HUNTSMAN'S QUARRY, KEMERTON, WORCESTERSHIRE: LATE BRONZE AGE SETTLEMENT AND LANDSCAPE (PNUM 1854)

By Robin Jackson

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Project summary

Archaeological investigations undertaken at Huntsman's Quarry, Kemerton in south Worcestershire during 1995-6 recorded Late Bronze Age occupation areas and field systems spreading across some 8 hectares. Small areas of earlier prehistoric activity were also identified.

Limited evidence for Upper Palaeolithic, Mesolithic and Neolithic activity was recovered. Three closely spaced Beaker pits, along with a scatter of other similarly dated features and residual finds provided the first certain evidence of occupation, while Early Bronze funerary activity was represented by a ring-ditch. Together with features and finds from the nearby Aston Mill Quarry, these provide important evidence of early prehistoric activity in this area.

The majority of the deposits were, however, of Late Bronze Age date comprising waterholes and associated roundhouses, structures and pits set within landscape of fields and droveways, elements of which probably pre-dated the settlement. Substantial artefactual and ecofactual assemblages were recovered, mainly from the upper fills within the waterholes and larger pits. The settlement appears to have had a predominantly pastoral economy supported by some textile and bronze production. Ceramics included a notable proportion of non-local fabrics demonstrating that the local population enjoyed a wide range of regional contacts. Wider ranging, national exchange networks were also indicated by the presence of shale objects as well as the supply of bronze for metalworking, perhaps indicative of a site of some social status. Together the evidence indicates a settlement which can be compared favourably to those known along the Thames Valley but until now not recognised in this part of the country.

Based upon an extensive programme of radiocarbon dating, it is suggested that some of the waterholes and elements of the field systems were laid out during the 12th century cal BC, areas of settlement being subsequently established within this bounded landscape. These settlement areas appear to have been unenclosed. Dating of charred residues from the substantial plainware assemblage indicates that occupation was focussed in the eleventh century cal BC, perhaps spanning as little as four or five generations. It is argued that rather than all areas having been contemporaneously occupied, that occupation of individual areas was short-lived with the focus of the settlement regularly shifting. It is suggested that perhaps this occurred on a generational basis, with each generation setting up a new 'homestead' with an associated waterhole. Possibly at the same time, the settlement of the previous generation was formally abandoned, a process marked by the closure of the waterholes. Slight variations in the composition of the ceramic assemblages across the site provide some support for this model of settlement shift.

Cropmark evidence and limited other investigations indicate that the fields and droveways recorded represent a small fragment of a widespread system of boundaries established across the gravel terraces lying between Bredon Hill and the Carrant Brook. This managed and organised landscape appears to have been established for the maintenance of an economy primarily based on livestock farming, the trackways perhaps facilitating seasonal movement of stock between meadows alongside the Carrant Brook, the adjacent terraces and the higher land on Bredon Hill.

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The project was initiated, designed and co-ordinated by Robin Jackson (Project Manager) with the advice and guidance of Simon Woodiwiss (Principal Field Archaeologist). Malcolm Atkin (County Archaeology Officer) helped with the overall development and progress of the fieldwork.

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Lastly many thanks must go to the post-excavation team who have produced this report. Individual text sections have been attributed to author where relevant. The remainder of the report was produced by Robin Jackson.

Ann Woodward, Birmingham Archaeology (prehistoric pottery)
Peter Bellamy, Terrain Archaeology (worked flint)
Alex Bayliss, English Heritage (radiocarbon dating)
Roger Doonan, English Heritage (ceramic mould)
James Greig, English Heritage (pollen)
Derek Hurst, Worcestershire County Council, Historic Environment and Archaeology Service (ceramic weights, fired clay and stone)
Elizabeth Pearson, Worcestershire County Council, Historic Environment and Archaeology Service (Plant macrofossils and environmental co-ordination/synthesis)
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Andrew Moss, University of Birmingham (molluscs)
Stephanie Pinter-Bellows, independent consultant (animal and human bone)
David F Williams, Department of Archaeology, University of Southampton (petrology).

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Part 1 Introduction

1. Background

A programme of archaeological work was undertaken at Huntman's Quarry, Kemerton, Worcestershire between September 1994 and May 1996 in response to extension of an existing quarry. The work was carried out by the Field Section of Hereford and Worcester County Archaeological Service (now Worcestershire Historic Environment and Archaeology Service) on behalf of Huntsman's Quarries Limited.

The report is structured in five parts. The first section provides the background to the project and is followed by three sections covering the results of the fieldwork (structural, artefactual and environmental). The final section presents a discussion of the results and considers the site in both its regional and national context. Apart from the illustrations presented within the report, a large scale fold out plan of the entire site is included in a wallet at the back of the report.

2. Location, geology and topography

Huntsman's Quarry lies to the south-east of the village Kemerton which is situated towards the centre of a long narrow parish on the south side of Bredon Hill towards the southern end of Worcestershire.

The site includes parts of the parishes of Kemerton and Bredon and is centred on NGR SO 939 363 (Fig 1). The local landscape is dominated by Bredon Hill, a massive Jurassic outlier of the Cotswolds which lies about 1km north of the site and overlooks much of the surrounding Vale of Evesham and the Lower Avon Valley (**Fig 2)**. The archaeological site is almost flat, with only a slight slope downwards to the south and east providing drainage to one of a series of small watercourses feeding the Carrant Brook, a tributary of the River Avon. Prior to gravel extraction this area was used as agricultural land but is now occupied by a lake and nature reserve.

The solid geology of the valley consists of grey mudstones and clays of the Lower Lias, while Oolitic limestone forms the top of the hill (Whittaker 1972, 3-5). The drift geology is rather complex (Briggs *et al* 1975), due to the interaction of glacial gravel terraces (which equate to the Avon 2nd Terrace) and Fan Gravels. The site lies towards the southern edge of the latter which are the product of solifluction and decalcification of the underlying limestone gravels on the lower slopes of Bredon Hill (Worssam 1982, 1,8).

3. Archaeological and historical background

Kemerton has one of the most comprehensive sequences of evidence for human activity of any parish in Worcestershire County (Fig 2). Material evidence dates from as early as the Palaeolithic while *in situ* deposits have been recorded dating from the Neolithic onwards. This extensive record results from a relatively high level of archaeological investigation within the area. In the main, sites have originally been identified through cropmarks and have been investigated in advance of destruction by quarrying for sand and gravel.

The earliest evidence of human activity from Kemerton is represented by the discovery of a significant assemblage of Palaeolithic material during quarrying in the 1980's at Aston Mill Quarry (Whitehead 1988). Fifteen hand-axes along with other broadly contemporary material were recorded and on typological grounds appear related to a Lavallois industry. A further Palaeolithic handaxe was found during the making of a television programme for the Channel Four Production, Time Team in 1998 and may also be of similar date (Terrain Archaeology 2001). This represents a significant grouping and, though not *in situ*, represents the most extensive collection of Palaeolithic material recovered from the County.

The most extensive previous archaeological project in Kemerton was the salvage recording undertaken in advance of quarrying at Aston Mill, on the southern edge of the parish (Fig 2). This produced widespread evidence of former occupation dating from the Mesolithic onwards (Hillson 1975; Dinn and Evans 1990). This included a thin scatter of Mesolithic flint, possible Late Neolithic occupation, an Early Bronze Age ring-ditch with secondary cremations of Middle to Late Bronze Age date, Middle Iron Age pits and enclosure ditches, Late Iron Age and early Roman ditches and an Anglo-Saxon period *grubenhaus*.

Small-scale projects have recorded further evidence of former activity in the parish. In 1963, a Beaker period barrow with two interments was recorded on the slopes of Bredon Hill at the north end of the parish (Thomas 1965; Fig 2:2). The Time Team programme made in 1998, investigated cropmark sites to the north of Huntman's Quarry dating a small enclosure to the Middle Iron Age and a larger series of enclosures to the Late Iron Age and Roman periods (Terrain Archaeology 2001; Fig 2:5 and 9). Of later date, Anglo-Saxon period domestic occupation has been recorded at two locations beyond Aston Mill and includes two further *grubenhauser* dating from the 6th to 7th centuries AD (Fagan *et al* 1994; Terrain Archaeology 2001; Fig 2: 5 and 16).

Subsequent occupation appears to have been focussed around the two surviving settlements of Kinsham and Kemerton, the current locations of which have medieval origins. Earthworks and cropmarks in the surrounding fields, allied to extensive evidence from the excavated areas, shows widespread areas of medieval ridge and furrow systems within the surrounding fields. The excavated evidence is supported by some limited documentary research. This has included study of the Anglo-Saxon Charter bounds for the parish, while cartographic analysis has enabled the hypothetical reconstruction of the medieval open field system (Sachse nd). Most recently, research associated with the production of a further television programme (BBC2; Talking Landscapes) has drawn upon existing evidence to produce a model of landscape change and development.

Apart from the investigated sites, the parish includes numerous cropmark sites occupying the gravel terraces north of the Carrant Brook. These provide evidence for several enclosures and associated field systems and trackways including a scheduled and well-defined enclosure and ditched trackway to the south of the quarry (Fig 2:12), which surface finds suggest is of Iron Age or Roman date. These cropmark complexes extend east and west of the parish along the Carrant Valley. These include pit alignments, ring-ditches and extensive field systems of apparently Bronze Age, Iron Age and Roman date. Dotted throughout these, there are contemporary settlement enclosures. Several of these sites have been investigated in varying levels of detail. Small-scale trial investigations were carried out in 2004 of a small hengiform cropmark site at Bredon's Norton by the Department of Applied Science, Geography and Archaeology of University College Worcester (Fig 2:1). This recorded cremations inserted into the top of a large infilled ditch which has produced pottery provisionally dated to the Bronze Age (Jodie Lewis pers comm). Large-scale excavations were undertaken in advance of quarrying at Beckford. Although not published in detail, interim reports record extensive evidence of Middle Iron Age settlement and of a major boundary ditch pre-dating it and of possible Bronze Age date (Britnell 1975; Fig 2:8). Late Iron Age and earlier Roman activity were also present, but these do not appear to represent occupation and a major settlement shift at the onset of the Late Iron Age seems to be represented. Two Anglo-Saxon cemeteries were also excavated in advance of quarrying to the west of Beckford in the 1950's (Evison and Hill 1996; Fig 2: 17 and 18). As at Aston Mill Quarry, Palaeolithic hand-axes have been discovered during the course of the quarrying at Beckford.

Above the river valley, the southern slopes of Bredon Hill have produced a many chance finds of prehistoric to Roman date indicating extensive occupation and activity. A small hillfort, Conderton Camp lies on these slopes and appears to have been occupied throughout the Middle Iron Age (Nick Thomas pers comm), while the hilltop itself is the focus of a major Iron Age promontory fort, Kemerton Camp which was partially excavated in the 1930's producing extensive evidence of occupation and other activity of this period (Cruso

Henken 1938). Finally the medieval castle at Elmley Castle is believed to overlie a further Iron Age hillfort.

4. Project history

Quarrying at Huntman's Quarry, Kemerton commenced in 1988 with extraction across a permitted area lying to the south of that covered by this report (Figure 2). This work was undertaken subject only to an access condition permitting the County Archaeology Officer or their representative to visit the quarry. No provision was made for investigation and funding of any remains to be disturbed and with the exception of a couple of unfruitful visits the whole area was quarried without archaeological input.

In 1993 submission of application to extend the quarry to the north, prompted a programme of evaluation and investigation of this area. Pre-determination evaluation was recommended by the County Archaeology Officer, however, contrary to this advice, permission was granted subject to an agreed programme of archaeological works. Huntsman's, advised by Mr Andrew Josephs of Wardell Armstrong (their consultants), and in consultation with the Field and Planning Advisory Sections of the Service agreed a staged programme of archaeological work to be undertaken both prior to, and, if necessary, during subsequent quarrying operations.

The resultant programme of works commenced with a staged evaluation, comprising geophysical survey, fieldwalking and trial trenching. This resulted in the definition of a 'core area' of prehistoric settlement and adjacent but peripheral activity extending beyond it. This resulted in the preservation of the defined core area and a further stage of archaeological work comprising salvage recording in advance of quarrying of the remainder. This was anticipated to record low levels of occupation related activity and field systems associated with settlement in the 'core area'. In the event extensive and significant deposits of Beaker through to Late Bronze Age date were recorded across most of the area of salvage recording and these far exceeded the reasonable expectations of the evaluation programme.

The extent and significance of the discoveries was such that it was recognised before fieldwork was completed that the developer funding would not be able to cover the costs of maintaining a level of fieldwork recording commensurate with the importance and potential of the site. In addition, it was clear that the established post-excavation analysis and publication funding would not support the level of analysis which the results warranted. English Heritage was therefore approached with a request for funding to support the project.

Following discussions and a brief presentation it was agreed in principle, given the exceptional and unexpected extents and significance of the site, that English Heritage would support the post-excavation analysis and, if relevant, publication of the site (letter dated 19 February 1996). Existing funds were then used to maintain an adequate record in the field, to prepare a site archive and to prepare an assessment and updated project design for the post-fieldwork analysis (Napthan *et al* 1997). The latter was approved leading to production of this report covering all phases of fieldwork at the site.

5. Aims

5.1 Evaluation

The evaluation aimed, through a staged programme of work, to determine the presence or absence of archaeological deposits within the proposed quarrying area and where present to assess their extent, character, state of preservation, date and potential archaeological significance.

5.2 Salvage recording

The aims of the salvage recording were identified as a result of the evaluation and were defined the Brief. This recognised that the evaluation had established the high significance of the site and that occupation sites of Bronze Age date are rare nationally and particularly rare regionally. The brief also noted the importance of the ceramic assemblage from the evaluation and emphasised the value of the site as part of a "varied archaeological landscape....with both temporal and spatial relationships between successive Bronze Age, Iron Age, Roman and Saxon settlement sites". The site was divided into three zones, two of which were identified as covering the well-preserved remains of the "core" of the Bronze Age settlement. These were assessed to be of national significance and this area, following discussions with Huntman's, was omitted from the quarry ensuring preservation *in situ* of significant deposits.

Beyond this "core" area, a third zone was defined as also including prehistoric deposits but the evaluation indicated that these tailed off towards the west and suggested that they were peripheral to the main settlement. Salvage recording was identified as an appropriate mitigation strategy for this zone. The objectives of the salvage recording were therefore primarily to identify the extent and nature of the deposits by means of excavation of a sample and rapid planning of the remainder of the features.

5.3 Post-excavation

As result of post-fieldwork assessment, ten research themes were identified for the project focussing upon the extensive evidence for Late Bronze Age settlement and associated field systems which had been recorded. These were:

- Structures and settlement patterns;
- Linear boundary patterns (drove/trackways and field systems);
- Funerary features;
- Hearths/burnt features;
- Waste disposal patterns;
- Local environment;
- Craft and technology;
- Food resources cultivation and diet;
- The settlement in a regional and national framework;
- Methodological implications.

6. Methodology (by Robin Jackson and Mike Napthan)

6.1 The evaluation

A geophysical survey was undertaken in June 1994 by Stratascan and consisted of a magnetic susceptibility survey of the whole area based on a 20m grid. This was undertaken with the aim of was testing an area known to contain faint cropmarks. This was followed by a "targeted" intensive magnetometer and resistance meter survey in the area suggested by the magnetic susceptibility survey. A number of anomalies were identified and plotted in detail (Barker 1994). They were interpreted by Stratascan as part of a circular bank and ditch, enclosure boundaries, possible hearths, a buried metal object and ridge and furrow. The centre of activity was suggested to be close to the southern boundary in the centre of the eastern field, around the area identified by the initial cropmark evidence.

Subsequent to the geophysical survey the entire area was fieldwalked (based on transects and stints at 20m intervals) in September 1994 with the aim of identifying any surface artefact concentrations, which might reflect areas of activity or provide date indicators (Cook and Hurst 1994). The density of material recovered was low, a total of only 30 worked flints were recovered from an area of approximately 8ha, no prehistoric ceramics were recovered. The Roman and medieval finds also indicated a low level of activity, without distinct clusters.

The results of the geophysical survey and fieldwalking were not conclusive and no core areas could be defined, thus evaluation trenching was undertaken of the whole area of the proposed extension in October-November 1994. Ten trenches (Areas 1-10; Fig 3) totalling 1000m in length were excavated and selected deposits were then excavated by hand. Recording followed standard practice (County Archaeological Service Recording System 1993, as amended). An additional area of 300m² (Area 11; Figs 3 and 4) was opened in order to provide a wider view where the features seemed to be concentrated. In total 2150m² were investigated for the evaluation which comprised slightly over 2% of the proposed extraction area.

A low density of features was identified over much of the site with the exception of a concentration towards the eastern boundary. Here, a cluster of stake and postholes in the south-east corner were cut through the subsoil and contained a small number of Bronze Age sherds. Further investigation of an expanded area at this location (Area 11) revealed two very substantial pits with large assemblages of Late Bronze Age pottery, bone and flint (Fig 4). One pit contained anaerobically preserved timber and other environmental remains.

As a result of the evaluation an area of significant Late Bronze Age deposits was identified concentrated in the eastern part of the proposed development. At a site meeting it was agreed that preservation *in situ* was the preferred option for this "core" area. Huntman's Quarries explored the possibility of preservation by record of these deposits, however, this option was not taken up and the area was excluded from the quarry extension and returned to agricultural use. For the remaining area, where only a thin scatter of small and largely sterile features had been identified, it was agreed that salvage recording was an appropriate response. This anticipated a low level of occupational activity on the periphery of the settlement allied perhaps to field systems. A further brief was then prepared for this recording by the Planning Advisory Section (Appendix 2) and the Field Section were commissioned to undertake the work which commenced in November 1994 and continued until September 1996.

6.2 Salvage recording

Fieldwork occurred in response to each new area stripped of topsoil (Fig 3). The broad aim throughout was to identify, record and sample any archaeological features revealed. Each phase of fieldwork was allocated an area number (Areas 12-21) and a discrete group of context numbers. The latter extended the evaluation sequence which had used trench numbers as a prefix (eg Trench 10 used context numbers 1000, 10001, 1002, etc) except now the area number formed the prefix. Two small parts of the excluded "core" area were brought into the extraction area during the course of the project following negotiations with the Service; Area 13 being added for operational reasons as a haul road for the quarry; and part of Area 16 which was required to be "rounded off" for landscaping purposes. As part of Area 13 lay within the previous extraction area for which there was no archaeological constraint, a 50% level of recording was considered appropriate. Area 16 was subject to 100% salvage excavation as it was fully within that part of the current extraction area defined as being of archaeological significance.

The eastern field was stripped using a 360º Ackerman tracked excavator and 20 ton Volvo dumper. The methodology varied according to ground conditions, but generally every effort was made to avoid driving across areas until they had been fully recorded. The nature of the subsoil resulted in rapid wheel rutting in all but the driest conditions. Selected small areas were hand cleaned wherever possible immediately following the stripping, however, for considerable areas of the site this proved to be unnecessary since the plant operators were

highly efficient and produced a 'finished surface' on which archaeological features were generally readily identifiable (Figs 4 and 5).

Within the western field, Area 18 was stripped of topsoil using D30 Kommatsu tracked tractor towing a box scraper, and cleaned up using the 360º excavator and dumper as before. Where it proved impractical to excavate two large pits (contexts 1833 and 1835) by hand, the majority of the fill was transferred to an 8m³ skip using the Ackerman for later finds retrieval by volunteer labour at the unit offices. Areas 20 and 21 were stripped as before using the Ackerman 360º and two Volvo dumper trucks. The north-west corner of this field was not investigated since mineral reserves were considered insufficient to warrant extraction.

Across the site, the entire stripped area was planned at 1:100, with excavated detail and sections drawn at 1:20. The plans were tied into a single site grid aligned with the southern field boundary and extended as the stripping progressed. The percentage of features excavated was as determined in the brief. Areas 12, 14, 15, 17 and 19 were 10% sampled, Area 13 was 50% sampled and the excavated part of Area 16 was 100% sampled. Areas 18 and 20 were 5% sampled.

Whilst only a small proportion of features were excavated, exposure of the whole 70,000m² of the threatened area allied to the results from the areas of higher sampling (Areas 13 and part of 16) facilitated selection of "key" features (in terms of those few which had stratigraphic relationships), identifiable structures and artefactually rich features for examination. This enabled a very high artefactual recovery rate in relation to the minimal levels of resources employed. Wherever possible the entire fills of artefactually rich features were excavated while those features which, when half-sectioned, were found to be devoid of artefacts were not explored further.

As a consistent approach to excavation and recording was necessary to enable direct comparisons to be drawn between different parts of the site, it was decided to retain a core team of two staff to undertake all of the field work. An Assistant Archaeological Field Officer (Mike Napthan) undertook most of the monitoring of machine stripping and the pre-excavation planning at 1:100, whilst an Archaeological Assistant (Dave Wichbold) undertook the majority of excavation. One or other was present on site during all phases of fieldwork. This maintained consistent cover even during necessary absences for leave and operational requirements of the Service. Additional staff and volunteers provided assistance when available.

Full access to the site during stripping and extraction operations was granted by the quarry operators Huntsman's Quarries Ltd and the landowner Adrian Darby. No reinstatement of archaeological trenches or features was required since quarrying followed immediately. The site has now been fully worked out and has was been landscaped to include a lake and a wildlife habitat.

6.3 Conditions of preservation

Within the site as whole a number of observations were made regarding the level of preservation of prehistoric features.

Firstly, medieval ridge and furrow had a major impact on deposit survival. Although no longer visible as earthworks, furrows were evidenced across the whole area and, as is commonly the case, had truncated deposits along their entire length. As far as possible the furrow fills were removed during machining, but generally it was observed that only deeper deposits had survived truncation by the formation of these features.

Conditions of preservation were better on the areas which had been beneath ridges, however, plough truncation since the medieval period had not only levelled the ridges but had also to an extent truncated deposits beneath them. Deposit survival was best towards the southern and northern field boundaries possibly as a result of protection by deeper soil depths on

plough headlands formed at the ends of the ridge and furrow. More severe truncation was present in the central part of the field. Here only deeper cut features survived in any quantity, however, this may also partially reflect the original character of the settlement activity which appears to have been less intense in this area.

Pottery and other artefacts were mostly well preserved although some ceramic fabrics had suffered leeching of inclusions, and consequently tended to be more fragmented and abraded. Overall, the condition of animal bone was poor as is commonly the case on gravel sites. One exception was within larger, deeper features, which penetrated the watertable and in these preservation was very good. Improved bone preservation was particularly noted and may reflect more alkaline conditions resulting from drainage of the nearby limestone outcrop of Bredon Hill. Waterlogged conditions in several cases had also led to the survival of organic material but otherwise organic survival was restricted to charred remains typical of dry site conditions.

6.4 Post-excavation methods

6.4.1 Morphological analysis

Plan analysis formed the principal tool for identification of structures and other components of the settlement. Context descriptions were considered along with more detailed artefactual and ecofactual data which particularly contributed to the development of broad phasing and characterisation of the settlement components. Analysis has not been exhaustive but has focussed on major cut features, linear features, clearly defined structures and areas of more intense activity.

Site plans within the report which cover the entire investigated area show only assigned and other archaeological features within any given phase but omit uncertain features of possibly natural origin. Detailed plans of individual structures or structure groups show all features, both certain and uncertain and a large-scale plan of the whole site is included at the back of the report showing all features and anomalies recorded.

6.4.2 Identification, characterisation and dating of deposits

Analysis has been based on feature or deposit type. Any distinct structures which could be identified (eg roundhouses and fencelines) have been allocated a context group number and type (eg Roundhouse: Context Group 34). Other settlement components such as waterholes, individual pits, funerary features and hearths/burnt features have been similarly allocated context group numbers and types (eg Waterhole: Context Group 3). Linear features such as trackways, enclosures and field boundaries have been considered on a cross-site basis as well as within individual areas.

Within individual features, fills have been considered as either primary (relating to initial use of feature - eg a silting fill in the base of a waterhole or packing in a posthole), secondary (relating to subsequent use of a feature once its primary function was no longer active - eg dumped deposits in the upper part of a waterhole) or tertiary fills (relating to final stages of use/life of feature - eg ploughsoil/weathered fills in the uppermost part of a pit which has been otherwise infilled).

Some limitations in dating, identification and characterisation of context groups and settlement components were predicted from the outset. These limitations reflect the restricted numbers of features from which artefacts have been derived and the limited instances where relationships were present between features. Dating has therefore often relied on association of context groups, components and unassigned features with the better dated elements of the settlement within a given area. In the light of the widespread evidence for Late Bronze Age activity, it is evident that this represents the main period of site activity and as a result undated or poorly dated features have been assumed to be of this date. It is, however,

recognised that this assumption has its own limitations and that other interpretations of the patterning and phasing of activity can be reached using the large-scale site plan provided.

The density of features in many of the clusters (allied to the variety of structure plans potentially present in any given area) has restricted the number of clearly identifiable structures and therefore groups. Consequently in many cases unexcavated or poorly dated postholes, lesser pits and other anomalous deposits have remained unassigned. These have, however, been assessed to some extent on the basis of their fill characteristics and general appearance and divided between those felt liable to represent genuine archaeological features and those believed to be natural in origin (eg root holes, animal burrows or geological anomalies). In addition, while although simple characterisation has been possible in the majority of cases (pit, posthole, ditch, etc), higher levels of functional interpretation of many features and feature groupings (domestic building, agricultural structure, rubbish pit, etc) have not proved possible.

The range and character of activities represented in any given area has been considered (eg occupation, waste disposal, agricultural, craft/production, etc) and the relationship between these areas across the site has been discussed. Consideration has also been made of any evidence for the changing morphology and development of the site throughout the period of occupation, and several zones of settlement have been identified. These possibly represent different types of site activity within a settlement, but are considered more likely to reflect several phases of occupation, although as outlined above detailed dating has not been possible.

6.5 Archiving

The project archive has been deposited at the Worcestershire County Museum at Hartlebury.

Copies of the report have also been deposited with the Worcestershire Historic Environment Record and with English Heritage.

Part 2 Dating and structural evidence

7. Radiocarbon dating (by Alex Bayliss, Robin Jackson and Christopher Bronk Ramsey)

7.1 Introduction

Thirty radiocarbon age determinations were obtained on samples from pits excavated in 1994–6. Another eight samples of animal bone were submitted for analysis, but failed to produce sufficient collagen for reliable dating.

The samples were processed by the Oxford Radiocarbon Accelerator Unit, and were prepared using the methods outlined in Hedges *et al* (1989) and measured using Accelerator Mass Spectrometry (Bronk Ramsey and Hedges 1997).

The laboratory maintains a continual programme of quality assurance procedures, in addition to participation in international intercomparisons (Scott *et al* 1990; Rozanski *et al* 1992; Scott *et al* 1998). At the time when the first set of samples from this site was measured, these tests identified an intermittent problem with the graphitisation process at Oxford. However, the consistency of the results from this site suggests that all measurements are accurate (see below), and relevant quality assurance data for these samples are provided in Bronk Ramsey *et al* (2002).

7.2 Results

The results are given in Table 1, and are quoted in accordance with the international standard known as the Trondheim convention (Stuiver and Kra 1986). They are conventional radiocarbon ages (Stuiver and Polach 1977).

7.3 Calibration

The calibrations of these results, relating the radiocarbon measurements directly to calendar dates, are given in Table 1 and in outline in Figures 6-10. All have been calculated using the calibration curve of Stuiver *et al* (1998) and the computer program OxCal (v3.5) (Bronk Ramsey 1995; 1998; 2001). The calibrated date ranges cited in the text are those for 95% confidence. They are quoted in the form recommended by Mook (1986), with the end points rounded outwards to 10 years. The ranges quoted in italics are *posterior density estimates* derived from mathematical modelling of archaeological problems (see below). The ranges in plain type in Table 1 have been calculated according to the maximum intercept method (Stuiver and Reimer 1986). All other ranges are derived from the probability method (Stuiver and Reimer 1993).

7.4 Methodological Approach

A Bayesian approach has been adopted for the interpretation of the chronology from this site (Buck *et al* 1996). Although the simple calibrated dates are accurate estimates of the dates of the samples, this is usually not what archaeologists really wish to know. It is the dates of the archaeological events represented by those samples which are of interest. In the case of Kemerton, it is the chronology of the use of the settlement and ceramics that is under consideration, not the dates of individual pieces of pottery or macrofossils. The dates of this activity can be estimated not only using the absolute dating information from the radiocarbon measurements on the samples, but also by using the relative dating information provided by stratigraphy.

Fortunately methodology is now available which allows the combination of these different types of information explicitly, to produce realistic estimates of the dates of archaeological

interest. It should be emphasised that the *posterior density estimates* produced by this modelling are not absolute. They are interpretative *estimates*, which can and will change as further data become available and as other researchers choose to model the existing data from different perspectives.

The technique used is a form of Markov Chain Monte Carlo sampling, and has been applied using the program OxCal v3.5 (http://www.rlaha.ox.ac.uk/), which uses a mixture of the Metropolis-Hastings algorithm and the more specific Gibbs sampler (Gilks *et al* 1996; Gelfand and Smith 1990). Details of the algorithms employed by this program are available from the on-line manual or in Bronk Ramsey (1995; 1998; 2001), and fully worked examples are given in the series of papers by Buck *et al* (1991; 1992; 1994a; 1994b). The algorithm used in the models described below can be derived from the structures shown in Figures 6-10.

This section concentrates on describing the archaeological evidence which has been incorporated into the chronological model, explaining the reasoning behind the interpretative choices made in producing the models presented. These archaeological decisions fundamentally underpin the choice of statistical model.

7.5 Objectives of dating programme

The radiocarbon programme was designed to achieve the following objectives:

- to provide absolute dating for the important late Bronze Age ceramic assemblage;
- to determine whether the characteristic forms in this assemblage are early in the Plain Ware tradition;
- to provide absolute dating for later prehistoric activity on the site.

No suitable material could be obtained from the rectangular post-built structures on the site, and insufficient material was available for dating from the circular structures. It is therefore impossible to confirm directly whether these are contemporary with the ceramic assemblage. Dating the latest element of the ceramic assemblage, including finger-tip and incised geometric decoration (CG91) was also considered, but suitable samples could not be found.

Two cremated bone deposits were identified but could not be dated as the material had unfortunately been mislaid. When it was recovered, late in the analytical programme, it was found to consist of cremated bone only, with no fragments of fuel debris.

Datable material was available from a series of Beaker pits, but mathematical simulations suggested that, in the absence of sufficient stratigraphic relationships to constrain the calibration of the radiocarbon results, the dates produced would not refine the chronology of the features provided by the ceramic typology.

7.6 Sampling strategy

Initially a simulation of the dating problems from Kemerton was built using the R_Simulate function of OxCal, the earliest and latest estimated dates for the ceramic assemblage, and the stratigraphic relationships between potential samples (see, for example, Fig 6). This modelling suggested that, depending on the duration of the site and its actual date (and hence the part of the calibration curve on which it would fall), between 15 and 30 radiocarbon measurements would be required to provide a sufficiently precise chronology to be archaeologically useful.

For this reason, a sequential sampling strategy was adopted and, initially, a series of eighteen samples was submitted for dating. All samples were from pits containing large late Bronze

Age ceramic assemblages. Samples were selected from features in every area of the site. Preference was given to pits where a sequence of samples could be found from stratigraphically related contexts, since the preliminary statistical modelling had shown that the constraints on the simple calibrated dates provided by such relative dating would produce considerably more precision in the chronological estimates provided by the eventual model.

Stratigraphic relationships occur between contexts, not between samples, however. It is therefore critical that the samples which are dated were fresh when deposited in the contexts from which they were recovered. In this case, this is thought to be probable because the ceramic assemblage consisted of large, unabraded sherds and the bone appeared to be 'fresh'. In addition there were concentrations of charcoal in the fills. All in all, the pit fills appear to incorporate refuse in primary contexts from the nearby settlement structures, or possibly refuse derived directly from short-term middens in these settlement areas. Nevertheless, datable material from these deposits still had to meet an extremely rigorous set of criteria before it was selected for dating. These were chosen to minimise the risk of submitting residual samples.

These criteria were:

- articulated animal bone deposits – these must have been buried with tendons attached or they would not have remained in articulation, and so were almost certainly less than six months old when buried (Mant 1987, 71)

- waterlogged plant macrofossils – to be residual these would have had to have been redeposited from another context where conditions were suitable for their preservation (generally unlikely, particularly in a discrete context such as a pit)

- refitting sherds with internal carbonised residues – the presence of more than one sherd from the same vessel in a context suggests that the primary disposal of the broken vessel was in that context; internal residues are likely to consist of food remains rather than, for example, sooting from a fire.

- butchered animal bone, from contexts containing re-fitting sherds where articulated bone was not available.

Unfortunately only ten results were obtained from the first series of samples, as all the bone samples contained insufficient collagen for dating. However, the consistency of these results is such that it appears that the hypothesis that this material was refuse dumped in what were effectively primary contexts is true. This being so, a second set of samples was submitted. This consisted of 16 further samples of carbonised residues on the internal surfaces of refitting pottery sherds, and two samples of charred cereal grains. All these samples were from contexts where refitting sherds or articulated animal bone was present.

OxA-10375 was a replicate measurement of sample CG8 1115A (OxA-9488), measured as part of the internal quality assurance procedures of the Oxford Radiocarbon Accelerator Unit.

7.7 Archaeological interpretation

The interpretative model for the chronology of the Bronze Age ceramic assemblage at Kemerton Quarry is shown in Figure 7.

The relative order of the dated contexts, known from stratigraphy, is included in the model. This means that, in CG7, the samples from context 1855 (OxA-9435 and OxA-1075) are earlier than that from context 1838 (OxA-10784), which is earlier than those from context 1834 (OxA-9486, OxA-9559, and OxA-10783). In CG8, the samples from context 1115 (OxA-9488, OxA-10375, and OxA-9489) are earlier than that from context 1103. A weighted mean has been taken of the two measurements on *Prunus spinosa* twig 1115A before

calibration (OxA-9488 and OxA-10375; T'=0.8; T'(5%)=3.8; ν=1; 3097±26BP; Ward and Wilson 1978). In CG4 the two results from context 2050 (OxA-9424 and OxA-9490) are earlier than those from context 2032 (OxA-9483–4 and OxA-10778–80).

The radiocarbon measurements are in good agreement with the incorporation of this relative dating information in the model (A=68.9%; Bronk Ramsey 1995). This suggests that there is little residual material among the dated samples, supporting our archaeological interpretation of the taphonomy of this material (see above). The freshness of the samples when deposited in the contexts from which they were recovered is also supported by the consistency of the radiocarbon measurements from each context. Twenty-eight samples have been dated from ten contexts on the site which have more than one radiocarbon measurement. Only from two of these contexts, CG7 1855 and CG8 1115, are the measurements statistically significantly different (at 95% confidence), and in both cases the measurements are consistent at 99% confidence. This variation is no more than would be expected by the quoted statistical scatter on the measurements if all the material from each context was actually of exactly the same date.

In the model shown in Figure 7, the samples from primary fills of the pits have been used to constrain the dates of the ceramic-bearing deposits above. These secondary deposits in the pits are believed to represent infilling of disused waterholes with fresh domestic rubbish. The samples from the crop processing debris dumped along with many sherds from a highly fragmented vessel in CG19 are considered equivalent to this material.

This model suggests that the ceramics from this site were used and deposited *between 1130–1010 cal BC (95% probability)* or *1090–1020 cal BC (68% probability)*. They were used for between *1 and 160 years (95% probability)* or *1 and 80 years (68% probability)*(Fig 3).

The dated features come from across the site, so it appears that there is no discernable difference in date for the disuse of the waterholes and, presumably, the occupation of the round houses from which the rubbish used to backfill them was derived.

It is possible, however, that the waterholes themselves were actually dug and in use rather earlier. A model which includes the samples from the primary fills of the waterholes as part of the phase of Bronze Age activity on the site is shown in Figure 9. Sample 1115A is a statistical outlier and has been excluded from the analysis (A=16.0%; Bronk Ramsey 1995). This model suggests that the Bronze Age activity started in *1210–1040 cal BC* and ended in *1050–920 cal BC (95% probability)* or started in *1170–1120 cal BC or 1110–1050 cal BC* and ended in *1020–960 cal BC (68% probability)*. The waterholes were in use for between *1 and 250 years (95% probability)* or *50 and 190 years (68% probability;* Fig 5).

7.8 Conclusions

The absolute dating programme at Kemerton Quarry has achieved its objectives. It seems that the waterholes, and presumably the field system with which they were associated, were dug and laid out in *1210–1040 cal BC (95% probability*; Fig 9). This activity may have been contemporary with the round houses excavated on the site, although, as these are undated, this cannot be proven. Between *1140–1010 cal BC* and *1050–960 cal BC (95% probability*; Fig 7), the waterholes fell into disuse, and were infilled. These fills incorporated large quantities of fresh domestic debris containing a substantial ceramic assemblage. This material may have come from the inhabitants of the round houses.

The waterholes and associated field system were probably in use for between *1 and 250 years (95% probability*; Fig 10). The dated ceramic assemblage, which derives from the disuse of this system, spans a shorter period of between *1 and 160 years (95% probability;* Fig 3). Centering on the eleventh century cal BC, the Plain Ware assemblage from Kemerton is early in the development of this tradition.

8. Earlier prehistoric activity (Robin Jackson and Mike Napthan)

8.1 Upper Palaeolithic and Mesolithic activity

A limited amount of activity during the Upper Palaeolithic was indicated by the presence of two residual flint tools in a Late Bronze Age waterhole (context 2102; CG14; see Section 16). It is uncertain whether these indicate the presence of occupation of this date, or whether they represent casual losses, although the latter appears more probable.

Mesolithic activity was better represented with a focus of activity in the north-eastern part of the site (Fig 11). Here, diagnostic Mesolithic artefacts were recovered from a tree-throw (context 1722) and as residual material in the fill of a later field boundary (context 212). Further material of probable Mesolithic date was centered on Area 17 and included blade debitage, blade cores and two retouched pieces (see Section 16). These were recovered from further tree-throws of probable Mesolithic date (contexts 206/207, 1714, 1716 and1717) as well as residual material in a Late Bronze Age posthole which appears to have disturbed another tree-throw (context 1724). Some of the flint was burnt and, together with the presence of tools and working waste concentrated into one area, this is understood to reflect Mesolithic settlement in this part of the site.

A sparse scatter of blade debitage across the remainder of the site may reflect casual losses around such an occupation focus.

8.2 Neolithic activity

Two pits of probable Middle Neolithic date were recorded. The first (CG38; Figs 11 and 12) contained a single fill and has been dated by material tentatively identified as from a Peterborough Ware bowl (Section 10.9). At least two other vessels were represented but were not sufficiently diagnostic to enable any greater certainty about the date of the feature. To the south, a further pit (CG98) may be broadly contemporary. This contained eight flints including a core. In the same area a narrow, broken blade recovered from a Late Bronze Age pit (CG17) may be a residual item dating from this period.

Other certain evidence of Neolithic activity derives from sherds from a Grooved Ware vessel recovered as residual material from a Late Bronze Age pit (context 1801; CG 39; Section 10.9). This supports the presence of at least a low level of activity during this period.

Further Neolithic features may have been present but none have been firmly identified due to the absence of securely dateable material.

Pit: Context Group 38 (Fig 12)

Grid	1067/1070
Fill/cut	1520
Plan	Sub-circular
Profile	Bowl-shaped
Dimensions	0.90 x 0.20m

Shallow, bowl-shaped pit with a single reddish brown silt sand fill. This included a moderate pottery assemblage (18 sherds plus crumbs, weighing 261g), occasional charcoal flecks and rare bone fragments (including cow and sheep/goat).

Pit: Context Group 98 (Fig 12)

Grid	1061/1058
Fill/cut	1515
Plan	Sub-oval
Profile	Concave
Dimensions	1.32 x 1.05 x 0.21m

Shallow pit with single charcoal flecked fill. This produced a small assemblage of flint (8 items including a core).

8.3 Beaker activity

Beaker period activity was represented by a group of three closely spaced pits (CG12, 13 and 42; Fig 13). Several isolated pits and other features were also identified, of which one lay to the north of the pit group (CG84), the remainder being widely dispersed (CG82, 83, 84, 85, 94 and 95; Fig 11). All were dated on the basis of Beaker ceramics.

Naturally derived lower fills distinguished the three closely spaced pits. These probably reflect weathering or collapse of the unstable sand and gravel deposits through which the pits had been excavated. The upper fills were darker and produced assemblages of Beaker ceramics, flint and other finds. One pit (CG12) contained notably more material than the other two (Table 2). The ceramics indicated that these probably dated from the second half of the third millennium BC.

In contrast to the Neolithic pit described earlier, these pits appear to have been left open for some time before backfilling, basal fills indicating a period of weathering of an open feature prior to deposition of the upper fills. The upper fills, representing disuse of the features, can be compared with those of the Neolithic pit described above having distinct assemblages incorporated within them. One pit (CG12) included a considerable quantity of material including sherds representing no less than eight different fineware vessels as well 28 of the 29 flint items recovered from the pit group. A further posthole or small pit (CG94) situated to the north may also have been associated, while the appearance of the fill and the dimensions of an unexcavated pit in this area indicate that it is liable to represent a further element of this feature group.

The remaining certain Beaker period features were widely dispersed. These included one certain further pit (CG85), three large postholes or small pits (CG83, CG94 and CG95) and two isolated postholes (CG82 and CG84). Of these, two were of particular interest (CG82 and CG83) in that each contained quantities of pottery (9 and 24 sherds respectively) indicative of deposition of substantial chunks from single vessels or possibly, since both were truncated, entire vessels. Burnt stone, fired clay and flint were also present in some features.

It is considered probable that further activity of this date is represented amongst the large number of unassigned features, which were either poorly dated, undated or unexcavated. Several of these contained only flint, and occasionally daub or burnt stone. Since the majority of the flint assemblage has been identified as representative of a flake industry of Late Neolithic/Early Bronze Age date (Section 16) it seems likely that at least some of these features may be broadly contemporaneous with the Beaker activity or possibly the Early Bronze Age ring-ditch. These include a gully containing five worked flints including a chisel arrowhead (context 204/205), a pit (302/301) and several isolated postholes (contexts 401/402, 507/508, 1227, 1247 and 2106/2107), one of which (2106/7) contained a fine plano-convex knife.

These indications of more widespread Beaker activity are supported by the presence of residual Beaker pottery and flint in a range of Late Bronze Age features and especially from the substantial waterholes (context 1828, CG1; context 709, CG2; context 2039, CG3; contexts 2032 & 2060, CG4; context 1848, CG7; context 1102 & 1103, CG8; context 1708, CG16; context 1517, CG17; context 1604, CG23; context 1216, CG25; context 1801, CG39; context 2042, CG90; contexts 1438 & 1439, CG91; and context 1856). Of these, the waterhole (CG4) lying closest to the Beaker pit group contained the most material, including decorated sherds, plain sherds and one of the largest flint assemblages from the site (49, including several diagnostically characteristic Late Neolithic/Beaker tools).

Taken together these dispersed features and residual material suggest that, apart from the clearly defined focus in the vicinity of the Beaker pit group, further areas of activity were present across the site.

Pit: Context Group 12 (Fig 13)

Grid	0855/1039
Fill/cut	2043/2044
Plan	Sub-oval
Profile	Bowl-shaped
Dimensions	2.80 x 2.00 x 1.00m

Relatively deep pit with sloping sides and a concave base. Although only a single fill (context 2043) was recorded, an annotated sketch section shows four phases of fill deposition.

The lowest fill was primarily slumped gravel derived from weathering of the sides (2043d). One small bone fragment was recovered. A shallow deposit of dark grey, charcoal rich, sandy loam (2043c) overlaid this and contained occasional bone (some calcined), burnt limestone, worked flint and a considerable quantity of Beaker pottery. The upper fills, although charcoal flecked only contained a few undecorated sherds of Beaker pottery and worked flint (including a scraper) in a tan brown clay (2043b) and a clean brown loam (2043a).

Pit: Context Group 13 (Fig 13)

Grid	0855/1034
Fill/cut	2046/2045
Plan	Sub-oval?
Profile	Bowl-shaped
Dimensions	2.00 x 1.60 x 0.38m

A shallow pit, probably sub-oval in plan but linked by a short gully to an adjacent pit CG42 and thus of uncertain original shape. The relationship of the gully to this pit and CG42 adjacent to it was not determined but the features are believed to have been contemporaneous.

The fill (2046) was recorded as a single sandy loam deposit, however, upper and lower elements of this were distinguished by colour. The lower part was a tan brown deposit and was very hard to distinguish from the surrounding natural sand. The upper part was greyer in colour and both burnt limestone and charcoal were present along with a small quantity of Beaker pottery, flint and animal bone.

Pit: Context Group 42 (Fig 13)

Grid	0855/2048
Fill/cut	2047/2048
Plan	Sub-oval?
Profile	Bowl-shaped
Dimensions	2.30 x 1.90 x 0.40m

A shallow pit, probably sub-oval in plan but linked by a short gully to an adjacent pit CG13 and thus of uncertain original shape. The relationship of the gully to this pit and CG13 was not determined but the features are believed to have been contemporaneous.

The fill (2047) was recorded as a single sandy loam deposit, however, upper and lower elements of this were distinguished by colour. The lower part was a sandy brown loam while the upper part was greyer in colour. Burnt limestone and charcoal were present along with a small quantity of Beaker pottery and animal bone. This feature is apparently contemporary with both CG12 and CG13.

Posthole: Context Group 82 (Fig 11)

Grid	1069/0961
Fill/cut	1210/1211
Plan	Sub-oval
Profile	U-shaped
Dimensions	0.57 x 0.31 x 0.12m

Small sub-oval feature, probably a posthole. This had a single, grey brown, fine sandy loam fill, which was heavily flecked with charcoal. Produced 9 sherds of Beaker pottery apparently all from same vessel, fired clay and stone (?burnt).

Posthole/pit: Context Group 83 (Fig 11)

Grid	0969/1102
Fill/cut	1823
Plan	Sub-oval
Profile	Irregular
Dimensions	0.80 x 0.50 x 0.12m

Shallow rather irregular hollow with depression at one end possibly representing a post setting. Single fill of very dark grey brown, silty loam with occasional to moderate quantities of charcoal fleck. This produced 24 sherds of Beaker pottery, most of which derived from a single vessel.

Posthole: Context Group 84 (Fig 11)

Grid	0883/1105
Fill/cut	1816
Plan	Sub-oval
Profile	Concave
Dimensions	0.43 x 0.35 x 0.10m

Posthole with single fill of mid grey brown, compact, silty loam with occasional charcoal flecking and burnt stone. Contained 4 sherds of Beaker pottery.

Pit: Context Group 85 (Fig 11)

Grid	1092/1128
Fill/cut	1705
Plan	Sub-circular
Profile	Bowl-shaped
Dimensions	1.10 x 0.90+ x 0.25m

Small pit with a single fill of mid grey brown, sandy clay silt with occasional charcoal flecking and burnt limestone. Contained a single sherd of Beaker pottery.

Posthole/pit: Context Group 94 (Fig 11)

Grid	0872/1068
Fill/cut	2055
Plan	Sub-oval
Profile	Bowl/U-shaped
Dimensions	0.90 x 0.80 x 0.42m

Steep sided, large posthole or small pit located just over 10m from the pit group described above. Although excavated as a single fill, the section shows a sequence of four fills. A charcoal flecked base fill was overlain by a paler, loamy clay deposit itself overlain by a greyer clay loam. A mid grey clay loam formed the uppermost fill. Charcoal fleck and burnt stone were both present along with a single sherd of Beaker pottery and flint.

Posthole/pit: Context Group 95 (Fig 11)

Grid	0782/1015
Fill/cut	2110/2111
Plan	Sub-oval
Profile	Irregular
Dimensions	1.00 x 0.80 x 0.23m

Irregular feature which probably represents the remains of a disturbed posthole. A charcoal flecked, compact sandy fill produced a single sherd of Beaker pottery.

8.4 Early Bronze Age activity

Early Bronze Age activity was represented by a small ring-ditch located on the north side of the site (Figs 14 and 15). The ring-ditch almost certainly marks the position of a former burial mound although no trace of any barrow mound survived, probably as a result of extensive plough truncation. No primary burial was identified, again probably due to truncation. Dating of the construction of the original monument is uncertain.

A length of the south-eastern side of the ditch had been recut (1814). This contained cremated bone and an accessory cup (see Section 10.10), and is understood to represent the insertion of a secondary burial into the monument during the Early Bronze Age.

The feature had been disturbed by two phases of later activity, a pair of later Bronze Age boundary or trackway ditches and a medieval furrow which had disturbed the accessory cup and cremated bone within 1814.

Further Early Bronze Age material was identified in the form of fragments from a large urn, recovered as residual material within a Late Bronze Age waterhole (CG6; Fig 11).

Other activity of this date may be represented among the large number of poorly dated, undated and uninvestigated features present.

Ring-ditch: Context Group 79 (Figs 14 and 15)

Grid	0950/1125
Fill/cut	1812, 1813
Recut	1814
Dimensions	10.00 dia

Ring ditch, 10m in diameter (1812/1813 cut), with a short re-cut section (1814) on its south-eastern side. Both the ring-ditch and re-cut had been disturbed by later prehistoric boundary features (1810 and 1859) and a medieval furrow. No central feature survived, however, a number of undated but sterile features around and within the ring-ditch may have been related.

The ring-ditch was approximately circular having a slightly flattened northern side. Its fill was a mid to dark grey brown silty clay loam with burnt stone and daub inclusions. Charcoal flecking was also noted and concentrated on the southern and eastern sides of the feature. No artefacts or bone were recovered.

The re-cut section (1814), although not having clearly defined limits was distinctly wider, deeper and straighter than the main ring-ditch. Its fill, a very dark grey sandy loam, was characterised by the presence of abundant charcoal along with a quantity of burnt limestone and daub flecks. Pottery representing at least five vessels was recovered and included an Early Bronze Age accessory cup.

A small quantity of heavily calcined bone was also present. The fragment size made it impossible (Section 20) to determine whether this was human or animal bone, however, the association with an accessory cup and its placement in a re-cut within a ring-ditch strongly suggest that this represents a partial, dispersed cremation.

9. The Late Bronze Age activity (by Robin Jackson and Mike Napthan)

Late Bronze Age activity was widely dispersed across the whole site and included waterholes, substantial pits, lesser pits, hearths/ovens and very large numbers of structural features (Fig 16). The latter mainly comprised post and stakeholes but there were also some post and trench constructions. In addition the site was traversed by a series of boundary features some paired to form track or droveways, others clearly defining fields. A pond and an isolated and unaccompanied deposit of cremated bone may also be of this date.

Few stratigraphic relationships were present and dating evidence was limited, being mainly confined to waterholes, larger pits and a limited number of lesser features. However, features containing material assemblages were well dated and produced substantial quantities of diagnostic Late Bronze Age pottery. Supported by the extensive programme of radiocarbon dating discussed above, this has allowed this main phase of activity at the site to be closely dated. It seems that at least some of the waterholes and presumably the associated field system were excavated and laid out in *1210-1040 cal BC (95% probability)*. The early period of use of these waterholes and fieldsystems does not appear to have been accompanied by occupation within the excavated site, though settlement areas must have lain in the vicinity. The settlement activity subsequently spreading across the area appears to have been located within these fieldsystems and has for the most part been dated by the deposition of substantial ceramic assemblages and other occupation debris into the waterholes between *1140-1010 cal* BC and *1050-960 cal BC (95%* probability).

Many smaller features were either not excavated or were excavated but produced no dating evidence. As noted previously, some of these features may relate to earlier phases of activity. However, for analytical purposes they are considered here as the majority are liable to have been Late Bronze Age in date, this being the main period of occupation and material deposition at the site.

9.1 Fields and tracks/droves

Although poorly dated due to lack of artefactual evidence and stratigraphic relationships, examination of the ditches and gullies present has allowed identification of two principal

alignments of field boundaries and droves which can be associated with later prehistoric activity at the site and particularly with the large pits interpreted as waterholes (see below).

The earliest boundaries, and the most commonly present, are those based on an east/north-east to west/south-west alignment and those at approximately right-angles to them. These form a grid-like pattern of fields and two apparent droves (FS1; Fig 17.1). They can be associated with at least one of the major waterholes (CG14) which was sited directly on one of these boundaries allowing access from fields to both sides of the ditch. Projection of the alignments of two other ditches indicates that these would also probably have had similarly located waterholes (CG4 and CG8), while overall the projected pattern of the field system indicates either the presence of, or access to, a waterhole in most land-parcels. Some reworking and sub-division of these fields is indicated within the overall pattern by slightly discrepant but broadly parallel alignments and blocking or modification of tracks/droves, however, overall the pattern is consistent with a single system used, maintained and adapted as required over a period of time.

Dating of the primary silting fills in two of the waterholes (CG4 and CG7) indicates that these, and therefore presumably the field system, were established up to 100 years prior to the main period of settlement of the site. The function of the waterholes may therefore have changed from provision of water for stock to a wider range of uses including water for human consumption and craft and agricultural processing related activities as well as for animals. This change in use, or in range of uses, seen for the waterholes may be reflected in a changed layout of the landscape since a second field system can be identified (FS2; Fig 17.2). This was based on, and at right-angles to, a well defined north-east to south-west aligned ditched drove or track. This reorganisation formed a less intensively bounded landscape. The establishment of this more open system may have been accompanied by the construction of one or more of the large post-defined enclosures which may have been used to manage stock in this less heavily bounded landscape (CG66, 67 and 68; see below).

Field System: FS1 (Fig 17.1)
Field system comprising heavily truncated ditches/gullies running on broadly west-north-west to east-south-east alignments and at right-angles to them. Best defined in the northern and western parts of the excavated area but heavily truncated throughout especially within the central part of the site.

Few stratigraphic relationships could be established either between the ditches or with other site features. One notable exception was where one of the ditches (context 2073) met a waterhole (CG14). This neither cut the waterhole nor was it truncated by the waterhole, rather it had a slight but distinct step in its alignment at this point indicating contemporaneity. The projected alignment of another ditch (context 2076) would similarly intersect a waterhole (CG4), as possibly would a third example (context 1414 with CG8). This indicates a close relationship with the waterholes and suggests that the date of the establishment of this fieldsystem was the same as that of the digging of these waterholes namely sometime during the period *1210-1040 cal BC* as established by radiocarbon dating of material from the base fills of two of these waterholes. Another key stratigraphic relationship was the cutting through of the Early Bronze Age ring-ditch (CG79; by contexts 1810 and 1859) and the truncation by elements of Field System 2. Notably, although several ditches forming the later system included Late Bronze Age pottery (FS2), securely datable material was not recovered from any of the features forming this earlier field system perhaps indicating that its main period of use fell before the establishment of settlement areas.

Some reworking and sub-division of these fields is indicated within the overall pattern by slightly discrepant but broadly parallel alignments and blocking or modification of tracks/droves, however, overall the pattern is consistent with a single system used, maintained and adapted as required over a period of time, prior to the complete reorganisation reflected by Field System 2.

Field System: FS2 (Fig 17.2)
Field system comprising heavily truncated ditches/gullies running on broadly north-east to south-west alignments and several other elements apparently running off of them. These were all located in the eastern half of the site while the western half appeared to be open comprising a single large land unit.

The most distinct feature of the system was a trackway or drove defined by parallel ditch/gullies crossing the south-west corner of the excavated area. To its north, a more broadly spaced pair of ditches/gullies ran parallel to each other and may have been used to funnel stock from a north or north-westerly direction towards where the ditches/gullies opened out into the large land parcel to the west. A potential gate in the south side of this 'funnel-like' arrangement would have allowed access to land to the south-east.

Within the large land parcel, as noted above there was no evidence for any ditch/gully defined sub-divisions, however, three large post-defined enclosures (CG66, 67 and 68; see below) may have acted to constrain stock within the area. Only the east side of the large land parcel was defined, formed in part by a reworked and slightly realigned element of the earlier field system and in part by retention of part of that earlier system. The latter seems to have had a gate inserted into it, either to allow access into the large land parcel or into one of the aforementioned post-defined enclosures (CG68; see Fig 16).

As in the case of the earlier field system, some relationship between the land units and the waterholes seems likely but stratigraphic relationships between the ditches/gullies and other features were very limited and only a few sherds of Late Bronze Age pottery were retrieved from elements of this second system. Overall, the impression is that this system may correspond with the later stages of occupation and activity at the site or possibly even slightly post-date it.

9.2 The waterholes

Seven substantial pits were scattered across the site (Figs 16 and 18-27) and are interpreted as waterholes. These were investigated in varying levels of detail ranging from total excavation to half sectioning. In some cases, excavation included machining out of lower fills to recover finds and samples and also to allow the base level to be established and full sections to be exposed.

The fill characteristics, overall dimensions and profiles of these features, and the fact that they had been excavated through sand and gravel into underlying clay deposits, enabled interpretation as waterholes. Such features have been regularly identified on Late Bronze Age sites as at Shorncote (Hearne and Heaton 1994; Hearne and Adam 1999; Brossler *et al* 2002) and Reading Business Park (Moore and Jennings 1992; Brossler, Early and Allen 2004).

The waterholes typically contained two distinct phases of fill. At the base, fine sand and silt deposits interleaved with tipping and slumped layers of coarser sand and gravel. These probably derived from weathering and collapse of the sides of the features, which for the most part had been excavated through relatively unstable sand and gravel. These processes had also undoubtedly contributed to the irregular, rather Y-shaped profiles of four of the seven examples identified. Given the investment of effort required to dig these features, it seems likely that they would have been cleaned out on occasion prior to being allowed to silt up for a final time. Consequently these fills are considered to have principally developed during the final periods of use of the waterholes.

In a couple of cases there were indications that the shallow, damp, silted up hollows of the upper cones of these features had then been left open for a while, since soily accumulations had developed in them. Overlying these deposits and the silting and slumped lower fills were dumps of material including horizons containing large quantities of burnt stone, charcoal and artefacts. These artefact rich horizons were interleaved with soily dumps. Similar upper fill sequences were present in each of the waterholes. These appear to have been deposited over a relatively short period of time, clearly reflecting abandonment of the features. Subsidence over the softer lower silt fills had caused these horizons to tip towards the centre of the waterholes and in several cases had led to the formation of a depression over the centre of the feature. The resultant hollows had filled with relatively loamy and sterile soils which probably derived from the slow accumulation of topsoil or ploughsoil.

In two instances (CG3 and CG8), waterholes were paired with substantial basin-shaped pits which appear to have been clay lined thereby making them suitable for holding water. These may therefore have been associated at least in part with some form of specialist production/craft activity. Other uses of the waterholes probably included supply of drinking water (for both humans and stock) as well as for other domestic and craft uses.

Two waterholes (CG6 and 7) were located immediately adjacent each other within an enclosure (CG66), and it seems probable that one replaced the other. However, the possibility should not be excluded that one was used to extract water and the other to store it or even allow disturbed silt to settle out and thereby improve the quality of the water for drinking.

Three further waterholes were identified, of which two (CG4 and CG14) lay within relatively open areas of the site and may primarily have functioned to provide water for stock. The location of one of these, CG14, was particularly suited to this function being located on the line of field boundary and therefore being accessible from two fields. The final waterhole (CG18) was identified within an evaluation trench in an area subsequently excluded from quarrying and therefore remains of uncertain association.

Waterhole: Context Group 3 (Fig 18)

Grid	0825/1078
Cut	2038
Fills	2039, 2040
Plan	Sub-oval
Profile	?Basin-shaped
Dimensions	5.40 x 2.90 x 1.53m+

Substantial pit, with steeply sloping/near vertical sides cutting through thin sand and gravel deposits to clay. Initially only clearly defined fills in the north-west quadrant was excavated and drawn. The corresponding fills in the north-east quadrant were later rapidly removed and the section cut further to the south, however, no detailed records were made. Natural was not certainly identified at the base of these excavated portions and further lower fills may have been present. The recorded fills were excavated as two separate contexts, a base fill (2040) and an upper fill (2039). However, the section shows considerable sub-division of these.

The base fill (2040) can be divided into seven separate deposits the lowest of which was a mixed grey/orangey brown clay with gravel, rare burnt limestone and charcoal (2040g).This was sealed by a layer of fairly clean grey clay (2040f) over which sand (2040e) had slumped. A deposit of orange brown mottled clay (2040d) overlaid this and was in turn sealed by a thin lens of charcoal flecked grey clay (2040c). Lastly orange mottled brown clay (2040b) and a mid grey brown clay had been deposited (2040a). These deposits appear to represent several episodes of silting and weathering of the sides of the feature. Overlying this was the upper fill (2039) which could be divided into three separate events. These upper deposits were clearly distinguishable from the lower ones in section and there is some suggestion that the pit had been partially re-cut. A band of grey sandy clay (2039c), possibly represented a stabilisation horizon which developed when the feature had largely silted up and was not being used. This was sealed by a mottled brown clay with occasional burnt limestone fragments (2039b). Only the final fill (2039a), a dumped deposit, was markedly different as it contained abundant charcoal and burnt stone in a dark grey clayey matrix. Pottery occurred sporadically within these fills but in the main derived from the uppermost part of 2039 (29 of 35 sherds).

Despite the small proportion excavated, it would seem likely that this feature was a waterhole or at least may have been used to hold or store water. Evidence of slumping was limited, the sides probably remaining stable since the pit had been primarily excavated through clay. However, considerable quantities of silt had accumulated probably reflecting gradual weathering and decay of the feature edges. Less than 1.00m separated the waterhole from the lined pit CG5 and it is felt that the function of these was related. The most probable interpretation is that CG3 served as a waterhole/water storage facility with the adjacent feature using some of the water within an industrial/craft process. Upon abandonment the feature had been infilled with a dumped deposit containing domestic refuse and other debris (charcoal and burnt stone)

Waterhole: Context Group 4 (Figs 19 and 20)

Grid	0872/1048
Cut	2031
Fills	2032, 2033, 2034, 2049, 2050, 2060 (cleaning finds probably from 2032)
Plan	Sub-oval
Profile	Irregular
Dimensions	7.08 x 4.20 x 2.00m+

A very large (*circa* 30m^3) and steep sided, sub-oval cut, with irregular steeply sloping sides to the east and west, a stepped northern side and a more gently sloping south side. The feature penetrated into the underlying clay but the base was not certainly defined and it may have been considerably deeper. Several distinct phases of infilling could be defined from the complex set of fills recorded in section.

The earliest excavated fills consisted of a sequence of slumped sand, gravel and organic rich silt/clay deposits consistent with a large, open, water-filled feature (contexts 2033, 2034, 2049 and 2050). These occupied the deep central part of the feature. The profile with a wide, cone-shaped upper part and narrow base allied to the interleaving lower deposits representing both organic rich silts and slumped or weathered sandy/gravel deposits suggest that this feature was open for a long period of time and it is likely that it was recut or cleaned out on several occasions. This suggestion is supported by radiocarbon dating of organic material from context 2050 which suggested that the waterhole was probably established in the 12th century cal BC but that its abandonment was approximately 100 years later (compare OxA-9490 and OxA-9424 from 2050 with OxA-9483, OxA-9484, OxA-10778, OxA-10779 and OxA-10780 from 2032; Section 7).

The feature appears to have been sufficiently deep to hold water year round resulting in the preservation of timbers and other organic material in the lower fills. A worked timber embedded in context 2050 and extending into context 2034, possibly represented the remains of a ladder placed at an angle within the lower silts in a position where it could have assisted access. Apart from this and a small quantity of animal bone, these deposits produced no finds and were only occasionally charcoal flecked. After a long period of use and a final silting, a sequence of deposits infilled the surviving upper part of the feature. Although excavated as one context (2032), sections indicate that this was a complex deposit. The lowest part (2032a) contained moderate quantities of charcoal and burnt stone as well as some organic material and this may reflect a period of trample and occasional dumping into the base of the surviving upper cone of an otherwise silted up waterhole.

Overlying this, were two distinct horizons of charcoal rich material each sealed by a dump of dark grey-brown sandy clay (2032b). Large quantities of burnt limestone and charcoal were present in these dumped deposits which also included significant assemblages of pottery (565 sherds), bone and other finds. A slumped deposit on the north side appears to have occurred at this time, possibly resulting from collapse of the steeper, unstable sides of the pit during dumping into the feature from this direction. Although variable in composition, the deposition of 3032b appears to have been fairly rapidly completed since the associated Late Bronze Age material assemblage was mostly in a fresh, unabraded condition with little evidence of gnawing of bones or fragmentation of pottery. A notable concentration of residual Beaker material was present in this deposit (11 sherds and 49 flint items). The final uppermost fills (2032c and d) were paler in colour and contained fewer artefacts and are considered to represent weathering or sporadic dumping into a shallow hollow resulting from settling of the contents of the infilled waterhole.

Waterhole?: Context Group 6 (Fig 21)

Grid	0923/0950
Cut	1835
Fills	1836, 1837 (cleaning), 1840, 1842
Plan	Irregular
Profile	?Basin-shaped
Dimensions	4.00 x 3.00 x 1.50m+

Large irregular cut, with a bi-lobed appearance suggesting that this possibly represented two intercutting features, an earlier sub-circular one, to the south, and an irregular later one, to the north. The sides were steeply sloping to near vertical and the feature was cut through relatively thin gravel deposits into the underlying clay. A complex sequence of fills included evidence of silting, weathering, slumping and dumping. Initially a slot was excavated and a section drawn. The north side was then excavated, although the high water table and unstable sides precluded excavation to base in any part of the feature. Subsequently, machine excavation was undertaken (context 1842) of most of the remainder of the feature. This material was placed in a skip and subsequently sorted for finds.

The lower fills (not fully excavated) consisted primarily of silting and slumped material (context 1840b and c) overlaid by a grey silty sand deposit containing limited quantities of pottery (39 sherds), flint, charcoal and burnt stone (context 1840a). Large conjoining base sherds indicated that several large vessels may have served to scoop up water. Tip or slump lines on the eastern side of the feature indicated that this had been deposited in several episodes or over some period of time. More than one phase of deposition was also evident in the upper fill (context 1836). The base horizon comprised a layer of charcoal and domestic waste including a substantial ceramic assemblage (369 sherds; 1836d). This was overlain by a layer containing abundant small burnt stones and moderate charcoal (1836c), a tipping deposit of comparatively clean gravel (1836b) and a final layer of charcoal rich material with abundant burnt limestone (1836a). This phase of fill deposition contrasts with that of the base, and is consistent with deliberate infilling with dumped material. The large unabraded sherd size of pottery and lack of gnawed bones suggest that this may have occurred over a short period of time. A "cleaning" layer (context 1837) from the top of the pit may include some contamination from a medieval furrow which had partially truncated the pit.

The depth and sequence of deposits indicated that the feature lay open and partially waterfilled for a considerable period, slowly silting up (context 1840b and c). This would be compatible with use as a waterhole or at perhaps as a pit for holding water. Possible uses include soaking, water storage or flax retting, however, in view of the quantities of burnt limestone present (in context 1840a as well as 1836a, c and d), water heating is also a possibility. Domestic and other waste was only deposited on a large scale later in its life, possibly reflecting deliberate abandonment.

Waterhole: Context Group 7 (Figs 22 and 23)

Grid	0925/0955
Cut	1833
Fills	1834, 1838, 1839, 1841, 1843, 1848, 1853, 1855
Plan	Sub-circular
Profile	Irregular
Dimensions	5.5 x 3.3m

Large, sub-circular feature immediately to the north-east of CG6 excavated through natural sand and gravel into the clay below. A sub-circular weathering cone was distinct from the near vertical sides towards the base giving the feature a Y-shaped profile. The northern half was largely hand-excavated to a depth of up to 2.00m. Depth and the level of the water-table precluded further hand-excavation, however, subsequently upper elements of the southern half were excavated by mechanical excavator and placed in a skip. Some finds were collected during machining (1848) while the skip material was hand excavated for finds at a later date (context 1843). The lower part of the

feature was only recorded in section following gravel extraction, finds again being collected during this process (1853 and 1855).
The lower, largely machine excavated, fills comprised silting and slumping deposits probably derived from weathering and/or collapse of the upper sides of the feature, thus creating the Y-shaped profile. The lowest elements (contexts 1841 and 1855) contained quantities of burnt limestone and finds (including 97 sherds of pottery), but some contamination from upper fills may be present. These included some large chunks of vessel bases which may have served to scoop water from the feature. These were sealed by a further silting/slumping horizon (context 1839), within which bands of stony gravel clearly suggested weathering from the sides. Above these silting deposits was a thin layer of yellowy brown silty clay formed (context 1838), the lower part of which included small quantities of charcoal flecks, burnt limestone slabs, bone, pottery (4 sherds) and other finds. This may represent a phase when the sides of the feature had stabilised and the feature formed a muddy hollow. The upper part of the pit was filled by dumped deposits, recorded as a single context (1834) but clearly representing several phases of deposition. A lower dumped deposit (1834b) included ash and charcoal rich lenses along with large quantities of artefacts and burnt stone. This was overlain by a further dump of very dark grey brown silty loam (1834a) containing occasional burnt limestone, charcoal, pot and bone. Finally a shallow pit-like depression was filled by a gravely deposit. The generally unabraded condition of the ceramic assemblage (157 sherds) allied to the similarly fresh condition of the animal bone (which also showed little evidence of gnawing) suggests that this may all have been dumped in a relatively short space of time.

The depth, profile and fill characteristics of this feature all argue in favour of it having functioned as a waterhole, possibly at the same time as the adjacent feature CG6 or alternatively having replaced it or pre-dated. A relatively long period of use is indicated by radiocarbon dating of organic material from 1855 which provided somewhat earlier dates than those taken from charred residues present on pottery from the upper abandonment fill (1834; compare OxA-9435 and OxA-10785 from 1855 with OxA-9486, OxA-9559and OxA-10783 from 1834; Section 7). Some periodic cleaning out of silts may therefore have occurred prior to the time when it finally silted up (1838) and was rapidly infilled with dumped deposits rich in cultural material (1834).

