

BRONZE AGE SETTLEMENT AT RIDLINGTON, RUTLAND

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A post-ring roundhouse and adjacent structure were recorded by University of Leicester Archaeological Services, during archaeological recording preceding laying of the Wing to Whatborough Hill trunk main in 1996 by Anglian Water plc. The form of the roundhouse together with the radiocarbon dating of charred grains and finds of pottery and flint indicate that the remains stemmed from occupation toward the end of the second millennium B.C. The distribution of charred cereal remains within the postholes indicates that grain including barley was processed and stored on site. A pit containing a small quantity of Beaker style pottery was also recorded to the east, whilst a palaeolith was recovered from the infill of a cryogenic fissure.

The remains were discovered on the northern edge of a flat plateau of Northamptonshire Sand Ironstone at between 176 and 177m ODSK832023). The plateau forms a widening of a west-east ridge, a natural route way, above northern slopes down into the Chater Valley, and abrupt escarpments above the parishes of Ayston and Belton to the south (illus. 2). Near to the site, springs issue from just below the 160m and 130m contours to the north and south east respectively and ponds exist to the east corresponding with a boulder clay cap.

The area was targeted for investigation as it lay on the northern fringe of a substantial Mesolithic/Early Neolithic flint scatter (LE5661, 5662, 5663) (illus. 2, 3) with appreciable Later Neolithic/Early Bronze Age content (Liddle 1982, p. 9). A crop-mark of a ring ditch (LM LE5660) has also been recorded in the east of the flint scatter area.

The easement was stripped of ploughsoil by bulldozers under archaeological supervision – a method which proved efficient on a hard-rock substrate. Following rapid EDM survey and assessment, features were selected for cleaning and further investigation.

Bronze Age structures

To the immediate west of a track leading south to Park Farm from the ridgetop, the postholes comprising the remains of two adjacent post-built structures were



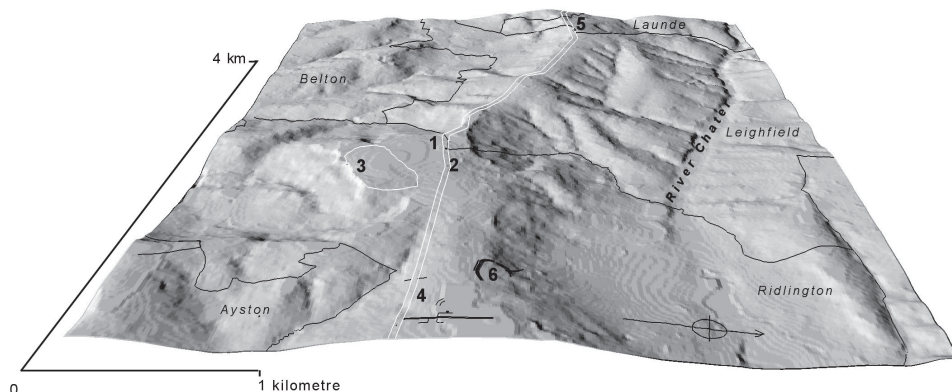
1. (above) The location of Leicestershire and Rutland within the East Midland counties and below, the route of the Pipeline, with location of Ridlington and other sites mentioned in the text, with major drainage features.

recorded. All features were excavated and recorded by half-section. The site was plough truncated with no surfaces surviving. Postholes generally survived to between 0.15 and 0.45m in depth. No ridge and furrow was observed. A wide linear feature infilled with pale silty clay, most probably an infilled cryogenic fissure from the late Pleistocene, passed across the site below one of the later structures (illus. 3).

Trenches were machined along both sides of the easement to the west, but no

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2. Hillshade plot facing west generated from elevation data, of the ironstone ridge with Chater valley to north, parishes, 1996 pipeline route, and archaeological sites mentioned in text. The vertical axis has been increased by a factor of 2.

- 1, Bronze Age structures; 2, Beaker pit and Roman site; 3, Lithic scatter; 4, Iron Age and Roman occupation and ditch systems; 5, Launde early post-glacial lithic scatter, and 6, Ridlington earthwork.

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other archaeological features were observed other than a pit 160m to the west, and an isolated hearth 65m to east, neither of which contained diagnostic artefacts.

STRUCTURE 1 (illus. 3)

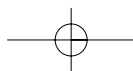
This appeared complete within the easement. It comprised a ring of eight postholes at 1.50m and 2.60m intervals on a circle of 5.35m diameter. To the south-south-east a number of further postholes formed an apparently related square arrangement outside the circle while within it were three further postholes, that may or may not have been related to the building and its use. The ring of postholes is described in clockwise direction from the south.

1075: An irregular shallow concave posthole filled with firm dark brown silty clay with common small ironstone lumps. This feature was cut by a shallow charcoal rich stakehole. Six further discrete stakeholes were present to the immediate southwest of 1075.

1038: An ovoid hole with its long axis orientated north-south. The profile was asymmetric with steeper eastern edge, filled predominantly with dark brown silt above a small slump of redeposited natural on the base. Oak and ash charcoal was identified.

1035: A circular posthole with a relatively deep tapered profile. Two fills were observed, the upper 1033, a dark brown silt with charcoal and some fired clay and the lower, 1034, a brown to dark brown loose ironstone and clay. The charcoal comprised ash, hazel and oak, the hazel showing a 15 year growth.

1070: A posthole of a rounded triangular shape with vertical sides breaking sharply to



3. Structures 1 and 2, adjacent features and section of pit 1050. Depth of features in centimetres, annotated within.

a flat base. It was filled by 1069, a dark brown silt with very few pebbles. Ash and oak charcoal was present together with cinder fragments.

1064: A circular cut with steep sides, breaking sharply to a flat base. This was filled by dark brown silt, with a few small pebbles. Hazel and oak charcoal was present but also vesicular cinder and intrusive coke fragments.

1030: A sub rectangular post-hole with a slight ridge in the base either suggesting enlargement or post replacement at some stage, although no relationship was observed in section. This was consequently the most substantial hole of the ring. It was filled with a thin layer of brown clay silt above a predominant fill of a dark yellowish brown silty clay and sandstone. Oak and hazel charcoal were present.

1086: A circular well formed vertically sided flat based cut filled with a plastic dark brown sandy silty clay (1085) with occasional ironstone and some charcoal. Oak charcoal of 20 year or older timber was present. A sample of charred cereal grains from 1085 returned a modern radiocarbon date (Wk-10072 below p. 23)

1047: A regular circular hole with a slightly convex west edge and eastern slightly concave, both breaking to an angular narrow flat base. Three fills were recognised, all strong brown silts with decreasing quantities of pebbles from top to bottom.

