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Excavations at Langtoft, Lincolnshire The Whitfield Land.



Jacqui Hutton

CAMBRIDGE ARCHAEOLOGICAL UNIT
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Excavations at Langtoft, Lincolnshire

The Whitfield Land

Jacqui Hutton

With contributions from
Anne de Vareilles, Mark Knight and Vida Rajkovača,

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University of Cambridge
Department of Archaeology

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May 2008

An archaeological excavation and watching brief was undertaken by a team from Cambridge Archaeological Unit on behalf of Hanson Aggregates PLC on a 1.77ha site at Baston No. 2 Quarry. The excavation revealed settlement and field systems of Middle Bronze Age date, in addition to pits, wells and postholes with complimentary domestic debris, including a large assemblage of pottery, was excavated and recorded. The results of the excavation provide an insight to the community of the Bronze Age people and place the site in context with the surrounding landscape.

Acknowledgements

Many thanks to Tom Gifford, Unit Manager at Hanson Aggregates Plc and John Wilson, General Foreman, also at Hanson Aggregates Plc. The Project was managed by Alison Dickens, CAU, and monitored on behalf of Lincolnshire County Council (the mineral planning authority) by Beryl Lott. The archaeology was excavated and interpreted by Lizzy Middleton, Tudur Skinner, Ross Stanger and Leanne Zeki. The area was surveyed and digitised by Donald Horne and Iain Forbes. The machine excavation was conducted with great care by Terry from Neils Plant Ltd. Gwladys Montiel sorted and catalogued the finds, Dave Webb assisted with the photographs and Andy Hall and Bryan Crossnan assisted with the illustrations.

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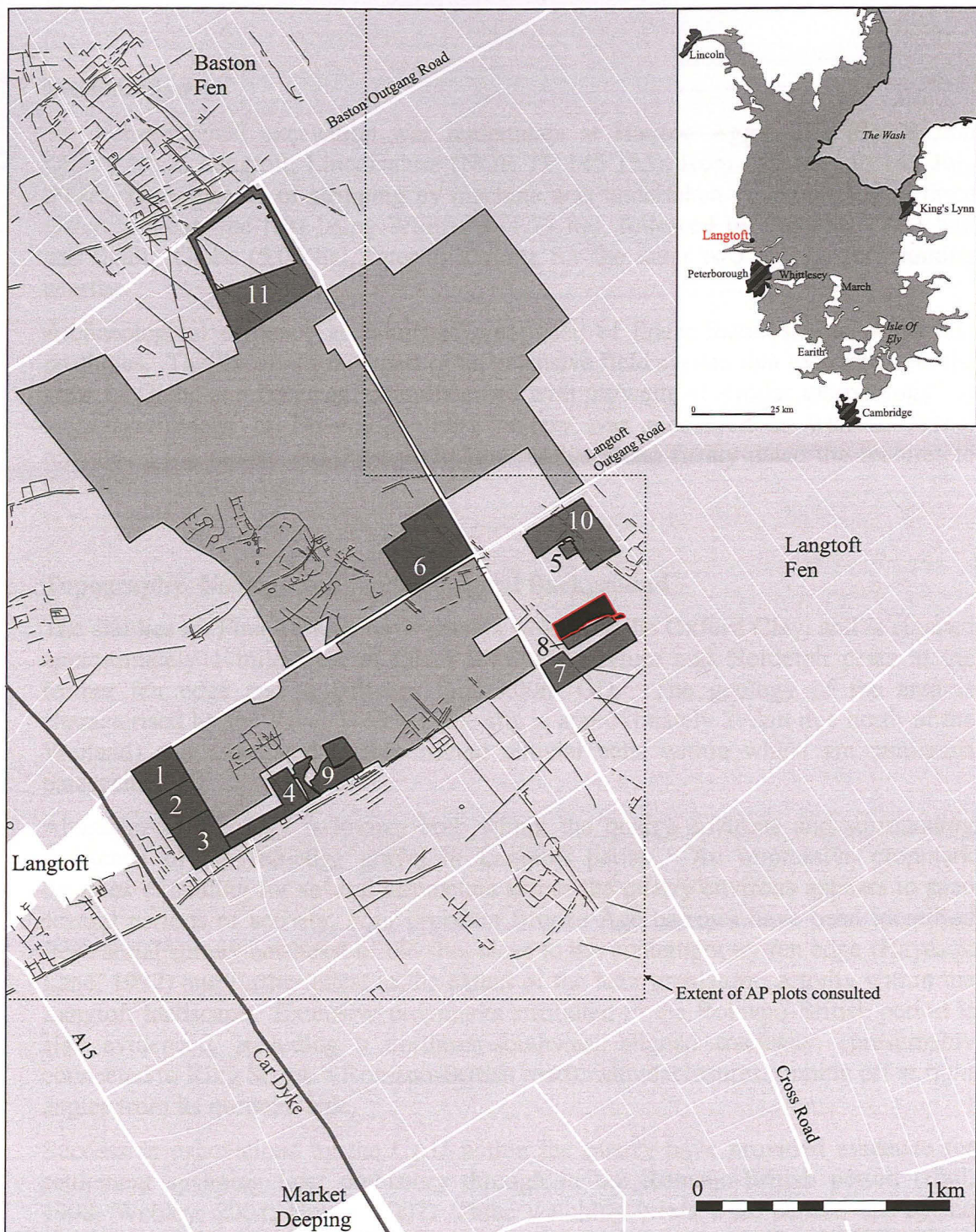
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■ Quarried Areas

■ Previous Investigations

■ Whitfield Site

1. Baston Quarry Area A (1998)
2. Baston Quarry Area B (2001)
3. Baston Quarry Area C (2002)
4. Baston Quarry Areas D-E (2003)
5. Outgang Road Excavation (Heritage Lincs.)
6. Outgang Road Watching Brief (Heritage Lincs.)
7. Cross Road Watching Brief (1998-99)
8. Langtoft Common Watching Brief (2001)
9. Areas F-H The Bluebell Land (2006)
10. Glebe Land (2007)
11. Freeman's Land (2007)

Figure 1. Location map

Introduction

An archaeological excavation was undertaken at Hanson Aggregates Plc, Baston Quarry No.2, Langtoft, Lincolnshire (NGR TF 145 135), from 14th May to 14th July 2007. Three phases of stripping by machine was undertaken consecutively in three different areas; the first being Whitfield (1.77 ha), followed by Freeman (7.93 ha), and finally Glebe (5.06 ha), Interim Reports for the latter two will be forthcoming shortly.

Archaeological evidence at Whitfield comprised of linear features, pits, wells and postholes. The linears formed part of an extensive field system that extended into the areas of Glebe and Freeman, complimented with pit/wells of similar morphology. A large assemblage of Deverel-Rimbury pottery was recovered as well as faunal remains, a log ladder and three perforated molluscs and firmly dated the features to the Middle Bronze Age.

Topography, Geology and Archaeological Background

The site lies on First Terrace river gravels which overlie Oxford Clay, and is situated approximately 1 mile west of Older Marine Alluvium and Nordelph peats at the former fen edge and is between 2.00-3.00m OD. The geology of the area is characterised by the River Welland (the site is approximately 2½km due north of the Welland) and associated interconnected alluvial belts within which are numerous palaeochannels.

Abundant archaeology is known both within the quarry environs and surrounding landscape of the fen-edge gravel in Langtoft parish. An impressive cropmark complex extending for several kilometres across the quarry environs appears to span several periods of activity. Four probable Bronze Age barrows have been identified from aerial survey northeast of the site, close to the contemporary fen edge (Hayes & Lane, 1992) and further attest to the extent of the later prehistoric activity within the Langtoft landscape. Extensive cropmarks attributed to the Romano-British period is also evidenced, including a northeast-southwest aligned trackway, (presumably connected to King Street, a Romano-British road), with enclosures running off at right angles from its northern side.

Successive excavations by the CAU within the quarry have provided evidence for settlement spanning later prehistory through to the Romano-British period (Hall, 1998; Webley, 2004; Hutton 2007). Three watching briefs were carried out by the CAU in the area of the quarry immediately south of the site in 1998 and 1999. These revealed sparse archaeological remains, consisting of a small number of pits, postholes and linear ditches. None contained any dateable artefacts, except for one pit which contained a sherd of prehistoric shell-tempered pottery (Higbee 1998; 1999). However, in 2001, an area adjacent to Whitfield to the south had three pits and two linears. One of the pits (F.2) contained a complete ash palstave haft, and a C14 date was obtained from the lower layer that produced a date of 1900-1510 CAL BC. Meanwhile extensive excavations by the CAU on the Meadow Lands, 2km southwest of the present site, (Areas A to D) have revealed Early Bronze Age pit clusters and successive settlements from the late Bronze Age, Early Iron Age and Middle to late Iron Age (Hall 1998; Webley forthcoming).

A cluster of discrete features in the northern part of the Meadow Lands consisted of three post-hole structures, 18 large pit/wells and several smaller pits, all containing Deverel-Rimbury pottery. They had no evidence of lining or revetment (indicating a relatively short span of use), and after the primary usage of the well, it was left to infill gradually with episodes of silting and edge erosions with occasional deliberate dumping episodes. Finds occurred in the upper tertiary layers and were midden redeposition. It is unclear whether these represented a single small settlement or separate episodic visitations to the area, a settlement pattern involving a certain degree of residential mobility.

A Bronze Age landscape 7km to the southwest, at West Deeping, excavated by the CAU consecutively with the investigations at Langtoft, produced a field system and settlement occupation. The pottery assemblage suggested activity spanning from the Late Neolithic through to Romano-British, with Middle Bronze Age being the dominant occupation, featuring a trackway, associated enclosure and field system, (Murrell forthcoming). In addition, at Welland Bank, the Middle Bronze Age field system and droveways extended well into the Fen Edge at 2-3m OD, (Yates 2007).

Eight kilometres to the south of the area a Bronze Age settlement was found at Nine Bridges consisting of ring-ditches, field systems and pit groups (Knight, 1998). Two large pits (F.72 & F.78) had structural/revetment components in their bases in the form of wooden stakes and planks, thus enabling the centre of the pit to remain clear of gravel erosion from the sides and clay. Ring ditches appear to have influenced the location, extent and alignment of fields and field systems. Large pits were superimposed by droveways and located within and across the fields. The pattern of enclosure followed by settlement suggests co-ordination in the laying out of fields with settlements fitting in. Similar patterns of field system, watering holes and pits and have also been found at Eye Quarry (Pattern, forthcoming) and Pote Hole Farm and Quarry (Patrick Daniel, Network Archaeology, *pers comm.*).

A Middle Iron Age saltern has been excavated 225m to the north of the site, (now known as Glebe) which comprised of probable sub-circular and sub-square buildings along with considerable quantities of briquetage (Lane 2001). This Iron Age activity extended away from the site with other Iron Age features revealed by a watching brief 475m to the northwest, on the north side of Outgang Road (Heritage Lincolnshire 1992).

Occupation of the gravel is well attested in the Romano-British period. Cropmarks probably belonging to field systems and enclosures of this date are present to the immediate east and west of the site. Two Roman settlements and field system were uncovered in the excavations at Baston No. 2 Quarry (Webley forthcoming; Hutton 2007), and Roman pottery had been recovered during quarrying on the north side of Outgang Road, c.1.5km northwest of the site (Petch 1961; Phillips 1970).