Waterhole: Context Group 8 (Fig 24)

Grid	1120/0999
Cut	1105
Fills	1102 (possibly contaminated), 1103, 1104, 1110, 1112, 1113, 1114, 1115
Plan	Sub-oval
Profile	Irregular
Dimensions	6.00 x 4.20 x 1.40m+

A large sub-oval pit with an upper weathering cone and steepening sides towards the base which lay below the current watertable, suggesting that this probably held water year round. The feature was only investigated during the evaluation and lay within the area later excluded from extraction, thus only a narrow section was excavated and the base was not observed. Its upper fills had been truncated along the western edge by a medieval furrow (context 1108).

The lowest observed fills consisted primarily of fine silty deposits and stonier material much of which is likely to have weathered or slumped from the sides (contexts 1112, 1113, 1114 and 1115). Worked timbers had been dumped into one deposit as the silting progressed (in 1114), however, otherwise these deposits were sterile with the exception of burnt stone and rare charcoal flecking. At the top of these deposits, separating them from the upper fills was a dump of burnt limestone fragments (context 1110). The upper fills (contexts 1102, 1103 and 1104) were characterised by the presence of significant quantities of domestic waste. These included pottery, animal bone and other finds, especially within context 1103 which included 74 of the 93 sherds recovered from these deposits. These are interpreted as dumped horizons associated with the disuse of the feature and deposited once the lower half had filled with silt. The fresh condition of the pottery and animal bone, and lack of gnawing on the latter, indicated that deposition was over a relatively short space of time.

The feature almost certainly functioned as a waterhole and can be related to the immediately adjacent CG9, a possible soaking/boiling pit. The formation of a large weathering cone and evidence for slumping/silting indicate that this remained open for considerable time and periodic cleaning out of silts would seem likely. This suggestion is supported by radiocarbon dating of organic material from 1115 which provided earlier dates than those taken from a charred residue present on pottery from the upper abandonment fill (1103; compare OxA-9488, OxA-9489 and OxA-10375 from 1115 with OxA-10786 from 1103; Section 7).

Waterhole: Context Group 14 (Figs 25 and 26)

Grid	0787/1002
Cut	2102
Fill	2101
Plan	Sub-circular
Profile	Bowl-shaped
Dimensions	4.50 x 1.90m

A very large, sub-circular, irregular bowl-shaped cut in which extensive weathering and slumping was evident. This had clearly altered the profile which may originally have been fairly steep sided. The feature penetrated gravel and sand to the underlying clay. A possible stake-hole was visible in section, and it would seem likely that the soft edges of the feature may have been revettted. Initially, only a small section was hand-excavated across the east side,

however, this was subsequently extended using a mechanical excavator to allow recording of a complete section. Although the fills were removed and recorded as one context, the resultant section shows a complex series of fills which appear to reflect several phases of use/disuse.

The initial phase (2101e) is represented by a series of deposits of sand, gravel and clay. These were mostly sterile with the exception of a few artefacts and occasional fragments of burnt stone and slight charcoal flecking. These appear principally to have resulted from weathering and slumping of the gravel and clay sides. The feature may have been in use for some period of time prior to this since if it had been revetted as suggested above, the revetment must have either been removed or decayed leading to collapse and erosion of the sides. Subsequently material was deposited or accumulated in a recut section of the western side of the feature (2101d). This mainly comprised naturally derived gravel, sand and clay and may reflect further slumping and weathering. A further possible recut contained dumped deposits, one very charcoal rich with some burnt stone (2101c), the other including both charcoal and burnt limestone in abundant quantities (2101b). The latter produced the majority of the artefacts (including pottery, 132 sherds) recovered from the whole feature. These potentially re-cuts sections are felt to represent some reworking of the feature prior to a deliberate abandonment and infilling with artefact rich dumps. Finally a light brown sandy loam, almost devoid of artefacts and charcoal, filled a hollow at the top of the feature (2101a). This may reflect settling of the lower fills and subsequent deposition or weathering of material into it, but may also in part represent the fill of a medieval furrow.

As described above the feature may initially have had revetted sides. Due to its depth and the fact that it cut into the clay, this feature is liable to have held water and is interpreted as a waterhole. This interpretation is strengthened by its apparent association with a field boundary (FS1), since it would have been accessible from both fields and thus represents an ideal location for such a feature.

Waterhole: Context Group 18 (Fig 27)

Grid	1112/1090
Fill/cut	511, 512
Plan	Not defined but probably sub-oval
Profile	Irregular
Dimensions	3.00 x 1.50+ x 1.24m+

A large, rather irregular pit with a stepped eastern side. This was only recorded during the evaluation (Trench 5) since it was situated beyond the later agreed quarrying area. As a result only the southern part of this substantial feature was recorded. The base was not observed.

The investigated portion was excavated as a single fill containing burnt limestone, charcoal and quantities of animal bone, however, four separate phases of infill were recorded in section. At the base was a dark sticky clay loam (511d) representing silting. This was overlain by two dumped deposits, the first a clay loam containing abundant burnt stone and charcoal (511c), the second a sandy loam with moderate quantities of charcoal and burnt stone (511b). The uppermost fill was a loamy deposit with occasional charcoal flecks (511a), probably representing ploughsoil or weathering deposits occupying the hollow formed over the settling contents of this feature. Although only large quantities of burnt material were recorded along with animal bone and a small ceramic assemblage (9 sherds), the unexcavated portion may contain a rich material assemblage in common with the other waterholes.

9.3 Pond: CG52 (Fig 16)

A large spread of dark grey brown silty loam, with occasional gravel patches was located on the north margin of the site (0800E/1095N). This measured at least 17.00 x 14.00m in plan and although not investigated in any detail, was revealed to be some 0.30m deep. No finds were recovered and the feature therefore remains undated.

This had been excavated in part of the site where the underlying mineral reserve had run out and was consequently cut into clay, making it seem probable that this represents a shallow pond. This perhaps fulfilled a similar function as the waterholes, providing water for stock, human consumption and/or craft industries. The presence of a group of hearths associated with burnt stone and lying to the south of the pond would be consistent with the latter of these functions.

9.4 Pits

Pits of variable size and character were present across the recorded area (Fig 16). These were sample excavated, the more extensive sampling focussing on those which in plan were most substantial or appeared to have the most artefact or ecofact rich fills.

Since these pits contained the majority of the artefactual and ecofactual evidence and were liable to have had a range of uses, these were felt to warrant a higher level of interpretation than simply being described as pits. Consequently these have been classified according to their profile as follows:

- Basin-shaped: a steep to vertical sided feature with sharp break to flattish or gently concave base;
- Bowl-shaped: a steep to sloping sided feature with clear break in slope to concave base;
- Irregular - pit with complex profile

This approach has been taken at comparable Late Bronze Age settlement sites and in conjunction with analysis of fill characteristics and associated artefactual and ecofactual assemblages facilitates functional interpretation and analysis of distribution patterns (see for instance Bradley *et al* 1980, 221-4; Brossler, Early and Allen 2004, 30-9).

Several further pits are liable to be represented among the larger sized but uninvestigated features dotted around the site.

9.4.1 The basin-shaped pits

Ten basin-shaped pits were identified (Figs 28-30). No particular concentrations could be identified, although a slightly higher number were located towards the eastern side of the investigated area. A number of observations about their associations and potential functions can be made.

Two pits appeared to have a direct relationship with the waterholes described above (CG5 and 9 can be paired with CG3 and 8 respectively). Both had clay linings suggesting that they had a use which required either containment or exclusion of liquids. They may have functioned as grain storage pits, where excluding groundwater is important to control germination, however, dry storage on the site seems more probably to have been above ground (for instance in the 4-post structures). It seems most probable therefore, especially in the light of their proximity to waterholes, that these two pits had a function associated with liquid containment. In both cases, the lower (primary) fills contained large quantities of burnt limestone suggesting that the pits were probably used to heat water or another liquid. Similar features elsewhere have been postulated to be boiling pits for cooking (O'Kelly 1956, 615-8), while alternatively industrial uses can be suggested including felting, fulling and dyeing of woollen cloth (Jeffery 1991, 97-107). Burnt stone has even been associated with saunas (Barfield and Hodder 1977, 370-379; Barfield 199159-67). Alternatively, the burnt stone may simply have been dumped into these features when they fell into disuse and therefore other possible functions such as cooking (by placing hot stones in pottery or leather containers or using hot stones as roasting plates or griddles), water storage or tanning should not be excluded.

Of the remaining eight examples, only four (CG2, 15, 17 and 39) could be dated with certainty to the Late Bronze Age. These were all associated with quantities of burnt stone and charcoal and contained varying quantities of other settlement debris including pottery. Variations in the quantities of material culture present may reflect the proximity of the pits to areas of domestic settlement or that they had different uses. In particular both CG2 and CG39 were sited close to a group of roundhouses (CG58, 59 and 60) and may have functioned as cooking pits or for the disposal of domestic waste.

The remaining basin-shaped pits (CG20, 26, 31 and 36) are of less certain function. In the absence of domestic waste, craft related or agricultural processing functions are considered likely. Alternatively they could have been excavated for the extraction of sand and gravel for use as consolidating material across the settlement, for instance on paths, around waterholes

and as house floors. It should also be noted that these features produced no firm dating evidence. However, they are considered to liable to be Late Bronze Age since they were located within areas of activity of this date and since this represented the main phase of human occupation at the site. Despite this, the possibility that some of these features were associated with earlier phases of occupation should not be excluded.

Pit: Context Group 2 (Fig 28)

Grid	0900/1050
Cut	710/1844
Fills	709, 1845, 1846, 1847
Plan	Sub-circular
Profile	Basin-shaped
Dimensions	4.00 x 3.50 x 1.20m

A large sub-circular cut (710 and 1844) penetrating the gravel to expose a small area of the underlying clay. Potentially water filled ,at least during winter months. Although only partially excavated, this was basin-shaped and had three distinct phases of infill similar to those in the adjacent pit (CG1). In contrast to the adjacent pit, this only contained a very small quantity of material culture.

The primary fill was a charcoal flecked, yellowish grey-brown, silty clay deposit intermixed with abundant sand and gravel (1847) slumped from the sides. This filled the lower third of the pit and is strongly suggestive of a period of weathering and slumping over a considerable period of time.. A small quantity of pottery (4 sherds) was recovered from this deposit. These base deposits were sealed by a very charcoal rich horizon at the base of a layer of mid to dark grey brown sandy loam (context 1846). The charcoal rich horizon contained burnt limestone and daub but no finds. The uppermost fill, which possibly represents levelling of a disused feature, consisted of material derived from the topsoil with moderate charcoal flecks, a single sherd of pottery and rare bone (contexts 709 and 1845).

Pit: Context Group 5 (Figs 28 and 29)

Grid	0827/1080
Cut	2035
Fills	2036, 2037
Plan	Sub-oval
Profile	Basin-shaped
Dimensions	3.00 x 2.60 x 1.10m

A sub-oval, basin-shaped pit, having very steeply sloping sides and a flattish base. The north-west quadrant was excavated and recorded in detail, with only rapid excavation and recording of the north-east and south-west portions. This pit cut through sand and gravel except at its very base where gleyed clay was present. The sides of the pit were lined with a brown sandy clay above the interface between the gravel clay. Two distinct fills were recorded.

The base fill (context 2037) comprised a 0.25m deep dump of burnt limestone (over 60kg were recorded) in a matrix of silty clay intermixed with sandy gravels. Quantities of charcoal were noted adhering to the stones which had been deposited over a small scatter of pot sherds (13) at the base of the pit. Although the clay lining had partially slumped over this fill, it appeared to pre-date it. Overlying this was a secondary fill (context 2036), which although recorded as one context has been divided (from an annotated section drawing) to reflect what are clearly several stages of deposition. Initially a greyish tan brown clay loam was deposited (2036f) containing small charcoal lumps. This was overlain by two similar but slightly greyer deposits containing burnt limestone fragments (2036d and 2036e). A lens of very charcoal rich material (2036c) and a dump of charcoal flecked gravely material (2036b) followed and the feature was finally levelled of with a thick dump of rather sterile dark grey material (2036a). A moderate sized assemblage (121 sherds) was recovered mostly from towards the eastern side of the feature and largely from its upper fill (2036, 108 sherds). The characteristics of this fill suggest that this represented a deliberate backfilling with material dumped from the eastern side of the pit.

Pit: Context Group 9 (Fig 28)

Grid	1115/0998
Fill/cut	1111
Plan	Sub-oval
Profile	Basin-shaped
Dimensions	4.00 x 2.00 x 1.10m+

Large sub-oval, basin-shaped pit which was only partially exposed and investigated during evaluation. Its eastern side had been partially truncated by a medieval furrow (context 1108). The feature was excavated as a single context 1111, however, the section drawing has allowed fills to be sub-divided in post-excavation (1111a-1111h; Fig CG9). The base of the pit slightly penetrated the clays underlying the natural gravel.

A series of fills can be divided into primary and secondary phases of use. At the base was a deposit of greyish clay (1111h) overlain by a yellowish slightly gravely clay (1111g). The latter extended up the eastern side. A similar less clayey deposit (1111f) extended up the west side. Together these are interpreted as evidence of a clay lining. The comparative absence of silting and slumping may reflect the protective qualities of the clay lining rather than rapid

disuse. The lower fill (1111e) was characterised by the presence of heavy charcoal flecking and several large chunks of burnt limestone at its base. This deposit may be associated with use as a soaking or boiling pit.

The second phase of use is characterised by deliberate backfilling with a series of fills. Initially a dark grey charcoally loam with very few artefacts (1111d) was deposited and was overlain by a dump of gravel (1111c) on the east side of the pit. Above these a layer with abundant burnt limestone was deposited (1111b). This dump of material included the majority of the artefacts recovered including most of the substantial ceramic assemblage (404 sherds). Lastly, some settling appears to have occurred, probably as a result of decaying organic material, the resultant hollow being levelled with a mid grey clayey loam with occasional gravel and charcoal flecks (1111a).

The feature would have been suitable for a number of functions. Possible uses include soaking, water storage or flax retting, however, in view of the quantities of burnt limestone present (in context 1111e and 1111b) water heating/boiling is a strong possibility. Domestic and other waste was only deposited within the feature on a large scale later in its life, possibly reflecting deliberate abandonment.

Pit: Context Group 15 (Fig 28)

Grid	0789/1045
Cut	2105
Fills	2103, 2104
Plan	Sub-circular
Profile	Basin-shaped
Dimensions	2.10 x 1.90 x 0.90m

A sub circular, basin-shaped pit with a near vertical west side and a steep but irregular eastern one. Two fills were recorded, the lower of which (2104) consisted primarily of slumped sand and gravel, with very occasional charcoal and burnt limestone. The upper fill (2103) was a yellowish dark grey brown silty clay and contained a distinct lens of charcoal rich material. Quantities of charcoal, burnt limestone, pottery (6 sherds), bone and flint were present. Although some slumping was evident, the near vertical sides suggest that this may initially have been revetted in some way as the natural gravel rapidly erodes if exposed to the elements. The sterile nature of the lower fills suggests that the primary function was not waste disposal and the feature may have provided storage or had some specialist function.

Pit: Context Group 17 (Fig 30)

Grid	1061/1049
Cut	1514
Fills	1517, 1519
Plan	Sub-circular
Profile	Basin-shaped
Dimensions	2.20 x 0.55m

Pit extensively damaged by dumper wheel-rut. Surviving elements indicated that this had two fills. The base fill was a mixed grey gravely clay with occasional charcoal lumps. This may represent the remnant of a lining. The upper fill (1517) contained a substantial assemblage of pottery (198 sherds) along with quantities of bone, burnt limestone, flint and antler.

Pit: Context Group 20 (Fig 30)

Grid	1083/0970
Fill/cut	1612
Plan	Sub-oval
Profile	Basin-shaped
Dimensions	2.50 x 1.40 x 0.65m

Pit with a shallow sub-circular depression in its base. The latter may represent a setting either for an associated post or one which pre-dated the pit, and was truncated by it. The single fill was a lightly charcoal flecked, dark grey brown silty loam with only rare charcoal, flint and bone (the latter recorded only in the field). The near absence of domestic waste contrasts strongly with another feature (CG19) only 2m away. The primary function is unclear, however, a wicker (or similar) lining might have been present since there was no evidence of slumping which would be expected in the loose gravel into which the pit was cut.

Pit: Context Group 26 (Fig 30)

Grid	0781/1007
Fill/cut	2145, 2146
Plan	Sub-oval
Profile	Basin-shaped
Dimensions	3.23 x 2.03 x 0.86m

Fairly substantial pit. The bulk of the fill sequence (recorded as a single context) comprised comparatively clean sand and gravel deposits representing silting of the base, weathering and slumping of the sides (2145c, d, e and f). An upper charcoal stained fill and a charcoal rich lens (2145a and b) overlaid these and are interpreted as deliberate infilling deposits. The latter contained a small quantity of animal bone, the only finds recovered, although pottery was noted as a "very rare" inclusion on site. The feature lies within 5m of a major waterhole (CG14), however, it is uncertain whether they were contemporary. No evidence for a lining was recorded and the presence of slumped fills suggests that either none existed or that if one had been present a considerable time had elapsed between its removal or decay and the subsequent infilling of the pit. The feature is without clear evidence for function.

Pit: Context Group 31 (Fig 30)

Grid	1055/0969
Fill/cut	1240
Plan	Sub-square
Profile	Basin-shaped
Dimensions	1.05 x 1.10 x 0.28m

A sub-square pit with a flat base. The fill was a mid to dark brown sandy loam containing charcoal flecks, burnt limestone and burnt daub. The function remains undetermined.

Pit: Context Group 36 (Fig 30)

Grid	1077/1078
Fill/cut	1508
Plan	Sub-oval
Profile	Basin-shaped
Dimensions	1.90 x1.00 x 0.50m

Pit, with stepped east side. Partially obscured by disturbed area at north end (possibly a further feature). The fill contained quantities of burnt daub and charcoal. The function remains undetermined.

Pit: Context Group 39 (Fig 30)

Grid	0890/1137
Cut	1803
Fills	1801, 1802
Plan	Sub-circular
Profile	Basin-shaped
Dimensions	1.50 x 0.42m

Pit, recorded to the north of the main investigated area in the side of a newly excavated drainage ditch. Truncated by the latter to the north and disturbed on the west side by a medieval furrow. Two fills were recorded. The lower fill (1801) was a dark grey brown coarse sandy clay loam with moderate charcoal flecks, a considerable quantity of pottery (94 sherds), charcoal, burnt limestone, heat-cracked pebbles and rare flint flakes. The upper fill (1802) was lighter in colour and contained no pottery but included burnt stone and flint. The profile of the base fill suggests that this may originally have had an organic content and been compressed as the organic material decomposed. Several of the sherds had been crushed *in situ*. This feature, which was the most northerly excavated, was unusual in that the initial fill was rich in domestic waste, including residual Beaker material. It is possible that it originated as a waste disposal feature or a cooking pit.

9.4.2 The bowl-shaped pits

Eleven examples of bowl-shaped pits were recorded and as with the basin-shaped pits were distributed across the investigated area. These varied widely in size and in the content of their fills (Figs 31-33). A range of potential functions and associations can be identified.

Of these, one in particular (CG1) stands out in being of considerable size and also in containing a substantial artefactual and ecofactual assemblage. Since it only penetrated sand and gravel, the feature seems unlikely to have functioned as a waterhole. Another substantial, but basin-shaped pit (CG2), lay only a couple of meters to its north and a related function seems possible. Both pits included silting deposits towards their bases and both included charcoal and burnt stone rich deposits overlying these. However, whilst CG1 was rich in artefacts the adjacent feature, CG2 contained very little. Clearly some association with heating and possibly cooking is suggested, as is some clear division between the processes of use or disuse represented.

Other bowl-shaped pits were also notable for containing large volumes of burnt stone and charcoal as well as finds assemblages. For instance, CG10 included a large quantity of

pottery and animal bone some of which was articulated (?jointed meat). A cooking function could be indicated, a suggestion supported by the presence of many pottery sherds with burnt residues and the proximity of a roundhouse (CG57). A second pit (CG11) in this vicinity also contained pottery and animal bone but did not include any notable quantities of burnt stone or charcoal and this may therefore have functioned as a rubbish pit.

Another of the bowl-shaped pits (CG16) was also sited close to a roundhouse (CG56). This contained a notable volume of pottery, burnt stone and charcoal, and may have been associated with cooking or waste disposal.

The remaining bowl-shaped pits which could not be so readily associated with buildings were mostly sterile with few or no finds, although burnt stone, charcoal and fired clay or daub were present in some instances. Cooking or disposal functions seem likely but other, craft related or agricultural processing functions should also be considered. Alternatively, as with the basin-shaped pits of uncertain associations, they could have been excavated for the extraction of sand and gravel for use as consolidating material across the settlement.

Pit: Context Group 1 (Fig 31)

Grid	0898/1033
Cut	1829
Fills	1828 (cleaning), 1830, 1831, 1832, 1854 (material recovered after gravel extraction)
Plan	Sub-circular
Profile	Bowl-shaped
Dimensions	4.00 x 3.20 x 1.04m

A substantial feature, having a distinct lobe or re-cut to the south-west and a deeper area to the east. This was only partially investigated but appeared not to have been excavated sufficiently deeply to have penetrated the underlying clay. The pit had a distinct stepped profile breaking from a shallow upper slope to a near vertical slope in the deeper portion. The sequence of fills indicated that it was probably open for a considerable period of time with three broad phases of use/infill identified.

A charcoal flecked, pale yellow grey-brown silt sand filled the bottom half, approximately to the level of the break in slope in the pit sides (context 1832). This probably results from weathering over a period of time, with some slumping as well accounting for the irregular plan and profile. However, some re-cutting or re-working of the upper edges may also have occurred. The base deposit was virtually sterile although small quantities of limestone were present, several fragments of which exhibited signs of burning.

The next phase of use/disuse was represented by two fills occupying a shallow bowl-shaped depression or slumped area over the earlier fills. Context 1831 occupied the base of the depression and was a mid-brown silty loam containing a single sherd of pottery, charcoal and burnt limestone fragments. This possibly derived from localised topsoil deposits scraped up and dumped into the pit. This was sealed by a thin band of charcoal rich material intermixing with a very dark grey brown silty loam (context 1830a). This contained a significant quantity of burnt limestone, pottery, bone, worked flint and burnt clay which was concentrated towards the charcoal rich base of the fill. Two radiocarbon determinations were obtained from charred residues on some of the large assemblage of pottery (607 sherds) recovered (OxA-10776 and OxA-10777; Section 7). A significant quantity of residual Beaker period flint (49 items) and pottery (14 sherds) were also present. A final phase of deposition (context 1830b) comprised material derived from the topsoil. This was largely sterile and infilled the uppermost part of a shallow slumped hollow over the earlier deposits. This was in turn truncated by both a furrow and two land drains.

Pit: Context Group 10 (Figs 31 and 32)

Grid	0795/1025
Fill/cut	2010/2012
Plan	Sub-circular
Profile	Bowl-shaped
Dimensions	2.80 x 2.20 x 0.45m

A regular and well defined pit. Several fills were present, the lowest of which (2010d) was a greyish brown sand devoid of artefacts. This appeared to be primarily the product of mixing of the base fill with the soft sandy natural sides of the feature. The earliest genuine fill was a very dark grey sandy loam containing frequent pottery, burnt limestone and large animal bone, some partially articulated (2010c). This layer was sealed by a dump of burnt limestone fragments with occasional pot sherds (2010b). The whole feature was sealed by a thin layer of mid brown sand with very rare charcoal flecks (2010a). The feature was notable as there was no evidence of a primary function other than domestic waste disposal. The nature of the ‘waste’ was also exceptional in that it was unusually rich in ceramics (130 sherds) and animal bone, including articulated material. This was located immediately adjacent to a roundhouse (CG57) with which it may have been associated.

Pit: Context Group 11 (Fig 31)

Grid	0811/1030
Fill/cut	2011
Plan	Sub-oval
Profile	Bowl-shaped
Dimensions	2.44 x 1.60 x 0.60m

A bowl-shaped pit with a deeper shallow gully cut along the east side of its base. Dark grey brown silty loam filled the upper more regular part (2011a), while the deeper element was filled with a compact gravel and sand loam (2011b). A moderate quantity of pottery (58 sherds) was recovered along with bone, horn core and flint from the upper part of the fill. This was located immediately adjacent to a roundhouse (CG57) with which it may have been associated.

Pit: Context Group 16 (Fig 31)

Grid	1095/1105
Fill/Cut	1708
Plan	?Sub-circular
Profile	Bowl-shaped
Dimensions	1.70 x 1.10+ x 0.80m+

Well-defined pit on eastern limit of excavated area. Not fully excavated. Cut by field boundary (FS2). Fill recorded as single context along with the cut, but section shows a base fill with burnt limestone and charcoal, overlain by a charcoal rich lens and sealed by a deposit of dark grey silty clay loam. Fifteen sherds of pottery were recovered, including Late Bronze Age material but also several sherds of Beaker of early-mid Bronze Age date. A small quantity of animal bone was also present.

Pit: Context Group 21 (Fig 33)

Grid	1080/0792
Fill/cut	1618
Plan	Sub-oval
Profile	Stepped, bowl-shaped
Dimensions	2.50 x 1.20 x 0.72m

Pit, with a stepped profile. A single fill was recorded, a very compact, mid greyish-brown sandy clay loam, however, the section shows this to have a paler upper element (1618a) and a darker lower element (1618b). The latter was characterised by quantities of very fine charcoal flecks, especially towards its base. It also contained burnt stone along with small quantities of flint (2), bone and daub.

Pit: Context Group 22 (Fig 33)

Grid	1079/0795
Fill/cut	1622
Plan	Sub-circular
Profile	Bowl-shaped
Dimensions	2.30 x 0.52m

Pit with an irregular base. The east side merged with an adjacent feature (context 1623) interpreted as representing an area of tree disturbance. The relationship between these features was somewhat ambiguous, however, it appears likely that the tree has disturbed the pit thus accounting for the latter's somewhat irregular appearance. A compact, mid greyish-brown sandy clay loam fill contained occasional charcoal flecks, small fragments of daub and a few fragments of burnt limestone.

Pit: Context Group 27 (Fig 33)

Grid	0772/1041
Fill/cut	2147, 2148
Plan	Sub-circular
Profile	Bowl-shaped
Dimensions	1.82 x 1.70 x 1.12m

A relatively deep feature with a near vertical northern edge and a stepped southern one. The lowest fill, a slightly silty sand and gravel, derived from weathering and slumping (probably from the southern side). A secondary fill comprised a dark grey brown silty clay deposit with lenses of burnt limestone and gravel and a small quantity of animal bone. This may represent a deliberate infilling of the feature. The function of the pit remains undetermined.

Pit: Context Group 37 (Fig 33)

Grid	1080/1069
Fill/cut	1512
Plan	Sub-oval
Profile	Bowl-shaped

Dimensions 2.65 x 1.25 x 0.40m

Sloping sided, sub-oval feature with slightly flattened north edge and near vertical sides. Its west end was truncated by a later pit/posthole (CG24). The fill contained only rare charcoal flecks and occasional very small burnt stone fragments. The function of the pit is indeterminate.

Pit: Context Group 40 (Fig 36)

Grid 0798/1069
Fill/cut 2027
Plan Sub-oval
Profile Bowl-shaped
Dimensions 3.40 x 1.90 x 0.42m

Shallow pit with a single fill of grey brown clay which was intermixed with gravels to its base. Basically sterile except for light charcoal flecking, a single flint and some burnt limestone. The feature lay close to a group of features containing large quantities of burnt stone (CG41, 43, 44, 45, 46 and 47). These have been interpreted as hearths and CG40 may therefore represent an associated pit or small pond for storage of water. Although it had been cut into gravel and no certain lining was present, the gravely clay at the base of the feature may have served to make it watertight.

Pit: Context Group 80 (Not illustrated)

Grid 1062/0999
Fill/cut 1254, 1255
Plan Sub-oval
Profile Bowl-shaped
Dimensions 2.50+ x 1.20 x 0.70m

Fairly substantial, pit observed on junction between two extraction areas and mainly recorded from section and disturbed site surface. Sloping sided and concave based with a single, dark grey brown fill. Charcoal flecking and daub/fired clay were both present but the feature was otherwise sterile.

Pit: Context Group 81 (Not illustrated)

Grid 1028/0961
Fill/cut 1204
Plan Sub-oval
Profile Bowl-shaped
Dimensions 1.60 x 1.20 x 0.60m+

Pit recorded after machine excavation of furrow. Single fill observed comprising a very dark grey, compact, sandy loam. No finds were recorded.

Pit: Context Group 93 (Not illustrated)

Grid 1131/0955
Fill/cut 1338
Plan Sub-oval
Profile Bowl-shaped
Dimensions 2.00 x 1.10 x 0.35m

Relatively shallow pit with a single dark fill containing daub and charcoal.

9.5 Small pits/postholes

Several features could not be readily defined as either pits or postholes (Fig 34). They were rather small and were not readily comparable with any of the pits described above and although potentially representing large postholes, for the most part they could not readily be associated with any structures. Other functions are therefore considered. Of note was that in the light of their relatively limited dimensions, many of these features contained larger than ‘normal’ assemblages (CG19, 24, 25, 91 and 92). Furthermore these assemblages were distinctive, for instance incorporating many sherds representing single vessels or in one case (CG19) a deposit of charred cereal crop waste associated with a vessel. A favoured interpretation is therefore that these features were specifically excavated for the structured placement of artefacts/ecofacts as ‘offerings’ and possibly that these were also marked by posts.

Pit/post: Context Group 19 (Fig 34)

Grid	1087/0971
Fill/cut	1601
Plan	Sub-rectangular
Profile	U-shaped
Dimensions	1.30 x 0.80 x 0.24m

An irregular, sub-rectangular cut having a depression in its base. The latter measured approximately 0.70m across and may have held a post. This feature was unusual as despite its small size, it contained abundant pottery (66 sherds) and charred cereal remains. Since most, if not all, of the sherds appear to derive from a single Late Bronze Age vessel, it seems likely that the charred cereal was deposited within the pot as part of a ritual deposit rather than having been casually discarded. The feature has no obvious other function and may therefore have been excavated specifically receive this 'offering'.

Pit/post: Context Group 23 (Fig 34)

Grid	1083/0963
Fill/cut	1604
Plan	Sub-circular
Profile	U-shaped
Dimensions	0.47 x 0.29m

Shallow but distinct posthole with single very dark grey brown, sandy clay loam fill. Notable for including a considerable volume of pottery (27 sherds) in view of its small size. Several vessels were represented. Animal bone, charcoal and burnt stone were also abundant within the feature which also produced flint.

Pit/post: Context Group 24 (Fig 34)

Grid	1079/1069
Fill/cut	1510
Plan	Sub-oval
Profile	Basin-shaped
Dimensions	1.00 x 0.65 x 0.45m

Sub-oval pit with sloping to steeply sides except at the northern end which was stepped with a shallow sloping side breaking nearly vertically to a flat base. Although somewhat shallow, the profile suggests that this feature may have contained a substantial post. A single fill of dark grey brown, charcoal flecked, silty loam was identified. Burnt stone, bone and pottery (15) were all recovered, all bar one sherd of the latter deriving from a single small fine vessel.

Pit/post: Context Group 25 (Fig 34)

Grid	1070/970
Cut	1217
Fill	1216, 1242, 1243
Plan	Sub-circular
Profile	U-shaped
Dimensions	1.00 x 0.82 x 0.95m

A near vertical sided, flat based cut with distinctive sequence of fills. The eastern side was excavated as a single fill (1216). Subsequent excavation of the western half divided the fills into two, an upper fill (1242) and a base fill (1243). Section evidence suggests further division of the upper fill into two parts. The uppermost element (1242a) was a dark grey brown sandy loam. This overlaid a yellow brown sandy clay (1242b) occupying the northern side of the cut. A darker more heavily charcoal flecked fill (1242c) pre-dated both of the others and occupied the southern side of the feature. This latter element contained burnt limestone, bone (some burnt), flint, pottery and heat cracked pebbles. The base fill was a very dark grey brown coarse sandy loam (1243) which was charcoal rich and included a concentration of calcined bone. Occasional burnt limestone, bone (some burnt), pottery and heat cracked pebbles were all present in this base fill.

This feature is interpreted as a robbed posthole, possibly occupying an earlier pit. The uppermost fill appears to reflect the remains of an infilled postpipe (1242a), with a packing to one side (1242b) and a disturbed earlier fill or slump (1242c) to the other. The base fill appears to have included a distinct charcoal rich element intermixed with calcined bone. The latter was highly fragmentary and has not been identified to species, one possibility being that this represents a 'token' deposit of human cremated remains. A moderately large assemblage of pottery (52 sherds) was recovered representing several vessels. Although disturbed by the subsequent activity this may represent a ritual deposit (?an offering) placed below a post. Alternatively, since the putative "post pipe" did not reach the base of the feature the post may have been a later insertion into an earlier small pit. Use or possibly re-use may be associated with the construction of a fence line (CG47).

Pit/post: Context Group 91 (Figs 34 and 35)

Grid	1085/1032
Cut	1438

Fills	1439, 1440
Plan	Sub-circular
Profile	U-shaped
Dimensions	0.80 x 0.70m

Distinct, steep sided small pit or posthole with two fills. The lower fill (context 1440) was a dark grey brown, loamy deposit, moderately flecked with charcoal. This included burnt stone, pottery, flint and animal bone. The majority of the large ceramic assemblage (total 200 sherds) derived from a single fine vessel which may have been deposited intact. Several other vessels were also represented, large proportions of several of which were also noted. The upper fill was slightly paler in colour and less heavily charcoal flecked but this also contained burnt stone, pottery and animal bone. The pottery assemblage was limited in this deposit (10 sherds) with no large chunks present, suggesting that this represents a backfill.

Pit/post: Context Group 92 (Fig 34)

Grid	0868/1024
Fill/cut	2013
Plan	Sub-circular
Profile	U-shaped
Dimensions	0.66 x 0.62 x 0.26m

Well defined small pit or posthole not forming part of any obvious structure. This had a very dark grey brown, silty loam fill with charcoal flecking. The feature contained a significant quantity of pottery (50 sherds), representing at least 3 vessels. Burnt limestone and animal bone were also present.

9.6 Hearths/ovens

Nine features have been interpreted as hearths or ovens, most of which comprised shallow pits or depressions containing large quantities of burnt material (Fig 16).

Of particular note, was a group of six of these features located towards the north-eastern side of the excavated area (CG41, CG43, CG44, CG45, CG46 and CG77; Fig 36). These were shallow depressions associated with large quantities of charcoal, burnt gravel and burnt limestone. These probably form a contemporary grouping. Although direct dating evidence was not recovered, several Late Bronze Age features were present in the vicinity and it seems most likely that they correspond with this, the main period of activity. However, the possibility that they were of Beaker or earlier date should not be excluded. These can be broadly interpreted as hearths, although the absence of burning of the surrounding natural suggests that the stone and gravel had been heated elsewhere and then been placed in a prepared hole whilst hot and the radiant heat used for some process. Close to this group of 'hearths', a shallow pit (CG40) has been tentatively interpreted as having been designed to contain water, while to the north an extensive depression in the natural clay (CG52) may represent a shallow pond. The location of this 'hearth' group in relation to the later linear features which cut them (FS1, contexts 2054 and 2075) may be fortuitous, however, it may be that the location of the hearths was known and used in the layout of the later field system since several boundaries intersected at this point.

The remaining features interpreted as hearths or ovens differed somewhat. In one (CG28), to the south of the group, fired clay and daub fragments were present perhaps suggesting that this represented an oven. Further to the west, a shallow depression associated with charcoal and burnt stone may represent a further hearth but in the light of the nearby cremation deposit (CG96) may also potentially represent the remnants of a pyre.

Lastly, on the east side of the site a further hearth was identified (CG30), its use probably being associated with that of a nearby waterhole and soaking pit (CG8 and CG9). A craft or agricultural processing function may be indicated, although other uses should not be excluded.

Hearth pit/oven: Context Group 28 (Not illustrated)

Grid	0774/1049
Fill/cut	2135/2134
Plan	Sub rectangular
Dimensions	2.16 x 1.52 x 0.56m

Shallow sub-rectangular feature with an irregular based depression running along each side of its base. Partially obscured by a furrow. The yellowish mid grey-brown fill contained a considerable quantity of burnt daub fragments as well as flecks of daub and charcoal in its upper part. A number of unassigned postholes were present in the immediate area. The daub and charcoal along with a burnt patch of soil suggest that this may reflect the site of a demolished hearth of oven structure.

Hearth pit: Context Group 30 (Not illustrated)

Grid	1128/1001
Fill/cut	1109
Plan	Sub-rectangular
Dimensions	2.50 x 1.50 x 0.18m

Shallow hollow filled with charcoal and burnt limestone in a dark brown grey, silty sand matrix. The feature was not well defined and was more akin to a spread of burnt debris occupying a shallow depression than a cut feature. The material did not appear to have been burnt *in situ* but may have been heated elsewhere and then placed into this depression and the radiant heat from it utilised. Possibly associated with nearby waterhole CG8 and lined pit CG9 both of which also contained considerable quantities of burnt material.

Hearth pit: Context Group 41 (Fig 36)

Grid	0805/1065
Fill/cut	2028
Plan	Sub-circular
Dimensions	1.05 x 0.20m

Shallow, flat-based pit containing a single distinctive fill comprising a very dark grey/black sandy clay loam with 20%+ of volume filled by small fragments of burnt limestone and burnt gravel (*c* 0.02 - 0.03m fragments). Charcoal was abundant and included a small quantity of cereal grain, however, the feature was otherwise sterile and the grain may have been accidentally incorporated with chaff and other crop waste used tinder. This feature appears to be some form of hearth, although the surrounding gravel showed no signs of reddening, the quantity and nature of the burnt stone material suggest that it had been placed in a prepared hole whilst hot and the radiant heat used for some process.

Hearth pit: Context Group 43 (Fig 36)

Grid	0803/1064
Fill/cut	2051
Plan	Sub-circular
Dimensions	1.10 x 0.60m

Shallow, flat-based pit containing a single distinctive fill which very closely resembled the fill of CG41, being characterised by significant quantities of charcoal, burnt limestone and burnt gravel.

Hearth pit: Context Group 44 (Fig 36)

Grid	0798/1065
Fill/cut	2052
Plan	Sub-oval
Dimensions	2.00 x 1.50 x 0.30m

Shallow, flat based pit. The lower fill was a charcoal dark grey clay, the upper fill (restricted to an area approximately 1m diameter and 0.2m deep) very closely resembled the fills of CG41 and CG43, being characterised by significant quantities of charcoal, burnt limestone and burnt gravel. This feature was clearly truncated by several linear features (2053 and 2054).

Hearth pit: Context Group 45 (Fig 36)

Grid	0795/1063
Fill/cut	2081
Plan	Sub-oval
Dimensions	1.55 x 1.35m

Sub-circular feature, recorded only in plan. The fill was characterised by significant quantities of charcoal, burnt limestone and burnt gravel.

Hearth pit: Context Group 46 (Fig 36)

Grid	0805/1063
Fill/cut	2079
Plan	Sub-circular
Dimensions	0.90m (diameter)

Sub-circular feature, recorded only in plan. The fill was characterised by significant quantities of charcoal, burnt limestone and burnt gravel.

Hearth pit: Context Group 77 (Fig 36)

Grid	0799/1066
Fill/cut	2080
Plan	Sub-circular?
Dimensions	0.60m (diameter)

Sub-circular feature, recorded only in plan. The fill was characterised by significant quantities of charcoal, burnt limestone and burnt gravel.

Hearth pit?: Context Group 97 (Not illustrated)

Grid	0752/1047
Fill/cut	2137/2138
Plan	Sub-oval
Dimensions	1.90 1.40 x 0.20m

Shallow pit with burnt stone and heavy charcoal content in the fill. No finds were recorded. Liable to represent fire pit or hearth. Excavator suggested some possible link with cremation 2136 (CG96) – ?possible pyre location.

9.7 Undated cremation

A single undated and unaccompanied deposit of cremated bone was recorded in a small, shallow bowl-shaped pit towards the western limit of the excavated area (CG96; Fig 16). The heavily calcined bone present was not firmly identifiable to species due to the very small quantity present and absence of definable elements (Section 20). The feature and its contents are, however, considered liable to represent a human burial deposit given the discrete nature of the feature, its location on the margins of occupied areas of the site and the highly calcined and fragmented nature of the bone.

The small size of the cremated bone deposit was noted on examination and the possibility that this represents a token representation with ritual significance rather than a full burial has been considered (Section 20). However, caution should be exercised since the shallow depression was full of bone and in the light of the severe plough truncation of much of the site, it seems equally likely that the small volume of bone present reflects the level survival rather than of original deposition.

Cremated bone deposit: Context Group 96 (Not illustrated)

Grid	0741/1050
Context	2136
Plan	Sub-circular
Profile	Bowl
Dimensions	0.45 x 0.05m

Shallow pit with a single compact, dark grey-brown sandy clay fill with abundant inclusions of highly burnt (?human) bone and charcoal.

9.8 Posthole structures

Eight roundhouses, five rectilinear structures, five four-post structures, two semi-circular structures, two T-shaped structures, two curvilinear gully-based structures and three small rectilinear post and gully structures have been identified along with three fencelines and three large post defined enclosures. Several substantial but isolated postholes have also been recorded (Fig 16).

These structures have been identified within substantial clusters of post- and stakehole-sized features, the majority of which were not excavated. As a result, identification has been based upon plan analysis allied to information on fill characteristics where recorded. Many of the structures produced very limited or no dating evidence, however, in the light of the predominance of Late Bronze Age activity and their apparent relationship to dated features, these structures are considered most probably to date from this period.

Apart from two of the roundhouses which overlapped (CG54 and 55), no sequence of construction was represented and even in the case cited the chronological relationship of the two roundhouses could not clearly be established. Truncation had clearly affected survival, the post/stakeholes for the most part remaining as only shallow depressions while no occupation deposits (eg floors or internal hearths) were present. Ridge and furrow cultivation had also substantially affected survival and clearly accounted for many of the gaps in the post/stakeholes outlining these structures.

As a result of the truncation described above, many of the structure plans appear irregular, although the latter also seems in part to reflect the original pattern. Certainly a degree of irregular spacing was present originally, while the post/stakeholes themselves also appear not to have been of uniform depth or size. This may reflect variable histories of construction and dismantling; posts being replaced, structures remodelled and posts removed when structures were abandoned, some possibly for reuse. Furthermore, it is recognised that there is no requirement for posts to be of uniform diameter or length, thus a deeper posthole may simply reflect adjustment made for a longer post (Moore and Jennings 1992, 35) to ensure a level roof support or wall height.

9.8.1 Roundhouses

Eight roundhouses have been identified. Two potential groupings were present, both lying towards the northern side of the site (CG58, 59 and 60 and CG54, 55 and 56; Fig 16). In the latter grouping, CG54 either replaced or was replaced by CG55 and the latter was itself rebuilt on one occasion. The other two examples appear isolated, one being located towards the west side of the site (CG57), the other on its southern margins (CG78).

The diameters of seven of the roundhouses were defined by post circuits which varied between 7.00-13.5m, most falling towards the upper end of this range. It can be suggested that these post-rings represent roof supports for larger diameter structures which had wattle and daub walls lying beyond them. No traces of these walls survived although daub was regularly noted within posthole fills around the structures. This method of construction was first postulated for Bronze Age roundhouses identified at Sheerplace Hill, Dorset (Avery and Close-Brooks 1969) and has been suggested at other Late Bronze Age sites comparable with Kemerton such as those at Reading Business Park (Moore and Jennings 1992; Brossler, Early and Allen 2004) and Shorncote (Hearne and Heaton 1992; Hearne and Adam 1999). At both Reading Business Park and Shorncote diameters of the roof support post circuits ranged from 6.65-10.00m, with external wall dimensions being in the region of 13.00m as indicated by the position of porch posts which are assumed to have been situated on the line of the external wall. Four of the roundhouses at Kemerton had comparable porches represented by paired postholes lying outside of the main post-circuit. These were located on the south/south-south-east sides of the roundhouses. Assuming the model of construction is correct this would suggest that the Kemerton roundhouses were slightly larger than those at Reading Business Park or Shorncote having external diameters of up to 16.00m.

In only one instance was there evidence for replacement of the structure, CG54 either having replaced or been replaced by CG55 which itself had been rebuilt or remodelled, the replacement being slightly off centre from the original structure. None of the roundhouses had identifiable central roof supports, although again this compares favourably with many examples from other sites.

The eighth roundhouse (CG78) is more tentatively identified and appeared to have been of different construction. This was represented by a curvilinear gully enclosing an area at least 9.00m in diameter. In the absence of postholes, details of construction are hard to establish though daub was present. One possibility is that the gully represented the construction trench for a mass wall or setting for a wall constructed from sections of wattle and daub, although it is also possible that this represents an eavesdrip for a smaller free standing structure. An entrance to the structure can be inferred on the north side from a break in the gully. It is

possible that a second south-facing entrance was present as only the northern half of the structure lay within the site limits.

In the absence of internal features or surfaces and the paucity of material assemblages from the limited number of postholes which were excavated, it has not proved possible to determine functions for these buildings. However, evidence from comparably dated sites suggests that range of domestic and workshop functions are likely.

Roundhouse: Context Group 54 (Fig 37)

Roundhouse measuring approximately 11m in diameter. Only half of the structure lay within the recorded area. 8 fairly regularly spaced postholes were identified of which only one (1724) was excavated. Fills were typically grey to very dark grey in colour and several of the postholes contained large volumes of charcoal indicating that perhaps the posts had been burnt or scorched. The diameters of the postholes indicated that the posts may have been variable in size but that the majority probably measured between 0.40-0.50m in diameter. A number of postholes within the area of the structure have been assigned to Roundhouse CG55 which appears to have had two phases of construction. Several other features present may represent internal features or other undetermined structures pre- or post-dating the roundhouse. No evidence for a porch was discerned, although this could have been situated beyond the excavated area.

Roundhouse: Context Group 55 (Fig 38)

Roundhouse with two phases of construction (CG55a and CG55b), one slightly offset from the other. None of the postholes were excavated and over half of both structures lay beyond the investigated area. CG55a comprised 9 postholes while CG55b comprised 10 postholes. Both were within the region of 12.5 to 13m in diameter. The roundhouse/s overlapped with another similar structure to the north, Roundhouse CG54, although the fills of the postholes comprising CG55a and CG55b were less well defined than those of CG54 perhaps suggesting that CG54 replaced CG55. No internal features were identified and no porch structure was present although, if present, this may have lain beyond the recorded area.

Roundhouse: Context Group 56 (Fig 39)

Roundhouse, approximately 12m in diameter. Comprises 15 rather irregularly spaced postholes with a further two representing a porch on its southern side. None of the postholes were excavated but in plan they were recorded to have grey to dark greyish fills, several of which were heavily flecked with charcoal. Posthole diameters varied between 0-25 to 0.70m but were mostly in the 0.45 to 0.50m range. A number of features within the structure are considered to represent either internal features or features which pre- or post-date the structure.

Roundhouse: Context Group 57 (Fig 40)

Group of distinct, charcoal rich, dark filled, postholes in an area of the site containing few postholes. Six of these were located on a circle of *c* 7m diameter and are considered to represent the remains of a heavily truncated roundhouse. A number of postholes in the immediate vicinity may be associated although no porch could be identified. Two bowl-shaped pits (CG10 and CG11) were located close to the structure and both contained large quantities of domestic waste.

Roundhouse: Context Group 58 (Fig 41)

Sub-circular structure, comprising a *c* 12m diameter circuit of 12 postholes with 2 further postholes forming a possible porch to the south-east. The postholes were typically dark brown to very dark grey brown in colour and averaged 0.56m diameter. Charcoal flecking was present in several and one exhibited signs of burning. No internal features were and none of the features were excavated.

Roundhouse: Context Group 59 (Fig 42)

Sub-circular structure, comprising a *c* 12m diameter circuit of 8 postholes with a further posthole possibly representing a porch to the south-east. The postholes averaged 0.65m in diameter. Daub and charcoal were present within the only one of these to be excavated (context 1821). A number of potential internal postholes were present and are possibly indicative of an internal division.

Roundhouse: Context Group 60 (Fig 42)

Rather irregular sub-circular structure, comprising a *c* 10m diameter circuit of 8 postholes with a further 2 postholes possibly representing a porch to the south-east. The postholes averaged 0.46m in diameter and were brown to dark brown in colour with charcoal flecking. Several potential internal features were present. Only one of the postholes (context 1820) was excavated. This proved to survive as little more than a shallow depression containing articulated animal bone possibly representing a placed deposit in the base of an otherwise largely truncated feature.

Roundhouse: Context Group 78 (Fig 43)

Probable roundhouse of which only the northern part lay within the excavated area. Comprised a curvilinear gully (context 1809) of a diameter of at least 9.00m. This had a 2.00m wide entrance and enclosed an area of disturbed

natural. Two small pits or relatively large postholes lay within the area defined by the gully, and both produced daub and charcoal (context 1805). Several small stakeholes were also present and may be associated. The gully fill included burnt limestone and charcoal. It was unclear whether the gully represented the wall footing for the structure or an eavesdrip.

9.8.2 Rectilinear structures

Five rectilinear structures were defined (CG61, 62, 63, 64 and 65; Figs 44-46 and 55). One of these (CG63) was a small structure measuring only 3.50 x 3.00, but the remainder were of a reasonable size, measuring between 7.00 x 3.50m and 8.00 x 6.25m. Parallels for these buildings are less readily identified than for the roundhouses although rectilinear buildings have been identified as at Shorncote (Hearne and Heaton 1994; Hearne and Adam 1999).

Of the structures at Kemerton, CG62 was the most notable being of very regular construction thus enabling the form of the structure to be determined with some degree of confidence. The arrangement of the twelve posts in two distinct sets of six suggests that the building may have comprised two enclosed bays set on either side of an open sided central area. The two smaller internal posts suggest that the structure had a north to south aligned roof ridge along its central axis. Also of potential significance was that the central axis of the structure was aligned precisely onto a limestone block in a shallow depression located about 8.00m to the south of the building. This raises the possibility that the structure may have had a ceremonial function rather than a utilitarian one.

The other rectilinear structures were of less regular construction and functions are liable to have been associated with providing shelter (stables/byres) for animals, workshops or as storage facilities.

Rectilinear structure: Context Group 61 (Figs 44 and 45)

Well defined, rectilinear post-built structure comprising at least 12 postholes (contexts 2004, 2061, 2062, 2063, 2064, 2064, 2065, 2066, 2067, 2068, 2069 and 2070). The structure was at least 8.00 x 4.00m in size and aligned north-west to south-east. Further posts in the immediate vicinity may have been associated and the structure had been truncated at the east end by a temporary haul road. No direct dating evidence was recovered, however, activity in the immediate vicinity was of Late Bronze Age date and therefore the structure is considered to be of that date.

Rectilinear structure: Context Group 62 (Figs 44 and 46)

A clearly defined, rectangular three bay structure measuring 7.00 x 3.50m represented by 12 shallow postholes averaging 0.24m deep (contexts 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025 and 2026). Truncation had clearly affected the area and no occupation horizons were identified. The smaller size of the two internal posts suggests that they may have supported the roof, while the arrangement of the external posts suggests that the structure may have comprised enclosed bays to the north and south of an open sided central area.

No direct dating evidence was recovered, however, a range of datable features lay within the close vicinity. To the south, two Late Bronze Age pits and an associated roundhouse (CG10, 11 and 57) were recorded, while to the north, two Late Bronze Age post/pits (CG32 and 34) along with a Late Bronze Age waterhole and associated soaking pit (CG3 and 5). To the east, three Beaker period pits were present. On the balance of probability the structure is considered most likely to be of Late Bronze Age date, given the rarity of Beaker structures and greater proximity of Late Bronze Age activity in the vicinity.

One further observation was that the structure was aligned on a north-east to south-west axis, directly on the line of which was a large limestone block some 9.00m to the south-west. The position of the block may be fortuitous, however, an alternative is that this represents a building with some ritual function.

Rectilinear structure: Context Group 63 (Fig 44)

Rectilinear structure measuring 3.50 x 3.00m and comprising at least 12 well defined shallow dark filled postholes (Contexts 1301/1302,1305/1306, 1307/1308, 1309/13101354, 1355, 1356 and 1357). Two internal posts may have partitioned off the south end of the structure or formed roof supports. Most of the postholes included charcoal flecks and two of them contained daub fragments. A single sherd of medieval pottery (from 1355) is considered intrusive and in the light of the levels of Late Bronze Age activity in the vicinity, this structure is considered liable to be of such a date.

Rectilinear structure: Context group 64 (Fig 55)

Rectilinear structure comprising 9 postholes. The structure measured 8.00 x 6.25m in plan, with 6 posts forming a well defined south-west side and three the north-east side. Most of the postholes could have held relatively large

posts of a 0.60m+ diameter, although the two central posts on the south-west side were smaller (0.35m diameter) and may mark the location of an entrance into the structure. Although none of the postholes were excavated, the fills were all recorded in plan as being dark brown to dark grey brown in colour with daub and charcoal flecking also noted in some them. The structure lay within a large fenced enclosure (CG68) which also included two substantial waterholes (CG6 and 7).

Rectilinear structure: Context Group 65 (Fig 44)

Virtually square structure comprising 8 postholes of an average 0.60m diameter. The structure measured 7.00 x 7.00m. Further postholes may have been removed by a furrow which crosses the structure. None of the features were excavated, however, fills were mostly noted in plan to be dark brown grey to grey brown in colour.

9.8.3 Four-post structures

Five four-post structures have been identified (CG70, 71, 72, 73 and 74; Fig 47). All of these were located in the north-east part of the site (Fig 16).

The structures were mostly rectilinear, although one (CG70) was square in plan. They varied in size measuring between 2.50 x 1.25m and 4.00 x 4.00m (3.125m² to 16.00m²). None of the structures was symmetrical. Comparable structures have been widely identified on Late Bronze Age sites including at Reading Business Park and Shorncote, although at both of these locations the structures were generally somewhat smaller than the examples here. These structures are usually interpreted on both Bronze Age and Iron Age sites as representing structures with raised floors used as storehouses or granaries (Gent 1983). A similar interpretation is offered here.

Four-post structure: Context Group 70 (Fig 47)

Four-post structure, measuring 4.00 x 4.00m. Disturbed by furrow on west side. Comprised well defined posts with dark fills. These were only observed in plan but could have supported posts up to 0.40m in diameter.

Four-post structure: Context group 71 (Fig 47)

Four–post structure, measuring 3.00 x 2.50m. The two posts to the west side appeared considerably larger in plan than those on the east and both were half sectioned (contexts 1521 and 1522), that to the south showing a distinct smaller post impression in its base. These two may have been replaced or possibly robbed at the end of the life of the structure thus accounting for the variable plan. Charcoal flecking was present in both excavated postholes and daub in one. Posts could have been up to about 0.35m in diameter.

Four-post structure: Context Group 72 (Fig 47)

Four-post structure, measuring 2.50 x 1.25m. None of the four postholes were excavated but all had dark coloured fills. Post diameters could have been up to 0.30m.

Four-post structure: Context Group 73 (Fig 47)

Four-post structure, measuring 4.00 x 3.50m. None of the four postholes was excavated but all could have supported a post up to 0.45m in diameter. The two fills described in plan were both dark in colour.

Four-post structure: Context Group 74 (Fig 47)

Four-post structure, measuring 2.50 x 1.50m. All four postholes were noted to have dark fills and one was excavated but produced no finds. These could have supported posts up to 0.35m in diameter.

9.8.4 Semi-circular structures

Two semi-circular structures were identified, one describing just under half a circuit of 6.00m across the other a similar half circuit of some 5.00m across (Fig 48). Similar structures have been recorded elsewhere, for instance at Reading Business Park (Moore and Jennings 1992). These may represent partial post circuits of roundhouses which had no earthfast posts in the other portions. Alternatively they could represent distinct structures in their own right, perhaps functioning as windbreaks or open-fronted animal shelters.

Semi-circular post structure: Context Group 69 (Fig 48)

Semi-circular structure comprising 6 regularly spaced and well defined postholes, each about 0.45m in diameter. These described just under half of a circle of about 6.00m in diameter. The enclosed area faced north and there was no evidence for either a northern side to the structure or of any internal features. It is suggested that either this was a semi-circular structure constructed to provide shelter from prevailing south-westerly winds or that it was a roundhouse of which the northern side was free standing or fully truncated.

Semi-circular post structure: Context group 89 (Fig 48)

Semi-circular arrangement of charcoal rich postholes forming a structure which appears to have been open to the west. The two postholes on the open western side were more substantial than the arc of four smaller postholes forming the remainder of the structure suggesting that these either formed the main supports for the structure or represent an entrance into the structure which only measured 5.00m across at it widest.

9.8.5 T-shaped structures

Two T-shaped structures were found in close proximity (Fig 49). These are interpreted as representing structures having upright frames with supporting posts placed at right-angles to the frame. The structures therefore appear to face in opposite directions. Possible functions include as drying racks or supports for looms.

T-shaped structure: Context Group 75 (Fig 49)

T-shaped structure comprising distinct alignment of four posts with a fifth post set off at right-angles from this alignment. Four of the postholes were excavated (2001, 2002, 2003 and un-numbered). All produced charcoal but no artefacts were recovered. All of the postholes could have supported posts up to 0.45m across, although one (2003) could have held a considerably larger post (1.00m or more). However, the latter is believed more likely to reflect robbing or dismantling of the structure.

T-shaped structure: Context Group 76 (Fig 49)

T-shaped structure comprising a 4 posts and 2 possible further posts. None of these were excavated but all had well defined, dark coloured fills. This was located only 5.00m from the only other T-shaped structure which has been identified on the site (CG75), although CG76 appears to have been more heavily truncated or of slightly less substantial construction.

9.8.6 Curvilinear gully structures

Two structures based on curvilinear sections of gullies were identified close together on the southern margins of the site (CG50 and CG51; Fig 50). Neither was fully excavated or revealed within the investigated area. The more extensively observed (CG50) also included postholes arranged in an arc around one end of the structure. In both structures, the gullies were notable for the presence of narrow slots aligned parallel to a central ridge of fired or burnt clay. The latter possibly represents the stub of a partially fired clay or daub 'wall'. This may have been faced on both sides by hurdles set into the slots although no wattle impressions were visible within the burnt sandy clay. Another possibility is that the slots were used to support boards or hurdles used in construction of a cobb wall. The apparent use of a post-built wall at one end of CG50 indicates that the sides of this structure were not all of the same construction perhaps reflecting differing requirements or some degree of complexity.

Curvilinear gully structure: Context Group 50 (Fig 50)

Irregular and poorly defined post and gully structure of unusual form and uncertain function. Although truncated to the east end by a furrow, this appeared to have comprised an irregular horseshoe-shaped gully open to the west along with 5 postholes. These formed a structure of broadly sub-oval plan measuring 6.00 x 5.00m. Four of the postholes described an arc around the east end while the fifth occupied the open end of the horseshoe-shaped gully. The gully was shallow and in two excavated sections (contexts 1223 and 1226) had a pair of narrow parallel slots running along its base with a ridge of soil between them. In the southern gully section (context 1223) this ridge comprised *in situ* burnt sandy clay material running along the centre of the feature. In contrast, the northern gully (context 1224) did not contain such slots or a ridge of burnt material. Along with the arc of posts at the east end, this suggests that the structure had differently constructed sides, possibly reflecting differing requirements such as an ability to withstand heat along one side. A similar structure lay a few meters to the east (CG51). Regrettably both features lay very close to the quarry face and there was insufficient time to make a detailed investigation.

Curvilinear gully structure: Context Group 51 (Fig 50)

Structure, similar to CG50, comprising the northern part of a curvilinear gully (context 1222) with a pair of shallow parallel slots running along its length and sandwiching the remains of a daub/partially fired clay 'wall' *in situ*. This

was only present in one section, suggesting that, as with CG50, the fired clay/daub 'wall' did not extend all the way round. The structure measured at least 4.80m across and had been truncated to the east by a furrow. The majority of the interior lay in the former quarry area and there was no evidence for any associated posthole arrangements.

9.8.7 Post and gully structures

Three small rectilinear post and gully structures (CG86, 87 and 88; Figs 50 and 51) were recorded in the south-east corner of the investigated area. These were of similar dimensions (3.35 x 2.75m, 4.00 x 2.50m and 4.00 x 2.50m respectively) and of comparable construction having irregular based gullies running down either side with posts aligned on the central axes of the structures. One suggested reconstruction is that the central posts supported a roof ridge while the gullies held hurdles angled at 45º up to the supporting roof ridge, thus forming a small A-framed structure which could have been used as an animal shelter.

Post and gully structure: Context Group 86 (Figs 50 and 51)

Two short parallel gullies, each containing a number of shallow postholes. A further three postholes and a stakehole lay between the gullies, which were 1.50m apart. The area between the gullies was slightly disturbed, possibly by trample. The fills of the features were all generally similar, however the soil colours varied locally within each feature. The features may represent a small rectangular structure (context 1252) aligned approximately north to south and measuring *c* 3.25 x 2.75m. Similar in size, plan and alignment to CG87 and CG88.

Post and gully structure: Context Group 87 (Fig 50)

Structure comprising two short parallel gullies, with a disturbed area between them. Both gullies contained shallow postholes while three further postholes ran through the central axis of the structure. Less clear, but generally similar in size, plan and alignment to CG86. Interpreted as a small rectangular structure (context 1253) measuring *c* 4.00 x 2.50m.

Post and gully structure: Context Group 88 (Fig 50)

Structure, truncated to the west by a furrow, comprising two roughly parallel gullies and a posthole. Both gullies contained shallow postholes. The other posthole lay slightly to the east of the gullies but on the central axis of this broadly rectilinear structure which measured *c* 4.00 x 2.50m. Similar in form and size to both CG86 and CG87.

9.9 Boundaries/fences

Three posthole and small alignments have been identified and are considered to represent fences or boundaries within the site. Fences have been identified on other Bronze Age settlement sites, as at Hornchurch, Essex (Guttmann and Last 2000) and Shorncote (Hearne and Adam 1999), although they were absent at Reading Business Park (Brossler, Early and Allen 2004). This may reflect that different strategies were being employed or were required to demarcate areas and control access to them at otherwise apparently similar sites.

Boundary/fence: Context Group 47 (Fig 16)

North to south alignment of moderately large postholes or small pits running for some 20m across the site (contexts 1205, 1212, 1216/1217/1242/1243 (also CG25), 1206, 1208 and 1213). These measured between 0.50 and 1.00m in diameter. The identification of the alignment is only tentative as there was a marked disparity in depth of the excavated features and the possibility remains that the alignment may be an illusion created by the medieval ridge and furrow which was similarly aligned. However, all were characterised by dark fills and where excavated produced daub and charcoal. One of these features (cut 1217) was particularly distinct having a well defined robbed postpipe and indications of post packing, as well as possibly being a re-used small pit (see CG25).

Fence: Context Group 48 (Figs 16 and 52)

An alignment of 7 postholes, averaging 0.24m diameter running north-west to south-east with a slight change of direction in the middle. Two of the postholes (2057/2058 and 2059) were excavated and were well defined and U-shaped in profile. Both contained burnt limestone and charcoal flecking, and one of them (2058) had additionally been packed with ceramic loomweights, one pyramidal and one annular. The loomweights, probably incomplete at the time of deposition had been crushed *in situ*, possibly by rocking of the post at the time of its removal. The other five postholes were not excavated, however, all had clearly defined, charcoal rich, dark grey fills.

Fence: Context Group 49 (Fig 42)

Alignment of 10 postholes extending for at least 25m across the site in a broadly east to west direction. The largest of the postholes (1815) was the only one of these features which was excavated. Animal bone, daub fragments and 3 small sherds of LBA pottery were all recovered from the dark charcoal flecked fill. These may be related to the three roundhouses (CG58, 59 and 60) in this area of the site, the fence perhaps defining and possibly protecting (from stock?) or defining the area occupied by CG59 and 60.

9.10 Enclosures

Three substantial post defined enclosures have been identified (CG66, 67 and 68; Figs 53, 54 and 55).

Two of these enclosed large sub-oval areas. One (CG67) measured some 35.00 x 30.00m thus enclosing an area of approximately 825m². This had a funnel-shaped entrance on its southern side and appeared to have been cut by a substantial Late Bronze Age pit (CG2). Several postholes and possible pits were present within the enclosure, one set of postholes on the east side possibly separating off a small area within the enclosure. The second (CG68), measured some 45.00 x 35.00m and encompassed an area of approximately 1275m². This had a somewhat flattened south-west side with an entrance in it. No posts were identified forming the west side of the enclosure but it may have been attached to a field boundary here, an entrance through the field boundary at this point providing access into the enclosure. The enclosure contained a sub-rectangular post-built building and two large waterholes.

Comparable sized enclosures have been identified at Hornchurch, Essex where two sub-circular examples were recorded (Enclosures C and D; Guttmann and Last 2000, 332-5). These were more fully excavated and better preserved than the examples at Kemerton and produced evidence for the deposition of placed deposits. It was also observed that the circuits (even allowing for truncation) appeared incomplete and it was suggested that they might not have formed substantial physical barriers. However, at Kemerton in the absence of any evidence for placed deposits it is felt more likely that these had as more utilitarian function, perhaps having supported hurdles and possibly being accompanied by, or reflect the laying out of, hedges which would have provided more substantial barriers.

The third example from Kemerton (CG66) was less well defined, comprising only three sides of an apparently rectilinear enclosure measuring some 27.00 x 22.00m (*c* 600m²). No internal structures were defined and no ready parallels have been identified although the field enclosures at Chigborough Farm in the Blackwater Estuary, Essex (Wallis and Waughman 1998 cited in Guttmann and Last 2000) may be comparable.

In the light of the different form of each of the three enclosures, different functions might be represented but either enclosure or exclusion of stock seems liable to have been an important factor.

Enclosure: Context Group 66 (Fig 53)

Enclosure consisting of three rows of postholes with an average diameter of 0.59m. These defined three sides of an area measuring some 27.00m x 22.00m. None of the postholes was excavated. In plan, those forming the north and east sides of the enclosure were well defined and consistently exhibited dark, to very dark grey brown fills flecked with charcoal. The southern side was less well defined and in plan the fills were only recorded as being dark brown to brown mottled deposits. The northern side appeared open but the area was heavily truncated and may account for this absence as well as the poor definition of the enclosure's southern side. Alternatively this side of the enclosure may have been formed by a hedge. Similar factors may account for the apparent gap in the south corner, although the possibility should not be excluded that this formed a wide entrance into the enclosure. The enclosure fell on a north-east to south-west axis and thus was aligned with the ditches comprising the Bronze Age field system.

Enclosure: Context Group 67 (Fig 54)

A large, sub-circular enclosure, approximately 31.00m in diameter, with an entrance to the south. The postholes defining this were generally dark brown or dark grey brown and averaged 0.42m in diameter. The enclosure was well defined on its western side and around its northern edge where many of the posts lay within 2.00 – 3.00m of each other. It was less well defined to the east possibly reflecting heavier truncation, however, surviving posts still were typically only about 4.00 – 5.00m apart. The posts forming the entrance provided a slightly funnel-shaped approach into the enclosure. None of the posts were excavated.

A number of postholes encompassed by the enclosure may represent internal structures or divisions, for instance the short north-south line of posts on the east side of the enclosure. Two large pits, CG2 on the line of the enclosure and CG1 just outside of it, may both be contemporary with use of the enclosure, CG2 possibly having held water in the wetter months of the year.

Enclosure: Context Group 68 (Fig 55)

Substantial enclosure measuring some 45.00 x 35.00m. None of the postholes was excavated but in plan these varied considerably in size and fill (from 0.40m to 1.00m diameter and from reddish grey brown through to very dark grey brown. Many fills were heavily charcoal flecked but no finds or daub were noted. The south-west side was the best defined comprising 12 postholes, spaced at approximately 2.00m intervals. These formed a fairly straight alignment some 32.00m in length with a 10.00m wide entrance located opposite two substantial waterholes (CG6 and 7) and a rectilinear structure (CG64), situated within the enclosure. The north-west facing side was fairly well defined comprising 10 rather unevenly spaced postholes describing a gentle arc but the south-west side was less certain comprising 5 rather unevenly spaced and aligned postholes. No east side was discerned and is possible that this was formed by a field boundary ditch (and accompanying ?hedge) which ran to the east. Certainly there appears to be a ditch defined entrance through this field boundary which could have provided access into the enclosure.

9.11 Isolated postholes

A number of well-defined postholes characterised by the presence of datable material and often of packing stones have been noted, however, no evident associated features were present. In some respects these are similar to the isolated small pits/posts discussed earlier, however, do not have the distinct finds rich fills of the latter. These can most probably be interpreted as the sole surviving postholes of otherwise fully truncated structures.

Context Group 29

Grid	0783/1021
Cut	2114
Fills	2112, 2113
Plan	Sub-circular
Profile	U-shaped
Dimensions	0.90 x 0.80 x 1.00m

Small vertical-sided cut Possibly lined or rapidly filled after excavation since there was no evidence of weathering. A lower dark grey brown loamy clay (2113), contained charcoal fleck, fired clay fragments, gravel and burnt stone. This was overlain by an upper fill (2112) which was paler, sandier and more compact. Pottery (4 sherds) and bone were recovered from both fills. The proportions of this feature support interpretation as a substantial but isolated posthole.

Posthole: Context Group 32

Grid	0831/1059
Fill/cut	2029
Plan	Sub-circular
Profile	U-shaped
Dimensions	0.50 x 0.20m

Well-defined but isolated cut, with a single dark grey, compact, sandy clay loam fill flecked with charcoal. Contained pottery (4 sherds, 2 from a fine bowl), a stone weight, bone and burnt limestone. Function indeterminate.

Posthole: Context Group 33

Grid	1043/1005
Fill/cut	1408
Plan	Sub-oval
Profile	Bowl-shaped
Dimensions	1.10 x 0.80 x 0.20m

Sub-oval feature with a bowl-shaped depression at its south end. The fill contained burnt limestone, daub and charcoal. The feature may represent a small pit, however, more probably supported a posthole placed at its southern end.