The spacings between the post-holes of the ring although not regular were symmetrical about a central division (below p. 8). the smallest distance of 1.50m was between first and last as described (1075 and 1047) and the largest was between these, and their respective neighbours 1038 and 1086. The deepest post-holes were the westernmost and south-eastern of the post-ring (respectively 1035 and 1047).

Entrance

Two pairs of post-holes were located 1.10m beyond the post-ring to the south-east, forming a rectangle 1.40m by 0.60m. The stratigraphy of the western side suggested that the innermost post-hole was the earliest, and the outermost, the latest. The earlier post-holes are described first.

1105 An ovoid hole with long axis west-east, and vertical northern edge and base sloping up to the south, filled with a dark brown silty clay (1101) with charcoal and ironstone fragments. Above this layer on the south side, was a firm dark yellowish brown silty clay (1061) with ironstone lumps. Hawthorn charcoal was identified from bulk samples. Either abutting and contemporary, or cutting and thus post-dating this layer was a narrow slot, 1102, which ran across the post-hole from west to east filled with a fine brown clay silt (1060). As this slot effectively utilised the northern edge of 1105, and ran to the westward extent of it, it seems that it most probably directly related to the cutting of the post-hole in the first instance, rather than acted as a repair. The shape and alignment of the cut suggests the use of a stave or similar construction method in this part of the building, which appears at odds with the probability that this area formed a doorway into the round-house, but is concordant with the outer post-holes demarcating the position of the round-house wall-line. Fragments of daub with wattle impressions were recovered (below, p. 19).

1105 was cut by 1103 an ovoid hole, with long axis west-east, filled by a dark yellowish brown silty clay with common ironstone lumps.

To the east of 1105 was 1049, a sub circular hole filled with a dark brown silt with charcoal flecks including ash. 1049 was opposed by 1096 a shallow circular cut that had barely survived filled with a strong brown silty clay.

Internal features

The internal post-holes comprised 1045, 0.21m deep with tapered profile, located 0.40m north-west of the central point of the structure, with the bowl profiled and more substantial 1043, 0.22m deep to the south, accompanied by the similar 1040, 0.13m deep. All were filled by strong brown silts.

None of the internal features can categorically be placed with either the construction or usage of the building. However the lack of other settlement evidence, the positioning of the post-holes and the similarity of their infills strongly indicates a contemporaneity.

PIT 1050

In the east, and sitting on the probable wall-line of Structure 1 was an elongated pit, 0.25m deep, with a base consisting of two lobes with slightly raised area between, and filled with a single slightly charcoally backfill, 1041, that also contained Bronze Age pottery (below p. 19) and flecks of fragmented bone. Sieved soil samples yielded cereal grains (below p. 20) including free-threshing wheat and barley. An area of reddened natural at the base of the northern lobe, 0.34m by 0.24m, had been burnt *in situ* prior to backfilling; the pit may have been used as an oven.

FEATURES TO THE NORTH

To the north of Structure 1 were four further post-holes, two of which were sampled.

Half a metre north of post-ring post-hole 1064 was 1080, 0.20m deep with steep sides and flat base. It is possible that it formed an additional supportive role, although this would be at odds with the otherwise balanced symmetry. To the north-east was another poorly surviving post-hole, 1112, 0.12m deep.

INTERPRETATION OF STRUCTURE 1

On the basis of the spatial arrangement of its post-holes alone, a structure with wall diameter of 7.50m, and classed amongst the post-ring round-houses of the British Bronze Age is proposed. This example accompanies similar structures from Fengate, Peterborough (Pryor 1980 p. 53 and illus. 4), Swarkestone Lowes, Derbyshire (Guilbert 1999) and Castle Donington (Coward and Ripper 1999 p. 90). Ubiquitous in other regions and discussed in detail (Guilbert 1982a; 1982b), such structures remain rare in the East Midlands (Clay 2002) but are emerging evidence of a broad intra-regional uniformity.

The Entrance

The post-holes on the south-western side of the entrance clearly indicate a degree of re-cutting. It is more usual for the outer post-holes to be discrete features not cut though the infill of their precursors.

Internal features

1045 was close enough to the central point to suggest a structural function, although such a central post is often not represented and quite feasibly unnecessary. The other two post-holes, 1040 and 1043 were similar enough in plan and section to suggest they were contemporary, and perhaps part of the internal fitment of the house. Where finds evidence has been better preserved on similar sites, areas of differing activities within Bronze Age round-houses have been suggested (Drewett 1979 p. 8).

STRUCTURE 2

To the north-east was a second group of post-holes which may represent part of a slightly larger, sub-circular or circular structure only partly visible because of the northern limit of excavation. Although a similar broad plan form may be interpreted for this group, the evidence is less convincing as that for the adjacent Structure 1.

The post-holes are described from east to west (Illus 3).

1072 was kidney shaped and had the appearance of a halved timber, although no supportive evidence of a post pipe is present in the section which shows a single fill of loose brown silty clay with abundant pebbles.

1056 was of similar depth to 1072, and also sub rectangular in plan. In this case a clear post pipe was visible in plan and section, again with a shape possibly indicating the use of a halved timber.

Samples from both the in filled void of post 1056 and 1072 contained 100 and 20 grains of carbonised barley respectively (below p. 20). A sample of charred barley grains from 1050 (1056) returned a radiocarbon date of 3025 ± 69 BP (below p. 23).

Four further post-holes were located to the west, 1059, 1053, 1107 and 1082. The first three of these had very similar sections filled with yellowish brown to brown silts, with stonier lower fills. 1059 and 1053 showed some distortion of probably once circular plans where excavated, whereas 1107 and 1082 were both circular and regular.

INTERPRETATION OF STRUCTURE 2 (illus 3)

Six postholes were recorded. Contrasting interpretations of the curvilinear pattern of the post-holes are suggested as follows:

The first (A) assumes a similar form to Structure 1. This arc of some 7.5m diameter passes through the four south-eastern holes leaving the similar pair 1056 and 1072 offset convincingly to the south-east. However, a concentric arc placed to locate the putative wall line of the building as set by 1056 does not intersect 1072, and thus the round-house interpretation seems improbable. Furthermore, no postholes could be identified in the area to the north of 1072, despite efforts to locate them. If the post-holes did belong to a similar structure (although with albeit a different entrance arrangement) at least one post-hole could rightly be anticipated in this area. The evidence of the post-hole sections shows that although there is a slight fall in level from west to east, and north to south, this is

reflected in the relative depths of the post-holes. Thus, there is no evidence of truncation so severe as to have obliterated similarly dug post-holes in the area. The theory that the structure is a post-ring round-house of similar form to Structure 1 can be discounted.

Arc B offers a second pattern for the post-holes recorded. However, this fails to intersect 1056, which is considered most likely to have been contemporary with 1072, as the post-holes are similar in form.

