Barton Court Farm, will help to clarify this. The survival of a Bronze Age trackway ditch into the Roman period is of tremendous significance. However, conclusive evidence for its inception is absent. Of the three principal N-S ditches, only the western one is of near-certain Bronze Age date. Assuming that the eastern ditch is contemporaneous, then the middle ditch appears to be a Roman-period intrusion within a defunct, but still recognisable Bronze Age trackway. The Roman

ditch-diggers may have been guided by a surviving hedge line or bank. Alternatively, both middle and eastern ditches were cut in the Roman period, and may be linked with the trackway encountered farther north. Determining the chronological origin of these features will be key to our understanding of landscape continuity and organisation. Comparison may be made to Farmoor, where similar evidence was uncovered (Lambrick and Robinson 1979).

The major features at Appleford Sidings can be seen in the context of previously published excavation material in the close vicinity, in particular that excavated in the 1960s and 1973. While acknowledging the serious gaps in the archaeological record through severe truncation, these sites should nevertheless reveal much about land use change and continuity, the regional economy, and settlement status from earlier prehistoric to medieval times.

6.2 Artefactual

6.2.1 Pottery

The pottery assemblage is clearly significant and offers excellent potential for further study. For the Bronze Age material, the size of the assemblage and range of fabrics and forms present make it invaluable as a regional type-assemblage. The Roman pottery is certainly worthy of further study. It is a large assemblage with a restricted date range. A number of good groups with well preserved datable, diagnostic, material are evident. Such material can inform about site chronology and pottery supply. The virtual cessation of the settlement during the early 2nd century is interesting, and reference may be made to the results of work carried out to the north of the site (Hinchliffe and Thomas 1980). Analysis into functional composition may also contribute to this. Questions regarding context formation may also be addressed, revealing social practices such as pottery use, rubbish disposal and structured deposition.

6.2.2 Flint

The assemblage recovered from Appleford Sidings is relatively small but contains aspects of considerable interest. The background scatter of Mesolithic and Neolithic flintwork extends the human presence on the site by several millennia. Given the presence of a Bronze Age landscape on the site, the Bronze Age flint assemblage is remarkably small and relatively dispersed. It would be of interest to examine the distribution of the flintwork to assess the its relationship to the Bronze Age landscape. The flint deposit from the Neolithic pit would benefit from additional technological analysis and a refitting analysis to confirm the sequence of events prior to deposition. Furthermore, analysis of use-wear in the pit will aid interpretation of the activities prior to deposition.

6.2.3 Worked Stone

The lithology of the rotary quern is of interest as it may be imported. The remainder of the worked stone was probably locally available though a source for the quartzite boulder should be determined. This boulder which had been used to make a saddle quern (still complete) was recovered from the fill of a boundary ditch and further analysis may help to show its phase and location in the ditch. The placing of complete querns in ditches and in pits is of a striking symbolic nature and boundary ditch

deposits may well have particular significance. This should be looked at with reference to the placing of other finds types on the site. One example of a well-used hammer stone was also found - this should be looked at in relation to the flint.

6.2.4 Ceramic building material

Despite the small size of the assemblage, the building material supplements the post-medieval pottery, informing of activity during this time in the vicinity of the site. However, no further work is recommended beyond providing a record and description of the material.

6.2.5 Fired Clay

The presence of ceramic discs adds to the growing corpus of this object type. The discs should be discussed with reference to comparable sites, with the best examples from Appleford illustrated. Full recording may allow other object types to be identified. Pottery dating should also help to define the chronology of the fired clay/building material assemblage more closely.

6.2.6 Metalwork

There is very little potential for further work, except for the seal box lid to be illustrated for publication.

6.2.7 Glass

It is recommended that the glass should be sent to a Roman glass specialist (Dr Hilary Cool) for a expert opinion at the report stage of the project.

6.3 Ecofactual

6.3.1 Human bone

Of the inhumation remains, little further analysis is required. A full dental and skeletal inventory and a quantification of the dental lesions will be produced for the final report. The cremated bones do not warrant further analysis. However, given the presence of animal remains in some of the burials, A full discussion of the mortuary practices using examples from the Upper Thames Valley will be included in the full report.

6.3.2 Animal Bone

It is important that the assemblage is recorded in more detail to enable the material including recording of tooth wear stages and fusion rate of the epiphysis for ageing the animals, to be more accurately identified. This will add to our understanding of the use of the animals at the site. Measurements from the bones will increase or understanding of changes in stature of the animals possibly due to improved farming techniques or variations in breeds. It would also be valuable to note the abundance of certain elements and spatial distribution of the bones. Finally it is recommended that the plans of the animal burials are illustrated and that the significance of the deposits and association with other features are discussed.

6.3.3 Pollen

There is no potential for any further palynological analysis from the pollen column 217. Therefore no further work is recommended.

6.3.4 Charred plant remains

The assessment demonstrated the potential for further analysis of charred plant remains dating from the Bronze Age, Iron Age and Roman period. It is recommended that twelve samples, highlighted as having a high potential, and two from the Bronze Age as having a good potential, should be taken to full analysis. It is recommended that five samples should be taken to full charcoal analysis.

6.3.5 Waterlogged plant and insect remains

The results of the assessment are generally disappointing. The particular remains assessed mostly occur in low concentrations and preservation is mostly poor. Crop remains are absent from the prehistoric samples and there is no insect evidence for human settlement or timber buildings. The charred crop remains from the Roman samples are sparse and unexceptional. However, waterlogged Bronze Age deposits are rare in this part of the region. Waterhole 180 probably has the best Bronze Age insect assemblages. They suggest an open grassland landscape with some grazing by domestic animals and perhaps a little willow scrub. However, these samples do not have the high proportion of dung beetles from the genus *Onthophagus* shown by some insect assemblages of middle Bronze Age date. It would be useful to obtain radiocarbon dating for this waterhole. The assessments of waterlogged macroscopic plant remains from Waterhole 180 by Ruth Pelling showed that they too had high potential. The other feature regarded as having potential for waterlogged macroscopic plant remains and insects is early Roman ditch 4015. It is probable that the sample from this deposit will give information on a hedged agricultural landscape.

7 RESEARCH AIMS

7.1 Original aims

The original aims of the archaeological evaluations as set out in Written Schemes of Investigation (eg OAU January 1997) are summarised as follows:

- To establish the presence/absence of archaeological remains within the development area.
- To determine the extent, condition, nature, character, quality and date of any archaeological remains present.
- To establish the ecofactual/environmental potential of archaeological features.

The aims of the subsequent watching briefs (eg OAU June 1997) can be added:

- To preserve by record any archaeological remains.
- To make available the results of the investigation.

7.2 Revised aims

The original aims remain valid, but, in the light of the excavation results and the stratigraphic and artefactual assessments, can be augmented by the following specific aims:

Aim1: *To refine site chronology and phasing*

- How did the landscape develop through time?
- When were the major trackways in use and what course did they take?
- Can the sequence of Roman-period enclosures be further defined?

Aim 2: *To investigate changes in settlement pattern*

- To what extent does the landscape evidence inform about settlement location in the Bronze Age?
- How did the pattern of settlement develop during the Roman period?

Aim 3: *To examine the economic basis of the site*

- To what extent does the ecofactual and landscape evidence contribute to our understanding of economy in the Bronze Age and beyond?
- How did the economy change over time? Does the imposition of the Iron Age field system reflect change in land use?

Aim 4: *To reconstruct the environmental context of the archaeological remains*

- What impact did the environment have on the economy and land use?

Aim 5: *To develop understanding of site status and social organisation*

- What does the evidence, particularly the pottery, reveal about trade and social networks in the Bronze Age and Roman period?
- How far does the later 1st century enclosure follow the pattern of early villa development?

Aim 6: *To investigate ritual and other activities*

- What is the character of ritual activity and structured deposition?
- What does the burial evidence reveal about local funerary practices?
- Can we reconstruct the range of activities undertaken at the site?
- How did the major landscape features function?

Aim 7: *To place Appleford Sidings within its local, regional and national context*

- What affinities does the site have with others within and outside the region?

8 METHODOLOGY

8.1 Stratigraphic

Further refinement of the stratigraphic sequence will be undertaken, along with the completion of the site matrix.

8.2 Artefactual

In a category where no further analysis is recommended, the assessment report will be published, subject to any necessary editorial adjustments.

8.2.1 Pottery

The prehistoric and Roman assemblages will be fully recorded and reported using the standard system employed at Oxford Archaeology. Reference may also be made to national and regional corpora. A selection of vessels will be drawn to illustrate the range of material, unusual forms and significant individual groups.

8.2.2 Flint

A basic catalogue of assemblage will be compiled. Technological analysis will be undertaken on the Neolithic group, along with use-wear analysis and a refitting exercise provide information on the pattern of deposition. Some 8 flints will be illustrated.

8.2.3 Fired clay

Further examination of the fabric of the discs will be undertaken, and selected larger fragments will be illustrated

8.2.4 Human bone

A full dental and skeletal inventory of the inhumation burial will be compiled. Discussion of the funerary ritual with regional examples for both the Bronze age inhumation burial and the Roman cremation burial will be undertaken.

8.2.5 Animal bone

Detailed recording of the assemblage will be carried out. Identification will be done with access to the Oxford Archaeology reference collection and published guides. The spatial distribution of the bones will be considered. Selected bones will be illustrated, along with the plans of the three animal burials.

8.2.6 Charred plant remains

The samples selected for full analysis and reporting will be sorted by an environmental technician at Oxford Archaeology prior to specialist analysis.

8.2.7 Waterlogged plant and insect remains

It is recommended that, in addition to the detailed analyses recommended by Ruth Pelling, samples are analysed from Waterhole 180 for insects and the and the sample from Ditch 4015 is analysed for both macroscopic plant remains. It is also recommended that unprocessed material from these samples is analysed for pollen.

8.3 Absolute chronology

In order to refine site chronology and inform aspects of the finds (particularly ceramics) and environmental analyses it is proposed that samples will be presented for radiocarbon dating. These will be selected from securely stratified contexts with useful artefactual and/or ecofactual associations.

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APPENDICES

1. ASSESSMENT OF THE PREHISTORIC, ROMAN-PERIOD AND LATER POTTERY

By Edward Biddulph and Alistair Barclay

Introduction

A total of 5275 sherds, weighing 54,240 g, was recovered during four seasons of fieldwork between 1997 and 2000. This material was rapidly scanned to determine context dates and to assess the character of the pottery. The ceramic evidence divided into two main periods - Bronze Age and Roman. Much smaller amounts of pottery were dated to the late Iron Age and post-medieval period. No detailed examination of the pottery was undertaken. A note was made of the most diagnostic Roman pottery using OA's standard recording system for fabrics and Young's Oxfordshire series (Young 1977) for vessel forms.

Bronze Age

All flint-tempered pottery was dated to the Bronze Age and separated from the rest of the assemblage. Bronze Age pottery totalled some 1550 sherds, weighing 9489 g, representing 18% of the whole assemblage by weight. The pottery spans the period, though the emphasis can be placed on the middle or Deveral-Rimbury phase (1750-1150 BC). This assemblage is characterised by a relatively high proportion of Globular Urns as well as the regionally more common bucket urn. The groups of globular urns, especially those from context 84, are rare finds from this region. Many of these vessels are thin-walled, burnished and highly decorated in sharp contrast to the comparative material from the region, which is plain and much coarser.

Iron Age

Iron Age pottery, weighing 2529 g, represented 5% of the assemblage. A small proportion of handmade pottery in sand and clay pellet tempered fabrics was present. The lack of diagnostic pieces makes firm identification uncertain, but this material should belong to the early Iron Age. The occasional use of flint was noted in the early Iron Age pottery from the 1973 excavation (De Roche and Lambrick 1980, 46). More careful examination of this recent pottery collection might reveal sherds of this period among the Bronze Age assemblage. Context 5457 contained 139 sherds (1515 g) of grog-tempered pottery dating to the late Iron Age. Roman-period pottery was absent, suggesting a pre-conquest date for this group, probably within the first half of the 1st century AD.