Posthole: Context Group 34

Grid	0819/1059
Fill/cut	2030
Plan	Sub-oval
Profile	U-shaped
Dimensions	0.60 x 0.42 x 0.20m

Well-defined but isolated cut with a single, compact, mid grey, clay loam fill flecked with charcoal. Contained pottery (3 sherds), bone and burnt limestone. Function indeterminate.

Posthole: Context Group 35

Grid	1081/1082
Fill/cut	1501
Plan	Lobed linear
Profile	Stepped/U-shaped
Dimensions	2.34 x 1.10 x 0.80m

Irregular, broadly linear, lobed feature disturbed on its eastern edge by a land-drain. Excavation revealed this to be a shallow irregular cut with a well-defined posthole on its east side. The latter measured 0.80 x 0.60 and was U-shaped in profile. The posthole was packed with burnt limestone and contained charcoal, pottery and flint. This feature is adjacent to CG36 and CG53, however it does not form part of a readily identifiable structure.

Posthole: Context Group 90

Grid	0860/1066
Fill/cut	2042/2041
Plan	Sub-circular
Profile	U-shaped
Dimensions	0.58 x 0.45m

Well-defined posthole not forming part of any obvious structure. This had a dark grey brown upper fill with abundant charcoal and a less charcoal rich paler lower fill containing burnt limestone fragments. The latter may represent packing for a post. Pottery (5 sherds), flint, bone and a quantity of charred cereal were present.

10. Iron Age, Roman, medieval and later activity

The excavated area was notable for the highly limited range of activity represented post-dating the Late Bronze Age occupation. Both Iron Age and Romano-British settlement sites have been recorded to the north and south, however, with the exception of a couple of boundary features which potentially date to this period, certain evidence was limited to a handful of sherds of Roman pottery present as residual material in the modern ploughsoil. The boundary features were aligned on a north-south axis and could also relate to medieval activity, being similarly aligned to the medieval ridge and furrow cultivation features, which had heavily affected the site. Although no longer visible as earthworks due to truncation by recent cultivation, these had clearly been a visible component of the local landscape until recently, 19th and 20th century ceramic land-drains having been laid along the base of many of the furrows.

Part 3: Artefactual evidence

11. Prehistoric pottery (by Ann Woodward and Robin Jackson)

11.1 Introduction

A total of 4392 sherds weighing 33,043g (av sherd weight 7.52g) were recovered through hand collection (numerous crumbs and small fragments from environmental residues were not included in the analysis). Of these, 29 sherds were of Roman, medieval or post-medieval date. A total of 354 belonged to Late Neolithic or Early Bronze Age traditions. The remainder, and most substantial portion, of the assemblage, 4009 sherds, dated to the Late Bronze Age period. Overall there were 333 rim sherds, 251 base angles and 18 diagnostic wall profiles.

The Late Neolithic, Beaker and Early Bronze Age assemblage provides an important contribution to the local and regional corpora. The association of much of this material in sealed pit groups along with other contemporary finds categories such as flintwork is especially noteworthy. Several vessels were associated with a small quantity of highly calcined bone, which may represent a disturbed cremation deposit (see Section 2; 5 vessels from CG 79, context 1814).

The Late Bronze Age assemblage comes from a series of rich deposits in sealed context groups. It is one of the largest such assemblages excavated in the country and is of very great significance. It can be compared with the large assemblages from Reading Business Park (Moore and Jennings 1992: 7100 sherds), Green Park (Brossler, Early and Allen 2004: 3901 sherds), Aldermaston (Bradley *et al* 1980: 6849 sherds) and Brean Down (Bell 1990: 4425 sherds). The nearest sizeable group derives from Shorncote in Gloucestershire, and dates from slightly later within the Late Bronze Age period. Here, three phases of investigation of areas of Late Bronze Age activity have recovered 745, 794 and 290 sherds respectively (Hearne and Heaton 1994; Hearne and Adam 1999; Brossler *et al* 2002).

11.2 Methodology

The pottery was recorded by pro forma and data entered on an Excel spreadsheet by Robin Jackson, according to the Prehistoric Ceramics Research Group guidelines (PCRG 1992). The fabric and form series was established by both authors, and sherds representative of the main fabric groupings were analysed petrologically by Dr David Williams (Section 11).

All tabulations and graphs were prepared using Excel software by Robin Jackson (Tables 3-9; Figures 58, 76-79; and Appendix 1). The text was prepared by Ann Woodward with descriptions of the illustrated sherds and other contributions by Robin Jackson. Identification of some of the later Neolithic/Early Bronze Age pottery was facilitated by discussion with Dr Alex Gibson.

A very high proportion (86%) of the Late Bronze Age pottery derived from a series of pits and waterholes, which contained 100 or more sherds each (Table 3). Almost all of the prehistoric pottery was stratified, mainly in the pits and waterholes, but also in ditches, structural postholes, small pits and a ring-ditch. The distribution of Late Neolithic and Early Bronze Age material will be described below.

The Late Bronze Age pottery which came from groups of less than 100 sherds was deposited in the following types of context:

pit	7 instances	Average sherd weight	5g
posthole	6		4g
posthole or pit	3		4g (+ 1 at 20g)

pit/fence	1	6g
ditch	1	3g
tree throw	1	1g

11.3 Fabric

A series of 29 fabric types was defined macroscopically during the period of analysis. These were subsequently grouped into 13 categories, A to M, and 21 samples were submitted for petrological analysis (Section 11). Three of the groups (A to C) related to Late Neolithic and Early Bronze Age material while the remaining eleven groups (D to N) were Late Bronze Age in character.

The fabrics are described in outline, arranged by group, and with their proportional occurrence expressed as percentages of the total assemblage by sherd count (Figures derived from Appendix 1: Tables 1 and 2). The system of codes mainly derives from the Worcestershire County Council pottery fabric series, with site-specific sub-divisions and new codes added as necessary. Full descriptions for new fabrics have been produced by Derek Hurst and along with those few fabrics already recorded a full list is presented in Appendix 2.

Group A. Late Neolithic and Late Bronze Age (1%)
Fabric 5.8. Quartzite (1%)

Group B. Beaker (7%)
Fabric 5.3. Quartz sand and grog (3%)
Fabric 5.7. Quartz and limestone (2%)
Fabric 5.9. Quartz sand (1%)
Fabric 139. Grog (1%)

Group C. Early Bronze Age (1%)
Fabric 4.12. Shell and quartz (1%)
Fabric 5.13. Quartz sand (< 1%)

Palaeozoic limestone: small fragments, unidentifiable to sub-group: fabric 4.8 (1%)

Group D. Late Bronze Age: fine Palaeozoic limestone (5%)
Fabric 4.8.3. (3%)
Fabric 4.8.6. (2%)

Group E. Late Bronze Age: medium to coarse Palaeozoic limestone (8%)
Fabric 4.8.1. (5%)
Fabric 4.8.2. (3%)

Group F. Late Bronze Age: vesicular Palaeozoic limestone (7%)
Fabric 4.8.4. (7%)
Fabric 4.8.5. (< 1%)

Shell: small fragments, unidentifiable to sub-group: fabric 4.9 (7%)

Group G. Late Bronze Age: fine shell (9%)
Fabric 4.9.1. (9%)

Group H. Late Bronze Age: medium to coarse shell (19%)
Fabric 4.9.2. (16%)
Fabric 4.9.3 (3%)

Group I. Late Bronze Age: vesicular shell (11%)
Fabric 4.9.4. (11%)

Group J. Late Bronze Age: shell and grog (6%)
Fabric 4.7. (6%)

Group K. Late Bronze Age: fine sand (< 1%)
Fabric 5.10. (< 1%)

Group L. Late Bronze Age: sand and limestone (11%)
Fabric 4.10.1. (3%)
Fabric 4.10.2. (2%)
Fabric 5.11. (3%)
Fabric 5.12. (3%)

Group M. Late Bronze Age: shell and quartzite (1%)
Fabric 4.11. (1%)

Group N. Late Bronze Age: Igneous/metamorphic (?Dolerite) (< 1%)
Fabric 97 (indeterminate) (< 1%)

The petrological analysis provided confirmation of the main fabric groupings defined during the main programme of ceramic recording, and has produced information concerning the probable source of many of the types of inclusion encountered.

The inclusions in the Late Neolithic ware with quartzite filler possibly derived from Triassic sandstones, located west of the site. The Beaker fabrics contain varying mixtures of grog, local Triassic sandstone and local Jurassic shelly limestone. The Early Bronze Age fabrics include one with shelly limestone and grog and another with sand, mica and iron oxide inclusions which cannot be sourced with certainty.

The fabrics of the Late Bronze Age assemblage fall into two main groups, containing respectively Jurassic fossil shell (46% of the total assemblage) and Palaeozoic shelly limestone (21% of the total assemblage). There are also smaller quantities which contain grog as well as shell, or Triassic sandstone. In addition there is a small, but significant, proportion containing fine sand with mica flecks and iron oxide. Finally there is a small quantity (less than 1%) of material containing igneous or metamorphic rock inclusions, which matched neither the typical Malvernian or Doleritic wares (Derek Hurst pers comm).

11.4 Form

Very few upper vessel profiles and no complete sections could be reconstructed, so most aspects of form have been considered on the basis of rim and base morphology. A series of four profile types, three base angle forms and 13 rim types were devised. These apply to the Late Neolithic and Early Bronze Age material as well at to the major Late Bronze Age assemblage. In the absence of a local form series for such assemblages the coding system has been developed specifically for the Kemerton site and will hopefully form the basis for future work in Worcestershire. The percentage occurrences of the rim and base angle forms listed below represent the percentage of total rims in the assemblage, by number of sherds (see Appendix 1: Table 3). The main form types are illustrated in Figures 56 and 57.

Profile forms
P1 ovoid; eg Fig P1.1 and 5
P2 necked; eg Fig P1.3
P3 weak shoulder; eg Fig P1.9
P4 angular shoulder; eg Fig P4.29

Base angle forms
B1 simple; eg Fig P1.11; 32%
B2 expanded externally; eg Fig P6.52; 51%
B3 expanded externally with row of thumb-prints; eg Fig P1.12; 17%

Rim forms

R1 simple, vertical; eg Fig P1.1; 32%
R2 simple, flared; not illustrated; 7%
R3 flat top, grooved; not illustrated; <1%
R4 flat top, straight; eg Fig P1.2; 11%
R5 flat top, externally expanded, slight neck; eg Fig P1.3; 2%
R6 internal rim bevel; eg Fig P1.4 and 5; 14%
R7 hook rim; eg Fig P1.6-8; 20%
R8 everted, simple; eg Fig P1.9-10; 7%
R9 everted, piecrust; eg Figs P6a.47 and P10.75; 2%
R10 externally expanded, straight; not illustrated; <1%
R11 T-shaped, flat; eg Fig P10.76; 2%
R12 T-shaped, simple; eg Fig P6b.49; 1%
R13 flat top, internally expanded; eg Fig P6b.48; 2%

Where overall profiles could be determined they tend to be of simple ovoid outline. Necked vessels are very rare, except in the Beaker assemblage. The most common rim form is the simple straight variety R1. The next most common rims forms are the hook rim and internal rim bevel, R6 and R7; these are particularly characteristic of Late Bronze Age assemblages throughout the country. The only other rim form that occurs to a significant degree is the flat-topped straight category, R4. The base angle forms are dominated by the externally expanded varieties B2 and B3. Again these are found particularly within assemblages of Late Bronze Age date.

Form series (Figures 56 and 57)

1. Simple vertical rim, R1, fabric 4.9.1 (group G), context 2029, CG32
2. Straight rim with flat top, R4, fabric 4.9.1 (group G), context 511, CG18
3. Flat topped, externally expanded rim, slight neck, R5, decorated with diagonal incised lines on outer edge of rim, D12, and row of part perforations, D16, fabric 4.9.1 (group G), context 2029, CG32
4. Internal rim bevel, R6, with diagonal incised lines on top of rim, D11, fabric 4.8.2 (group E), context 1841, CG7
5. Rim with internal bevel, R6, decorated with a row of perforations, D15, fabric 4.9.4 (group I), context 1604, CG23
6. Hook rim, R7, decorated with fingertip or fingernail impressions on outer edge of rim, D2, fabric 4.10.2 (group L), context 1853, CG7
7. Hook rim, R7, with row of perforations, D15, fabric 4.8.4 (group F), context 1801, CG39
8. Hook rim, R7, fabric 4.8.3 (group D), context 511, CG18
9. Everted, simple rim, R8, with fingertip or fingernail impressions in neck, D3, weak shoulder, P3, fabric 4.9.4 (group I), context 1604, CG23
10. Everted, simple rim, R8, decorated with diagonal incised lines on top of rim, D11, fabric 4.7 (group J), context 1510, CG37
11. Simple base, B1, fabric 5.10 (group K), context 1801, CG39
12. Base angle expanded externally with row of thumb-prints, B3, fabric 4.8.1 (group E), context 1801, CG39

11.5 Decoration

A series of 19 decoration codes were used during the detailed recording of the assemblage. These have been divided into seven groups as listed below. The percentage occurrences are percentages of the total number of decorated sherds (Appendix 1: Table 4). The sum of the percentages exceeds 100% as some sherds carry more than one type of decoration.

Group A: finger impressions on rim
D1 Fingertip or fingernail impressions on top of rim. 3%
D2 Fingertip or fingernail impressions on outer edge of rim. 1%

Group B: finger impressions at neck and shoulder

D3 Fingertip or fingernail impressions in neck. 4%
D4 Fingertip or fingernail impressions on shoulder. 3%

Group C: impressed and incised motifs, mainly Beaker
D5 All over fingertip or fingernail impressions. 4%
D6 Whipped cord impressed 'maggots'. 1%
D7 Long rectangular tooth-comb impressions. 3%
D8 Short rectangular tooth-comb impressions. 9%
D9 Point tooth-comb impressions. 2%
D13 Incised linear motifs. 11%
D14 Stab and drag. <1%
D21 Stabbed dots <1%

Group D: incised decoration on rim
D11 Diagonal incised lines on top of rim. 2%
D12 Diagonal incised lines on outer edge of rim. 1%

Group E: perforations executed prior to firing
D15 Row of perforations. 18%
D16 Row of part perforations. 7%

Group F: finger finishes
D10 Shallow finger grooving. 8%
D17 Finger smearing. 5%
D18 Smoothed surface. 7%
D19 Fine line smearing. 15%

Group G: applied decoration
D20 Applied cordon. 1%

The main concentration of decoration occurred on the Beaker sherds. Amongst these the most common technique of decoration utilised is short rectangular tooth-comb impressions. Within the Late Bronze Age assemblage the most common decorative types involved rows of perforations and various finger applied surface finishes. Finger impressed decoration in rim, neck or shoulder locations is relatively rare.

11.6 Form and fabric

Detailed tabulations displaying the correlations by number of sherds and weight between form and fabric, form and decoration, and between form, decoration and sherd thickness were prepared (Table 4; Appendix 1: Tables 5-8). Considering the whole assemblage as a single group, there are no clear correlations between any particular fabric groups and form types (Appendix 1: Table 5), or between fabric groups and styles of decoration (Appendix 1: Table 6), apart from the concentration of comb-decorated techniques within the Beaker fabric group, B. Most types of decoration occurred on vessels with a wide range of rim, base and profile forms, but a few types did show strong patterning (Table 4). Fine line smearing, D19, occurred particularly on simple bases, B1, while fingertip impressed styles of decoration, D1-4, were strongly correlated with shouldered profiles, P3, and with internally bevelled and hooked rims, R6 and R7. There was no clear variation in sherd thickness amongst the specific rim, profile and base forms (Appendix 1: Table 7) or types of decoration (Appendix 1: Table 8).

11.7 Deposition and use

The degree of abrasion of the pottery was recorded using three categories: fresh, slightly abraded and very abraded. Overall, most of the pottery was only slightly abraded (71%), with 21% highly abraded and only 4% in fresh condition (Table 5). This may indicate that the

pottery was broken and deposited, perhaps in a midden, for a short period of time, prior to the deposition of the fragments in the pits and waterholes. The average sherd weight of fragments from the waterholes varied from 3g to 12g, with an average value of 7g (Table 3). These results are slightly higher than those obtained for Late Bronze Age pottery from small pits, postholes, ditches and tree throws, which were listed above. This again may suggest that the pottery in the waterholes and large pits possessed a different life history than the general settlement debris.

Where pit fills were separately excavated or where section drawings were produced following rapid half sectioning, it was evident that the upper (secondary) fills contained the bulk of the pottery and other finds, often along with large quantities of burnt stone. In contrast, the silty lower (primary) fills and slumping deposits contained few finds with the notable exception of the presence in at least two of the large waterholes (CG6, context 1840; and CG7, contexts 1841 and 1855) of substantial chunks of vessel bases which may have served to scoop up water.

Blackened deposits representing either sooting or more probably burnt food residues were commonly recorded on the internal surfaces of vessels. They occurred on 26% of the pottery by sherd count (Table 6). This was fairly common amongst the two main fabric types, shell and Palaeozoic limestone, and there was no significant difference between the finer and coarser versions of these fabrics. However, there was a tendency for the finer fabrics, belonging to groups D, K and L, not to display evidence of such residues (Table 6). The presence or absence of these residues was not significantly correlated with any particular form types (Appendix 1: Table 9), but a plot of the percentage occurrence of residues against rim diameter, which is a good indication of vessel capacity, show that these occurred mainly on vessels of larger size (Fig 58). Although detailed recording of the location of these deposits on the interior of the vessels was not undertaken, a notably high proportion of base sherds (40% by count) exhibited internal residues. In conjunction with the observation that finer fabrics generally did not have residues, this suggests that the use of the larger vessels in the coarser, main fabric types was for food preparation. Interestingly, although not formally recorded, external sooting was not apparent on many vessels and this may indicate use of 'pot boilers' to heat food rather than placement directly over a fire, a suggestion supported by the large quantities of burnt stone present in the pit fills associated with the majority of the pottery. A similar conclusion has been drawn for the Late Bronze Age assemblage from Green Park (Reading Business Park), although at that site internal residues were also uncommon (Morris in Brossler, Early and Allen 2004, 69).

11.8 The Beaker assemblage

Groups of Beaker sherds were found in the main features dated to this period, three closely spaced pits (CG12, CG13, and CG42; Table 7). Smaller groups of abraded fragments were found also in a series of postholes and small pits, and, in addition, there were residual sherds from some of the Late Bronze Age pits and waterholes.

Decorated Beaker sherds were found in Late Bronze Age contexts 2032 (CG4) and 1848 (CG7): these are illustrated below along with the main vessels represented in the major groups. A plain rim sherd was found in a posthole of probable Beaker date (context 1816, CG84). Here there were two flat-topped rim sherds and two wall sherds with three different fabrics represented. Plain wall sherds apparently in Beaker fabrics were recovered from several small pit/posthole features, which are also considered liable to be Beaker in date (contexts 1210, CG82; 1705, CG85; 1823, CG83; 2055, CG94; and 2110, CG95). Further probable plain wall sherds were recorded in several Late Bronze Age contexts, both from larger pits (1103, 1438, and 1517), and smaller pits or postholes (context 1604, 1708 and 2042). Several sherds were also recovered from a cleaning layer (context 1828) and as unstratified material (1856).

Context 2043, CG12 (Fig 59)

1. 4 rim sherds and 13 decorated wall fragments from a vessel with simple flared rim, R2, decorated with short rectangular tooth-comb impressions, D8, forming zones of parallel horizontal lines and lattice. Fabric 5.3 (group B)
2. 2 rim sherds and 17 decorated wall fragments from a vessel with a simple flared rim, R2, decorated with incised linear motifs, D13, forming rough horizontal lines apparently arranged in several irregular zones. Fabric 139 (group B)
3. Single simple, flared rim sherd decorated with incised linear motifs, D13. Fabric 139 (group B)
4. 2 decorated wall sherds with two incised horizontal linear motifs, D13, with stabbed dots, D21, above and below,. Fabric 5.3 (group B)
5. 2 decorated wall sherds from a vessel with short rectangular tooth-comb impressed overlapping multiple chevrons, D8, and incised linear motifs, D13, forming two horizontal lines with lattice below. Fabric 5.3 (group B)
6. 3 decorated wall sherds from a vessel with short rectangular tooth-comb impressions, D8. Fabric 5.3 (group B)
7. 2 decorated wall sherds from a vessel with long rectangular tooth-comb impressions, D7, forming two distinct zones of horizontal lines. Fabric 5.3 (group B)
8. 1 decorated wall sherd from a vessel with whipped cord impressed 'maggots', D6, arranged in horizontal lines. Fabric 139 (group B)
9. Entire base, in 6 pieces, possibly from the same vessel as 2 above, simple base angle form, B1, centre of base raised. Fabric 139 (group B)
10. 2 simple base angle sherds, B1, possibly from the same vessel as 1 above. Fabric 5.3 (group B)
11. 4 simple base angle sherds, B1, probably from the same vessel as 6 above. Fabric 5.3 (group B)
12. 2 simple base angle sherds, B1. Fabric 5.7 (group B)

Context 2043 contained fragments from a minimum of eight different fineware vessels.

Context 2046, CG13 (Fig 60)

13. 1 rim sherd from a vessel with a simple flared rim, R2, with short rectangular tooth-comb impressions, D8, forming a zone of horizontal lines and a single chevron below the rim. Fabric 5.3 (group B)
14. 1 decorated wall sherd from a vessel with point tooth-comb impressions, D9. Fabric 5.3 (group B)
15. 1 decorated wall sherd from a vessel with incised linear motifs, D13, forming three horizontal lines and a rough chevron motif below. Fabric 5.9 (group B)

Context 2047, CG42 (Fig 60)

16. 8 decorated wall sherds from a vessel with short rectangular tooth-comb impressions, D8; motifs include horizontal lines and single chevron. Fabric 5.3 (group B)
17. 3 decorated wall sherds from a vessel with incised linear motifs, D13, forming multiple discontinuous chevrons. Fabric 5.3 (group B)

Not illustrated: 1 plain rim sherd and a wall sherd, decorated with a horizontal line and chevron in point tooth comb technique. Fabric 5.9 (group B).

Other contexts (Fig 60)

18. 1 rim sherd and 1 base angle from a very fine vessel with an everted, simple rim, R8, and a simple base angle form, B1. Fabric 5.7 (group B), context 2032, CG4
19. Decorated rim sherd from a thick-walled domestic vessel with an everted, simple rim, R8, all-over fingertip or fingernail impressions, D5, and diagonal incised lines on outer edge of rim, D12. Fabric 4.9.2 (group H), context 1848, CG7

11.9 Neolithic (Fig 61)

A single pit (context 1520) produced a number of sherds from different vessels of probable Neolithic date, while later Neolithic sherds from a single vessel were recovered as residual material in a Late Bronze Age pit (context 1801, CG39).

20. A single unabraded rim sherd from a plain vessel was found in Late Bronze Age context 1801, CG39. Grooved Ware. The tapered rim is from a globular vessel with a rim diameter of 180mm. The shape of the rim conforms best to Longworth's form 23 (Wainwright and Longworth 1971, 57, fig 20) and the soapy fabric with grog and some calcareous material (fabric 5.7), in this case limestone, is typical for this style of late Neolithic pottery. 18 wall sherds in a similar fabric were also present and probably represent further elements of this vessel

Context 1520 (CG38)

21. Wall sherd from rounded shoulder vessel with all over randomly executed fingernail decoration, D5. Fabric 5.8 (group A), context 1520, CG38. Tradition indeterminate, but probably Neolithic. A close parallel is present in the assemblage from Runnymede Bridge (Longworth and Varndell 1996, 100 and fig 58.NP68); this was tentatively ascribed to the Peterborough Ware tradition of the Middle Neolithic.
22. Two angular shoulder sherds, P4, fabric 5.9 (group A), context 1520, CG38
23. Three wall sherds, fabric 5.8 (group A), context 1520, CG38. Tradition indeterminate, but possibly Early or Middle Neolithic on the grounds of form and fabric.

11.10 The Early Bronze Age assemblage

Pottery of Early Bronze Age date was found in two features only. One context (1814) was a recut in the ring ditch CG79; this contained the upper part of a small accessory vessel and was associated with cremated bone. The other material, fragments from a larger urn, was found in two different contexts (1836 and 1837) within a Late Bronze Age feature CG6.

Figure 62

24. Upper portion, in 12 joining pieces, from an accessory vessel with a flat rim and a slightly ovoid profile. The deeply incised decoration comprises diagonal lines, possibly forming an irregular chevron design, below a single horizontal line. Fabric 5.9 (group B). Context 1814, CG79
25. Thick-walled plain rim sherd with an internal bevel, R6, diameter indeterminate. Fabric 4.12 (group C). Context 1837, CG6
26. Sharply angled plain shoulder sherd from a thick-walled vessel, probably the same as 25. Fabric 4.12 (group C). Context 1836, CG6

11.11 The Late Bronze Age assemblage

The major rim and base forms have been illustrated and described above (Figs 56 and 57). In order to give an impression of the nature and variety of the individual groups of pottery from the large pit or waterhole assemblages further sets of vessels are illustrated below by context group.

Context Group 1 (Figs 63 and 64)

27. 16 sherds from a vessel with internal rim bevel, R6, and externally expanded base, B2, fabric 4.9.1 (group G), context 1830
28. Vessel rim with internal bevel, R6, with fingernail impressions on top of rim, D1, fabric 4.9.4 (group I), context 1830
29. 2 sherds from a vessel with a rim with internal bevel, R6, and row of perforations, D15, fabric 4.8.4 (group F), context 1830

30. 2 sherds from a vessel with a rim with internal bevel, R6, and row of perforations, D15, fabric 4.9.4 (group I), context 1830
31. 3 rim sherds and 2 decorated wall sherds from a vessel with an internal rim bevel, R6, and a weak shoulder, P3. The shoulder has a row of fingernail impressions on it, D4, with shallow finger grooving just above, D10. Fabric 4.8.4 (group F), context 1830
32. 3 rim sherds from a hook rimmed vessel, R7, fabric 4.8.4 (group F), context 1830
33. 5 sherds from a hook rimmed vessel, R7, with a row of perforations, D15, fabric 4.9.4 (group I), context 1830
34. 3 sherds from a hook rimmed vessel, R7, with a row of perforations, D15, fabric 4.9.4 (group I), context 1830
35. Single body sherd, decorated with an incised linear motif, D13, fabric 4.8.6 (group D), context 1830
36. 5 sherds from a vessel with an externally expanded base, B2, fabric 4.8.6 (group D), context 1830
37. 2 sherds from a vessel with an externally expanded base, B2, fabric 4.8.4 (group F), context 1830

Context Group 4 (Figs 65 and 66)

38. 2 sherds from a vessel with a simple, hook rim, R7, fabric 4.9.4 (group I), context 2032
39. Single sherd from a vessel with simple, vertical rim, R1, decorated with diagonal incised lines on outer edge of rim, D12, and row of perforations, D15, fabric 4.9.2 (group H), context 2032
40. 3 sherds from a vessel with a rim with an internal bevel, R6, and fingertip impressions on top of rim, D1, fabric 4.9.1 (group G), context 2032
41. Single sherd from a vessel with a rim with an internal bevel, R6, decorated with vertical shallow finger grooving, D10, a row of part perforations, D16, and diagonal incised lines on outer edge of rim, D12, fabric 4.9.2 (group H), context 2032
42. 2 sherds from a vessel with an everted, simple rim, R8, with stab and drag decoration immediately below rim, D14, fabric 4.9.2 (group H), context 2032
43. 8 sherds from a vessel with an externally expanded base, B2, fabric 4.9.4 (group I), context 2032
44. Single sherd from a vessel with an externally expanded base with row of thumb prints, B3, fabric 4.9.2 (group H), context 2032

Context Group 6 (Figs 67, 68 and 69)

45. 6 sherds from a vessel with a simple, vertical rim, R1, fabric 4.9.1 (group G), context 1836
46. Single rim sherd with internal bevel, R6, with fingertip or fingernail impressions on top of rim, D1, fabric 4.9.2 (group H), context 1836
47. Sherd from hook rimmed vessel, R7, with row of part perforations, D16, fabric 4.10.2 (group L), context 1836
48. Single sherd from vessel with a hook rim, R7, decorated with fingertip or fingernail impressions on its outer edge, D2, fabric 5.11 (group L), context 1836
49. 2 sherds from a vessel with an everted piecrust rim, R9, with a row of part perforations, D16, fabric 4.9.2 (group H), context 1836
50. 2 sherds from a vessel with a flat topped, internally expanded rim, R13, fabric 4.9.1 (group G), context 1836
51. 2 sherds from a vessel with a simple, T shaped rim, R12, decorated with row of perforations, D15, fabric 5.11 (group L), context 1836
52. Single sherd from a vessel with a flat topped, internally expanded rim, R13, fabric 5.11 (group L), context 1836
53. 19 sherds from a vessel with an externally expanded base, B2, fabric 4.8.1 (group E), context 1840
54. 5 sherds from a vessel with an externally expanded base, B2, fabric 4.9.2 (group H), context 1840

55. 5 sherds from a vessel with an externally expanded base with row of thumbprints, B3, fabric 4.9.1 (group G), context 1837

Context Group 7 (Fig 70)

56. Single sherd from a vessel with a simple vertical rim, R1, fabric 4.9.2 (group H), context 1834
57. Single sherd from a vessel with a flat topped, grooved rim, R3, decorated with incised linear motifs, D13, below the rim, fabric 4.8.3 (group D), context 1834
58. Single wall sherd from a vessel with incised linear motif decoration, D13, forming filled triangles, fabric 5.10 (group K), context 1853
59. 11 sherds from a vessel with a (?) simple base form, B1, and vertical fine line smearing, D19, fabric 4.8.3 (group D), context 1834
60. 4 sherds from a vessel with an externally expanded base, B2, fabric 4.9.2 (group H), context 1834
61. Sherd from a vessel with an externally expanded base, B2, fabric 4.8.2 (group E), context 1834

Context Group 8 (Fig 71)

62. Sherd from a vessel with a simple vertical rim, R1, fabric 4.8.4 (group F), context 1103
63. Sherd from a vessel with a simple vertical rim, R1, fabric 4.9.2 (group H), context 1103
64. Sherd from a vessel with a flat topped, straight rim, R4, decorated with a row of perforations, D15, fabric 4.9.2 (group H), context 1103
65. 2 sherds from a vessel with a hook rim, R7, fabric 4.8.4 (group F), context 1102
66. Sherd from a vessel with an externally expanded base, B2, fabric 4.9.2 (group H), context 1103

Context Group 9 (Figs 72 and 73)

67. 5 sherds from a vessel with a simple vertical rim, R1, fabric 4.8.1 (group E), context 1111
68. 4 sherds from a vessel with simple vertical rim, R1, fabric 4.8.2 (group E), context 1111
69. 5 sherds from a vessel with a simple vertical rim, R1, decorated with row of part perforations, D16, and incised linear motifs, D13, fabric 4.8.1 (group E), context 1111
70. 2 sherds from a hook rimmed vessel, R7, decorated with diagonal incised lines on top of rim, D11, fabric 4.9.2 (group H), context 1111
71. 2 sherds from a hook rimmed vessel, R7, decorated with vertical finger smearing, D17, fabric 4.9.2 (group H), context 1111
72. 4 sherds from a hook rimmed vessel, R7, decorated with fingertip or fingernail impressions on top of rim, D1, fabric 4.9.1 (group G), context 1111
73. Wall sherd from a vessel decorated with fine line smearing, D19, fabric 4.8.6 (group D), context 1111

Context Group 10 (Fig 74)

74. 2 sherds from a vessel with a flat topped, straight rim, R4, fabric 4.8.4 (group F), context 2010
75. 2 sherds from a vessel with a rim with an internal bevel, R6, fabric 4.11 (group M), context, 2010
76. Single sherd from a vessel with a rim with internal bevel, R6, decorated with a row of perforations, D15, fabric 4.10.2 (group L), context 2010
77. 2 sherds from a vessel with an everted piecrust rim, R9, with row of perforations, D15, and vertical shallow finger grooving, D10, fabric 4.10.2 (group L), context 2010
78. 5 sherds from a weak shouldered vessel, P3, with a T-shaped flat rim, R11, fabric 5.12 (group L), context 2010

79. Single sherd from a vessel with an externally expanded base, B2, probably from the same vessel as 78 above, fabric 5.12 (grou0 L), context 2010

Context Group 25 (Fig 75)

80. Single sherd from a vessel with a simple, vertical rim, R1, decorated with a row of part perforations, D16, fabric 4.10.2 (group L), context 1216
81. Single sherd from a vessel with a flat topped, straight rim, R4, fabric 4.9.2 (group H), context 1216
82. 5 sherds from a vessel with a rim with internal bevel, R6, decorated with a row of perforations, D15, fabric 4.9.4 (group I), context 1216

Indeterminate vessel from Context Group 4 (Fig 75)

83. 7 sherds from a small cup with a simple, vertical rim, R1, decorated on the exterior with random fingernail impressions, D5, fabric 5.13 (group C), context 2032

The pieces of this small vessel in a distinctive sandy fabric were very abraded. It was initially thought to be an Early Bronze Age accessory cup, occurring as residual material within its Late Bronze Age context. Although it might belong to Longworth's group 7 Trunco-Conic Cups (Longworth 1984, 52), no convincing parallels for the tall profile indicated for the Kemerton item appear to exist. An alternative possibility might be that the vessel is a fine cup of Late Bronze Age date, similar to two examples from Aldermaston, one of which also carries fingernail impressions, but on the interior surface (Bradley *et al* 1980, figs. 11, 11 and 14, 56F). However, if this were the case, it was more abraded than the rest of the Late Bronze Age pottery from Context Group 4, and therefore may still have been a residual item, or perhaps an heirloom.

11.11.1 The major Late Bronze Age context groups

In order to study the series of larger context group assemblages in more detail, data from such groups was tabulated separately (Appendix 1: Tables 10-14). For those groups which contained more than 100 sherds, the main results, by sherd count only, are presented in summary form in Table 8.

Considering fabric first, it can be seen that various concentrations of the different fabric groups occur amongst the large assemblages. There is much vesicular pottery (groups F and I) in CG1 and CG10 only. This may be a reflection of localised chemical soil conditions which have leached out the calcareous inclusions, a suggestion supported by the failure due to leaching of bone sampled for radiocarbon dating from CG10. CG4 shows a large concentration of medium to coarse shelly ware (group H), while CG6 has more fine shelly pottery (group G) as well as quartz/limestone and shell/quartzite mixtures. By contrast, almost all of the pottery with shell and grog inclusions comes from CG91, which, on the form data discussed below, is a feature of rather later date.

Nearly all the large context group assemblages contained more fragments from rims than bases, with only CG7 having a predominance of base angles. Rims of simple (R1) and flat (R3, R4) form appear to have occurred fairly evenly across the groups. However three groups, CG1, CG4 and CG6 have high incidences of internally bevelled and hooked rims (R6, R7) and also of rows of perforations or part-perforations (D15, D16). As seen previously, these two characteristics of rim form and decoration are positively correlated. But in CG17 a high occurrence of perforations is associated with a relatively high level of flared rims (R2), which may be a later trait. Incised rim treatments (D11, D12) occur particularly in CG7 and CG10. The most divergent assemblage is that from CG91 which is characterised by a different array of fabric types (see above) and by a set of different form attributes. These include all the examples of P3 sharp shoulders, nearly all of the necks and

shoulders bearing fingertip impressions, as well as several everted rims and those with piecrust treatment (R8, R9). All these features are found in decorated assemblages which are dated to the later stages of the Late Bronze Age period (Barrett 1980). These late features also occur sporadically in some of the other context groups. For instance, CG4 includes everted or piecrust rims and finger-tipped neck or shoulder sherds, and occasional late types also occur in CG1, CG6, CG10 and CG17. However all the groups except CG91 are dominated by plainware assemblages, with a particular emphasis on the hook or bevelled rim jars carrying a row of perforations or part perforations below the rim.

11.11.2 Vessel size

No complete vessel profiles were recovered, but a fair impression of the variety of vessel sizes represented can be obtained by considering the ranges of rim diameter and base diameter measurements. The overall range of rim diameter variation is shown, for individual sherds in Figure 76 (see also Appendix 1: Figure 1 for minimum numbers of vessels). The distribution appears to be unimodal in form, with a peak at the 160mm level. In Figure 77 the same data is broken down according to the major rim form categories. Simple rims and the hooked and internally bevelled types occur in all rim diameter size ranges, but the flat, expanded and T-shaped forms are confined to vessels with medium to large rim diameters, with none falling below 140mm. There is little correlation between vessel size, as indicated by rim diameter, and styles of decoration (Appendix 1: Figure 2). The clearest pattern to emerge is for incised decoration (Group C), which occurs on pots of small to medium size. However, these rims mainly derive from Beakers in the later Neolithic/Early Bronze Age assemblage. Fingertip embellished rims (Group A) are fairly evenly distributed amongst pots of small, medium and large size, and finger finishes are also found on vessels of varying size. The rows of perforations (Group E) however display a tendency towards occurrence on larger vessels, with a marked preference for vessels of rim diameters between 220 and 240mm. The three forms of base angle all occur widely within the overall range of base diameters (Figure 78), but the peaks may suggest that the externally expanded forms, with or without thumb printing, B2 and B3, occur more often on larger vessels; certainly the smallest groups, with rim diameters between 30 and 80 mm, mainly possess bases of simple form, B1.

In many cases there are not enough rim sherds from each major context group to allow meaningful comparisons of rim size ranges between the groups to be attempted (Appendix 1: Figure 3). However, the histograms for CG1, CG4, CG6, CG7, CG9 and CG91 can usefully be considered (Figure 79). CG1 and CG4 show fairly even ranges of rim diameter measurements, but the histogram for CG7 shows a tendency towards more small vessels, CG6 to medium vessels and CG9 to large ones. The pattern of rim diameter recorded for CG91, which is the group containing the later decorated assemblage, shows a much tighter grouping of vessels mainly with middle-sized rim diameters.

11.12 Discussion

The assemblage of prehistoric pottery from Kemerton is important in several ways. The substantial and well preserved group of Late Bronze Age vessels provides a significant contribution to the national corpus of such assemblages and the occurrence of such a considerable number of large sealed groups is particularly unusual. In addition, the smaller groups of Neolithic and Early Bronze Age pottery have the potential to cast further light on ceramic periods which are not well known or understood within the county.

11.12.1 Neolithic

The single rim sherd of Grooved Ware is an important find in regional terms. Very little Grooved Ware is yet known in the area. The only other piece of pottery belonging to this Late Neolithic tradition within the county of Worcestershire known to the author is a grooved wall sherd, in a shelly fabric, from the nearby site of Aston Mill, Kemerton (Dinn and Evans 1990, fig 16,1). The various sherds from context 1520 may belong to an earlier period of the

Neolithic; the most diagnostic piece may be from a Middle Neolithic Peterborough Ware bowl. Pottery of this tradition is also probably represented at Aston Mill (ibid, fig 16.2).

11.12.2 **Beaker**

The Beaker fine wares display rim and body profiles, and schemes of decoration, which are matched amongst vessels of the Wessex/Middle Rhine type as defined by Clarke (1970). This can clearly be demonstrated by consideration of the two vessels, both from CG12 (Fig 59.1 and 2), which are best represented in the fragmentary sherd assemblages. The first has an outward flaring rim with a plain zone just below. The decorative scheme, which is executed by a comb with short rectangular teeth, includes zones of parallel horizontal lines and herringbone pattern. These designs are typical of Clarke's Basic European Motif Group 1 (Clarke 1970, 424-5) and commonly occur on the tall vessels with flaring rims typical of his Wessex/Middle Rhine group. The tall profile of the second (Fig 59.2), with its pronounced neck and flaring rim is also typical of the Wessex/Middle Rhine type. The incised decoration is more unusual, but does occur on Beakers of this type, for instance on a large vessel from Fengate (Clarke 1970 no. 641, fig 229). Wessex/Middle Rhine Beakers are traditionally dated to a fairly early stage within the currency of Beakers and were included in Case's Middle Style (Case 1977). However, recent reassessment of the available radiocarbon dates and detailed contextual studies have indicated that a simple unilinear pattern of stylistic development is unlikely to have taken place, and that a much more complex situation, with significant chronological variation by region, probably existed (Case 1993). Case redefined his former Early, Middle and Late Styles as Styles 1, 2 and 3, each of which may occur at different times in the various regions. The Wessex/Middle Rhine tradition belongs to Case's Group D, which is Style 2 in the Midlands, Wessex and Wales and spans the third, and possibly fourth, quarter of the third millennium (Case 1993, 260-3).

Most of the Beakers from the counties of Worcestershire and Gloucestershire, as listed by Clarke, belong to his developed Northern and Southern Series, previously dated to the later stages of the Beaker tradition. However, a pair of Wessex/Middle Rhine Beakers which bear a remarkable similarity to the two best preserved vessels from Kemerton were found very close by on Bredon Hill (Thomas 1965). The two Beakers came from the successive burials of a man and a woman under a barrow near to the Bredon Hill hillfort; interestingly this barrow would have been intervisible with the site at Huntsman Quarry. Both vessels included fragments of grog. The larger vessel was decorated with zones of horizontal lines in square tooth comb impressions below a collared rim, whilst the slightly smaller vessel was decorated with a design of widely spread lines reminiscent of the pattern of vessel 2 from Kemerton, but executed in a comb rather than an incised technique (Thomas 1965, pl 2 and fig 3). The Bredon Hill Beakers were dated to an early stage of the Wessex/Middle Rhine phenomenon by Clarke (in Thomas 1965, 68-70). The rich grave assemblage more recently excavated at Wellington Quarry, Marden in Herefordshire, with its fine intact Wessex/Middle Rhine Beaker of Group D, also belongs to this same early chronological horizon (Harrison *et al* 1999).

It is very unlikely that the Kemerton Beakers derived from burials: they occur in very fragmentary condition and are associated with the remains of larger and thicker-walled vessels, some decorated with rusticated techniques, which are typical of contemporary assemblages of domestic pottery. For instance, the rim with all-over fingertip impressions is from a vessel similar in size and shape to that from Witton in Norfolk (Bamford 1982, fig 44a) although the fingertip impressions on the Witton pot are paired. In Worcestershire, occasional sherds found on sites of later date may represent further domestic Beaker sites, as at Aston Mill, Kemerton where one sherd from an Early Style vessel decorated with all-over cord impressions was identified (Dinn and Evans 1990, fig 16.5), or Beckford where five abraded sherds, all from different contexts, were mostly comb-decorated and of Style 2 or 3 type (Woodward undated**).** At Holt, on ring ditch Site B, a pit group was recovered, but its stratigraphic relationship to the ring ditch could not be determined. This sherd group contained fineware rims and rusticated domestic wares (Hunt *et al* 1986, 14-16 and fig 13). Amongst a total of 91 sherds, three fine ware and four coarse vessels were represented.

Formal features suggested an early date within the Beaker sequence, and again it is possible to suggest that this group may have belonged to Group D.

A similar group of domestic Beaker pottery from an isolated oval pit at Longmore Hill Farm, Astley comprised 125 sherds, representing a minimum of six fine Beakers and 11 coarse ware vessels. Once more the group was stylistically early, probably dating from the second quarter of the third millennium BC (Dinn and Hemingway 1992). Further small assemblages of domestic Beaker pottery are also known from Shropshire. These include material from a possible hearth at Rock Green, Ludlow (Carver and Hummler 1991, 92 and fig 35), fragments of between three and five domestic vessels within a shallow pit (F263) beneath barrow B15 at Bromfield (Hughes, Leach and Stanford 1995, fig 7) and redeposited sherds from pits north of the Bromfield Bronze Age urn cemetery (Stanford 1982, 288-9 and fig 5). In the latter case, the general character of the assemblage yet again indicates an early date, in line with the vessel parallels cited by Stanford from Thickthorn, Dorset (Clarke's European type) and from Bulford, Wiltshire (Wessex/Middle Rhine).

Domestic Beaker assemblages containing vessels of definite Wessex/Middle Rhine style are very rare, and the Kemerton group provides important new information in this respect. The only other significant published assemblage of similar type is that from Dean Bottom on the Marlborough Downs in Wiltshire (Cleal in Gingell 1992, 62-67). This comprised a large group of 280 sherds representing a minimum of 20 vessels; most of the material came from a single pit. The sherds were in fresh condition and may have derived from a midden deposit. As at Kemerton, vessels with comb decoration were mixed with plain Beakers and vessels with rusticated fingertip treatments, but the vessels at Dean Bottom were not so varied in size. The weighted mean of two radiocarbon dates from Dean Bottom gives a range of 2484-2130 cal BC. A further range of pit deposits containing large fragments from Group D vessels, including both fine and coarse wares, have also been excavated at Bestwall Quarry, Wareham in Dorset (Woodward in prep).

11.12.3 Early Bronze Age

The accessory cup from a secondary context in the ring ditch (CG79) is of a common Early Bronze Age type. It belongs to the bowl-shaped Type 9d defined by Longworth (1984, 52-3), which is characterised by simple convex or ogee sides and a flat base. The flat rim and body profile of the Kemerton vessel is best matched on the cup from Acklam Wold, Yorkshire (Longworth 1984, pl 176d), although that is decorated with fingernail and cord impressions.

The incised geometric decoration is well matched by that occurring on the cup from Site E at Holt (Hunt *et al* 1986, fig 14 and pl 4). This cup, with its internal rim bevel and double perforation, is a typical example of the class as a whole. The fragments of plain rim and shoulder from an Early Bronze Age urn, found as residual items in CG6, probably come from a vessel of Collared type. Collared Urns occur only rarely in Worcestershire or in Gloucestershire. The fine group from Holt mainly comprises decorated vessels belonging to Longworth's Primary Series, but one is plain (Hunt *et al* 1986, fig 14.8), and plain examples in shapes typical of both the Primary and Secondary Series are known from the Cotswolds in Gloucestershire (Lower Slaughter: Longworth 1985, pl 75d and Farmington: Longworth 1984, pl 160f).

11.12.4 Later Bronze Age

The considerable importance of the Late Bronze Age assemblage lies mainly in its large size and the internal variety of its formal and depositional characteristics. These aspects have been dealt with fully in the descriptive sections of this report. It now remains to discuss this material in relation to other groups of similar date from the region, and to some related pottery from sites further afield. Within the Severn and Cotswolds areas there are fairly substantial assemblages of Late Bronze Age pottery from Brean Down, Somerset (Woodward in Bell 1990, Ch 11) and Shorncote in Gloucestershire (Morris in Hearne and Heaton 1994,

34-43; Mepham 1999, 58-63; Brown 2002, 64-6). Both these assemblages contain material which could be assigned to the successive plainware and decorated stages of Late Bronze Age ceramics and at Shorncote, as at Kemerton, there is evidence to suggest that most of the decorated material may have derived from specific and later features on the site (for Shorncote, see Hearne and Heaton 1994, 42). A general date of the ninth century BC was preferred by Morris for the Shorncote assemblage. At Brean Down there were three radiocarbon dates obtained for the Late Bronze Age deposits, but two may have related to residual charcoal, and only one gave a date within the expected range of the eleventh to ninth centuries. The series of radiocarbon dates obtained for the Kemerton assemblages (Section 7) suggests that the ceramics were used and deposited *between 1140-1010 cal BC* and *1050-960 cal BC (95% probability)* or *1091-1020 cal BC* or *1030-990 cal BC (68% probability).* They were in use for between *1 and 160 years (95% probability)* or *1 and 80 years (68% probability).* Thus the Kemerton pottery falls very firmly within the earlier plainware period of the Late Bronze Age, which is now thought to have been current between *c* 1000BC and *c* 800BC (Needham in prep). Furthermore it can be seen that the Kemerton material appears to have been used and deposited at the very beginning of this stage, around if not before 1000BC.

The fabrics of Late Bronze Age pottery in Somerset, Wessex and the Thames valley are all characterised by prominent angular inclusions of pale-coloured materials: calcite in the west and flint further to the east. At Shorncote and Kemerton, the preferred inclusions are derived from Jurassic shelly limestone, again pale and conspicuous in colour, but much softer. At Shorncote, as in the other areas mentioned above all the fabrics contain inclusions that could have been obtained near to the sites, so the significant occurrence of Palaeozoic limestone fabrics and occasional presence of metamorphic/igneous types at Kemerton, is highly unusual and of extreme significance. Although there are a few other instances of non-local fabrics amongst certain other Late Bronze Age, and earlier, assemblages elsewhere in the country (Morris 1994, 374), this is the first time that the local Severn valley tradition of using rocks from specific sources that become common from the Middle Iron Age period onwards has been documented at such an early period. This tradition was first defined by Peacock (1968) who provides mapping of the probable source areas for the main rock type concerned, Palaeozoic limestone (his Group B1; ibid, fig 2). These lie between 22 and 35 km west of the site at Kemerton. The metamorphic/igneous inclusions identified at Kemerton are not readily matched within Peacock's Group A pottery group, which contains Pre-Cambrian rock from the Malvern Hills, and many seem closer in appearance to inclusions found in the Bromfield pottery of south Shropshire and identified as doleritic (Stanford 1982; Derek Hurst pers comm). However, such inclusions would certainly have come from a distant source. Interestingly, at Shorncote the fairly low but significant occurrence of grog fabrics (8%) correlated with the later decorated vessel forms (Morris in Hearne and Heaton 1994, 42). A similar correlation has been established at Kemerton where the shell and grog fabrics are confined almost entirely to the later group from CG91.

Many of the Kemerton rim forms correlate with those defined for the Shorncote and Brean Down assemblages. Thus Kemerton forms R1, R2, R6, R7 and F8 can be matched by Shorncote forms R1, R2/R6, R5/R7, R3 and R4 respectively. When percentage occurrences of rim forms are compared with the larger assemblage from Brean Down (Woodward in Bell 1990, 138), it can be seen that simple, flared and internally bevelled rim forms occur in roughly similar proportions. However, flattened rims are more common at Brean Down. A similar range of rim types also occur at Combe Hay, Somerset (Price and Watts 1980, fig 24), and within the large plainware assemblages from the Thames valley, such as Aldermaston Wharf (Bradley *et al* 1980) and Reading Business Park (Moore and Jennings 1992; Brossler *et al* 2004), both in Berkshire. The nearest Thames valley site which has produced a Late Bronze Age plainware assemblage of this type is Roughground Farm, Lechlade, Gloucestershire (Hingley in Allen *et al* 1993, fig 23). There are in addition two formal characteristics that occur significantly at Kemerton which cannot be matched on any of these other sites. These are the T-shaped and flat, internally expanded rims (R11-13), and the rows of perforations and part perforations (D15-16). The only parallel for any of these features is the instance of two sherds with perforations from Brean Down (Woodward in Bell 1990, figs

91.49 and 92.61). Rows of perforations are more characteristic of domestic and burial assemblages of Middle Bronze Age date. They occur in Berkshire, Surrey, Sussex, Hampshire and Wiltshire, as well as in East Anglia where they form a particular characteristic of the ceramic groups from Grimes Graves (Ellison in Longworth *et al* 1988, 114, appendix II). But the incidence of perforations at Kemerton is much higher than that recorded even at Grimes Graves. The heavy T-shaped and internally expanded rims are also reminiscent of some Middle Bronze Age urn forms, and it may be that the presence of these two groups of traits at Kemerton may denote a date early within the plainware sequence, and such an early date has been confirmed by the results of the radiocarbon determinations. The plainware assemblage from Reading Business Park 2 (Green Park), like that from Kemerton, is dominated by simple ovoid or straight-sided forms with a significant presence of decoration located on rim tops but not on the vessel body or shoulders. A similarly early date for the Green Park material has been suggested by Morris, who argues that characteristics of the Late Bronze Age assemblage there were a direct development from the Middle Bronze Age pottery which was present on the same site. However no radiocarbon dates are available for the Late Bronze Age assemblage from Green Park. (Morris in Brossler *et al* 2004, 78-80).

The strengthened rims and rows of perforations, taken together with the evidence that the perforated vessels tend to be large in size, may also be indicative of functional factors. At Grimes Graves it was tentatively suggested that the large bucket forms common on that site may have been used in tasks connected with dairying, this being the main economic activity as evidenced by the faunal remains (Ellison in Longworth *et al* 1988, 49). The rows of perforations and ledged rims at Kemerton might have facilitated the attachment of organic covers to the vessels, although the rows of part perforations could hardly have functioned in this manner. Environmental evidence from the site strongly suggests that the economy was based on pastoral activities within an open landscape. As at Grimes Graves it can therefore be suggested that the large bucket shaped vessels may indeed have functioned as pails for the collection and storage of milk (from cattle, sheep or goats). The substantial occurrence of burnt residues on these larger vessels, and often inside their bases (see above) further indicates that these pots were also being used to process or cook commodities. The process represented may have been the scalding of milk, facilitated by the use of pot boilers, prior to the preparation of dairy products such as cheese. Certainly, both cattle and sheep/goat were present at the site, in relatively equal numbers, and the fact that the majority of the cattle were kept into maturity as well as some of the sheep (Section 19) supports the suggestion that dairy products may have been important.

The pattern of occurrence of rim diameters, as indicative of vessel size, is not as clear as those obtained for the Unit 4 assemblage at Brean Down or that from Aldermaston Wharf. At these two sites three size peaks, plus a few very large vessels, were apparent (Woodward in Bell 1990, 141, fig 101). At Kemerton distribution of rim diameter measurements is more even, and peaks at 160mm and 220mm are more similar to the pattern given by the rim diameters of the published vessels from Reading Business Park (data in archive, measured from Hall in Moore and Jennings 1992, figs 44-51). At that site the main peaks for both the plainware and decorated Late Bronze Age assemblages were around 160mm and 220mm, with an additional minor peak at 300mm. At Grimes Graves, where rows of perforations similar to those recorded at Kemerton are common, the Middle Bronze Age pots are in general rather larger in size (Longworth *et al* 1988, 50, fig 21). The general absence of fineware jars and particularly bowls at Kemerton occurs also at Shorncote, but not at Brean Down. Looking ahead in time to the local published assemblages of Iron Age date it is interesting to note that the range of rim diameter sizes at Kemerton in the Late Bronze Age is similar to that displayed by the Intermediate Iron Age phase defined at the hillfort on Bredon Hill (Cruso Hencken 1938, figs 17-18) rather than to the generally smaller bag-shaped pots of the Early Iron Age phase of that site (ibid figs14-16).

Within the large area excavated at Huntsman's Quarry it has been possible to define five main zones of activity, each considered to represent an area of settlement (Section 30). Each of these zones included a series of posthole structures and one or more groups of waterholes of which four contained substantial quantities of pottery (in the fifth the only waterhole

present was subject to only very limited investigation and few other pits were present thus limiting the quantity of material culture from this zone). The excavator has further suggested that each settlement zone may have been occupied by a single generation of a farming family, and that the zones may indeed have been successive. A comparison of the main ceramic characteristics of the pottery assemblages from the four occupation areas is provided in Table 9. From this it can be deduced that pottery from the southern zone included unusually high quantities of pottery containing shell and igneous inclusions, and also the highest concentration of expanded rim types (R5/R10/R13). The eastern zone was characterised by high instances of simple rims (R1) and finger surface finishes (D17/D19) but a low occurrence of rows of perforations (D15/D16). In the north central zone there were higher numbers of internally bevelled and hook rims (R6/R7) and finger-impressed rims (D1/D2), whilst the large zone to the west produced the highest occurrence of the quartz plus limestone fabric group (L) and high incidences of flat rims (R3/R4), expanded rims (R5/R10/R13) and also of incised decoration on rims (D11/D12). This subtle variation in ceramics between occupation zones may reinforce the idea that the different zones were populated by different kin groups, and that they may have been occupied successively. It is generally accepted that as the Late Bronze Age progresses, decoration becomes more common, so it might also be feasible to suggest that the two zones characterised by higher occurrences of rim decoration, those located in the north central and western sectors of the site respectively, may have been occupied slightly later than the southern and eastern groups.

It may be concluded that the Late Bronze Age pottery from Kemerton was used in a domestic and agricultural context and that the vessels may have been designed and used for specific purposes such as the collection and processing of dairy products. Obvious fine tablewares are virtually absent and the pots are mainly medium to large in size. Although most of the pottery derives from large pit assemblages, the context groups are not at all similar to the small groups of Late Bronze Age vessels deposited as chunks in isolated pit deposits at sites in the West Midlands and elsewhere. These appear to contain sets of one very large thin-walled vessel together with a few medium-sized jars and small cups in fine fabrics and adorned with unusual decorative techniques (Woodward 2000). These ‘drinking set’ deposits are characterised by the presence of very large joining portions from a small number of vessels of varying size and have been interpreted in relation to episodes of ritualised feasting.

The Kemerton context groups seem to have resulted from a rather different process. The context assemblages are larger and contain fragments from a much larger range of vessels, with each vessel being represented by only a few sherds. On the grounds of evidence concerning fragmentation and abrasion it has been suggested that the Kemerton potsherds had been lying in middens before they were introduced to the secondary fillings of the various waterholes. The deposits do appear however to have been placed into the waterholes deliberately and it may be that they represent closing deposits: the symbolic placing of pieces of everyday equipment within significant structures when an area of settlement was abandoned or moved to another location. The depositing of pieces from the vessels which were used to store and process a commodity (milk) which was essential to the livelihood of the inhabitants were thus employed to mark the final filling of the holes which had provided water for the animals who produced that milk. Closing deposits containing large amounts of pottery associated with Bronze Age roundhouses in Cornwall have been identified and discussed by Nowakowski (2001). These deposits were found to overlie the remains of the houses themselves, but at Bestwall Quarry in Dorset similar closing deposits associated with a Middle Bronze Age house had been placed in pits. In this case however several of the vessels were represented by very large fragments, or sets of joining fragments, and it was possible to suggest that the pots represented in the closing deposits had also functioned as one or more feasting sets (Ladle and Woodward 2003). As the pottery from the Kemerton waterholes appears to have derived from intermediate contexts, such as middens, the possibility of a final usage of the vessels in feasting episodes cannot be investigated. However it is tempting to postulate that the closing deposits contained the remnants of vessels used in feasts or rituals enacted to mark the last stages of occupation and activity within each of the settlement zones identified on the site.

12. Petrology (by D F Williams)

12.1 Introduction

A thin section examination was undertaken on twenty-one selected sherds of early prehistoric pottery recovered from recent excavations at Huntman's Quarry, Kemerton. Prior to analysis, all of the sherds were examined in the hand-specimen with the aid of a binocular microscope (x20) and their surface colours described with reference to Munsell Charts. Kemerton is situated some 5 miles north-east of Tewkesbury and lies on the Jurassic Lower Lias formations, with Triassic sandstones and mudstones about 5 miles to the west (Geological Survey 1" Map of England sheet **216**).

12.2 Petrology and fabric

12.2.1 Grog/Shell/limestone

(1) Context: 1440 Fabric 4.7
Soft, slightly rough, sandy fabric with a soapy feel, light brown (7.5YR 7/4) outer surface, darker brown (7.5YR 5/2-4/2) inner surface and core. Small scattered plates of white shell and irregular-shaped pieces of limestone can be seen together with pieces of argillaceous material.

(2) Context: 1111 Fabric 4.9.2
Soft, roughish fabric, patchy reddish-brown (2.5YR 6/6-5YR 5/3) throughout. Frequent plates of shell are scattered throughout the fabric, together with pieces of argillaceous material.

(3) Context: 1836 Fabric 4.12
Soft, somewhat rough fabric with a slightly soapy feel, light red (2.5YR 6/8) surfaces with a dark grey core. There is more evidence of the presence of shell and the sherd is harder fired than Sample 1, otherwise a similar fabric.

(4) Context: 2032 Fabric 5.7
Soft, smoothish, thin-walled fabric with a soapy feel, a weak red (2.5YR 4/2) colour throughout. A similar fabric to Samples 1 and 3, although there is more argillaceous material present with shell less obvious.

(5) Context: 1601 Fabric 5.11
Soft, rough, friable sandy fabric, light reddish-brown (2.5 YR 6/8-5YR 5/3) outer surface and core, dark grey inner surface. Pieces of a light-coloured argillaceous material can quite clearly be seen scattered throughout the fabric.

Thin sectioning shows that all five sherds contain pieces of grog (ie previously fired crushed-up pottery introduced to the clay of the vessel by the potter). These are more common in Sample 3 and especially Sample 4. All of the sherds have a fairly fine-textured clay matrix, containing moderately sparse ill-sorted grains of quartz ranging to over 1mm in size, flecks of mica and some opaque iron oxide. Pieces of fossiliferous shell and cryptocrystalline limestone are present in Samples 1-4, especially in Sample 2, where some of the grog has small pieces of shell in it, and in Sample 3. Sample 5 seems to lack the shell but does contain sparse cryptocrystalline limestone. Unfortunately, the shell and limestone inclusions, which presumably occur naturally in the clay, are lacking in any diagnostic fossils which might suggest a particular geological source. In view of this, and as the site is situated in a shelly/limestone area, there is nothing here to point to anything other than a fairly local source or sources for the making of the pottery.

12.2.2 Shell

(6) Context: 2032 Fabric 4.9.1
Soft, smoothish fabric, light reddish-brown (5YR 6/4) outer surface and part core, dark grey inner surface and part core. Moderately frequent plates of shell can be seen in fresh fracture.

(7) Context: 2032 Fabric 4.9.3
Soft, rough fabric, reddish-brown (5YR 5/3) throughout. Abundant large plates of shell are scattered throughout the fabric.

(8) Context: 1836 Fabric 4.11
Soft, rough fabric, reddish-brown (5YR 5/3) throughout. Large plates of shell are scattered throughout the fabric.

Thin sectioning shows that the shell is fossiliferous and pieces of bryozoa can be seen scattered throughout the fabric. It is difficult to be certain, but in the absence of other evidence, the closeness of Jurassic formations to the site suggests that these sherds may well be from a fairly local source.

12.2.3 ?Limestone

(9) Context: 2043 Fabric 139
Soft, smooth, thin-walled fabric, reddish-yellow (5YR 7/8) surfaces and part core, dark grey part core. Thin sectioning shows a fine-textured fabric with little in the way of non-plastic inclusions except some silt-sized quartz grains and sparse small pieces of cryptocrystalline limestone. Difficult to source on this evidence but again could be local.

12.2.4 Grog/Sandstone

(10) Context: 1836 Fabric 4.10.2
Hardish, rough, sandy fabric, red (2.5YR 5/6) throughout.

(11) Context: 2043 Fabric 5.3
Soft, rough, sandy fabric, light red (2.5YR 6/6) throughout.

(12) Context: 2046 Fabric 5.9
Soft, rough, sandy fabric, light red (2.5YR 6/6) outer surface and dark grey inner surface and core.

Samples 10 and 11 are similar in the hand-specimen and thin section. Under the petrological microscope small pieces of grog can be seen scattered throughout the clay matrix, together with small fragments of a quartz-sandstone. Also present are ill-sorted grains of quartz, which can reach up to 7mm in size, and in Sample 11 some sparse shell. Sample 12 also contains grog and small fragments of a quartz-sandstone, but the accompanying quartz grains are well-sorted, average size below 0.40mm across. The quartz-sandstone in all of these sherds may well have derived from the local Triass to the west of the site.

12.2.5 Large Quartz

(13) Context: 1520 Fabric 5.8
Soft, rough, sandy fabric containing conspicuous large angular white and glassy quartz grains, light red (2.5YR 6/8). Thin sectioning shows a fairly fine-textured clay matrix containing a scatter of large (up to 6mm across) grains of quartz, some of them polycrystalline, and occasional pieces of quartzite. The large size and apparent angularity of the quartz grains suggests that they represent crushed tempering material which was deliberately added to the clay by the potter. Kemerton is not that far from Triassic sandstones and it is possible that the large quartz grains may have derived from these.

12.2.6 Malvernian Igneous/Metamorphic

(14) Context: 2032 Fabric 97
Soft, rough fabric, buff (7.5YR 7/4) outer surface and part core, dark grey inner surface and part core.

(15) Context: 1814 Fabric 97
Soft, rough fabric, greyish-brown (10YR 5/2) surfaces, dark grey core.

In the hand-specimen both these sherds can be seen to contain frequent angular rock and mineral inclusions. Thin sectioning shows that these include a variety of crushed igneous and metamorphic rocks similar in composition to those described by Peacock (1968) for certain prehistoric pottery (Peacock Group A) thought to have been made in the Malvern Hills region, on the borders of Herefordshire and Worcestershire. An alternative suggestion is that these inclusions may be of dolerite, another igneous/metamorphic rock known to have been used in ceramics during the prehistoric period, a likely source of which exists in southern Shropshire (Derek Hurst pers comm).

12.2.7 Malvernian Shelly Limestone

(16) Context: 1111 Fabric 4.8.1

Soft, rough, friable fabric, light buff (7.5YR 7/4) outer surface and part core, dark grey inner surface and part core. Frequent large angular inclusions of white or off-white limestone are scattered throughout the fabric.

(17) Context: 1111 Fabric 4.8.3
Soft, roughish, more dense fabric than Sample 16, reddish-brown (5YR 5/1) throughout. The visible white limestone inclusions are smaller and more evenly distributed than in Sample 16.

(18) Context: 1801 Fabric 4.8.5
Soft, rough, thin-walled fabric, reddish-yellow (5YR 7/6-6/6) outer surface, dark grey inner surface and core. This is a vesicular fabric with sparse inclusions of off-white limestone.

In thin section all three sherds can be seen to contain fragments of shelly limestone. These are less common in Sample 18, but the size and angularity of the vesicles in this sherd suggest that more of these inclusions were once present. The shelly limestone contains fossil brachiopod test and crinoid ossicles set in a matrix of recrystalline calcite. Discrete pieces of bryozoa and calcite are scatterted throughout the clay matrix, together with some grains of quartz. This fabric description is very close to that noted by Peacock (1968, Group B1) for certain Iron Age pottery of the Herefordshire-Cotswold region for which he suggested an origin in the area of, or west of, the Malvern Hills. A similar source for these three sherds seems likely.

(19) Context: 2010 Fabric 5.12
Soft, rough, vesicular sandy fabric, pale brown (10YR 7/4) throughout. In thin section this sherd contains a fairly clean clay matrix with a moderately frequent scatter of well-sorted quartz grains average size up to 0.40mm across. Irregular-shaped vesicles of various sizes occur throughout the fabric. It is difficult to be certain, but these may once have contained limestone or shelly limestone and thus the sherd may be connected to this group.

12.2.8 Quartz

(20) Context: 1801 Fabric 5.10
Soft, rough, sandy fabric, dark grey (10YR 4/1) surfaces, lighter grey core. Thin sectioning shows a groundmass of silt-sized quartz grains with some slightly larger grains, flecks of mica and some opaque iron oxide.

(21) Context: 2032 Fabric 5.13
Soft, rough, quite sandy fabric, reddish-yellow (5YR 7/6) outer surface and part core, grey inner surface and part core. Thin sectioning shows little but well-sorted quartz grains ranging up to an average size of 0.40mm across, some flecks of mica and a little opaque iron oxide.

Both of these sherds contain a range of common inclusions that make it difficult to suggest any particular source area for them.

13. Ceramic weights (by Derek Hurst)

13.1 Description

A total of 284 fragments of fired clay weighing 6.624kg have been identified as representing at least 39 separate clay weights (Table 10). The function of these objects is usually attributed to textile manufacture and hence they are often labelled loomweights. However, a less specific term, weights, is used here in recognition of some uncertainty about the use of these objects, and the possibility that several uses might have been applicable.

Two types were identified, pyramidal (eg Fig 80.1-3) and cylindrical (eg Fig 80.4-6). By weight there was little difference in the frequency of these types, but the cylindrical form was much commoner by count, suggesting that it was subject to a greater degree of fragmentation, possibly as result of being less well fired than the other type, or possibly the former was made locally giving rise to the survival of firing failures in the archaeological record. In terms of quantification by minimum number the pyramidal type was more common than the cylindrical type (63% and 37% respectively; 17 instances to 10) based only on examples where a positive identification of type could be given.

The pyramidal form was a more consistently executed shape than the other type, the only observable variation being a greater tendency to rounding of corners on one example (Fig 80.3). The size range for the pyramidal type was also less variable than that for the cylindrical type, at between 0.296kg and up to about 0.50kg.

The cylindrical type was more variable. Some examples were considerably more extended in form (Fig 80.4), while the weight of the individual items also varied, with one example only weighing 0.256kg (context 2032, Fig 80.6) but another probably having weighed in the order of 1.kg (context 2010, Fig 80.5). The increased weight was not accounted for by the extended cylinder type, suggesting that this variation in form was to do with function rather than simply increasing size. It has been suggested that smaller weights could have been used for the weaving of flax (Neal 1987, 335).

There were two basic fabrics:

a) coarse quartz with occasional oolitic lumps (fabric A)

b) fine quartz with mica and occasional plate shell (fabric B).

Fabric A was the more common. As the weights are likely to have been made locally, this suggests that there were two sources of clay being exploited by the inhabitants. Fabric A may be particularly local to the site as it includes oolitic material which is also a feature of soils in the vicinity of the site (British Geological Survey 1:10,000 sheet SO93NW).

Illustrated ceramic weights (Fig 80)

Pyramidal type
1 1834, CG7
2 1848, CG7
3 1853, CG7

Cylindrical type
4 1830, CG1
5 2010, CG10
6 2032, CG4

13.2 Dating and comparison with other sites

The only site in the locality that has produced a quantity of prehistoric weights is Beckford (Hurst 1984), where the use of ceramic weights was dated to the Iron Age/Roman period, and both pyramid and triangular types were present. Elsewhere it has been noted that the pyramidal type post-dates the cylindrical type, and that both pre-date Iron Age types of weight (Bradley *et al* 1980, 244).