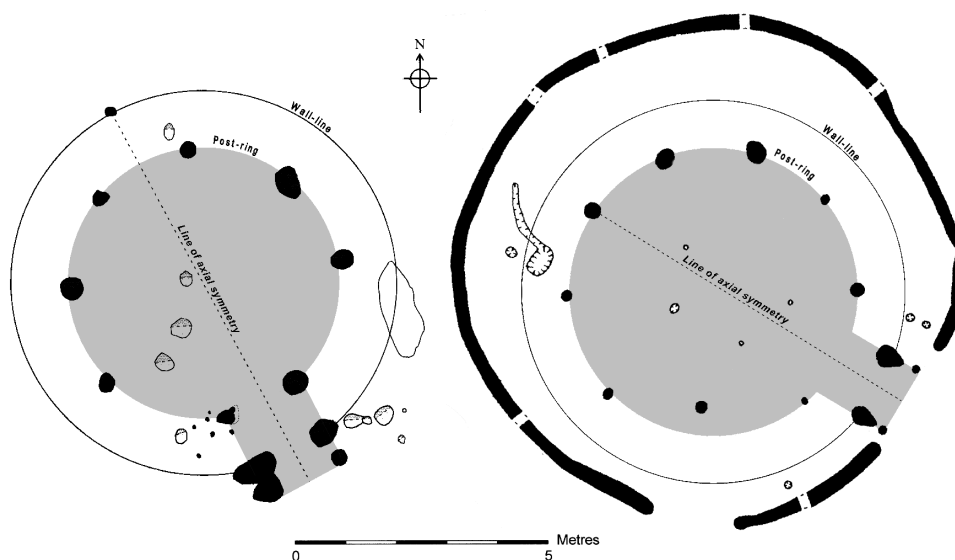
A third arc, C, intersecting four of the six post-holes is shown. This again excludes the 1056 and 1072 pairing and has little else to recommend it.

The pattern thus comprises a regular arc of four post-holes in the west with an extra pair of two similar post-holes offset to the south of the arc in the east. It is suggested that the arc continued to the north of the easement on the west side, but did not to the east, and that a semi-circular structure is represented.

ANALYSIS

Structure 1 comprised a 5.34m diameter post-ring circle of eight post-holes. The post-holes were not placed equally around the circle but nonetheless intentional patterning of their distribution was evident.

Axial Symmetry To test the patterning of the post-holes, as investigated on other examples, a line was drawn from midway between the entrance post-holes, 1103 and 1096, to midway between the northernmost pair 1064 and 1070. The post-holes each side of the line were found to mirror one another convincingly – proof



4. Post-hole arrangement of Structure 1, Ridlington left, and Structure 1, Newark Road, Fengate right (after Pryor 1980 Fig. 35).

of the *axial symmetry* identified for other broadly contemporary buildings (Guilbert 1982a).

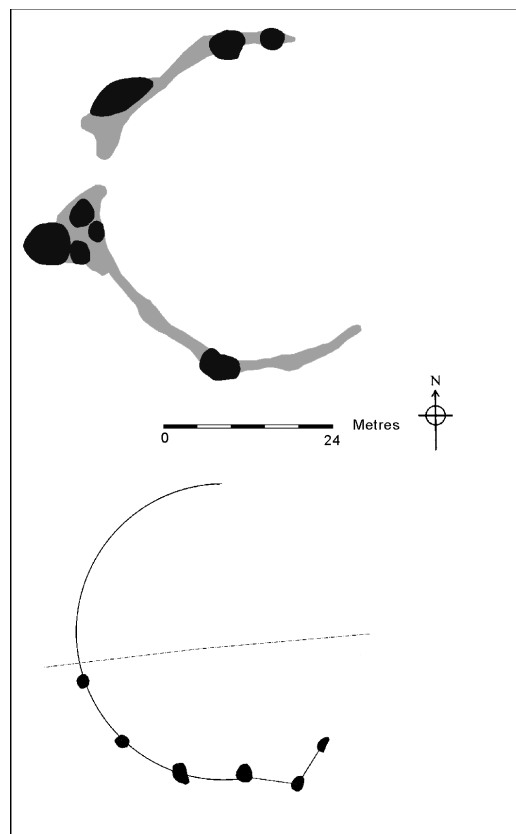
The structure is another example of Bronze Age post-ring symmetry, reiterating the theory that the concept of symmetry was obeyed in the construction of some Bronze Age structures, although the detail of symmetry varied. In addition to sitting on the projected line of the outer wall, post-hole 1112 also lay upon the line of axial symmetry, and this evidence supports its inclusion as an integral part of the construction.

Bucking the Trend The post-ring has an even number of postholes which runs against the broad corpus where an odd number are recorded, with more usually a post-hole sitting at the back on top of the line of symmetry (Graeme Gilbert pers.comm. cf. Guilbert 1982a; Structure 1, Newark Road, Fengate above Illus 4.) Similarly, it is more usual for the entrance post-holes of the post-ring to be the most widely spaced whereas for Structure 1, 1075 and 1047 are the most closely spaced (Graeme Guilbert pers. comm.). This fashion appears in some examples to have led to no post-ring post-holes other than entrance post-holes in the front half of the building (cf. Black Patch Platform 1 Hut 1 in Guilbert 1982b, 211).

Similar examples to Structure 1, with paired posts at the rear have been recorded in Sussex at Black Patch (Platform 4, Hut 3 Alciston, Drewett 1980 Fig 5 and 1979 Figs 1 and 4) and Itford Hill, (Hut D, Burstow and Holleyman 1957, Figs 16, and 18).

Location, Location Structure 1 was located over and aligned with a clay filled glacial feature interpreted as a cold condition (cryogenic) fissure, numbers of which were observed crossing the pipeline easement. It is possible that the in filled fissure still existed either as a topographic feature or by vegetative differences until the end of the second millennium B.C., if the plateau had remained substantially uncultivated until this period. However, if the feature were recognisable when the round-house was constructed, there is perhaps some evidence to suggest that the plateau was open, and had not been been covered in dense woodland, either original wildwood or regenerated woodland.

Structure 2 Semi-circular structures have been suggested for several Late Bronze Age and Early Iron Age sites, and have been classified by Knight (Knight 1984 p. 146). Although such structures are rarely convincing by virtue of their essential incompleteness, a pattern of 'D' shaped structures has been recognised (Willis 2002 p. 10), and an interpretation as covered working areas invariably open to the east and protected from the southwest is favoured. A convincing parallel to the Ridlington Structure 2 can be found at Great Oakley, Northamptonshire (Jackson 1976, Fig. 3) also Structure 2, and the two patterns are shown here together (illus. 5). The paired post-holes 1056 and 1072 are most easily interpreted as a two-post structure, a form which has also provoked much discussion and is most commonly interpreted as the remains of drying frame, loom or possibly round-house entrance, and there is little evidence in this



5. Post-hole arrangement of Structure 2 below, and comparison with similar pattern from Structure 2 Great Oakley, Northamptonshire above (after Jackson 1982, Fig. 3).

instance to divert from this interpretative path (cf. Beamish 1998, p. 34). The presence of charred barley grains in both postholes (below p. 20) suggests that some above ground storage or crop processing occurred nearby.