During the middle ages the site lay beyond the eastern edge of cultivation, and formed part of the pasturelands of Langtoft Common (Hallam 1965, 114-5). Three early maps at 1 inch to 1 mile scale, (Armstrong's Map of Lincolnshire of 1778, Bryant's map of the County of Lincoln of 1828 and C. and J. Greenwood's Map of the County of Lincoln of 1890-91) show a layout of field boundaries similar to that existing today.

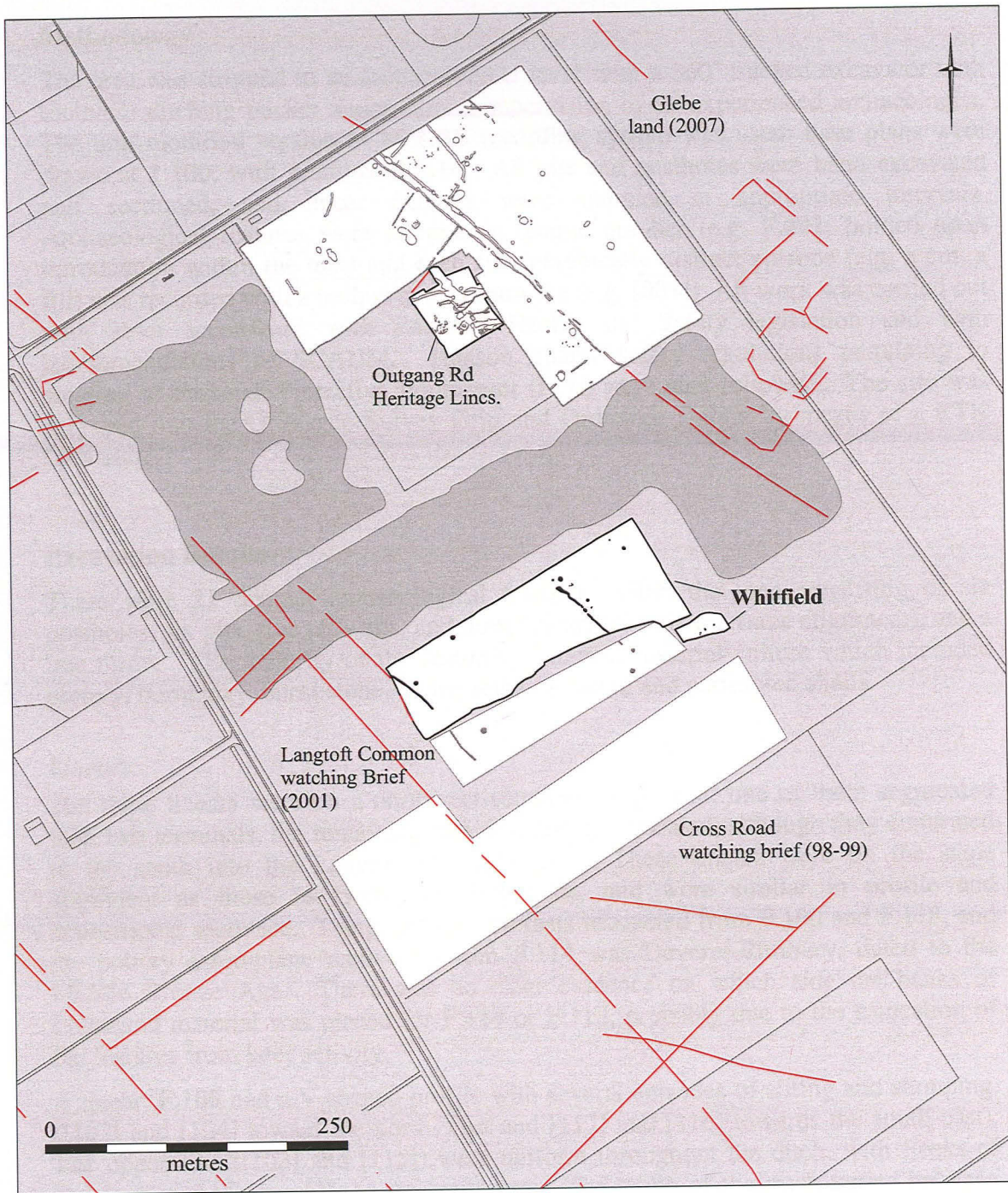


Figure 2.

Methodology

The area was stripped to an archaeological level with a 360° tracked excavator with toothless ditching bucket under careful supervision of an experienced archaeologist. The unit modified version of MoLAS recording system was used; base plans were drawn at 1:100, with sections at 1:10. All pits and postholes were hand excavated half sectioned, and linear features were sampled at appropriate intervals. Archaeological features were assigned a unique number (e.g. **F.001**; bolded upon introduction within the text) and each stratigraphically distinct episode (e.g. a cut, a fill) was recorded with a unique context number (e.g. [001]). All work was carried out with strict accordance with statutory Health and Safety legislation and with recommendations of SCAUM. Hanson quarry safety regulations pertaining to wearing of Personal Protective Equipment (PPE) were also followed. The site was surveyed into the Ordnance Survey Grid and Ordnance Datum by means of a RTK GPS unit.

Excavation Results

There were 21 distinct archaeological features within the area consisting of six postholes, six pits, five pit/wells, and three linears (two on the same alignment), and a tree throw. The majority of the features contained material culture which included pottery, burnt clay, burnt stone, faunal remains, wood and perforated shells.

Linears

The three linears were on a northwest-southeast alignment, one of them segmented with two terminals, the remaining two were either truncated, although they continued to the south into the Langtoft Common site. These linears were on the same alignment as those in Glebe and Freemans, and were similar in profile and depositional sequence. There were no artefacts recovered from F.100 and F.118, and the pottery assemblage recovered from F.114 was Deverel-Rimbury, dated to the Middle Bronze Age. There was no clear evidence on which side the banks of excavated material was placed for F.114 or F.118, probably due to the truncation of the features from later activity.

A linear, **F.100** had a V shaped profile with several episodes of silting and slumping, ([102] and [104] toward the north-west and [117] and [116] towards the south-east). The upper silts ([103] and [115]) were uniform throughout the ditch, with flecks of charcoal in the upper fills to the southwest. The width of the ditch varied between 1.60m to the southwest and 1.20m wide to the north, although the depth was similar, ranging from between 0.72m and 0.62m and was orientated northwest-southeast. The ditch was re-cut twice to the north, with no evidence of re-cuts to the south. The silted fills and redeposited natural, along with the lack of artefact assemblage suggests there was little domestic activity occurring in the immediate vicinity.

Linear **F.114** was 24.40m in length and although mainly straight, there was a slight curve in the mid-section, possibly respecting an earlier element such as a tree. Both terminals had multiple fills, (silting and dumping), although the central slot only consisted of one silting episode.

The northern terminal was cut into a pit, (F.116) so that it appeared larger than the rest of the ditch, and had a small dump of burnt domestic material with pottery, bone and mussel shells. The southern terminal also had a dump of material; however a larger amount of pottery was recovered, and weighed 5157g representing 8 vessels. Remains of other burnt material were also recorded such as charcoal, ash, burnt stone and bone.

To the south of this terminal, there was a small tree throw, F.119, with similar material. This would suggest that these two features were probably contemporary.

To the south of F.114 and on the same alignment was **F.118**, a linear 12.80m in length which continued out of the excavation area to the south. The northern terminal comprised of a single fill, whereas the central area had three episodes of silting and slumping. No material was deposited in this area.

Pit/Wells

The majority of the pits were positioned alongside the linears (with the exception of F.121 and F.115) and concentrated around linear F.114. This category of feature has been termed pit/well, as its primary use was that of a well/access for water. After the well went out of use, whether for an extended period of time or for short term use, they naturally silted up after which there were some episodes of dumping of burnt domestic debris. Two of the pits, F.105 and F.112 underwent slightly different processes, after naturally silting up no domestic waste was placed in the upper layers. All of the pottery assemblage dated to the Middle Bronze Age, and no artefacts recovered were dated to earlier periods.

The pits in this area had three episodes or events, with the primary episode being an open pit with water. Fluctuating water levels could influence the depth need to go to allow water seepage to collect into the bowl. The secondary episode; alternating periods of silting and edge erosions (gravel slumps), and tertiary; the deliberate infilling of the pit within the catchment of activity. The primary fills were mostly organic. They were excavated through unstable gravel which led to inherent instability of the feature, and as there was no evidence of revetment, the pit would have had a continual process of cleaning out or the period of usage was short, indicating that the activity in the area was perhaps seasonal. The majority of the artefacts were associated with the upper tertiary fills of the pits representing midden redeposition.

F.105 was a pit/well towards the south-west of the area adjacent to linear F.100. It was sub oval in plan (2.02m x 1.59m) with steep, slightly concave sides and a flat to concave base. The fills represented episodes of silting, slumping and probable dumping episodes. One deposit, [131], represented the initial slumping of the pit very soon after it was originally dug. The layers above this may represent silting from water ([129] and [130]). The top of [126] may have represented the water level at the time the pit was dug, and the slight undercutting on the south-west side could indicate water activity. The organic remains in [126] could be reeds or other aquatic plants that would have formed during or after its period of use suggesting that the well was open and left to naturally sit up. There was no evidence for the deposition of domestic material and no artefacts which suggest that there was no or little activity in this area.

F.112 is a large pit/well located near the northern terminal of F.114 (a northwest-southeast aligned ditch). The fills suggested that this was left open to naturally silt with no material culture catching within the feature, as is the case with the surrounding features. Its morphology was similar to that of F.105.

F.113 was a circular pit/well that was situated alongside linears F.114 and F.118 on the eastern side. The upper fills indicated periods of silting and the dumping of domestic material (pottery and bone) after the well went out of use. A degraded piece of wood found at the base could have been the remains of a log ladder; previous ladders have been found through the area, including notched stakes found at Deeping St James, Lincolnshire, (Hall & Coles, 1994; 94-6). The upper fills represent episodes of domestic material dumping including pottery and burnt material representing a fire/hearth.

Towards the northeast of the area, there was another pit/well (**F.115**) that contained several fragments of discarded wood with no evidence of workings. It had a similar morphology and depositional sequence to the other features and contained a small quantity of animal bone.

F.120 was a pit located between linear F.118 and three-throw F.119. There were eleven fills representing periods of silting and slumping. The upper fills contained domestic material, similar to that recorded throughout the area. Once the well had gone out of use and allowed to silt up, it was then used as a convenient place to put waste.

Pits, postholes and other features

There were six postholes and six pits excavated in this area, four postholes were clustered together, and the remaining two were towards the southeast of the area along with two small pits.

F.101 was a small posthole in an area with little activity and was alongside F.102, a small pit. Nearby were two small shallow pits (F.102 and F.103) with a similar morphology and depositional sequence (mottled white/grey/orange sandy silt with occasional gravel inclusions). F.101 was circular in plan (0.29m x 0.27m wide and 0.12m deep), and F.102 was larger and oval in plan (0.90m x 0.75m wide and 0.16m deep), and was similar to that of F.103 (1.06m x 0.77m and 0.22m deep). In the same area F.104 was slightly larger (1.85m x 1.10m wide and 0.30m deep), oval in plan, and consisted of a single fill (112) which was light to mid grey silt with occasional gravel inclusions (from natural matrix). These features were not within an area or concentration of archaeological activity.