Cylindrical weights have been regarded as typical of the Middle Bronze Age (Bradley and Hall 1992, 87), but also occur on some Late Bronze Age sites as at Green Park (Barclay 2004, 92-4) and Shorncote (Morris 43-4). At Reading Business Park (immediately adjacent to Green Park) and at Aldermarston Wharf both cylindrical and pyramidal types were present in Late Bronze Age contexts (Bradley 1980, 244; Bradley and Hall 1992, 87). At Kemerton, as at Aldermarston, pyramidal weights were the more common type. Given the relatively early date within the Late Bronze Age period of the activity at Kemerton, it seems likely that some chronological overlap is represented or that the period of occupation spans the transition between these types.

Comparison of the Kemerton weights with examples from other Late Bronze Age sites suggests that the cylindrical types have more typologically in common with weights of this type from Aldermarston and Knight's Farm in Berkshire (Bradley *et al* 1980, fig 19.5 and fig 37.3) rather than those from the slightly earlier site at Black Patch in East Sussex (Drewett 1982, fig 34.3). This comment is based upon general form, as defined particularly by the ratio of length:width.

13.3 Spatial distribution

The majority of the weights (78% by weight) were recovered from large pits or waterholes, which accounted for the bulk of the excavated material from the site, although a cylindrical weight and at least one other weight of indeterminate form had been used as packing in a posthole (context 2057/2058, CG63). In one case both cylindrical and pyramidal types were certainly present in the same feature (CG4) but elsewhere either type occurred in isolation (eg the cylindrical type in CG1 and the pyramidal in CG6 and CG7). Given the dating usually attributed to these types this may indicate that settlement may have undergone some migration or expansion southwards.

13.4 Conclusion

The quantity of ceramic weights from Kemerton is exceptional. The most likely use of these objects is as loomweights, suggesting that textile manufacture was an important activity on this site. The absence of any associated spindle whorls is notable, though a similar absence at a number of comparable sites in the Thames Valley has been interpreted to indicate that such objects were made of wood (Moore and Jennings 1992, 122).

14. Stone weight (by Derek Hurst)

A limestone weight weighing 1.276kg was recovered from an isolated small pit or posthole (context 2029; Fig 10.7). This was heavier than the ceramic weights but may have had a similar function associated with textile production. Alternatively this could have functioned as a thatch weight.

15. Fired clay (by Derek Hurst)

There was a total of 352 fragments of fired clay weighing 3.441kg. There was a similar range of fabric types as for the ceramic weights (see Section 13). Some fragments of the fired clay showed smoothed surfaces, but without any further diagnostic features the material could not be attributed to its original use. The general similarity, however, of many fragments to the weights suggested that some of this material is likely to have come from this type of object. Other structures likely to have been associated with fired clay would typically be domestic hearths and ovens, though the presence of metalworking on the site in this period also gives rise to the possibility that some of the fired clay was derived from structures or moulds associated with this process.

In terms of distribution, the material was thinly scattered in features across the whole site, mainly in the larger pits and waterholes (CG1, 6 and 7). The significance of this is unclear, however, the bias in distribution towards these larger features was noted for other categories of finds.

16. The mould fragments and slag (by Roger C P Doonan)

16.1 Introduction

A collection of nearly 200 mould fragments from six Late Bronze Age contexts and some unstratified slag debris, were assessed and in some cases analysed by X-ray flourescence spectrometry.

16.2 Mould fragments

16.2.1 Description

The fragments submitted for analysis comprised the total assemblage from the site, and derived from two parts of the casting process. Some fragments were of true mould surfaces (eg Fig 81) and would have been in contact with molten metal, whilst other fragments were of clay that had been wrapped around the true mould to ensure that they stayed in place whilst the molten metal was being poured into them.

The main criteria for differentiating between wraps and mould pieces are that mould pieces are often grey as a consequence of being heated in a reducing atmosphere and exhibit morphological details relating to the cast artefact (Table 11). Mould wraps in contrast tend to be red orange in colour and of indeterminate form.

Clay mould fragments are not encountered prior to the end of the Middle Bronze Age (Tylecote 1986, 82) and their presence is thus consistent with the Later Bronze Age dating of the site and can be considered quite usual for this period.

It is possible for copper alloys to be cast by three different techniques, all of which use clay to form the mould. These are open moulds, piece moulds, and lost wax or investment moulds. Of these techniques, open moulding is the least complex and is only useful for simple two-dimensional objects. Piece moulding and lost wax moulding are considerably more complex and are capable of forming intricate three-dimensional objects. In Britain, it is generally thought that the lost wax technique was not used until the Early Iron Age (Tylecote 1986, 80). The mould fragments from Kemerton are all consistent with this model for development, all deriving from piece moulds and, where discernable, from two piece or bi-valve moulds. Such moulds can only be used once.

16.2.2 Shape analysis

Some of the mould fragments survived to the extent that the type of artefacts that were cast in them can be suggested (Table 12; Fig 81), and this indicates that the main artefacts being cast at the site were weapons.

16.2.3 XRF analysis of mould fragments

For the sample of true mould fragments (~20%), it was possible to detect traces of metal left on the modelled surface of the mould. Analysis of the mould fragments was performed using XRF spectometry. The instrument used was a LINK XR200 with a tube voltage of 40kV, a current of 20mA and a 3mm collimator.

In all the analysed samples there were traces of copper, lead and tin. There was no evidence for any arsenic or antimony on any of the mould surfaces. It is not possible to extrapolate, from a qualitative analysis of these residues, a precise alloy composition. However, the presence of these three elements suggests that the alloys used in the castings were either leaded tin bronzes or tin bronze with a little lead. Such alloy types would be typical for the Late Bronze Age period (Northover 1980; Tylecote 1986, 30). Lead was frequently added to tin bronze in the Late Bronze Age as it offered enhanced castability, meaning that fine detail could be depicted and fewer castings failed. This benefit is evident in alloys containing over 2wt% of lead (Tylecote 1986, 80). Such low levels of lead have little effect on the mechanical properties of the alloy, although if excessive amounts of lead are added, for instance greater than 15%, then the mechanical properties of the allow begin to deteriorate.

16.3 Hearth material

Amongst the mould material were found many fragments of hearth material (Table 11). This is vitrified refractory material derived from the walls of metallurgical hearths.

16.4 The slag debris

None of the slag debris examined exhibited any evidence of being associated with non-ferrous metallurgy. The presence of copper was not detected by either XRF spectrometry or microstructural analysis. In the light of this, and the unstratified nature of the material (which was recovered during soil stripping), this cannot be considered to offer any insight into the nature of the metallurgy associated with the moulds and casting. Microstructural analysis of one piece (KEM1) found numerous inclusions of iron sulphide in a pyroxene matrix (calcium iron silicate) saturated in magnetite. It is likely that such a slag was formed during iron smithing whilst using coal as a fuel.

16.5 Conclusion

Morphological and chemical analysis has provided some insight into the nature of the casting operations that were carried out at Kemerton in the Late Bronze Age. It is apparent that the alloy selected was bronze, which was most probably leaded. The artefacts made appear to have been predominantly weapons.

17. Worked Flint (by Peter Bellamy)

17.1 Introduction

The analysis of the worked flint was approached with several themes in mind. The first theme is raw material procurement. Is flint from more than one source being used? Are these sources local? How is the material brought to the site (as nodules or as prepared cores)? The

second theme is an investigation of the character of the flintworking on the site. Does the flint represent a single industry or are there several technological traditions present? Are these chronologically diagnostic? What are the products of the industry(ies)? Does the nature and the scale of the flintworking change over time? The third theme is one of use and deposition on the site. Are there specific areas where flint is being used and/or discarded? Are different parts of the site used for different processes? What are the deposition processes?

The total worked flint assemblage from the site comprises a total of 397 pieces (1749g), of which, 314 (1392g) was recovered from stratified contexts, 39 pieces (164g) were unstratified excavation finds and 44 items (193g) came from the fieldwalking (Table 13). In addition, a small quantity of burnt unworked flint (204g) was recovered from both the excavations and the fieldwalking. The assemblage is not homogeneous and though the bulk of the material appears to derive from a flake industry, there is evidence for the presence of narrow blade industries as well. The diagnostic artefacts suggest that the flint spans a chronological range from the Late Palaeolithic to the Bronze Age.

17.2 Raw material

The raw material used was exclusively flint. As the majority of the assemblage had a fairly heavy white or bluish-white patination, it was difficult to determine the colour of the flint. The small number of unpatinated or very slightly patinated pieces indicated that the flint was mid brown to grey-brown in colour with very few inclusions. Occasional flakes of slightly coarse cherty flint were also noted. On the whole, the flint appeared to be relatively free from thermal fractures and faults. Where there is surviving cortex, this indicates that the vast majority of the pieces were derived from flint gravel nodules. The cortex was generally white, buff or brown in colour, often fairly pitted and worn, with a number of glossy worn patches. Some pieces had no surviving cortex but had well-rolled glossy thermal surfaces, many of which were iron-stained. The gravel flint was probably derived from the flint gravels available on site and from the immediate vicinity.

A small number of pieces (approximately 11) had a thin smooth brown cortex with no signs of rolling evident, and three others had a thick chalky cortex. These pieces may not be derived from the gravels and could have been imported to the site. The slight evidence available suggests that this material was prepared on site rather than being brought in as prepared cores.

The size of the nodules used is difficult to determine from the assemblage itself. Nearly all the cores have been extensively worked and estimation of the original size of the nodules is almost impossible. The cores are all very small (between 24–49mm max dimension) and in general the flakes are also small (mainly between 20–30mm in length with a small number up to 50mm long). This suggests that the size of the nodules may also have been fairly small. In general, the flint appears to be of fairly good knapping quality, with few faults and fractures evident.

17.3 The character of the flintworking on the site

It is clear that there is more than one industry represented in the assemblage. The vast majority of pieces are products of flake production with a small number of items derived from a narrow blade industry.

The blade industry is represented by a small number of cores, narrow blades and bladelets and some retouched forms also. There are two whole and two broken blade cores in the assemblage (Table 14). The number of blade cores may be underrepresented as almost all the cores have been worked out and the final removals may not be representative of the removals earlier in the life of the core. A number of flake cores have some indication of previous blade or blade-like flake removals. One core tablet from a blade core and three crested blades indicate the rejuvenation of blade cores on site. The blades included both small narrow blades

and some larger broad blades. The small number of blade tools present indicate at least two separate industries, one Upper Palaeolithic and one Late Mesolithic. The Upper Palaeolithic artefacts are a shouldered point (Figure 82.1) and a backed blade fragment (Figure 82.2). Both of these pieces were white patinated and the shouldered point was lightly burnt also. The Late Mesolithic artefacts comprise two broken geometric rod-like microliths, one with oblique trimming at one end (Figure 82.3-4) and two butt microburins, notched on the right hand side (Figure 82.5-6). In addition, there are three miscellaneous retouched blades, two with oblique retouch at the distal end.

The flake industry, unlike the blade industry, is ubiquitous, with pieces found in many contexts across the site, though the largest quantity was recovered from features containing Beaker pottery. A number of these features also contain Late Bronze Age pottery and the question is whether there are two flake industries present, one Late Neolithic/Early Bronze Age and one Late Bronze Age in date, or whether there is a single industry which is residual in the later period features. Visual inspection suggested there was little difference in the character of the flintworking in the various features. However, in order to test this, it was decided to undertake metrical and attribute analysis on the flint from the Beaker pits 2044 (CG12) and 2045 (CG13 & 42) and from the Late Bronze Age pits 1829 (CG 1) and 2031 (CG 4), despite the small sample sizes involved. These metrical and attribute data have been retained in archive rather than presented in this report because of the potential unreliability of the small sample sizes. Nevertheless, the results from the Beaker and the Late Bronze Age pits were almost identical, thus confirming the initial visual impression, so consequently, it has been assumed that the flint from the Late Bronze Age pits is primarily a residual Beaker assemblage. Despite this, the possibility that the Late Bronze Age features also include some Late Bronze Age flintworking cannot be ruled out completely as there are a small number of pieces from the site which would fit comfortably within a Later Bronze Age flint assemblage.

The assemblage is dominated by debitage (Table 13) with elements present from all stages of the reduction process, from initial core preparation to finished tools and utilised pieces, indicating that there was both production and use of flint tools on the site. No evidence for core tool production was recognised, which is perhaps not surprising given the size and quality of the locally available raw material.

The flake cores included both single platformed and multi-directional cores. These latter were worked out in one direction then the core rotated and the previous flake scars used to create a new platform. Up to three different platforms were utilised. There is virtually no evidence for the use of abrasion to strengthen the platform edge. Three discoidal cores were recovered (Table 14), at least two of which were on large flakes. The flake cores are between 5 – 38g with a mean weight of 17g (Table 14). A single broken flake from a levallois core recovered from pit 1833 (CG 7) indicates the use of this technique also within the industry.

The flakes are generally intermediate in shape between 15mm and 53mm in length and 9-52mm in width with either plain or cortical butts averaging c. 5 mm wide. They appear to have been largely removed by a hard hammer, though for the vast majority of flakes the hammer type is indeterminate. The flakes include preparation flakes (c 8%), core trimming flakes (c 56%) and other miscellaneous 'waste' flakes. Three rejuvenation flakes removing a previous flaking face and two crested flakes were recovered from pit 2031 (CG 4) confirm the evidence of the cores for the creation of new platforms utilising the previous flake scars.

The tools and other pieces showing signs of utilisation comprise about 13% of the assemblage. The majority of retouched forms are of Late Neolithic/Beaker type and include chisel and oblique transverse arrowheads, thumbnail and other scrapers, piercers and knives (Table 15). Apart from the miscellaneous retouched pieces, scrapers are the most numerous tool type present in the assemblage. The scrapers tend to be small and neatly worked with abrupt retouch round the end and down the sides and include four thumbnail scrapers (Figure 82.7-8). One scraper has a straight scraping edge and two examples have fairly shallow retouch. A variety of different blanks were used for scrapers including core preparation flakes (Figure 82.9) and a core fragment. Several of the scrapers are heavily worn. Knives are the

next most numerous tool type and two types are represented — plano-convex knives and naturally-backed flake knives. Two plano-convex knives are present in the assemblage, both made on long flakes with regular fine invasive retouch (Figure 82.10). One other possible example has some bifacial retouch but it is too fragmentary to be certain whether it is a knife or not. The rest of the knives have shallow invasive retouch along one side and with natural backing (usually cortical) on the other side (Figure 82.11). The piercing and boring tools comprise a piercer with a finely worked point on a broad thick flake (Figure 82.12); a borer on the end of a broad blade (Figure 82.13); and a piercer on a broad flake with a point formed by minimal retouch. Two arrowheads, a chisel transverse (Figure 82.14) and an oblique (Figure 83.15) were recovered together with another heavier possible projectile point (Figure 83.16). The miscellaneous retouched pieces are the most common retouched form and include a wide variety of flakes with mainly small areas of regular fine retouch along one side or end of a flake.

There is a small number of possible Middle-Late Bronze Age retouched forms present in the assemblage. A composite scraper/piercer and two flakes with coarse denticulate retouch and one with a thinned butt. A single possible end-blow janus flake was also found in the assemblage.

The analysis of the flint assemblage has confirmed the presence of three or four different chronological periods. Both the Upper Palaeolithic and the Late Mesolithic periods are represented by only a very small number of residual items, making it difficult to assess their character. There is no evidence for flint knapping on site during the Upper Palaeolithic and the artefacts may represent no more than chance losses. The presence of blade cores and rejuvenation flakes of possible Mesolithic date, together with microburins indicate that some knapping and tool production was taking place on site. In contrast, the Late Neolithic/Beaker period is the only period which has evidence for anything other than very small scale flint working on site. The range of debitage indicates that flint gravels were being procured and worked on site. It does not appear to have been a specialised industry and a range of tools were produced consistent with a domestic settlement context. The possible Later Bronze Age use of flint is much more difficult to define. The very small quantity of material which may belong to this period indicates that flint working and use was not a significant part of the settlement activity at this time.

17.4 Use and deposition of flint on the site

An examination of the distribution pattern of the flint, the types of features which contain flint and the composition of the assemblage in these features may help to understand the patterns of use and deposition across the site.

Firstly the distribution of the flint from the different chronological periods was examined to see if it was possible to isolate chronologically distinct areas of the site. The two possible Upper Palaeolithic artefacts were residual, both being recovered from a Late Bronze Age pit (context 2102, CG14) towards the western end of the site. No other flintwork which could be confidently assigned to this period was found in the vicinity and it is likely that the finds represent casual losses rather than evidence for an Upper Palaeolithic settlement site. In contrast, all the diagnostic Mesolithic artefacts were found in the north-eastern part of the site centred on Area 17 (contexts 212 and 1722). These were associated with a number of pieces of blade debitage, blade cores and two retouched blades (contexts 1712, 1714, 1716 and 1722), which are assumed to be Mesolithic on the basis of their proximity to the diagnostic Mesolithic material. There was only a very sparse scatter of blade debitage elsewhere. This restricted distribution suggests the presence of a Mesolithic settlement in this area, though the quantity of material recovered is not large enough to be able to confidently characterise the nature of this site.

Although the Late Neolithic/Beaker flint is widely scattered across the site, unlike the earlier material, this distribution is not even across the whole of the site and there is a clear pattern of flint being concentrated in pits rather than being associated with other features. The largest

quantity of flint came from the centre of the site, focussed on the Beaker pits (2044, CG12; 2046, CG13; and 2047, CG42) and the Late Bronze Age pits (2031, CG4; 1829, CG1; and 1844, CG2). Smaller quantities were recovered from pits to the south (1833, CG7; and 1835, CG6) and west (2102, CG14). It is unclear how much of this patterning reflects the 'true' distribution of the flint and how much is a result of the excavation strategy. Nevertheless the lack of flint from excavated house structures, the ring ditch, and the boundary ditches indicates that there are areas where there is only a sparse scatter of flint and, therefore, the perceived concentrations may accurately reflect real archaeological differences.

A closer examination of the main concentration may provide some insights into the nature of the Beaker activity. The composition of the flint assemblage from the Beaker pits and two of the Late Bronze Age pits (2031, CG4; and 1829, CG1) suggests that the activity represented is non-specialised and is likely to indicate settlement. There is evidence both for knapping and for the use of flint tools with no specialised areas of production or use. There is a fairly wide range of different tool types present including scrapers, piercers, knives and miscellaneous retouched pieces, together with an oblique arrowhead and another possible projectile point. None of the material refitted and the majority of the pieces were not in mint condition and some of them were burnt, suggesting that the material was not immediately deposited in the pits. The residual material in pits 2031 and 1829 may have been accidentally incorporated from the immediately surrounding ground surface but it is less clear whether the material in the Beaker pits was deliberately deposited or not. There is little difference in the assemblage composition and condition between the Beaker and Late Bronze Age pits, though it must be noted that the Beaker pits contained the highest proportion of retouched pieces of any feature on site. It is interesting to note that only one of the three Beaker pits (2044, CG12) contained a respectable quantity of flint, yet the adjacent pit (2045) contained only a single flint flake and no flint was recovered from the third of these pits (2048). Given the close proximity of the pits to each other, this difference is interesting and suggests that the flint was incorporated through deliberate deposition of material, perhaps as refuse. If it was the result of accidental incorporation from the surrounding surface then a more even distribution might be anticipated.

The ring-ditch, possibly of Beaker or Early Bronze Age date, only produced four flint flakes. It is likely that these represent accidental losses and there is no evidence for any flint associated with the construction and use of this funerary monument.

In contrast with the Beaker settlement, the Later Bronze Age settlement appears to have no associated flintwork. There is little or no flint in many of the features and it seems unlikely that the small quantities present are any more than part of a residual background scatter. The one exception to this is perhaps in the south-eastern part of the site (Areas 11, 12 and 16) where there is a slightly greater concentration of flint found in postholes and other features. It is pertinent to note that all of the possible Middle-Late Bronze Age flint artefacts came from this area. It is likely that most of the flint in this area was accidentally incorporated into the features.

17.5 Illustrated flint

Fig No	*description*	*period*	*context*	*context group*
82.1	tanged point	Upper Palaeolithic	2101	14
82.2	backed blade	Upper Palaeolithic	2101	14
82.3	rod microlith	Late Mesolithic	212	-
82.4	microlith	Late Mesolithic	1722	-
82.5	microburin	Mesolithic	1722	-
82.6	microburin	Mesolithic	1722	-
82.7	thumbnail scraper	Late Neolithic/Beaker	2043	12
82.8	burnt thumbnail scraper	Late Neolithic/Beaker	2032	4
82.9	scraper	Late Neolithic/Beaker	2032	4
82.10	plano-convex knife	Late Neolithic/Beaker	2106	-
82.11	flake knife	Late Neolithic/Beaker	2043	12

82.12	piercer	Late Neolithic/Beaker	1830	1
82.13	borer	Late Neolithic/Beaker	1830	1
82.14	chisel arrowhead	Late Neolithic/Beaker	204	-
83.15	oblique arrowhead	Late Neolithic/Beaker	2043	12
83.16	projectile point?	Late Neolithic/Beaker	2032	4
83.17	single platformed core	Late Neolithic/Beaker	1830	1
83.18	two platformed core	Late Neolithic/Beaker	1830	1
83.19	discoidal core	Late Neolithic/Beaker	1830	1
83.20	scraper/piercer	Middle-Late Bronze Age?	1111	9
83.21	retouched flake	Middle-Late Bronze Age?	1614	-

18. Other finds

18.1 Shale objects (Robin Jackson)

Two shale objects were recovered from Late Bronze Age contexts (2032 and 2039). Both appear to be fragments of armlets, this term being used (after Calkin 1953, 46) to avoid any implication as to where they might have been worn on the arm.

Context 2032 (CG4; Fig 84.1)
Armlet fragment from one of the upper fills of a large waterhole. Oval section. Well made and finely finished. Original internal diameter 80mm. Original external diameter 93mm. Two opposing depressions were present on one end of this segment. These had been drilled or gouged out and appear likely to represent a setting for some form of mount or fastening, or alternatively had been drilled to enable the object to be repaired.

Context 2039 (CG 77; Fig 84.2)
Small fragment of worked shale possibly from an armlet, recovered from the upper fill of a large pit. Circular sectioned. Well-made and finely finished fragment of which too little survived to determine diameter.

Shale has been widely found in Bronze Age contexts, being used for a variety of items of dress and personal adornment including beads, buttons and armlets, as at Swine Sty, Derbyshire (Mackin 1971), Brean Down, Somerset (Foster 1990, 159-60; fig 112: 37-9), Potterne (Wyles 2000, 208-13), Runnymede Bridge (Needham and Longley 1980) and Green Park (Boyle 2004, 98-9). Such shale objects reflect the wide range of external contacts evidenced at some of these sites, the ability to acquire such objects possibly reflecting a relatively high status.

At Brean Down, Potterne, Runnymede Bridge and Green Park shale armlets or bracelets were recorded in Late Bronze Age contexts while at Swine Sty evidence of Early Bronze Age shale working, including production of armlets was recorded. Internal diameters vary widely from as small as 15mm (at Eagleston Flat, Curbar, Derbyshire; Beswick 1994) to as much as 90mm at Green Park. Evidence suggests that roughouts were produced at sites like Swine Sty using a combination of flaking, gouging, pecking and cutting. The roughouts were finished by abrasion and polishing. Completion sometimes occurred at the site of production but there is also evidence that trading of the blanks was commonplace, the latter having been found for example at Brean Down and Potterne, both sites located away from the nearest shale source.

The best preserved of the two from Kemerton (from 2032; Fig 84.1) clearly represents part of a finished item with its diameter (250mm circumference) falling towards the upper end of the range recorded. This may suggest that it was designed for a man or to be worn high on the arm. The evidence for some form of mount or fitting is unusual, although similar objects at Potterne (Wyles 2000, 210 and fig 81.15 and 16) were suggested to be bracelet fragments reused as pendants. Alternatively it might provide evidence of a form of staple used to repair a valued item.

Distance from the likely source of the shale is also of some considerable interest. Even though some trade is evident from distribution of shale objects, it is most commonly the case that the distances involved are not great. However, Kemerton is a long way from known and utilised sources either on the Dorset coast (Kimmeridge; Calkin 1953) or in Derbyshire (Swine Sty; Mackin 1971), 175km or 140km distant respectively, thus suggesting that the site was integrated into a long-distance exchange network.

18.2 Other worked stone (Derek Hurst)

Apart from the objects discussed above, two other worked stone objects were recovered.

One of the fills within a large waterhole (CG7, context 2034) produced a small fragment of quern or rubber with a worked surface. This has been identified as being made from May Hill sandstone (Fiona Roe pers comm). May Hill sandstone has been used as a quern material since the Neolithic, when it was imported into sites in Gloucestershire (Roe 1999, 415-8) and remained the most common quern material used in the region throughout the prehistoric period .

Lastly a piece of architectural stonework made from oolitic limestone derived from a pit which was otherwise sterile but is clearly not of Late Bronze Age date.

18.3 Unworked stone (by Derek Hurst)

Unworked but utilised stone was recovered, in the form of 'pot-boilers' and limestone pieces, which were all burnt. The burnt limestone far outweighed the amount of 'pot-boilers', and was concentrated in the upper fills of some of the large pits and waterholes (particularly in CG1 and 7). However, this material was only selectively retrieved on site, and so little could be stated other than in general terms about its incidence and distribution across the site.

'Pot-boilers' are conventionally understood to have been used for heating water, and the burnt limestone may also have had a culinary use. Occasionally the latter comprised plates of limestone, flat on one side, and scorched (especially on one side), and this could imply a use as a hot surface for cooking. More often, however, the limestone fragments were irregularly shaped, and only partially burnt. Such pieces may have functioned as the local counterparts of the more familiar pebble 'pot-boilers', which were otherwise relatively poorly represented.

18.4 Worked bone (by Robin Jackson)

Four worked bone objects were recovered from Late Bronze Age contexts.

Context 1103 (Fill within waterhole CG 8; Fig 84.3)
Very well made and polished bone pin with a finely decorated, ?turned, head. Circular sectioned with a fine tapered point. Length 72mm. Section 3mm (main shaft); 5mm (head).

Context 1111 (Fill within ?waterhole CG 9; not illustrated)
Burnt fragment of worked bone point. Possibly from an awl or chisel. Tip broken off. Irregular oval shape in section with two flattened faces as if "pared". Length 19mm.

Context 1841 (Fill within waterhole CG 7; Fig 84.4)
End of a well made and polished bone pin. Slightly flattened oval in section with a fine tapered point. Length 31mm. Section 4mm/2mm

Context 2032 (Fill within waterhole CG 4; Fig 84.5)
End of a well made and polished bone pin. Circular sectioned with a fine tapered point. Length 45mm. Section 3mm.

The identification of three bone pins and a possible awl or chisel fragment from late Bronze Age contexts is not unusual for a site of this date. Similar finds were recorded at Brean Down, Somerset within a larger group of worked bone objects for which it was observed that items were mainly practical (Foster 1990, 160-2).

In this respect the Kemerton material appears typical, however, the pin in context 1103 stands out as an unusually well made example having a finely worked decorative head. In the light of this, it is felt to have most probably been a highly valued dress or hair pin, rather than a simply utilitarian article.

The other two pin ends are also well worked and highly polished, however, since only the points survive it is impossible to determine whether they were also decorated. These may have fulfilled a similar function, however, the possibility that they were associated with weaving or sewing should not be excluded.

19. Worked timbers (by Ian Tyers)

19.1 Introduction

Ten fragments of timber derived from the lower silting fills two waterholes of Late Bronze Age date (CG4 and CG8) were submitted for species identification and technological analysis.

The material was primarily lengths of roundwood, some with cut ends, others with broken or rotted ends and was of diverse size. The largest being pieces c. 70cm by c. 10cm diameter, whilst the smallest were c. 10cm by c. 2cm diameter.

19.2 Identification

The identification of timbers from archaeological sites can be either a microscopic or a macroscopic procedure, depending upon which species the sample is and upon its preservation characteristics. For many of the native hardwood species, and in particular for oak (*Quercus* spp), beech (*Fagus* sp), ash (*Fraxinus* sp) and elm (*Ulmus* sp), the characteristics visible using hand-lenses or low-power binocular microscopes (both typically x10 magnification) are sufficient to determine safely the species of timber. For most of the other native hardwood species and all softwoods it is necessary to prepare slides of thin-sections to examine using high-power microscopes (magnifications up to x400) in order to separate the species involved. The identifications reported here are a result of both these procedures combined with the use of biological keys and reference volumes (eg Schweingruber 1978, 1990 and Wilson and White 1986).

19.3 Technological analysis

Different tools used in the past to convert or shape wooden objects leave a variety of ‘signature marks’ upon well preserved timbers such that reconstruction of the methods and tools used is frequently possible. Distinctions can be made between the marks left by hewing with axes, or adzes etc., and also the types of marks made by tools used for more complex operations such as sawing and auguring can be distinguished. Although no comprehensive handbook serves as a complete reference to this subject, papers such as those in the Somerset Levels Papers series (eg Coles and Orme 1984, 1985), the Flag Fen report (Pryor 1991) or covering Roman and Medieval material from London (e.g. Goodburn 1992) provide a series of examples. In exceptional material (both of large assemblage size and exceptional waterlogging) it is possible to follow individual tools being used on different timbers which assists more standard stratigraphic analyses with linking the process of construction or modification of wooden structures.

19.4 Results

10 separate fragments of material were examined (Table 16; Figs 85 and 86). Although some were relatively large pieces the majority were smaller twig-like fragments.

19.4.1 Context 1115 (CG8)

All six pieces of timber submitted for analysis from this context, the basal fill of a large waterhole, were of alder (*Alnus* spp). Alder is a relatively soft timber, frequently encountered at sites of all periods. This group includes three timbers with clear cut marks, apparently aimed at putting pointed ends on to stakes (Fig 85). The preservation was too poor to identify the exact tool involved but the concave surfaces and stop lines across the facets suggested use of an axe. Alder is particularly prone to breaking across the grain and several of the timbers were markedly broken in this way, at least two flat ends appear to be non-archaeological in origin, perhaps being derived from the excavation stripping, but cannot be identified with absolute certainty. The material is somewhat knotty and a small broken piece may have a coppice heel surviving, although the fragmentary survival makes identification difficult. All this material shows some evidence of woodworm (*Anobium punctatum*) damage suggesting the timbers had been exposed for some time.

19.4.2 Contexts 2034 and 2050 (CG4)

All four pieces of timber examined from these contexts were of are oak (*Quercus* spp). Oak is a hard strong timber predominant in structures from all periods, it is often preserved even under imperfect conditions. The material was sufficiently poorly preserved that little further analysis was possible. The possibility of timbers of other species being entirely lost due to the poor preservation conditions cannot be discounted. Two smaller fragments (one from 2034 and one from 2050) were barely recognisable and were impossible to examine in any greater detail.

The two larger fragments (both from 2034) include one possibly cut end (see below), but the preservation was far too poor to identify with any certainty the tools used. These timbers were unusual in having hollow centres presumably rotted out, this weakness may indicate they derived from a single parent log.

Note (by Robin Jackson): The illustration made of the two timber fragments from 2034 (Figure 86) was produced when these were first excavated some 3 years prior to analysis. At the time they were in somewhat better condition than when seen by the specialist. Both the illustration and the site record suggests that three notches were present in the face of this timber which as noted above appeared to have had a cut end. This timber was recovered in two pieces being embedded in 2050 but extending into 2034 and lying at an angle against the sloping side of the pit. This resembles notched timbers interpreted as ladders found in similar situations on Late Bronze Age and Iron Age sites as at Sutton Common, South Yorkshire (Parker Pearson and Syde 1997, 233), Loft's Farm, Essex (Brown 1988) and at Eight Acre Field, Radley, Oxfordshire (Taylor in Mudd *et* al 1995).

19.5 Discussion

The material in Waterhole CG4 is not especially notable either in terms of its implications for structural techniques or the local environment. The poor quality of preservation meant that this material was not worth conserving and it has been discarded.

The material in Waterhole CG8 is slightly better in preservation. However, it would be hard to name a prehistoric site in England or Wales that has not included pointed alder stakes of some sort. The material is thus hardly of national significance. The drawings prepared record the pertinent features in reasonable detail (Figure 85) and in the light of their state of

preservation (somewhat deteriorated by shrinkage and some physical damage since original excavation), these were also not deemed worthy of conservation and were discarded.

The updated project design for the site (Napthan *et al* 1997) identified a number of themes for the analytical work. Unfortunately the small size of the assemblage makes it difficult to identify aspects of the timber component that can contribute usefully to these themes. The material may all be derived from backfill rather than structures in the pits, it is therefore unclear whether the material contributes to an understanding of the structural practises in the settlement area or its waste disposal processes. The species concerned are extremely common to archaeological excavations of all periods in this country, and reveal nothing unexpected about the local environment. The tools indicated by the few identifiable facets reveal nothing unexpected in terms of available crafts and technologies. The small size of the assemblage and fragmentary nature of the material do not allow significant discussion of woodland management practises, if any, and nothing of timber selectivity beyond a preference for roundwood of appropriate size.

19.6 Summary

One pit exclusively contained alder timbers, the other exclusively oak timbers the reason for this distinction is not clear. The obviously worked timbers in both oak and alder were identified. Axes seem to have been used to work points onto the timbers.

Part 4: Environmental evidence

20. Animal bone (by Stephanie Pinter-Bellows)

20.1 Material and Methods

The excavation of Huntsman Quarry, Kemerton, produced a total of 2,962 animal bones and bone fragments. The majority of the faunal material 95% (2,825 fragments) came from the Late Bronze Age contexts and the other 5% (137 fragments) from Late Neolithic/Beaker contexts.

The following mammal and bird species were identified: cattle (*Bos taurus*), pig (*Sus scrofa*), sheep (*Ovis aries*), Red deer (*Cervus elaphus*), Roe deer (*Capreolus capreolus*) and dog (*Canis familiaris*). Sheep and goat can be difficult to identify to species. Deciduous cheek teeth (dP3 and dP4), distal scapula, distal humerus, distal radius, astragalus, calcaneous, and distal metapodia were used in the differentiation of sheep and goat (see Boessneck 1969, Payne 1985, and Prummel and Frisch 1986). Bones which could not be identified to species were assigned to higher order categories: sheep/goat, small artiodactyl (sheep-, roe deer- or pig-size), large artiodactyl (cow- or red deer-size), large mammal (cow-, red deer-, or horse-size), and dog/fox.

Due to the age of the bones and the state of preservation, all bones which could be identified were recorded. Tooth eruption and wear data, fusion data, and measurements were recorded systematically; and pathology and butchery data were noted. Recording of the material followed Jones *et al* (1981). Dental eruption and attrition data were recorded using the wear stages defined by Grant (1982) for cattle and pig and the stages defined by Payne (1973, 1987) for sheep/goat. Measurements follow von den Driesch (1976) with additions as described in Davis (1992). Withers heights were calculated following von den Driesch and Boessneck (1974). Two methods of quantification were used to estimate the relative importance of the major animal species: simple fragment counts (often termed number of identified specimens per taxon) and minimum numbers of individuals (following Gilbert and Steinfeld 1977: 333).

20.2 Results

20.2.1 Neolithic/Beaker

The assemblage from this phase is very small. The condition of the bones was universally poor, very eroded and abraded, some almost past recognition. Fragment identification may be seen in Table 17 and the possible measurement in Table 18.

20.2.2 Late Bronze Age

Preservation and taphonomy
Condition of the bone was subjectively noted on three characteristics. Charred bone was noted for colour - black through blue through white - and the amount of the bone affected. Eroded and abraded bone were lumped together as the characteristics were found together in almost every case. Eroded bone was defined as bone which was pitted, battered, having a 'woody' appearance or occasionally the outer surface of the bone gone. Abraded bone was defined as bone which had rounded edges instead of retaining sharply angular margins to old breaks and cut surfaces. The colour of the bone was also noted; from chalky white to a dark brown tannin-like colour. Gnawed bone was noted for the element and portion of the bone affected and the species believed to have gnawed it. Fragmentation was examined by the amount of unidentified bone (mostly fragments of long bone shafts and admittedly a most subjective characteristic based on the time spent and the experience of the observer).

In considering the condition of the bone, it was questioned whether there were any differences between the material coming from the large pits and waterholes (notably CG4, CG6, CG7 and CG31), and that coming from other pits and postholes (Table 19). Preservation of bone from most contexts is fair to poor. The charring and gnawing affect only a small percentage of bones in material from across the site; the little gnawing noted was all carried out by dogs. The unidentified fragments of bones are also found in similar percentages. The amount of fragmentation as suggested by the unidentified bone is not unusual. There are, however, more bones showing a variety of colours and less bones showing eroding and abrading from the large pits. The eroding and abrading of the bones is not only more numerous in the bones from the other contexts but more severe. The appearance of the eroded bone suggested that much of it was affected by water - pitted over the entire surface, sometimes either woody in texture or with the outer layer of bone gone. An interpretation of this patterning is that all the bone was treated similarly before disposal, but that it may have been affected differently by the size and content of the pit into which the bone came to rest.

Species abundance
The species identified are listed in Table 17 as numbers of fragments (NISP) and the minimum number of individuals (MNI). The table shows the assemblage as a whole, since when the subdivisions of 'large pits' and other pits were examined by statistical analysis using chi square the differences in NISP were not significant ($X2 = 5.36$, $P>.05$).

The bulk of the identifiable bones belong to the domestic mammal species: cattle, sheep/goat, and pig. The fragment count gives the impression of more cattle than the MNI, which has the numbers almost equal. Since the MNI calculations were made using teeth, an explanation for the larger number of cattle bone fragments may be that the larger cattle bones were being broken into more fragments. As cattle have several times the amount of meat of pigs and sheep, when the importance of these animals as a food source is considered, cattle again become more important. The only other domestic mammal found on the site was dog. Only a small number of bones were found, the majority from one partial skeleton (context 2036, CG5).

Wild mammals in the form of red deer and roe deer are present, but in small numbers - a supplement to the diet, not a major component. Most of the elements identified from the red deer are antler fragments. They do not necessarily mean that the deer were being killed for their antlers, as antlers drop off in the autumn; and the two coronets (antler bases) present are from antlers which have dropped off. The fragments of roe deer, on the other hand, include only one antler fragment (a 'dropped' coronet).

Relative frequency of skeletal elements
The range of skeletal elements found are relatively equally distributed throughout the site. The distribution is not entirely random, however, with apparently paired elements being found in some context (eg a left and right cattle astragalus of similar size in context 2036, CG5) or articulating elements in another (eg articulating cattle thoracic vertebrae in context 2010, CG10). The skeletal elements distribution of selected elements for the most common mammalian species is summarised in Table 20. The table shows the assemblage as a whole, since when the rankings of the elements in the subdivisions of 'large pits' and other pits were examined by statistical analysis using Kendall's tau the rank order was the same (cattle, $z = 1.98$, $P<.05$; pig, $z = 2.55$, $P = .01$; sheep, $z = 2.56$, $P = 0.01$).

The calculations for this elements' distribution follow O'Connor (1991). The elements chosen for this calculation come from different parts of the body and include some smaller parts of the skeleton. The expected total for elements has been calculated by taking the total count of the elements (compensating for elements of which there are more than two in the skeleton: metapodia, first phalanx, and first and second mandibular molars taken together) and dividing by the number of elements involved to obtain an expected total if the elements were all equally abundant. The observed value (O) is then divided by this calculated expected value (E) to show whether the number of specimens of a given element in the sample was under-

represented (O/E < 1.00) or over-represented (O/E > 1.00) relative to one another. A sample calculation is shown at the bottom of the table.

The pattern shows mandibles and mandibular teeth to be over-represented; while carpals and distal femora are under-represented. These differences can mostly be explained by taphonomic and recovery factors. There is differential preservation of weaker parts of the skeleton, ie those with more cancellous bone and those not yet fused (Brain 1967). There are also lower recovery rates for smaller bones. This differentiation in number of small bones not only holds true for elements of a smaller size but can be seen in the greater number of elements over-represented in cattle where the fragment size may be bigger than in the relatively smaller pig and sheep/goat. The assemblage appears to be consistent with disposal on a multi-use site. There do not appear to be noticeable concentrations of elements associated with disposal during butchery separate from culinary or industry purposes.

Ageing
Tables 21-23 summarise the age distribution of cattle, pig and sheep/goat in terms of teeth eruption and wear. The size of this assemblage is relatively small when considering questions such as the age of the animals found on the site. Consequently, interpretation of the age of animals should be confined to the contexts from this particular site and not used to explain animal husbandry or human diet on a larger scale.

The dental eruption and wear indicate that the majority of the cattle lived into maturity, with most dieing between four and eight years and some at eight years and over. There is a smaller peak killed before a year and a half. Few animals are being killed specifically for meat, adolescent animals (second molar in wear, third molar not yet in wear) are often of a size to provide a good ratio of meat yield to fodder consumed. The majority being over the age of prime beef implies the importance of the animal for more than meat, probably traction or dairy products. The amount of adult animals implies a multi-purpose role for the cattle.

The majority of the pigs were killed by the time they reached the end of adolescence (in their third year, before their third molar erupts). Pigs are usually slaughtered by late adolescence as they have gained much of their body weight by this age. The dental eruption and wear indicate that the pigs died at a variety of ages before late adolescence, more being killed as they came closer to full body weight ('more' being single digit numbers).

The dental eruption and wear data for sheep show animals killed at all ages, though few very young (first molar under stage 4) or over approximately 6 years (second molar over stage 9). This suggests an unspecialised sheep husbandry, with sheep killed for meat and kept for milk and/or wool.

Measurements
All measurements taken may be found in Table 18. None of the measurements are outside expected ranges. Measurements of pig third molars were converted into log ratio values, the standard (value 0) being the Kizilcahaman wild boars studied by Payne and Bull (1988). These value are all smaller than the Kizilcahaman boar, indicating that the pigs are all probably domestic; though it must be noted that the Kizilcahaman wild boar is by no means a universal standard.

20.3 Conclusions

Preservation of bone from most contexts is fair to poor. The range of skeletal elements appear consistent with disposal on a multi-use site. There do not appear to be noticeable concentrations of elements associated with disposal during butchery separate from culinary or industrial purposes.

The majority of the bones from this assemblage come from cattle, pig and sheep/goat. The cattle appear to be the most important meat source, though the three species may be represented in relatively equal numbers in this assemblage. While the size of cattle makes

them an important source for meat, in life these cattle were probably more valued for their role in traction. The sheep were also multi-purpose animals valued for milk and/or wool as well as meat. The pigs, seemingly all domestic, had a more one-dimensional role being valued for their meat. The red deer from the site is mainly represented by antler fragments, the evidence available pointing to most of the antlers having been already dropped from the deer. The bones present from the red and roe deer point to them playing only a minor role in the diet. Dogs were present on the site in small numbers and may have been used for hunting or working with stock.

21. Human bone (by Stephanie Pinter-Bellows)

One human bone was identified (from context 2032; CG4). The spinous process of an adult thoracic vertebra, the shape of which suggest it was an upper thoracic vertebra.

22. Cremated bone (by Stephanie Pinter-Bellows)

The cremated bone from two deposits was examined. The fragment size and anatomical distribution of both are shown below in Table 24.

The bone from 1814 (CG79), a recut section of ring-ditch, totalled 13.0g in weight. The maximum length of a fragment was 16mm. It was not possible to identify the anatomical elements from which any of the fragments derived; nor to determine certainly whether the species was human or non-human.

The bone from 2136 (CG96), a small pit comprised a total of 54.0g in weight. The maximum length of a fragment was 38mm. From this assemblage, it was possible to discern skull and long bone fragments (these long bone fragments could not be identified to specific elements) but not from which species the bones came from.

The weight of both groupings is very small. The quantity of bone recoverable from a modern adult cremation is between 1600-3600g; and archaeological adult cremations usually range from 200g to almost 2000g with an average of *c* 800g (McKinley 1989).

The colour of bones was an almost universal greyish-white with hints of blue on a few of the fragments. There are some twisting and fissuring of the fragments. The colour is suggestive of a burning temperature of between 645-<940ºC (Shipman *et al* 1984). The colours indicate a thorough burning of the bones; however it is much more common to find the colours indicating a range of temperatures depending on the placement of the individual bones to the heat and the amount of fat and muscle surrounding them (McKinley 1994).

These two small uniform assemblages of burned bone fragments may be cremation burials. The small, uniform and relatively unidentifiable nature of the fragments suggests, however, that this is less a burial meant to represent an individual than a token representation with ritual significance. If this is the case more work needs to be carried out looking for parallels. It is suggested that other reasons for small collections of burned bones should also be looked into.

23. The plant macrofossils (Elizabeth Pearson)

23.1 Methods

23.1.1 Fieldwork and sampling policy

The environmental sampling policy was as defined in the County Archaeological Service Recording System (1995 as amended). Samples of 10 to 70 litres were taken from 71

contexts dating to the Beaker/Early Bronze Age and Late Bronze Age periods. On account of the rarity of environmental remains from deposits of this date, all samples were fully sorted.

23.1.2 Processing and analysis

Non-waterlogged samples were processed by flotation followed by wet-sieving using a Siraf tank. The flots were collected on a 300µm sieve and the residue retained on a 1mm mesh. This allows for the recovery of items such as small animal bones, molluscs and seeds. The residues were fully sorted by eye and the abundance of each category of environmental remains estimated. The flots were fully sorted using a low power EMT stereo light microscope and remains identified using modern reference collections housed at the County Archaeological Service.

Two samples (1115 and 2050) from the base of large Late Bronze Age pits (CG4 and CG8) were rich in waterlogged organic remains. A sub-sample of 500mls to 1 litre from this material was processed by the wash-over technique as follows. A sub-sample was broken up in a bowl of water to separate the light organic remains from the mineral fraction and heavier residue. The water, with the light organic fraction was decanted onto a 300µm sieve and the residue washed through a 1mm sieve. The wet flots were sorted and subsequently stored in alcohol, while the residue was dried. The habitat information for the plant remains has been taken from Clapham *et al* 1987.

23.2 Charred plant remains

Charred plant remains were poorly preserved over the whole site, with the exception of a relatively rich assemblage of cereal grain from a Late Bronze Age pit (1601, CG19). These remains are likely to have been accidentally charred as a result of piecemeal processing of cereal crops (for example, parching grain prior to storage or milling), or spillage of cereal grains into domestic fires during cooking.

23.2.1 Beaker/Early Bronze Age activity

A small quantity of charred plant remains was recovered from a Beaker pit (context 2043; CG12). This included barley (*Hordeum vulgare*) grains in association with grass grains (Table 25). The only chaff identified was a possible barley rachis. The seeds of sharp dock (cf *Rumex conglomeratus*) may be a crop contaminant which has come from plants growing at the edges of the field, perhaps in a hedgerow.

23.2.2 Late Bronze Age activity

Charred plant remains were only sparsely present from features of this date (Tables 26 and 28), although one rich assemblage was recovered from a small pit of this date (context 1601, CG19) and is discussed separately from the remainder which are discussed as a group.

Pit 1601 (CG19)
The remains from this feature, a small pit, are the only example of concentrated charred cereal crop waste recovered from the site. They were recovered in association with sherds from a single vessel, perhaps suggesting deliberate and selective deposition of this material. Two sub-samples taken from the assemblage have produced radiocarbon dates of 2885±40 (OxA-10791, 1260-920 cal BC) and 2891±36 (OxA-10792, 1260-930 cal BC).

One third of the flot from a 20 litre sample was quantified. The assemblage was dominated by cereal grain, a large number of which were identifiable as emmer (*Triticum dicoccum*) or emmer/spelt wheat (*Triticum dicoccum/spelta*). Hulled six-row barley (*Hordeum vulgare*) was identified on the basis that both straight and twisted grains, with glume impressions, were present. One grain (*Triticum/Secale* sp) had some rye like characteristics, but could not confidently be distinguished from wheat. Only a small quantity of chaff (emmer and emmer/spelt wheat glume bases) was recorded.

This appears to represent a relatively clean grain assemblage (with the exception of large grass grain contaminants) which may have been accidentally charred as a result of parching grain prior to storage or milling, or from grain used in cooking being spilt into a domestic hearth.

Other features
In other features, assemblages were small, however, cereal grains were predominant (and in some cases large grass grains), while only a few chaff fragments and small weed seeds were recovered. A few hazelnut shell fragments were found in several pits (1440, CG91; 1601, CG19; and 1830, CG31).

The scarcity of these remains, particularly the delicate chaff fragments and small weed seeds, may, to some extent, reflect deterioration resulting from constant wetting and drying on the well drained soils overlying gravel. Indeed these conditions are likely to have resulted in a preservation bias towards the more robust cereal grains and large grass grains.

The identifiable cereal grains were dominated by wheat, many of which could be distinguished as emmer (*Triticum dicoccum*) or emmer/spelt wheat (*Triticum dicoccum/spelta*). A small quantity of a free-threshing type of wheat grain was recovered from contexts 1104 (CG8) and 1836 (CG6). Hulled barley (*Hordeum vulgare*) was recovered from only one context (1243, CG25).

The weed seeds are likely to derive from plants growing in arable fields, or growing around the site. As so few were recovered, it was difficult to make any interpretation of the soil conditions under which the crops were grown.

23.3 Waterlogged or uncharred plant remains

Uncharred plant remains were sparsely distributed over much of the site, with the exception of those from fills within two Late Bronze Age waterholes where they were relatively abundant (context 1115, CG8; contexts 2049 and 2050, CG4; Tables 27 and 28). In the case of both of these waterholes, preservation had resulted from waterlogging of deposits at their bases.

The seeds in other deposits, however, which do not appear to have been waterlogged, are likely to be intrusive material from the ploughsoil, introduced into the features by reworking of the soil by earthworms. Although these remains are unlikely to be contemporary with the Bronze Age deposits, the data is presented in the tables as a record of the "background contamination" which may be useful for comparison with other sites.

Beaker/Early Bronze Age
Only occasional uncharred seeds were recovered which are likely to be intrusive from the ploughsoil and not contemporary with the deposits.

Late Bronze Age pits (1115, CG8; 2049 and 2050, CG4)
Plant remains were well preserved at the base of these two features, both of which have been interpreted as waterholes. There was an abundance of fragmented herbaceous and woody plant material as well as seed remains, presumably from vegetation immediately surrounding the pits.

Seed remains were most abundant in context 1115 (a waterhole/pit fill; CG8). Here, there was only slight evidence of plants which would have been growing either in water at the bottom of the pit, or at the wet muddy margins of the water's edge, for example, water crowfoot (*Ranunculus* sbgen *batrachium*), gipsywort (*Lycopus europaeus*) and sedges (*Carex* spp). However, the abundance of twig, stem and leaf fragments, thorns and seeds of shrubby plants such as bramble (*Rubus fruticosus* agg), elderberry (*Sambucus nigra*) and dogwood (*Cornus sanguinea*), suggests the immediate proximity of either a hedgerow or woodland scrub. Other species indicate an element of grassland or herbaceous woodland undergrowth

(*Prunella vulgaris*; *Stachys sylvatica*), while corn salad (*Valerianella dentata*) is considered to be a cornfield weed. The abundant blackberry and elderberry seeds and one fragment of a sloe stone are all evidence of plants which may have been collected for food. One item appears to be a shrivelled berry, but remains unidentified.

In the fills of the other waterhole which produced waterlogged plant remains (contexts 2049 and 2050; CG4), the few seed remains recovered, suggest that similar environments were represented, although only seeds of goosefoot/orache (*Chenopodium/Atriplex* sp), which may have grown on disturbed ground around the pit, were abundant. Herbaceous vegetation, such as stem and root fragments, were more abundant in 2049 than in context 1115 (above). Fool's parsley *(Aethusa cynapium*) may have been growing cornfields nearby, while collectable food (blackberry, elderberry, sloe and hazelnut) were also present.

24. The pollen (by James Greig)

24.1 Introduction

The 3 samples examined derived from a large Late Bronze Age waterhole (cut 2031, CG4), which contained bone, charcoal and wood in a grey silty matrix. Going from top to bottom, the following fill contexts were distinguished, 2032, 2049 and 2050. The material was submitted for pollen analysis by Liz Pearson, as part of the general biological analysis of the material, which mainly otherwise contained plant macrofossils.

24.2 Methods

A subsample of each sample was prepared for pollen counting by ultrafine sieving and swirling, followed by acetolysis, staining and mounting. The pollen was counted with a Leitz Dialux microscope, using a pollen reference collection for the confirmation of critical identifications. The pollen counts ranged from 119-582 grains. Each slide was also completely scanned under low power to record the presence of a few more taxa. The pollen was well preserved and present in good quantity in some samples, but not so good in others, as listed in Table 29.

24.3 Results

The pollen in context 2032 was quite well-preserved, although some grains were crumpled. In 2049 the pollen was varied, both well and poorly preserved. In 2050, it was rather poor, and it was only worth making a fairly small count. Pollen analysis usually shows up trees and woodland well, and also many grassland plants. Weeds may be detected, but usually in less detail than from the macrofossil records.

24.3.1 CG4: Context 2032

As the pollen spectra are generally rather similar, the results from context 2032 will be discussed in some detail, and those from the other two spectra will then be compared to it.

Tree and shrub pollen amounted to 24% of the total, mainly *Corylus* (hazel) and *Alnus* (alder), which can be regarded as part of the natural background of pollen deposited from the atmosphere. There was also some *Quercus* (oak) present, together with traces of *Ulmus* (elm) and *Tilia* (lime) which were the main constituents of the original wildwood, and may represent some such more or less natural woodland somewhere in the area.

At least some of the pollen from herbs probably also arrived in the deposit by natural means. This forms the main part of the pollen spectra, with 74% in 2032, and therefore is considered to represent the site surroundings. Grassland taxa are represented by the pollen records of plants such as *Ranunculus-t* (buttercups), *Trifolium repens* and *T. pratense* (white and red

clovers), *Plantago lanceolata* (ribwort plantain), *Centaurea nigra* (knapweed), Lactuceae (a large group of composites which includes cat's ears, hawkbits, sow-thistles, hawkweeds and dandelions) and Poaceae (wild grasses). Some of this generally grassland pollen could also have been deposited from derivatives of grassland plant materials such as animal dung. The records of Cyperaceae and *Filipendula* (meadowsweet) could represent damp grassland.

Weeds are probably indicated by records such as Chenopodiaceae (goosefoot, orache), Caryophyllaceae (such as chickweed), *Persicaria maculosa* (persicaria), *Artemisia* (mugwort), and *Anthemis*-type (mayweeds). These could easily have been growing very locally. The records of *Polygonum aviculare* (knotgrass) pollen are somewhat unusual as this pollen is rarely found in archaeological material, probably because knotgrass produces and disperses little pollen. These finds may show that there was a lot of knotgrass growing in a trampled or trodden area around the waterhole, although some could also have been deposited from whole plant material.

Crop plants are represented by the 12% Cerealia-type pollen record in 2032. Although Cerealia-type does include some wild grasses such as *Glyceria*, the latter mainly grow in wet habitats and would not be expected to have made a large contribution to material from an essentially dry site, such as this. The cereal pollen may not represent the standing crops, but would seem more likely to have been deposited in secondary form from dung and straw, or from the dust arising from local crop processing. Of course, the cereal crops themselves would have probably grown in the general vicinity of the site, since it lies on what was good farming land, but the amount of pollen dispersed from cornfields is rather low.

The small pollen records from a limited range of wetland plants such as *Persicaria bistorta* (bistort type) shows that this feature was probably an isolated water-filled pit or pond in a generally dry landscape.

Finally, contexts 2032 and 2050 contained parasite ova of *Trichuris* (whipworm), suggesting a low level of sewage contamination most probably from either humans, dogs or pigs.

24.3.2 CG4: Context 2049

The tree and shrub pollen spectrum includes *Fagus* (beech) which immigrated through the European mainland to Britain at around this time, probably for a variety of reasons which may have had some connection with human activities (Küster 1997). *Crataegus* (hawthorn) is present, which may represent scrub or hedges, which seem to have been a feature of many prehistoric landscapes where there was livestock.

Cereal pollen is lower at 4%. One grain of *Secale*-type probably represents rye, which at this stage was probably a crop weed among crops of other cereals (*cf* Runnymede). The single grain of flax (*Linum usitatissimum*) is a rarity, for flax distributes extremely small amounts of pollen, and is probably very under-represented. The pit could even have been used for flax retting.

24.3.3 CG4: Context 2050

The pollen in this sample was not well preserved. However there are very large amounts of *Artemisia* (mugwort) pollen, 28%, which might suggest deposition of plant material. *Artemisia* was present in all the other samples, but at a more usual level of 1%.

24.4 Discussion

24.4.1 Waste disposal patterns

The organic content of the pit suggests that it received plant material, probably in the form of rubbish and dung. The presence of the *Trichuris* intestinal parasite also suggests the presence of other waste material, such as faeces.

24.4.2 Local environment

The landscape was substantially cleared of woodland, certainly around the occupied site, where there may have been scrub and hedges. There was probably some woodland surviving further away. The character of the surrounding landscape seems to have been of grassland. The occupied site probably had a rich flora of weeds, at times. A few wetland plants would have grown around the waterhole.

24.4.3 Food resources

There is plentiful evidence of cereals although these cannot readily be distinguished from the pollen evidence alone. Flax also seems to have been in use.

24.4.4 Comparison with other results; environmental history

These results can be compared with other environmental data from the area. A profile from 1km east of Beckford, about 4.5 km east of the Kemerton site, on peaty material buried under alluvium, showed that much of the woodland had gone from the region somewhat before the lowest dated horizon of 1800± 110 cal BC (3750±110 BP, HAR 3954; Greig and Colledge 1988). This Early Bronze Age date is unsurprising, as widespread evidence of woodland clearance around 3800 BP is shown in many pollen diagrams from England (Greig 1986, 70). These Beckford results have pollen spectra generally similar to those from Kemerton, so the latter seem to reflect the general surroundings at Kemerton as well as the local environment of the site itself, with an occupied landscape with plenty of pasture and some cereal crops. The Beckford sequence continues with little change until inorganic sediment, probably alluvium from increased ploughing and cultivation of winter cereals, was deposited some time after an organic horizon dated 950±70 cal AD (1010±70 BP, HAR 3624) was laid down.

A similar picture to that from Kemerton was also obtained from an organic lens in the alluvium of the river Avon at Bidford about 22km north-east of Kemerton (Greig 1987). The pollen spectrum was very similar to the one from Kemerton, although the amount of cereal pollen was rather less, probably because the deposit was further from human settlement. It is dated 2270±90 uncal BP (HAR 3069), and seems to indicate an essentially open pasture landscape, perhaps with drinking pools by the river Avon, together with some cereal growing.

In contrast to this data from the clearly occupied landscape, at Ripple Brook, 8km west of Kemerton, the floor of the Severn valley seems to have been covered by alder carr until about 2800 uncal BP, a relatively unoccupied part of the landscape which was more gradually cleared of its woodland, mainly during the Iron Age (Brown and Barber 1985).

The river valleys such as the Severn and Avon changed from being wide with many shallow streams during the earlier part of the prehistoric period to fewer deeper channels cutting through deposits of alluvium, mainly after around 2500 uncal BP, according to sedimentary, molluscan and beetle evidence (Shotton 1978). The landscape from which this sediment came was probably from the many sites such as Kemerton.

24.5 Conclusions

The three pollen spectra show that this pit seems to have been more or less permanently waterfilled enough for the preservation of organic material. The pollen seems to show an open, occupied, landscape with little remaining woodland, but with some scrub remaining maybe in hedges, although there was probably woodland still growing further away. The open, grassy landscape probably supported grazing animals, which may have used the pit as a drinking hole. Cereal pollen shows that grain was probably grown, stored or processed nearby, and flax pollen shows that flax was being used as well. The pit also contained some sewage, as indicated by parasite ova.

25. Molluscs (by Andrew Moss)

25.1 Introduction

A number of samples were presented for mollusc analysis. Molluscs are normally well preserved in alkaline calcareous soils and it was expected that the fauna would give an insight into the local environmental conditions at the time.

25.2 Methods

The snails had already been extracted prior to analysis so that all that needed to be done was to identify each sample and count the individuals present. Identification was based on the keys of Cameron and Riley (1994) and Macan (1977), employing a Kyowa stereozoom microscope. Adults and juveniles were counted separately to see if the population was local and breeding, or if the snails had in some way been sorted by taphonomic processes by size.

Ecological information comes principally from Macan (1977) Boycot (1934) and Kerney and Cameron (1979).

25.3 Results

Thirteen samples were processed for molluscs. One of these (1517) had only unidentifiable fragments in, so the discussion focuses on the remaining 12 samples. Further samples were subjectively examined but contained nothing further to add to the following discussion.

Each sample tube had a limited number of individuals making statistical analysis impossible. The full data set is given in Table 30.

Preservation at the site was not very good: the larger species such as Helicellids being represented only by fragments. Only juveniles plus adults of the smaller species were found whole, but usually damaged. However there is sufficient material to make reliable inferences about local environment.

Miscellaneous fossil fragments were noted such as oyster shell, coral and nummulite, derived from the underlying Jurassic bedrock.

The most abundant mollusc in all samples was *Ceciloides acicula*. This is a subterranean species. Evans (1972) considers it to be a recent introduction, and no reliable subfossil record exists. Given this and the fact that the number of adults and juveniles indicate a local breeding population, the species may probably be defined as intrusive - ie not contemporary with the rest of the fauna. It will therefore not be considered in the analysis.

25.3.1 Beaker

Only one sample is from this date (2043; CG12). Apart from *Ceciloides*, there are a number of fragments from at least one adult of *Cepaea* sp.. This mollusc is ubiquitous and nothing can be gleaned from its presence.

25.3.2 Late Bronze Age

Ten samples from pits and postholes were analysed plus a further one from a layer. The faunas are too small to analyse individually so they are grouped together. Differences in species composition at the various locations may then be used to infer spatial variation and thus differences in the local environment.

Ceciloides is again abundant and is discounted.

The family *Helicellidae* is represented by three species, *Cepaea* sp. an ubiquitous species, *Trichia hispida* (juveniles common) and *Candidula gigaxii* (occasional juveniles). The latter two species occur in open calcareous grassland, not too dry - in fact *Trichia* may also be found in wetter habitats.

A few unidentifiable juveniles of the Zontidae were recovered. The only recognisable species was a subadult of *Aegopinella nitidula*. The Zontidae prefer damper, shaded habitats such as woodland or hedgerows, but may also be found in the shadier, damper parts of open grassland.

The commonest occurrence is the family Valloniidae, *Vallonia excentrica* being the most frequently observed. This prefers open grassland, neither too dry or too wet. This species and *V. costata* are the two most abundant snail species in Bronze Age soils (Evans, 1972). *V. costata* prefers drier grasslands than *V. excentrica* and its absence here is noteworthy. Occasional individuals of *V. pulchella* were recovered. These prefer damper habitats than V. excentrica. One tiny specimen of *Acanthinula aculeata* was recovered; this is a leaf-litter dweller of woodland and hedgerow.

Other species common in open damp grassland recovered here are *Discus rotundatus* (abundant in pit 1836; CG6), *Cochlicopa lubrica* and *Vertigo pygmaea* although the latter may also be found in wetlands.

Succinea putris belongs to a family of wetland species but this particular species is more tolerant of slightly drier habitats and may thus occur in the damper parts of grassland. Similarly *Lymnaea truncatula*, an amphibious species usually found at water margins, may also be found in the damper parts of grassland (Boycott, 1934).

Two other species are also noteworthy. One minute juvenile of the rare *Segmentina nitida* was recovered. This is an aquatic species living in ditches etc. *Vertigo angustior* is only found subfossil in Britain today, except in East Anglian wetlands, although in the past it may have had a wider range of habitats including damp grasslands (Evans, 1972).

25.4 Discussion

Taken as a whole, the assemblage indicates open damp grassland perhaps with damper, darker microhabitats. The shade-loving Zonitidae and *Acanthinula* and to some extent *Discus rotundatus* may be found in longer grass. However, the occurrence of a number of *D. rotundatus* in one pit sample may suggest that the pit was somehow shaded, either naturally of artificially, attracting this species and possibly others too.

On the other hand, the presence of one aquatic snail, and other species whose habitat encompasses the wetland environment may suggest that either reeds, wet grass, mud or water

may have been collected from a local source and the snails inadvertently brought back to the site. This seems the likeliest explanation for the occurrence of *Segmentina nitida* although its minute size may in some way have contributed to it contaminating the material.

25.5 Conclusions

The material from this site has been heavily contaminated by the intrusive snail *Ceciloides acicula*. The remaining fauna consists of a damp grassland assemblage with lighter/shadier and drier/wetter microhabitats. Some wetland species do occur but these are not exclusively wetland, and may be found in damp grassland.

One exclusively aquatic snail was recovered and may have been brought to the site in mud etc. It is thus possible that other species may also have been inadvertently introduced in this way.

Little insight can be gained about spatial distribution but the occurrence of *Discus rotundatus* in numbers in one pit may be explained by either shading (natural of artificial, perhaps merely by longer grass surrounding the pit) or even by inadvertent incorporation with mud/litter from a local streambank. Assuming all the pits were equally shaded and are all contemporary, then the latter explanation may be favoured - random collecting of non-homogenous material would lead to random distribution.

26. Environmental synthesis (Liz Pearson)

26.1 Beaker/Early Bronze Age activity

The plant remains from this phase provided no evidence of the local environment, as all material apart from charred cereal crop waste was considered to be intrusive from the ploughsoil. Unfortunately, the lack of waterlogged features, and hence organic environmental remains makes it impossible to make comparisons with the apparently open grassland landscape of the Late Bronze Age indicated by pollen and molluscan evidence (Sections 24 and 25), and the hedgerow or scrub surrounding the large pits indicated by macrofossil plant remains.

Barley is recorded as a crop in use during this phase, and is recorded from other archaeological sites of this date around the British Isles. Too few contexts of this date produced macrofossil plant remains to interpret waste disposal patterns. Apart from this, little evidence has been acquired on the food products consumed during this phase of the site. However, it is becoming increasingly accepted that collected plant food was an important component of the diet in combination with farmed cereals countrywide, providing a mueseli-like plant diet (Moffett *et al* 1989). Richmond (1999) takes this view further by suggesting that even in the Early Bronze Age "it appears crop and perhaps certain species of livestock, still represented 'ranked foods' within society circulating under certain specific conditions". That is, cultivated crops were viewed as prestigious foods, traded or grown for use on special occasions, particularly ritual feasts, and were a symbol of economic status. As a result, crop production was certainly in its infancy across much of British Isles at this time. It appears that the economic base of society saw pastoralism, associated with a broad-spectrum economy involving wild resources, as being more important than cereal cultivation. The idea is supported by presence of cattle and sheep in Neolithic/Beaker contexts which although not abundant are certainly more prevalent than charred plant remains. Also the results from Beckford where an Early Bronze Age date has been secured for the start of a pollen sequence, shows a cleared landscape with grassland and some pasture as evidenced by dung beetles. Some cereal cultivation was also indicated (Greig and Colledge 1988).

26.2 Late Bronze Age activity

26.2.1 Local environment

Evidence for the local environment comes from waterlogged deposits at the base of large pits interpreted as waterholes. Woodland scrub or hedgerow appears to have surrounded these features as abundant remains from this type of vegetation (wood, twig, leaf or thorn fragments) are unlikely to have been dispersed over a long distance. Moreover, abundant seeds of blackberry and elderberry are also likely to represent nearby vegetation. Occasional seed remains from grassy or disturbed environments may not represent vegetation growing at the pit edges, but are, nevertheless, likely to be relatively local.

These results suggest a rather different environment in comparison with pollen and molluscan analyses which show a more grassy and open environment. However, pollen and molluscan remains tend to reflect the environment over a larger area, whereas the plant macrofossil remains largely represent vegetation growing more or less *in situ*. Hedgerow or scrub may have bordered the pits, and hence dominated this particular plant macrofossil assemblage. This type of vegetation is also likely to have formed boundaries along the edges of fields and trackways, and as such are reflected to some degree by the pollen and molluscan evidence.

26.2.2 Waste disposal patterns

Crop waste appears in low levels over most of the site in pits and postholes, but there is no evidence that special areas or feature types were selected for crop processing or disposal of crop waste. A concentrated deposit of charred crop debris found in one pit (1601; CG19) was the sole exception. In this case, the charred material was in a small pit or large posthole and associated with a single vessel. It may therefore represent a deliberate deposition perhaps an offering.

Otherwise these remains are likely to have been accidentally burnt as a result of crop processing or cooking. The scarcity of these remains generally suggests that these activities were probably carried out on a small scale, and in a piecemeal manner. Although poor preservation may be partly responsible for their scarcity, it is nevertheless expected that large-scale activity of this nature would still be evident in the archaeological record.

26.2.3 Food, resources, cultivation and diet

Emmer wheat appears to have been the main wheat in cultivation reflecting the pattern most typically observed on sites of this period in southern Britain. However, some grains were indistinguishable from spelt wheat, which, although it does appear in Bronze Age contexts elsewhere in the country, does not appear to have become a major crop until the late Iron Age, and certainly its presence is rare locally until the Roman period. Similarly the occasional free-threshing type wheat grains found in late Bronze Age contexts are known throughout the prehistoric period, but did not generally become a major crop until the mid Saxon period. Six-row, hulled barley was cultivated and rye may have been growing as a weed of the crop charred in 1601 (CG19). Rye type pollen was also identified from a large waterhole (CG4).

It is difficult to determine whether these crops were grown on the site or imported from elsewhere as there is a lack of cereal straw and culm bases which are often considered as evidence of crop waste associated with producer sites (Hillman 1981). There is also a lack of chaff remains generally, and it is, therefore uncertain whether crop processing such as winnowing, threshing and sieving was carried out on the site. However, it should be borne in mind that if crops were processed in small quantities, and the preservation is biased towards the survival of cereal grains, the quantity of chaff surviving may not appear to be significant.

Overall, the evidence points to any cereal crop cultivation being on a small scale, with the possibility that some, or all, of the crops were imported onto the site. Elsewhere in the country, charred cereal crop remains are similarly scarce at many comparably dated sites such as those in the Thames Valley area, for example, at Reading Business Park (Campbell 1992); Shorncote Quarry, Gloucestershire (Ede, 1992, 1999; Robinson 1995) and Runnymede Bridge, (Greig 1991).