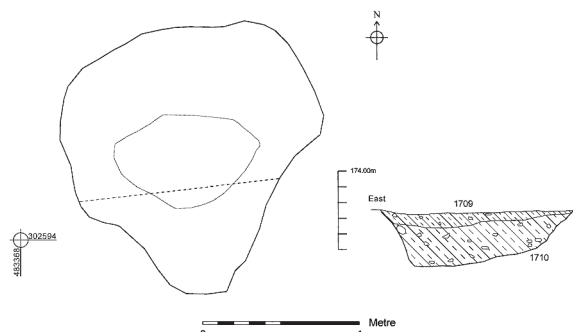
Relative chronology of the site Pit 1050 with scorched base on the west side of Structure 1 lay exactly on the line of the round-house wall and it must either pre or post-date the structure if the buildings' interpretation is correct.

Whatever form or forms Structure 2 took; it is quite possible that it was contemporary with either Structure 1 or 1050.

Spatial analysis of the charred plant remains (Illus 10) shows that in addition to the notable increase in remains in the post-holes of the two post structure, there is also higher incidence within pit 1050 and adjacent post-hole of Structure 1, 1086, features which are not thought to be contemporary. One explanation for this coincidence is that the remains within the post-hole are residual and that the round-house post-dates the pit. If pit 1050 was used to dry cereals, debris from

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6. Plan and section of pit containing Beaker pottery, Ridlington, Rutland.

such processing may have accumulated on the ground and subsequently been incorporated in the infilling of post-hole 1086 during the later construction and occupation of Structure 1.

BEAKER PIT

230m to the east, on the western fringe of a settlement of the 1st–2nd centuries A.D., evidence of occupation from the start of the second millennium B.C. was recorded. A shallow and irregular pit, 1709, 1.70m by 1.60m and 0.12m deep, was excavated. A fill of dark brown sandy silty clay with frequent ironstone and occasional fragments of charcoal, also contained 25 sherds of highly decorated Beaker style pottery (below p. 18). No other features of similar date were recorded.

Interpretation

Other finds of Beaker pottery from Leicestershire are almost exclusively as burial accompaniments (as listed by Marsden below p. 18), but the Ridlington example is unlikely to have been a burial feature, as the abraded and mixed nature of the uppermost fill suggests that the deposit may be of a secondary nature with a degree of residuality (also suggested by a mixed lithic groups. It is quite possible that the pit is not directly related to the Beaker occupation as all the finds were made from the thin uppermost layer. Nonetheless, the relatively clean deposit of parts of four Beakers is notable, and has surely resulted from contemporary occupation of the immediate vicinity. The lack of further diagnostic material from the pit and the lack of evidence from environmental samples precludes further interpretation.

CRYOGENIC FISSURE

Within an evaluative trench on the south side of the easement to the east of the Park Farm track, a linear feature 2.60m wide and passing across the easement was investigated.

Machine excavation proceeded to a depth of 1.35m below topsoil at which point the feature was filled with virtually stone free dark grey clay, and had narrowed to 0.60m wide; investigation by hand for a further 0.60m exposed the extent of 1022 and further layers of dark grey clays, with varying quantities of ironstone fragments.

A Palaeolithic flint flake (Ext 11) was recovered from 1022 (below p. 14). At a depth of 2.00m excavation was terminated, and the section cleaned and recorded.

The feature is interpreted as a Cryogenic (Cold Climate) fissure caused by freeze and thaw action on the substrate.

Discussion

The Palaeolithic material identified by Cooper (below p. 14) is nationally significant and again highlights the potential for the survival of evidence of early human exploitation of the area on the Northamptonshire Sand Ironstone and Limestone ridges of east Leicestershire and Rutland (Cooper 2004). More extensive evidence of such exploitation has been excavated at Launde, Leicestershire, (Cooper 1997) and Glaston, Rutland (Cooper 2001).

The Late Neolithic/Early Bronze Age activity long recognised from the extensive lithic scatters is attested by the pit containing Beaker sherds. While occupation of Late Neolithic and Early Bronze Age date has been identified at only a handful of East Midlands' sites, and Beaker domestic activity has been specifically identified at many fewer (Clay 2002 p. 11), the lithic backdrop for



7. Structures 1 and 2 and adjacent features from the south-west. The in filled fissure is visible passing through the roundhouse in the foreground.

Late Neolithic/Early Bronze Age activity is much noisier, and more specific sites will undoubtedly be identified in time.

The Middle Bronze Age roundhouse is an important regional addition and is rare evidence for settlement of this period. The symmetry of the Structure and similarities with other contemporary examples several hundred miles distant is evidence of inter-regional contact. Settlement of Middle Bronze Age date is very rare within the region (Clay 2002 p. 16), and this example gives some context to the remarkable Bronze Age deposits at Fengate, Peterborough some 20km to the east on the Fen edge (Illus 1) (Pryor 1991).

The settlement can be interpreted as a permanently occupied farmstead dating from around 1200BC, supported by the evidence of arable crop cultivation, processing and storage. Probable contemporary lithics may indicate autumn and winter activities. Located with clear and extensive views over valleys to north and south, the settlement is very exposed, and perhaps this is why the back of the plateau has been chosen where some shelter from the south-west may have been found. Such a location can easily be understood from a hunters' perspective (and the lithic scatters are probable testament to this) but less so from that of a mixed farmer.

LITHICS

Lynden Cooper

Introduction

Sixteen pieces of stratified flint were recovered from the site, in addition to unstratified material, which may be contemporary with the structures.

Methodology

The material was classified typologically with additional recording of technological attributes for debitage (butt types, negative bladelet scars, core front trimming, platform abrasion, surviving cortex and modifiers for fragmented material) and cores (platform preparation). Cores were weighed and recorded to type following Clarke (1960). Blades are defined as any flake with a length:breadth of >2:1, with irregular examples recorded as 'non-true blades'. Bladelets are similarly defined, but having a breadth of <12mm. Individual descriptions are retained in the archive.

The site assemblages were dated by typology and technology following Holgate (1988, 51–61). Local researchers and the Leicestershire SMR have made no distinction between blades and bladelets, assigning assemblages with blade technology to the broad bracket of Mesolithic/Early Neolithic (Clay 1996, Healey 1998, 317). For this report true bladelets are regarded as Mesolithic with the proviso that some could be of Upper Palaeolithic date. Bladelets are significant components of the Launde assemblage (illus 2, 5) and a Late Upper Palaeolithic assemblage of Creswellian character from a recently discovered site in the Charnwood area (Cooper 2002).