F.106 was an isolated pit towards the north-east of the area near a larger pit, F.115. It was sub-circular in plan (1.00m x 1.10m and 0.16m deep) with shallow concave sides and flat base.

F.107 was a circular pit (1.35 x 1.45m and 0.80m deep) with steep, slightly convex sides and concave base. The layers consisted of several bands of slumping and silty fills. Layers [156] and [157] were inclusive to re-cut [290] which indicates that the pit was re-cut after a period of silting. This pit was re-cut [290] and contained 17g of animal bone in the upper layer [156].

Four possible postholes were excavated in the area where archaeology was most prevalent on the site (F.108, F.109, F.110 and F.111). All were shallow and had similar morphological fills and profiles.

F.117 was a small pit located in the general area of pits F.113, F.120 and linear F.118. It consisted on one fill and contained no material culture.

Between F.114 and F.120 there was a tree-throw (F.119) that produced similar pottery to that of both features. It is possible that the tree was present at the time the linears and pits were originally dug. To the northeast of the area, a series of tree-throws with evidence of burning were present, which could present land clearance during the time the area was utilised.

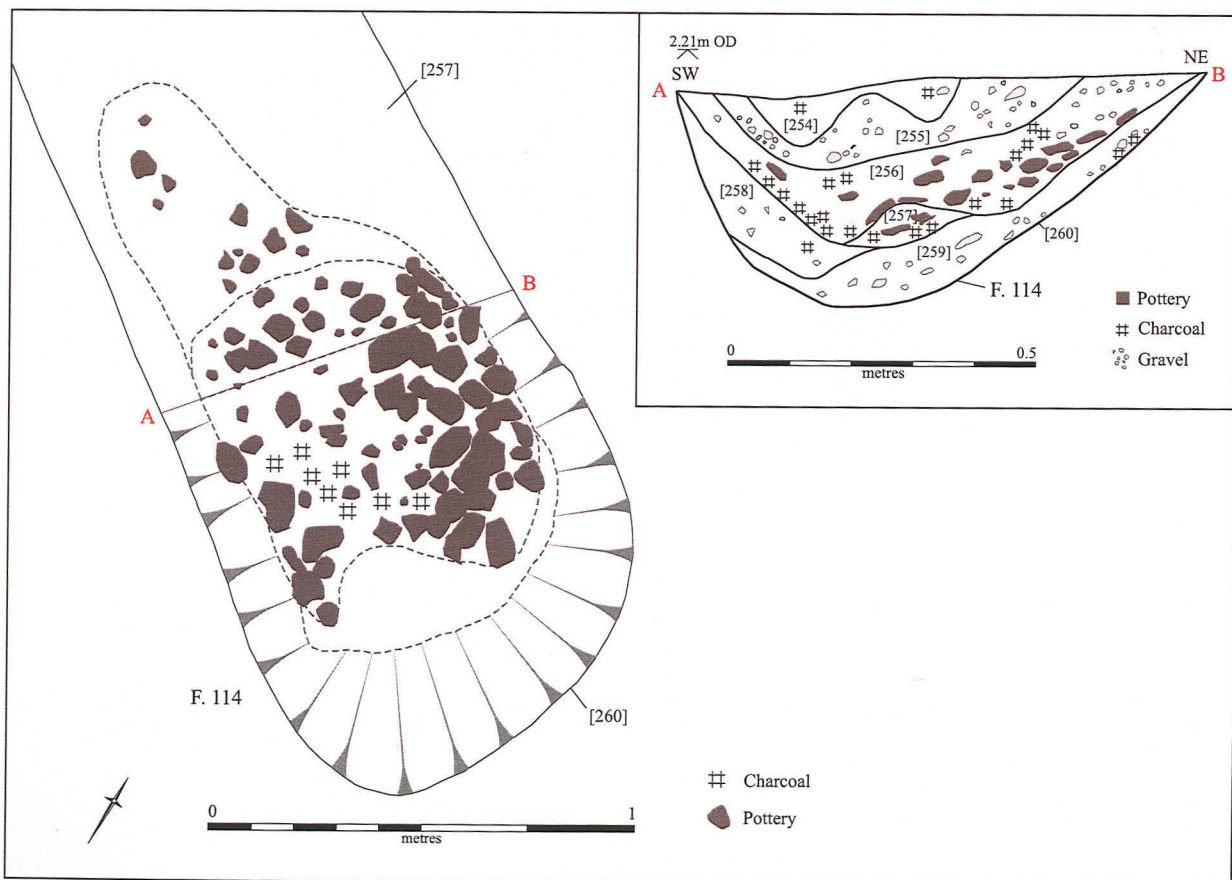
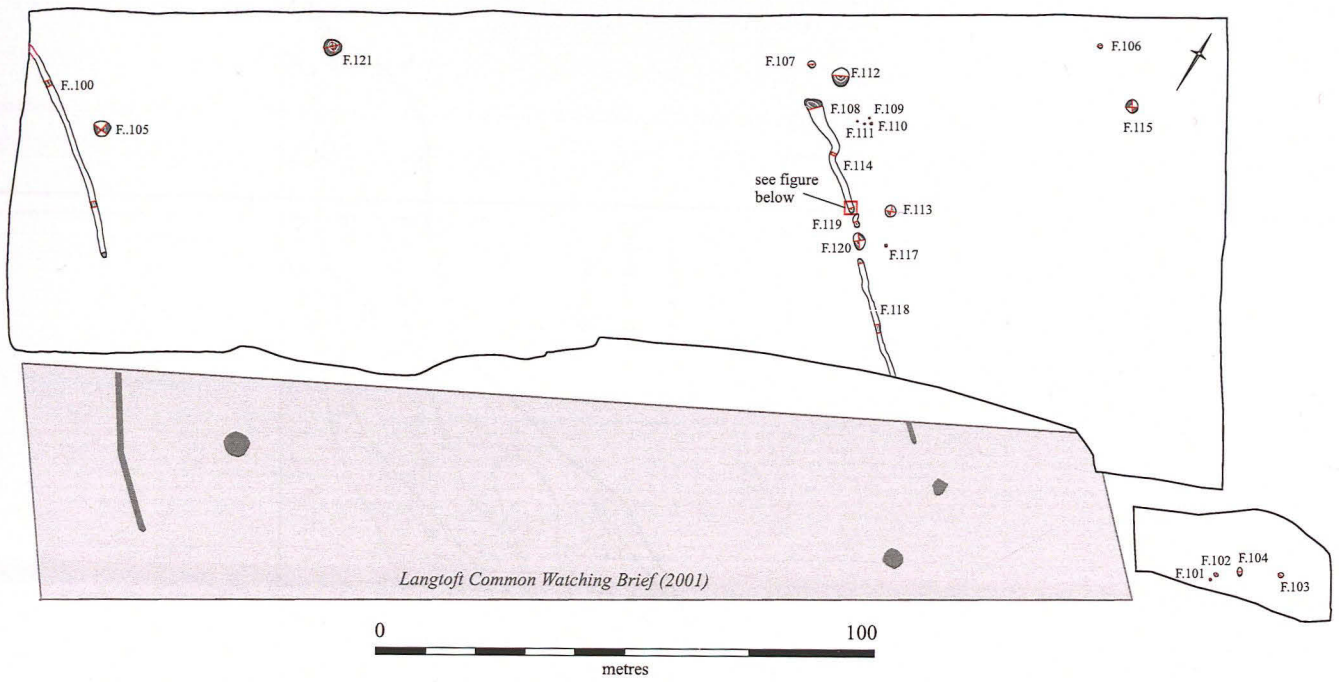


Figure 3. The Southern terminal of linear F. 114 showing concentration of Deverel Rimbury pottery

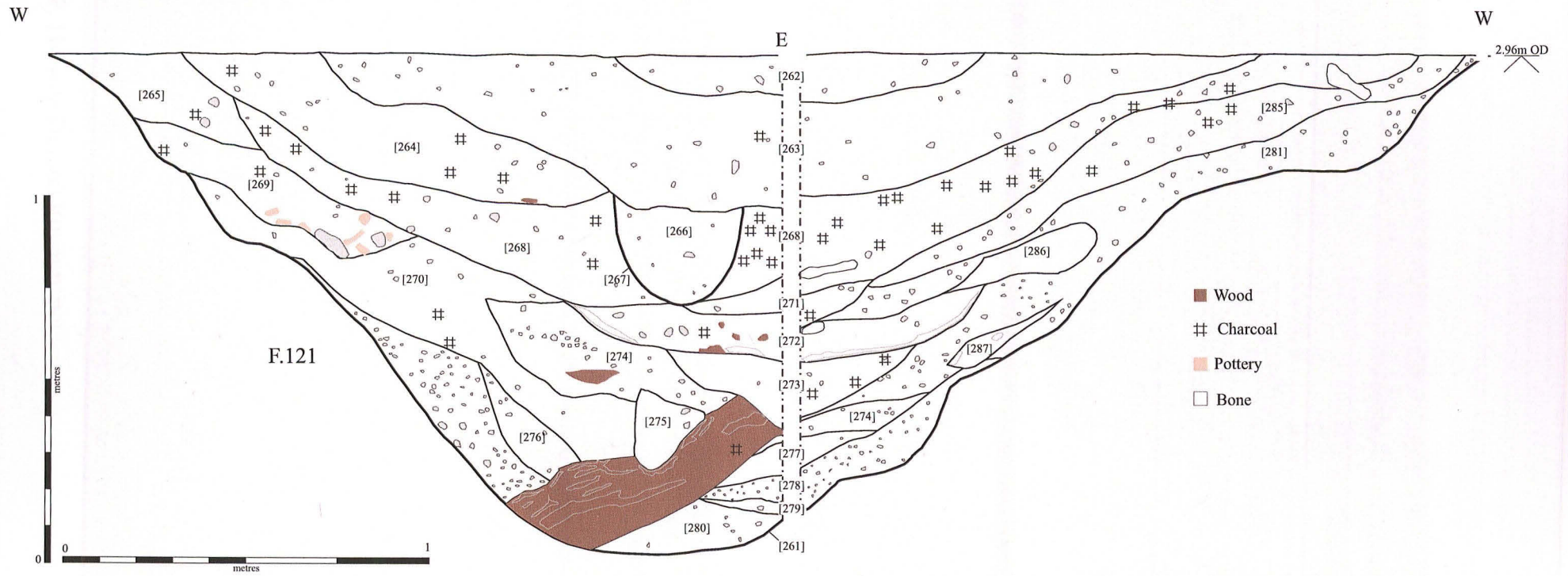


Figure 4. Pit / well F. 121 with log ladder



Figure 5. Pit / well F. 121



Linear F. 114 with Deverel Rimbury pot.

Figure 5.