Roman

Roman pottery formed the largest proportion of the assemblage, taking a 77% share (41,987 g). This was predominantly of early Roman date. Consequently, the assemblage was largely devoid of standard Oxfordshire products, including white ware mortaria and red colour-coated ware. The majority of the pottery (83% by

weight) is likely to date up to *c* AD120. Within this period, the pottery falls within two sub-periods - the mid 1st century (up to *c* AD70 and characterised by the appearance of grog-tempered pottery with sand-tempered Roman wares) and the late 1st and early 2nd century. Medium/coarse sand-tempered grey wares (R20, R30 and R50) are common to both periods and dominate all groups. A coarse white fabric, usually with dark patchy surfaces (cf Young 1977, 203) and mainly confined to the second half of the 1st century, is also well represented. Bead-rimmed jars and necked bowls (eg Young types R21 and R38) are typical in those fabrics. Fine and specialist wares are also present in significant quantity. An oxidised mica-dusted bowl was recovered from context 5287. The vessel was probably manufactured at Nuneham Courtenay, where late 1st-early 2nd century production is attested (Booth 1993, 138). Also of interest is a substantially complete Verulamium region ware stamped mortarium. On initial inspection the stamp belongs to Doinus, who was active from *c* 70-120 (Hartley 1999, 195). However, a rubbing should be taken and the image matched with a die to be certain of identification and date. Flagons from the same source were also recovered. A good range of samian forms was present. Most, if not all was South Gaulish. Some pieces may have originated from Les Martres-de-Veyre in Central Gaul, but together emphasise the early Roman date for the site. Decorated bowl forms 29 and 30 were represented, the former possibly dating no later than AD50/60. Cup f27 and plates f18 and f15/17 can be counted among the plain samian.

Pottery definitely dating after AD120 is sparse by comparison. The near absence of Oxfordshire white ware mortaria in particular suggests that most of the pottery in this group is unlikely to date after *c* AD240. Diagnostic material included white-slipped oxidised ware (Q21), grey ware narrow-necked jars (Young R12) and globular beakers (Young R30). Late Roman material was scarcer, but nevertheless suggests continued activity at Appleford. A single sherd of white ware mortarium (Young M22) was recovered, as well as Oxfordshire red colour-coated sherds. Most of the latter was found during the 1997 season, and included bowl base with a semi-literate stamp (context 388).

Condition

With an average sherd weight of 10 g, the condition of the pottery assemblage as a whole is generally good. The Roman pottery is better preserved, characterised by reasonably large sherds weighing an average of 12 g. Surfaces are variable, however. Finewares in particularly are powdery; the mica dusted bowl is almost devoid of its mica slip. Residuality is difficult to assess without full recording. However, some grog-tempered ware sherds were noted in contexts that must date to the end of the 1st century or beginning of the 2nd. Some of the Bronze Age material is also likely to be residual.

Post-medieval

A small amount of post-medieval pottery was recovered, totalling 211 g (representing less than 1% of the site assemblage). The pottery mainly comprised coarse wares, with some glazed red wares also present.

Potential

The pottery assemblage is clearly significant and offers excellent potential for further study. The assemblage of globular urns is without doubt likely to become the type-assemblage for the region with comparative assemblages being found beyond the Thames Valley in areas of Wessex. The Roman pottery is certainly worthy of further study. It is a large assemblage with a restricted date range. A number of good groups with well preserved datable, diagnostic, material are evident. Such material should provide well-dated sequences, which can inform about pottery supply to the site. Together with reference to comparative material, including Abingdon (eg De Roche 1978) and Lower Farm (Booth 1993), the chronology of certain forms and fabrics may be established. It may also be possible to assign a Lower Farm source for some of the material, and comparison of types will be crucial here. The pottery can also help to chart site chronology. The virtual cessation of the settlement during the early 2nd century is interesting, and reference to work carried out to the north of the site (Hinchcliffe and Thomas 1980) should be made to determine any shifts in settlement focus. The presence of samian and Verulamium region ware in particular provides useful evidence for site status (essentially rural, but with high status elements). Analysis into functional composition may also contribute to this. Questions regarding context formation may also be addressed, revealing social practices such as rubbish disposal and perhaps structured deposition.

2. ASSESSMENT OF THE FIRED CLAY AND CERAMIC BUILDING MATERIAL

By Edward Biddulph

An assemblage of ceramic building material and fired clay weighing 12,825 g was recovered from the Appleford Sidings site. This material has been provisionally identified and recorded. The building material (excluding tile) and fired clay were assigned to one of two fabrics. Fabric 1 is sandy with grog and ?chalk inclusions. Fabric 2 contains sand, but no other obvious inclusions. Both were oxidised and hard fired. Impressions of organic remains were visible in the surfaces of both fabrics. The majority of the assemblage was identified as fabric 2. The material was largely recovered from contexts of early Roman date (65% in pre-AD120 contexts by weight). The remainder was undatable or in later contexts.

Tile

Seventeen fragments of tile were recovered (contexts 6, 9, 10, 5285, 5322, 5557 and 5571). All are identical in terms of fabric (a dense sandy fabric with rough surfaces), and would appear to belong to flat tiles between 11-15 mm thick. No roof tiles are definitely represented. Most came from undated contexts. Context 6, dating to the post-medieval period, yielded two fragments. Two more were found in late 1st century context 5557, but these may well be intrusive. A post-medieval date for the tile assemblage is likely.

Fired clay

The fired clay and building material (other than tile) are considered together. Most fragments were identified as fabric 2 and belonged to thick, brick-like objects, averaging 33 mm in width. A few pieces (eg in contexts 4040, 4187 and 5413) had curved edges, and probably formed part of ceramic discs. Such objects are not uncommon within the region, having been found at Abingdon (Booth 1998, 37), Standlake (Barclay *et al* 1995, 138) and Oxford. These are usually flat, but three examples from Appleford (contexts 244, 4188 and 5334) were domed or wedge shaped, a form eminently suitable for a cover or lid function. The remainder of the assemblage is likely to have been used in a structural capacity. As stated above, an early Roman date can be assigned to the majority of pieces.

Potential and further work

The presence of ceramic discs adds to the growing corpus of this object type. The best examples from Appleford should be illustrated. Full recording may allow other object types to be identified. Pottery dating should also help to define the chronology of the fired clay/building material assemblage more closely.

5. ASSESSMENT OF THE FLINT

by Hugo Lamdin-Whymark

Introduction

A total of 271 flints and 19 pieces/463 g of burnt unworked flint was recovered from the excavations. The flintwork includes a small number of Mesolithic and Neolithic flints, distinguished on technological grounds, amongst a predominantly Bronze Age assemblage. A small number of features contained flintwork in fresh condition; namely context 327 and pit fills 84 and 5577, the latter fill contains flintwork of earlier Neolithic date, the flintwork in the other contexts dates from the Bronze Age.

Table 1. The sites flint assemblage by category

CATEGORY TYPE	Pit fill 84	Pit fill 5577	Other Contexts	Grand Total
Flake	29	33	51	113
Blade		7	11	18
Bladelet		1		1
Blade-like	1	4	6	11
Irregular waste		1	6	7
Chip			1	1
Sieved Chips 10-4mm		76		76
Rejuvenation flake core face/edge			1	1
Multiplatform flake core	1		8	9
Unclassifiable/fragmentary core			1	1
End scraper			1	1
Side scraper			5	5
End and side scraper			3	3
Disc scraper			1	1
Other scraper			1	1
Awl	1			1
Spurred piece			2	2
Serrated flake		1	3	4
Denticulate			3	3
Notch		1		1
Retouched flake	4	1	5	10
Misc retouch	1			1
Grand Total	37	125	109	271

Burnt unworked flint (g)	278	-	185	463
No. Burnt (%) (exc. chips)	2 (5.4)	12 (24.5)	6 (5.6)	20 (10.3)
No. Broken (%) (exc. chips)	1 (2.7)	14 (28.6)	17 (15.7)	32 (16.5)
No. Retouched (%) (exc. chips)	6 (16.2)	3 (6.1)	24 (22.2)	33 (17)

Methodology

The artefacts were catalogued according to broad artefact/debitage type, general condition noted and dating attempted where possible. Unworked burnt flint was quantified by piece and weight.

Raw material and condition

The raw materials exploited in this assemblage were all flint. The flint appeared to have originated from several sources. Flint, exhibiting a thick white cortex occurred most commonly, this material originates from a chalk region, such as the Chilterns to the south or Berkshire downs to the east. A small number of flints exhibited abraded cortexes and appear to originate from flint river gravels available to the south east. A single flake of flint from the Bullhead Bed at the base of the Reading Beds was identified. This flint is distinguished by the presence of a deep, olive green cortex overlying a bright orange band; the nearest available source is again to the south east.

The condition of the flint was variable. Flintwork recovered in significant quantities, such as from contexts 327, 84 and 5577, was in fresh condition, whereas the flints recovered generally as single finds in numerous contexts, usually exhibited some degree of post-depositional edge damage, indicating many of these pieces are residual. The majority of the flints were not corticated, however, a small number of flints bore a light speckled to moderate white cortication, including most of the flints from pit fill 5577. A small number of flints were iron stained a light to moderate orange colour; the deeper orange colour was generally present on blades, exhibiting platform edge abrasion and narrow butts, which on technological ground possibly date from the Mesolithic.

The assemblage

The technological traits of the assemblage will be discussed generally, although specific comments relating to significant deposits will be made separately. In general the flake material in the assemblage includes a mixture of fine thin and narrow flake and blade material and broad and relatively squat flakes. The flint clearly derived from different industries dating from the Mesolithic through to the Bronze Age, although the latter period is best represented. The declining standards of flintworking and movement from the production of blades to squat flakes represents a well known phenomena (see Pitts and Jacobi 1979, Ford *et al* 1984 and Ford 1987).

A total of ten cores recovered, all were aimed at the production of flakes; nine of the flake cores exhibited two or more platforms. The cores bore little evidence of careful working, and a few examples appeared very bashed, indeed the largest core, weighing 425 g, was worked in a haphazard manner.

Retouched artefacts were dominated by scrapers, particularly side scrapers. In addition, three boring tools (awls and spurred pieces) and three crude Bronze Age denticulates were also found. Four serrated flakes were recovered; silica gloss was present behind the teeth on one of the examples. Other retouched pieces included a number of simple edge retouched flakes, a notch and edge retouch on a pieces of irregular waste (misc. retouch).

The assemblage recovered from pit fill 5577 formed a particularly coherent group of narrow and thin flakes. It was clear that the assemblage contained very few cortical, or even partly cortical flakes in the assemblage, suggesting debitage from core preparation was not incorporated in this deposit. Indeed, no knapping refits were made, although this was not examined for in the assessment, but two burnt fragments of a flake conjoined. Numerous chips were, however, recovered from sieving suggesting some knapping debitage may be present in the pit; further chips were observed in the 4-2 mm sieved residue, but this has not been sorted. It is noteworthy that a significant proportion of the assemblage appeared utilised and a number of the flints were burnt. Although, no diagnostic artefacts were present the technological traits of the assemblage confirm a Neolithic, probably earlier Neolithic date for this material.

The flintwork recovered from contexts 627 and 84 was considerably broader and thicker than the flint from 5577 and as discussed above is characteristic of Bronze Age material. The raw material used in these Bronze Age contexts all appeared to have originated from the chalk.

Conclusions and Recommendations

The assemblage recovered from Appleford Sidings is relatively small but contains aspects of considerable interest. The background scatter of Mesolithic flintwork extends the human presence on the site by several millennia, although the limited size of the assemblage prohibits accurate dating. It is likely the flints recovered represent casual losses rather than the site of a camp. The Neolithic is again represented by a low density background scatter of flintwork, but a deposit flint in a pit was also located. The construction of this pit deposit is relatively typical of Neolithic pits, containing a relatively high proportion of retouched pieces (for Neolithic deposits), numerous utilised pieces and a large number of burnt pieces including two conjoining fragments. Bronze Age flintwork accounts for just under half of the flint assemblage (*c* 130 flints). Given the presence of a Bronze Age settlement on the site, this assemblage is remarkable small, and relatively dispersed; few context were found to contain more than two flints. Therefore, it seem likely flint formed only a small part of any toolkit.

It would be of interest to examine the distribution of the flintwork, to assess the relationship of the flint to the Bronze Age settlement. A metrical or technological analysis of the background scatter is not likely to be valuable, nor a detailed analysis of the small, fresh, Bronze Age assemblages. However, the Neolithic pit deposit would benefit from additional technological analysis and a refitting analysis to

confirm the sequence of events prior to deposition (it is quite common knapping, use and burning occur immediately prior to deposition). Furthermore, analysis of use-wear in the pit will aid interpretation of the activities prior to deposition. This assessment report will form the basis of the final report although several details, such as location of raw materials and technological descriptions require additional work and a small number of additional flints and burnt unworked flints from sieving will require incorporation into the final report. A small number of flints (c. 8) from the Neolithic pit and a few Bronze Age flints require illustration to characterise the assemblage. The illustration will cost in the region of £300-500 depending on the illustrator used.

7. ASSESSMENT OF THE WORKED STONE

by Ruth Shaffrey

Methodology

The objects were examined with the aid of a x10 magnification hand lens. Given the time restriction, it has only been possible to scan the bulk of the material. This has revealed that the stone is largely unworked but burnt and includes a large number of fire cracked pebbles. Those items which were obviously worked were extracted and examined individually.