Surface condition (degree of patina, arris rounding, patination) was recorded for all pieces as this can reflect relative chronology. For instance, one piece from a glacial feature has a distinctive ‘incipient basketwork’ patina that is often seen on mid-Pleistocene material but not observed on Holocene material (R. M. Jacobi, pers. comm.). Similar patina was observed on some of the Early Upper Palaeolithic material from Glaston, Rutland (Cooper 2001). Much of the Late Palaeolithic scatter at Launde displayed a distinctive heavy patina with additional brown mottling. Similar patina was seen on several pieces from elsewhere along the pipeline. This distinctive deep patina is not observed on identified Mesolithic material (typologically or technologically defined – see below), although they can often be blue or white patinated. Diagnostically Neolithic or Bronze Age material is not patinated. This methodology has been employed cautiously for other sites in the region and seems to be a good tool for disentangling multi-period lithic assemblages (Cooper 2004).

Raw material

The material is mostly translucent brown flint although there is considerable variation, typical of derived flint from drift deposits. Much of the material may be of very local origin from the boulder clay capping of the ridge. There is a tendency for earlier material to exploit the better quality flint, possibly reflecting the requirements of blade production. It may also be a reflection of an ‘early bird’ effect whereby choice material eroding out of drift deposits or lying on the surface was picked up by Palaeolithic or Mesolithic hunter-gatherers. The presence of large nodules of good flaking quality is seen at the Launde lithic scatter, a ‘long blade’ site (*sensu* Barton 1989) where many of the blades attained lengths of >120mm. It is likely that the recovery of such nodules was facilitated by the greater visibility afforded by the open environment and the thin, undeveloped soils of the Late Glacial and Early Post-glacial period (Stapert 1989).

There are a few pieces of grey, opaque Lincolnshire Wolds flint though it is possible that they were from glacial erratic nodules. However, two fragments of polished axe probably indicate imported finished pieces from the Wolds.

There is a high incidence of re-use of earlier flint during the Bronze Age, evident from fresh retouch scars cutting through the patina of the blanks. This has been noted previously in the area where it is suggested that it might be a cultural choice (Clay 1998, p. 328), although it may just reflect a shortage of raw material and/or ad hoc usage. This is supported by the evident use of raw material of poorer quality in the Bronze Age.

Results

Sixty-nine worked flints were recovered of which one was found in a natural fissure, fifteen were stratified in Bronze Age features with the remainder unstratified.

A single retouched flake was recovered from deep within a cryogenic fissure. The flake is relatively large and struck with a hard hammer (illus 8, 1). The surface

condition shows a marbled patina very similar to that seen on Early Upper Palaeolithic artefacts from Glaston, Rutland. As noted above, this type of patina is commonly seen on artefacts of mid-Pleistocene date (R. M. Jacobi, pers. comm.). Although the piece is not a diagnostic tool form, its context and surface condition would imply a date in the Palaeolithic.

A moderate Mesolithic component is evident from four pieces with bladelet technology (all patinated) and possibly 17 patinated flakes, comprising 25% of the assemblage.

The stratified Bronze Age material probably represents contemporary flint working, although the small size of the group precludes any further interpretation (illus. 8, 2–7). Much of the unstratified material from this locale could also be of a similar date (after filtering out the likely Mesolithic sub-group). There are a limited range of formal tools with six scrapers, including crude, irregular examples with straight or sinuous retouch, a feature often seen in later prehistoric flint work. Two fragments of Neolithic polished axe, one fashioned into a concave scraper suggest later re-use in the Bronze Age. The unpatinated flake assemblage is also consistent with the Middle Bronze Age date of the settlement displaying characteristics seen at other later Bronze Age sites; evidence for hard hammer percussion, squat shapes and frequent broad butts, often cortical (Ford et al. 1984, McDonald 2000, 345). There are a high proportion of re-used pieces, two of which have heavy white patina with additional staining and may be Palaeolithic (cf Cooper, forthcoming 1).

Flake	Bladelet	Blade	Flake core	Bladelet core	Burnt piece	Shatter	Knife	Scraper	Conc. scraper	Misc. retouch
44	1	1	3	2	1	3	1	6	2	3

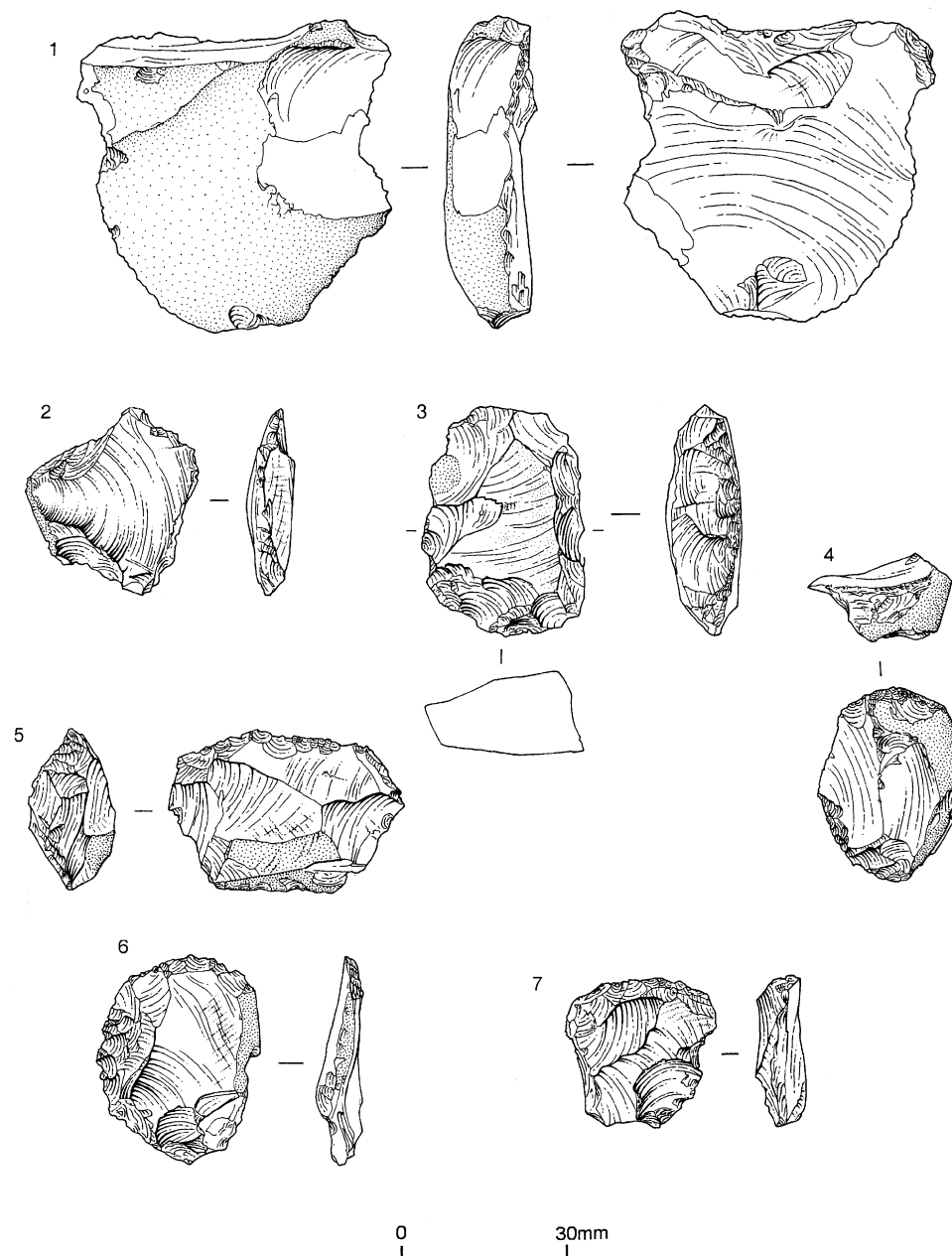
Table 1. Breakdown of Lithics type.