There is some information on sources of wild plant food which were available on the site from the large pits. These include fruits such as blackberry, elderberry and sloe, while hazelnuts are also likely to have been collected as a component of the diet, although there is no direct evidence of their use. Some limited evidence for the hunting of red and roe deer for meat was also present, although these are liable to have only formed a small element of the diet.

Domestic animals were also being farmed, although it is difficult to interpret the significance they had for the inhabitants of the site directly from the animal bone assemblage. There is no evidence from the animal bones of any ritual treatment of animals, so it is presumed that this represents waste from normal domestic activities. Although cattle would have produced the largest quantity of meat, cattle, pig and sheep/goat may have been kept in relatively similar numbers. The metrical data suggests that sheep husbandry was unspecialised. Dog was recorded in this assemblage, and it is likely that they would have been used for herding animals, particularly sheep. Although it has been stated in the literature on ancient farming that primitive sheep cannot be worked with a dog, Pryor (1998) disputes this, and finds that dogs are the most efficient way of moving all sheep, even primitive varieties.

Although the bone assemblage itself does not allow detailed interpretation of the importance of livestock farming at the site, other strands of evidence would suggest that this was highly significant part of the settlement's economy. Evidence for an open grassland landscape emerges from the pollen and molluscan records, while the field boundaries, trackways or droveways and associated waterholes provide strong indications of a landscape organised for livestock control. Further support derives from the evidence for hedgerow species present in the plant macrofossil record. These suggest that these fields and tracks were possibly bounded by thorny hedges which are ideal for managing stock. Similar landscapes have been recorded widely along the Thames Valley and although environmental evidence is limited, indications are that livestock management was a major priority for these communities (Yates 2001). In terms of the overall balance of the agricultural economy for these sites, Richards (1999) has stated that:

> "*Whilst it appears that communities specialised largely in livestock farming, small-scale cultivation may also have taken place throughout the valley (Thames) and its tributaries. Evidence suggests however, that arable farming was generally limited. Arable activities have been recorded at a number of sites (eg Shorncote Quarry, Runnymede Bridge).....but whilst crop processing can sometimes be identified it is not always certain that actual cultivation took place*".

This appears to be the pattern for Huntsman's Quarry, although it is not necessarily so countrywide since in other areas, such as in Sussex and Kent, settlement expansion everywhere is linked to intensive agriculture (Richards 1999).

26.2.4 Craft and production

A single grain of flax pollen in one of the Late Bronze Age waterlogged pits, may have resulted from flax retting activities, particularly as this is associated with fragments of loom weights. Textile production of some kind evidently took place on this site, probably largely the production of woollen textiles. Although this is a single pollen grain, as Greig notes (Section 24) flax distributes extremely small amounts of pollen and is probably under-represented. A similar example is found at Reading Business Park (Campbell 1992) where flax seeds and capsules, and *Camelina* seed pods (a weed of flax) were found in five pit

deposits. Here also loom weights were found, indicating that textile production was taking place.

Part 5 Discussion and synthesis

27. Upper Palaeolithic and Mesolithic

Although considered stray losses rather than representative of settlement, the two Upper Palaeolithic represent important finds in Worcestershire and the wider region, an area within which any finds of this date are of note due to their scarcity (Myers forthcoming).

Mesolithic activity was better represented with a concentration of finds within tree-throws identified within the north-east part of the investigated area. Tree-throws and natural hollows have been widely recorded to have formed focal points for the accumulation and possibly deliberate deposition of material during the Mesolithic, examples in Worcestershire including at Aston Mill, Kemerton (Dinn and Evans 1990) and Lightmarsh Farm, near Kidderminster (Jackson *et al* 1996). These reflect transitory occupation at these sites, perhaps by small hunting groups repeatedly returning to a favoured location. Unfortunately at Huntman's Quarry, the assemblages recovered do not allow further refinement of dating or characterisation of the nature of the occupation represented. However, in the light of the presence of Mesolithic material at Aston Mill and Beckford, as well as at Huntman's Quarry, it seems that the gravel terraces along the Carrant Valley may have been a favoured location for the local population. One possibility is that the distinct rise of Bredon Hill was an important landscape feature, marking a major route around the north side of the Cotswolds towards the confluence of the Rivers Severn and Avon and perhaps also a feature associated with local beliefs and superstitions. Whatever the case, the site provides an important addition to the generally limited evidence for Mesolithic activity recorded within Worcestershire, and particularly in the south of the county.

28. Neolithic

A single pit (CG38) was identified and dated to the Middle Neolithic on the basis of material tentatively identified as from a Peterborough Ware bowl (CG38). Although only a small assemblage was present in the pit, at least two other vessels were also represented, possibly reflecting deliberate selection and structured deposition of material into the feature, a pattern commonly suggested for features of this date (Thomas 1999, 62-88; Edmonds 1999, 29-30 and 110-129). A small quantity of cattle bone was also recovered. A second potentially contemporary pit lay nearby (CG98). This also had a single fill and contained a small assemblage of flint but no other artefacts.

The single fills and the presence of potentially selected items incorporated within them typifies pits of this date (Thomas 1999). As is commonly the case no structural features were present, however, these pits can probably be interpreted as the remains of a short-lived domestic settlement. Their excavation and infilling may potentially have included some ritual significance for the local population perhaps marking their association with this particular area.

This pit along with the potentially contemporary pit nearby (CG98) and the small quantity of residual Grooved Ware pottery recovered, represent significant finds which add to a small but growing body of material from the West Midlands a whole. These include two further sites located within the Carrant Valley and to the south of Bredon Hill. A pair of pits associated with Grooved Ware and Early Bronze Age flint were recorded at the nearby site of Aston Mill, Kemerton and have been interpreted as domestic and/or ritual activity in the vicinity of, but pre-dating a ring-ditch (Dinn and Evans 1990). Secondly, slightly further to the east, at Beckford, although no Neolithic features were identified, small quantities of Neolithic residual material were recovered including several sherds of Middle to Late Neolithic impressed ware (Woodward nd).

It can be tentatively suggested that this area at the south-west end of Bredon Hill may represent a focus for Neolithic activity. Apart from the handful of features and findspots described above, this area has revealed a number of cropmarks most of which are as yet untested. These include several potential mortuary enclosures which if proven are liable to be of Middle to Later Neolithic date (Dinn and Evans 1990). In addition, an apparent hengiform monument identified through cropmark evidence at Bredons Norton has recently been subject to a small-scale investigation. Several phases of use of the monument were present including the cutting of a curvilinear ditch and the insertion of cremation deposits into the slighted remains of an external bank spreading over the uppermost fills of a substantial ditch (Jodie Lewis pers comm). Several Later Neolithic to Early Bronze Age ring-ditches, some tested by excavation, are also present in the vicinity, as is evidence for Beaker period activity (see below) and Early to Middle Bronze Age secondary (funerary) use of earlier monuments, and it may be that this area was marked out as one with special meaning for local communities from an early date. In particular, it has been observed that the postulated mortuary enclosures and the ring-ditches appear to occupy the edge of local fan gravel deposits (from Bredon; Dinn and Evans 1990), although in the light of more recent cropmark evidence it seems more probable that their distribution coincides with the limits of the gravel terrace. This distribution may reflect the marking of a boundary of some cultural, religious or even economic significance to the local population.

Within the wider region, it is notable that the very limited known activity of this date and type appears to be especially prevalent along the Warwickshire/Worcestershire Avon and its tributaries. Similarly early material including both Peterborough Ware and Grooved Ware assemblages have been recovered from a range of features at sites along the River Avon in Warwickshire, as at Wasperton (Hughes and Crawford 1995), Barford (Oswald 1969), Broom (Palmer 2000) and along the Churchover to Newbold Pacey pipeline (Palmer forthcoming). It has been observed that these have typically been associated with small monument complexes (Palmer 2000), or as at Broom having been suggested as indicative of 'temporary encampment in a location of cultural significance' (*ibid* 2000, 36). Evidence has been less forthcoming in the Severn Valley, which perhaps notably appears to lack monuments and small monumental complexes of the type seen in the Avon Valley. However, Middle to Late Neolithic Peterborough Ware assemblages have been identified in a pit and associated features in Tewkesbury which is located where the Avon joins the River Severn. To the south of this confluence, in the Severn Valley several sites in and around Gloucester have also produced Peterborough Ware assemblages, while Grooved Ware has been recovered from Saintbridge, Gloucester and Peterborough Ware from a pair of pits at Cam, near Dursley (Darvill 1987). Again the quantities of material and range of features are limited but it seems likely that small and short-lived settlements are represented (Darvill 1987).

The evidence for this period, is therefore of small monuments in the Worcestershire/Warwickshire Avon Valley but principally, as at Kemerton, seems to relate to short-lived periods of residence indicated by the survival of pits containing carefully selected and deposited residues of domestic occupation.

29. Beaker

This period was characterised by widely dispersed but apparently low intensity activity across much of the site and by one apparent area of more intense activity, focused on a group of three pits (CG 12, 13 and 42) considered to be contemporaneous. The three pits were closely spaced in a line from north to south. They appeared to have been left open for some time allowing weathering of the sides prior to backfilling. In two cases backfilling appeared to be in a singe episode, but the third (CG12) had a finds and charcoal rich spread overlain by two further charcoal flecked deposits.

In the absence of any evidence for permanent structures and in the light of the restricted character of the deposits and associated assemblages, it seems probable that these were associated with one or more short-lived periods of activity. Stylistically the ceramics were

early in the Beaker tradition (Wessex/Middle Rhine style) suggesting that this activity fell within the third , and possibly the fourth quarter of the third millennium BC.

Both the pottery and flint artefacts recovered strongly suggest domestic occupation with a range of activities represented including tool production, hunting, hide working, food preparation and other activities. The small animal bone assemblage was poorly preserved but included both cattle and sheep or goat while barley was represented within the limited charred plant remains recorded. As is commonly the case in features of this date, the material recovered appears to have been carefully selected and deposited within the pits and can be suggested as representing structured deposition reflecting ritual activity associated with one or more periods of use of the site. The material might for instance be considered as representing gifts to the gods in thanksgiving for a successful period of occupation or to ensure the replenishment of resources for future visits.

Locally very small quantities of Beaker period material have been recorded at both Aston Mill and Beckford and may be associated with further domestic sites. As noted previously, two Beakers discovered under a barrow on Bredon Hill are remarkably similar in style to those from Huntsman's Quarry, although they were located within a funerary context. Further afield within Worcestershire, a pit group at Holt and an isolated pit at Longmore Hill Farm, Astley have both produced Beaker domestic assemblages. At Longmore Hill Farm the pottery was also stylistically early and was accompanied by flint, burnt stone, charred plant remains (cereal and hazelnut shells) and small fragments of burnt animal bone (Dinn and Hemingway 1992). To the south, at Trinity Farm, Gloucestershire a row of three closely spaced pits has been recorded (Mudd, Williams and Lupton 1999) and bears close comparison with the pit group at Huntsman's Quarry. Only single fills were present containing both pottery and flint. As at Huntsman's Quarry, the ceramic assemblage was stylistically early. The fragmentary nature of the pottery assemblage was suggested as potentially reflecting broken material stored in a midden prior to deposition in the pits (Mudd, Williams and Lupton 1999), and a similar situation may be postulated for the material deposited at Huntman's Quarry. As at Huntman's Quarry and many other early prehistoric sites, structured deposition of carefully selected material was suggested for the Trinity Farm material.

Charred plant remains including numerous hazelnut shells, barley grains and a single wheat spikelet fork were also present at Huntman's Quarry. Evidence from the nearby site at Beckford shows that by the Early Bronze Age some cereal cultivation was undertaken in the area within a cleared landscape with grassland and some pasture as evidenced by dung beetles. (Greig and Colledge 1988). Therefore, these cereals, although limited in number, may have been cultivated locally.

The Huntsman's Quarry material therefore provides a significant addition to the evidence for Beaker activity in the region at this time. It also provides an important addition to the small number of domestic Beaker assemblages containing vessels of definite Wessex/Middle Rhine style known nationally. In conjunction with evidence from other sites in the region which have produced stylistically early material, this allows a number of observations to be made about local traditions and depositional practice. Pits are the main feature type and typically contain single fills or simple fill sequences. Material deposited usually includes fragmentary pottery from a more than one vessel and occasionally from a considerable number of vessels. Flint assemblages usually indicate both production and use of tools with tool assemblages dominated by scrapers. Charred food waste and animal bone have also been identified and it may be of note that barley has been recorded at two sites. Although seemingly representing domestic refuse from a wide range of activities, material deposited in these features appears to have been carefully selected and probably held particular significance for the local population.

In many respects this reflects the national pattern for sites of this type and date (Thomas 1999, 64-74) and it is also evident that this reflects the pattern discussed previously for Neolithic activity in this region. Despite these strong themes of continuity and the apparent similarity of practices involved, caution must be exercised since the manner in which material

was used and the symbolism with which it was imbued may potentially have varied widely and changed though time as did the style and range of ceramics and other material culture (Thomas 1999, 64-74).

30. Early Bronze Age

The Early Bronze Age ring-ditch located on the north side of the site almost certainly marks the position of a former burial mound although no trace of any barrow mound or primary burial survived. Dating of the construction of the original monument is uncertain. A recut section of the ditch contained cremated bone and an accessory cup reflecting the insertion of a secondary burial into the monument during the Early Bronze Age. This indicates that the monument remained a recognised feature in the landscape at this time. Such re-use, or continuing use, of monuments for subsequent burial rites is a widely recognised practice during this period (Burgess 1980; Woodward 2000c).

The alignment of a later boundary/trackway may also be some considerable significance since both features pass through the ring-ditch. These may reflect the recognition of the barrow as a territorial marker or as a feature within the landscape used to align boundaries. Although it is uncertain how much of the former monument would have been visible, it is also possible that either a deliberate attempt has been made to integrate this in the newly laid out landscape either as a sign of respect to the ancestors or that alternatively a deliberate slighting and appropriation of a formerly significant place is represented.

The ring-ditch although badly truncated and lacking any evidence for a primary burial represents an important addition to the very limited number of recently excavated examples of such features in the region (Garwood forthcoming).

A further ring-ditch has been excavated in the immediate vicinity, at Aston Mill, Kemerton. Again evidence for any primary burial which may have been present was absent, however, this had also been re-used for secondary burial rites. Here, cremations and associated finds had been inserted into pits cut into the infilled ring-ditch during the Mid to Late Bronze Age (Dinn and Evans 1990), a pattern also potentially echoed at the recently investigated cropmark site at Bredons Norton (Jodie Lewis pers comm). Further ring-ditches, including a double-ditched example are known in the area from cropmark evidence and as noted above appear to be located along the edge of the gravel terrace perhaps marking an important boundary for the local population.

Lastly, the collared urn fragments, although residual, are important finds in a region which has produced very little material of this date.

31. Late Bronze Age

Late Bronze Age activity comprised a range of posthole structures, other structures and pits set within a system of fields and tracks or droves and associated with substantial waterholes. The posthole structures can be interpreted as representing a range of domestic buildings, workshops, storage facilities and animal shelters along with fences and three large posthole enclosures.

These structures and associated pits were widely dispersed across the entire excavated area. Unfortunately, due to a combination of truncation, limited stratigraphic relationships and absence of dating evidence from many features it has not been possible to phase the activity represented with any certainty. It does, however, appear from the radiocarbon dating of organic material within waterlogged basal fills of some of the waterholes that these, and presumably some elements of the associated field system, were dug and laid out within the period *1210-1040 cal BC (95% probability* see Section 7). Disuse of the waterholes was also well dated, by radiocarbon dating of charred internal residues on pottery dumped as part of domestic debris deliberately dumped into the upper parts of these features. This disuse dated

to the period between *1140-1010 cal BC* and *1050-960 cal BC* (*95% probability*), a period felt liable to reflect the main period of domestic occupation.

Settlement areas are therefore concluded to have been established within an already existing network of fields and waterholes. These occupation areas appear to have been otherwise unenclosed. Situations where the field system pre-dates the settlement have been recorded at comparable Late Bronze Age settlement sites which have been extensively investigated such as that at Reading Business Park (Moore and Jennings 1992; Brossler, Early and Allen 2004), although at others settlement and field system appear to have been established together as at Fengate, Cambridgeshire (Pryor 1978; 1998). At Huntsman's Quarry, it seems that while some waterholes and elements of the field system were established before the settlement, the system was not a static one. Fields were adapted, extended and altered through time and new waterholes were created while others were abandoned. Similarly it is unlikely that all elements of settlement were contemporary and it is believed that occupation shifted across the area, albeit within a relatively short timeframe of no more than about 160 years and probably somewhat less centering on the eleventh century cal BC. Indeed the whole period of Late Bronze Age activity was relatively short with no more than 250 years elapsing between the establishment of the first waterholes and elements of the field system and abandonment of the settlement, waterholes and presumably the field system as well.

Ceramic evidence supports this impression of a short-lived period of occupation, the pottery falling firmly within the plainware tradition of the Late Bronze Age and only one specific and relatively isolated feature producing material of the subsequent decorated stage. The total absence of Iron Age material and presence of only a handful of Roman dated material from the whole site provides further support for the majority of the evidence to relate to a short-lived sequence of activity.

31.1 Fields and farming

The earliest features of the Late Bronze Age landscape appear to have been some of the waterholes and elements of the fieldsystems and droves which were presumably laid out along with them. Certainly one of the waterholes (CG14) can be seen to be associated with one of the boundaries on which it lay. However, unfortunately there were generally very few stratigraphic relationships either between the boundary features or indeed with any other features and only very limited dating evidence was present. As a result the sequence in which the field system and waterholes were laid out has proved impossible to establish with any certainty, although using alignments and the limited relational data available it has proved possible to exclude some features and suggest two main phases of development. This indicates that initially the landscape was divided into a number of rectilinear fields with associated waterholes and two potential droves. Several of the latter appear to have been positioned on field boundaries so that they could service two separate land parcels.

Dating of the basal fills of some of the waterholes suggests that this field system may have been established sometime between the end of the 13th century and the middle of the 11th century cal BC, although a slightly earlier date should not be excluded for some elements. A second system replaced the earlier one. Although also poorly dated, several elements were associated with Late Bronze Age pottery and it seems that this system may date from towards the end of the period of occupation represented, or possibly even slightly post-date it. This later system was more open in layout with a clearly defined drove, the system apparently having been designed to move stock from the north or north-east to the south and west or vica versa. It's relationship to the waterholes is less evident than for the earlier system, however, within the apparently more open landscape provision of water may have been a less important issue with streams perhaps having been more accessible.

The provision of waterholes for the earlier system is felt to be significant indicating that the system of droves and fields was probably created to for controlling stock, since where stock are not allowed to roam freely, it is essential to provide an abundant supply of water. This also implies that pressure of stock on available grazing resources had reached levels where it

was necessary to carefully control their movement. Further support for this model derives from analysis of the field systems at Huntsman's Quarry amongst which stockyards, a sheep run and a drafting gate can possibly be identified comparable to those noted and discussed elsewhere (Pryor 1998). These facilitate the control and management of stock enabling herds to be divided, pregnant or sick animals to be removed and animals selected for culling or shearing, processes possibly also helped by the use of dogs to work both sheep and cattle. In such a pastoral economy, the droves facilitate stock movement, perhaps in this case between spring and summer grazing on the meadows of Carrant Brook floodplain to the south, and drier grazing on the adjacent terraces and upland landscape of Bredon Hill to the north.

Evidence from the waterlogged deposits in the base of some of the waterholes suggests that these fields and droves were probably bounded by hedgerows of hawthorn, bramble and other scrubby bushes. The ditches were also probably much more substantial than their much truncated surviving elements indicate. This may be supported by the presence of a single example of the rare mollusc *Segmentina nitida*, an aquatic species which favours wet ditches, although this may also reflect the presence of wet muddy habitats around the waterholes. Again this evidence indicates that stock management was important since arable fields do not need bounding by large ditches and hedges but both are important in controlling livestock.

Other environmental evidence from the site and the wider area provides further support for this model. A pollen diagram from the nearby site at Beckford (Greig and College 1998) suggests that the landscape in the Carrant Valley had been substantially cleared during the Early Bronze Age and given over to grassland pasture interspersed with some cultivation of cereals. At Huntsman's Quarry, Late Bronze Age the wide range of environmental evidence from the waterholes indicates a landscape dominated by open grassland.

The predominantly pastoral agricultural regime indicated is reflected in the faunal assemblage which included considerable quantities of cattle and sheep. Although some cattle were killed young, most lived into maturity suggesting that their principal value may have been for milk and traction, their use for meat only coming at the end of their usefulness for these other purposes. This contrasts with the evidence from Reading Business Park where although dairy products were identified as being of some potential importance, cattle were mostly killed before they reached maturity (Levitan 1992; Wilson 2004). The reasons for this discrepancy are unclear but one possibility is that winter fodder was more readily available at Kemerton or that cattle were less valued for their meat than other products thus leading to more animals being kept alive into maturity.

The age at which sheep were killed appears to vary, though as at Reading Business Park (Levitan 1992; Wilson 2004) most reached maturity. This suggests that unspecialised sheep husbandry was being practised with use for meat, milk and wool, the importance of the latter probably being reflected in the quantities of loomweights recovered from the site. The potential importance of milk products (from both cattle and sheep) may be reflected in the pottery assemblages from the site. These included many large bucket shaped vessels with perforations and rim forms perhaps consistent with their use as milk pails with organic covers (Section 10). Burnt residues in many vessels may further suggest the scalding of milk as part of the preparation of dairy products such as cheese which may have been important parts of the diet and may also have been exchanged for other products.

The alignment of the field systems and droveways at Huntsman's Quarry is paralleled at many cropmark sites along the terraces on the north side of the Carrant Brook. These seem to indicate an extensive fieldsystem laid out around Bredon Hill with tracks or droves possibly radiating from the hill. Two further parallel tracks or droves (including one of those investigated at the site) also extend to the west possibly providing access to a tongue of higher ground situated towards the confluence of the Carrant Brook and the River Avon (Fig 88). Although these cropmarks remain largely uninvestigated, at Beckford a major boundary feature was identified on a broadly north-south alignment. Although its dating was somewhat ambiguous and Iron Age pottery was present in upper fills, the feature also produced Bronze Age pottery and clearly pre-dated Middle Iron Age settlement while charred material

produced a radiocarbon date of 1410± 200 bc (Birm 431; Britnell 1975). This strongly indicates a major phase of land division was undertaken on the south side of Bredon Hill, probably occurring sometime during the last quarter of the second millennium BC. The potential alignment of one element of this system at Huntsman's Quarry onto an earlier ring-ditch may also be significant, suggesting that this parcelling up of the landscape during the Late Bronze Age may have referenced earlier patterns of landscape division.

The establishment of such an extensive system of landscape division represented at Kemerton is currently unique in this region but can be readily compared with the widespread examples known elsewhere in southern and eastern England as on Dartmoor and other upland areas (Fleming 1988) and the across Fens of eastern England (Pryor 1998; Malim 2001). Systems such as these have been widely identified on the terraces of the Thames Valley (see Yates 2001) and whilst the evidence from Kemerton stands out in the West Midlands, tentative evidence is beginning to emerge for more widespread Bronze Age land division in this region at this time (Yates forthcoming). Such formal and widespread division of the landscape can be seen as reflecting greater intensification and regulation of farming and land division, and was perhaps associated with new forms of farming, increasingly sophisticated livestock management and changing ideas of land tenure (Pryor 1998).

Against this extensive evidence for a predominantly pastoral economy, it is difficult to assess the relative importance of arable cultivation in the area. Yates (1999; 2001) has suggested that for parts of the Thames Valley pastoralism was the 'paramount aim' and it is possible that this was the case at Kemerton and along this stretch of the Carrant Valley. However, some evidence for arable activity, cereal production and use was present. Cereals were recovered indicating use of wheat and also six-row, hulled barley. These both appear to have been common crops throughout the Bronze Age, having been widely recorded elsewhere as at Reading Business Park (Campbell 1992). Rye was also present but may have been a weed rather than a deliberate crop. Some cereal pollen was also present, although this could have derived from material brought onto the site. Waterlogged plant remains included some weeds such as corn salad and fool's parsley which are typically associated with cornfields. Generally, however, this evidence was limited and in conjunction with the very small quantities of chaff suggests that much of the material may have derived from processed crop remains brought onto the site from adjacent arable farming areas. At Huntsman's Quarry, the evidence indicates that some limited cultivation of cereals was undertaken, possibly in smaller, 'garden' type plots close to areas of settlement. Similar patterns have been observed at sites in the middle and upper Thames Valley where it has been suggested that the majority of cereals may have been imported in exchange for meat, wool or dairy surplus (Yates 1999). Lastly, as at Reading Business Park (Moore and Jennings 1992; Brossler, Early and Allen 2004), cultivation of flax may also have been undertaken as indicated by the presence of flax in the pollen record. This is a crop requiring either rotation or intensive manuring (Moore and Jennings 1992) and this may well have been cultivated in some of the smaller plots at Kemerton.

As noted previously, many of the scrubby species present in the environmental record are likely to reflect the widespread presence of hedgerows in the landscape, however, scrubby woodland is also liable to have been present. This would have provided suitable areas for keeping pigs which were also well represented in the faunal assemblage. These appear to have been culled in late adolescence indicating that they were used primarily for meat. This contrasts with the site at Reading Business Park where pig was not well represented.

In conclusion, it seems that the site at Huntsman's Quarry formed part of a carefully organised landscape spreading from Bredon Hill down to the Carrant Brook. This was laid out with hedged and ditched fields supplied with waterholes and interconnected with droves or tracks. The way in which the landscape was organised was designed to support an economy primarily based on pastoralism with cattle and sheep kept as much for milk, wool and traction as for meat. Pigs were also kept, probably in areas of scrubby woodland in the vicinity. Limited cereal cultivation and possibly the growing of flax were undertaken in small plots probably located close to areas of settlement.

31.2 Settlement structure

Evidence for the settlement associated with this landscape derives from a range of post-built structures, pits and other features of varying form and probably function. Structures included roundhouses, rectilinear buildings, four-post structures, fences and three large enclosures, the majority of which can be closely paralleled at comparable Late Bronze Age settlement sites.

Lack of stratigraphy and extensive truncation make it difficult to discern the function of many of these settlement components. Similarly these factors affect understanding of settlement development and organisation of space. However, five separate zones of activity can be identified within the site (Fig 89). Not all of the activity represented in any one zone was necessarily contemporary, however, it seems reasonably safe to assume that for most part broadly contemporaneous activities are represented within each zone. It is similarly difficult to determine whether the separate zones represent different but broadly contemporary activity areas or whether the various zones represent several phases of occupation. The radiocarbon dating programme has indicated that the period of occupation represented was short-lived (under 150 years of domestic occupation), however, it seems unlikely that the wide spread of activity and numerous post-built structures were all occupied or in use at any one time. It is probable therefore that more than one phase of occupation is represented and that some shift in the focus of the settlement has occurred during this period. The potential sequence represented by the five zones identified is discussed in more detail below.

31.2.1 Zone 1: south-east

This zone lies in the south-east corner of the excavated site. A drove, part of the later of the field systems (FS2), runs across its northern side and appears to post-date the activity in this zone.

The zone incorporates a range of structures and features, the most notable of which are a large waterhole (CG8) and associated clay lined pit (CG9). No roundhouses were recorded, however, domestic structures could have lain beyond the excavated area particularly to either the south or east. Certainly domestic activity seems likely to have been undertaken in the immediate vicinity in the light of the large quantities of domestic refuse present within features in the area and especially within the waterhole and associated pit noted above. This recorded area is notable for the presence of several small structures. A rectilinear post-built structure (CG63), a small curvilinear post-built structure (CG89) and all three examples of the small gully and post structures (CG86, 87 and 88) seem likely to in the light of their small size to represent storage facilities or animal shelters. In the light of this suggestion, the location of three of these (CG86, 87 and 89) alongside a track or drove may be of note since the latter is believed to have been used for moving stock around the landscape.

Two unusual curvilinear structures associated with fired clay wall remnants (CG50 and 51) suggest that craft or production activities requiring the use of heat were located in this zone, perhaps representing ovens or drying structures. A hearth was also present (CG30) located close to the waterhole and adjacent clay lined pit, both of which included substantial dumps of burnt limestone. These three features may therefore have had closely related functions, the hearth perhaps being used to heat stones which were then used to heat or boil water drawn from the waterhole in the adjacent lined pit. Comparable deposits were widely recorded across the site and appear to reflect significant craft or agricultural processing activities which are discussed in more detail below.

Several pits were also present in the area including two basin shaped (CG20 and 31) and three bowl-shaped (CG21, 22 and 93) examples. Little of note was recorded within these although burnt stone, charcoal and daub were commonly present within their fills suggesting perhaps that these were also associated with the processing activities noted above. Of greater interest were two small pits or large postholes (CG19 and 23) and a substantial posthole (CG25) which formed part of a fence or alignment of small pits running north to south across the area (CG47). These three features were all unusual since despite their small size they contained significant quantities of pottery. In the case of CG19, nearly all the pottery derived

from one vessel and this was accompanied by a charred deposit of processed cereal crop which may have been deposited within the vessel. CG23 also contained a considerable quantity of pottery, in this case accompanied by large volumes of charcoal and burnt bone as well as animal bone. CG25 was also distinctive including a base deposit of calcined bone accompanied by quantities of pottery representing several vessels. This was overlain by deposits providing evidence of a robbed out substantial stone packed posthole which formed part of the fence alignment (CG47). All three features therefore had an association with apparently carefully selected, distinctive and probably special deposits. These may potentially have been placed as offerings or other structured, ritual depositions marking a particular event or significant location within the settlement. The fence or pit alignment based around one of these features with 'special' deposits probably demarcated or separated certain areas of site activity and the material placed within it could have symbolically emphasised and marked this division.

31.2.2 **Zone 2: north-east**

The area defined as Zone 2 occupies the north-east corner of the site and is characterised by the presence of several roundhouses (CG54, 55 and 56) and also all five of the four-post structures identified (CG70-74). Several pits were also present, including two basin-shaped (CG17 and 36), two bowl-shaped pits (CG16 and 37) and a small pit/posthole (CG24). A well defined but isolated posthole (CG35) was also present and contained burnt limestone packing. A waterhole (CG18) was recorded in an evaluation trench to the east and may be associated. Although domestic refuse was not as abundant as in Zones 1 and 2 this probably reflects the absence of extensively excavated substantial features in this area, such features having produced the vast majority of the material culture recovered. Nevertheless, several of the pits and other features produced quantities of domestic refuse in the form of pottery, animal bone and burnt stone.

The roundhouses lay towards the north-west side of this zone. One of these (CG56) was well defined and had a south facing porch. The other two (CG 54 and 55) overlapped indicating that at this location, the one replaced the other, while CG55 may itself have been replaced or remodelled since two closely overlapping post circuits were defined. Since only half of these overlapping structures fell within the excavated area, it was not possible to determine whether any of these buildings also had porches. It appears that at no time are more two roundhouses represented in this zone although others could exist beyond the site boundaries. It possible that the roundhouses functioned as domestic structures, although in the absence of internal surfaces or occupation horizons this could not be determined with any certainty. However, it is equally possible that one served a residential function, with the other representing an associated workshop. This would be a typical arrangement for a Late Bronze Age settlement, examples elsewhere noted to comprise a major residential hut with one or two ancillary buildings (Ellison 1981). The replacement of a structure on possibly two occasions each time on basically the same site as its predecessor suggests that either the location was considered significant or that space was at a premium.

The only four-post structures identified on the site were located in this area with three lying close to the roundhouses and a the other two close to an entrance through one of the field boundaries. These structures are usually interpreted as representing raised structures used as granaries or for storage of straw, hay and other crops (Bradley *et al* 1980; Gent 1983). At Reading Business Park (Green Park), the smaller four post structures were felt to have only limited use for storage and it was suggested that, despite comparable layouts, these may have had different functions (Brossler, Early and Adam 2004). This may be the case at Kemerton, although all five examples either exceeded or fell within the range suggested (Gent 1983, 245) for such storage facilities (3.00-12.00m²) and use as raised granaries or stores seems most likely.

Of the pits, CG17 was the most notable having possibly been lined and containing a large quantity of domestic refuse and burnt limestone. The small pit or large posthole (CG24) was also of some interest containing pottery mostly derived from one fine vessel and potentially representing a deliberate deposit. The isolated posthole (CG35) also contained pottery and

appeared packed with burnt limestone but no clear associations could be determined. The pits in this zone also typically contained burnt limestone, charcoal and occasionally daub and these probably fulfilled a range of disposal and other functions.

This zone of activity appeared to be cut across by elements of the later of the two field systems defined (FS2), indicating that it pre-dated this element of the field system, a suggestion supported by the truncation of one of the pits in this zone (CG16) by one of the field boundaries.

31.2.3 Zone 3: south central

To the west of Zone 1, a third area of activity can be identified. This area is focused upon one of the large post defined enclosures (CG68). Within the enclosure were a waterhole (CG7), and a second possible waterhole or large water holding pit which had probably been recut on at least occasion (CG6). By these waterholes was a rectilinear post-built structure (CG64), while beyond the enclosure were a further rectilinear structure (CG61) and two small T-shaped structures (CG75 and 76). Lastly within this zone, located on the southern margins of the excavated area the northern part of a curvilinear gully interpreted as representing a roundhouse (CG78).

As in Zone 1, there was only limited evidence for domestic buildings, the putative roundhouse representing the most likely candidate. However, again the substantial features in this area produced significant quantities of domestic waste including pottery, animal bone and burnt stone and any focus of domestic occupation may lay beyond the recorded area. Two possibilities are advanced for the use of this part of the site. One possibility is that the enclosure may have been designed to hold stock separated from the rest of the herd, possibly pregnant animals or those recently having given birth along with their young. If this were the case the waterholes would have provided a ready supply of drinking water for the animals, while the rectangular buildings both within and just outside of the enclosure could have been shelters or byres. Alternatively this area could be associated with production or craft related activities as suggested for the waterhole and clay lined pit in Zone 1. A considerable number of clay weights, mostly of pyramidal form, were recovered from CG7 and are liable to have functioned as loomweights, perhaps indicating an association of this area with processing and use of wool or possibly even flax. Certainly water for washing or even flax retting would have been in plentiful supply (from CG7) and could have been additionally stored or used in the adjacent pit (CG6). Large volumes of burnt limestone present suggest that the water may have been heated as part of any processing undertaken. If this were the case then the adjacent rectangular building may represent a related or storage facility.

Beyond the enclosure, a second rectilinear building could have fulfilled a similar function while the two T-shaped structures could represent drying racks or even upright looms sited so that the weavers operated facing each other. Another productive/craft related function represented in this area is bronze working, notable quantities of mould and wrap fragments having been recovered from CG6 and some from CG7. Some of the burnt limestone may have been associated with this metalworking activity, casting in particular having been suggested to have made use of stones to support crucibles and moulds in intense fires for considerable periods of time and to form superstructures to retain heat (Heaton and Hearne 1994).

31.2.4 Zone 4: north central

The area defined as Zone 4 includes evidence for structures accompanied by pits and a substantial waterhole. One of the large post-defined enclosures was also present within this area and may be related to the phase of occupation represented or slightly pre- or post-date it. A fenceline on the west side of this area of activity may be related, possibly defining the limits of the focus of occupation and associated activity.

A row of three roundhouses (CG58, 59 and 60), two with south-east facing porches, formed the apparent focus of this area of activity. As in other parts of the site, truncation had removed any traces of internal surfaces, hearths or occupation deposits which may have been

present and consequently the function of these cannot be determined with any certainty. As noted previously, Late Bronze Age settlement areas elsewhere have been observed to typically contain one major residential building and one or two associated workshops or other ancillary buildings. In this instance the central of the three buildings was the smallest and most irregular in plan (CG60) and thus may represent a workshop. Of the other two, the roundhouse to the east (CG58) appeared to have been the more substantially constructed and had a porch, thus may represent the main living quarters.

In front of the roundhouses was a rectilinear post-built structure. In the light of its different form, this probably served a different function to any of the roundhouses, the most likely uses being as a workshop, store or animal shelter. Although no evidence survived for its presence, a path probably ran between this rectilinear building and the roundhouses. To the rear of one of the roundhouses (CG59) was a fence (CG49) which appeared to extend to connect with the rear wall of the central roundhouse (CG60). This clearly served to demarcate space, possibly keeping livestock away from one area of the settlement.

Large pits containing substantial assemblages of domestic refuse lay to both the rear (CG39) and front of these buildings (CG1 and 2). That to the rear may have held a substantial organic component and was notable in that the relatively large pottery assemblage recovered included residual Beaker period material.

To the south, one of the large pits (CG1) had a weathered or silting lower fill which was virtually sterile. The surviving depression over this lower fill was subsequently infilled with dumps of material, one of which contained significant quantities of charcoal, burnt limestone and domestic debris. The latter included pottery, bone, flint and fired clay as well as a considerable quantity of debris from bronze casting in the form of mould and wrap fragments. Identifiable mould fragments indicated that manufacture may have been predominantly of weapons. A notable quantity of residual Beaker pottery and flint were also recovered.

The other pit (CG2) contained a comparable fill sequence with weathering or silting deposits overlain by dumped deposits incorporating large quantities of burnt limestone, charcoal and fired clay/daub, however, only very small quantities of pottery and bone were recovered. Since it penetrated through sand and gravel into underlying clay deposits, this feature may have been used to hold or store water, possibly filling naturally from groundwater at certain times of the year. The pit lay on the southern boundary of a large post-defined enclosure (CG67) which may have functioned as a stock enclosure or corral, its funnel-shaped entrance being designed to help drive animals into it. Although no physical relationship was established between the pit and the enclosure, they may have had a related use with the pit being sited in such a way that if used to hold water this would have been accessible to stock both within the enclosure and beyond. The enclosure either pre- or post-dated the earlier field system on the site, a major element of which ran across it.

To the west of these two pits, was a substantial waterhole (CG4). This had a deep sequence of weathering or silting deposits infilling its lower portion with some evidence for recutting or cleaning out at periodic intervals. The poorly preserved remains of may have been a log ladder lay against one side of the waterhole. Upon abandonment the waterhole seems to have been left open for a short while before being deliberately infilled with two dumps of material rich in charcoal, burnt limestone, pottery, flint, clay weights, animal bone and other finds. Infilling was probably rapidly completed with little time elapsing between the deposition of the two. Notable among the finds were further quantities of discarded clay mould fragments, wrap pieces and hearth debris reflecting metalworking in the area. In common with several other features in this zone, the waterhole also produced a notable quantity of Beaker period material. This waterhole lay on the projected alignment of one of the boundaries forming the earlier of the two field systems identified (FS1), perhaps suggesting contemporaneity with that field system.

To the south of the waterhole, a small pit or large posthole (CG92) may also be associated with this zone. This was a further example of a small feature containing a potential placed offering, in this case producing burnt limestone, animal bone and over 50 sherds of pottery representing at least three separate vessels. A small and apparently isolated posthole (CG90) can also potentially be associated with this zone of activity, its function remaining undetermined.

Lastly, to the far west of this zone and potentially demarcating its limit, was a fenceline on a north-west to south-east alignment.

31.2.5 **Zone 5: west**

Zone 5 encompasses the activity present in the west part of the site which includes a group of hearths as well as several structures, pits, waterholes and a pond.

The most distinctive feature within this zone was a rectilinear structure (CG62) which was of more regular construction than any of the other buildings on site. The surviving plan of this building suggested that it had comprised two enclosed bays to either side of what may have been an open-sided central area. The structure, although potentially having east and west facing entrances appeared to have been broadly north-south orientated with a central roof ridge. To the south, a large block of limestone in a shallow depression was aligned precisely with the postulated roof ridge. The unusual character and careful construction of the building may suggest that this had a different function to other structures on the site. A rectilinear building at Shorncote occupying an otherwise relatively bare area of site was suggested to be a non-domestic structure (Heane and Adam 1999), the inference being that the building may have fulfilled a religious function, perhaps representing a shrine. Small rectilinear structures at other Bronze Age settlement sites have been similarly interpreted, as at Broads Green and Newman's End, near Harlow both in Essex (Brown 1988; Guttmann 2000, cited in Guttmann and Last 2000). At these sites the presence of placed deposits and unurned cremations provides strong support for this interpretation. Unfortunately at Huntsman's Quarry, no associated finds were recovered from the severely truncated structure, however, the careful construction, unusual form and apparent relationship between the structure and the large limestone block suggest that this may have fulfilled such a function.

To the north-west and west of the postulated shrine, were a series of hearths, notably a closely spaced group (CG41, 43, 44, 45, 46 and 47) which may have been associated with a nearby pit (CG40). These hearths were associated with large quantities of charcoal, burnt limestone and also burnt gravel, although the absence of burning of the surrounding natural suggests that the stone and gravel had been heated elsewhere and then been placed in a prepared hole whilst hot and the radiant heat used for some process. The majority of the burnt stone recovered from other features on the site consisted of larger and more angular fragments than the predominantly small and rounded stones in these features. A deliberate selection of small stone evidently had a perceived advantage - perhaps radiating a more even heat. The nearby pit (CG40) has been tentatively interpreted as a shallow pit designed to contain water while to the north an extensive depression in the natural clay (CG52) may represent a shallow pond. In the light of this observation, the role of hearths seems most likely to have been to provide hot stones to heat water. In the absence of ceramics and animal bone there is no indication that they served as domestic hearths or ovens. Consequently some form of craft related or agricultural processing function seems most probable, although a wide range of other potential uses for hot stone technology have been postulated including, for many Bronze Age sites, use in saunas (Hodder and Barfield 1991).

Further large quantities of burnt limestone and charcoal were recovered from the fills of a waterhole and large pit in this part of the site (CG3 and CG5). The waterhole had limited quantities of such material in its base fill which predominantly comprised weathering or silting deposits. However, as was the case for all of the waterholes on the site the upper fills comprised dumps of apparently rapidly deposited material the final one of which contained large quantities of burnt material as well as domestic refuse. The adjacent pit was clay lined and had a concentrated dump of burnt limestone in its base, many of the limestone fragments

having charcoal adhering to them. A series of dumped deposits infilled the feature, all of which contained quantities of charcoal and burnt limestone, in two cases being particularly charcoal rich. An associated function for these two features can be suggested, the waterhole providing water which was probably heated in the adjacent lined pit. Cooking or a craft related or agricultural processing function seem most likely, although as noted above a wide range of functions can be postulated.

More or less central to this zone, was a roundhouse (CG57) with two associated pits (CG10 and 11). Although the roundhouse had been severely truncated and no internal surfaces survived, significant quantities of material were recovered from one of the pits (CG10) and moderate quantities from the other (CG11). These included a large pottery assemblage along with flint, burnt stone, animal bone (some articulated) and horncores. These appear to represent waste from a range of domestic functions (eg food preparation) and suggest that the roundhouse was a domestic residence, the pits representing either rubbish pits or alternatively short-term storage facilities for midden-like material prior to its re-use.

A further post-built structure (CG69) was located in the south-east corner of this zone where a semi-circular arrangement of regularly spaced postholes may represent a shelter providing a windbreak from the prevailing south-westerly wind or even the surviving portion of a roundhouse of which the north side has either been truncated or was of non-earthfast construction. This lay in the corner of a land parcel defined by two ditches.

The southernmost feature within this zone was a major waterhole (CG14) which was sited on a field boundary within the earlier of the two field systems identified (FS1). This waterhole therefore had access from land parcels to both the north and south. The waterhole had some indications that it may have had revetted sides, the only example of this noted on the site, however, otherwise this was typical, the base fills reflecting silting and weathering deposits as well as some slumping, the upper fills reflecting deliberate infilling with artefact rich material including pottery, bone and large quantities of charcoal and burnt stone.

Near to the waterhole a pit (CG26) contained silting or weathering fills as well as dumped infilling deposits, however, few finds were present and the function of the pit remains undetermined. Other pits within this zone included two (CG15 and CG27) which may have been revetted. Burnt limestone, charcoal and finds were recovered but only small quantities and a storage or other specialist function seem likely.

A shallow depression containing large amounts of daub, possibly representing a demolished hearth or oven (CG28), and three isolated large postholes (CG29, 32 and 34) of indeterminate function were also present in this zone.

Finally, at the far western extent of the zone and somewhat removed from all other activity on the site, were two potentially associated features. One of these was a small pit or hearth (CG97) associated with lots of charcoal and some burnt stone, the other a heavily truncated depression containing a deposit of highly calcined bone (CG96). Although the small quantity of surviving bone and high level of fragmentation precluded firm identification of the bone as a human cremation, this seems the most likely interpretation, suggesting that this represents a funerary deposit, the nearby hearth or pit possibly representing the location of the pyre or disposal of pyre material. The small quantity of calcined bone may reflect truncation but alternatively these may be ‘token’ deposits as have been suggested for similarly small deposits of cremated bone recovered from at Hornchurch, Essex (Guttmann and Last).

31.2.6 Other features

Two features of some potential significance could not readily be associated with any of the five zones discussed above.

The first of these was a small pit or very large posthole (CG91) situated on the east limits of the main excavated area and lying half way between Zones 1 and 3. This feature was notable for the presence in its primary fill of a large ceramic assemblage which included most of a

single fine vessel as well as large chunks of several more vessels. Fabrics, forms and decorative features of these vessels differed from others on the site, being more consistent with decorated assemblages of the later stages of the Late Bronze Age period rather than plainware assemblages which otherwise dominate the site. In the light of this apparently later date for the feature, its relative isolation is perhaps not surprising. In the light of its isolation, functional interpretation is problematic. However, elsewhere on the site such features have been suggested to have had a ritual function, the associated material assemblages apparently having been carefully selected and placed possibly as offerings. A similar function therefore seems probable for this particular feature.

The other feature of note was a rectilinear enclosure (CG66) located between Zones 2 and 4. Only three sides were recorded and it is possible that this reflects the original form of the enclosure. However, since the most likely function was as a stock enclosure it seems more probable that truncation has removed the fourth side or perhaps that this side was hedged.

31.3 Craft, production and trade

Apart from the agricultural subsistence base for the settlement discussed above, a range of evidence for craft, production and trade was identified.

31.3.1 Textile manufacture

The large number of weights recovered from a range of features fills indicate the undertaking of craft activities, especially within Zones 3, 4 and 5. Since sheep formed an important component of the pastoral economy and were kept to maturity, wool was probably an important product and the majority of the weights are therefore liable to relate to textile production and have been used as loomweights. It can also be suggested that one function of the clay lined pits sited adjacent to waterholes and associated with large volumes of burnt stone may have been to provide hot water for fulling, washing and dying of fleeces (see Jeffrey 1991). Textile production seems to be a typical component of Late Bronze Age settlement economies, having been identified at comparable sites, as at Reading Business Park (Moore and Jennings 1992; Brossler, Early and Allen 2004) and Shorncote (Hearne and Heaton 1992; Brossler *et al* 2002).

The recording of flax pollen has been suggested and a further potential function for the loomweights could be in the production of linen rather than woollen textiles. The waterholes and lined pits might therefore have been utilised for retting, a process which requires large quantities of water and is more efficient if warm water is used to encourage the growth of the required bacteria to break down the fibres. Flint present in the waterholes is mostly understood to represent residual Beaker material but small quantities of Late Bronze Age material were present and it is possible that flint scrapers were used stages of flax processing following retting (eg for stripping bark from stems) as has been suggested at Reading Business Park (Brown 1992).

Although bone points were also recorded, the absence of spindle whorls for spinning of either wool or linen is somewhat surprising. Similar situations have been noted at some sites in the Thames Valley where it has been suggested that perhaps spindlewhorls were made from wood and therefore have not survived (Moore and Jennings 1992). However, this seems unlikely in the light of the considerable evidence for the use of clay spindlewhorls from Runnymede (Needham 1991) and Potterne (Hall 2000) and this absence remains somewhat surprising.

Another point of note may be the variety of forms of clay weight present. These could reflect typological changes possibly reflecting the observed transition from Middle Bronze Age (cylindrical) to Late Bronze Age (pyramidal) traditions. However, both types have been recorded on a range of Late Bronze Age sites and in light of the short period of occupation established by the radiocarbon dating programme at Huntman's Quarry this seems unlikely. An alternative is that different forms were used for different purposes either for practical

reasons or as a result of tradition, thus perhaps one type may have been associated with linen production the other with wool. Different functions should also not be excluded, potential other uses including netmaking and ropemaking. Similarly other functions can be proposed for the bone points such as for sewing leather.

31.3.2 Metalworking

Nearly 170 piece mould and wrap fragments along with a small quantity of hearth material provided significant evidence for the on-site working of bronze. The distribution of this activity (present in both Zones 2 and 4) indicated that more than one phase of metalworking occurred within the lifetime of the settlement. Deposition of this material occurred in both pits and waterholes within what are argued below to represent closure deposits of some significance within the lifecycle(s) of the settlement. Although highly fragmented as a result of the breaking out of the finished items at the end of the casting process, the survival of these rather soft and friable clay mould and wrap fragments suggests that the material has not moved far from the point of production or at least that it has not been significantly subject to abrasion and further fragmentation. Analysis of the form of the surviving pieces and of traces of metal surviving within the fabric indicated the production of leaded tin bronzes or tin bronze with a little lead. Identifiable objects included flat blades, a socketed spearhead, a palstave and a weapon with a mid rib, weapons appearing to be the principal products. In the light of the radiocarbon dating for the site, metalworking traditions represented should extend from the transition from the Penyard to the Wilburton tradition into the latter period (mid 12th century BC to late 11th/early 10th century BC; Needham *et al* 1997), dating which is consistent with the weapon types identified from the mould fragments.

This mould and wrap material is highly significant representing the first direct evidence for bronzeworking of this period to have been identified in Worcestershire or the wider region. In addition, although similar evidence has been recorded at several comparable Late Bronze settlements in the Thames Valley as at Reading Business Park (Moore and Jennings 1992) and Shorncote, (Hearne and Heaton 1994), finds of production debris are generally rare and more limited than the relatively extensive assemblage from Huntman's Quarry.

Where present at Late Bronze Age settlement sites, evidence for bronzeworking is often considered as a high status or prestige activity; the production, control, use, trade/exchange and deposition of metal artefacts having had important roles in Bronze Age society, weapons in particular being seen as symbols of power (Champion 1999). Unfortunately, as is commonly the case on settlement sites, no bronze artefacts were recovered. Of probably slightly later date than Huntman's Quarry, a single looped socketed axe has been recovered nearby on the lower slopes at the north-west end of Bredon Hill (Moray Williams 1954). Of perhaps a slightly earlier date, a double looped socketed spearhead has been found at Ashton-under-Hill, towards the east end of Bredon Hill (Moray Williams 1954). Overall, however, bronze artefacts are rare in the general area and therefore this production debris provides very important evidence for the consumption of bronze in this region and raises questions about the long term deposition and use of the finished products.

31.3.3 Trade

The presence of a considerable quantity of middle distance traded pottery tempered with palaeozoic limestone is highly significant. The use of a distinct temper from a particular regional geological source mirrors recognised Mid to Late Iron Age practice, when the use and regional trading of palaeozoic limestone, Malvernian metamorphic and dolerite tempered wares was widespread in the West Midlands (Peacock 1968; Morris 1994). Recent work in Gloucestershire has suggested that potentially this tradition may have earlier origins, Malvernian rock tempered wares having been identified in association with a Late Bronze Age burnt mound at Sandy Lane, Charlton Kings just outside Cheltenham (Timby 2001). Malvernian wares were also potentially present in Late Bronze Age/Early Iron Age contexts at Hucclecote, near Gloucester, although their association with this phase of activity was not firmly established (Timby 2003). At Kemerton, the evidence of common usage of Palaeozoic limestone tempered material (as well as occasional use of igneous or metamorphic rock

tempered material) recovered from securely dated contexts firmly establishes that this tradition extended back to at least the earlier part of the Late Bronze Age. This is a period when it is widely understood across southern Britain that local ceramic production dominates assemblages and few if any regional wares were produced (Morris 1994), and therefore this emerging evidence in south Worcestershire/north Gloucestershire is of very considerable importance.

Trade and exchange patterns for other commodities might also be expected and given the geographical location of the settlement are liable to extend south down the Severn and east along the Avon. Apart from the pottery noted above, both the shale objects and bronze (or bronze raw materials) must have been brought to the site from a considerable distance. One possibility is that Severn river trade and possibly even western seaboard exchange mechanisms affected the settlement, shale and tin possibly being brought up the river from southern and south-western England. Alternatively, such trade and exchange mechanisms might have drawn goods from the east from the Thames Valley and along the Avon.

Clearly further data is required before these suggested trade and exchange patterns can be examined with any confidence, however, the importance of the Kemerton evidence lies in raising these issues in the first place.

31.4 Disposal of material assemblages

The Late Bronze Age material assemblages from the site can basically be interpreted as the residues of domestic occupation, agricultural production and associated craft industries, comprising for the most part pottery, loomweights, animal bone, charred plant remains and large quantities of burnt stone and charcoal. This 'refuse' has largely been deposited as a component of the upper fills within the waterholes, large pits closely associated with the waterholes and other substantial pits across the site.

This 'refuse' derived for the most part from one or more dumps of material deposited into the uppermost part of the features upon their disuse as part of what appears to be a relatively rapid and deliberate backfilling process. This material appears not to be discarded at its original location of use (ie it is not primary as defined by Shiffer 1988). However, the presence of large chunks of vessels, numerous conjoins and relatively low abrasion indicate that the pottery has not been extensively reworked or trampled. Other classes of artefacts as well as the animal bone assemblages are similarly relatively complete and unabraded, animal bone for instance showing only limited signs of gnawing.

These deposits are therefore considered to represent dumps of secondary refuse (ie it has been moved from its original point of use). However, the majority of the material incorporated appears to have been little moved, perhaps on only one occasion and then only a short distance from its original point of discard or breakage. Two possibilities are suggested. The first is that these have been taken from a nearby deposit of material which has been removed from its original sphere of use and stored for re-use, for instance in a short-term midden. Another possibility is that they derive from clearance of occupation debris from an abandoned area of the site ('*de facto*' refuse as defined by Shiffer 1987). Whatever the case, their deposition into these pits appears to have occurred relatively soon after their original point of discard and to be intended as a final act of disposal.

The reason for this apparently deliberate disposal into these pits is one which warrants further consideration. Numerous other lesser pits, structural features and small linears were also present and yet in contrast to the waterholes and major pits most seem to have attracted little cultural material. Furthermore, the material itself has an intrinsic value as manuring material, the potential importance of manuring for instance for flax growing having already been noted. Consequently, this material appears to have been purposefully dumped into these particular features, all of which would have required a considerable investment of effort to establish and therefore for whatever reason must be considered to have been deliberately abandoned and infilled.

In conclusion, it is felt that the majority of the assemblages recovered from the site represent material deliberately deposited within these features when they were abandoned. Since this is a pattern seen repeatedly across the site, since domestic refuse had a potential use as manure and in the light of a widespread acceptance that refuse is not usually simply thrown away by prehistoric communities, it is concluded that these deposits reflect deliberate closure of these features with material specifically selected for the purpose. The potential symbolism of these deposits and reasons behind deliberate closure of these features are examined in more detail below. Other smaller features with notable concentrations of material may have symbolic meanings as well and these are also discussed in more detail below.

31.5 Settlement lifecycles and the symbolic meaning of material deposition

The pattern and symbolism of disposal of cultural material on Late Bronze Age and Early Iron Age sites is an issue which has attracted much attention in recent years, much of it informed by the models proposed for structured deposition in both the Neolithic (Richards and Thomas 1984) and the Middle to Later Iron Age (Hill 1995). Discussion has focused upon special or placed deposits from a range of features including enclosure ditches, entrances, postholes and pits at both Middle and Late Bronze Age sites. These structured deposits have been suggested to have been placed at symbolically significant locations within the settlements or have been associated with ceremonies taking place at key moments within the 'lifecycle' of the settlements such as upon foundation or abandonment (Brück 1999; Guttmann and Last 2000; Brück 2001). Considerable attention has also been paid to artefact rich material deposited over and around apparently dismantled buildings as part of a structured abandonment process at Middle Bronze Age sites at Trethellan Farm and several other locations in Cornwall (Nowakowski 2001), as well as at Bestwall, Dorset (Ladle and Woodward 2003). Another area of focus has been the remarkable large spreads or 'middens' of Late Bronze Age date such as those at Potterne (Lawson 2000), East Chisenbury (McOmish 1996) and at Runnymede Bridge (Needham and Spence 1996, 1997), where strong 'ritual' connotations have been argued for the material being deposited.

In contrast to these deposits, the major concentrations of material from waterholes and large pits associated with Late Bronze Age sites have attracted remarkably little attention in terms of potential symbolism and depositional practice. This is despite the fact that at Reading Business Park, Berkshire (Moore and Jennings 2001; Brossler, Early and Adams 2004) and Shorncote Quarry, Gloucestershire (Hearne and Heaton 1992; Hearne and Adam 1999; Brossler *et al* 2002) as at Kemerton, the material assemblages from waterholes and other large pits, dominate the overall site assemblages. However, discussion of these assemblages has generally been restricted to their use as indicators of site function and economy, interpretation typically viewing them as domestic refuse.

At discussed above, at Kemerton the pattern of infilling of the waterholes and the closely associated substantial pits seems to represent deliberate acts of closure. A rapid appraisal of the character of waterholes elsewhere (for instance at Aldermarston Wharf, Bradley *et al* 1980; Shorncote, Hearne and Heaton 1994, Hearne and Adam 1999, Brossler *et al* 2002; Reading Business Park, Moore and Jennings 1992, Brossler, Early and Allen 2004; Eight Acre Field, Radley, Mudd 1995) shows that features have comparable sequences of use, abandonment and discard to those at Kemerton, material rich deposits typically occurring in the upper (discard) part of the fill sequences. It is therefore suggested that, rather than representing 'rubbish', these represent deliberate and symbolic closure deposits and that these are commonplace on Late Bronze Age settlement sites in both waterholes and large pits. This raises the question of whether they had similar symbolic values and meanings to those deposits which have already been widely discussed.

Elsewhere it has argued that during the Middle and Late Bronze Age there may have been a close symbolic relationship between settlements and their occupants Brück (1999; 2001), the lifecycles of the settlements/features being linked to those of the more important inhabitants.

Major events in this lifecycle such as the birth of an important heir within a kingroup may therefore have been marked by the construction of a new house and establishment of a new settlement area. Such an event would have been accompanied by the completion of ceremonies during which significant artefacts and other symbolic deposits would have been made. It is suggested here that similar ceremonies were enacted in the Late Bronze Age, the excavation of a new waterhole perhaps forming part of this 'act of creation' and marking the start of the lifecycle of an important new member of the community as well as part of the settlement. Within a predominantly pastoral society such as that postulated for Kemerton, waterholes would have had a very important practical role providing water for stock and thus ensuring their well-being and enabling them to be closely controlled within a bounded landscape. Thus the waterhole performs an important economic and social function and is thus may have had a potentially powerful symbolic as well as practical role within the community.

At the other end of the settlement 'lifecycle' the death of the head of the household or head of the wider kingroup would have represented the other key event in this suggested lifecycle. This has been proposed at a number of sites (see Nowakowski 2001; Brück 2001; Ladle and Woodward 2003) and it has been suggested that this event may have been accompanied by a practical as well as symbolically resonant 'death' of the associated settlement. As part of this process, houses appear to have been abandoned in a deliberately structured and orderly manner (Nowakowski 2001), and closing rituals were enacted (Bruck 1999, 2001) including possibly communal feasting and conspicuous consumption to mark the event (Ladle and Woodward 2003).

It is argued that at Kemerton, as with the foundation ceremonies at the start of the lifecycle, the end of this lifecycle may have been intimately tied to waterholes and large pits. Thus the abandonment and closure of these features, symbolically as well as practically, may have marked the end of the 'lifecycle' of an area of settlement as well as the death of a key member of the community. Such rituals at 'birth' and 'death' and the material deposited may have been closely related to beliefs about fertility, regeneration and rebirth. Perhaps the deposition of material symbolised a belief that through returning significant items to the ground and 'harnessing death' the success of a new settlement area and its community could be secured. At the same time, the relationship of the abandoned settlement and the dead member of the community with the rest of the kingroup could be formally ended and transformed ensuring that they could not detrimentally affect the life of the new settlement and surviving community. During a period when the physical burial of individuals became much less visible than it had previously had been (Brück 1995), the potential importance of such ceremonies could have been considerable, possibly reflecting the increasing importance of the household and settlement yet maintaining 'traditional' links to individuals and ancestors.

Support for this suggestion derives from a number of observed characteristics of the material infilling the waterholes and large pits. Firstly, the presence of large chunks of individual vessels, some of which may have been carefully selected, may reflect a symbolic breaking up of the household as has been suggested for similar material derived from pits cut at the end of the 'life' of a roundhouse at Broom, Bedfordshire (Mortimer and McFadyen 1999). Another possibility at Kemerton, is that the vessels deposited had a symbolism derived from their use to store and process milk. Milk appears to have been an important commodity essential to the livelihood of the community, its production being dependant upon livestock the well-being of which was dependent upon water from the waterholes.

An alternative relationship for the vessels might be to communal feasting and conspicuous consumption of food and drink undertaken as part of these closing rituals as has been suggested at Bestwall (Ladle and Woodward 2003). Although the characteristic feasting sets identified at the latter site and elsewhere (Woodward 2000) were not present at Kemerton, it can be postulated that the pottery deposited in the closing deposits derived from carefully curated, short-term, midden deposits which included the remnants of vessels used in feasts or rituals enacted to mark the last stages of occupation and activity within each zone of the site.

Similar processes have been suggested at Hornchurch (Guttmann and Last 2000). At Kemerton a link with feasting may be indicated by the presence of thick burnt residues on many of the vessels which possibly results from the final meals cooked within them; from the large quantities of animal bone present which included burnt, butchered and jointed pieces consistent with use as food; and from the large volumes of burnt stone and charcoal which may reflect use of hot stone technology in roasting meat and heating stews and similar meals held in the pots. A final possibility is that the material deposited simply represents a carefully selected range of the material culture in use at the settlement. This also could have derived from a midden and have been chosen to symbolically reflect the end of the everyday processes undertaken during its lifecycle, thus including domestic refuse as well as items such as the clay weights which are liable to have been associated with everyday craft activities such as weaving. Lastly, the possibility is raised that the timber posts dumped into one of the waterholes (CG8) may actually represent part of a dismantled building, thus the closure deposits not only contained residues from the settlement but actually potentially incorporated elements of the buildings themselves.

Whatever the case, the symbolic importance of the selection and structured deposition of material culture in these features is emphasised by the generally sterile fills of other features across the site. This may indicate that incorporation in middens prior to their selective use in ceremonies or as manure on arable fields was the norm (Gingell 1992, cited in Brück 2001) and that selection of waterholes as receptacles for some 'rubbish' was as noted above a conscious choice imbued with symbolism. Further areas of symbolism can be suggested for the material. Firstly, the 'pollution' of the all important water supply by 'rubbish' may have had considerable resonance to the local community. It has been widely suggested that 'refuse' may have had connotations of danger and an association with death at this time (Brück 1999; 2001) and therefore in the light of the lifegiving properties of water (for both humans and animals), its deposition into the waterholes may have been particularly symbolic.

Secondly, the presence of a human vertebra in one of the waterholes (CG4) may also be significant. Brück (1995; 2001) has discussed the regular occurrence of human remains in various contexts at Late Bronze Age settlement sites and their potential symbolic connection with belief systems surrounding the cyclical process of life and death. Thus the inclusion of human remains within one of the 'closure' deposits at Kemerton is consistent with a widely observed phenomenon and reinforces the suggestion that these deposits formed an element of carefully observed rites undertaken to ensure the successful transformation between life and death and to secure the renewal of life for the community. Another resonance may have been to provide a link to ancestors and ancestral rights, matters which may have been important in reinforcing ownership of the newly bounded landscape. Such a concern with reinforcing ancestral links as a way of demonstrating landownership rights might also be reflected in the incorporation of Beaker material in some of these 'closure' deposits. Although these finds may be residual and accidentally incorporated, the quantities present in some of the waterholes and larger pits (eg CG1 and CG4) were considerable and may reflect deliberate attempts to create an ancestral link to the surrounding land.

The case for the excavation and closure of waterholes marking the beginning and end of Late Bronze Age settlement lifecycles seems strong. However, a link needs to be established between this process and the widespread extent of the settlement evidence present at both Kemerton and other similar sites. Much of the evidence examined by Brück (1999) and others derives from well preserved Middle Bronze Age enclosed settlement sites. These only witnessed short-lived periods of occupation within relatively small, fairly closely defined and enclosed settlements. Brück (1999), using anthropological studies, has suggested that these settlements may reflect what is known as a neolocal residence pattern whereby children leave their parental home to set up their own households upon marriage. The resultant new settlement or household is then inhabited for the lifetime of the head of the household or perhaps slightly longer if one or more members of the family do not marry, or if resources and space do not enable the setting up of a new household. In the light of variable estimates of the durability of a single phase construction roundhouse which fall between 15-25 years and up to 100 years, a typical lifecycle for a roundhouse of a few decades would fit well with

the proposed residence model and a pattern of single generational (or slightly longer lived) settlements or households might evolve.

However, Late Bronze Age sites differ significantly, with many such as that at Kemerton being unenclosed and having extensive areas of settlement activity. In the light of the limited stratigraphic relationships and the generally poor preservation of structures at these sites, the weight of evidence rests with the waterholes and major cut features and their relationship to the overall site plan. As at Kemerton, it has widely been argued that not all areas would have been occupied at any one time. Shifting patterns in the focus of occupation have therefore been suggested as at Knight's Farm (Bradley and Barrett 1980, 290), Shorncote (Hearne and Heaton 1992; Hearne and Adam 1999) and Reading Business Park (Moore and Jennings 1992; Brossler, Early and Adam 2004). At Shorncote, it was further suggested that each focus of domestic activity reflected a short-lived phase of occupation by a small group or community (Hearne and Adam 1999). It can therefore be suggested that at these Late Bronze Age settlements, similarly short-lived periods of occupation may be represented to those identified for Middle Bronze Age settlements, each zone perhaps having been occupied for a single generation.

If applied to Kemerton, this hypothetical model works well. Five zones of activity each with one or more associated waterholes have been identified. If a period of between 20-30 years is allowed for each generational lifecycle, this might indicate a maximum period of occupation across the excavated area of between 100 and 150 years. This figure tallies with the estimated span of deposition for the ceramic assemblage as determined by the radiocarbon dating programme which indicated that the material was deposited over a period of between 1 and 160 years (*95% probability)*. Although the dating programme suggested that some of the waterholes may have been established prior to this period, extending the Late Bronze Age activity to up to 250 years, there was no indication that this earlier use was associated with settlement, the waterholes almost certainly forming part of a field system laid out some time prior to domestic occupation. Unfortunately the dating of the ceramic assemblages was not sufficiently refined to allow such a shifting pattern from zone to zone to be firmly established. However, careful analysis of the ceramic assemblages from each zone has identified subtle variations in their composition and in increasing elements of decoration of the vessels indicated a potential shift over time from the south and east of the site towards the north and west. Thus it is suggested that the zones may have been sequentially established and abandoned in the order in which they have numbered, namely from 1 to 5 (Fig 89).

Apart from the larger features with major finds concentrations discussed above, a number of small pits or large, isolated postholes also produced considerable concentrations of material. Of particular note was the large posthole in Zone 1 which appears to have been excavated for the placement of a vessel containing a charred cereals (CG19), a small pit or large posthole (CG92) in Zone 4 which included large chunks of at least three vessels and the apparently late small pit or posthole (CG91) lying between Zones 1 and 2 containing a large ceramic assemblage including most of a fine decorated vessel and substantial chunks of several others. Similar 'odd' deposits have been noted and discussed elsewhere and possibly, as with the deposits discussed above, may have had associations with settlement lifecycles and the marking of significant events, locations and boundaries within the community (Brück 1999). Alternatively they may reflect the placement of offerings to give thanks or seek help from the gods at a more individual level for instance in relation to poor health or the successful conception or birth of a child.

In conclusion, the majority of artefacts deposited on the site seem to have been selectively deposited in a regular way in particular features. These repeated patterns of disposal and the character of the material incorporated are felt to reflect beliefs associated with death and regeneration, beliefs in which settlements as well as the inhabitants of the settlements were seen to have lifecycles. These ideas of lifecycles may have extended to many of the objects being deposited, while the rituals within which they were deposited may have been designed to ensure the proper treatment of the dead and ensure regeneration and continuing prosperity for the community. Elements of the material may also have specifically been chosen to

reinforce ties between the living, the deceased and the ancestors, thereby establishing or re-iterating tenurial rights to the land being farmed b the local community.

31.6 The wider context

Yates (2001) has noted from the extensive evidence for Late Bronze Age activity identified along the Thames Valley that these well organised field systems and associated settlements with specialised pastoral economies occur in discrete zones or enclaves spaced along the river valleys with less well populated and managed areas between them. These zones or enclaves in the Thames Valley can be associated with metalworking, metal deposition, specialist craft activity and distinctive regional pottery styles, thus may represent wealthy socio-economic zones dotted along river valley with relatively empty areas and less prosperous areas between.

These managed landscapes reflect a period of major social and economic changes for local communities. These changes possibly occurred in response to increasing agricultural intensification, the creation of fields reflecting a point where grazing resources came under sufficient strain from the animal population to require careful control. This could reflect the demands of a growing human population, however, social change may have been a more important factor and it has been suggested that at this time the expression of power and wealth become intimately tied to the creation of agricultural surplus. Such surplus may have had an important function in supporting the provision of feasting by an emergent hierarchy, in underpinning exchange mechanisms involving prestige goods such as metalwork and in creating and meeting a wide range of social obligations (Champion 1999).