Description

The worked stone includes 1 rotary quern, 1 saddle quern, 1 possible saddle quern, 2 hammerstones, 1 possible processor and some possible fragments of building stone. The rotary quern and a possible saddle quern were from early Roman contexts. The majority of the stone was from Bronze Age contexts and several Bronze Age contexts included large numbers of burnt stone and fire cracked pebbles. These were 19, 84, 114, 198, 244, 249, 325, 327, 524, 590, 1563, 1564, 3093, 3105, 5506, 5508, 5509 and 5513.

The lithology of the rotary quern is of interest as it may be imported. The remainder of the worked stone was probably locally available though a source for the quartzite boulder should be determined. This boulder which had been used to make a saddle quern (still complete) was recovered from the fill of a boundary ditch and further analysis may help to show from where in the ditch it came and what phase it was. The placing of complete querns in ditches and in pits is of a striking symbolic nature and boundary ditch deposits may well have particular significance. This should be looked at with reference to the placing of other finds types on the site. One example of a well used hammer stone was also found - this should be looked at in relation to the flint. One possible processor was also retained. This may have been used for leather working or in pottery making and needs to be examined in relation to phasing information.

Table 2. Catalogue of worked stone

Cxt	SF	Description	Notes	Meas.	Lithology	Illust?	Phase
172	25	Hammer stone	Flat lozenge shaped hammer stone, circular in plan view. Extremely battered at both ends. Very good example of well used hammer stone	84 x 73 x 35mm	Quartzite	Yes	?
447	0	Possible hammer stone	Not examined in detail. *Needs to be looked at for report*			No	BA

250	0	Possible building stone	Squared piece of stone. Possibly building stone? *Not examined in detail and need phasing information. Needs to be looked at for report*			No	
244	0	Rubble of building stone?	Possible building stone amongst this rubble? *Needs to be looked at in detail for the report and in conjunction with phasing information.*			No	
318	0	Possible processor	This pebble is shiny all over but seems to be slightly more polished on one noticeably flat surface at one end. May be a processor / polishing stone.			No	
2043	202	Complete saddle quern	Smooth originally pecked slightly concave grinding surface. Rough underneath and probably made from a boulder but roughly squared into a rectangular shape. *Need to know phase / date and context of discovery?*	x. 220 x 380 x 105mm.	Quartzite	Yes	?
5289	601	Fragment of upper rotary quern	'Cake slice' fragment of rotary quern. Pecked all over but now very worn on all surfaces so may be residual. Flat faces and uniform thickness across diameter. Straight thick edges. (<10% left)	c. 300mm diameter (M) x 58-66mm maximum thickness (at edge).	Possible ORS? Pale grey green quartz sandstone with occasional small quartz pebbles. Odd grain of pink quartz and possible mica in a medium grained very well sorted sandstone.	No	ER-MR
5347	604	Possible saddle quern fragment or mortar	Corner fragment of possible mortar or saddle quern. Has roughly squared shape with dished upper surface.	89mm thick x 180 x 100 remaining dimensions	Quartzite	Yes?	ER

Recommendations

- All the stone should be retained at present. Following recording of the material, the bulk could be discarded with a sample retained for reference. This should be undertaken by the specialist.
- Burnt stone should be weighed by context and a summary recorded of the size, nature and lithology of the material.
- All the pebbles should be examined to determine presence of further hammer stones.
- The possible building stone should be carefully examined with relation to the phasing information.

- All other artefacts should be fully described and measured to publication standards
- Sources for the artefacts should be determined, especially the complete saddle quern.
- The context of the saddle quern needs to be investigated and compared with evidence from other sites.

8. ASSESSMENT OF THE METAL OBJECTS

By Leigh Allen

Introduction

A small assemblage of metalwork was recovered from 3 of the 6 phases of investigations carried out at Appleford Sidings between 1997 and 2000. The assemblage comprises 2 copper alloy objects (one of which is a modern cartridge case) and 485 iron objects. The majority of the iron objects are nails or miscellaneous fragments. The iron work in general is in a very poor condition, many of the objects, especially those recovered from sieving are heavily corroded with little of the original metal surviving. The identifiable objects are Roman in date.

Methodology

The assemblage was visually scanned and recorded in the table below by context. The objects have not been x-rayed, but for archive purposes this should take place at the report stage of the project.

Results

The only notable objects are the lid from the seal box (SF 603) from context 5322 an early Roman ditch and the large iron figure-of-eight shaped link recovered from context 1270, an undated cut. The seal box is identical to an example recovered from Fishbourne Roman Villa, with 4 circular perforations through the lid for decoration. The Fishbourne example was recovered from a third period occupation level (Cunliffe 1971,118-119, fig 49 nos 129-131).

The incomplete figure of eight shaped link (context 1278) is large and robust and obviously designed for fairly heavy duty use.

Table 3. Metalwork

Site Code	*Context*	*SF No*	*Feature No*	*Feature type*	*Phase*	*Object*	*Material*	*Description*
1997	9		4	Pit	P-med	Nails (21)	iron	
1997	362			Object ref	u/s	Nail	Iron	
1997	362			Object ref	u/s	Misc	Iron	Irregularly shaped fragment of iron
1997	643	119	642	Ditch	Undated	Sheet	Iron	Irregularly shaped fragment of Iron Sheet
1998	1270		1270	Cut	Undated	S-shaped object	Iron	A large S-shaped object with a rectangular section, probably part of a large figure of eight shaped link, but the lower half of the link has broken off.
1998	3051		3050	Pit	Roman	Nails (59)	Iron	59 very corroded nails of various sizes some with very little original metal surviving.
1998	3051		3050	Pit	Roman	Misc (57)	iron	In addition to the nails there were a further 57 miscellaneous fragments that are probably also from nails but are so badly corroded they are not identifiable as such.
1998	3051		3050	Pit	Roman	Nails (61)	Iron	61 identifiable fragments from small very corroded nails or tacks. The one complete example has a circular, flat, flanged head and a rectangular section shank, it measures 19mm in length.
1998	3051		3050	Pit	Roman	Misc (271)	Iron	In addition to the nails there are 271 miscellaneous fragments that are probably also from nails but are so badly corroded they are not identifiable as such.
2000	5047		5048	Ditch	BA	Strip	Iron	Roughly rectangular strip of iron broken at both ends
2000	5065		5066	Ditch	Undated	Nail	Iron	

2000	5216	602	5216	Spread	Undated	Cartridge case	Copper	
2000	5259		5235	Ditch	E-Roman	Nail	Iron	3 fragments from a nail shank
2000	5259		5235	Ditch	E-Roman	Tube	Iron	Two halves of a hollow tube
2000	5285		5386	Ditch	E-Roman	Nail	Iron	
2000	5293		5286	Ditch	E-Roman	Nail	Iron	
2000	5322	603	5321	Ditch	E-Roman	Seal box	Copper	The lid from a seal box, the hinge is very corroded and there is a small section of the rim of the base still remaining. The lid is perforated by 4 circular holes, one at the centre and three others around the edge.
2000	5332		5321	Ditch	E-Roman	Nail	Iron	Nail or small tack
2000	5344		5317	Ditch	E-Roman	Nail	Iron	
2000	5392		5391	Furrow	E-Roman	Nail	Iron	
2000	5407		5518	Ditch	E-Roman	Nail	Iron	
2000	5495		5493	Ditch	E-Roman	Sheet	Iron	Irregularly shaped fragment of iron sheet
2000	5587		5587	Ditch	E-Roman	Nail	Iron	

9. ASSESSMENT OF THE GLASS

By Leigh Allen

The only glass recovered from the archaeological excavations comprise four fragments from a single context from the investigations at Appleford Sidings in 2000. The fragments are abraded with no complete edge surviving, the glass is thin and of a light blue/green colour. Although the fragments are small (max. length 19mm) they do appear to be very slightly curved, indicating that they are from a thin walled vessel, they were recovered from context 5591, a fill of an early Roman ditch

10. ASSESSMENT OF THE HUMAN BONE

By Annsofie Witkin

Introduction

The skeletal assemblage comprised of one skeleton (1568) dated to the Bronze Age and three cremation burials (3053, 4138 and 4185). The inhumation was very fragmented but was likely to be female and aged between 18 and 24 years. The cremated bone were all dated to the Roman period. Cremation 4138 consisted of animal bones only and cremations 3053 and 4185 were not of any one complete individual. Cremation 4053 was that of a probable male.

Context

The inhumation (1568) was situated in an oval cut (1566) and was orientated east-west. The individual was supine and in a crouched position with the arms folded across the stomach area and the legs flexed at the hips and knees with the feet located beneath the pelvis. Pottery from surrounding features and the grave itself suggests a mid to late Bronze Age date.

The burnt bone deposit (3053) was located within a truncated ceramic container that had been placed in a sub-circular pit. The fill (3051) of the pit (3050) was a very dark silty clay containing a high frequency of charcoal as well as some cremated bone which had originally come from the disturbed vessel. Two metal studs were present amongst the cremated remains located in the fill (3051) of the pit. The burial was located within a small sub-rectangular enclosure. This suggests the cremation deposit was the primary burial within a mortuary enclosure dating to the Roman Period.

The cremated remains (4185) were located in a rectangular pit (4184) orientated north-east-south-west. The burnt bones may have been placed in an organic container or, maybe more likely, directly into the pit. Burnt animal bones, charcoal and burnt clay was also located amongst the cremated human remains. The date of this cremation deposit is unknown.

The burnt bone was located in the secondary fill (4138) of an oval pit with sloping sides and a flat base (4140). The pit was 0.36 m deep and the bone was contained

within a charcoal rich silty clay. The bone that could be identified were all animal. Pottery sherds were also present in the fill. The feature dates to the mid Roman period.

Methodology

The human skeletal remains were briefly examined to establish completeness and the state of preservation. Completeness was scored using four categories, namely poor (0 - 25%), fair (26-50%), good (51-75%) and excellent (76-100%). Skeletal preservation was also scored using a scale ranging from poor (near complete destruction of the cortical surface) to excellent (cortical surfaces of the bones preserved). The sex of the individual was established through visual observations of the sexually diagnostic criteria of the cranium and pelvis. An age estimate was made using dental attrition (Miles 1962). Stature was calculated using the regression formulae of Trotter (Trotter 1970). Pathological lesions observed were noted.

In excavation, the cremation contexts were subject to 100% recovery as whole-earth samples and subsequently wet sieved. The cremated remains were retained as unsorted residue. These have been subdivided into 10-4 mm and 2-4 mm categories. The residues were weighed and scanned to ascertain the quantity of bone present and their suitability for sorting of cremated bone fragments and analysis.

Quantification

The human skeletal remains

The skeletal remains consisted of a near complete (90%) individual. The skeleton had been truncated and parts of the cranium, proximal left pelvis and proximal left femur, the distal end of right leg as well as the right foot had been removed. Though the cortical surface of the bone was general very good, the assessment and any subsequent further analysis will by compromised by the extensive fragmentation of the remains. The sizes of all the fragments present are between 5 and 82 mm.

Age, sex and stature

The skeleton is believed to be that of a female individual. However, due to the extensive fragmentation only three of the sexually diagnostic features survived and only one of those was from an abraded pelvic fragment. The assignment of sex must therefore be seen as tentative. The assigned sex was based on the mastoid processes and the anterior part of the mandible which both suggested a female. On the pelvis, the auricular surface appeared to be of a female morphology.

Age was based on the molar attrition pattern, the only method available. The individual is believed to be aged between 18 and 25 years.

Stature was calculated using the measurement of the right humerus that was obtained prior to lifting the skeleton in the field. This individual would have been 148.69 ± 4.45 cm tall. The height is consistent with a female individual which would support the tentative sex estimate.

Pathology

The only lesion observed after a rapid scan of the remains revealed striated lamellar bone on the anterio-lateral aspect of the left femoral shaft. This type of infection involves only the surface of the bones and is known as periostitis. The lesion was healed at the time of death. The precise aetiology of this type of lesion is not known but it is caused by a non specific infection of the periosteal lining of the bone.

Multiple dental lesions were present on much of the surviving. These were not quantified at this stage.

The cremated bone

A summary of all deposits of cremated bone appears in Table 1. The weight category refers to the total weight of the unsorted residue.

Table 4. Summary of the cremated bone

Context	Period	Weight of cremation	Weight of Unsorted Residue	Identifiable fragments	Age	Sex	Comments
3053	Roman	963 g	1214 g	Cranium, tooth crowns and roots, vertebrae, humerus, pelvis, femur, tibia	Adult	M?	Degenerative changes of the dens facet. Two Fe studs/ nails also present.
4138	Mid Roman	22 g	0 g	Animal bones	-	-	No further work required.
4185		93 g	1064 g	Tooth root, vertebra, tibia and femur	?	?	Pig and bird bones present. No further work required.