DISCUSSION

Lithic material was found along the whole length of the pipeline testifying to prehistoric use of the ridge top over several millennia, from at least the Upper Palaeolithic to the Bronze Age. One of the objectives of the lithic analysis has been to disentangle the mixed assemblages from the separate sites and find-spots. The following discussion attempts to provide a chronological overview. The methods used to deduce relative chronology have been stated explicitly above such that the reader can gauge the author's methods and biases. The use of patina to discriminate between Palaeolithic/Mesolithic and later lithic material appears justified. It is worth reiterating that diagnostic Mesolithic material *often* displays patina, while definite later pieces (arrowheads, thumbnail scrapers) invariably *do not*.

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8. 1) Palaeolithic Flake (patinated) 2) piercer 3-7) scrapers (not patinated)

Palaeolithic

One of the earliest lithic pieces, plausibly Middle Palaeolithic, was a flake tool recovered from a cryogenic fissure. Its discovery further highlights the great potential for ridge top Palaeolithic sites (Cooper 2004). The Early Upper Palaeolithic site at Glaston, Rutland demonstrated the survival of archaeological deposits buried by faulting into micro-graben features (Cooper 2001, Thomas and Jacobi 2001, Collcutt 2001). The pipeline find demonstrates that periglacial features can also act as similar deposit repositories for Palaeolithic sites. Such deposits can be described as near-primary in that any finds within them are likely to have had little lateral displacement from their point of discard (S. Collcutt, pers. comm.; MPP Single Monument Class Description – Palaeolithic Open-air Sites, draft copy). Such deposits are of potential national significance.

Middle Bronze Age

The material recovered from the features and the locale of the Middle Bronze Age Site can be regarded as contemporary. The high incidence of scrapers suggests hide preparation occurred at the site, an activity likely to have been undertaken in late autumn or winter. Other tools include a knife, two concave scrapers and three pieces with miscellaneous retouch.

Acknowledgements The lithic material was illustrated by D. W. Hopkins. Lithic data input was by J. Rolfe. Dr. R. M. Jacobi examined the suspected Palaeolithic material and provided useful comment.

THE POTTERY

Patrick Marsden

44 sherds of prehistoric pottery weighing 163g were recovered from two pits. This hand-made pottery is of an early to middle Bronze Age date. Fabrics were analysed using the system designed by Dr Ann Woodward to characterise all known middle Bronze Age pottery in southern England (Ellison 1975). The grading system abbreviations are listed below.

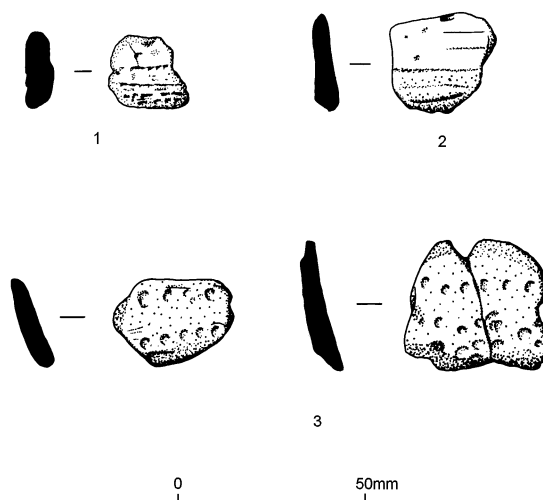
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|-------------------|-------------------------------------------------------|
| (1) Density | 1. <fragments/cm ² of surface (sparse) |
| | 2. 5–10 fragments/cm ² of surface (medium) |
| | 5. >10 fragments/cm ² of surface (dense) |
| (2) Fragment size | S <0.5 mm diameter (small) |
| | M 0.5–1.00 mm diameter (medium) |
| | L >1.00mm diameter (large) |
| (3) Filler type | Gr grog |
| | Sa sand |
| | Fl flint |
| | Vo voids |
| | Ro rock |

Beaker pottery

Context 1709, Pit 1711, produced fragments of a probable total of four beakers (25 sherds weighing 64g). Amongst these are three sherds, including a rim, from a beaker weighing 16g. This vessel is decorated with round impressions (fabric 3S-M Sa, illus 9, 3). A rim sherd weighing 3g from another beaker with comb impressions is also present (fabric 3S-M Vo ; 2S-M Sa; 1M Fl, illus 9, 2). Sherds from two other beakers displaying comb impressions were also produced by context 1709. These consist of seven sherds weighing 17g (fabric 3M-L Vo (plate-like and irregular-shaped voids which originally held fossil shell); 1S-M Sa) and 14 sherds weighing 28g (3M-L Gr; 3S-M Vo, see illus 9, 1). Beakers have also been recovered from other sites in Rutland and south-west Leicestershire, for example at Glaston Sandpit, Rutland (Vine 1982, 325 nos. 314 and 317 and 324 no. 356) and Noseley (*ibid.*, 327 no.334) and Smeeton Westerby in Leicestershire (*ibid.*, 325, 318 and 319).