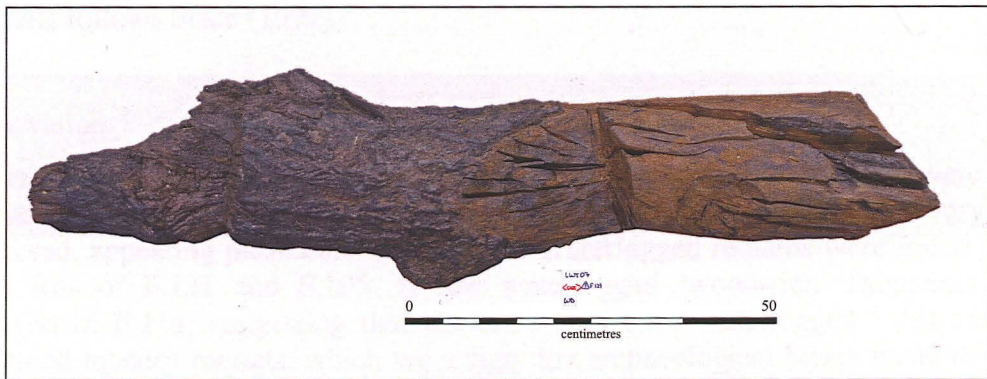


Figure 6. Photo of artefacts including the log ladder, perforated shells and pottery from F. 121

Specialist Reports

An Assessment of Bulk Environmental Samples

By Anne de Vareilles

Methodology

Eight bulk soil samples from four MBA features were chosen for analysis. They were floated using an Ankara-type flotation machine, where the flots were collected in 300 μ m meshes and dried indoors. The heavy residues were washed over a 1mm mesh but have not been sorted. Samples from F.105 and F.121 [275] were also processed for waterlogged remains, i.e. 500ml of soil were floated using a 300 μ m mesh and the flots kept wet. Only the wet flots from these two features were analysed. Sorting and identification of plant macro-remains were carried out under a low power binocular microscope. Identifications were made using the reference collection of the George Pitt-Rivers Laboratory, McDonald Institute, University of Cambridge. Nomenclature of plants follows Stace (1997).

Preservation

Although charcoal was found in all samples, charred grain and seeds were only recovered from two of the four features. The grains and seeds are not very well preserved, appearing puffed and fragmented. Waterlogged remains were found in the basal fills of F.121 and F.105. A few waterlogged 'wood-rich' fragments have survived in F.114, suggesting that the ditch was once waterlogged. All samples contained modern rootlets, which are a sign that archaeological layers have, to some extent, been disrupted through bioturbation.

Results and Discussion

Pit F.113 [193] and [195]

No plant remains other than charcoal was recovered. The fragments are mainly small (<2mm) and were most common in [195]. During excavation [193] was described as 'pinkish ash'. Closer analysis revealed that the matrix is not ash but either minute fragments of bone or iron replaced organics (such as root fragments).

Ditch F.114, northern terminal [224] and southern terminal [256]

The samples were not strictly waterlogged although it seems that these contexts may once have been. Ten charred wild seeds were found in the northern terminal whereas [256] only contained a charred culm node and a waterlogged piece of hazel-nut shell. It is possible that the charred wild seeds were in fact deposited in F.116 which is cut by the ditch (see feature description).

Pit/Well F.121 [269], [266] and [275]

The three samples taken from this feature all contained relatively high quantities of charcoal. A total of three charred grains and one wild seed add to the range of habitation waste found in [269] and [266]. [275] had quite a diverse assemblage of waterlogged wild plant seeds as well as one waterlogged spelt wheat glume base (*Triticum spelta*).

The waterlogged assemblage is dominated by seeds of crop-weeds and/or plants typical of disturbed, fertile areas such as human settlements. There are a few aquatics that probably grew within the pit/well, showing that the feature was not kept completely clear of vegetation and associated wildlife. A few species, such as brambles (*Rubus* sp.), black horehound (*Ballota nigra*) and deadly nightshade (*Solanum nigrum*), are suggestive of a more overgrown, shadier landscape. These, however, may have grown on the margins of a more intensively used field system.

Pit/Well F.105 [134]

Although [134] was obviously once waterlogged few seeds have survived, the most common being stinging nettle (*Urtica dioica*) which was also well represented in F.121.

Conclusion

Large assemblages of cereal remains that could be linked to common settlement activities were not found. The samples revealed traces of hulled barley (*Hordeum vulgare* sl.) and spelt wheat, along with negligible quantities of charred wild plant seeds. So whilst concentrations of charcoal point to nearby fires, the lack of edible plants suggests Whitfield was not a settlement site. The same conclusion was drawn for the adjacent site of Langtoft Common where well preserved waterlogged deposits were sampled (Roberts and Simmons 2004). A description of the environment is difficult to obtain from a single well preserved waterlogged assemblage. Nevertheless, the crop weeds and spelt chaff point to an arable landscape used for cultivation and probably pasture too. Brambles, nettles and a few other species suggest that some areas may have been more neglected than others. Evidence for scrub/open woodland or perhaps hedgerows found at Langtoft Common is lacking from Whitfield.

An Assessment of the Pottery

By Mark Knight

The assemblage was made up 1401 sherds that weighed 13,869g. The pottery came from five different features or 17 separate contexts and comprised a remarkably homogeneous collection of sherds of similar fabric and type. All of the sherds shared the same shell-rich appearance and with a single exception belonged to thick-walled (10-15mm) bucket or barrel-shaped forms. The only variation in fabric depended on whether the fossil shell inclusions had been left whole (Fabric 1) or crushed (Fabric 2). The overall condition of the material was good with very few noticeably abraded pieces (MSW 9.9g). Feature sherds included 70 rims, 44 base angles, 30 decorated sherds and 12 cordons although the assemblage was made up predominantly of plain body sherds 88.9%. Fingertip and fingernail decoration dominated and occurred on or just below the rim or as a cordon around the shoulder. Applied cordons and occasional knobs or bosses also adorned the shoulder zones and these were sometimes decorated with fingertip or fingernail impressions. Ditch F.114 and pit F.121 yielded 93% of the sherds or 91% of the total weight.

Feature	Context	Number	Weight (g)	MSW (g)	Fabric
113	195	75	1066	14.2	1
114	205 207 253 254 256 257	684	5157	7.5	2
119	237	6	6	1	1
120	240 245	18	193	10.7	2
121	263 268 269 271 272 273 275 282	618	7447	12	1
Totals: 5	17	1401	13869g	9.9g	2

Table 1: Assemblage Breakdown

The largest assemblage by weight came from the large watering hole F.121. Its upper fills produced 618 sherds all of which were made from the same 'whole-shell' fabric (Fabric 1). Amongst the plain body fragments were 32 rims, 33 base-angles and 19 decorated pieces. Rim forms were mostly simple and of the rounded and flattened variety. Occasionally, the flattened types were externally thickened. Rim decoration involved cable designs made by diagonal incisions (fingernail?) around the outside edge or rim top. Shoulder cordons were present on five sherds and one of these was decorated with 'thumb-impressions'. Another of the cordons had been applied in such a way as to create a distinctive overhanging collar. Applied knobs or bosses occurred on three sherds and one of these was impressed with a crows-foot or finger-pinch design. Similar crows-foot impressions adorned another vessel just below its rim. Rim diameters measured between 15-28cm and base diameters equalled 18-24cm. In total fragments from at least seven vessels were identified.

The second largest assemblage by weight came from the southern terminal of ditch F.114 and comprised 684 sherds. In contrast to F.121 the fragments from F.114 were all made from the 'crushed-shell' fabric (Fabric 2). Amongst its plain body fragments were 31 rims, six base angles and 11 decorated pieces. Rim forms were equally simple but included a particularly bulbous externally thickened variety. None of the rims were decorated and there were no shoulder cordons. Decoration occurred either immediately below the rim or around the shoulder either as crows-foot or fingernail impressions.

Rim diameters reached over 30cm but also included a small diameter vessel (6cm). The small diameter rim belonged to a thin-walled (6mm) ovoid-shaped jar with an upright simple rim which stood out from the typically thick-walled bucket forms. F.114 contained fragments from at least eight vessels.

The comparatively small assemblage from pit F.113 comprised sherds made of the same whole-shell fabric as F.121. It also contained a distinctive collar-like cordon previously identified in F.121. The six rims from F.113 continued the simple theme and produced diameters equivalent to F.121 also.

Feature	Sherds	MNV
113	75	3
114	684	8
119	6	1
120	18	1
121	618	7
		20

Table 2: Minimum number of vessels

The bucket and barrel-shaped forms replete with shoulder cordons, knobs and fingertip decoration locate the assemblage securely within the Middle Bronze Age Deverel-Rimbury tradition. Its best parallel is the Grimes Graves assemblage (Longworth *et al* 1988) which produced over 3000 sherds of domestic Deverel-Rimbury pottery. Its most immediate ceramic connection is the Langtoft Common site (located along the southern edge of the current site) which produced a comparatively tiny assemblage of shell-rich Deverel-Rimbury pottery from two large watering holes. One of the watering holes (F.2) produced two earlier Bronze Age radiocarbon dates from successive deposits located beneath the pottery layer. The lowest deposit contained a charred seed with a date of 1900-1510 Cal BC (95.4% probability) whereas slightly higher up the profile a date of 1600-1140 Cal BC (95.4% probability) was recorded.

The adjacent Glebe Farm and Freeman's sites also generated large Deverel-Rimbury assemblages as did the nearby West Deeping excavation (Knight in Murrell forthcoming). The pottery from all of these sites came from either watering hole or fieldsystem related contexts and combined begin to demonstrate a scale of Middle Bronze Age domestic activity comparable only to that found at Grimes Graves. Elsewhere in East Anglia the only equivalent Deverel-Rimbury collections have come from cemetery sites as 'whole-urn' assemblages (see Ardleigh in particular; Brown 1999) as opposed to sherd-based assemblages.

The quantities of Deverel-Rimbury pottery from these south Lincolnshire fieldsystem sites stand in marked contrast with the quantities recovered from similar sites in north Cambridgeshire. Excavations at Eye (Patten 2003), Fengate (Beadsmoore 2005; Pryor 1998), Bradley Fen (Gibson & Knight) have all revealed similar patterns of field systems and watering holes but have yet to produce equivalent Middle Bronze Age assemblages. Conversely, these same north Cambridgeshire landscapes have generated substantial earlier ceramic assemblages, especially Collared Urn, not so far manifest at Langtoft or West Deeping.

Fabric 1 Medium hard with abundant whole fossil SHELL

Fabric 2 Medium hard with abundant crushed fossil SHELL

An Assessment of the Burnt Clay

By Jacqui Hutton

A total of 47 fragments of burnt clay were recovered from three features, with a combined weight of 368g. The three features were; a linear (F.114), a pit, (F.113) and a pit/well (F.121). There were six types of fabric, although the colour appeared to be restricted to two; grey/white and orange/buff.

Most of the fragments had evidence of burning and were well abraded and rounded. As they were so fragmentary it was difficult to ascertain as to whether they were from broken and/or originally friable artefacts, such as loomweights or briquetage. Supported by the evidence of the pottery assemblage, there appears to be no evidence of briquetage furniture (such as pedestals) recovered from this area. There was a fragment of loom weight from F.114 from context [256], possibly indicating that these type of artefacts, (due to the nature of their fabric), do not survive well in the archaeological record in this area.