At Huntsman's Quarry, the predominantly pastoral economy might therefore have created an agricultural surplus which a local elite used to lay on feasts and through exchange to secure prestige goods like shale and bronze, the latter being cast at the site into weapons which themselves could be exchanged or displayed. Such prestige items were symbols of power at this period. A key factor in the exercise and generation of power and wealth by a local elite, may have been the location of the site beneath Bredon Hill. This situation has been noted before to have been ideally placed to overlook and control a potentially important strategic communication and trade route passing between Bredon and the northern end of the Cotswolds (Cruso Hencken 1934). This route runs towards to the confluence of the Severn and Avon and links the east-west route of the Avon Valley with the north-south route provided by the Severn Valley. Similar economic and social factors have been suggested to lie behind the development of key sites in south-eastern England, several of which also lie on important communication routes (Yates 2001, 78).

The apparent middle distance trade in palaeozoic limestone tempered and possible Malvernian tempered wares identified at Huntsman's Quarry as well as at several sites in north Gloucestershire may also indicate other socio-political developments in the region. During the Iron Age it has been widely suggested that this tradition relates to cultural, and possibly tribal (*Dobunnic*), affinities, potentially indicating beliefs in ancestral links to certain natural features or geologies (for instance the Malverns and Malvernian igneous rocks; or Clee Hill and dolerite). This raises the question of whether such tribal identities were already emerging during the Late Bronze Age. If so, might these be reflected in common cultural traditions, and trade and exchange patterns to the south, west and east of the Malverns in common with the apparent distribution bias of the Iron Age material?

At the moment, Huntman's Quarry remains an isolated example of this kind of very extensive and unenclosed Late Bronze Age settlement in this region. However, it seems likely that further examples will emerge along the Severn and Avon Valleys. The unique high status pyre site at Broom, Warwickshire with its associated bronze cauldrons and nearby pit containing a pottery feasting set (Palmer 2000) provides an indication of the potential for wealth generation in the region, while Middle to Late Bronze Age boundaries at Park Farm, Barford, Warwickshire (Cracknell and Hingley 1994), at Rudgeway Lane and the Gastons, near Tewkesbury, Gloucestershire (Walker, Thomas and Bateman forthcoming) and on the

Malverns, Worcestershire (Field 2000) indicate other areas where formal division of the landscape had been undertaken. Lastly, other sites, like the extensive and material rich surface scatter at Whitchurch on the Stour, Warwickshire (Hingley 1988) and the apparently comparable site at South Littleton, Worcestershire (WSMR 7338), provide intriguing potential parallels to the better studied and known sites at Potterne (Lawson 2000) and East Chisenbury.

In conclusion, the Late Bronze Age settlement at Huntsman's Quarry, in conjunction with the strands of evidence discussed above, strongly suggests that the area to the immediate north and west of the Cotswolds was integrated into a similar pattern of Late Bronze Age social and economic change to that known from the more widely studied Upper Thames Valley region to the south and east of the Cotswolds scarp. Unfortunately, the specialised pastoral regime and community established at Huntman's Quarry appears not to have lasted for any great length of time. The waterholes and presumably the accompanying field systems and occupation areas were abandoned sometime early in the first millennium BC, a pattern seen at many Late Bronze Age settlements. Indeed, it appears that after a period of agricultural intensification, specialisation, expansion and prosperity throughout much of the Late Bronze Age, that the end of this period witnessed a crisis for these communities possibly as a result of deteriorating climate, human over-exploitation and widespread social dislocation (Yates 2001). Around Kemerton, as in many areas of the country, there is no evidence for the pattern of settlement and landscape in the following period, the Early Iron Age remaining a prehistoric 'dark age', and it is not until almost 500 years later that the widespread appearance of enclosures associated with Middle Iron Age activity that the landscape was again visibly occupied and farmed.

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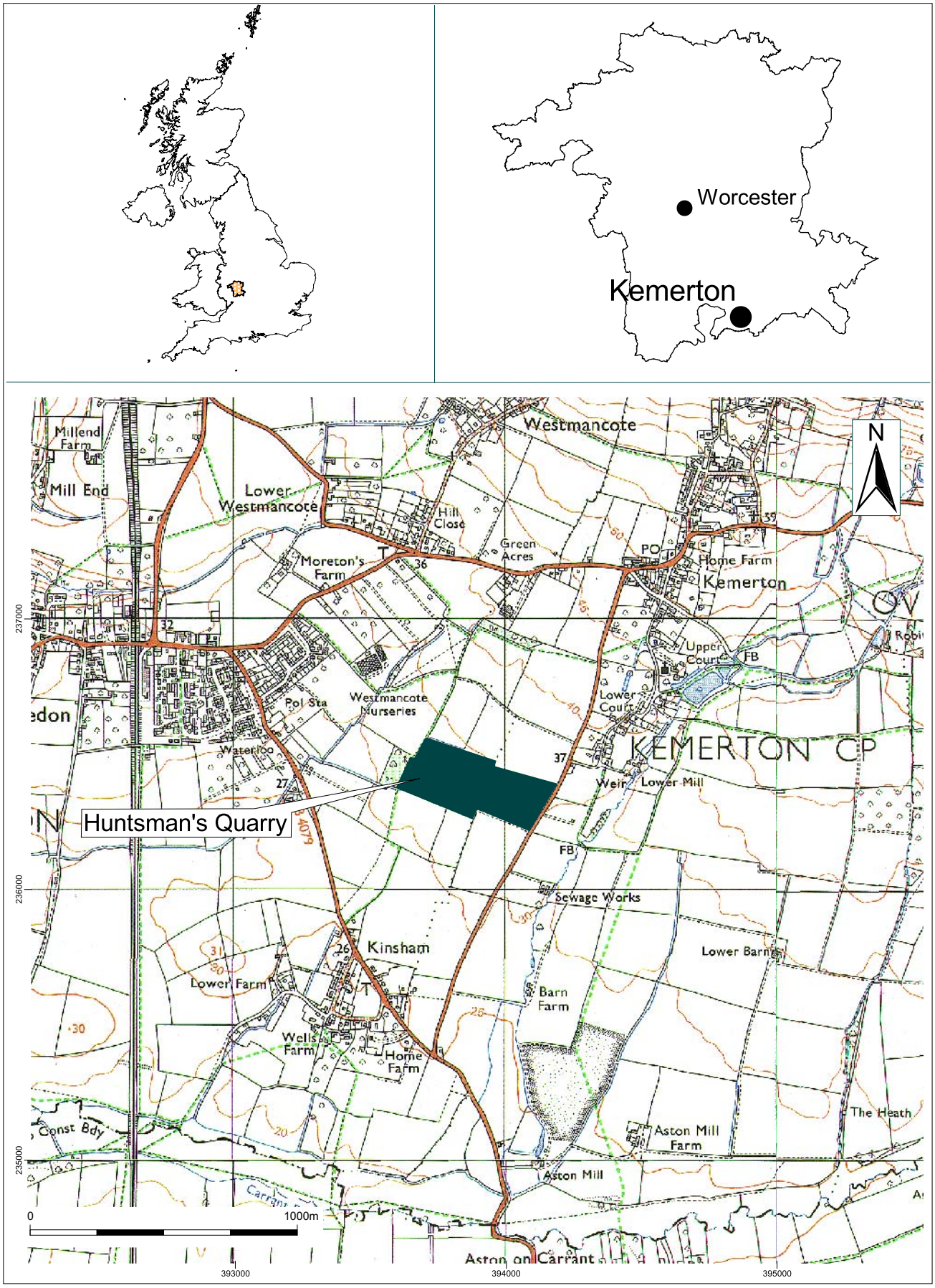
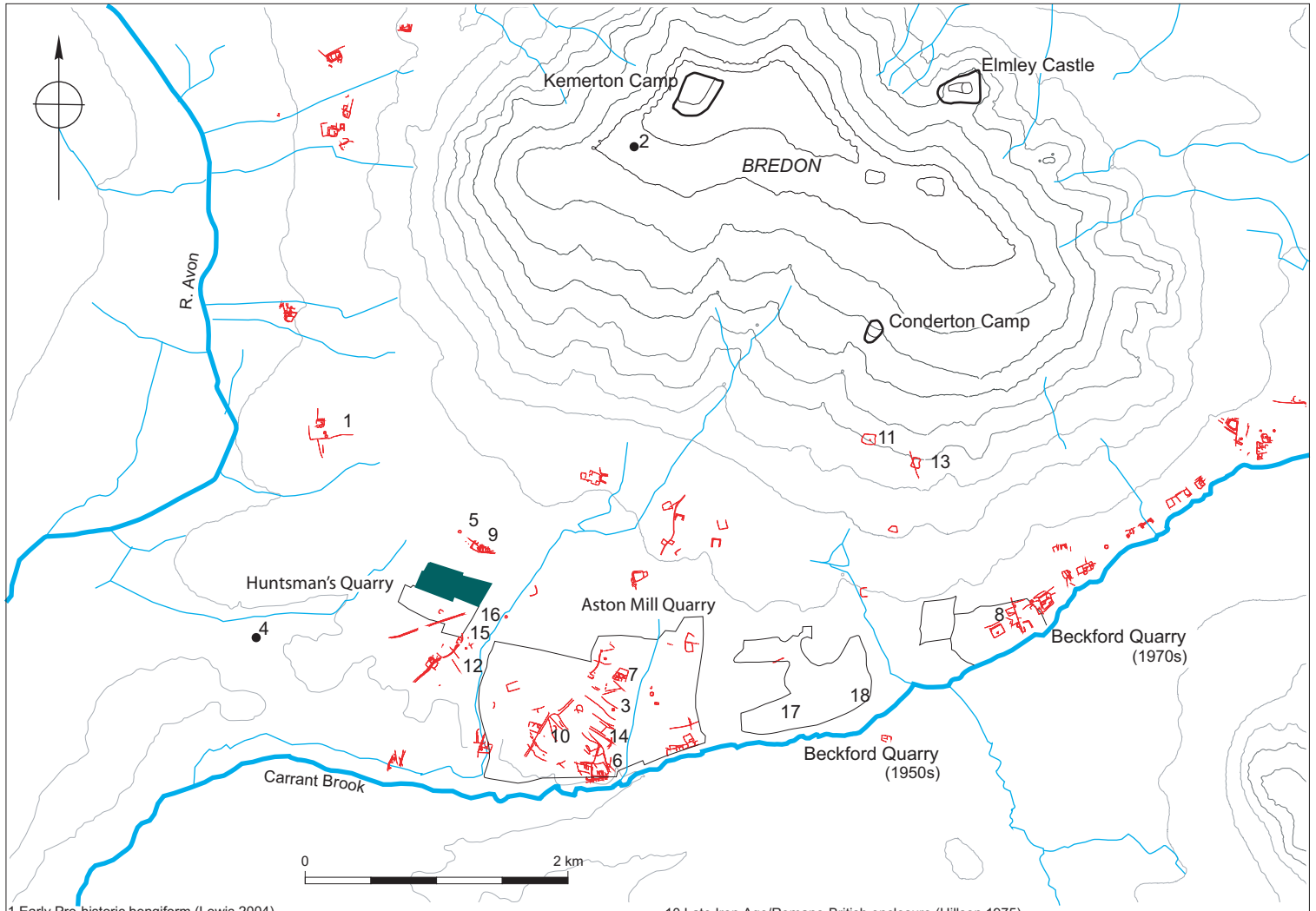


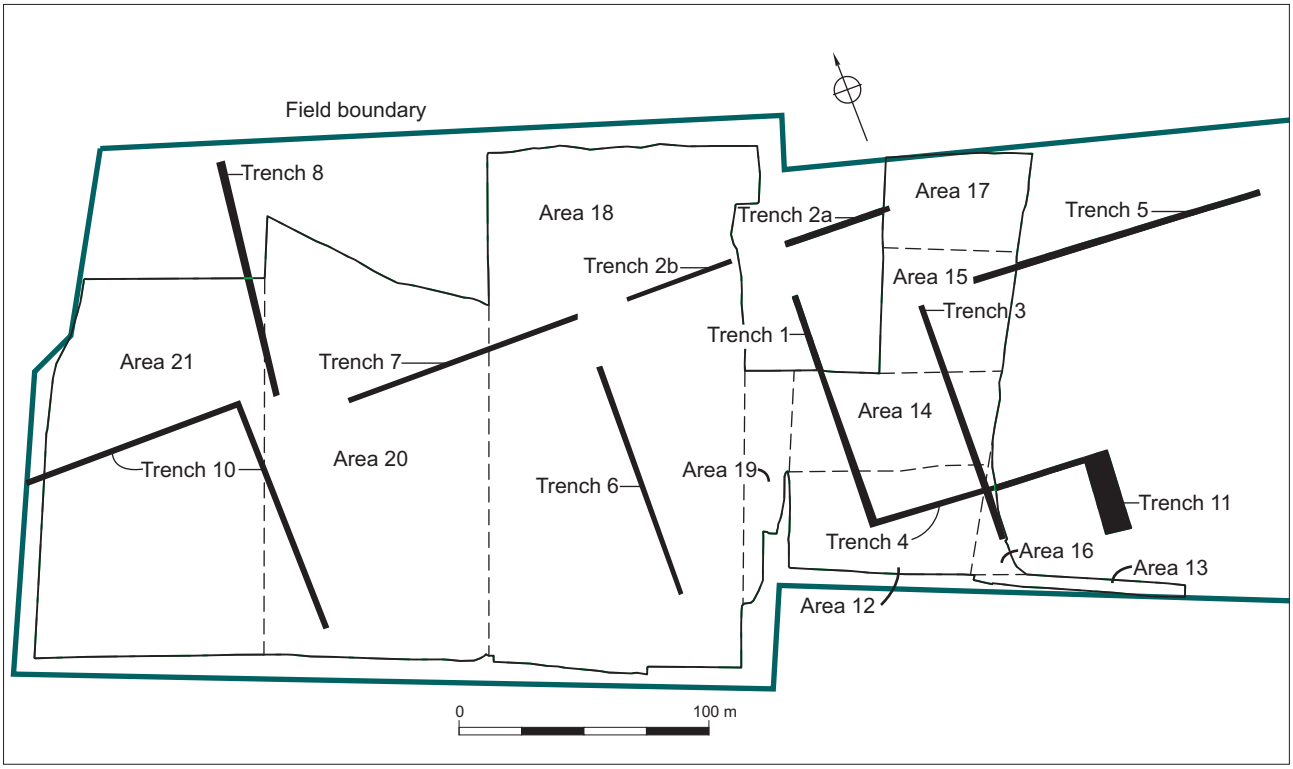
Location of site

Figure 1



1 Early Pre-historic hengiform (Lewis 2004)
2 Beaker burials (Thomas 1965)
3 Early Bronze-Age ringditch (Dinn and Evans 1990)
4 Unenclosed Middle Iron Age settlement (Cotswold Archaeology forthcoming)
5 Middle Iron Age enclosure (Terrain Archaeology 2001)
6 Middle Iron Age enclosure (Dinn and Evans 1990)
7 Middle Iron Age enclosure (Dinn and Evans 1990)
8 Middle Iron Age and Late Iron Age/Romano-British settlement (Oswald 1974, Britnell 1975)
9 Late Iron Age/Romano-British enclosure (Terrain Archaeology 2001)
10 Late Iron Age/Romano-British enclosure (Hillson 1975)
11 Romano-British settlement
12 Romano-British finds scatter and enclosure (WSM 5098, 5137; SAM Hereford and Worcester 212)
13 Romano-British settlement
14 Anglo-Saxon period grubenhaus (Dinn and Evans 1990)
15 Anglo-Saxon period settlement (Fagan *et al.* 1994)
16 Anglo-Saxon period settlement (Terrain Archaeology 2001)
17 Anglo-Saxon cemetery (Evison and Hill 1996)
18 Anglo-Saxon cemetery (Evison and Hill 1996)

Topography and Archaeological Context *Figure 2*



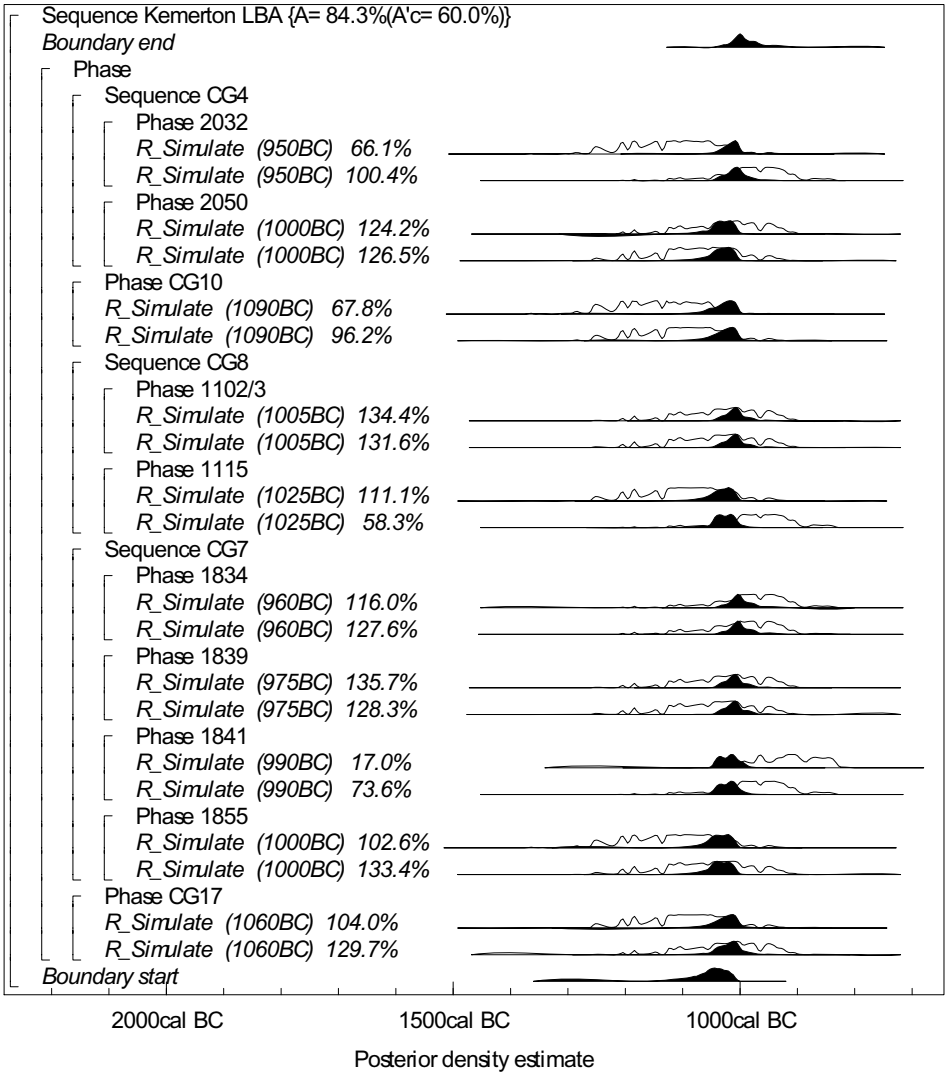
Evaluation Trenches and Excavation Areas *Figure 3*

Area 11 during evaluation
(a substantial pit is clearly visible in the centre of the area).

Figure 4

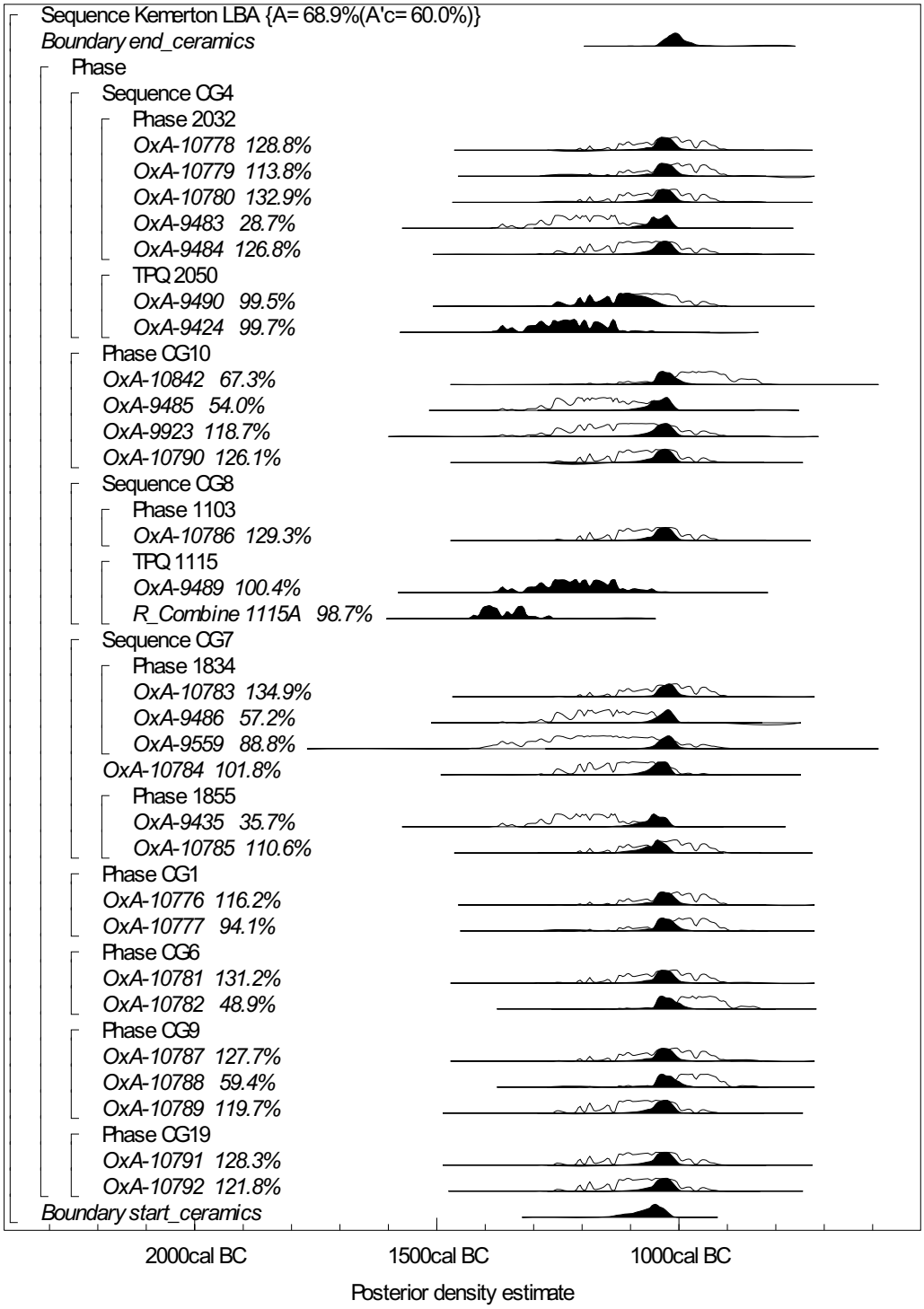
View showing typical conditions following topsoil stripping

Figure 5



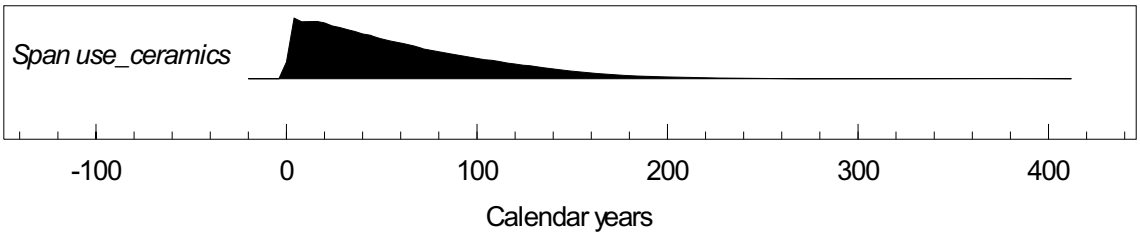
Probability distributions of simulated dates from the sequence at Huntsman's Quarry. Each distribution represents the relative probability that an event occurs at a particular time. For each simulated radiocarbon date, two distributions have been plotted: one in outline, which is the result of simple radiocarbon calibration, and a solid one based on the chronological model used. The large square brackets down the left hand side of the figure, along with the OxCal keywords, define the overall model exactly

Figure 6



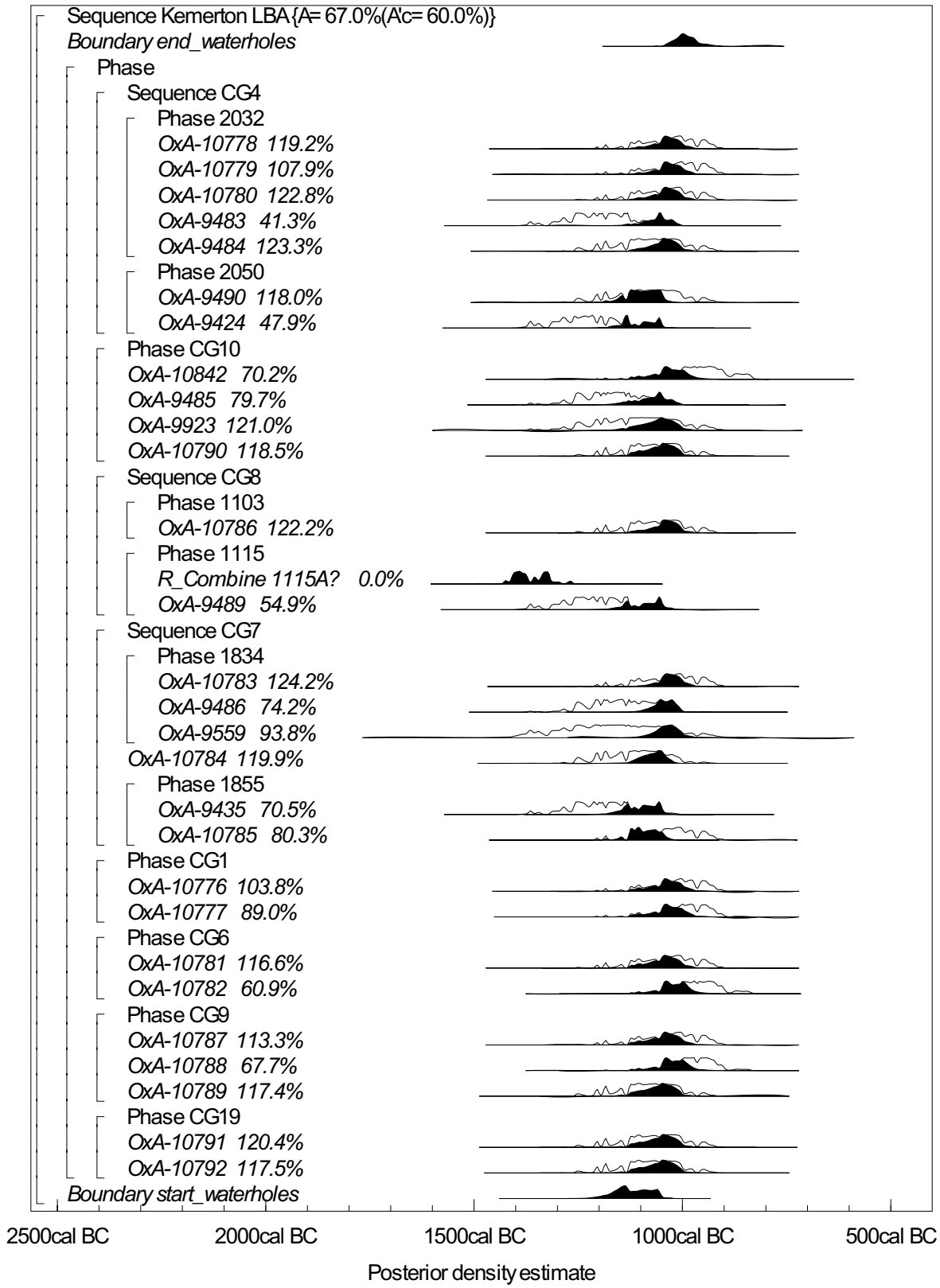
Posterior density estimates of dates, relating to the date of the ceramic assemblage. Each distribution represents the relative probability that an event occurs at a particular time. For each radiocarbon date, two distributions have been plotted: one in outline, which is the result of simple radiocarbon calibration (Stuiver and Reimer 1993), and a solid one based on the chronological model used. Dates followed by a '?' have been excluded from the analysis. The large square brackets down the left hand side and the OxCal keywords define the overall model exactly

Figure 7



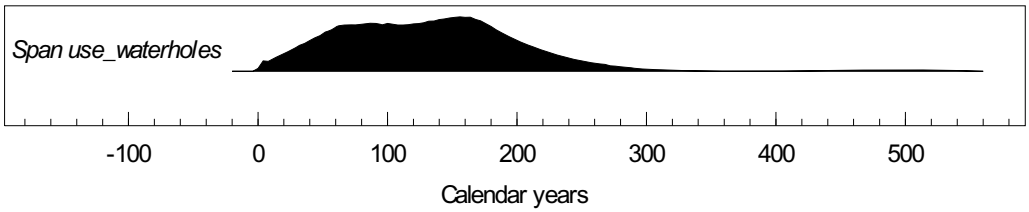
Probability distribution of the period during which the dated ceramic assemblage was in use (see Fig 7)

Figure 8



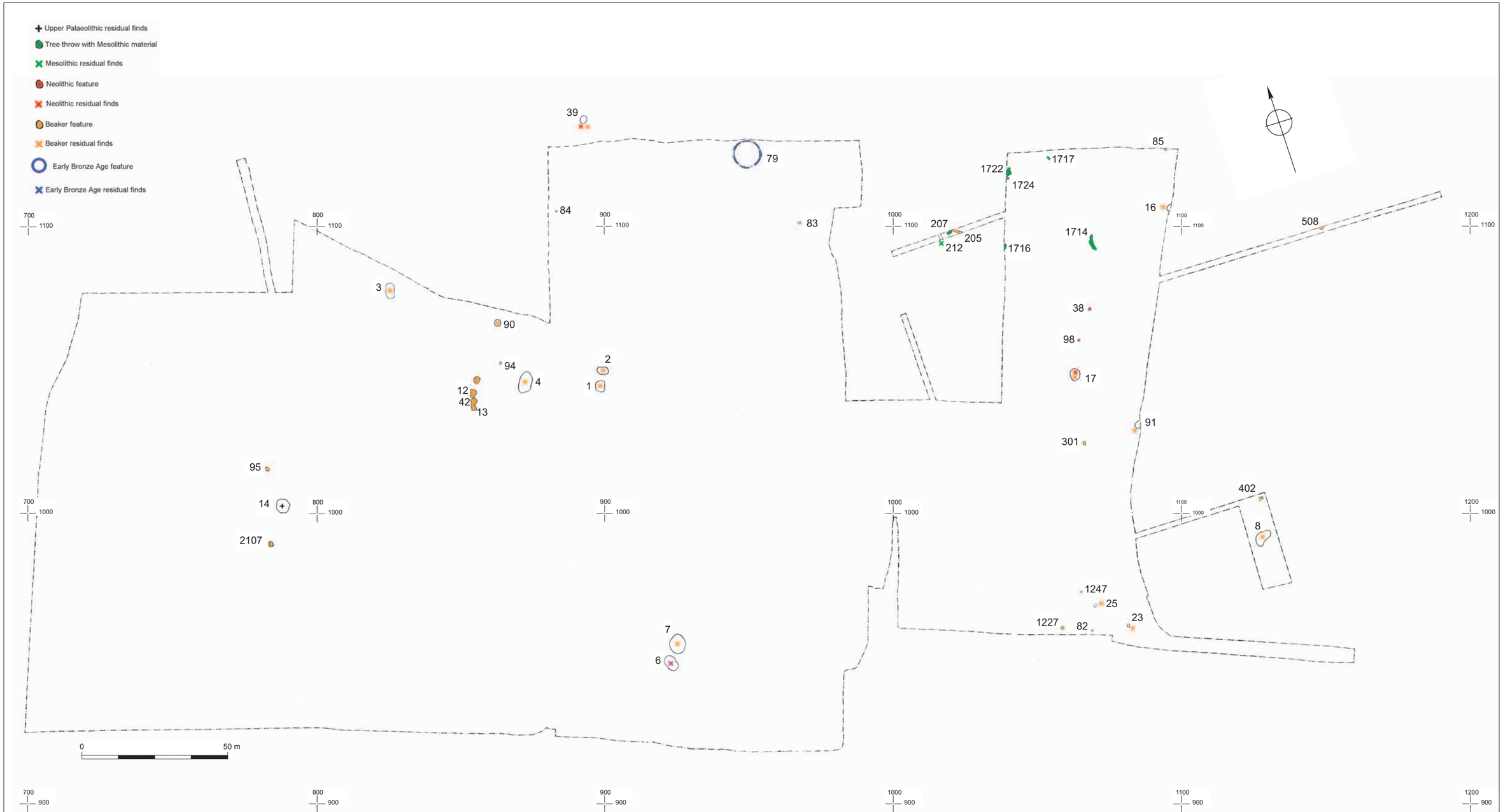
Posterior density estimates of dates, relating to the use of the waterholes. The format is identical to that for Figure 7. The large square brackets down the left hand side and the OxCal keywords define the overall model exactly

Figure 9



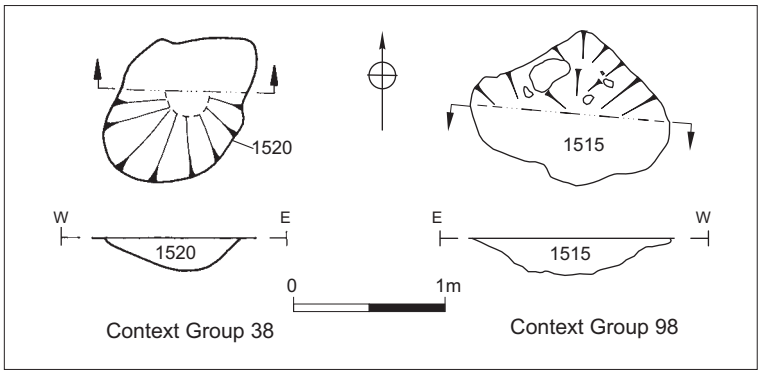
Probability distribution of the period during which the waterholes were in use (see Fig 9)

Figure 10

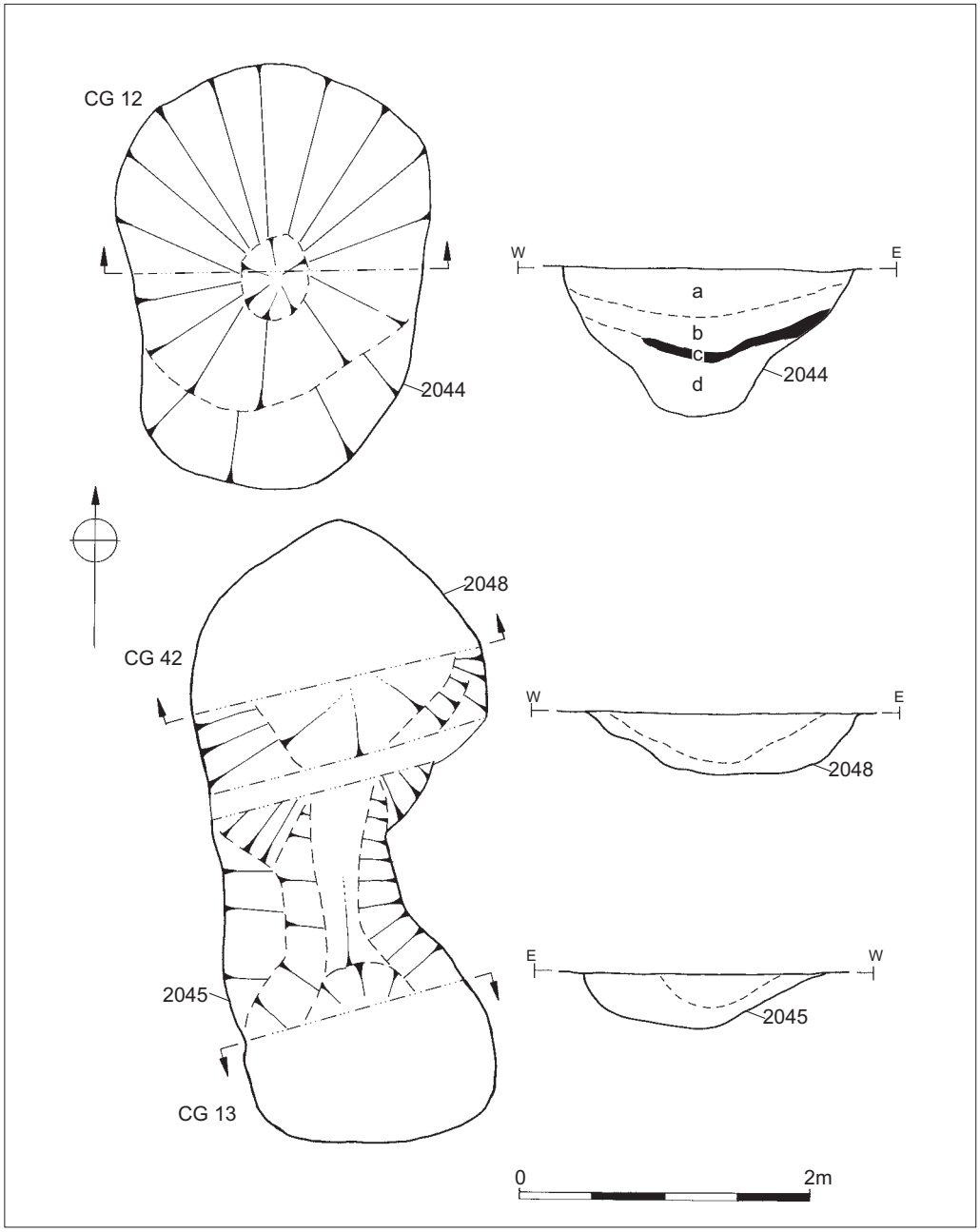


Distribution of Early Prehistoric activity

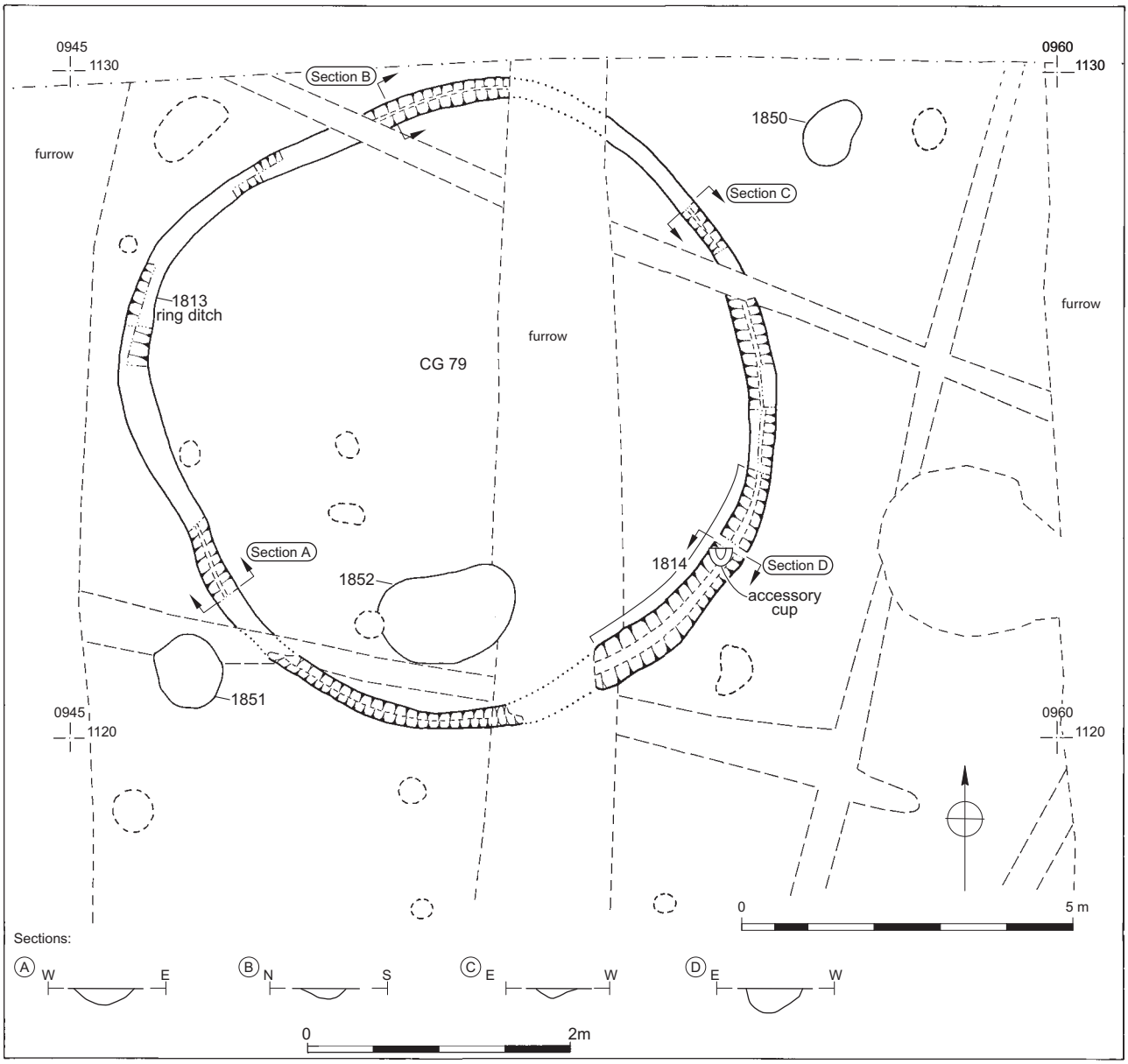
Figure 11



Neolithic pits (CG38 and CG98) *Figure 12*

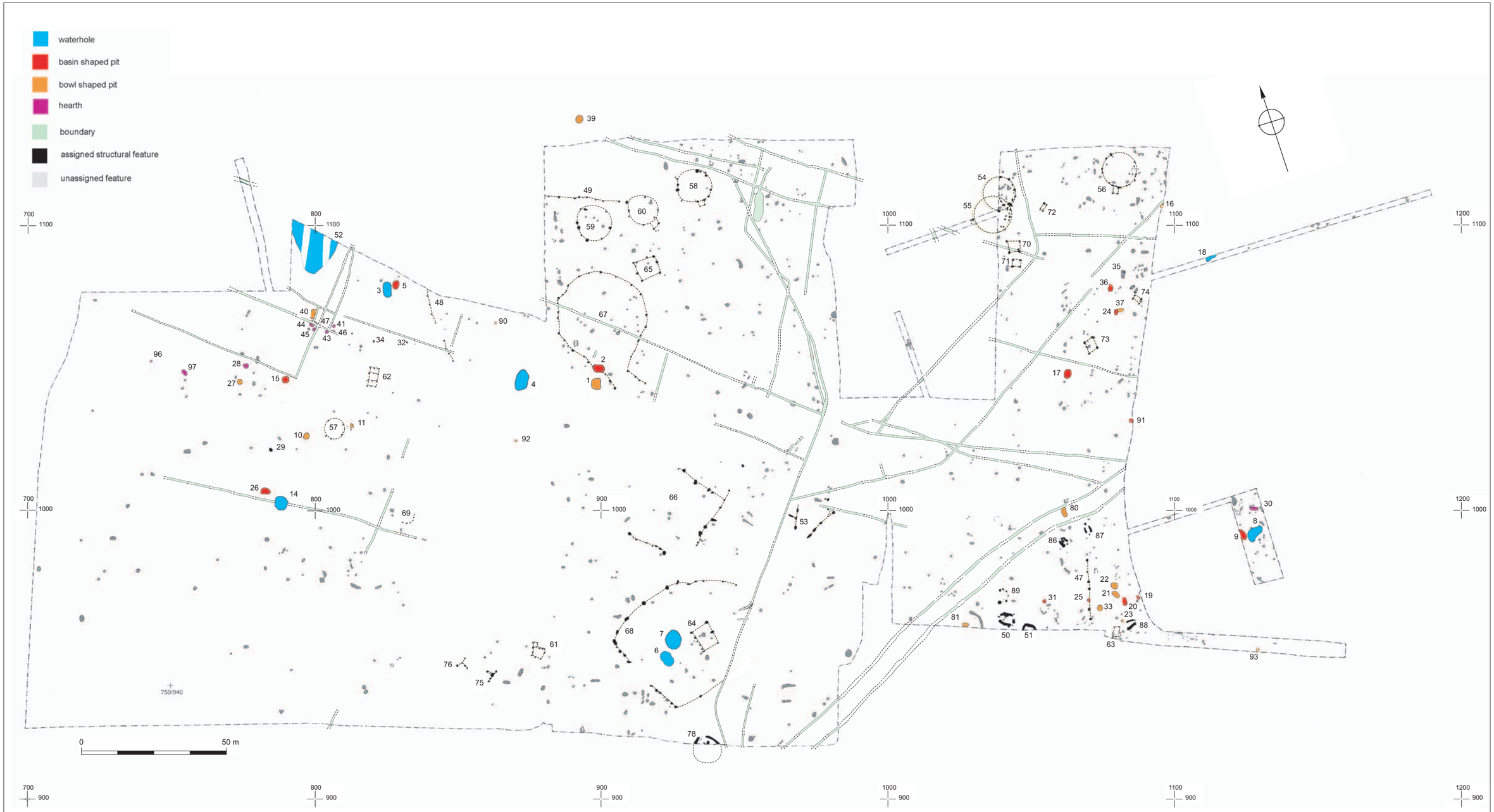


Beaker pit group *Figure 13*



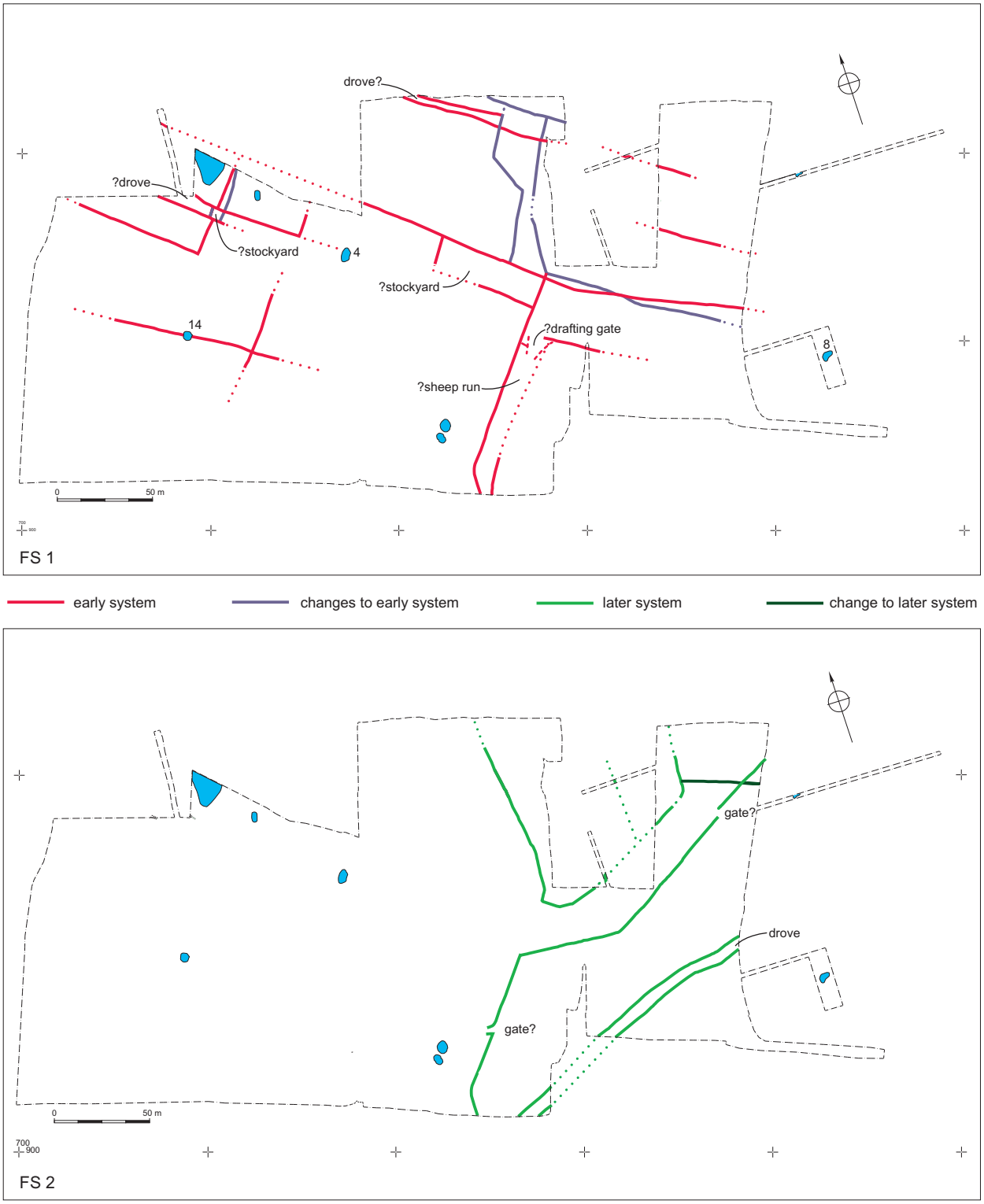
Ring-ditch *Figure 14*

Ring-ditch during excavation *Figure 15*

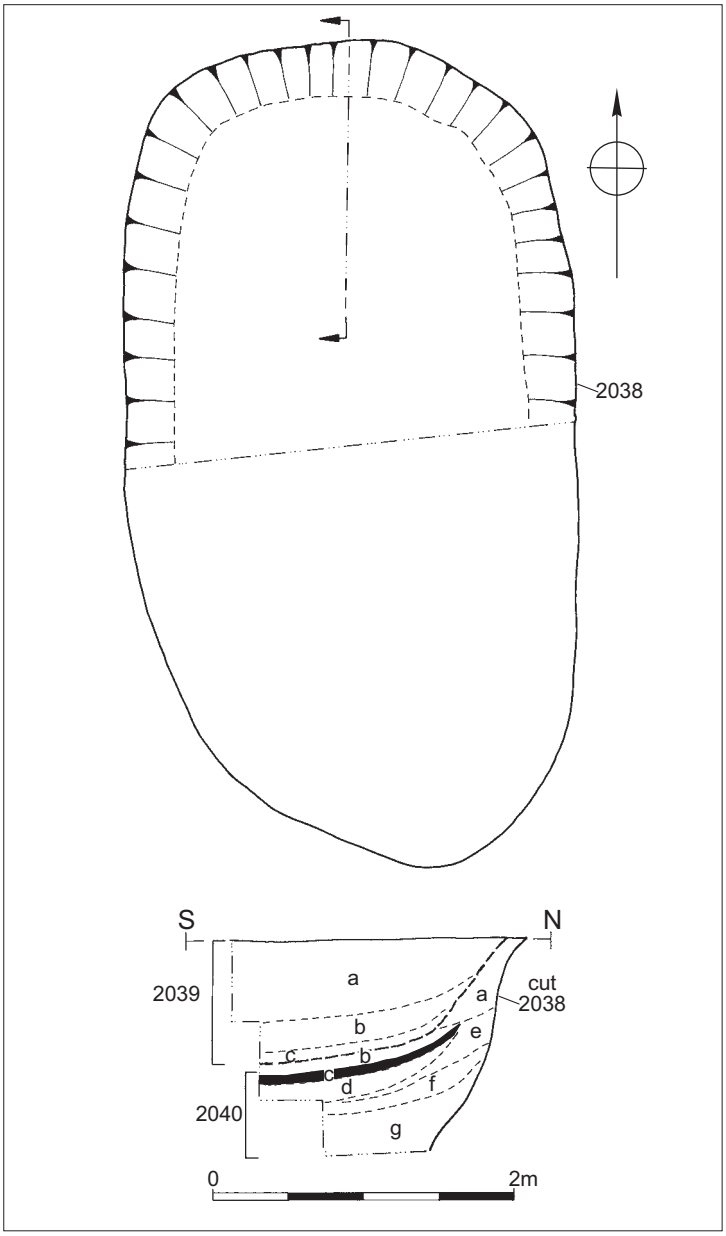


Late Bronze Age activity

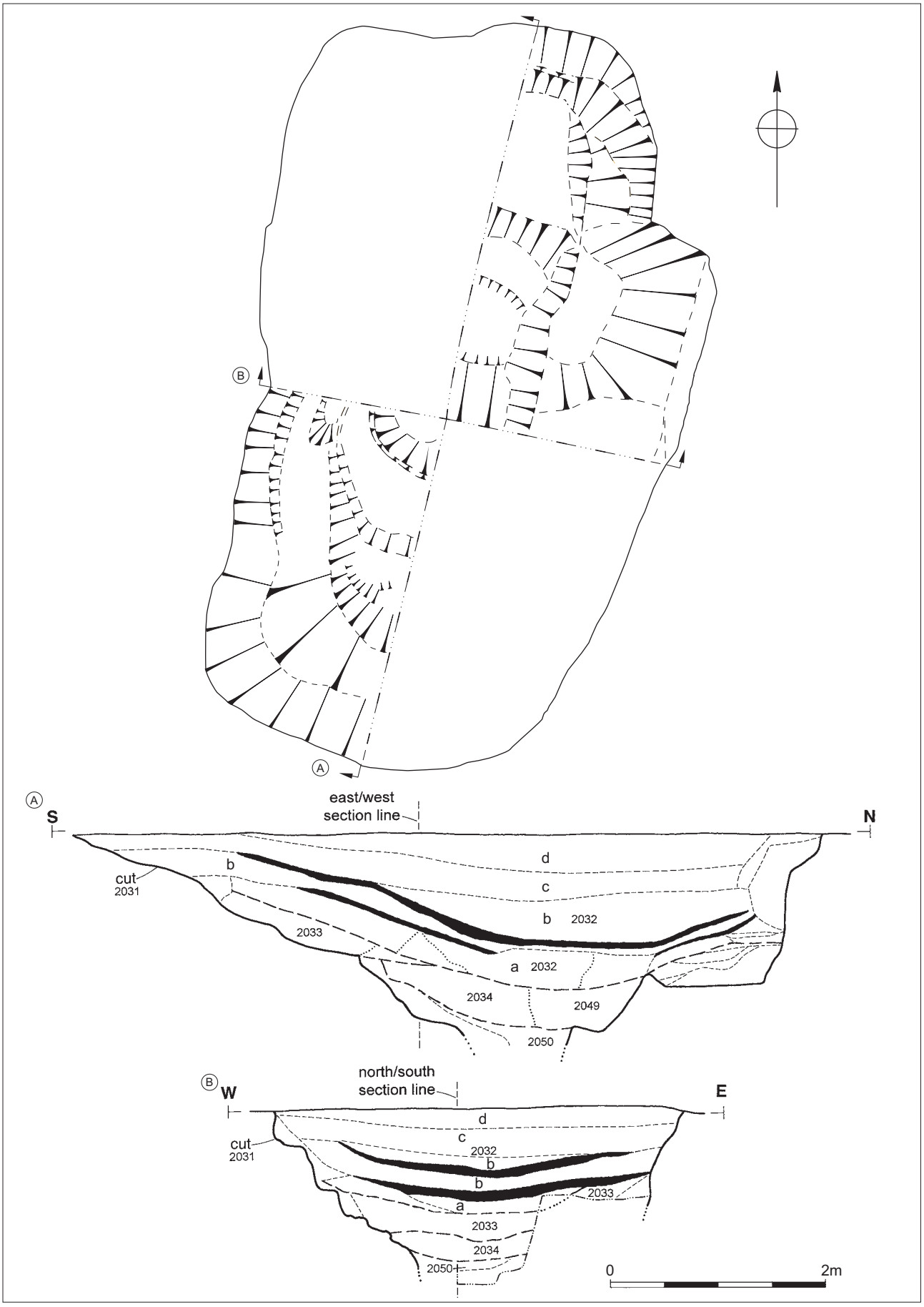
Figure 16



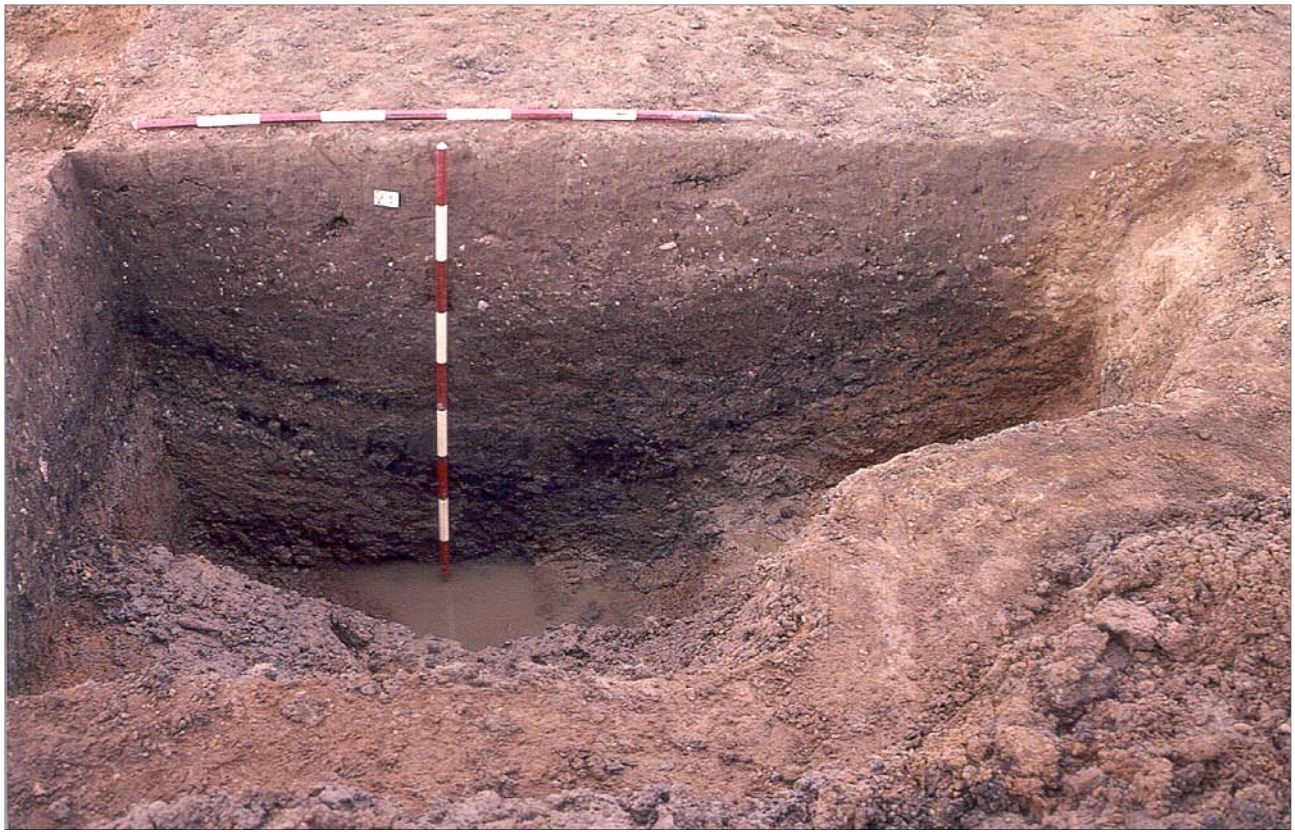
Late Bronze Age field systems *Figure 17*



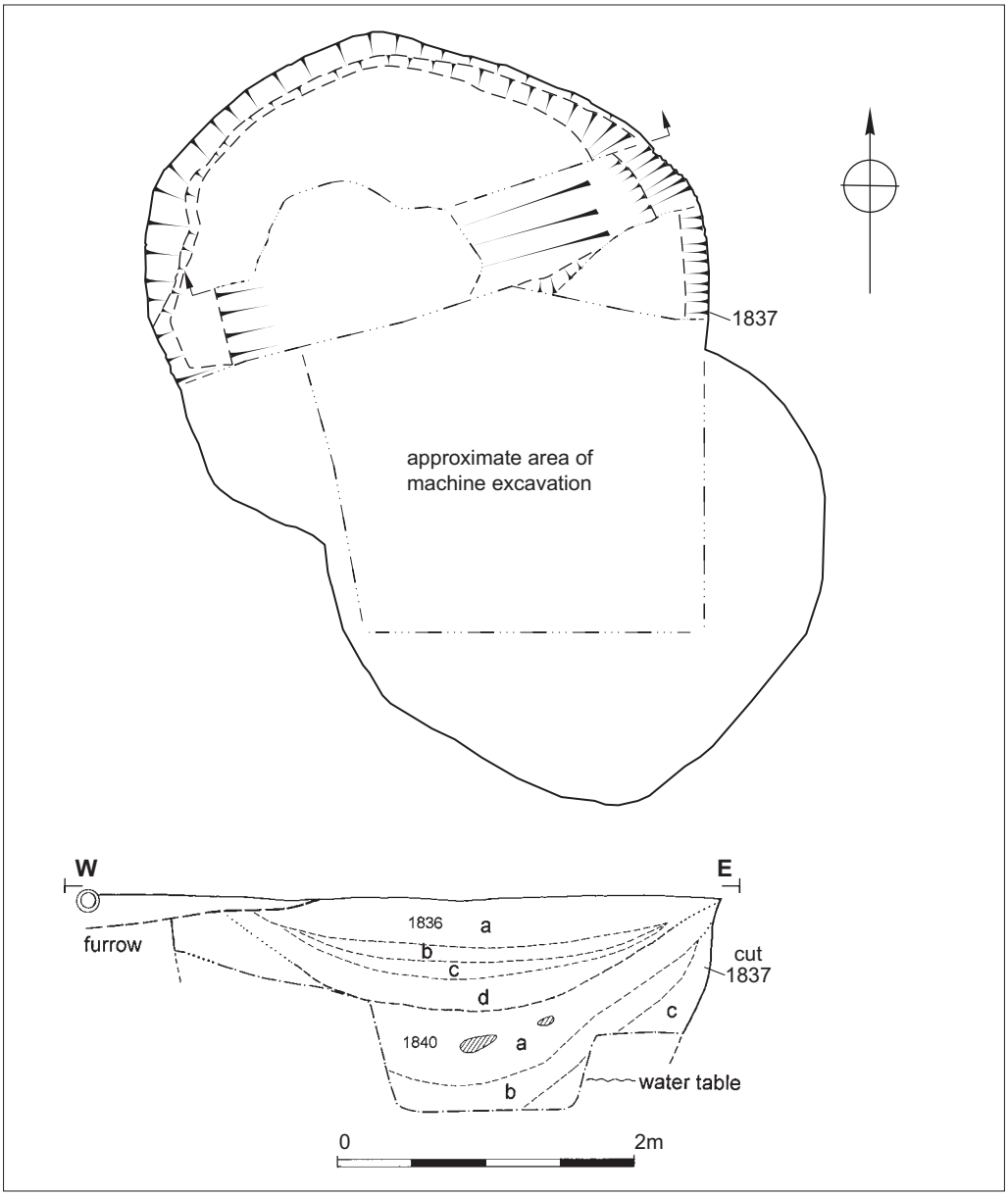
Waterhole CG3 *Figure 18*



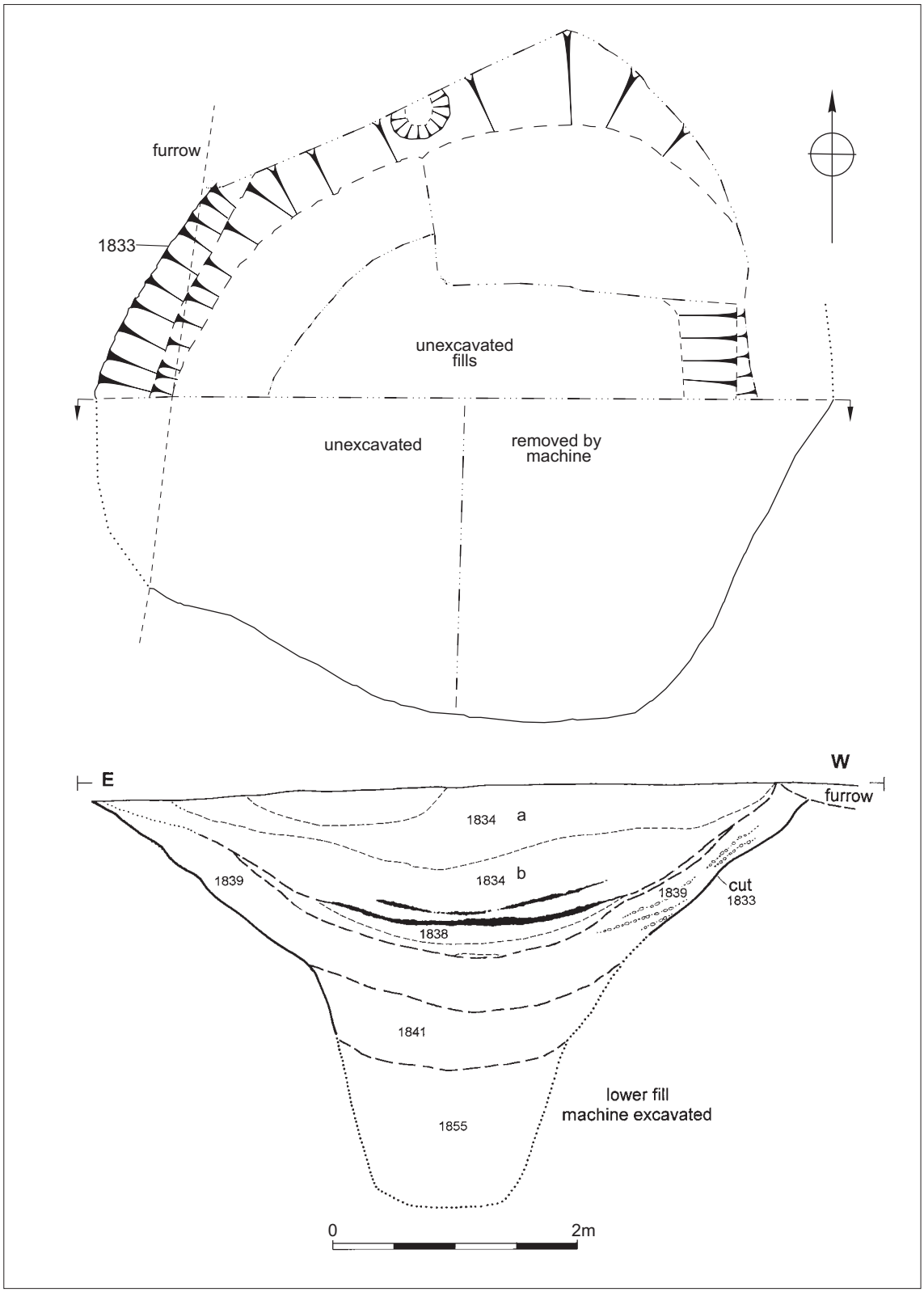
Waterhole CG4 *Figure 19*



East facing section of Waterhole CG4 under excavation *Figure 20*

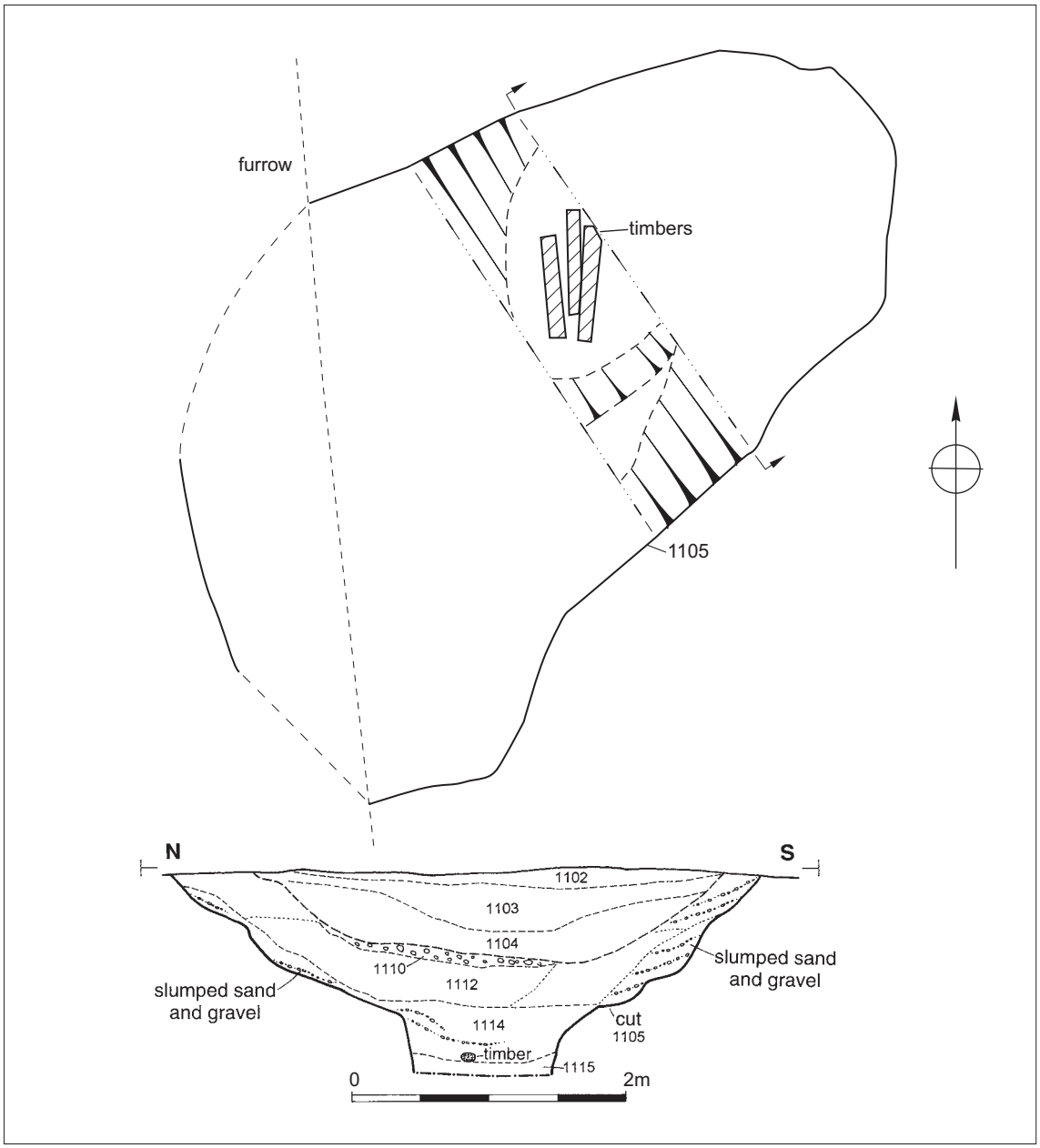


Waterhole CG6 *Figure 21*

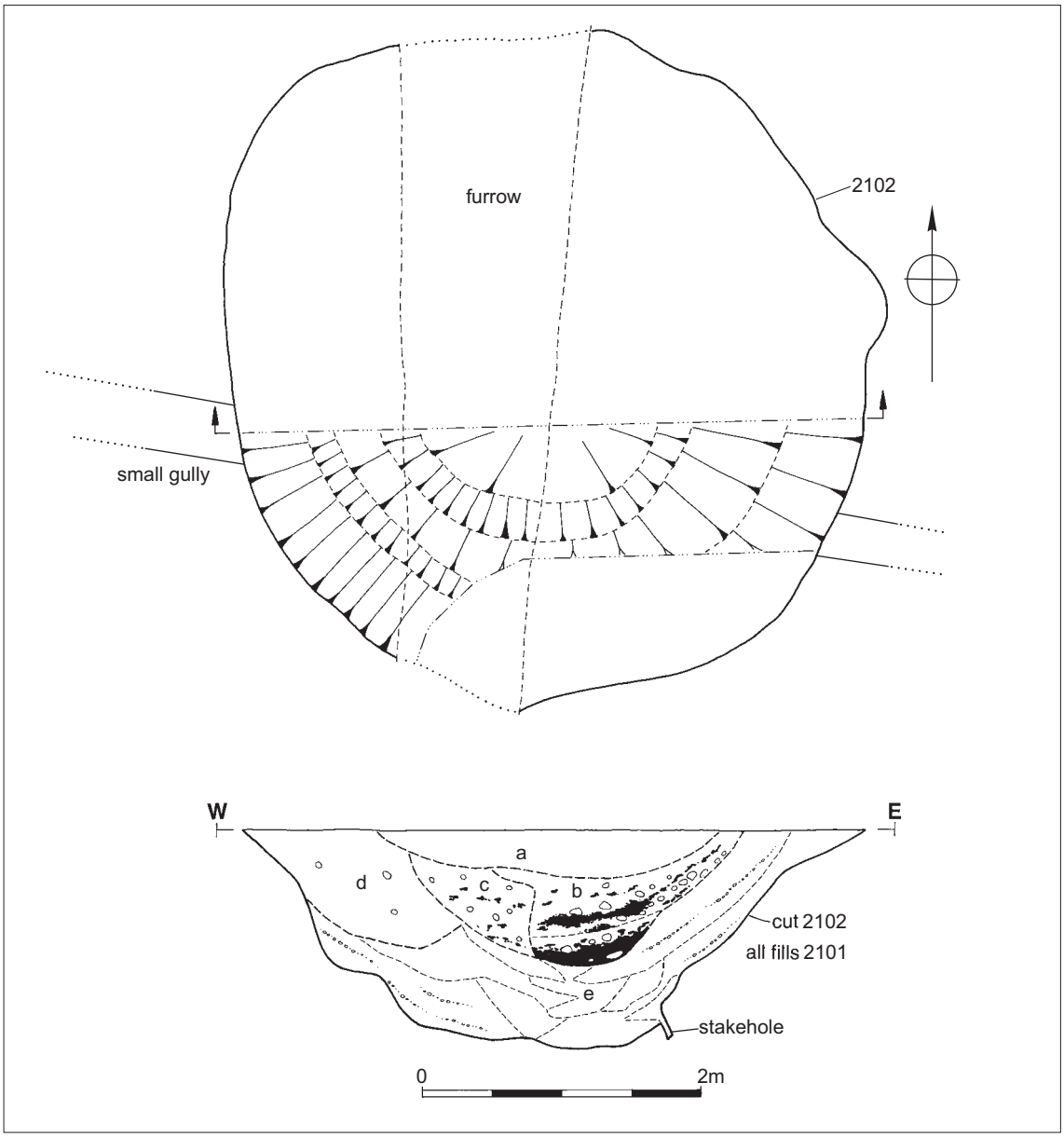


Waterhole CG7 *Figure 22*

North facing section of Waterhole CG7 prior to machine excavation of lower fills *Figure 23*