Potential for further analysis

The human skeletal remains

Between the middle and late Bronze Age, a shift in funerary practices took place. The norm of cremation burials disappeared and from the late Bronze Age to well into the Iron Age, the dead are, to a large extent, archeologically invisible. However, within specific contexts associated with settlements, human remains are uncovered. The remains are commonly disarticulated cranial fragments and long bones. However, articulating limbs and complete skeletons have also been found though these are not as common (Brück 1995). The majority of the sites yielding bones are concentrated in central southern Britain. Sites with similar type of features and deposits includes Latton Lands in Wiltshire (Stansbie and Timby forthcoming)

Little further analysis is required. A full dental and skeletal inventory and a quantification of the dental lesions will be produced for the final report.

The cremated remains

The quantity of bone present within each sample ranges between 93 and 963 g. The largest quantity was from context (3053). All fragments were in good condition with some abrasion present. The largest fragment, from context 3053, measured 62.50 mm. None of the fragments within any of the residue samples could be identified and no further analysis of the residues is required.

An average adult cremation can weigh between 1000-2400 g if complete (McKinley 1997, 68). The deposit from context 4185 was very small. It is therefore clear that this deposit does not represent the entire remains of any one individual. However, the small quantities of bone, the presence of charcoal and burnt clay suggests that this was a deposit of pyre debris. The burnt animal bone in cremation 4185 indicates that it was present on the pyre. It would be useful to examine all of the bone in detail to determine the quantity of animal bone present and to identify it to species if possible. The identification of animal bone within human cremations has implications for the study of burial practice of the period.

The cremated bone (3053) from the truncated urn does not represent the remains of a complete individual. This is likely to be due to the feature being truncated by ploughing. The presence of iron studs suggests that a casket was either present on the pyre or was placed in the pit as grave goods. The placement of an urned cremation within a small square enclosure have been located elsewhere, for example Roughground Farm, Lechlade suggests that these mortuary enclosures dates to the 1st and 2nd centuries AD (Mudd et al. 1999, 111). The presence of the animal bone amongst the cremated human bones (4185) and the nails as well as the location of cremation 3053 carries implications for the study of burial practice of the Roman period. A full discussion of the mortuary practices using examples from the Upper Thames Valley will therefore be included in the full report. The bones do not warrant further analysis.

11. ASSESSMENT OF THE ANIMAL BONE

By Bethan Charles

Introduction

A total of 4239 fragments (15930g) of bone were recovered by hand by Oxford Archaeology during excavations in 1997, 98 and 99 at Appleford Sidings. The material was rapidly assessed in order to identify species and quantify the material. Much of the material was fragmentary and the re-assembly of some of the elements reduced the fragment count to 2556. It is likely that more detailed analysis of the material for the full report will further reduce this number. In addition to the hand retrieved material a total of 2018 fragments (378g) of bone was recovered from environmental samples sieved through meshes of >10mm, 10 - 4mm and 4 - 2mm. A total of 1696 fragments were recovered from Bronze Age deposits whilst the remaining material came from undated contexts. From this number only 2 fragments of sheep bone were identified to species in addition to a few fragments of frog and rodent bone.

Condition

It was attempted to measure the condition of the bone by grading it from 1 to 5 using the criteria stipulated by Lyman (1996), where Grade 1 is the best preserved bone while Grade 5 indicates that the bone had suffered such structural and attritional damage as to make it unrecognisable. The majority of the bone was not in particularly good condition, or between grade 3 and 4. Much of it was chalky and fragmented. This will have increased the numbers of unidentified fragments of bone and obscured some of the butchery and gnaw marks.

Methodology

Identification of the bone was undertaken at Oxford Archaeology with access to a reference collection and published guides. The calculation of the species recovered was done through the use of the total fragment method. All fragments of bone were counted including elements from the vertebral centrum, ribs and long bone shafts. The separation of sheep and goat bones was achieved using the criteria of Boessneck (1969) and Prummel and Frisch (1986) in addition to the use of the reference material housed at OA. However, since no positive identification of goat was made all caprine bones are listed as sheep.

Results

It is clear from Table 5 that a large quantity of the material was unidentified. This is largely due to the poor condition and fragmentary condition of much of the material. More detailed analysis should increase the number of identified elements.

Cattle and sheep appear to have provided the majority of the meat to the inhabitants. It is probably that cattle is slightly over represented due to the poor condition of the bones. Smaller and more fragile elements from sheep and pig are unlikely to have

been preserved as well. Quite a large quantity of material (338 fragments) was recovered from Bronze Age context 84 including at least one juvenile sheep skeleton and approximately 50 cremated fragments of bone which were not identified to species.

Table 5. Total number of bones according to species and period.

Period	Horse	Cattle	Sheep	Pig	Red Deer	Dog	Cat	Bird	Unidentified	Total
BA	0	19	42	2	1	0	0	0	796	860
IA	0	11	1	0	0	0	0	0	19	31
ER	0	30	12	2	0	0	0	0	153	197
ROM	1	16	6	0	0	1	0	0	337	361
Post Med	0	0	0	0	0	0	0	0	52	52
Undated	2	30	11	5	0	0	1	1	1005	1055
Total	3	106	72	9	1	1	1	1	2362	2556

A horse tooth was identified from Roman context 5389. A single red deer phalanx was identified from within Bronze Age context 5093. It is probable and some wild species was hunted to supplement the meat diet of the inhabitants, though there were no butchery marks on the bone. Part of a cat mandible and a bird carpo metacarpus was recovered from undated context 5582.

The remains of three articulated animal burials were identified from plans from the site. None of the bones was recovered and they are not included in the tables above. The most complete skeleton identified was a horse burial within pit 3104. The skeleton was lying on its right side with the head facing to the north and the rear end to the south. All of the bones appeared to be present and in reasonably good condition. The location of the horse is close to enclosure 3052 and is possibly associated with the cremation within it.

The second burial consisted of a large ungulate, possibly cattle, identified in pit 3136. The feature had been heavily truncated by machining. From the plan it appears that all that remains were the scapula, humerus, part of the rib cage and possibly the tibia bone and some foot fragments. The remains appeared to be on a north south alignment.

The final burial found in pit 3139 is less clear again due to machine damage. The elements appear to be from a large animal, probably cattle/horse with part of the rib cage and one scapula evident. However, the plan of the remains do not allow the identification of any other fragments.

Conclusions and Recommendations

From the brief assessment of the material it appears clear that cattle, sheep and pig would have contributed the most to the meat diet of the inhabitants. It is important

that the recording of the assemblage is done in more detail to enable a more accurate identification of the material including recording of tooth wear stages and fusion rate of the epiphysis for ageing the animals. This will add to our understanding of the use of the animals at the site. Measurements from the bones will increase or understanding of changes in stature of the animals possibly due to improved farming techniques or variations in breeds. It would also be valuable to note the abundance of certain elements and spatial distribution of the bones. Finally it is recommended that the plans of the animal burials are illustrated and that the significance of the deposits and association with other features are discussed.

12. ASSESSMENT OF THE POLLEN

By Elizabeth Huckerby

Introduction

Twelve samples from the column (217) from a possible Bronze Age waterhole (1312) were assessed palynologically. The core, which was one meter in length, sampled the three fills, 1311, 1317, and 1425. The column was subsampled in the laboratory and the samples prepared for pollen analysis. They were then assessed for palynological analysis by microscopic examination. Pollen is normally preserved in waterlogged conditions and the assemblages of pollen types identified can give a record both of the regional and local vegetation and possibly, in the case of an archaeological feature, of pollen types that have been imported onto the site.

Methodology

The column was subsampled in the laboratory and twelve samples were taken at the following depths from the top of the column:

Table 6. Showing the depths of the samples from the top of the column

Fill	Depth from top of column in metres
1311	0.06
1311	0.14
1311	0.22
1317	0.30
1317	0.38
1317	0.46
1425	0.54
1425	0.62
1425	0.70
1425	0.78
1425	0.86
1425	0.94

Methodology for chemical preparation

The samples were prepared in the laboratory for pollen analysis using the standard techniques of KOH, acetolysis and hot HF acid treatment (Faegri and Iversen 1989). The residues were mounted in silicone oil and examined with an Olympus BH-2 microscope using x400 magnification routinely and x1000 for critical grains. It is the policy of OA North, were possible, to continue counting pollen until a sum of at least 50-100 pollen grains from land pollen types has been reached on two or more

complete slides, to reduce the possible effects of differential dispersal under the coverslip (Brooks and Thomas 1967). If pollen is very sparse counting continues until two complete slides have been assessed. Pollen identification was carried out using the standard keys of Faegri and Iversen (1989) and Moore *et al* (1991) and a limited reference collection held at OA North. Because the samples were only being assessed, pollen grains not identified rapidly were recorded in either larger categories eg Tubuliflorae (Daisy-type) and Liguliflorae (Dandelion-type) or as undifferentiated grains. Cereal-type grains were defined using the criteria of Andersen (1979); indeterminate grains were recorded using groups based on those of Birks (1973). The data are normally presented in a table as percentage values of the pollen sum, which includes all pollen types and bracken spores. The numbers of pollen grains in these samples were so low that this not been implemented. Charcoal particles greater than 5μ were recorded and are calculated as a percentage of the pollen sum plus charcoal.

Results

Very low values of pollen were recorded in all twelve samples and the data are not presented in this report as they are considered to be of very limited value. The maximum number of grains counted from any one sample was forty three, this was from fill 1425 at a depth of 0.78m. In all twelve samples the pollen, that was recorded, was predominantly from herbaceous taxa such as grasses, dandelion-type, bracken, nettles and undifferentiated fern spores. Most of these pollen types are ones that are relatively resistant to corrosion and are easily identifiable when the preservation of the pollen grains is poor. This palynological assessment has demonstrated that very little pollen has been preserved. However the very limited data set does suggests that very few trees were growing in the vicinity of the settlement when the fills of the waterhole were accumulating.

Potential and recommendations

There is no potential for any further palynological analysis from the pollen column 217. Therefore no further work is recommended.

13. ASSESSMENT OF THE CHARRED PLANT REMAINS

By Elizabeth Huckerby

Introduction

Samples were taken during the 1997, 1998, 1998 and 2000 excavations at Appleford Sidings from Bronze Age, Iron Age, Roman, modern/medieval and undated features. These features included ditches, pits, waterholes, tree bowls, gullies, and a well. One hundred and fifteen samples were assessed for charred plant remains. The assessment was undertaken in order to establish whether plant material was present, the state of its preservation, the relative abundance of the remains and the possible significance of economic taxa.

Quantification

Table 7. The number of samples for each type of feature and phase

Feature	BA	IA	E R	E-M R	MR	R	Undated
Pit fills	21				1	5	8
Waterhole fill	13	9					
Ditch fill	7		17	2			10
Tree throw	3					1	1
Well fill							2
Grave fill	1						
Plough soil							1
Gully fill	1						1
Posthole		1 LIA				2	
Undiff							7
Total	47	10	17	2	1	8	30

Methodology

The one hundred and fifteen samples, from 1 litre to 60 litres in volume, were floated using a modified Siraf machine; the flots were collected on 250μ mesh and air-dried. The flots were scanned with a Leitz/Wild microscope and plant material was recorded and provisionally identified. The data are shown in Tables 2-7.

Results of assessment of charred plant remains

The results of the assessment of charred plant remains are shown in Table2-7. All samples contained some charred plant material. Most of samples contained some modern contamination. Waterlogged plant remains were recorded in some samples.

Bronze Age

Forty seven samples from features of this date were assessed for charred plant remains. Three fills (contexts 84, 346, and 1564) were of a high potential and a further two of good potential. Cereals, weed seeds and chaff were noted. Charcoal fragments, which were generally small in size, were present in all samples and many contained molluscs. Wheat of the emmer/spelt type (*Triticum spelta/dicoccum*) and barley (*Hordeum*) were the cereal dominant types with some oats (*Avena*). Weed seeds included legumes, cleavers (*Galium aparine*) and docks/sorrels (*Rumex* spp)

Iron Age

Ten samples from Iron Age waterholes were assessed for charred plant remains. A single sample, from the fill of the waterhole 168, is assessed as having a high potential for the analysis of charred plant remains. Wheat, some of a compact form, barley and some oats were identified. Chaff was present at low values and weeds were abundant. Weed taxa identified included poppy (*Papaver*), *Chenopodium* sp, ribwort plantain (*Plantago lanceolata*) and *Rumex* spp.

Roman

Twenty samples from Roman contexts were assessed for charred plant remains. Seventeen were from early Roman ditches, two early-mid Roman ditches, one from a mid Roman pit and eight of a broad Roman date. Seven samples were assessed as having a high potential for charred plant analysis. Four (5235, 5318, 5362 and 5319) were from early Roman ditches, two from Roman pits (3050, 5221) and one from the fill of a tree bowl (5217). Wheat (emmer/spelt type with some bread wheat), barley, oats and rye were all identified together with chaff and weed seeds. The latter included grass seeds, small legumes, *Rumex* spp, Persicarias and sedges. A further seven samples were assessed as having a good potential for charred plant analysis.