The majority of the burnt clay came from two features; F.114 and F.121, and 79% came from the southern terminal of the linear, F.114, (see below). The burnt clay was recovered from a small deposit of domestic material that consisted of burnt stone, and pottery (Deverel-Rimbury), possibly from a hearth.

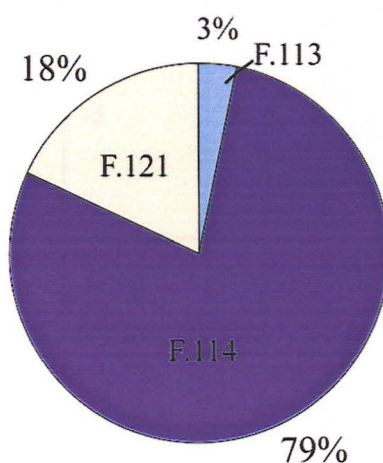


Chart 1. Pie chart with weight percentages from features

Feature No.	Context No.	Number	Weight	Fabric Type	Description
113	195	2	12	14	Two fragments of very rolled and abraded burnt clay with no visible flat surfaces. Orange in colour although one has a slightly more buff colour to one side (more fired). 23mm-25mm in length and 13mm-14mm thick.
114	253	7	9	3	Small fragments of orange/buff coloured fired clay, well rounded and abraded. There is no evidence of a surface on any of the fragments. Dimensions range from 8mm-19mm in length and 5mm-11mm thick.
114	254	1	26	14	A fragment of rolled and abraded fired clay, mainly orange in colour, although becoming more light buff on one flat/slightly uneven surface, probably due to being more exposed to firing on that side. No inclusions. 39mm in length and 24mm in depth.
114	256	16	180	3,12	Eight fragments of type 3, orange/buff in colour. One has smooth/rounded surface. (Also includes fragment of possible shell-tempered pot). Eight fragments of type 12, white/light grey in colour, one flat surface and one smooth indented surface, almost as if pinched. Also one of them had two joining flat surfaces which could represent part of a loom weight. All the fragments are abraded and ranged from 9mm-51mm in length and 7mm-25mm in depth.
114	257	13	75	10, 6	Fragments of well rolled and abraded fired clay, varied in size and two different colours; white/light grey (Type 10) and orange/buff (Type 6). Six of Type 6 appears to have smooth flat and slightly curved surfaces. Type 10 dimensions are 15mm-28mm in length and 11mm-17mm thick. Type 6 dimensions are 13mm-33mm in length and 8mm-17mm thick.
121	268	3	24	3	Fragments of well rolled and abraded fired clay, orange/buff in colour. All of them have a hard flat smooth surface (buff colour) and a slightly friable orange interior. Ranged from 19mm-32mm in length and 11mm-16mm in depth.
121	272	4	24	12	Two large fragments and two small, brown/orange/buff in colour. Uneven surfaces and rolled. 15mm-27mm in length and 9mm-23mm thick.
121	273	1	18	3	A fragment of mottled buff/orange coloured fired clay. It has one slightly indented surface, almost impressed with a thumb. 38mm in length and 20mm thick.

Table 3; Description of the Burnt Clay artefacts.

An Assessment of the Faunal Remains

By *Vida Rajkovača*

Introduction

The animal bone assemblage recorded from the Langtoft Whitfield Site elicited a small sample of 193 bone fragments. This includes both the hand collected material and the material from the sieving of bulk soil samples. The assemblage is made up of livestock species and it is dated to Middle Bronze Age.

The assemblage represented a continuation of archaeological investigation in the area (Higbee 1998, 1999; Hall 1998; Patten 2003; Webley 2004 a, b; Hutton 2007) and builds on zooarchaeological research executed by Higbee (1998b), Swaysland (2004a, b) and Seetah (2007).

Method

The zooarchaeological investigation followed the system implemented by Bournemouth University with all identifiable elements recorded (NISP: Number of Identifiable Specimens) and diagnostic zoning (amended from Dobney & Reilly 1988) used to calculate MNE (Minimum Number of Elements) from which MNI (Minimum Number of Individuals) was derived. All vertebrae (other than atlas or axis) and ribs were assigned only to a size category (Unidentified Large, Medium, Small Mammal), as they are impossible to assign to species. Ageing of the assemblage employed both fusion of proximal and distal epiphyses (Silver 1969) and mandibular tooth wear (Grant 1982). Identification of the assemblage was undertaken with the aid of Schmid (1972) and reference material from the Cambridge Archaeological Unit. Where possible, measuring data was taken (von den Driesch 1976). Taphonomic criteria including indications of butchery, pathology, gnawing activity and surface modifications as a result of weathering were also recorded when evident.

Preservation

The material was poorly preserved indicating that bone showed some signs of weathering or other erosive damage. Of 24 contexts analysed, five showed quite good preservation with minimal or no bone damage. Eleven contexts were recorded as moderately and eight as poorly preserved. Actual figures that correspond to these categories show that 82 fragments demonstrated good preservation, compared to 111 fragments with bone surface damage or signs of weathering. Of the 37 bones identified, 18 were either fragmented or eroded.

Results

Species representation

Of the total 193 bones recovered, 144 (74.6%) were possible to assign to element and only further 37 bones (19.2%) to species. The low percentage of fragments identifiable to species is due in part to the relatively high numbers of fragmented limb bones which could only be assigned to a size category (Large, Medium or Small Mammal). Being the main providers of meat and a multipurpose animal, cattle accounted for the greatest portion of the assemblage, followed by ovicaprids and pig (Table 4).

Species	NISP	% NISP	MNI
Cow	22	59.5	1
Ovicaprid	13	35.1	3
Goat	1	2.7	1
Pig	1	2.7	1
ULM	25	-	-
UMM	77	-	-
USM	5	-	-

Table 4: Species frequency by NISP (Number of Identifiable Specimens) and by MNI (Minimum Number of Individuals)

Key: USM, UMM & ULM = Unidentified Small, Medium and Large Mammal / UUM = Unidentified Fragment. NB: Species percentages are out of 37. These differ from the unidentified counts as these are calculated on the basis of element identification (for USM, UMM & ULM) and total fragments (for UUM).

Cattle were represented by both carcass portions and mandibular elements present on the site. Although a small assemblage, this can probably implicate local breeding, slaughter and consumption. No ageable cattle specimens were recovered. Age range for ovicaprids, obtained from mandibular toothwear (Grant 1982) and bone fusion data (Silver 1969) demonstrates the presence of immature, juvenile and senile animals on the site (three mandibles were aged to 0-6 months). Other domesticates are represented by sporadic finds. Butchery marks were recorded on only one medium sized mammal specimen, indicating meat removal. No signs of pathology or carnivore gnaw marks were observed.

One ovicaprid specimen has been positively identified as goat. The distinction between sheep and goat was made on the basis of one fragmented horn core found in the F.121, which produced the greatest amount of identified fragments.

Conclusion

This was an impoverished assemblage in terms of species representation. The Middle Bronze Age fauna recovered on the Langtoft Whitfield site is dominated by ruminants, as was the case for the previous assemblages recovered on the same site (Swaysland 2004a, b; Seetah 2007). This assemblage is quantitatively inadequate to sustain propositions about animal use but it does provide some basic information for comparison on a superficial level. Being the main providers of meat, it is not surprising that cattle were the dominant livestock species. Also, being identified with a variety of elements this probably represents domestic kitchen waste.

Quantification and spatial analysis of the bone would enhance the study of this material and elucidate on the patterns of deposition. Clarifying age structures and kill off patterns from the material with a more in depth analysis of toothwear and fusion data will definitely bring us closer to drawing more valuable conclusions about the economy of the site in the past. It would be inappropriate to over analyse an assemblage of this size, especially as there was insufficient data to plot mortality profiles or attain metrical estimates.

An Assessment of the Wood

By Jacqui Hutton

The log ladder was 1.15m in length and 0.20m diameter in the centre. The base end was a slightly blunted taper and the wood was at its widest. The top half was more tapered, broken and desiccated, which could be caused by fluctuating water levels. There were two notches, the one nearest the base was larger, and between this and the base, there was evidence of two sawn off branches. To the top of the ladder bark was present, indicating that this was probably just left and not worked.

An Assessment of the Molluscs

By Jacqui Hutton

A deposit of fragmentary mussel shells was recovered from a discrete dumping episode within the northern terminal of linear F.114. In addition, three perforated cockle shells were recovered from an organic rich fill in pit/well F.121.

Both mussel and cockle shells belong to the Bivalvia Class, which consist of two valves joined along the dorsal edge by elastic ligament. The Common Blue Mussel belongs to the Mytilidae family and has thin elongated shells with a pearly interior. These are found throughout the world and live in colonies in shallow intertidal waters attached to rocks or stones, (Woodward, 1993). The mussel shells recovered from F.114 were found with a single piece of pottery (dated to the Middle Bronze Age) and 59g of animal bone, indicating the deposition of domestic refuse.

European Cockles (*Cerastoderma Edule*), recovered from F.121, were off-white in colour and had between 22 and 28 radial ribs, each bearing scale-like spines, and had perforations on the apex, (see Table 5). The dimensions are similar throughout, and two of the perforations show damage to one side, probably resulting from usage. This class of mollusc are also found in intertidal sands and mud flats, (Woodward, 1993). These shells were recovered together with a large amount of Deverel-Rimbury pottery (2250g), animal bone (98g), burnt stone and clay (111g combined).

size of shell (width x length x thickness)	size of perforation	additional characteristics
35 x 35 x 13mm	6 x 6mm	edge smooth on interior, slight irregularity to perforation on one side
35 x 34 x 13mm	4 x 4mm	organic concretions on exterior, edge smooth on interior, slight irregularity to perforation on one side
36 x 34 x 14mm	4 x 5mm	edge smooth on interior

Table 5; Dimensions of perforated shells.

Mussels have been utilised as a food resource since earlier prehistoric times and during the Bronze Age supplemented a varied diet that included cereals and proteins. The fen edge is less than 1km away, suggesting that this food resource could have been taken from the local area. The perforations appear to be intentional and one possibility is that they were used for a decorative piece of adornment, such as a necklace. However, as these were recovered within a domestic assemblage, it seems plausible that these could have been used as an implement for food processing. Anthropological studies of tribes throughout the world show that perforated shells are used for shredding or grating products such as tubers, roots or fruit. Previous perforated shells recovered in the area were found in burial contexts such as the human internment at Pode Hole Farm quarry workings, to the east of Peterborough, (Muir, 2007). Therefore, together with the environmental data, a detailed analysis can be suggested of utilised food resources and localised ecosystem.

Discussion

The three recently investigated areas of Whitfield, Glebe and Freeman provided evidence of an extensive Middle Bronze Age landscape that was characterised by a co-axial field system with interspersed pit/wells, a trackway with an associated enclosed settlement, solitary inhumations and cremations linked with ring ditches. These are common features of Bronze Age landscapes in the region, and provide evidence of mixed economy practices and permanent occupation. Archaeological remains on Whitfield highlighted part of the linear system with interspersed pit/wells, together with a large domestic assemblage.