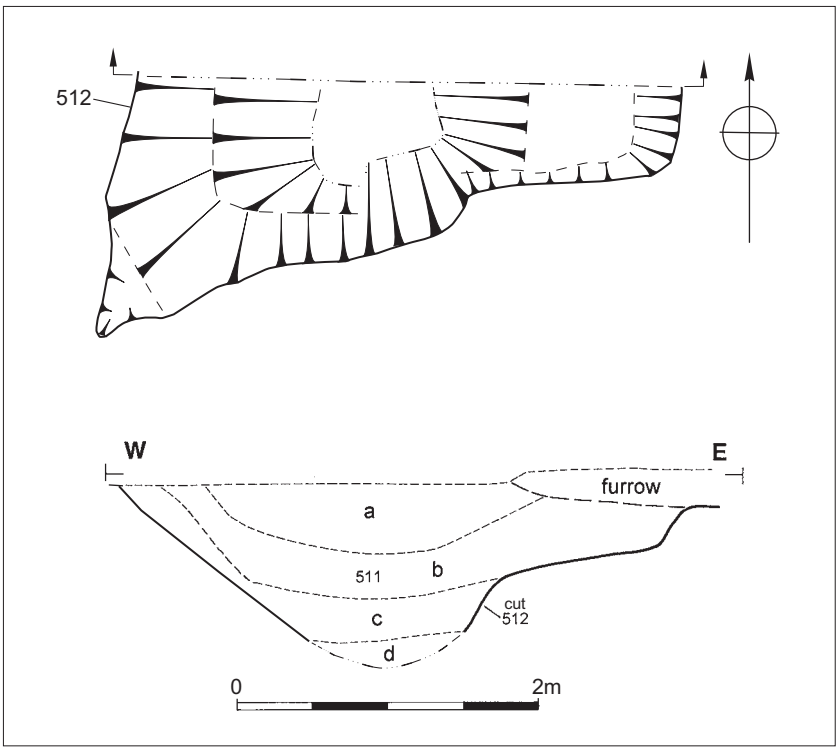


Waterhole CG8 *Figure 24*

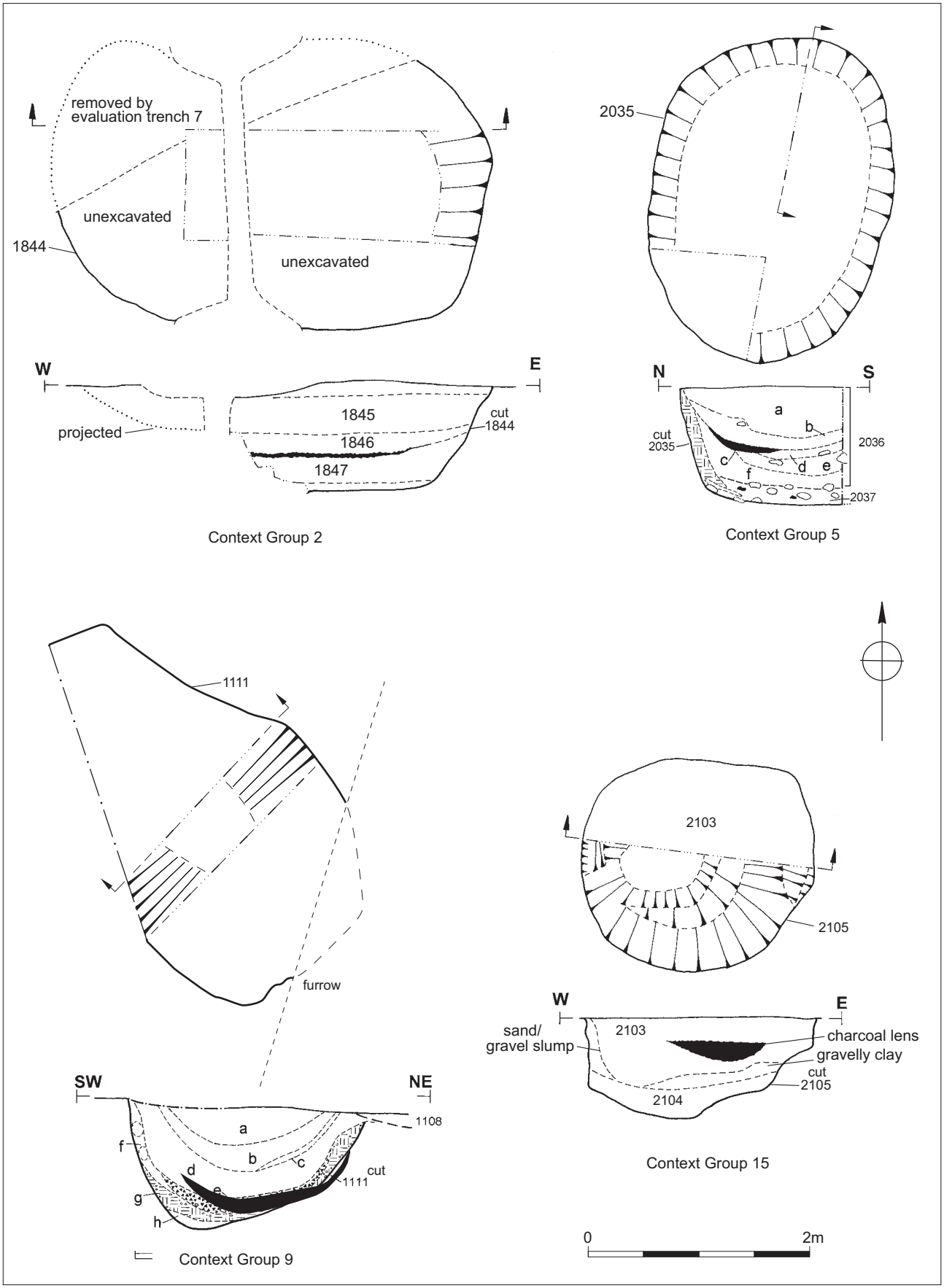


Waterhole CG14 *Figure 25*

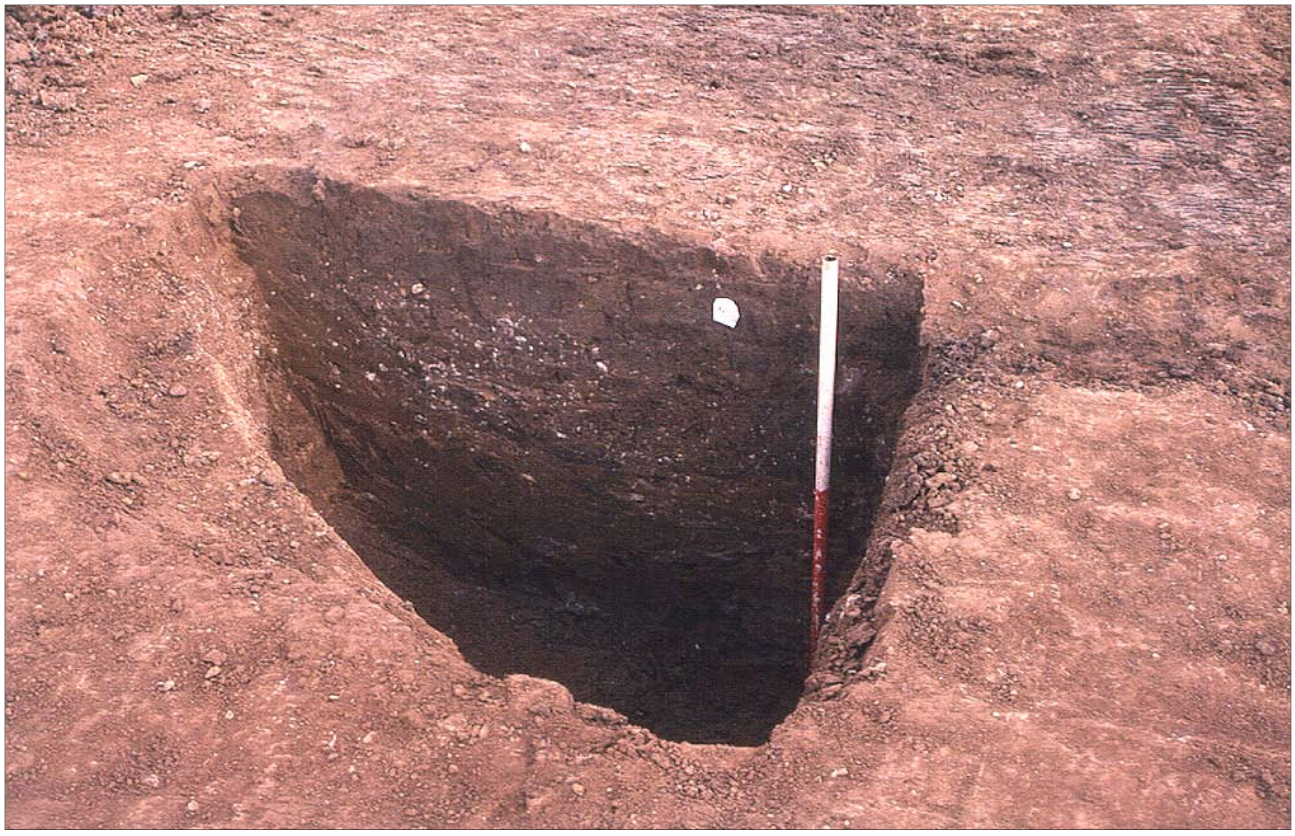
North facing section of Waterhole CG14 during excavation *Figure 26*



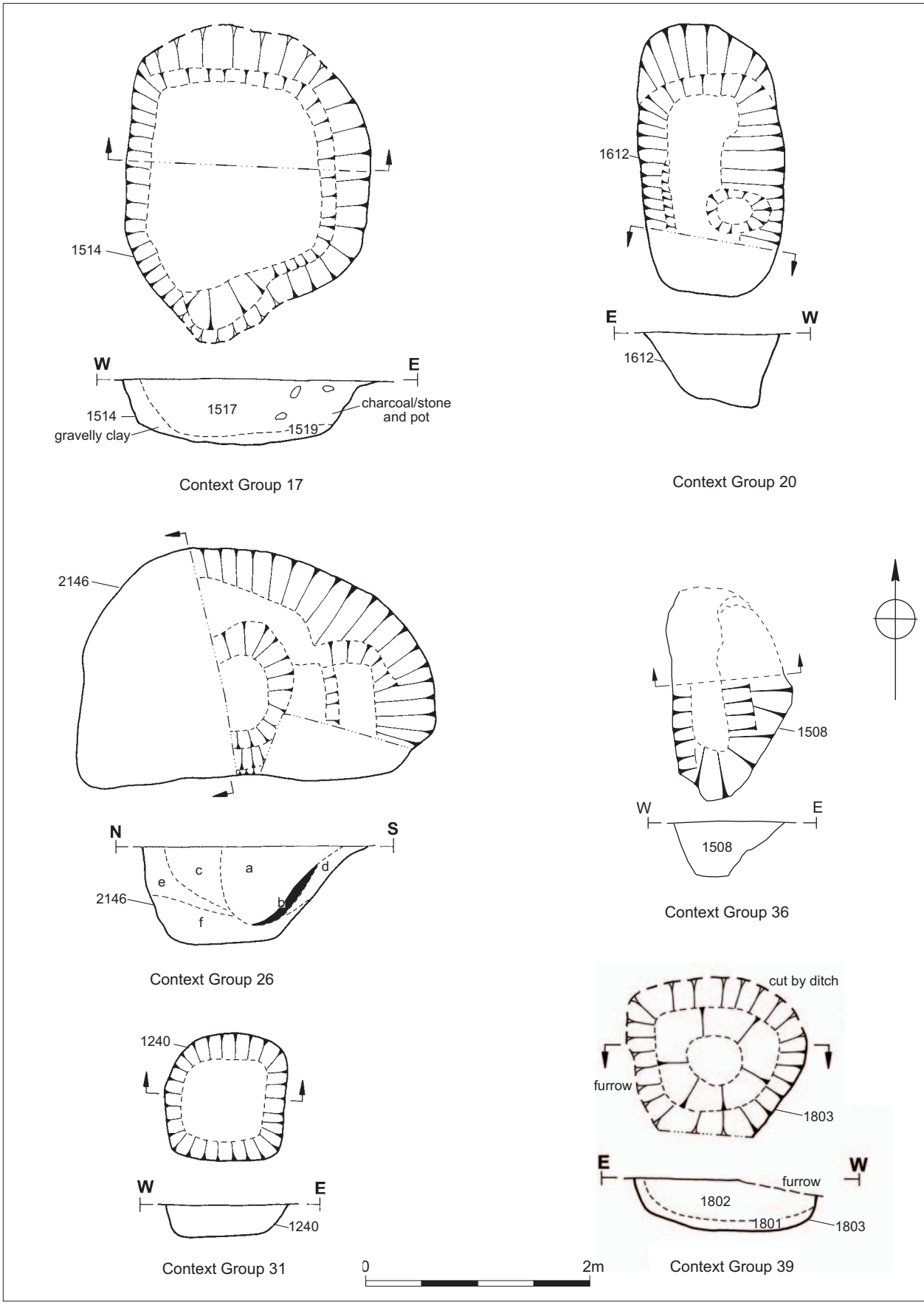
Waterhole CG18 *Figure 27*



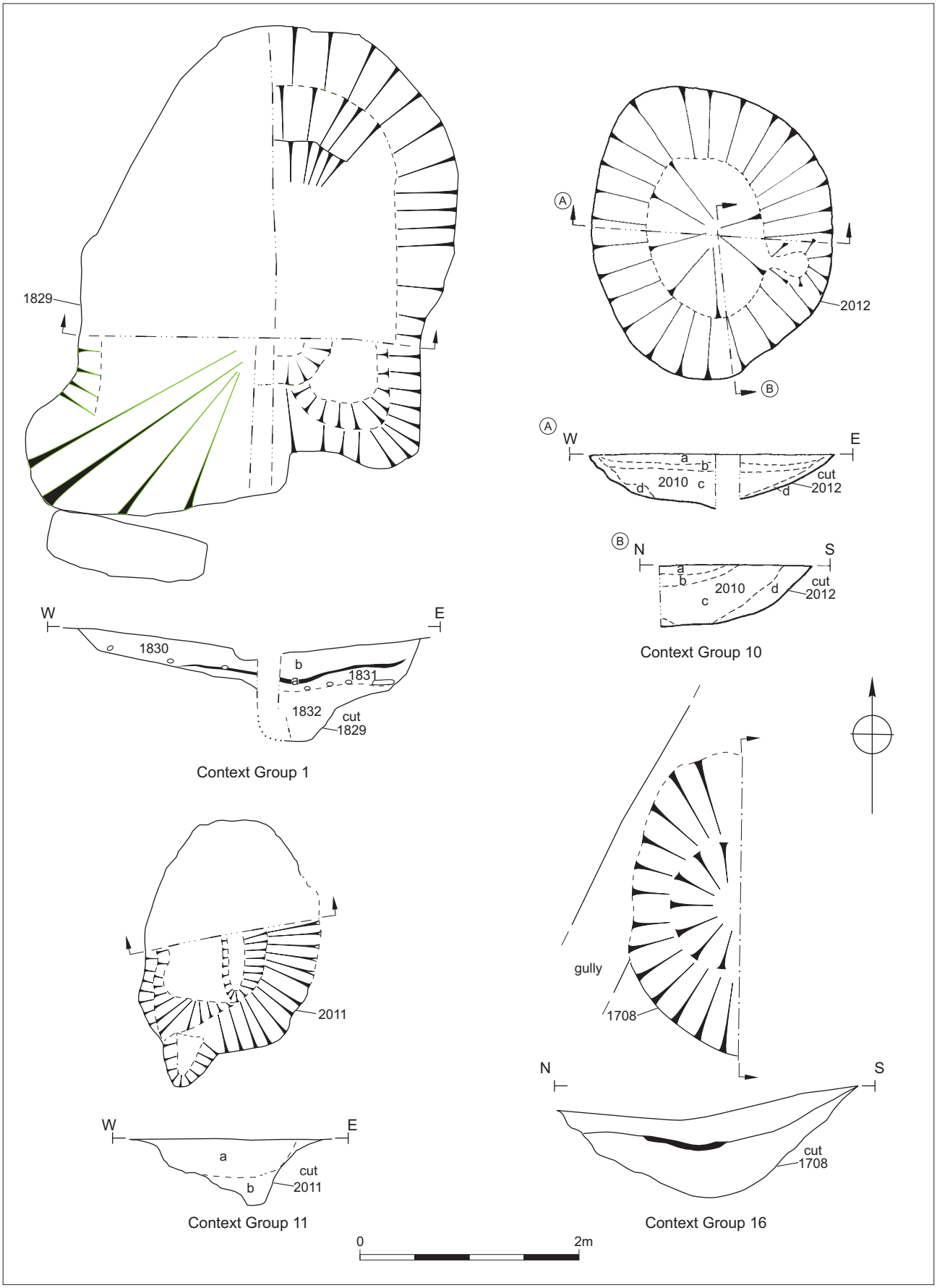
Basin shaped pits (CG2, 5, 9 and 15) *Figure 28*



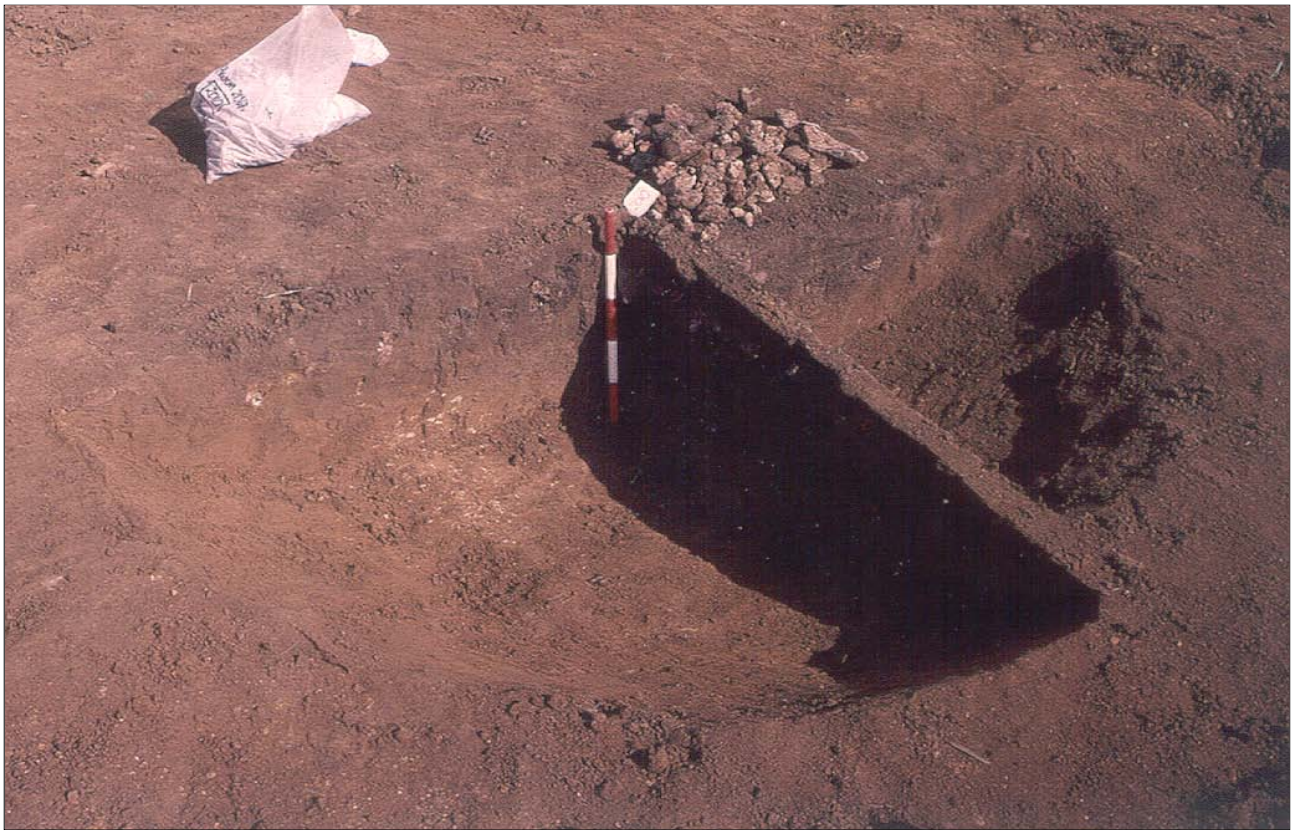
Basin shaped pit CG5 showing clay lining *Figure 29*



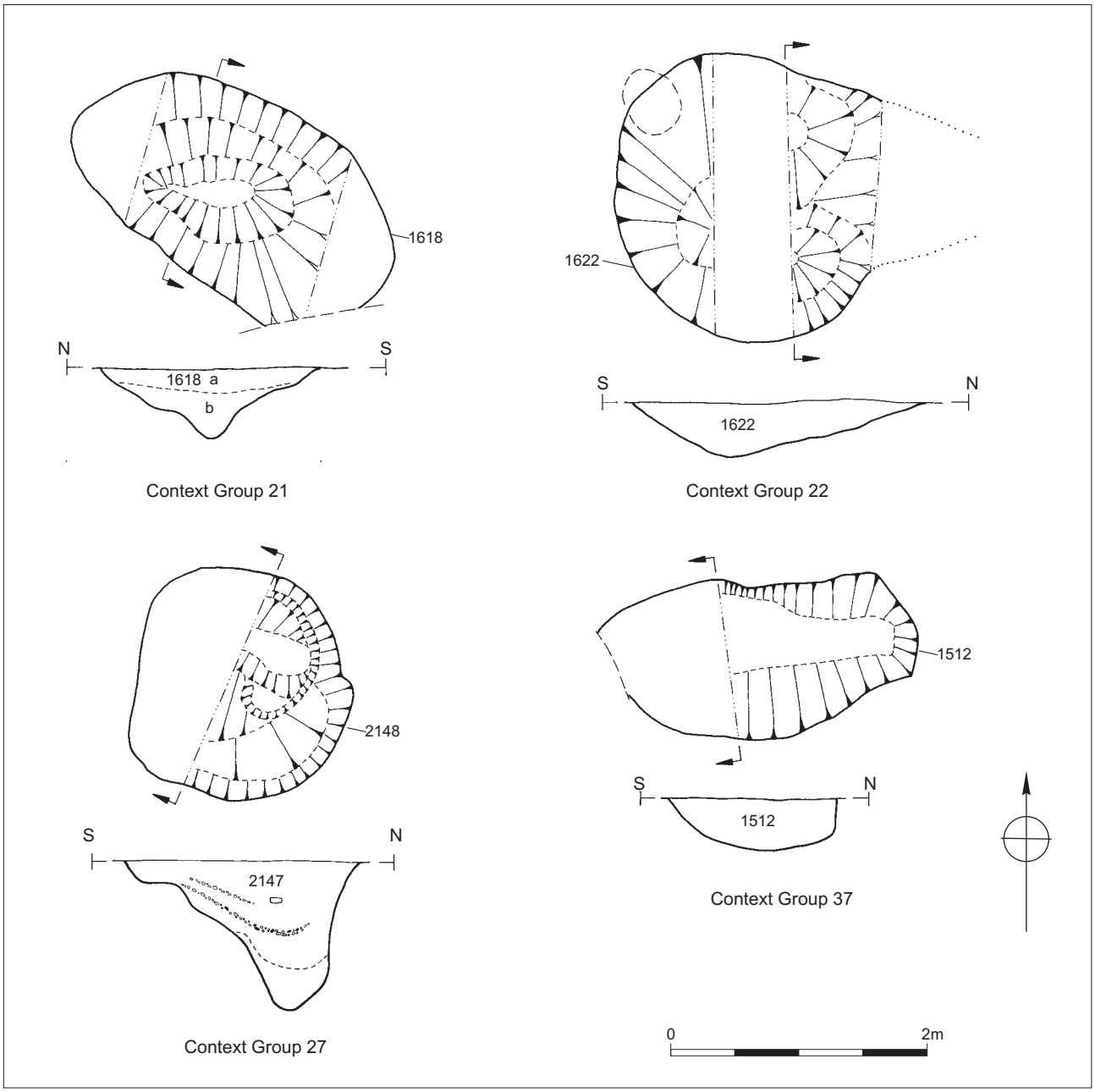
Basin shaped pits (CG17, 20, 26, 31, 36 and 39) *Figure 30*



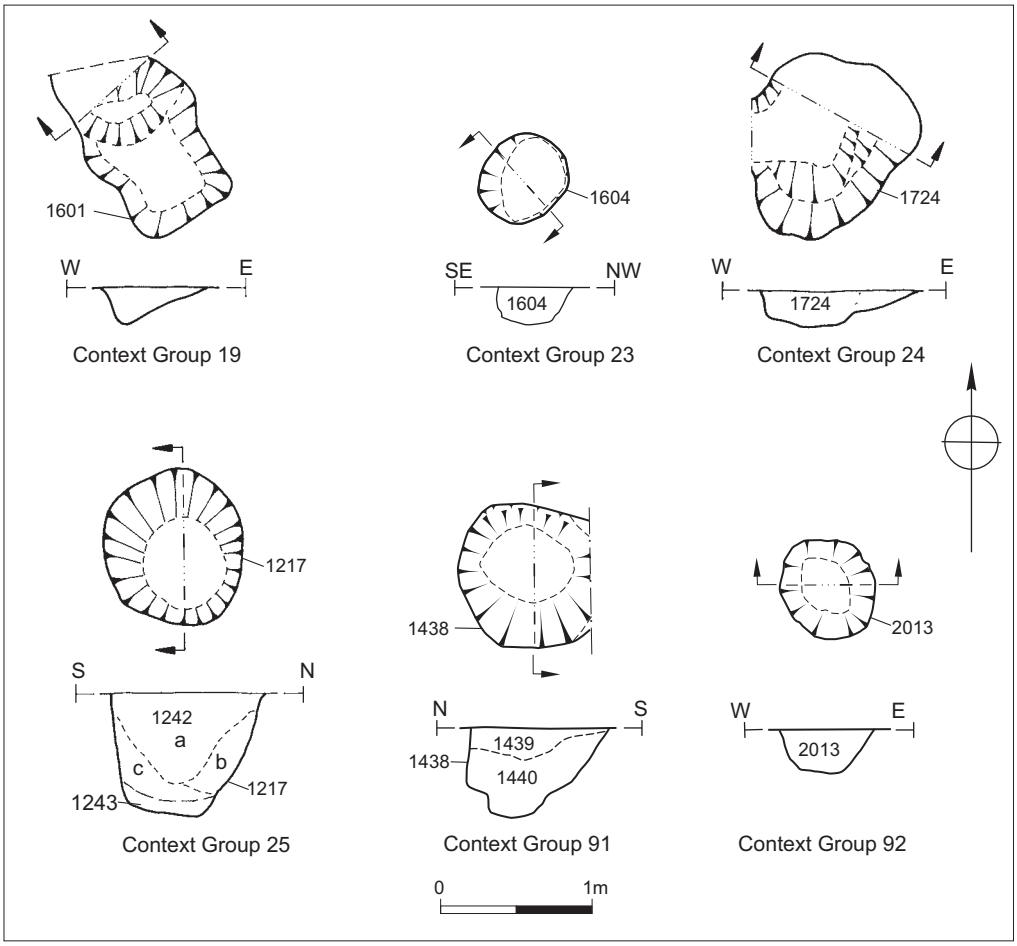
Bowl shaped pits (CG2, 10, 11 and 16) *Figure 31*



Bowl shaped pit CG10 during excavation *Figure 32*

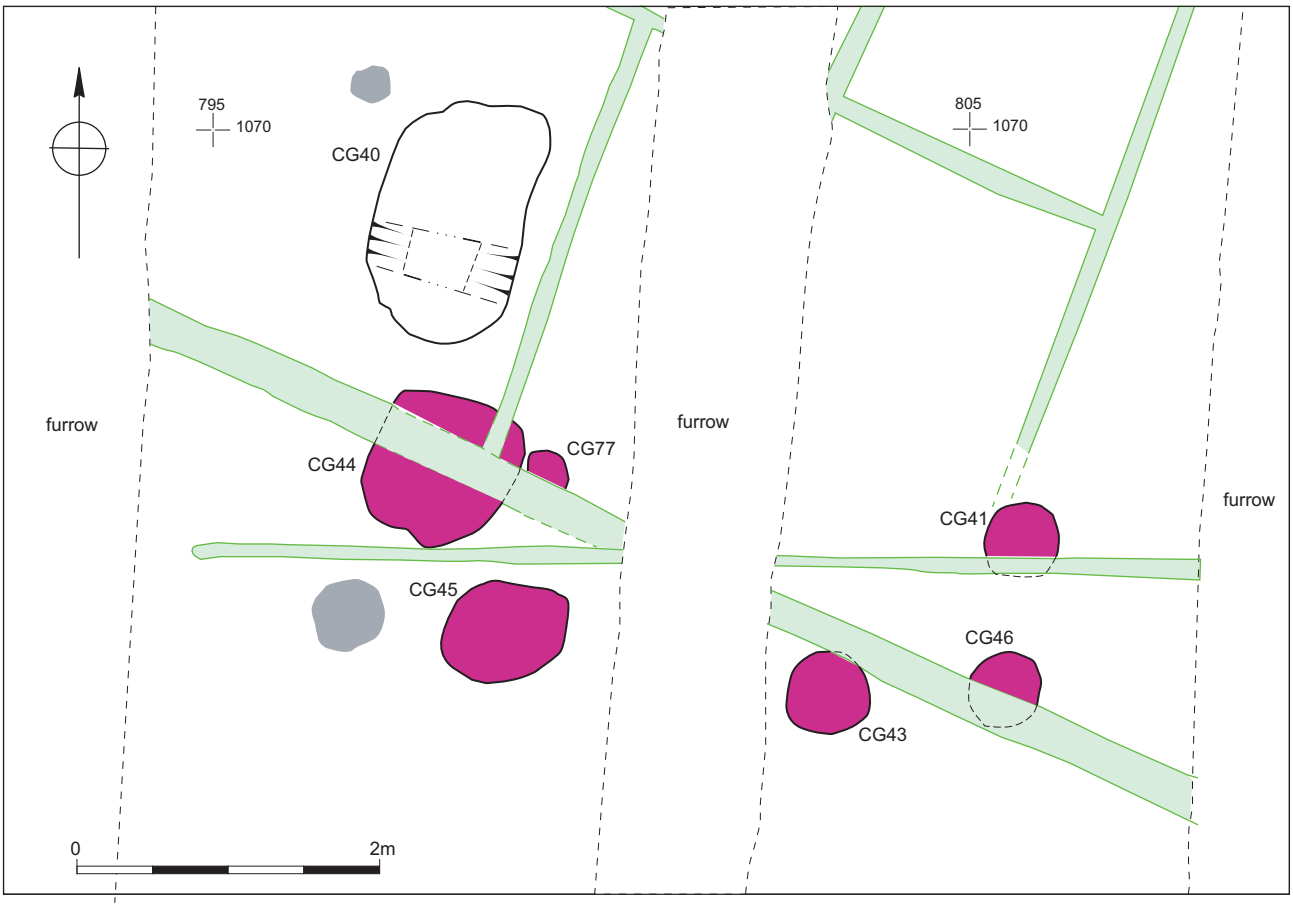


Bowl shaped pits (CG21, 22, 27 and 37) *Figure 33*

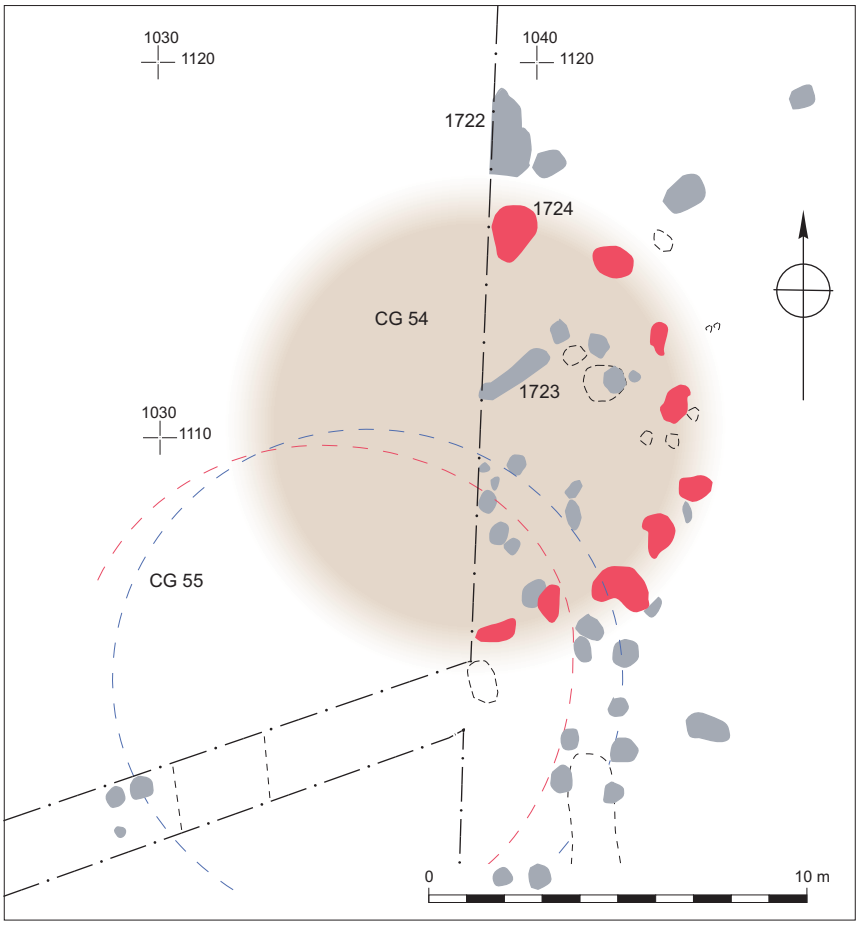


Small pits/postholes (CG19, 23, 24, 25, 91 and 92) *Figure 34*

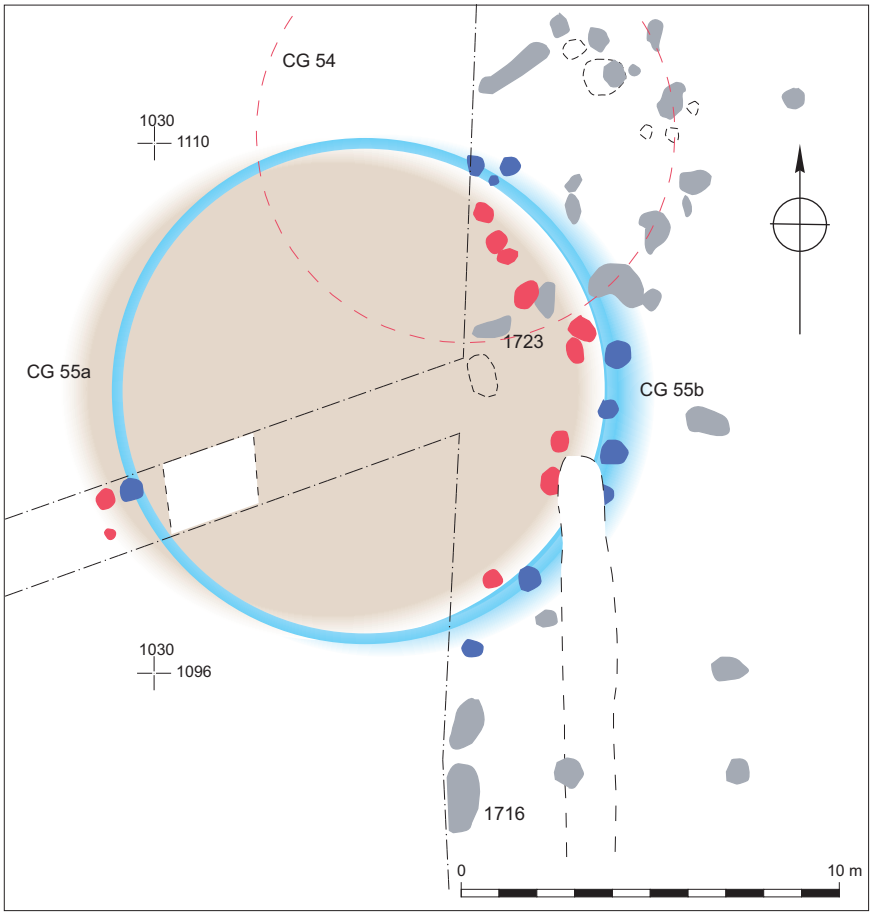
West facing section of CG91 *Figure 35*



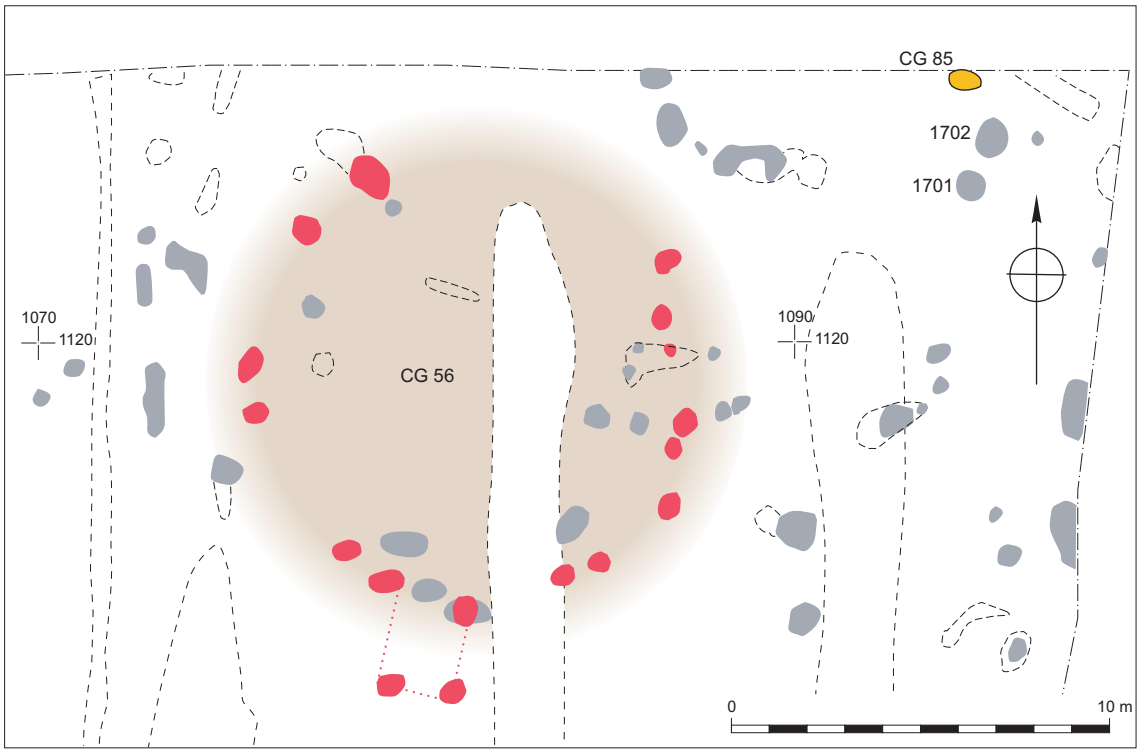
Hearth group and associated pit *Figure 36*



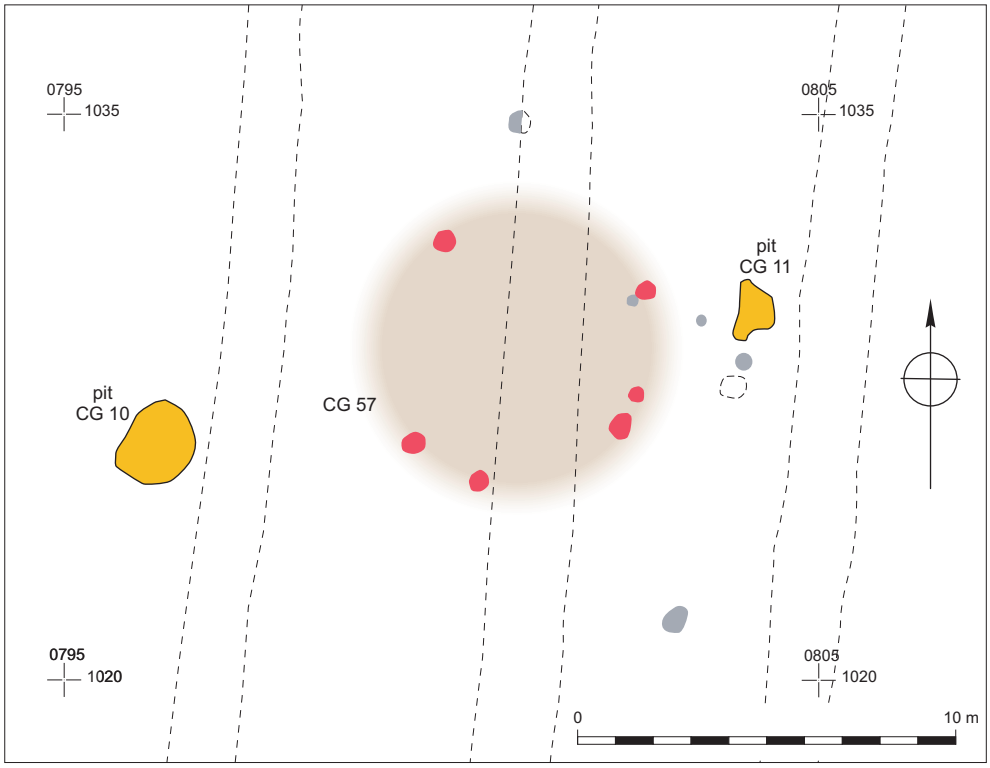
Roundhouse (CG54) *Figure 37*



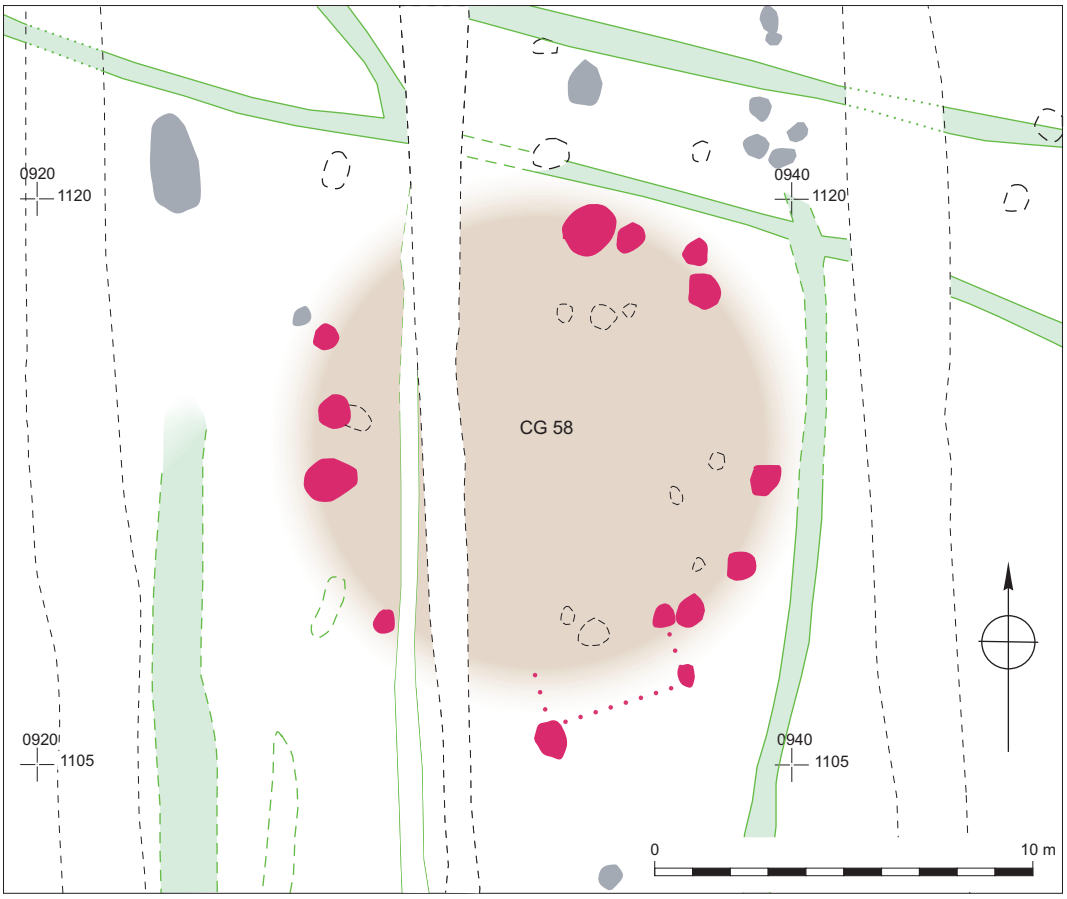
Roundhouse (CG55) *Figure 38*



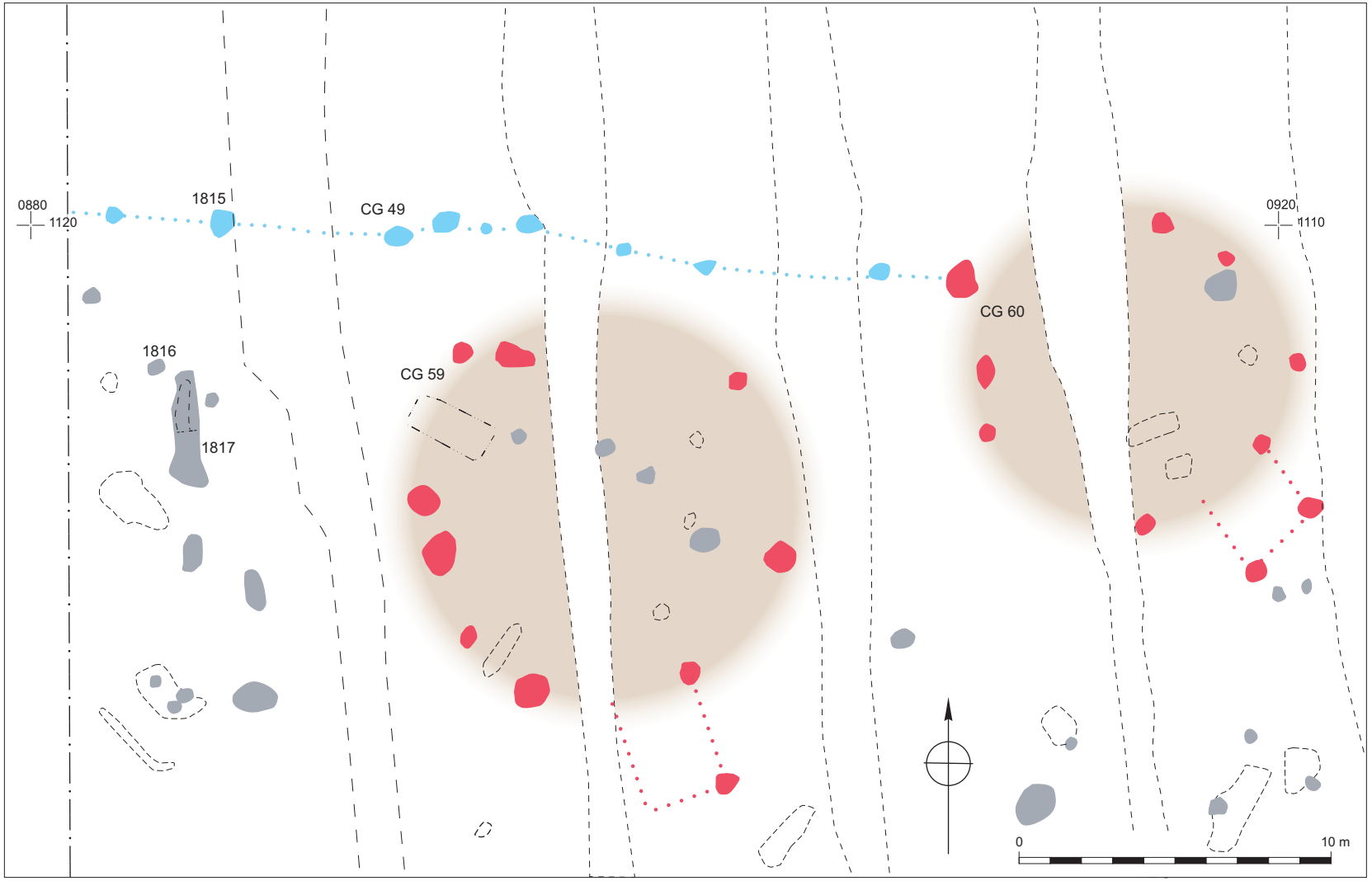
Roundhouse (CG56) *Figure 39*



Roundhouse (CG57) *Figure 40*

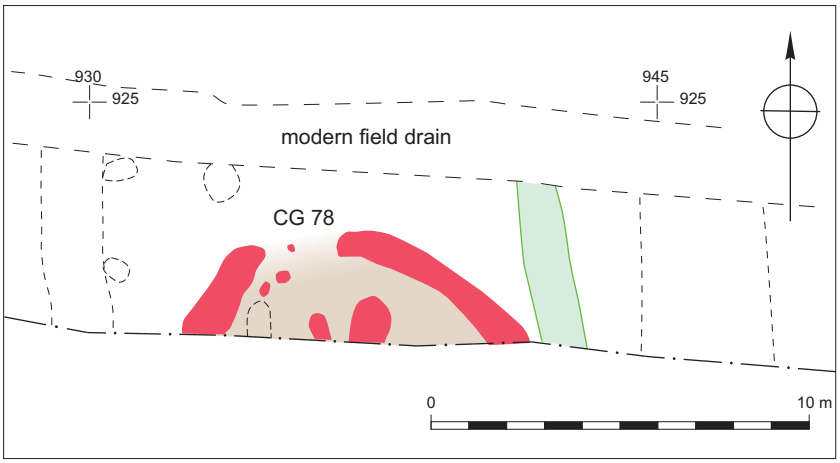


Roundhouse (CG58) *Figure 41*

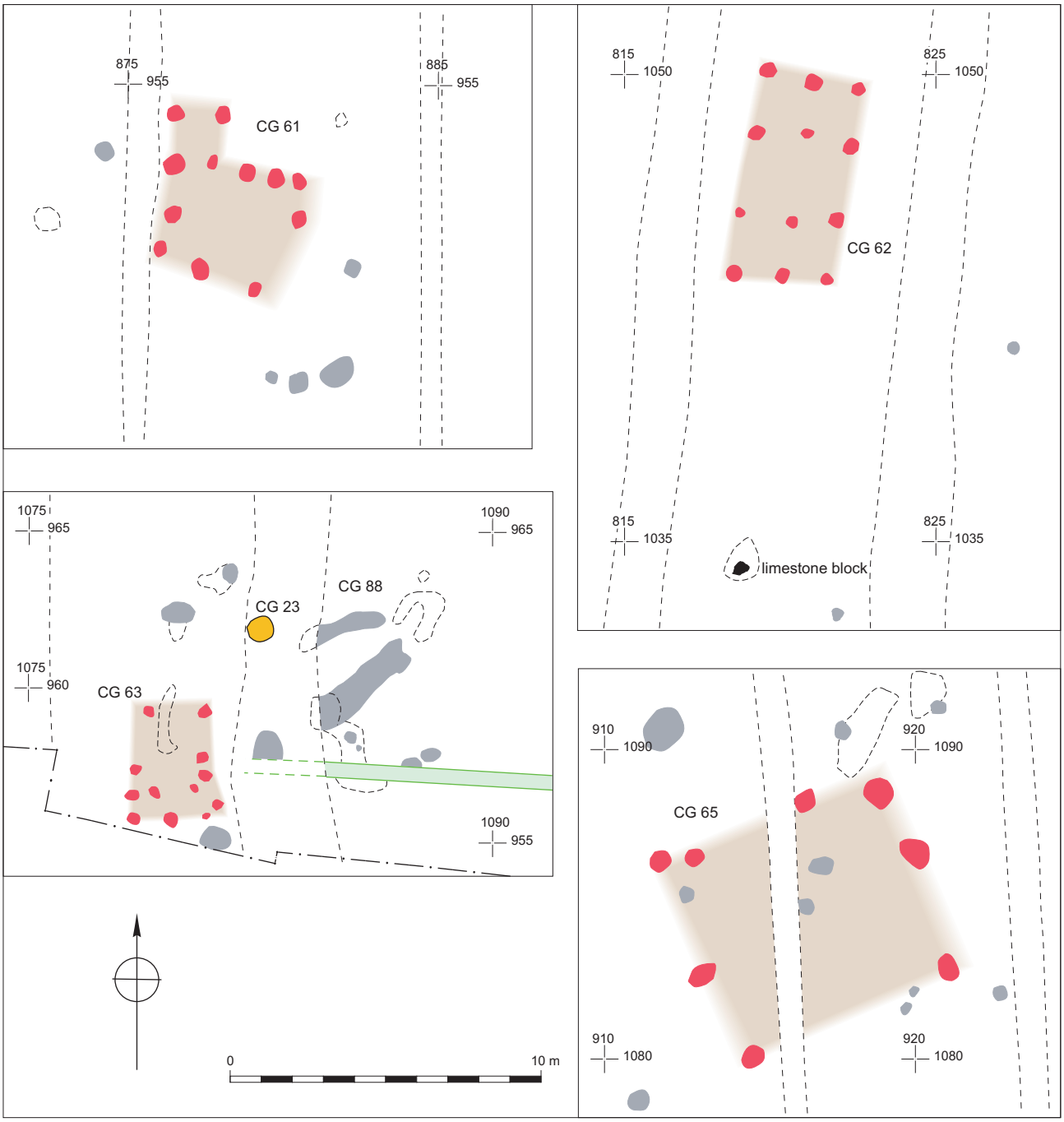


Roundhouses (CG59 and CG60)

Figure 42

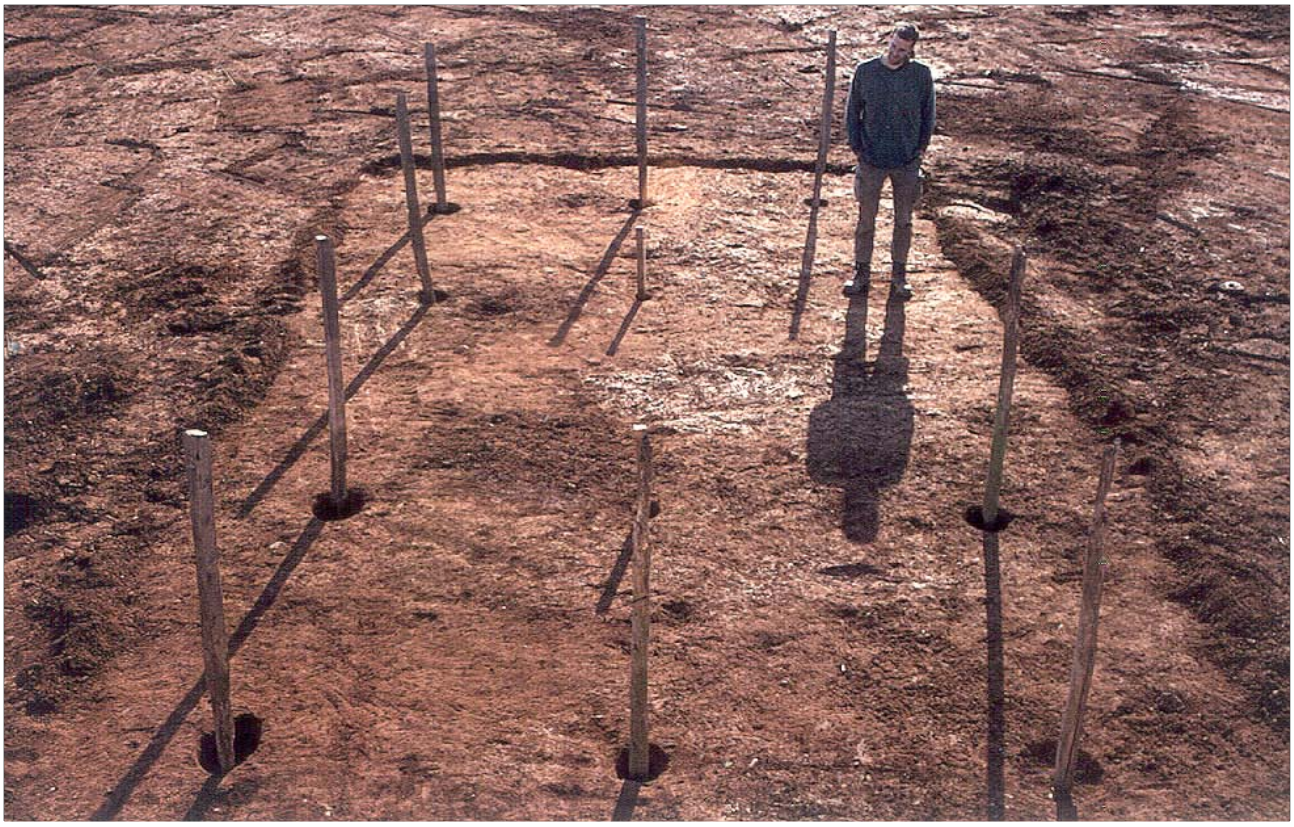


Roundhouse (CG78) *Figure 43*

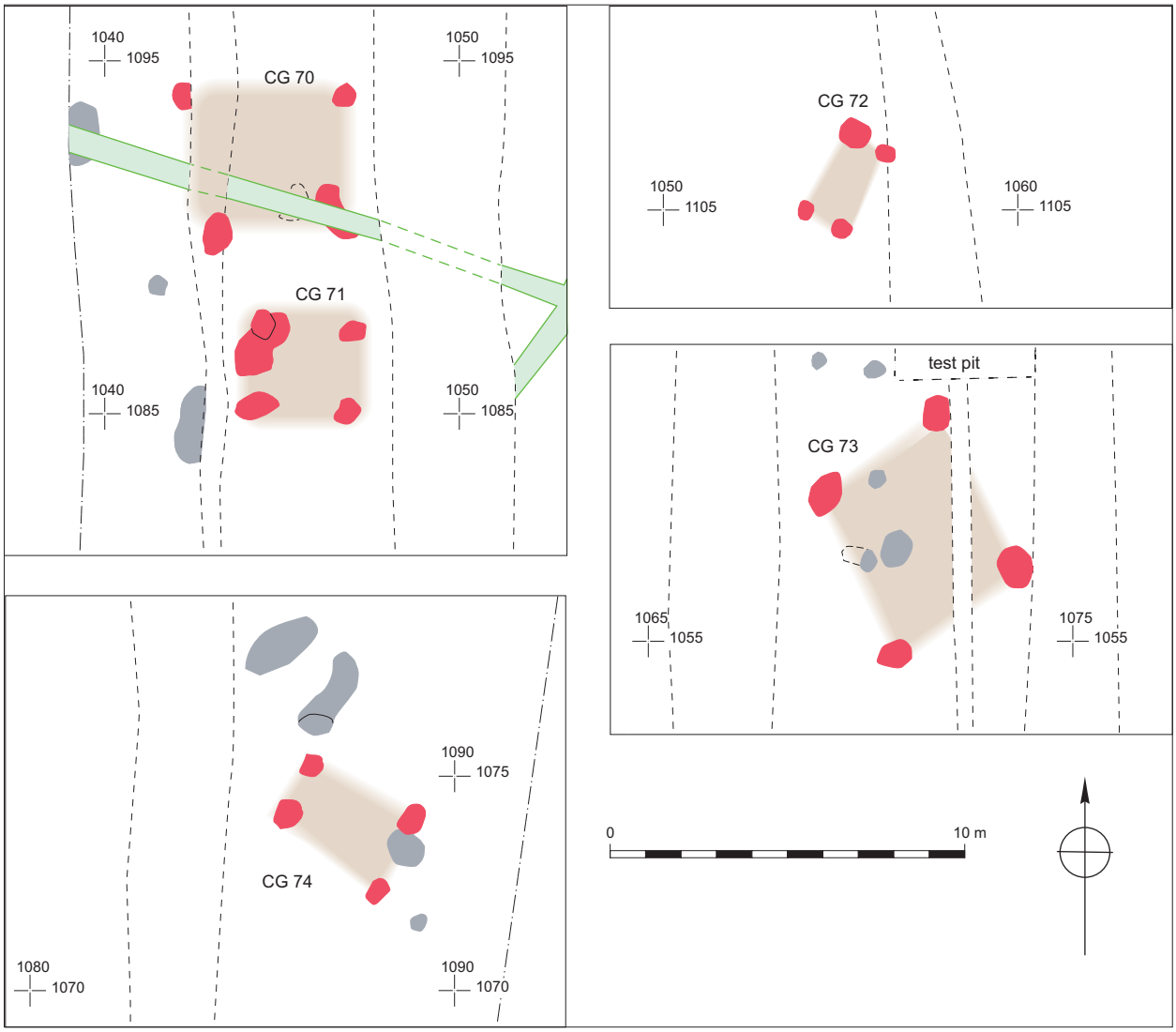


Rectilinear structures (CG61, 62, 63, and 65) *Figure 44*

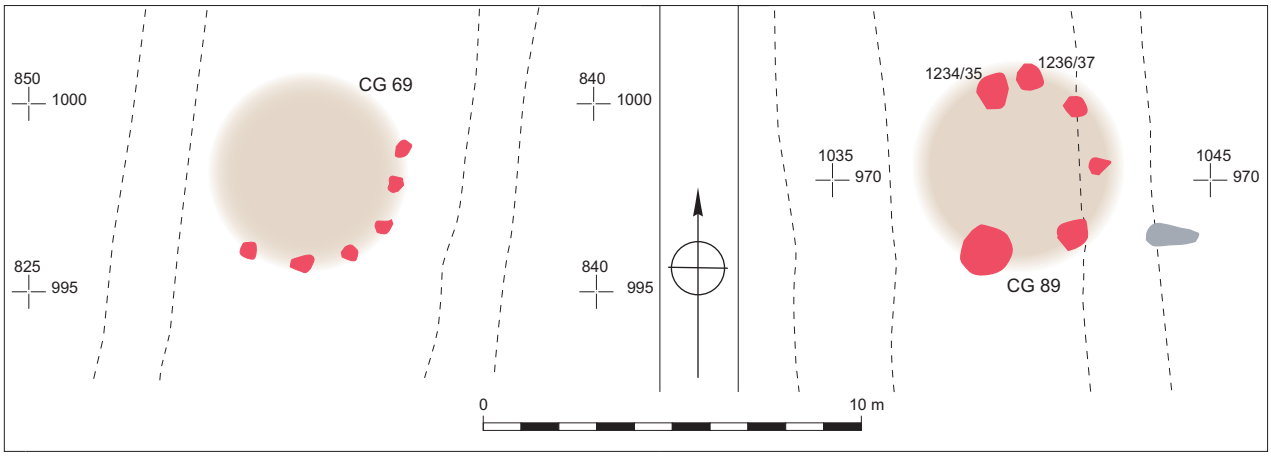
Rectilinear structureCG61 (from south-west) *Figure 45*



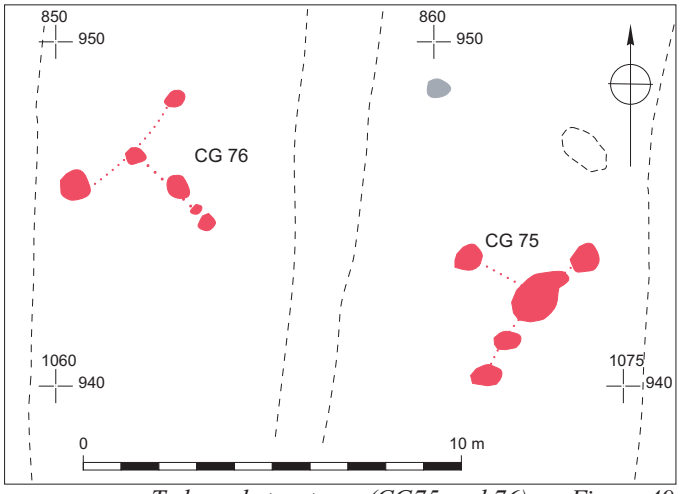
Rectilinear structureCG62 (from north) *Figure 46*