Undated

Thirty samples were assessed from contexts, that at this stage of the post excavation, have not been assigned to a phase. Features sampled included most types identified on the site excluding waterholes. A single sample from the a modern/medieval plough soil, context 19, was assessed as having a high potential for further analysis, although a further two from contexts 2102 and 1012 contained abundant well preserved charcoal and are therefore assessed as having a high potential for charcoal analysis. Abundant grains of bread wheat, some poorly preserved and partly germinated, were identified in the sample from the plough soil, context 19. Other charred material included flax seeds (*Linum usitatissimum*) and weed seeds which included common and sheep's sorrel (*Rumex acetosa* and *Rumex acetosella*), grasses, small legumes and *Brassica* sp

Results of charcoal assessment

All samples contained some charcoal although most was very fragmented and therefore of a low potential for analysis. Five samples were assessed as having the

potential for further analysis. Two were from Bronze age contexts (tree bowl 1003 and the fill of pit 5512), one from the fill of the Roman pit 3125, one from an undated ditch 1010 and another from the undated feature 2102. A mixed assemblage of charcoal was noted in the samples.

Discussion

The assessment of samples from Appleford Sidings for charred plant remains demonstrated the presence of both charred and waterlogged ones from the site. Preservation of the plant remains was mixed but would allow further analysis to be undertaken. Twelve samples were assessed as having a high potential for charred plant remains and further nine a good potential. Three samples from contexts (84 347 and 1564) assigned a Bronze Age date are of high potential and a further two, contexts1349 and 5510 of a good potential. Cereal grains were abundant or common in the samples with wheat and barley identified. Crop processing waste products were recorded at low levels and a moderate numbers of weed seeds were identified from arable, wasteland, grassland, and damp conditions. Bronze Age records of cereals from the Thames valley are unusual (Mark Robinson pers com) and therefore these five samples are of regional importance.

A single sample, from the waterhole 168 (1997) dating to the Iron Age, was assessed as having a high potential for the analysis of charred plant remains. Cereals including wheat (some compact), barley, and oats, chaff and weed seeds were abundant.

Seven samples from the Roman period, four from the early part and three of a general Roman date were assessed as having a high potential for the analysis of charred plant remains. A greater range of cereal taxa were recorded in these Roman samples.

Information from the charred plant remains of economic plants at Appleford Sidings in the Bronze Age, Iron Age and the Roman period will complement that from other sites in the Thames Valley. It will also provide a record of changing agricultural and economic regimes at Appleford Sidings.

Potential

This assessment demonstrated the potential for further analysis of charred plant remains from Appleford Sidings dating from the Bronze Age, Iron Age and Roman period. It is recommended that twelve samples, highlighted as having a high potential, and two from the Bronze Age as having a good potential, should be taken to full analysis. It is recommended that five samples should be taken to full charcoal analysis.

Sample	Context	Feature and description	Sample size l	Flot description	Plant remains	Potential
84 (97)	84	Pit fill of 414	45	225 ml, charcoal=4 oak+other, twigs, bone mammal+calcin, insects, contamination	Cereals 4, wheat (some compact) + barley, chaff 1-2, weed seeds 4	High
47 (97)	187	Pit fill of 186	42	30 ml, charcoal 4 small pieces, oak+other, contamination, mammal bone +small	Weeds 1, charred hazel nut frags, waterlogged seeds	Low
48 (97)	188	Pit fill of 186	45	40ml, fine charcoal 4 oak + other, molluscs waterlogged seeds, mammal bone + small	Weed seeds 1,	Low
59 (97)	274	Fill of waterhole 180	30	50 ml, very small charcoal 3,small mammal bone, modern contamination,	Charred grass seed, waterlogged seeds	Low
60 (97)		Fill of waterhole 180	31	20 ml, charcoal 2, molluscs 4		Low
61 (97)		Fill of waterhole 180	32	25ml, charcoal poorly preserved, small mammal bone	Waterlogged seeds	Low
62 (97)	267	Fill of waterhole 180	12	10 ml, charcoal 4 oak + other, molluscs 4, modern contamination		Low
63 (97)	270	Fill of waterhole 180	22	<10ml, charcoal 4, very small, molluscs 4		Low
64 (97)	268	Fill of waterhole 180	10	10-15ml, charcoal 4, larger pieces, oak +other, small mammal bird bone, molluscs		Low
7 8 (97)	326	Fill of pit 322	28	<10ml, very fine charcoal 4, molluscs 2, modern contamination		Low
81 (97)	346	Fill of tree throw 337	40	300ml, charcoal 4, oak+other, round wood, bone mammal, small mammal, and calcin	Cereals 4, wheat (emmer?), barley, poor preservation, chaff, weed seeds + hazel nut	High
82 (97)	341	Fill of tree throw 337	50	75ml, very small charcoal 2, modern contamination	Cereal fragment?	Low
91(97)	410	Pit fill of 414	46	25-30ml, charcoal small 2, molluscs, contamination	Cereal 1, undiff possibly wheat,	Low
92 (97)	411	Pit fill of 414	46	50ml, charcoal 2, charred bud, molluscs 2, modern contamination	Cereal 1, wheat+fragment, small legume	Low
94 (97)	412	Pit fill of 414	46	Charcoal 2, small fragments, molluscs 1-2,	Cereal 1, wheat, barley, undiff,	Low
93 (97)	413	Pit fill of 414	42	Charcoal 3, larger some sap wood incl bark,	Cereals 2, wheat, barley	Low

				birch? Modern contamination		
105 (97)	447	Fill of waterhole 442	20	Charcoal 3, bone, insects, molluscs, leaves and twigs	Waterlogged blackberries and elderberries	Low
106 (97)	449	Fill of waterhole 442		<10ml, tiny fragments of charcoal, modern contamination		Low
104 (97)	450	Fill of waterhole 442	20	10-15ml, charcoal, molluscs 4, contamination		Low
103 (97)	451	Fill of waterhole 442	20	50-75ml, charcoal small, molluscs 4, bone contamination	Cereal 1, weed seeds 1,	Low
102 (97)	452	Fill of waterhole 442	40	<10ml contamination		Low
101 (97)	455	Fill of waterhole 442	20	25ml, charcoal 3, oak+other, bone, contamination	Cereals 1 wheat? +frags tarry	Low
111 (97)	477	Fill of gully 475	50	90-100ml, charcoal 2, small frags, contamination 4+++		Low
116 (97)	524	Fill of ditch 518	40	125ml, charcoal 3, small frags, good preservation oak+other, contamination	Cereal frags 1, weed seeds	Low
200 (98)	1002	Fill of tree bowl 1003	20	200ml, charcoal 4+++, oak + other, small mammal, bone,contamination,	Cereal 1	Low, high for charcoal
202 (98)	1349	Fill of pit 1348	14	50-75ml, charcoal 4, molluscs contamination,	Cereals 2, wheat, oats barley, chaff 1, weeds 1	Good
207 (98)	1371	Fill of ditch 1372	10	10-15ml, charcoal 3, very small, molluscs 4,contamination	Weed seeds 1, grass seeds	Low
218 (98)	1380	Fill of ditch 1380	40	75ml, charcoal 2 small, molluscs, badly contamination		Low
203 (98)	1562	Fill of pit 1561	20	50ml, charcoal 4, molluscs, contamination	Cereals 1, weed seeds 1	Low
204 (98)	1563	Fill of pit 1561	10	100ml, charcoal 4 larger frags, Pomoideae, some round wood,	Cereals 2, undiff, tarry, weed seeds 2, hazel nut frags	Low
205 (98)	1564	Fill of pit 1561	20	475ml, charcoal 4+++, large, bone, mammal, small, calcin,	Cereals 3-4, wheat, barley, part germin, weed seeds 1-2, chaff 1	High

206 (98)	1567	Fill of grave 1566	20	10ml, charcoal 1-2, badly contamination		Low
222 (98)	3055	Fill of ditch 3054	40	<10ml, charcoal 2, small, contamination		Low
223 (98)	3099	Fill of pit 3098	40	20ml, charcoal 2, small, waterlogged seeds contamination	Cereals 1	Low
1041 (00)	5018	Fill of pit 5014	40	25-50ml, charcoal 3, small, contamination	Cereals 1, frags tarry,	Low
1023 (00)	5075	Fill of ditch 5073	36	20ml, charcoal 2, small, molluscs 4, insects contamination,	Cereals 1, wheat	Low
1022 (00)	5076	Fill of ditch 5073	34	30ml, charcoal small, molluscs, contamination	Cereals 2-1, weed seeds 1	Low
1024 (00)	5093	Fill of ditch 5092	34	10-15ml, charcoal 2, contamination	Weed seeds 1	Low
1043 (00)	5506	Fill of pit 5512	3	<10ml, charcoal 3, small, oak+other		Low
1039 (00)	5508	Fill of pit 5512	24	115ml, charcoal 4+++, mixed taxa, molluscs, contamination		Low
1045 (00)	5508	Fill of pit 5512	1	30ml, charcoal small frags, contamination	Waterlogged remains	Low
1044 (00)	5509	Fill of pit 5512	2	<5ml, small mammal bone		Low
1018 (00)	5510	Fill of pit 5512	40	>1500ml, charcoal 4+++, mixed taxa, contamination	Weed seeds 3, waterlogged seeds including *Prunus spinosa*,	good+ charcoal
1038 (00)	5513	Fill of pit 5512	25	30ml, charcoal 4, small frags, oak+other, contamination		low
1040 (00)	5565	Fill of waterhole 14	20	<5ml, 2 frags of oak charcoal		Low
1042 (00)	5577	Fill of pit 5576	40	130ml, charcoal 4, molluscs, contamination	Charred hazel nut frags 4	Low

Table 8. Appleford Sidings: assessment of charred plant remains from Bronze Age contexts. Scoured on a scale of 1-4 1=0-5, 2=5-25, 3=25-100 and 4=>100

Sample	Context	Feature and description	Sample size l	Flot description	Plant remains	Potential
39 (97)	169	Fill of waterhole168	40	Charcoal 4, small frags, coal, contamination	Weed seeds and waterlogged seeds	Low
40 (97)	170	Fill of waterhole168	40	50-60ml, charcoal 4, contamination	Cereals 3-4, wheat (some compact), barley, oats, chaff 2, weed seeds 4	High
41 (97)	172	Fill of waterhole168	17	20-25ml, charcoal 4, molluscs	Weed seeds,waterlogged seeds	Low
46 (97)	188	Fill of waterhole 209	42	75ml, charcoal 4, oak+other, molluscs 3	Cereal 1, undiff, Hazel nut frags, waterlogged seeds	Low
54 (97)	219	Fill of waterhole 209	50	25ml, charcoal 4, oak+other, molluscs 3, small mammal bone	Waterlogged seeds	
45 (97)	220	Fill of waterhole 209	42	<20ml, charcoal 4, molluscs 3	Waterlogged seeds	Low
69 (97)	243	Fill of waterhole 242	46	45-50ml, charcoal 3, bone, small mammal	Cereal 1	Low
70 (97)	244	Fill of waterhole 242	44	<20ml, charcoal 2, molluscs 2, contamination	Cereal 1 ,undiff, weed seeds, waterlogged seeds	Low
71 (97)	241	Fill of waterhole 242	43	50ml, charcoal 2-3, small frags, molluscs 2	Waterlogged seeds	Low
1019 (00)	5549	Fill of Late Iron Age Posthole 5550	24	70ml, charcoal 2, molluscs 4, contamination	Cereals 1, weed seeds 1	Low

Table 9. Appleford Sidings: assessment of charred plant remains from Iron Age contexts. Scoured on a scale of 1-4 1=0-5, 2=5-25, 3=25-100 and 4=>100