Other Bronze Age pottery

Context 1041, Pit 1050 (19 sherds weighing 99g). A body sherd weighing 34g is present in this context. Its thick-walled nature (*c.*12mm) is typical of early-middle Bronze Age pottery (fabric 3M-L Vo (plate-like and irregular-shaped voids which originally held fossil shell)). Further thinner-walled sherds are present in a similar fabric but are likely to be from at least one other vessel. These include



9. Prehistoric pottery. 1–3 at Scale 1:2.

- 1) Decorated body sherd. Fabric 3M-L Gr ; 3S-M Vo. Decoration: horizontal rows of comb impressions. 1709
- 2) Rim. Fabric 3S-M Vo ; 2S-M Sa ; 1M Fl. Decoration : comb impressions. Pottery surface very abraded, 1709.
- 3) Rim and joining body sherds of vessel. Fabric 3S-M Sa. Decoration : rows of round impressions. Pottery surface very abraded, 1709.

part of a base with an internal carbonised residue. Another sherd weighing 3g is from a grog-tempered vessel (fabric 1S-M Gr). This may be early-middle Bronze Age in date, as the use of grog as a temper was common during these periods. Another small sherd weighing only 1g is in an igneous rock fabric (1M-L Ro; 2S-M Sa).

THE BURNT CLAY

Context 1060, post-hole 1105, produced 6 fragments of burnt clay weighing 36g. 3 of these fragments weighing 30g join and display a probable wattle impression, indicating that they are likely to be pieces of daub from the cladding of a wall. After such a use the clay must have been exposed to temperatures high enough for it to become burnt. It is possible the fragments just described are from a perforated oven or hearth lining. However, given the context of the burnt clay, the former interpretation seems most plausible.

THE CHARRED PLANT REMAINS *Angela Monckton*

Method

Samples were taken from 24 contexts and were processed by wet sieving in a 0.5mm mesh with flotation into a 0.5mm mesh sieve. The flotation fractions (flots) were then air dried and packed carefully. The residues were also air dried and the fraction over 4mm sorted for all finds which are included in the relevant sections of the site report. The fraction below 4mm was reserved for analysis.

The flots were all assessed (Monckton 1997) and samples were selected for analysis to include those with the most abundant charred plant remains. During the analysis the selected flots were sorted at $\times 10$ – 30 magnification with a stereomicroscope. For these samples the residue fractions below 4mm were also sorted for plant remains to ensure good recovery of material in the samples with sufficient remains for interpretation (i.e. samples with over 50 items present). The plant remains were then identified by comparison with modern reference material counted and recorded (table 14). The plant names follow Stace (1991) and the cereals Zohary and Hopf (1993) and are seeds in the broad sense unless stated. To compare the samples with each other and with those from other sites the percentages and ratios of cereal chaff, grains and weed seeds were calculated for each sample, because this can give evidence of crop processing activities (van der Veen 1992).

Results

THE PLANT REMAINS

Cereal grains were found with very little chaff and few weed seeds. The most common cereal was barley (*Hordeum vulgare*) represented by numerous grains, the

barley was of a hulled form with some twisted grains showing that six-row barley was present. A few germinated barley grains were present. Some of the identifiable cereal grains were of wheat (*Triticum* sp). Identification of wheat grains is problematic because of overlap of characters and distortion on charring (Hillman et al 1995). Some were long narrow grains possibly of spelt, a few had the characteristic shape of emmer (*Triticum dicoccum*), and some were classed as either emmer or spelt (*Triticum dicoccum/spelta*). Emmer, spelt and barley are the typical crops of the Bronze Age (Greig 1991), evidence for free-threshing wheat occurs sporadically. Here, other wheat grains, particularly in pit 1050, were short rounded grains classed as free-threshing wheat, possibly bread wheat (*Triticum aestivum* s.l.), although it should be noted that spelt can also produce short grains. Only a single wheat glume (chaff fragment) was found which was identified as spelt (*Triticum spelta*) in the post-hole 1056, however wheat chaff was abundant on the nearby Roman site (illus 2, 2) from intense agricultural activity in the area, so this may have been intrusive and was thought insufficient evidence to show spelt was present here in the Bronze Age. It is, however, known from a few sites in the region at this date, for example Lockington (Monckton 2000). The few weed seeds are mainly those of disturbed ground as found around settlements and in cultivated fields. All the weeds could have grown in local soils and it is likely that the cereals were grown in the vicinity.

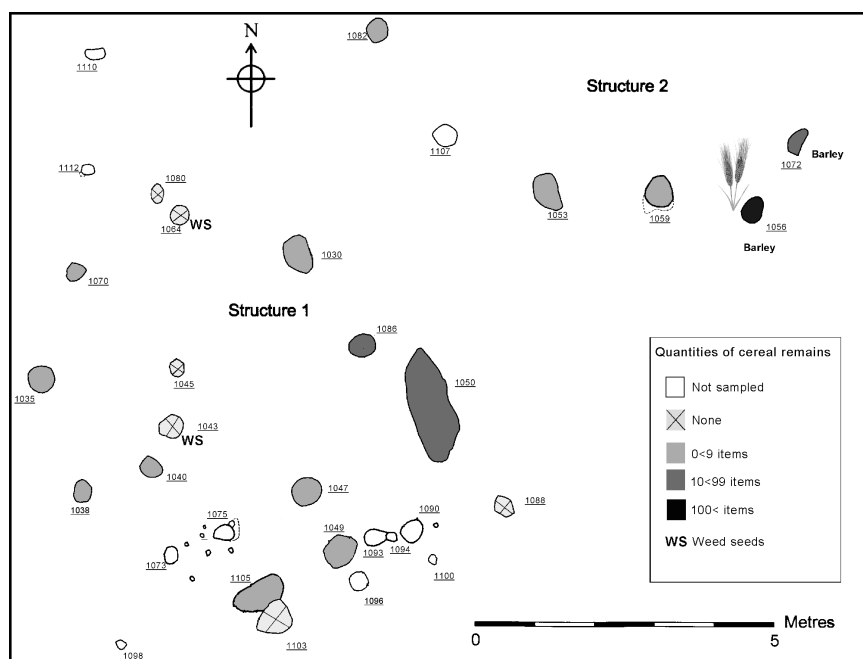
Of the 24 samples from the Bronze Age site 15 contained cereal remains, of which the four with the most remains were analysed. The two most productive samples were from post-hole 1086 of the roundhouse Structure 1, and pit 1050, both of which contained evidence of wheat, including free-threshing wheat grains possibly of bread wheat type, with a few charred seeds. Nine other post-holes contained single numbers of cereal grains including an emmer grain from 1038 and barley from 1049, both of Structure 1. The samples were dominated by cereal grains and probably represent domestic waste from food preparation. However, a modern radiocarbon date from the grains from 1086 (Structure 1) indicates intrusive material and it is suggested that the bread wheat type grains are recent. Structure 2 differed in that it produced contrastingly grain rich samples from two adjacent post-holes: the sample from 1056 contained numerous prime barley grains with very few seeds suggesting this was cleaned barley product. Grains from this sample gave a Middle Bronze Age date by radiocarbon analysis (see below). The sample from 1072 contained fewer of the same type of remains as did the three other post-holes sampled. Of these only one contained any wheat grains which were of either emmer or spelt, from post-hole 1082.