The typology and distribution of pit/wells and field systems at Langtoft were comparable with features recorded throughout the region, including The Paddocks, Barleycroft, (Evans & Knight, 1997), Nine Bridges, Northborough, (Knight, 1998), Eye Quarry, (Patten, forthcoming), Pote Hole Farm and Quarry, (Network Archaeology, forthcoming) and Storey's Bar Road, Fengate, (Pryor, 1998). Patterns of field systems, settlements, water resources and domestic assemblages all appear to be fairly consistent throughout the intermediate region. A trackway, settlement and linears similar to that from Glebe and dated to the Middle Bronze Age was uncovered at West Deeping, although the alignment of the field system and trackway was on a northeast-southwest axis, (Murrell, forthcoming). The difference in the alignments was probably due to the route of the River Welland, with the axes of the field system branching off at a 90° angle.

In a broader context, a large scale excavation undertaken by Framework Archaeology at Heathrow Terminal 5, highlighted an extensive Middle Bronze Age landscape that consisted of field systems, trackways, settlements, pit/wells and watering holes of similar typology to those found at Langtoft. In addition, a settlement site and funerary monuments were recorded at Stansted that produced a high assemblage of Deverel-Rimbury pottery, (Framework Archaeology, 2008). An interesting question was posed in the Heathrow Terminal 5 2006 publication, regarding social pressures or circumstances contributing to the formation of field systems during the Middle Bronze Age. Was the land divided due to the fragmentation of the community, (with individual small family groups owning their own piece of land), or were they formed by the community to enforce group identity?

The linears at Langtoft were typologically similar and orientated on the same northwest-southeast alignment, and covered an extensive area (3 kilometres). This labour intensive venture would have needed a large group or community to have co-ordinated such a large enterprise. Land tenure and pressures for farming resources could have been the instigate for this scheme, however as it was such a large undertaking, people would have had to group together to establish these boundaries. Therefore, this would have acted to bring the community together and perhaps given them a sense of wider identity. The enclosed settlement at Glebe to the north was fairly small and probably represents a small family group. The evidence of aerial photographs and artefacts distributions suggest other small occupation locales were probably interspersed throughout the landscape within the linear system connecting them not only in the physical sense, but also as a distinct community.

There is clearly land division taking place, the division and control of areas could be indicative of a slightly segmented community, who undertook a collective effort to establish boundaries of ownership or tenure. The occupation at West Deeping, therefore possibly represented a different distinct community.

Features dating to earlier periods were ephemeral and there was no evidence of earlier activity at Whitfield. However, the pit/wells could provide evidence of occupation within this landscape prior to the establishment of the field boundaries. In all three investigated areas at Langtoft there appeared to be two different phases of pit/wells; those that predate the field system, and those that are associated with the field system. Typologically they were similar, with steep concave sides and flat base with episodes of silting and slumping forming the lower fills. An example of each of the two types was excavated on Whitfield.

One of the isolated pits pre-dating the field system was F.121. The lower fills consisted of alternating episodes of silting and edge erosion that had covered an abandoned log ladder, representing the abandonment of the feature. In the upper fills, domestic waste which had been exposed for a period of time was then discarded into the remaining hollow. Pottery recovered from the base of linear F.114 was comparable with the pottery from the upper layers of the well, therefore indicating that F.121 was abandoned by the time the field system was established. Samples from the log ladder from F.121 and charcoal associated with the pottery from F.114 has been sent for radiocarbon dating, and the results are forthcoming. Pit/wells F.112, F.113 and F.115 were similar although only F.113 had pottery deposits in the upper layers. The second type of pit locales were those adjacent to linears, such as those in the vicinity of linears F.114 and F.118. These were placed conveniently at the edge of the fields so as not to disturb or affect the activity in the centre of the areas.

The pottery and faunal remains that were deposited in the upper layers of the pits, have evidence of abrasion, indicating that they were originally deposited elsewhere (a midden perhaps) and were subsequently swept up and dumped in the feature once it went out of use. The environmental evidence suggests that Whitfield was an area which was not intensively used; therefore it may have been a convenient place to deposit domestic waste. The depositing of domestic waste, especially in F.114 and F.121 indicates that occupational activity was taking place in the vicinity.

The scale of the pottery recovered from Whitfield must have a special mention. The pottery was mainly recovered from two features; F.121 which was a pit/well and F.114, a linear. All the pottery was Deverel-Rimbury tradition and firmly dated this area of activity to the Middle Bronze Age. This quantity would indicate domestic activity. The best domestic parallel for the quantity is from a settlement at Grimes Graves where over 3,000 sherds were recovered, (Longworth, 1988). In addition, excavations at Stansted also produced a similar amount of pottery from a settlement site and ring ditches, although there appeared to be no associated field system, (Framework Archaeology 2008).

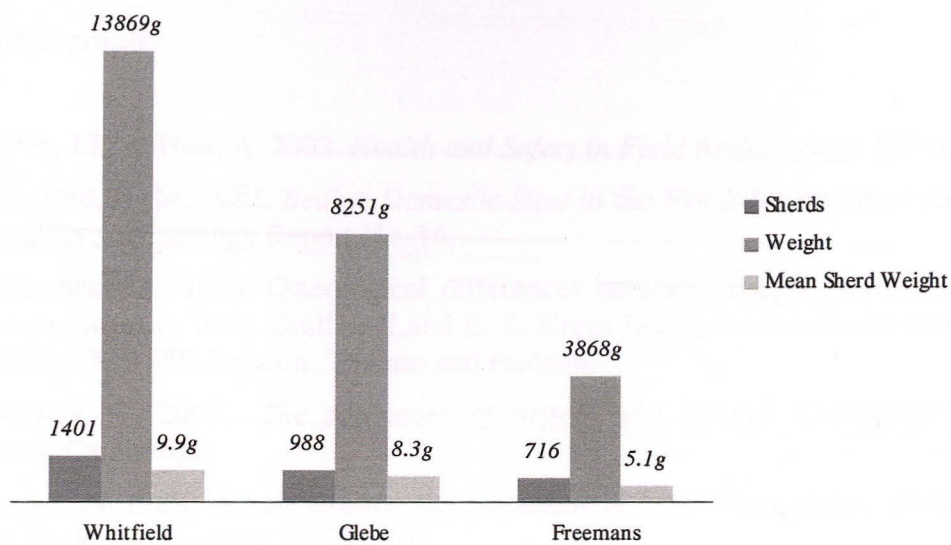


Chart 2. Deverel-Rimbury from the three phases of excavation.

The chart illustrates the weight of the Deverel-Rimbury assemblages in the three recently investigated areas. Whitfield had the least number of features, but the highest quantity of pottery. This would suggest that occupation occurred nearby, possibly in the areas now lost to quarry workings, or occupation was more ephemeral and cannot be seen in the archaeological record. As the land was organised for the field system, the pits would catch midden material naturally in the hollows. The weight and number of pottery in the areas Glebe and Freeman decreased, and the sherds became more degraded.

The features from Whitfield provided us with a glimpse of a widespread, organised Middle Bronze Age landscape that consisted of an extensive field system, a trackway, an enclosed settlement, ring ditches, inhumations and cremations, that formed part of a mixed economy lifestyle for a community. All of which was supported with a large assemblage of domestic material that provided an insight to the people who occupied this particular area of the Fen Edge.

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Appendix

Basic Feature Descriptions

F.100 was a NW-SE linear ranging from 1.20 to 1.60m wide and 0.62 to 0.72m deep and was 39m long. The northern part extended into the western edge of excavation, whereas the southern end was truncated through quarry workings. Two 1.00m slots were excavated 25m apart. The northern slot consisted of 5 fills [101 to 105] with one cut [100], and two re-cuts, [291] and [292]. The original cut of the ditch, [100] was c. 1.00m wide and 0.71m deep, and had fills [101] and [102], which suggests initial slumping and silting. The first re-cut, [292], was 1.10m wide and 0.42m deep whose fills, [103] and [104], had similar morphology. The second re-cut, [291] was 0.65m wide and 0.09m deep was filled by [105].

[101] friable white/orange gravelly sandy silt with frequent small pebble inclusions

[102] friable orange/red brown sandy silt with frequent pebble inclusions

[103] firm moist mid grey silt with orange sandy patches with occasional small pebble inclusions

[104] orange/red sandy silt with frequent pebble inclusions

[105] firm mottled orange/white/grey silt with black patches (from tree roots) with occasional pebble inclusions

[100] cut steep straight and slightly convex sides with sharp v shaped base

The southern slot consisted of six fills [115 to 120] and one cut, [114]. The ditch at this point was 1.60m wide and 0.62m deep, and consisted of mainly one silted fill [115]; the remaining fills representing small episodes of slumping at the sides, especially from the western edge.

[115] firm mottled orange/light brown/mid grey silt with occasional pebbles and flecks of charcoal

[116] firm mottled orange/red/mid grey sandy silt with occasional small pebbles

[117] firm to friable orange/red sandy silt with white mottled patches and moderate pebble inclusions

[118] friable and wet orange/white sandy silt with moderate pebble inclusions

[119] firm moist mid grey/light brown clayey silt with occasional pebble inclusions

[120] firm moist mid grey sandy silt

[114] cut moderately steep convex sides with gradual break of slope and concave base

F.101 was a small circular posthole (0.29 x 0.27m wide and 0.12m deep) with gradual concave sides and concave base, [106], and consisted of a single fill; [107] friable mid mottled grey/orange silt with occasional flecks of charcoal and small pebble inclusions.

F.102 was a shallow oval pit, 0.90m x 0.75m wide, with gradual concave sides and flattish base [108], and consisted of one single fill; [109] friable mottled white/grey/orange sandy silt with occasional small pebble inclusions.

F.103 was a shallow oval pit, 1.06m x 0.77m wide and 0.22m deep, with moderately steep flat to concave sides and base, [110], which had one single fill; [111] friable mottled mid grey/orange silt with frequent small pebble inclusions.

F.104 was a shallow oval pit, 1.85m x 1.10m wide and 0.30m deep with moderate concave sides and concave base [113], and consisted of a single fill [112] firm and moist light to mid grey with brown/orange mottling silt with occasional gravel inclusions.

F.105 was a large pit/well, (2.02m x 1.59m wide and 1.45m deep), with 17 fills consisting of several episodes of silting and natural slumping from the sides of the pit, with one cut, [139]. The upper layers appear to be episodes of natural silting interspersed with slumping of material from the edge of the pit and above (previously excavated material);

- [121] friable to firm mid grey silt with occasional pebble inclusions
- [122] mottled orange/white/grey silt with frequent gravel inclusions (from natural matrix)
- [123] moist light grey/white chalky silt with occasional gravel inclusions
- [124] moist light to mid grey silt with patches of orange silt towards the bottom of fill, with very occasional gravel inclusions
- [125] loose brown silt with sandy brown gravel stones, redeposited natural
- [126] moist, firm mid grey silty clay with occasional gravel inclusions and organic matter
- [145] moist and loose brown/dark orange sandy gravel, redeposited natural
- [146] moist and loose mixed brown sandy gravel and grey silt
- [147] loose mixed light grey gravel with grey sandy silt lens
- [148] moist and firm light grey silt with occasional gravel inclusions and flecks of charcoal

The lower fills represent the initial silting of the pit and perhaps indicating the original water level, possibly [134] which was organic rich fine silt. Layers [130] and [131] represent the initial slumping and disturbance when the pit was originally excavated.