Sample	Context	Feature and description	Sample size l	Flot description	Plant remains	Potential
1014 (00)	5259	Fill of ditch 5235	25	50ml, charcoal , molluscs, contamination	Cereals 2, barley, oats, chaff 4, glumes emmer/spelt, weed seeds 3-4,	High
1033 (00)	5292	Fill of ditch 5286	20	25ml, charcoal 2, coal, molluscs 2, contamination	Cereals 1-2, chaff 1-2, weed seeds 2	Low
1032 (00)	5293	Fill of ditch 5286	20	25ml, charcoal 2, coal,	Cereals 1-2, poor preservation, chaff 1, weed seeds 1-2	Low
1030 (00)	5297	Fill of ditch 5286	22	30ml, charcoal oak, molluscs 4, contamination	Cereals 3, tarry, wheat (spelt), barley, chaff 2, weed seeds 3	Good
1011 (00)	5332	Fill of ditch 5318	23	75ml, charcoal 2, bone, molluscs, contamination	Cereals 4, wheat, barley, oats +rye, part germinated, chaff 1-2, weed seeds 2-3	High
1012 (00)	5334	Fill of ditch 5318	24	10-15ml, charcoal 2, molluscs 2,	Chaff 1, weed seeds 1	Low
1010 (00)	5344	Fill of ditch 5318	24	20ml, charcoal 2, molluscs 3, contamination	Cereals 3, barley, wheat emmer/spelt, chaff 2, weed seeds 2	Good
1008 (00)	5345	Fill of ditch 5318	24	10ml, charcoal 1, small frags, molluscs 2, contamination	Cereals 1, weed seeds 1	Low
1003 (00)	5363	Fill of ditch 5362	36	400ml, charcoal 4, molluscs 2, bone	Cereals 4++, wheat incl bread, oats, rye, barley, tarry part germinated, chaff 4, weed seeeds	High
1035 (00)	5387	Fill of ditch 5388	40	60ml, charcoal 2, small frags not oak, molluscs 4, contamination	Cereals 1	Low
1036 (00)	5389	Fill of ditch 5419	40	50ml, charcoal 2, molluscs, contamination		Low
1015 (00)	5405	Fill of ditch 5403	36	<10ml, molluscs 1, bone, contamination,	Cereal 1, weed seeds, waterlogged seeds	Low
1016 (00)	5406	Fill of ditch 5403	24	25ml, charcoal 2, small frags, molluscs contamination	Cereals 1, chaff 3, weed seeds 1-2, waterlogged seeds	Good
1006 (00)	5409	Fill of ditch 5319	33	100ml, charcoal 2-3, molluscs, contamination	Cereals 4++, wheat (incl bread), barley, rye, oats, chaff 2, weed seeds 4	High
1009 (00)	5428	Fill of ditch 5317	24	45-50ml, charcoal 4, small frags, not oak,	Cereals 2, wheat, barley, chaff 2, weed	Good

				molluscs 4, contamination	seeds	
1013 (00)	5465	Fill of ditch 5469	36	50ml, charcoal 3-4, small frags, molluscs 4, contamination	Cereals 2, wheat, barley and oats, chaff 2, weed seeds 2	Good
1028 (00)	5291	Fill of ditch 5286	20	10-15ml, charcoal 2, small frags, molluscs 2, contamination	Cereals 1-2, undiff, chaff 2	Low

Table 10. Appleford Sidings assessment of charred plant remains from early Roman contexts. Scoured on a scale of 1-4 1=0-5, 2=5-25, 3=25-100 and 4=>100

Sample	Context	Feature and description	Sample size l	Flot description	Plant remains	Potential
404 (99)	4138	Fill of mid Roman pit	20	75-100ml, charcoal 4, bone mammal, calcin, small mammal, insects, molluscs 3, contamination	Cereals 3-4, wheat, barley, oats, part germinated, tarry, chaff 1, weed seeds 4,	Good-high
1031 (00)	5288	Fill of ditch 5286	20	Molluscs 3, coal, bone small mammal, contamination	Cereal 2, wheat, barley, poor preservation, chaff 2,, weed seeds 3-4,	Good
1034 (00)	5326	Fill of ditch 5324	40	25-35ml, charcoal 1, molluscs 4, contamination	Cereals 1, wheat, chaff 1, weed seeds 1	Low

Table 11. Appleford Sidings: assessment of charred plant remains from early/mid and mid Roman contexts. Scoured on a scale of 1-4 1=0-5, 2=5-25, 3=25-100 and 4=>100

Sample	Context	Feature and description	Sample size l	Flot description	Plant remains	Potential
221 (98)	3051+3053	Fill of pit 3050		<10ml, charcoal 4, small frags, contamination		Low
221 (98)	3051	Fill of pit 3050		>800ml, Charcoal 4++, large frags, round wood, oak	Cereals 3, wheat, barley, chaff 4, incl straw, weed seeds 4	High
221b (98)	3051+3053	Fill of pit 3050		<10ml, charcoal 4, calcin bone,	Cereals 1, straw? weed seeds 2	Low
225 (98)	3126	Fill of pit 3125	50	2000ml, charcoal 4+++, well preserved mixed taxa incl Pomoideae		Low, high charcoal
1004 (00)	219	Fill of tree bowl 5217	12	75-80ml, charcoal 4, molluscs 2, bone, contamination	Cereals 4, wheat, barley, oats, chaff 4, weed seeds 4, processing waste	High
1005 (00)	223	Fill of pit 5221	12	60-65ml, contamination	Cereals 4, wheat, barley, oats, rye, chaff 4, weed seeds 4	High
1020 (00)	5551	Fill of posthole 5550	6	10ml, charcoal 1, small frags, contamination		Low
1021 (00)	5553	Fill of posthole 5552	4	<10ml, charcoal 1, contamination		Low

Table 12 Appleford Sidings: assessment of charred plant remains from Roman contexts. Scoured on a scale of 1-4 1=0-5, 2=5-25, 3=25-100 and 4=>100

Sample	Context	Feature and description	Sample size l	Flot description	Plant remains	Potential
100 (97)	19	Plough soil mod/med	40	125ml, charcoal 4, oak+other, twigs, molluscs 2, contamination	Cereals 4, bread wheat, oats, weed seeds 4	High ?
38 (97)	109	Fill of pit	30	<10ml, charcoal 1, contamination	Cereal 1, undiff, waterlogged seeds	Low
56 (97)	158	Fill of ditch	40	10-20ml, charcoal 2, molluscs 1, bone, contamination	Weed seeds 1,	Low
53 (97)	222	Fill of pit 221	40	<20ml, charcoal 3, oak+other,	Weed seeds 1	Low

				contamination		
57 (97)	262	Fill of gully 260	20	<10ml, charcoal3, very small frags, molluscs 2, contamination	Waterlogged seeds	Low
58 (97)	281	Fill of pit 280	20	20ml, charcoal sample 4++, small frags		Low
80 (97)	356	Fill of ditch 355	40	20-25ml, charcoal 3, small frags, contamination, molluscs 1		Low
83 (97)	361	Fill of tree throw 361	30	20-25ml, charcoal 2, molluscs 2, contamiin		Low
2 (97)	2102			2700ml, charcoal 4+++		Low, high charcoal
1 (97)	3508			Small frags of charcoal, molluscs 4++, contamination		Low
3 (97)	3508			Charcoal 3, molluscs 4, contamination		Low
4 (97)	2105			Charcoal 3, small frags		Low
109 (97)	461	Fill of pit 456	60	15-20ml, Charcoal 1, molluscs 4, contamination	Cereal 1,	Low
108 (97)	464	Fill of pit 456		35ml, charcoal 2, contamination	Waterlogged seeds	Low
120 (97)	483	Fill of well 478	40	25-30ml, charcoal 4, small frags, some oak, molluscs 4, contamination		Low
117 (97)	486	Fill of well 478	20	15ml, charcoal 2, small, molluscs 4, contamination		Low
201 (98)	1012	Fill of ditch 1010	20	800ml, charcoal 4+++, oak+other, molluscs 2, contamination		Low, high charcoal
219 (98)	1382	Fill of ditch 1382	40	<75ml, charcoal 2-3, molluscs 2, contamination,	Cereals 1indiff	Low
213 (98)	2038	Fill of ditch 2042	40	100ml, charcoal 4, small frags, contamination		Low
214 (98)	2039	Fill of ditch 2042	40	85ml, charcoal 4, mixed taxa, larger frags, roundwood, contamination		Low

215 (98)	2040	Fill of ditch 2042	40	<50ml, charcoal 4, molluscs, contamination	Cereal 1, undiff fragment	Low
216 (98)	2041	Fill of ditch 2042	40	100ml, charcoal 4, molluscs 2, contamination		Low
220 (98)	2049	Fill	30	75ml, charcoal 4, contamination		Low
401 (99)	4185	Fill of pit 4184	10	<20ml, charcoal 3, small frags, molluscs 1, bone, contamination		Low
402 (99)	4186	4186	15	25ml, charcoal 2, contamination		Low
403 (99)	4185/4186	4184/4186	40	50-75ml, charcoal 4, larger frags, contamination		Low
102 (00)	5012	Fillof pit 5011	20	60-65ml, charcoal, contamination	Cereals 1, undiff fragment	Low
1025 (00)	5097	Fill of ditch	34	10ml, charcoal 1, molluscs 1, contamination	Cereals 1, wheat, barley, weed seeds 1	Low
1037 (00)	5418	Fill of ditch 5419	34	25-30ml, charcoal 2, molluscs 4, contamination	Cereals 1, wheat, compact, hazel nut fragm	Low
1017 (00)	5541	Fill of pit 5542	6	20ml, charcoal 2, small frags,molluscs, contamination	Weed seeds 1	Low

Table 13. Appleford Sidings: assessment of charred plant remains from undated contexts. Scoured on a scale of 1-4 1=0-5, 2=5-25, 3=25-100 and 4=>100

14. ASSESSMENT OF WATERLOGGED PLANT REMAINS FROM 35 SAMPLES

By Ruth Pelling

Introduction

A total of 35 samples from APSID97 of Middle Bronze Age date were examined for the assessment of waterlogged plant remains. Samples were taken from the lower fills of waterholes, pits and possible wells. Sub-samples of 1kg, or in two cases 10 litres, were processed by hand and floated onto a 250μm mesh. Flots were kept wet and were submitted for evaluation.

Laboratory Methods

Flots were washed through a stack of sieves to break them into manageable fractions. Each fraction down to the 500μm mesh was scanned under water using a binocular microscope at x10 to x25 magnification. Any waterlogged plant remains were provisionally identified and an estimate of their abundance was made. The presence of well preserved insects was also noted.

Results

Waterhole 168: Four samples were assessed, three of which contained occasional waterlogged seeds (contexts 174, 179 and 178). Context 178 also contained very occasional insect fragments. The flora included marshy or damp ground species, including *Myosoton aquaticum* (water chickweed) and some damp grassland plants such as *Ranunculus acris/repens/bulbosus* (buttercup), *Rumex conglomeratus* (sharp docks) and *Carex* sp. (sedges). Also present were occasional species of disturbed habitats such as *Stellaria media* (chickweed), *Polygonum aviculare* (knotgrass), *Urtica dioica* (stinging nettle) and *Plantago major*(plantain) with occasional scrubland plants such as *Rubus fruticosus* (bramble) and *Crataegus* sp. (hawthorn).

Waterhole 180: Seven samples were assessed for their waterlogged remains. Four samples contained useful quantities of waterlogged seeds (contexts 289, 266, 288, 287), two of which contained very large quantities of remains (contexts 288 and 287). The flora includes species which would have been growing on the edge of or within the waterhole itself such as *Ranunculus* subgen *Batrachium* (crowfoot) and *Lycopus europaeus* (gipsywort). A grassland element is represented by species such as *Prunella vulgaris* (selfheal), *Leontodon* sp. (hawkbit) and *Picris hieraciodes* (hawkweed ox-tongue) and by damp grassland species such as *Rumex conglomeratus* (sharp dock). Species of damp, marshy ground or fen are present including *Lychnis flos-cuculi* (ragged robin), *Myosoton aquaticum* (water chickweed) and *Rhamnus catharticum* (buckthorn). A range of species of disturbed habitats including arable species is also present (eg. *Chenopodium album*, *Stellaria media*, *Aethusa cynapium*). Well preserved insect remains are present in nine samples.

Well 209: For samples were assessed of which one contained useful numbers of waterlogged plant remains and fairly good insects (context 216), while waterlogged plant remains were present in context 215. Frequent fragments of a waterlogged diffuse porous wood including large pieces were present in both samples. A single waterlogged grain of a hulled *Triticum* sp. (wheat) was also recognised from context 216. Species of damp ground, marsh or fen include *Myosoton aquaticaum*, while *Rumex conglomeratus* is characteristic of damp grassland. Ruderal or arable species form the greatest component of the samples including *Polygonum lapathifolium* (pale persicaria), *Urtica urens* (small nettle) and *U. dioica* (stinging nettle).

Waterhole 442: Three samples were assessed, two of which contain occasional waterlogged plant remains (contexts 447 and 446), although *Rubus fruticosus* (bramble, blackberry) and *Sambucus nigra* (elder) are the only species present.

Pit/Waterhole 456: Two samples were assessed, one of which contained well preserved plant remains and insects (context 458). Seeds of the aquatic plant *Ranunculus* subgen. *Batrachium* (crowfoot) were most frequent, while *Lycopus europaeus* was possibly growing on the edge of the waterhole. Ruderal or arable species were common including *Stellaria media* (chickweed) *Chenopodium polyspermum* (many-seeded goosefoot), *Chenopodium album* (fat hen), and *Urtica dioica* (stinging nettle). Occasional grassland species including of damp grassland were represented such as *Ranunculus acris/repens/bulbosus* (buttercup), *Torillis japonica* (upright hedge-parsley), *Rumex conglomeratus* (sharp dock), *Prunella vulgaris* (selfheal), *Carduus* sp. (thistle) and *Leontodon* sp. (hawkbit).