Discussion Remains in the samples from the two structures differed. Roundhouse structure 1 produced a low density scatter of cereal remains up to only 1.3 items per litre of soil, including barley and wheat including possible bread wheat, although the bread wheat may have been intrusive. Structure 2 produced abundant barley in one post-hole 1056, at a density of 59 items per litre of soil with a scatter of cereal remains in other post-holes.

The remains from Structure 1 post-holes are interpreted as spillage or waste

from food preparation, and similar burnt remains were in pit 1050. The barley from Structure 2 was free of chaff and seeds and appears to be cleaned product. No seeds or chaff were found in the sample residue which contained additional grains and grain fragments. If this grain was for animal food, as is often suggested for barley, there would be no need to remove the seed contamination. Assuming that this structure did not burn down the barley may have been burnt during processing. This was hulled barley and it may have been parched in batches to remove the papery hulls and been accidentally burnt during this process, again this would only have been necessary for human consumption. It is also possible that barley grain may have been dried for storage or before grinding. At the Iron Age site at Humberstone, Leicestershire, it has been suggested that the grain accumulated in post-holes of a four-post granary from processing carried out nearby (Pelling 2000). It is possible that the Structure 2 barley was burnt during processing and accumulated in the post-holes. The grain may have been stored in the Structure although this cannot be proved, but it is likely that it was being processed nearby.

Conclusions The samples from two Bronze Age structures were examined. The post-holes of a round-house contained only a low density scatter of mainly cereal grains interpreted as waste from food preparation. Occasional grains of emmer and barley were found although bread wheat type grains may have been intrusive. A pit produced similar remains. Post-holes from a building adjacent to



10. Distribution of charred plant remains.

the round-house also produced a scatter of cereal waste, with barley and glume wheat grains present. One post-hole produced a rich sample which contained cleaned barley grains of a hulled form including six-row barley grains with remarkably few seeds. This may have been burnt during parching for removal of the hulls or before grinding possibly for human consumption, because fodder barley would not require removal of seeds or hulls. The barley may have been processed near to where it was stored. Few sites in the region have produced

Structure	–	1	2	2	
Feature	1050	1086	1056	1072	
Context	1041	1085	1054	1071	
Context type	Pit	Posthole	Posthole	Posthole	
GRAINS					
<i>Triticum dicoccum/spelta</i>	5	1	–	–	Emmer/Spelt
<i>Triticum cf. spelta</i>	2	–	–	–	Spelt
<i>Triticum cf. aestivum</i>	19	2	–	–	Bread wheat type
<i>Triticum</i> spp.	–	1	–	–	Wheat
<i>Hordeum</i> sp. hulled	7	1	70	7	Barley
<i>Hordeum</i> sp. hulled, twisted	2	–	55	2	Barley
<i>Hordeum vulgare</i> L.	4	–	110	7	Barley
<i>Hordeum</i> sp. tail grain	–	–	5	–	Barley
<i>Hordeum</i> sp. germinated	–	–	2ge	1ge	Barley
Cereal indeterminate.	21	3	50	4	Cereal
CHAFF					
<i>Triticum spelta</i> L. glume base	–	–	1	–	Spelt
Cereal rachis, indeterminate	1	–	–	–	Cereal
SEEDS of WILD PLANTS					
<i>Papaver rhoeas/dubium</i>	1	–	–	2	Poppy
<i>Chenopodium album</i> type	–	–	1	–	Fat-hen
<i>Montia fontana</i> L.	1	–	–	–	Blinks
<i>Rumex</i> sp.	–	1	–	–	Docks
<i>Medicago/Melilotus/Trifolium</i>	–	1	1	1	Clover type
<i>Galium aparine</i> L.	1	–	–	–	Cleavers
Poaceae small	1	–	–	–	Grasses
Undetermined seeds	–	–	–	2	Seeds
TOTAL	65	10	295	26	Items
Vol sample	52	19	5	3	Litres
Vol flot	97	20	10	10	mls.
% of remains in residue <4mm.	15	–	41	–	% in residue
Charcoal	+++	++	–	++	Charcoal
Items per litre of soil	1.3	0.5	59	8.6	Items/litre
PROPORTIONS					
% CHAFF	1.5%	–	0.3%	–	%
% GRAINS	92.3%	–	99%	–	%
% SEEDS	6.2%	–	0.7%	–	%
RATIO: Seeds : All cereal grains	0.06	–	0.01	–	Ratio

Key. + = present, ++ = abundant, ge = germinated, cf. = possible identification. Remains are seeds in the broad sense unless described otherwise

Table 2. Charred Plant Macrofossils

many charred plant remains of this period and the sample here is unusually rich for this early date.

RADIOCARBON DATING

Alan Hogg, Matthew Beamish

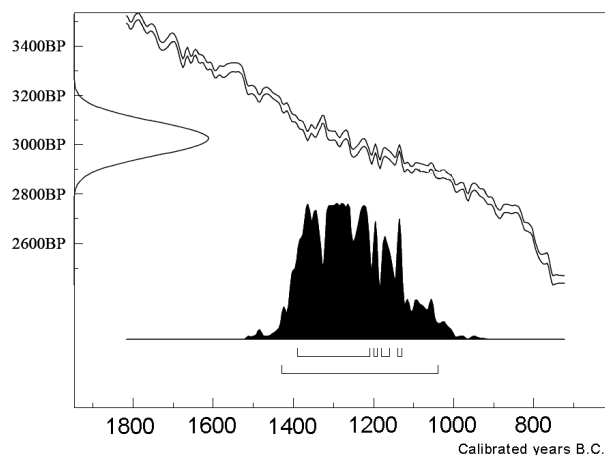
Two samples of charred material were chosen for radiocarbon accelerator dating. The first of these was from one of the two distinctly grain rich post-holes at the eastern end of the Structure 2 group.

Physical Pretreatment: Surfaces scraped clean.

Chemical Pretreatment: Washed in hot 10% HCl, rinsed and treated with hot 1% NaOH. The NaOH insoluble fraction was treated with hot 10% HCl, filtered, rinsed and dried.

Result: 3025 ± 69 BP

The calibrated results are broad, but can be safely placed within the last two centuries of the second millennium B.C., and thus ascribed to the Middle Bronze Age.



— Early Bronze Age — Middle Bronze Age — Late Bronze Age

Wk10073 : 3025±69BP

68.2% probability
 1390BC (59.4%) 1210BC
 1200BC (2.8%) 1190BC
 1180BC (3.1%) 1160BC
 1140BC (2.9%) 1130BC
 95.4% probability
 1430BC (95.4%) 1040BC

11. Radiocarbon dating.

The second sample was selected from a less homogeneous collection of charred remains from a post-hole of Structure 1. This returned a Modern date (Wk-10072) and must represent material introduced by some natural process unrecognised during excavation.

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The pottery was illustrated by Dave Hopkins; all other illustrations by M. Beamish

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