- [129] moist and loose brown sand with occasional gravel inclusions with grey silt lens
- [130] loose, orange sandy gravel with occasional organic material, redeposited natural
- [131] loose white sandy gravel with occasional organic inclusions, redeposited natural
- [132] loose orange sandy gravel, redeposited natural [133] loose mixed white/brown sandy gravel, redeposited natural
- [134] loose black fine organic rich silt
- [140] light grey mixed silt and gravel, redeposited natural
- [141] moist and firm light grey silt with occasional gravel inclusions
- [142] firm and moist mixed brown/grey sandy silt with occasional gravel inclusions
- [143] loose brown sandy gravel, redeposited natural
- [144] loose and dry light grey sandy gravel, redeposited natural
- [149] loose orange/white sandy gravel with patches of black organic material
- [150] moist and loose black silty sand with organic material (same as context 126)
- [151] loose white to light grey natural gravel, probably natural slumping

F.106 was a shallow oval pit 1.10m x 1.00m wide and 0.16m deep with concave sides and flat base, [153] and consisted of a single fill; [154] friable dark brown/grey silt with orange flecks and frequent pebble inclusions and root system. A small fragment of briquetage was recovered from this context.

F.107 was a circular pit with one initial cut [155], 1.45m x 1.35m wide and 0.80m deep, and one re-cut [290] (1.08m wide and 0.35m deep). Fills [156] and [157] were accumulated fills associated with [290].

[156] friable mid grey and light brown silt with moderate pebble inclusions and occasional flecks of charcoal, and fragments of bone were recovered

[157] friable light brown/white silt with occasional pebble inclusions

Fills [158] to [160] represented episodes of silting and slumping of natural material from the side of the pit

[158] friable light grey/white/brown sandy silt with frequent pebble inclusions

[159] friable orange/red sandy silt with moderate pebble inclusions

[160] friable white/orange sandy silt with moderate pebble inclusions

F.108 was a circular shallow posthole with moderate concave sides and concave base, [166], 0.26m x 0.25m wide and 0.06m deep, with a single fill; [167] friable mid grey/light brown mottled silt with occasional pebble inclusions and flecks of charcoal with traces of root system.

F.109 was a small sub-circular posthole which had a single fill; [169] friable mottled orange/mid brown/grey with frequent pebble inclusions. The sides were gradual concave with a concave base, [168], 0.44m c 0.35m wide and 0.16m deep.

F.110 was a circular shallow posthole with concave sides and base, [170], 0.15m x 0.15m wide and 0.06m deep. A single fill, [171], contained no evidence of a post-pipe; friable orange/red/brown sandy silt with occasional pebble inclusions and root system.

F.111 was a shallow posthole associated with F.108-F.110, with moderately steep concave sides and base, [172], 0.24m x 0.23m wide and 0.11m deep. The fill, [173], consisted of firm to friable mottled mid grey/orange silt with occasional pebble inclusions and flecks of charcoal and burnt clay.

F.112 was an oval shaped, medium sized pit/well, (3.55m x 3.30m wide and 1.48m deep) with steep convex side and concave base. There were 18 fills representing interspersed episodes of silting and natural slumping of the sides. There appeared to be two main episodes of silting in the upper fills; [175] and [182]; with the remaining contexts episodes of slumping from the sides; [176-181] and [183].

[175] firm to friable mid grey/light brown mottled with orange silt with occasional gravel inclusions and flecks of charcoal, and fragment of bone recovered

[176] friable mottled orange/red brown/white sandy gravel, redeposited natural

- [177] firm mottled orange/brown/white/grey sandy silt with moderate gravel inclusions
- [178] friable orange/red gravelly sandy silt with frequent gravel inclusions, redeposited natural
- [179] friable to firm mottled brown/orange/white/grey gravelly sandy silt with moderate gravel inclusions, redeposited natural
- [180] friable loose orange/red sandy silt with moderate gravel inclusions and some root system
- [181] firm and moist mottled mid grey and light brown/orange silt with occasional gravel inclusions and flecks of charcoal
- [182] friable orange/red sandy silt with white sandy pockets with moderate gravel inclusions and flecks of charcoal
- [183] friable mid grey/white gravelly sandy silt with yellow lozenge patches and flecks of charcoal

The lower levels could represent water levels when the pit was originally opened, as organic material in the form of roots and twigs could represent reeds and other aquatic plants growing during and after its period of use. Layers of silt, [185] and [189] were intermixed with slumping from the sides of natural, [184], [186-188], and [190-191]. The lower levels representing initial slumping after it was originally dug.

- [184] friable white/grey sandy silt with frequent gravel inclusions and organic material
- [185] firm moist dark grey organic clay silt with sandy orange/white pockets with organic material
- [186] friable orange/red sandy silt with occasional gravel inclusions and organic material
- [187] friable orange/red sandy silt with clay pockets
- [188] friable orange/red sand silt with occasional gravel inclusions
- [189] friable orange/red sandy silt with occasional gravel inclusions and organic material
- [190] friable orange/red sandy silt
- [191] friable mid brown/orange/red sandy silt with frequent gravel inclusions and organic material

F.113 was a circular pit/well with steep and uneven concave sides and concave base; 2.15m x 2.10m wide and 1.11m deep. It consisted of 13 fills [193-203, 222-225] and 1 cut, [192], representing periods of silting and slumping of the natural from the sides of the pit as well as from above. The remains of a piece of wood, [198], were recovered from the base of the feature, but due to its poor condition, no further data can be established. It is possible that it is the remains of a log ladder that did not preserve well. [195] appears to be a deposit of burnt material deliberately dumped into the feature; which contained artefacts including pottery and bone.

- [193] friable pink/pale red ashy silt with flecks of charcoal
- [194] friable moist mid grey clayey silt with flacks of charcoal
- [195] firm to friable mottled mid grey/brown/yellow with white/grey patches silt with frequent gravel inclusions and large quantities of charcoal flecks, organic material, pottery, bone, burnt clay, burnt stone and shell
- [196] firm mid grey/brown clayey silt with occasional gravel inclusions and twigs, and bone
- [197] firm mottled orange/red/yellow gravelly sandy silt with frequent gravel inclusions and flecks of charcoal
- [198] firm dark grey/black organic rich clayey silt with frequent gravel inclusions; remains of rotted timber stump

- [199] loose light brown/white sandy silt
- [200] friable mid brown/orange gravelly silt with frequent gravel inclusions
- [201] firm to friable moist dark brown/grey/black organic rich silt with moderate gravel inclusions
- [202] loose friable light brown/orange/red gravelly sandy silt white sandy pockets and white sandy pockets with frequent gravel inclusions
- [222] loose friable mid brown/orange/red gravelly silt with frequent gravel inclusions
- [223] moist dark grey/black silt with frequent flecks of charcoal and burnt clay
- [225] moist loose friable mid brown sandy silt

F.114 was a linear on a northwest-southeast alignment across the centre of the site. Its total length was 24.40m, and did not run in a straight line; there was a bend to the east near the centre. The width of the ditch ranged from 0.86m to 3.00m wide and 0.36m to 0.47m deep. Three slots were excavated; both terminals and one at the centre. The northern slot cut a small pit/well (F.116), and consisted of six fills [203-207, 224] and one cut, [208]. The terminal cut was sub-circular in plan and was wider than the rest of the ditch, (3.00m) and 0.47m deep, with gradual concave sides and sharp concave base. The fills represent periods of silting and slumping, while [224] represented a discrete dumping episode of burnt material located between [204] and [205] towards the west end of the slot.

- [203] firm light to mid grey silty clay with mid orange/brown silty clay mottling with occasional charcoal, degraded stone and gravel inclusions
- [204] firm mid brown silty clay with occasional charcoal and gravel inclusions
- [205] firm mid grey/brown silty clay with occasional charcoal, degraded stone and occasional to moderate gravel inclusions, pottery, bone and mussel shells were recovered
- [206] firm light to mid grey/brown sandy silty clay with occasional charcoal and occasional to moderate gravel inclusions
- [207] firm to loose mid brown/orange/grey sandy silty clay with moderate gravel inclusions, redeposited natural, pottery and bone were recovered
- [224] friable dark grey/black and red silt and burnt clay with frequent charcoal inclusions and moderate burnt stone, bone was recovered

The slot cut in the centre of the linear, [252] was moderately steep concave sides and concave base, 1.25m wide and 0.37m deep. There was one fill from silting, [253], pot and briquetage were recovered from this fill.

- [253] firm to friable mid brown/orange sandy silt with moderate pebble inclusions and occasional flecks of charcoal, pottery, bone and burnt clay were recovered

The southern terminal of this linear, (0.86m wide and 0.30m deep) had moderately sloping straight east side, moderate to vertical concave west side with concave base and round in plan. There were six fills [254-259] including what appears to be a dump from a burning episode along with a concentration of pot/briquetage, [256], possibly from a whole vessel.

- [254] firm mid grey/brown sandy silt with occasional gravel inclusions and flecks of charcoal, pottery, bone, burnt clay, burnt stone and briquetage were recovered
- [255] firm orange/yellow/grey sandy silty gravel with occasional flecks of charcoal, redeposited natural

[256] firm mid grey/brown sandy silt with occasional gravel inclusions, moderate ash and charcoal and frequent fragments of briquetage, pottery, bone, burnt clay, burnt stone and burnt flint

[257] firm light to mid grey sandy clay with occasional gravel inclusions and moderate ash and charcoal inclusions with pottery, burnt clay and burnt stone

[258] firm to compact light to mid grey/brown sandy clay with occasional charcoal and gravel inclusions

[259] firm to compact mid grey/brown sandy clay with occasional charcoal and occasional to moderate gravel inclusions

F.115 is a pit/well that consisted of twelve fills, [209-220] and one cut, [221]. The pit/well was oval in plan, 2.65m x 2.26m wide and 1.05m deep, with uneven convex sides and concave base. The fills were consisted with periods of silting and slumping and several pieces of timber were recovered which showed no evidence of working.

[209] firm mid grey/brown sandy silty clay with occasional charcoal, organic material and gravel inclusions

[210] firm mottled mid grey and orange/brown sandy silty clay with occasional charcoal, iron pan stains and gravel inclusions

[211], [212] and [219] firm mottled dark yellow/orange and orange/brown sandy silty clay with patches light orange/brown sandy silt, iron pan concretions, and occasional gravel inclusions

[213] firm mottled light grey/brown sandy silty clay with frequent iron stains and occasional gravel inclusions, frequent charcoal lens at level with wood and fragment of bone

[214] firm mottled mid/dark grey and orange/brown sandy silty clay with occasional concentration of gravel inclusions and flecks of charcoal

[215] firm dark grey sandy silty clay with occasional charcoal and gravel inclusions

[216] compact dark orange/brown sandy silty clay with frequent gravel inclusions

[217] firm dark grey sandy silty clay with occasional charcoal and gravel inclusions

[218] firm dark orange/brown sandy silty clay with occasional gravel and flecks of charcoal

[220] firm mottled mid grey and orange/brown sandy silty clay with occasional gravel inclusions and flecks of charcoal

F.116 was a pit that was cut by the northern terminal of F.114. [226] cut

F.117 was an isolated circular pit, 0.40m x 0.40m wide and 0.11m deep, with one fill [227] and one cut [228]. It had gradual to moderate sloping concave sides with concave base. The fill [227] was friable mid to dark grey with slight brown mottling sandy silt with occasional to moderate gravel inclusions.