Waterhole 478: Four samples were assessed, two of which contained occasional waterlogged plant remains (contexts 481 and 480). The flora consists largely of ruderal (*Chenopodium album, Atriplex sp, Urtica urens, Urtica* dioica) with some scrubby species (*Rubus fruticosus* and *Prunus* sp.).

Waterhole 517: Three samples were assessed, two of which (context 529, 528) contain very frequent waterlogged plant remains and insects. A charred spikelet fork of *Triticum dicoccum* (emmer wheat) was also identified from context 528. The flora is very similar in nature to that in waterhole 180. Species which could have been growing within the mud at the edge of the waterhole include *Alisma plantago-aquatica* (water-plantain) and *Lycopus aquatica* (gipsywort), while aquatic species of more open water include *Ranunculus* subgen *Batrachium* (crowfoot) and *Potamogeton* sp. (pondweed). Grassland is suggested by species such *as Prunella vulgaris* (selfheal), *Leontodon* sp. (hawkbit) and *Picris hieraciodes* (hawkweed ox-tongue) and damp grassland species such as *Rumex conglomeratus* (sharp dock), *Juncus* sp. (rushes), *Carex* sp. (sedges) and *Eleocharis palustris* (common spike rush). Species of damp, marshy ground or fen are present including *Lychnis flos-cuculi* (ragged robin) and *Myosoton aquaticum* (water chickweed). A range of species of disturbed habitats including arable species is also present (eg. *Chenopodium album, Stellaria media, Aethusa cynapium*).

A further sixteen samples taken from four water holes (features 242, 322, 414 and 191) contained no waterlogged plant remains.

Discussion and Recommendations

The waterlogged plant remains partially reflect the contexts from which they are derived, with aquatic species and species which would have been growing on the edge of waterholes or ponds. A grassland flora is also represented in most samples including species of damp grassland. A small element of marshy ground is also represented. A scrubland element and arable/ruderal species are also present throughout the samples. The absence of good Middle Bronze Age waterlogged samples from the region means that our understanding of the landscape at that time is very unclear. Full analysis of the richer samples would prove to be very useful in establishing the extend of open landscape and of surviving woodland in the area. It is therefore recommended that the weed seeds in six or seven samples are identified in full. In addition it is recommended that the insects are examined and that material is retained unprocessed for pollen analysis.

Table 14. The Waterlogged Plant Remains

	Feature	168	180	209	442	456	478	517
	No. Samples	4	7	4	3	2	4	3
	Samples with remains	3	4	2	2	1	2	2
Ranunculus acris/repens/bulbosus	Buttercup	+	+	-	-	+	+	+
Ranunculus parviflorus	Small-flowered Buttercup	-	-	-	-	-	-	+
Ranunculus subgen *Batrachium*	Crowfoot	-	++++	-	-	++	-	++++
Papaver cf. *argemone*	Long Prickly-Headed Poppy	-	-	-	-	-	-	+
Lychnis flos-cuculi	Ragged Robin	-	+	-	-	-	-	-
Myosoton aquaticum	Water Chickweed	+	++	+	-	-	-	-
Stellaria media agg.	Chickweed	+	++	+	-	+	-	++
Chenopodium polyspermum	Many-seeded Goosefoot	-	-	-	-	+	-	+
Chenopodium album	Fat Hen	-	+	+	-	+	+	-
Chenopodium sp.		-	-	-	-	-	+	-
Atriplex sp.	Orache	-	-	+	-	-	+	+
Rhamnus catharticus	Buckthorn	-	+	-	-	-	-	-
Prunus sp.	Seed fragment	-	-	-	-	-	+	-
Rubus fruticosus agg.	Backberry, Bramble	+	+	+	+	+	+	++
Crataegus sp.	Hawthorn	+	+	-	-	-	-	+
Chaerophyllum temulentum	Rough Chervil	-	+	-	-	-	-	-
Aethusa cynapium	Fool's Parsley	+	++	-	-	-	-	+
Pastinaca sativa	Wild Parsnip	-	+	-	-	-	-	+
Torilis japonica	Upright Hedge-parsley	-	++	-	-	-	-	+

Polygonum aviculare	Knotgrass	+	+	+	-	+	+	+
Polygonum lapathifolium	Pale Persicaria	-	-	++	-	-	-	+
Rumex conglomeratus	Sharp Dock	+	+	+	-	+	-	+
Rumex sp.	Docks	+	++	+	-	+	-	+
Urtica urens	Small Nettle	-	+	+	-	-	+	+
Urtica dioica	Common, Stinging Nettle	+	++	+	-	+	+	+
Salix sp.	Willow bud	-	-	-	-	-	-	+
Labiatae	small seeded	-	+	-	-	-	-	+
Lycopus europaeus	Gipsywort	-	++	-	-	+	-	+
Prunella vulgaris	Selfheal	-	+	-	-	+	-	+
Stachys sp.	Woundwort	-	-	-	+	-	-	-
Plantago major	Plantain	+	+	-	-	-	-	-
Sambucus nigra	Elder	-	++	-	++	-	-	+
Bidens sp.	Bur-Marigold	-	-	-	-	+	-	-
Carduus sp.	Thistle	+	-	-	-	+	+	+
Lapsana communis	Nipplewort	-	+	-	-	-	-	-
Leontodon sp.	Hawkbit	-	+	-	-	+	-	+
Picris echioides	Bristly Ox-Tongue	-	-	-	-	-	-	+
Picris hieracioides	Hawkweed Ox-Tongue	-	+	-	-	-	-	+
Sonchus asper	Spiny Milk- or Sow-Thistle	-	+	-	-	-	-	-
Alisma plantago-aquatica	Water-Plantain	-	-	-	-	-	-	+
Potamogeton sp.	Pondweed	-	-	-	-	-	-	+
Juncus sp.	Rush	-	-	-	-	-	-	+
Eleocharis palustris	Common Spikerush	-	-	-	-	-	-	+
Carex sp.	Sedges	+	-	-	-	+	+	+
Triticum sp.	Hulled Wheat grain	-	-	-	-	-	-	-
Triticum sp.	Hulled Wheat glume base	-	-	-	-	-	-	+
Charred								
Triticum spelta	Spelt Wheat grain	-	+	-	-	-	-	-
Triticum sp.	Hulled Wheat glume base	-	+	-	-	-	-	-
Caddis fly		-	-	+	-	-	-	-
Insects		+	+++	+++	++	++	-	++

+ = 0-10 presnet; ++ = common, +++ = frequent; ++++ = abundant

15. ASSESSMENT OF INSECTS AND WATERLOGGED PLANT REMAINS FROM ADDITIONAL SAMPLES

By Mark Robinson

Introduction

A total of 35 samples from Appleford Sidings (APSID97) had previously been assessed for macroscopic plant remains (report by Ruth Pelling). Five more samples, from APSID 97, 98, 99 and 00 are assessed here for macroscopic plant remains. These five samples, plus 23 samples previously assessed for waterlogged macroscopic plant remains, were also assessed for insect remains. The samples were mostly from the lower fills of Bronze Age and Iron Age wells and water holes but included a few samples from Roman pits and a ditch.

Methods and Results

Samples of 1kg were washed over onto a 0.25mm mesh to recover waterlogged organic remains and the flots scanned under water using a binocular microscope. Any plant remains observed were provisionally identified and an estimate made of their abundance. The results are given in Table 1 for those samples found to contain material, nomenclature following Clapham *et al.* (1987). Samples for which remains are absent are listed in Table 2. Samples of the order of 10 litres were washed over onto a 0.25mm mesh and the flots subjected to paraffin flotation to recover insect remains. The flots were washed in detergent and scanned under water using a binocular microscope. Any insect remains observed were provisionally identified and an estimate made of their abundance. The results for Coleoptera (beetles) are given in Table 3 for those samples found to contain remains, nomenclature following Kloet and Hincks (1977). Samples for which insects are absent are listed in Table 4.

Potential

Waterhole 517 Three samples were assessed for insects from this Bronze Age to Iron Age waterhole, (Contexts 179, 178 and 216). Remains are present in all samples, particularly dung beetles from the genera *Geotrupes*, *Aphodius* and *Onthophagus*. The highest concentration of remains is present in Context 216, in which water beetles likely to have lived in the waterhole such as *Helophorus aquaticus* or *grandis*, *Helophorus* sp. (*brevipalpis* size) and *Limnebius* sp. were also present.

Well 478 Three samples were assessed for insects from this Iron Age well and insects were found in two samples (Contexts 215 and 194). The most numerous insects in both samples are small water beetles. Context 194, which contains a higher concentration of remains, also has species of grassland habitats, such as *Crepidodera ferruginea*, and scarabaeoid dung beetles such as *Geotrupes* sp.

Waterhole 168 Three samples were assessed for insects from this Bronze Age waterhole and insects are present in all the samples (Contexts 266, 288 and 287). All contain high concentration of the small water beetle *Helophorus* sp. (*brevipalpis* size). Species of grassland habitats, including *Phyllopertha horticola*, are also present.

Well 209 Three samples were assessed for insects from this Iron Age well and remains were found in two samples (Contexts 241 and 323). Only a single beetle was noted in Context 323 but grassland species including *Agriotes* sp. and scarabaeoid dung beetles from the genera *Geotrupes* and *Aphodius* are present in Context 241.

Waterhole 180 Five samples were assessed from this Bronze Age waterhole for insects and remains are present in all the samples (Contexts 289, 446, 458, 529 and 528). *Helophorus* sp. (*brevipalpis* size) is the most numerous beetle in company with another small water beetle, *Ochthebius* sp. The occurrence of *Tanysphyrus lemnae* in Context 528 suggests *Lemna* sp. (duckweed) covered the surface of the water in the waterhole. A wide range of beetles from terrestrial habitats is also present. Phytophagous beetles of grassland include *Hoplia philonthus*, *Phyllopertha horticola*, *Agrypnus murinus* and *Agriotes* sp. while evidence of grazing is given by dung beetles mostly of the genera *Geotrupes* and *Aphodius*. An example of *Brachinus crepitans* (bombardier beetle), which lives in warm sunny habitats, was noted in Sample 528. The only hint of woodland or scrub is given by the poplar and willow feeding beetle *Chalcoides* sp.

Waterhole 242 Three samples from this Bronze Age waterhole were assessed for insects and one of these samples was also assessed for macroscopic plant remains, but all that was found was a single example of the beetle *Philonthus* sp. in Context 481.

Well 322 A couple of carabid (ground) beetles are the only remains noted in a single sample assessed for insects from this well of uncertain date (Context 479).

Pit 1312 A single sample which was assessed for macroscopic plant remains and insects from this Bronze Age pit (Context 1312) contains little else apart from numerous seeds of *Juncus* sp. (rush).

Ditch 4014 A single sample was assessed from this early Roman ditch which was found to contain waterlogged macroscopic plant remains and insects (Context 4015). The macroscopic plant remains are mostly from plants of thorn scrub or hedgerow such as *Rubus fruticosus* agg (blackberry), *Rosa* sp. (rose), *Prunus spinosa* (sloe) and *Crataegus* cf. *monogyna* (hawthorn). However, there are also seeds of the aquatic plant *Ranunculus* S. *Batrachium* sp. (water crowfoot), which is likely to have grown in the ditch, and plants of disturbed ground such as *Tripleurospermum inodorum* (scentless mayweed). The beetles are mostly species of open habitats, with several examples of clover and vetch-feeding weevils of the genus *Apion*.

Pit 5319 A single sample was assessed from this early Roman pit which was found to contain rather poorly-preserved waterlogged macroscopic plant and some carbonised plant remains (Context 5413). The waterlogged seeds are mostly from plants of disturbed ground such as *Stellaria media* gp. (chickweed) and plants of damp habitats such as *Carex* sp. (sedge). The few insects include the willow-feeding beetle *Phyllodecta* sp. The charred plant remains are likely to be from crop-processing with a grain of *Hordeum* sp. (hulled barley), a couple of glumes of *Triticum dicoccum* or *spelta* (emmer or spelt wheat) and some weed seeds.

Contexts from which Remains are Absent Insect remains are absent from Bronze Age waterhole 456, Bronze Age well 191 and Bronze Age pit 414. Macroscopic plant remains are also absent from Pit 414.

General Potential The results of the assessment are generally disappointing. The particular remains assessed mostly occur in low concentrations and preservation is mostly poor. Crop remains are absent from the prehistoric samples and there is no insect evidence for human settlement or timber buildings. The charred crop remains from the Roman samples are sparse and unexceptional. However, waterlogged Bronze Age deposits are rare in this part of the region. Waterhole 180 probably has the best Bronze Age insect assemblages. They suggest an open grassland landscape with some grazing by domestic animals and perhaps a little willow scrub. However, these samples do not have the high proportion of dung beetles from the genus *Onthophagus* shown by some insect assemblages of middle Bronze Age date. It would be useful to obtain radiocarbon dating for this waterhole. The assessments of waterlogged macroscopic plant remains from Waterhole 180 by Ruth Pelling showed that they too had high potential. The other feature regarded as having potential for waterlogged macroscopic plant remains and insects is early Roman ditch 4015. It is probable that the sample from this deposit will give information on a hedged agricultural landscape.

Recommendations

It is recommended that, in addition to the detailed analyses recommended by Ruth Pelling, samples are analysed from Waterhole 180 for insects and the and the sample from Ditch 4015 is analysed for both macroscopic plant remains. It is also recommended that unprocessed material from these samples is analysed for pollen.

Table 15. Macroscopic Plant Remains

	Feature	1312	4014	5319
	Context	1312	4015	5413
	Sample	212	400	1007
WATERLOGGED				

Ranunculus cf. *repens*	creeping buttercup	-	-	+
R. parviflorus	small-flowered buttercup	-	-	+
Ranunculus S. *Batrachium* sp.	water crowfoot	-	+	-
Coronopus squamatus	swine cress	-	+	-
Stellaria media gp.	chickweed	-	-	+
Montia fontana	blinks	-	-	+
Atriplex sp.	orache	-	-	+
Rubus fruticosus agg.	blackberry	+	+	-
Rosa sp. - prickle	rose	-	+	-
Prunus spinosa	sloe	-	+	-
Crataegus cf. *monogyna*	hawthorn	-	+	-
Urtica dioica	stinging nettle	-	+	-
Salix sp.	willow	-	+	-
Sambucus nigra	elder	-	+	-
Tripleurospermum inodorum	scentless mayweed	-	+	-
Juncus spp.	rush	+++	-	-
Carex sp.	sedge	-	-	+
CHARRED				
Vicia or *Lathyrus* sp.	vetch or tare	-	-	+
Bromus cf. *secalinus*	brome grass	-	-	+
Triticum dicoccum or *spelta* - glume	emmer or spelt wheat	-	-	+
Triticum sp.	wheat	-	-	+
Hordeum sp. - hulled	hulled barley	-	-	+

+ present, ++ several, +++ many

Table 16. Samples Assessed for Plant Remains from which Remains Absent

Feature	242	414
Context	247	327
Sample	73	79

Table 17. Samples Assessed for Insects from which Insects Absent

Feature	456	478	209	242		191	414	322	1312
Context	174	217	251	247	509	324	327	480	1312
Sample	42	52	72	73	114	76	79	121	212

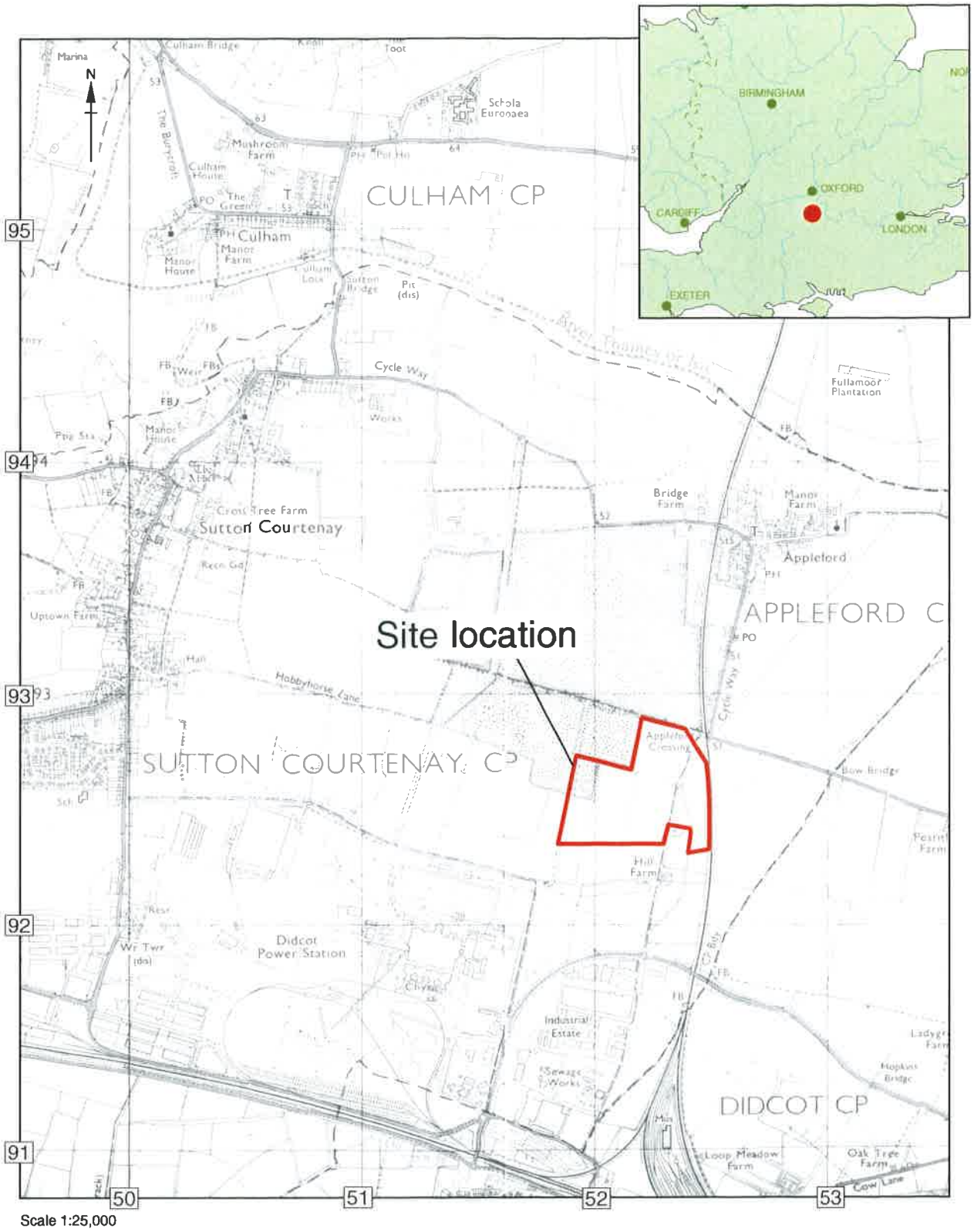
Table 18. Insect Remains

Feature	517				478		168		209				180			242	322	4014	5319
Context	179	178	216	215	194	266	288	287	241	323	289	446	458	529	528	481	479	4015	5413
Sample	43	44	49	51	55	66	67	68	74	75	65	107	110	112	113	118	119	400	1007
Notiophilus sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
Dyschirius globosus	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
Trechus obtusus or *quadristriatus*	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
Asaphidion flavipes	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
Bembidion sp.	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	-	-	-	-
Caltha fuscipes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
Amara sp.	-	-	+	-	-	-	-	-	-	-	+	-	+	+	-	-	-	-	-
Brachinus crepitans	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
Haliplus sp.	-	-	-	-	-	-	-	+	-	-	-	-	-	-	+	-	-	-	-
Hydroporus sp.	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
Agabus bipustulatus	-	-	+	-	+	-	+	+	-	-	-	-	-	-	-	-	-	-	-
Colymbetes fuscus	-	-	-	-	-	+	-	-	-	+	-	-	+	-	+	-	-	-	-
Helophorus aquaticus or *grandis*	-	-	+	+	+	+	-	+	-	-	-	-	-	+	+	-	-	-	-
Helophorus sp. (*brevipalpis* size)	-	-	+	+	++	++	++	++	-	-	+	+	++	++	++	-	-	-	-
Megasternum obscurum	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
Hydrobius fuscipes	-	-	-	-	+	-	-	-	-	-	+	+	+	-	+	-	-	+	-
Histerinae indet.	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ochthebius sp.	-	-	+	-	-	-	+	-	-	-	-	+	+	++	-	-	-	-	-
Limnebius sp.	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Feature	517				478		168		209				180			242	322	4014	5319
Context	179	178	216	215	194	266	288	287	241	323	289	446	458	529	528	481	479	4015	5413
Sample	43	44	49	51	55	66	67	68	74	75	65	107	110	112	113	118	119	400	1007
Micropeplus sp.	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
Lesteva longoelytrata	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-
Philonthus cornutus gp.	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-	-	-	-
Stenus sp.	-	-	+	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-
Xantholinus linearis or *longiventris*	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
Philonthus sp.	-	-	-	-	+	-	-	-	-	-	-	+	-	-	-	+	-	-	-
Staphylinus sp.	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
Aleocharinae indet.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
Geotrupes sp.	+	-	+	-	+	-	-	-	+	-	-	+	+	+	-	-	-	-	-
Aphodius cf. *granarius*	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A. cf. *sphacelatus*	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
Aphodius spp.	+	-	-	-	+	+	-	+	+	-	-	+	+	+	+	-	-	-	+
Oxyomus sylvestris	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Onthophagus ovatus	-	+	+	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
Hoplia philanthus	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
Phyllopertha horticola	-	-	-	-	-	-	+	+	-	-	+	+	+	+	-	-	-	-	-
Agrypnus murinus	-	-	-	-	-	-	-	-	-	-	-	+	-	+	-	-	-	-	-
Agriotes sp.	-	-	-	-	-	-	-	-	+	-	-	+	-	+	+	-	-	+	-
Enicmus transversus	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phyllodecta sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Longitarsus sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
Altica sp.	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-

Feature	517		478			168			209				180			242	322	4014	5319
Context	179	178	216	215	194	266	288	287	241	323	289	446	458	529	528	481	479	4015	5413
Sample	43	44	49	51	55	66	67	68	74	75	65	107	110	112	113	118	119	400	1007
Crepidodera ferruginea	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chalcoides sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
Chaetocnema concinna	-	-	+	-	+	-	-	-	-	-	-	-	-	-	+	-	-	+	-
Apion sp.	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	++	-
Tanysphyrus lemnae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
Ceutorhynchus erysimi	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

+ present, ++ several to many



Scale 1:25,000

Figure 1: Site location

Figure 2: Areas of Investigation

Figure 3: Site plan showing all archaeological features

Figure 4: Preliminary phase plan

Plate 1: Site of 1997 watching brief

Plate 2: Bronze Age watering hole from 1997 site

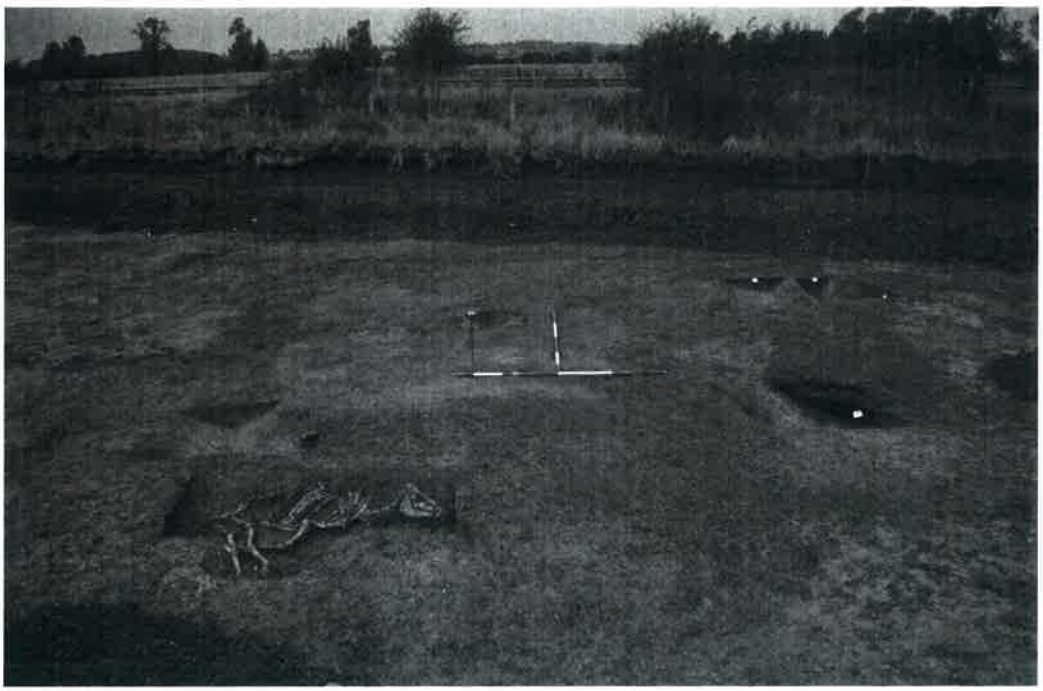


Plate 3: Roman cremation, burial enclosure and animal skeleton from 1998 site

Plate 4: Bronze Age ditch from 2000 site

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