F.118 was a linear on a northwest-southeast alignment, south of F.114. Two 1.00m slots were excavated; one at the terminal to the north; the second at 12.80m towards the south. The linear was truncated southward from this slot due to quarry workings. The sides of the slot towards the south had moderately steep convex sides and sharp concave base, [232] and had three fills representing silting and slumping episodes.

[229] mottled dark grey and light grey/brown sandy silty clay with occasional gravel and charcoal inclusions

[230] mottled mid grey and dark grey/brown and orange/brown sandy silty clay with occasional gravel inclusions

[231] mid orange/brown sandy silt with iron staining and moderate gravel inclusions

The northern terminal was rounded/square in plan and had moderately steep uneven concave sides with concave base, [236]. It was 1.07 wide and 0.37m deep and had one single fill, [235].

[235] mottled dark grey/brown and light grey/brown and orange/brown sandy silty clay with occasional gravel and charcoal inclusions

F.119 was probably a tree-throw due to the irregularly cut concave sides and base, [238]. It was 1.28m x 0.98m wide and 0.33m deep. The location was adjacent to the southern terminal of a linear (F.118) and a pit/well, (F.120). Both of these features recovered fragments of briquetage. The probable tree throw consisted of a single fill with fragments of briquetage.

[237] firm mid dark grey/brown sandy silt with moderate gravel and occasional charcoal and briquetage inclusions and bone

F.120 was a pit/well, 3.45m x 2.50m wide and 1.23m deep with steep sides, near vertical on west side and more convex cut on rest of pit with sharp break of slope and flat base, and was located in the centre of two linear terminals (F.114 and F.118). There were eleven fills indicating silting and slumping episodes, [240-250]. Pottery and bone were recovered from the upper fills [240 and 246].

[240] firm mid grey with orange mottling with moderate pebble inclusions and flecks of charcoal, pottery and bone

[241] firm organic dark grey/black with orange patches, sandy silt with moderate pebble inclusions and frequent charcoal

[242] firm to friable mid brown/red sandy silt with grey pockets with occasional pebble inclusions and flecks of charcoal

[243] firm mid grey/orange silt with occasional flecks of charcoal

[244] firm to friable mid mottled brown/orange/grey/white sandy clayey silt with moderate pebble inclusions with occasional flecks of charcoal and occasional roots

[245] wet dark grey/black organic silt with charcoal and frequent organic material, pottery and bone

[246] friable mottled brown/orange/red with grey/white patches sandy silt with frequent pebble inclusions and bone

[247] firm to friable dark grey/black sandy silt band running through (247)

[248] firm light grey/brown sandy silt with frequent pebble inclusions and occasional flecks of charcoal

[249] firm to friable dark brown fine silt with white patches with occasional pebble inclusions

[250] firm dark grey silt with frequent pebble inclusions

F.121 was an oval pit/well, 3.80m x 3.20m wide and 1.41m deep with moderately steep convex sides and concave base, [261]. There were a total twenty eight fills consisting with several episodes of dumped material and slumping from the sides of the feature. Cut [268] appears to be a small pit cut into silted layers for depositing waste material.

[262] firm mid brown/orange clayey silt with occasional gravel inclusions with fine root system

[263] firm and moist dark brown silt with orange sandy pockets with occasional gravel inclusions and flecks of charcoal with fine root system, with pottery, bone and burnt stone

[264] firm to friable mid brown/grey silt with orange/yellow sandy pockets with moderate gravel inclusions and flacks of charcoal

[265] firm to friable orange/yellow sandy silt with occasional gravel inclusions and flecks of charcoal

[266] firm dark brown/black/grey silt with occasional flecks of charcoal, with bone and burnt stone appears to be the fill of [267]

[267] bowl shaped cut in [268]

[268] mixed grey/white/light brown with orange/red/yellow sandy silt, frequent flecks of charcoal and gravel inclusions, with pottery, bone, burnt clay and burnt stone

[269] dark grey/black silt with orange/brown patches with flecks of charcoal, probably dumped material with pottery, bone and burnt stone

[270] firm to friable yellow/orange/blue/grey sandy silt with occasional flacks of charcoal and gravel inclusions

[271] firm and moist light brown/yellow with light grey patches sandy silt with moderate flacks of charcoal and occasional gravel inclusions, pottery, bone and burnt stone was recovered

[272] moist dark brown/black silt and orange sandy pockets with frequent organic material including roots, wood and frequent flacks of charcoal, moderate gravel inclusions, three perforated shells recovered from this dumped layer in addition to pottery, bone, burnt clay and burnt stone

[273] firm mid grey/brown silt with orange/white sand with organic inclusions with pottery, bone and burnt clay

[274] firm to friable orange/yellow/grey fine gravelly sandy silt with frequent gravel inclusions that partly contained log ladder

[275] moist dark grey/black organic rich silty sand that partly contained log ladder and pottery

[276] friable orange/yellow sandy silt with fine gravelly consistency

[277] firm dark grey/brown silt with orange sand

[278] similar to (276) but finer sandy silt

[279] firm mid grey clayey silt with occasional gravel inclusions

[280] loose orange/red and yellow/white patches sandy silt with occasional gravel inclusions and partly contained log ladder

[281] friable mixed light brown/yellow sandy gravelly silt

[282] friable to firm mottled grey/light brown/orange sandy silt with frequent charcoal inclusions and moderate gravel inclusions

[283] friable white/light brown sandy gravelly silt

[284] grey/black silt with orange sandy pockets with moderate gravel inclusions

[285] loose light grey silty clay with moderate gravel inclusions and fragment of bone

[286] firm light grey silty clay with orange/grey patch towards bottom of fill with occasional flecks of charcoal

[287] loose and moist dark cream gravel

[288] light grey silty clay with moderate gravel inclusions and occasional flacks of charcoal

[289] loose dark brown clayey silt with occasional flecks of charcoal

Tables

Table 6 Fabric Types for Burnt Clay

Fabric	Description
1	Hard, common to abundant coarse fossil shells, poorly sorted
2	Hard, rare to occasional fine to medium crushed fossil shells, well sorted
3	Hard, rare to occasional coarse sub-angular stones 1-12mm long, poorly sorted and abrasive
4	Hard, rare coarse sub-angular and rounded stones 2-13mm long, poorly sorted and soapy
5	Hard, moderate to common fine to medium crushed fossil shells, poorly sorted
6	Hard, occasional coarse sub-angular and rounded stones, poorly sorted, abrasive and dusty
7	Hard but friable, rare coarse fossil shells, well sorted, very abrasive and dusty
8	Hard, occasional fine to medium angular flint ≤ 1 mm long, well sorted, moderately abrasive
9	Hard, common to abundant coarse rounded stones, poorly sorted, moderately abrasive
10	Moderately soft and friable, rare coarse rounded stones, well sorted, very abrasive and dusty
11	Moderately soft and friable, very fine to medium stones ≤ 1 mm, moderately abrasive but flakey, poorly fired
12	Very hard, rare to occasional coarse sub-angular stones 1-12mm long, poorly sorted and very abrasive
13	Very hard, moderate fine to very small rounded stones ≤ 0.5 mm well sorted, very abrasive
14	Hard, common fine sand, moderately well sorted, abrasive

Table 7: Waterlogged Plant Remains from the Waterlogged Flots

Sample number	101	110
Context	134	275
Feature	105	121
Feature type	large Pit	Pit/Well
Phase / Date	Middle Bronze Age	
Sample volume - millilitres	500	500
Flot fraction examined -%	100	100
Cereal Remains		
<i>Triticum spelta</i> glume base	Spelt wheat glume base	1
Charcoal	>4mm	+
	2-4mm	++
	<2mm	++
Wild Plant Seeds		
<i>Ranunculus acris/repens/bulbosus</i>	Meadow / Creeping / Bulbous Buttercup	+
<i>R. Subgen, BATRACHIUM</i>	Crowfoot	-
<i>Urtica dioica</i>	Stinging Nettle	++
<i>Chenopodium album</i>	Fat-hen	+
<i>Chenopodium sp.</i>	Goosefoots	++
<i>Atriplex patula/prostrata</i>	Oraches	+
<i>Stellaria media</i>	Common Chickweed	-
<i>Stellaria pallida</i>	Lesser Chickweed	-
<i>Polygonum aviculare</i>	Knotgrass	+
<i>Rumex conglomeratus</i>	Clustered Dock	-
<i>R. conglomeratus/obtusifolius/sanguineus</i> - Dock		b
<i>Rumex sp.</i>	Dock	-
<i>Brassica nigra</i>	Black mustard (frags.)	-
<i>Rubus sp.</i>	Bramble	+

<i>Potentilla</i> sp.	Cinquefoils		-
<i>Torilis</i> sp.	Hedge-parsley	-	
Indeterminate Apiaceae	Carrot family seeds		-
<i>Solanum nigrum</i>	Black nightshade		-
<i>Stachys</i> sp.	Woundworts		-
<i>Ballota nigra</i>	Black Horehound	+	-
<i>Lamium</i> sp.	Dead-Nettle		-
<i>Lycopus europaeus</i>	Gipsywort		+
<i>Slavia</i> sp.	Claries		-
<i>Carduus/Cirsium</i>	Thistles		-
trigonous <i>Carex</i> sp.	trilete Sedge seed	-	
lenticular <i>Carex</i> sp.	flat Sedge seed		+
Indeterminate wild plant seeds		1	

key: '-' 1 or 2, '+' <10, '++' 10-25, 'a' 25-50, 'b' 50-100, 'c' 100-500, 'd' >500 items.

Table 8: Archaeobotanical and Artefactual Remains from the Dry Flots

Sample number	102	103	104	105	108	109
Context	193	195	224	256	269	266
Feature	113		114		121	
Feature type	Pit		Ditch terminals		Large Pit/Well	
Phase / Date			Middle Bronze Age			
Sample volume - Litres	0.5	10	9	4	6	12
Flot fraction examined -%	100	100	100	100	100	100
Cereal Grains						
<i>Hordeum vulgare sensu lato</i> Barley grain						1, 1cf.
Indeterminate cereal grain fragments					1	
Wild Plant Seeds						
<i>Corylus avellana</i> Hazel-nut shell frag.				1 WL		
<i>Rumex</i> sp. Dock					1	
<i>Alchemilla / Aphanes</i> Lady's-mantles/Parsley piert			2			
<i>Vicia / Lathyrus</i> Vetches / Wild Pea			1			
<i>Mentha</i> sp. Mint			1			
Indeterminate wild plant seed			6			
Charcoal						
>4mm	-	++	+	-	b	a
2-4mm	-	b	++	++	c	c
<2mm	++	d	b	b	d	d
Culm node Wild grass or straw node				1		
Bone fragments		+			++	
Pottery fragments					+	

key: '-' 1 or 2, '+' <10, '++' 10-25, 'a' 25-50, 'b' 50-100, 'c' 100-500, 'd' >500 items. WL = waterlogged