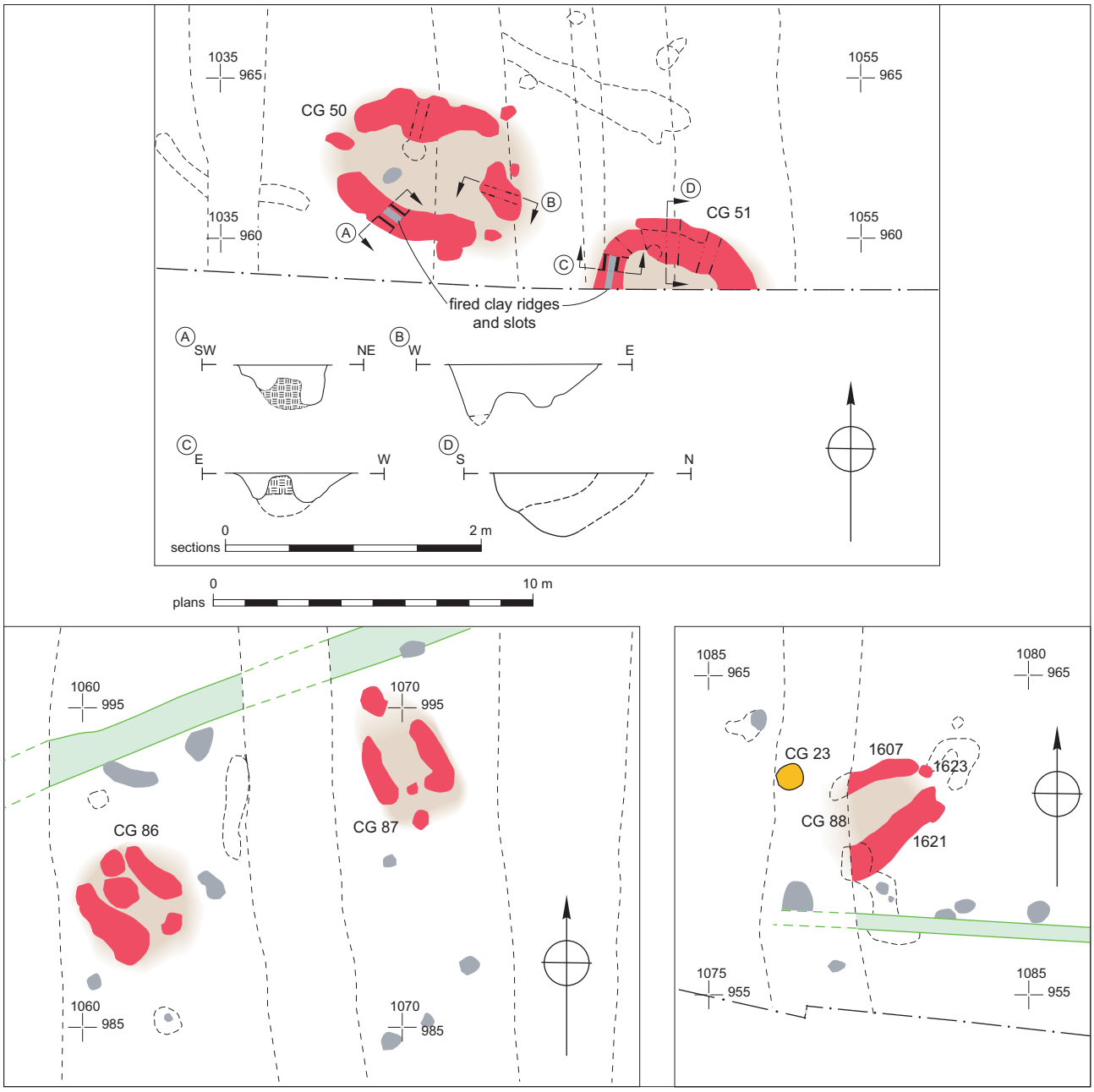
Four post structures (CG70,71,72,73 and 74) *Figure 47*



Semi-circular structures (CG69 and 89) *Figure 48*



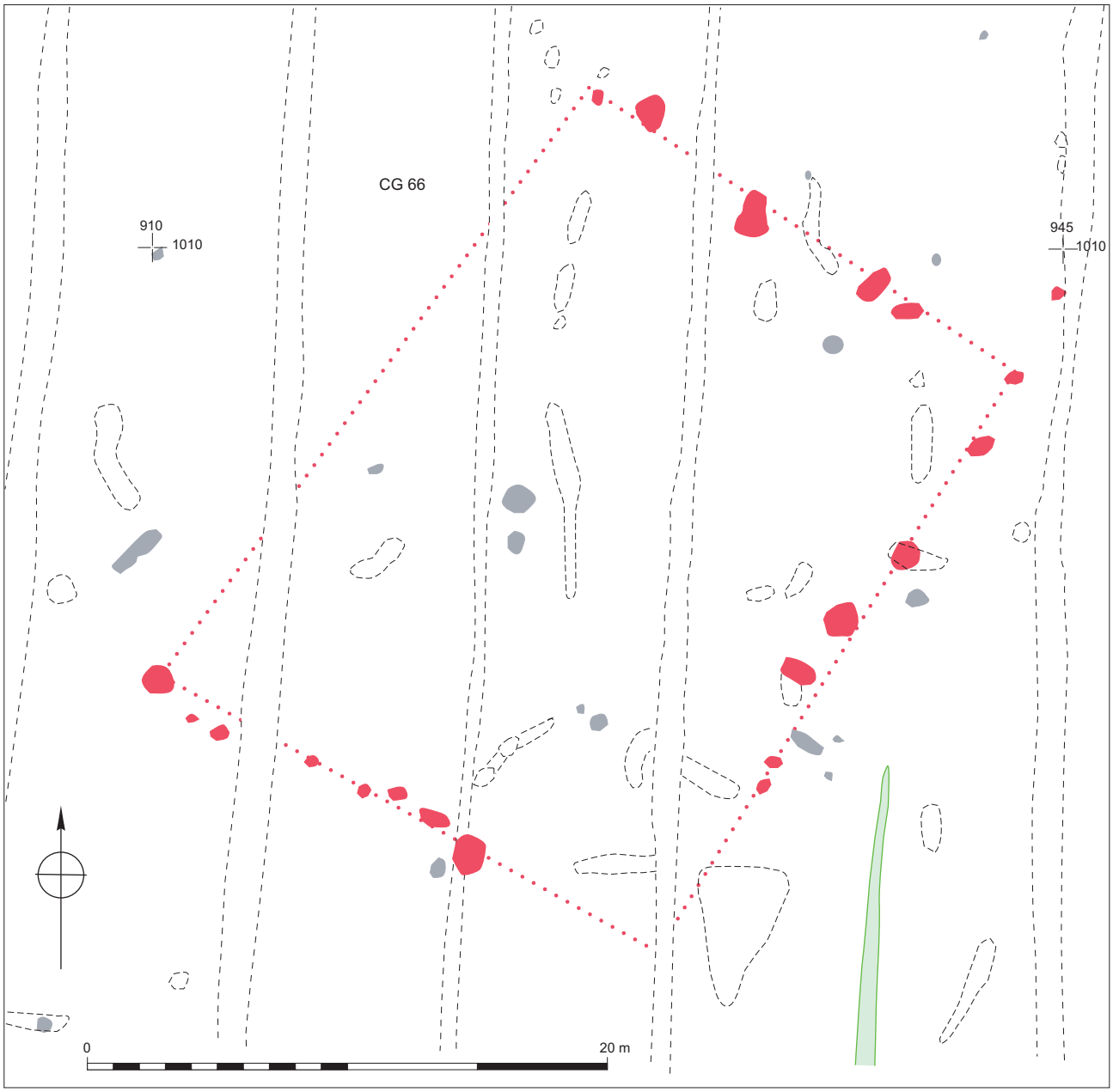
T-shaped structures (CG75 and 76) *Figure 49*



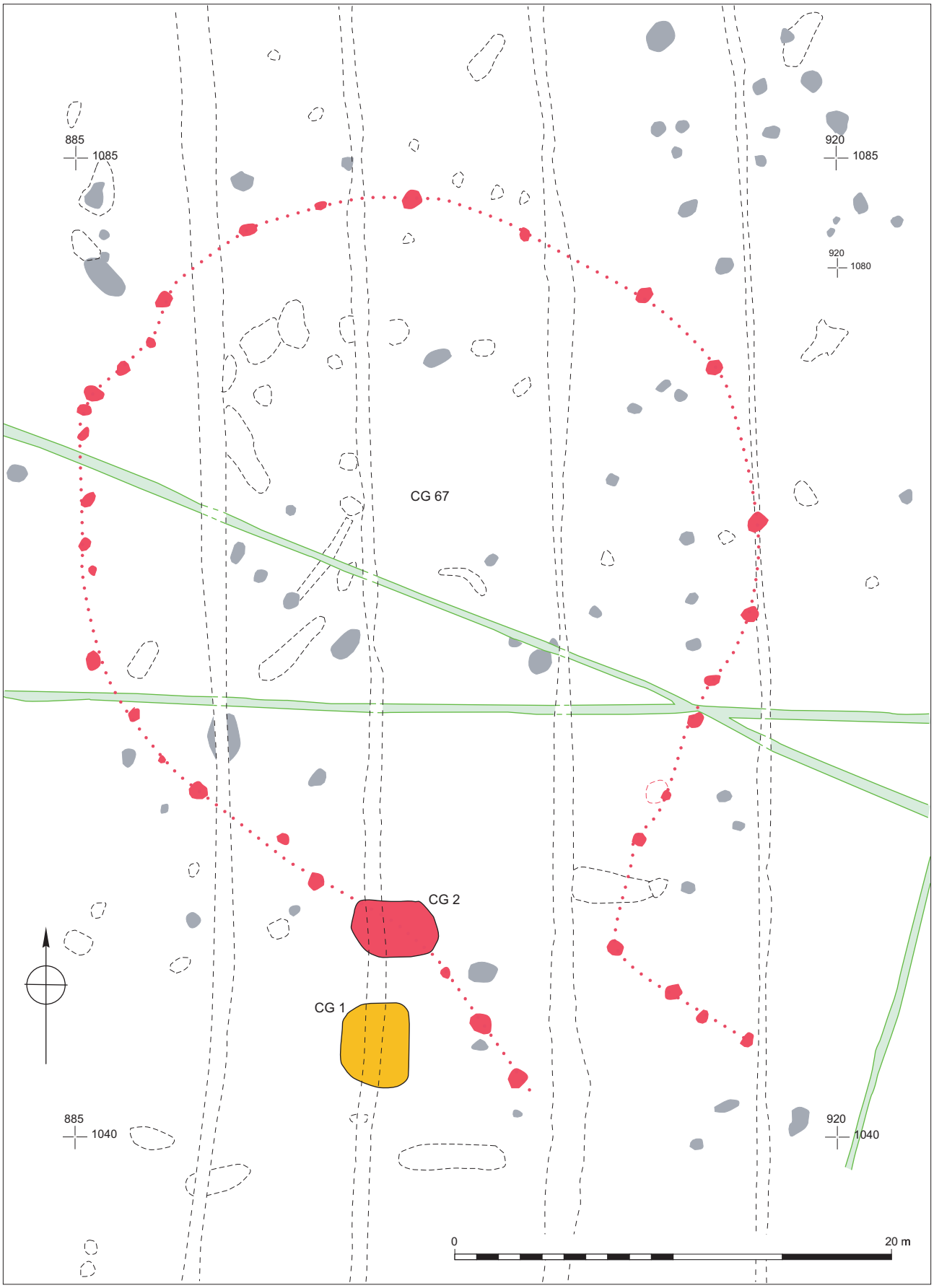
Post and gully structures (CG50, 51, 86, 87 and 88) *Figure 50*

Post and gully structure CG86 (from south-west) *Figure 51*

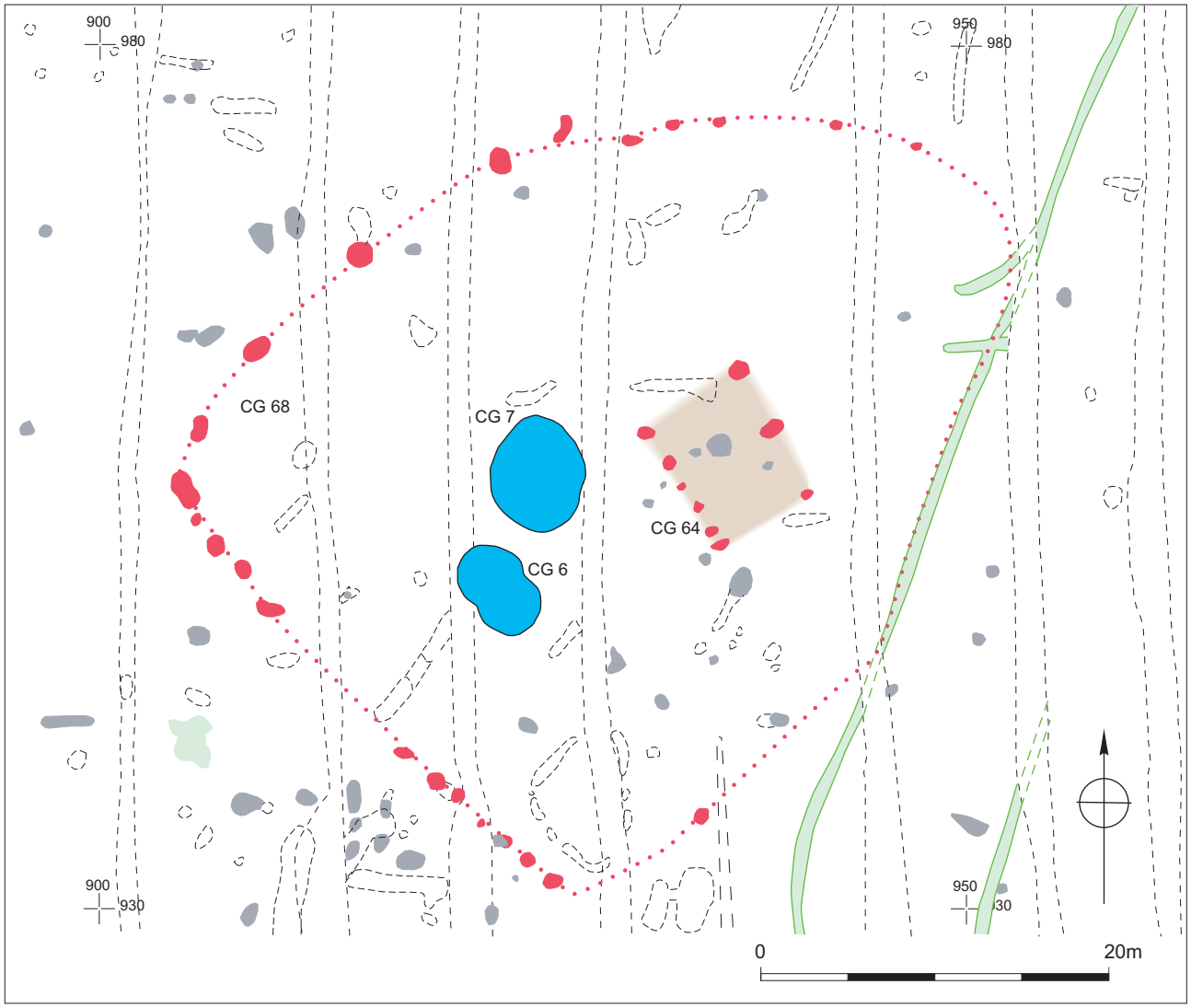
Fence CG48 - Posthole with pyramidal ceramic weight used as packing *Figure 52*



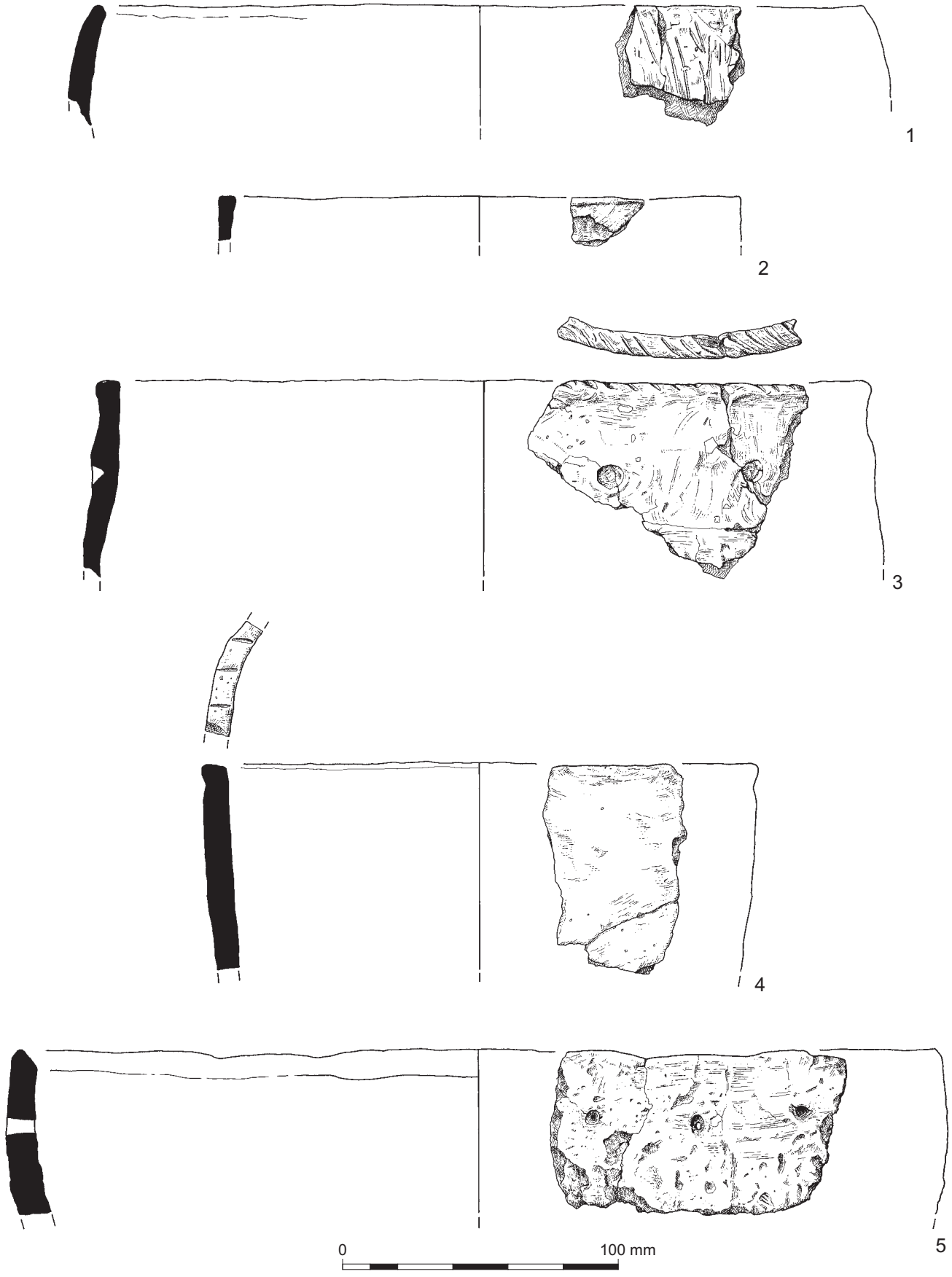
Post defined enclosure CG66 *Figure 53*



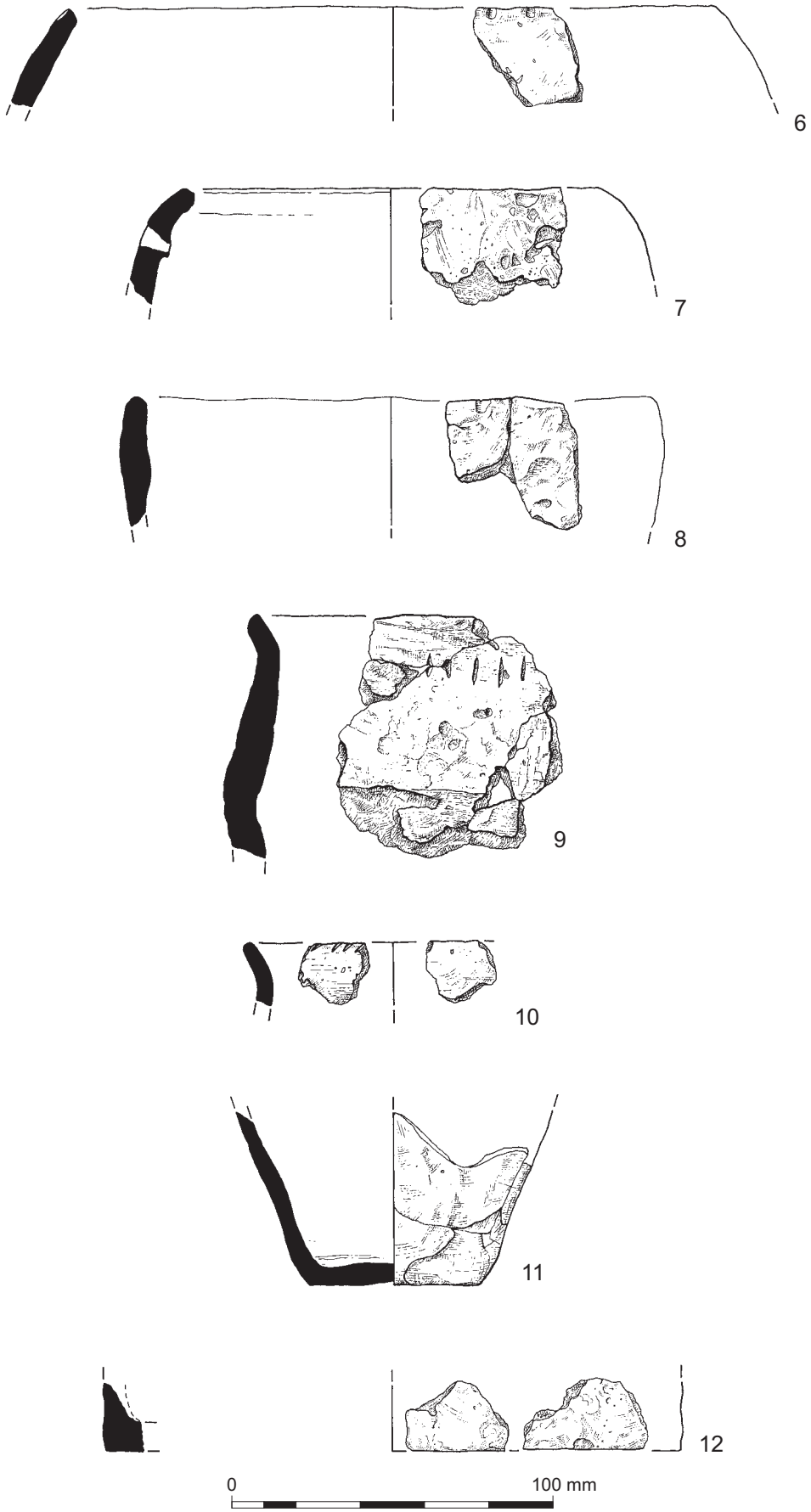
Post defined enclosure CG67 *Figure 54*



Post defined enclosure CG68 and Rectilinear structure CG64 *Figure 55*

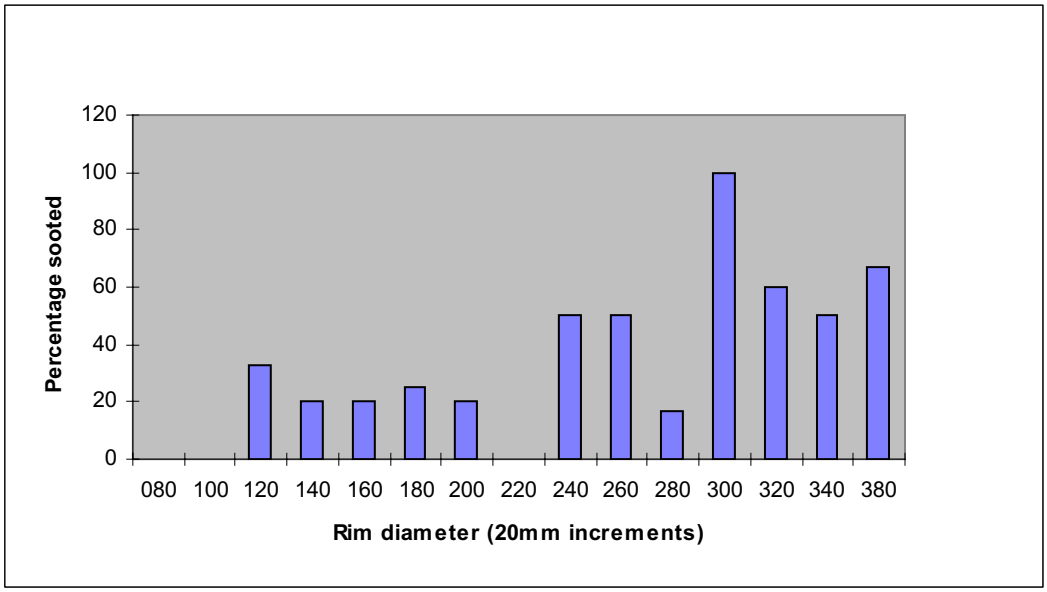


Form series *Figure 56*

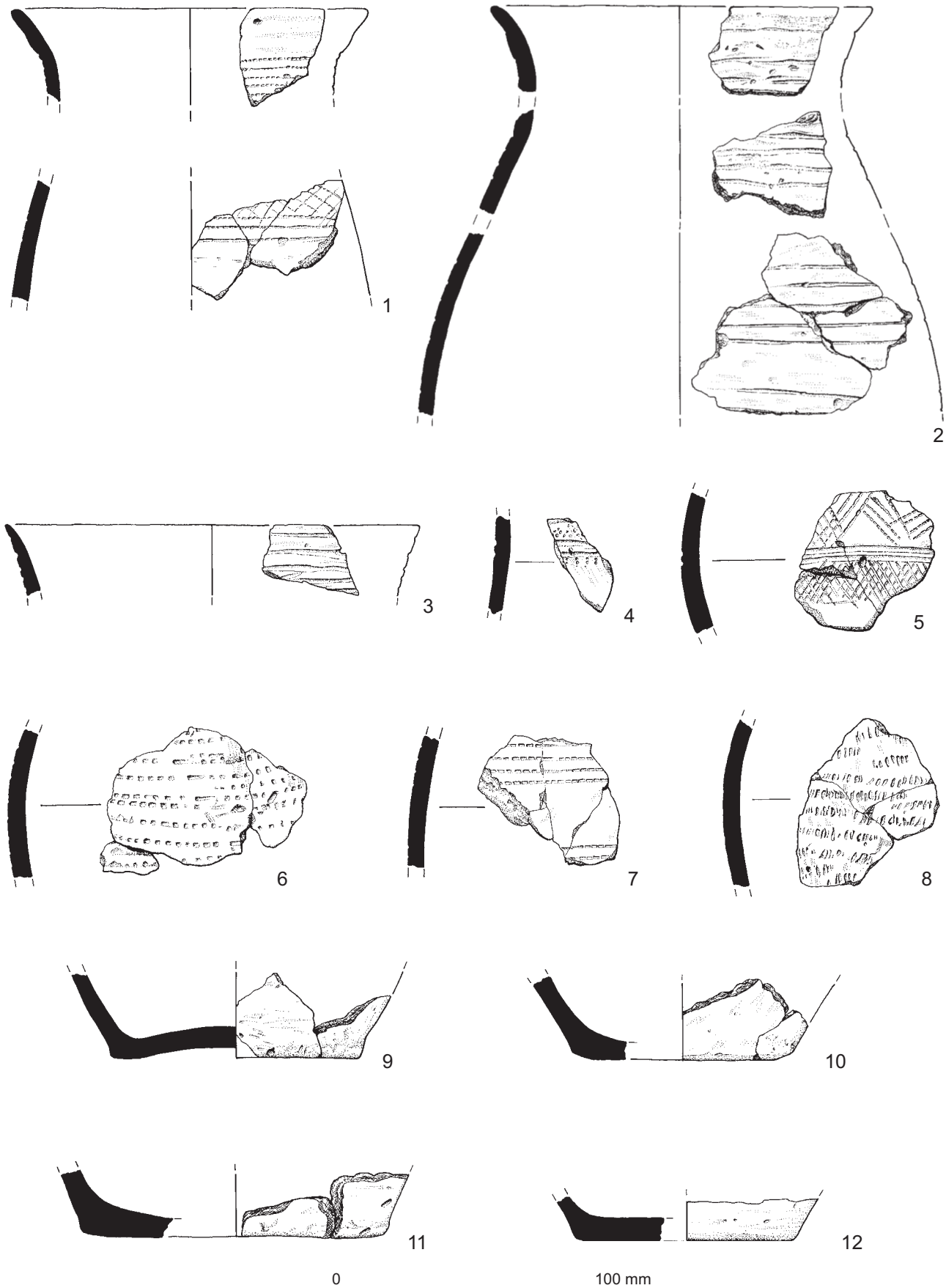


Form series

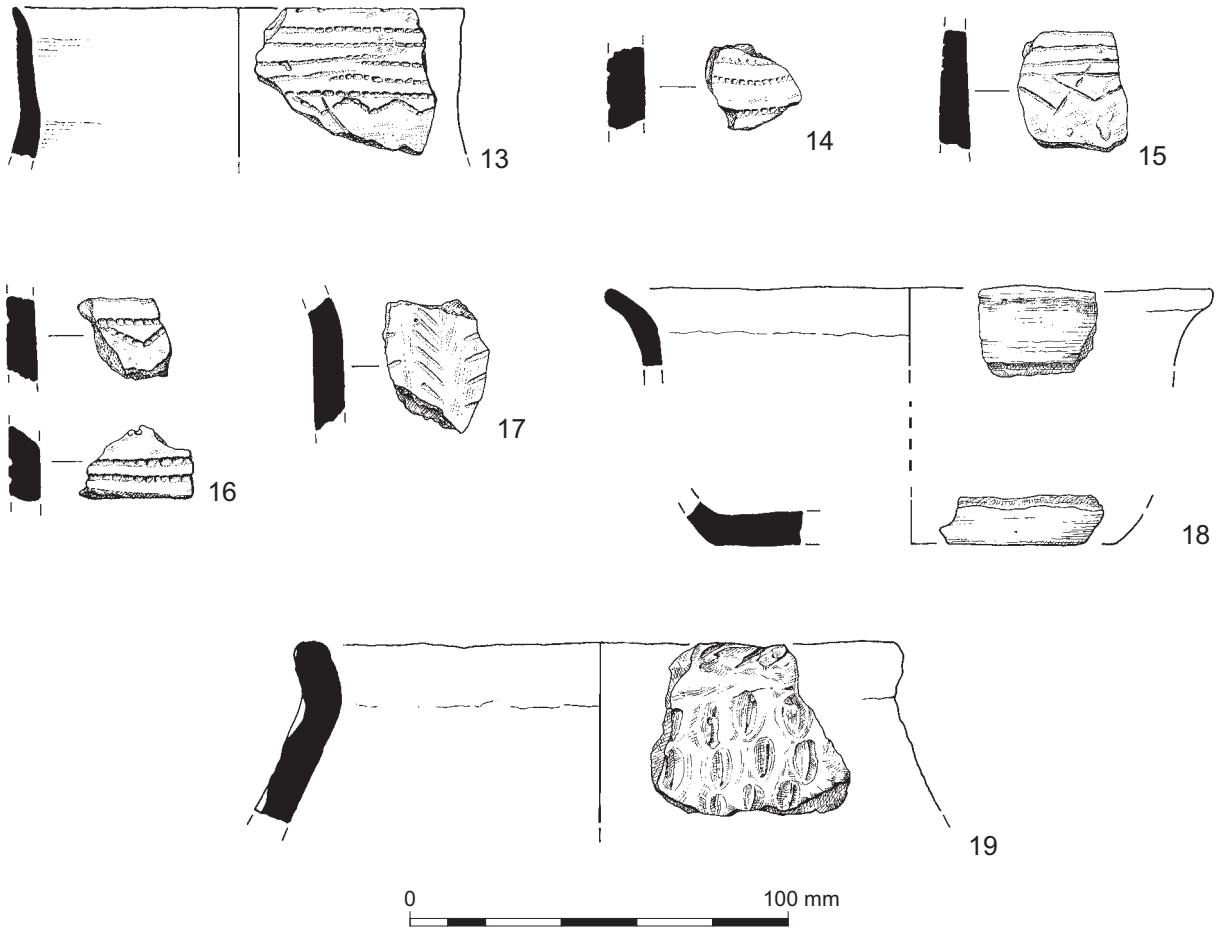
Figure 57



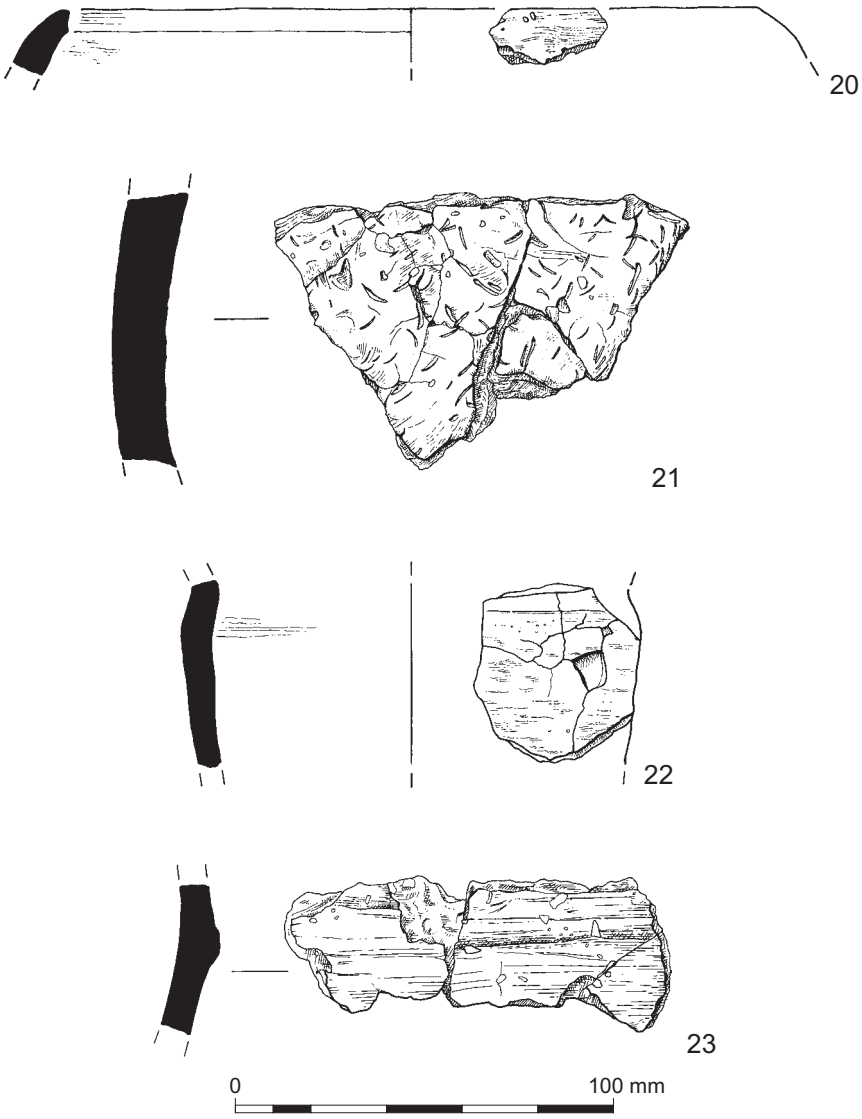
Occurrence of internal residues on rims *Figure 58*



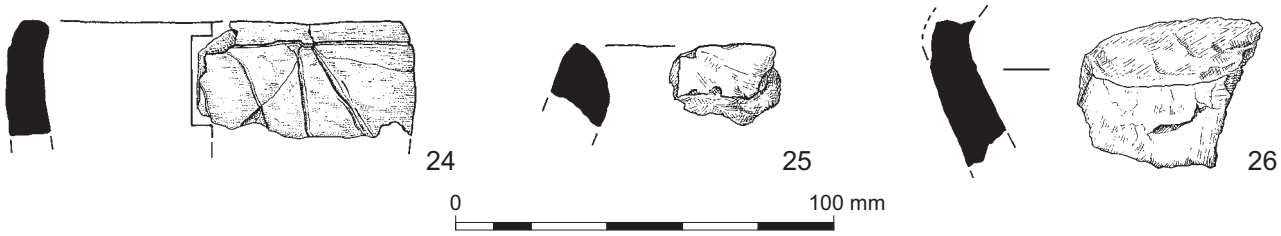
Beaker pottery *Figure 59*



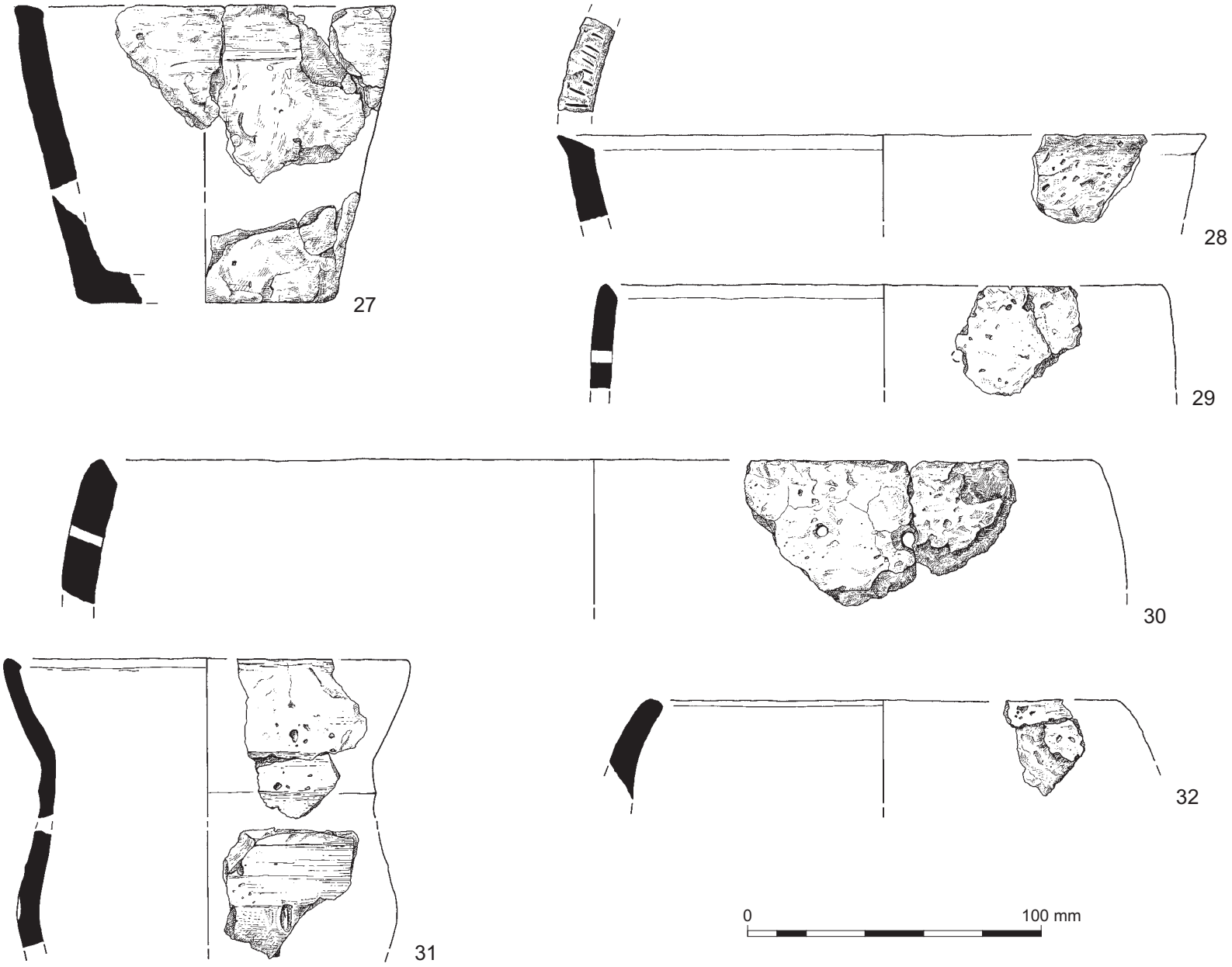
Beaker pottery *Figure 60*



Neolithic pottery *Figure 61*

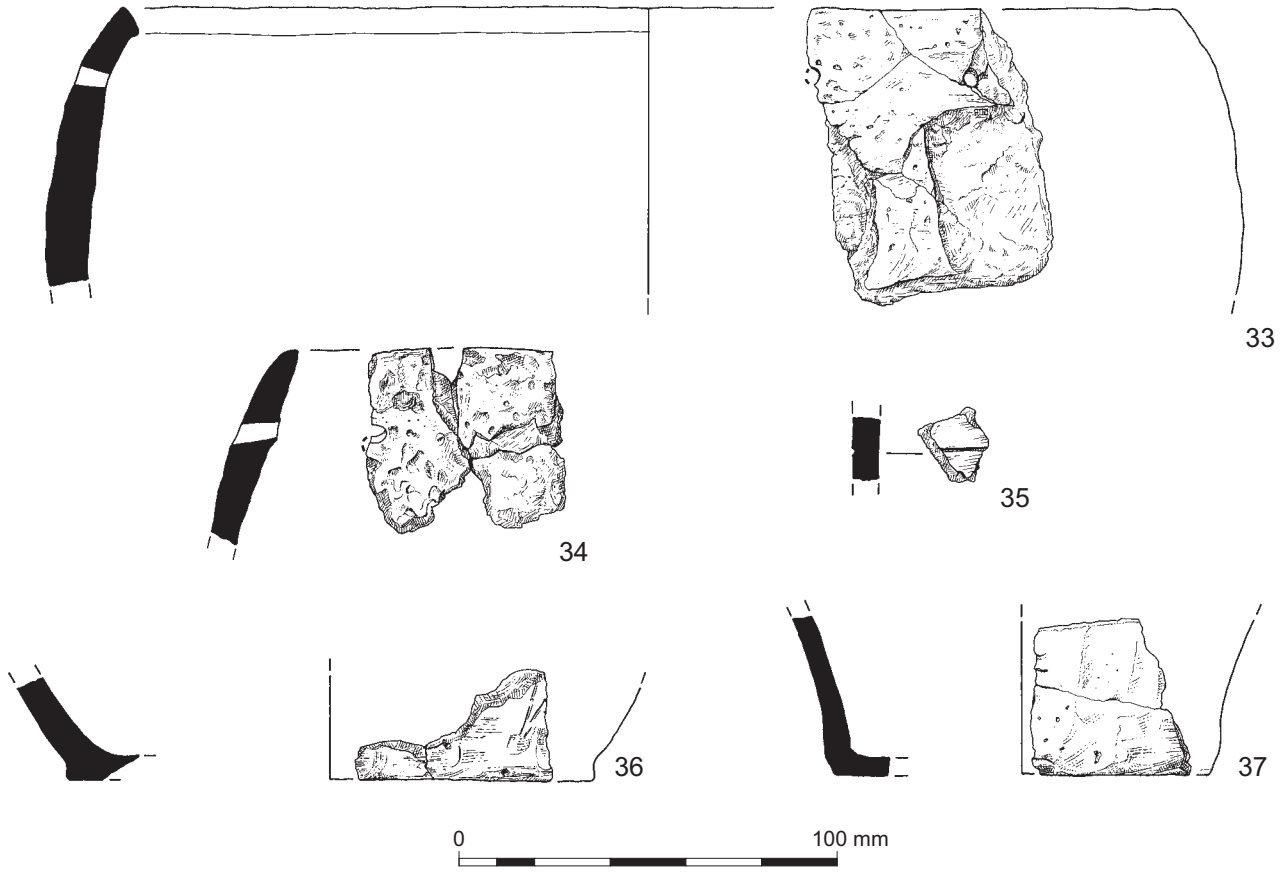


Early Bronze Age pottery *Figure 62*

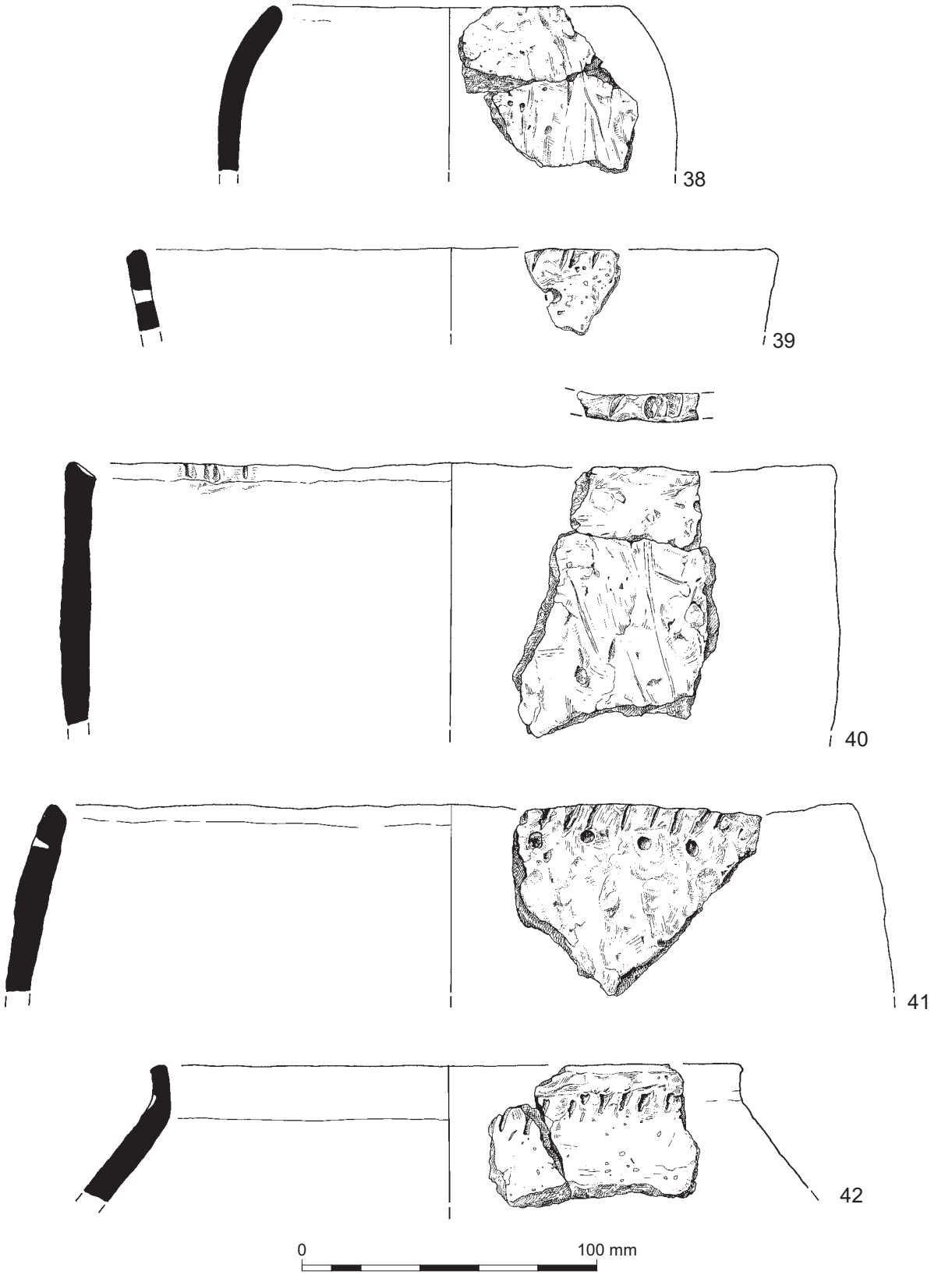


Late Bronze Age pottery from Pit CG1

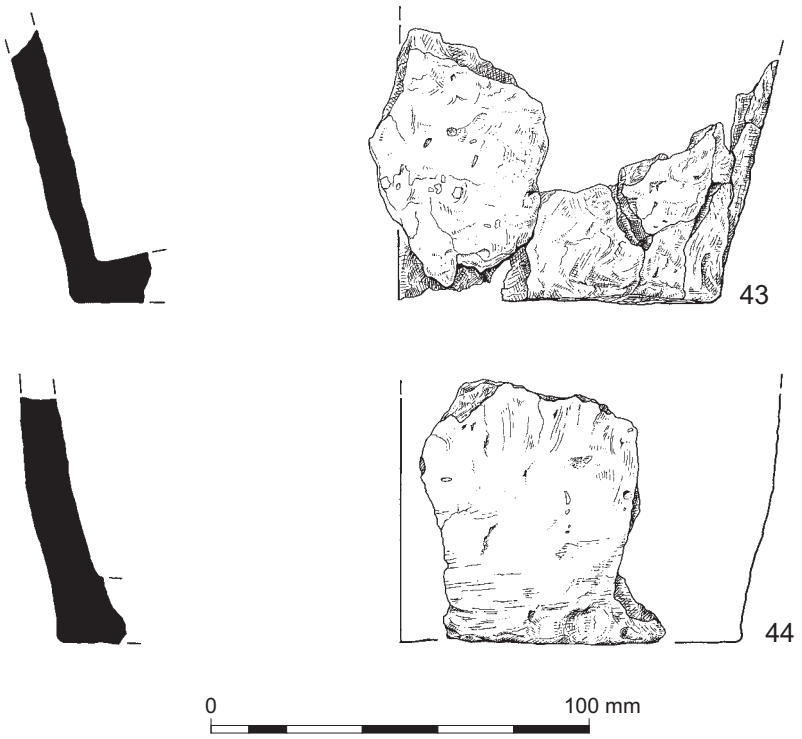
Figure 63



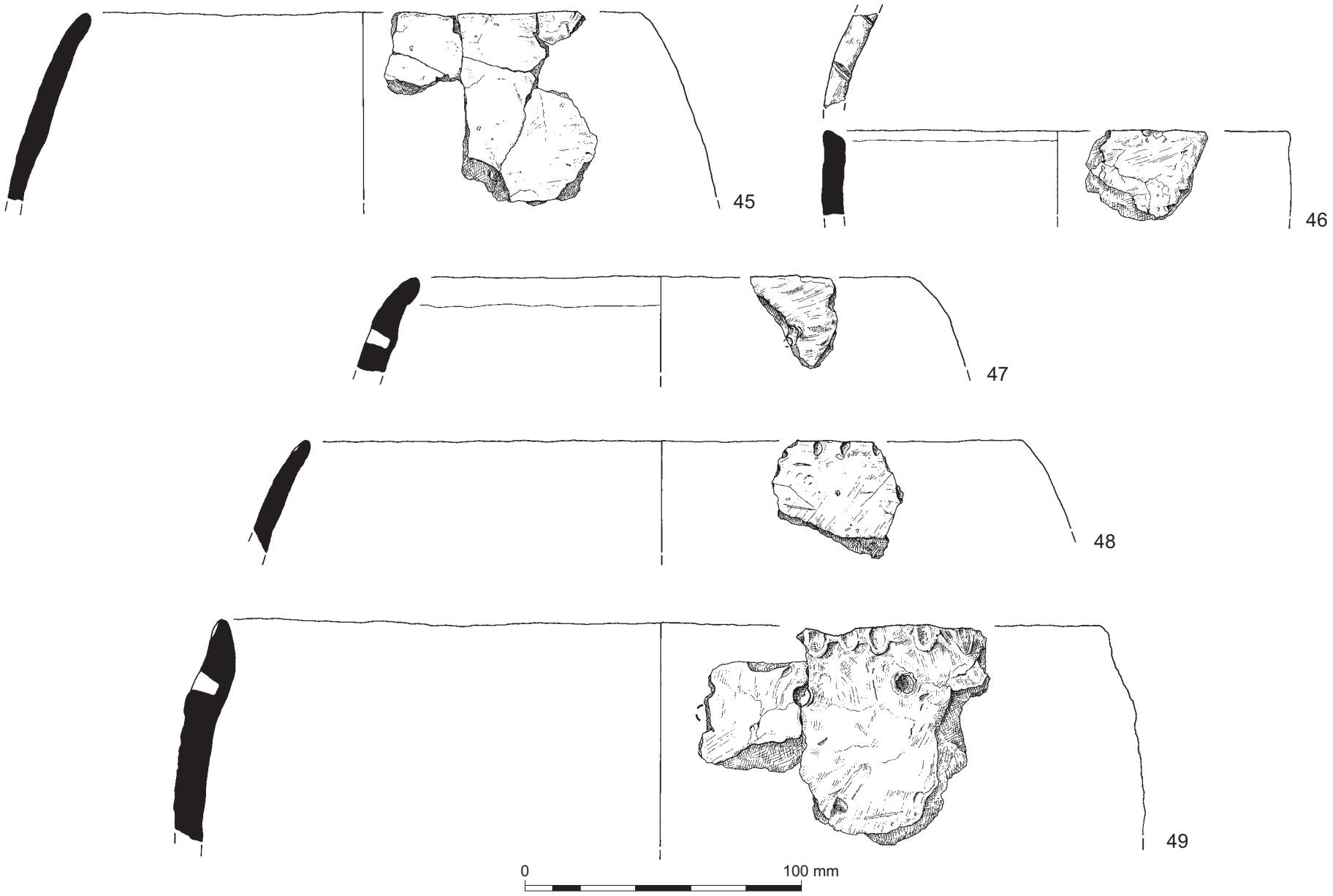
Late Bronze Age pottey from Pit CG1 *Figure 64*



Late Bronze Age pottery from Waterhole CG4 *Figure 65*

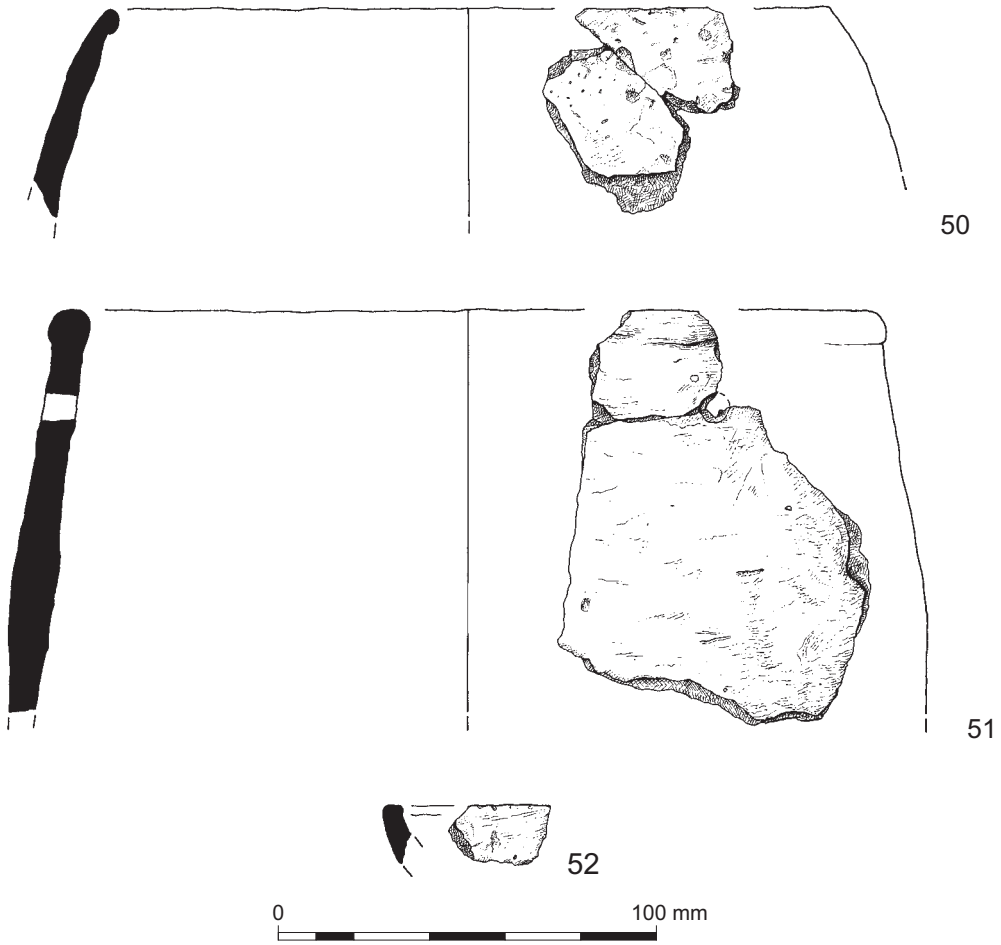


Late Bronze Age pottery from Waterhole CG4 *Figure 66*

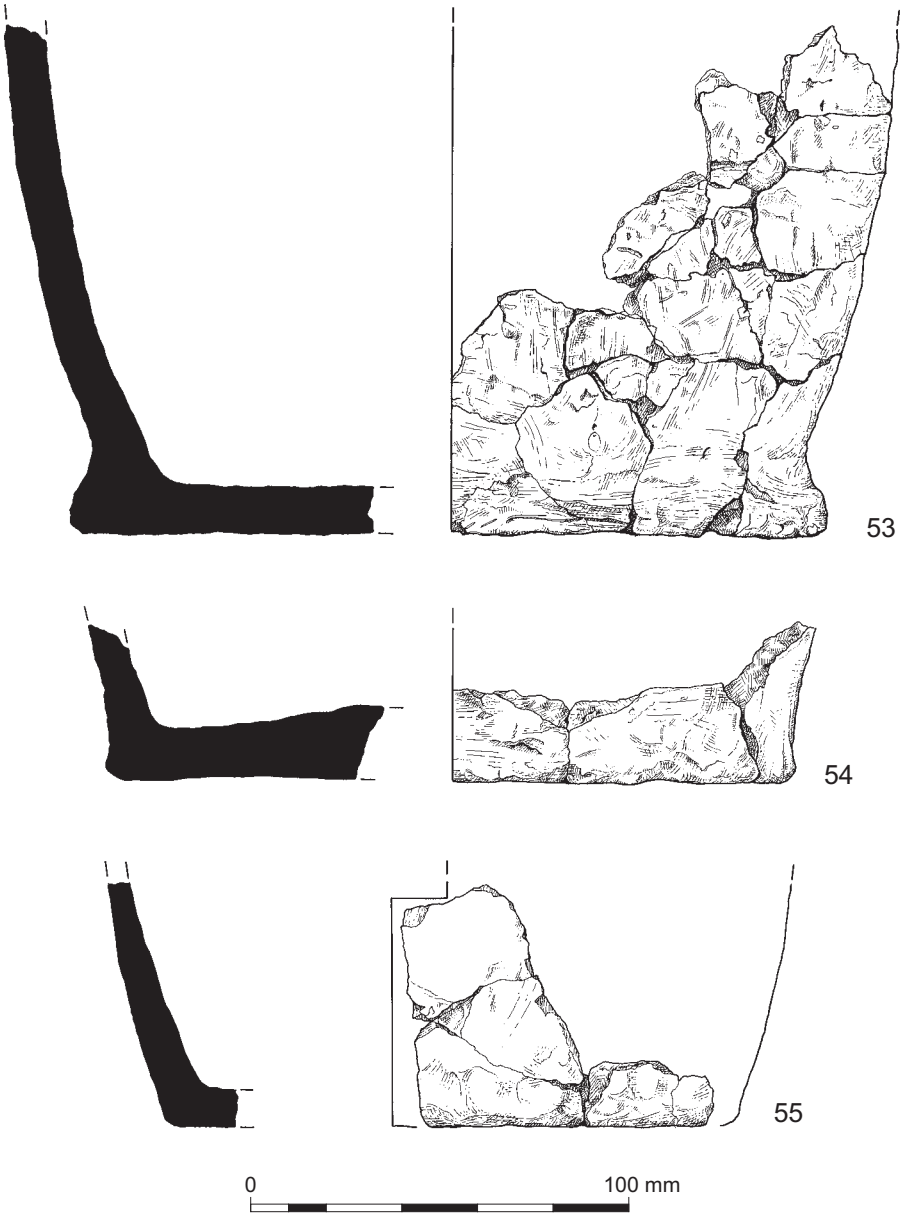


Late Bronze Age pottery from Waterhole CG6

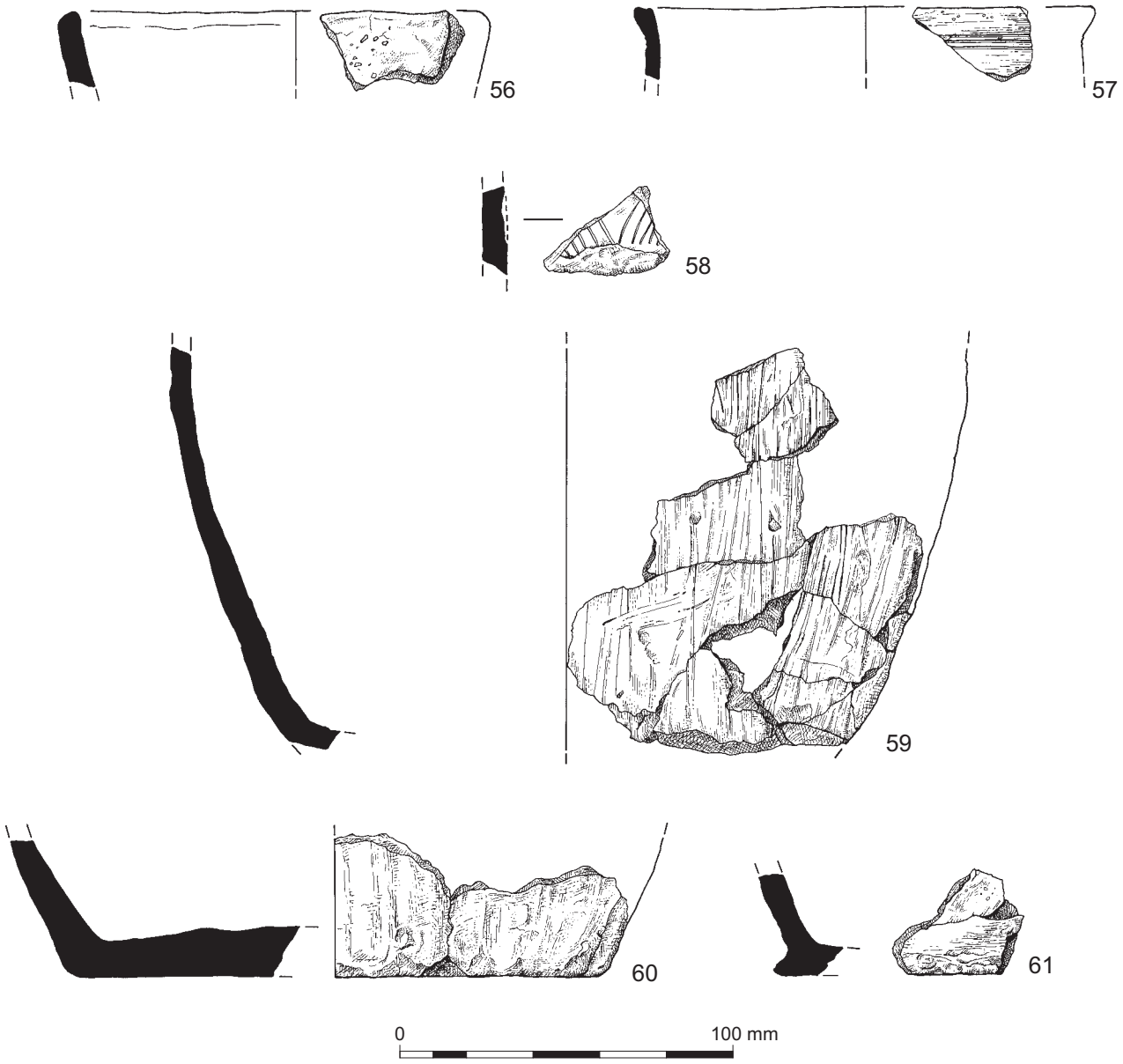
Figure 67



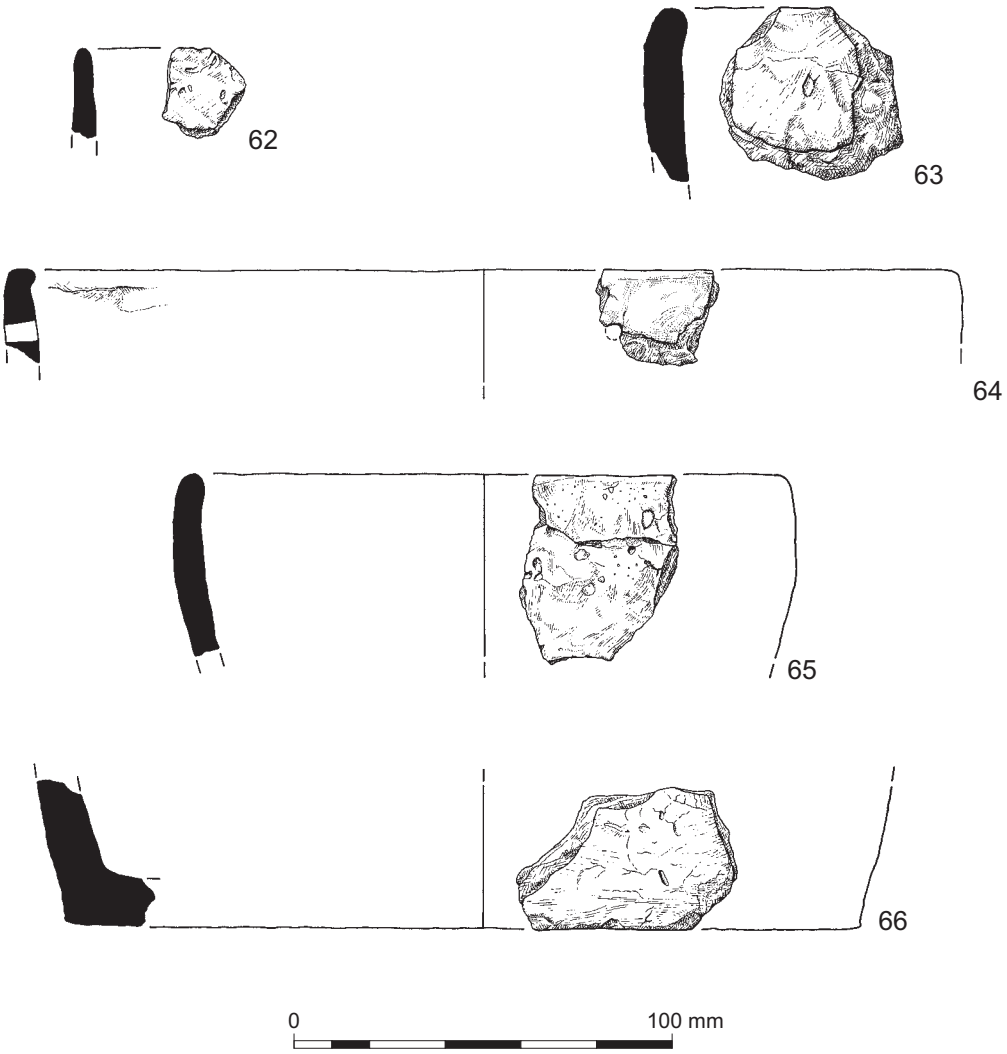
Late Bronze Age pottery from Waterhole CG6 *Figure 68*



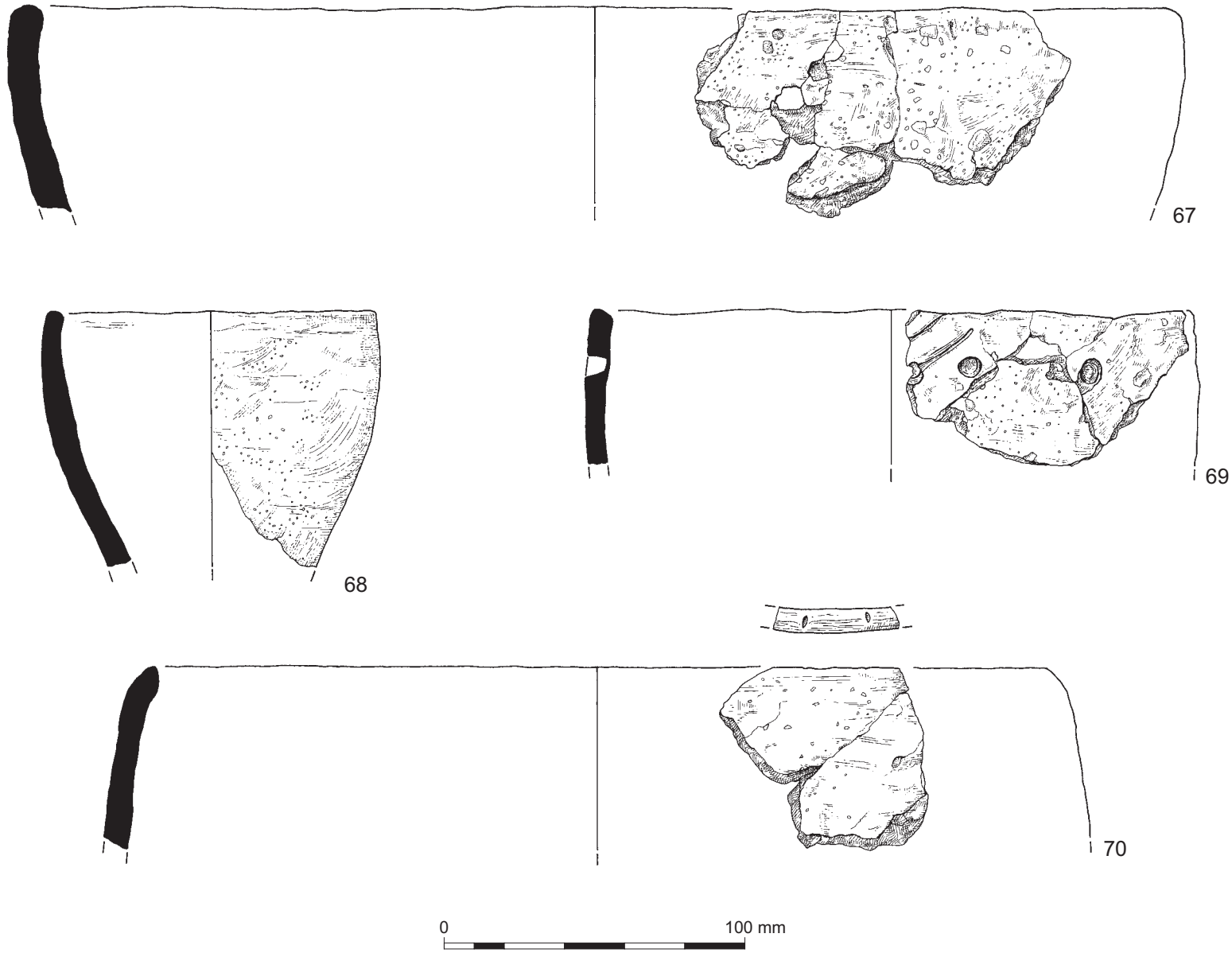
Late Bronze Age pottery from Waterhole CG6 *Figure 69*



Late Bronze Age pottery from Waterhole CG7 *Figure 70*

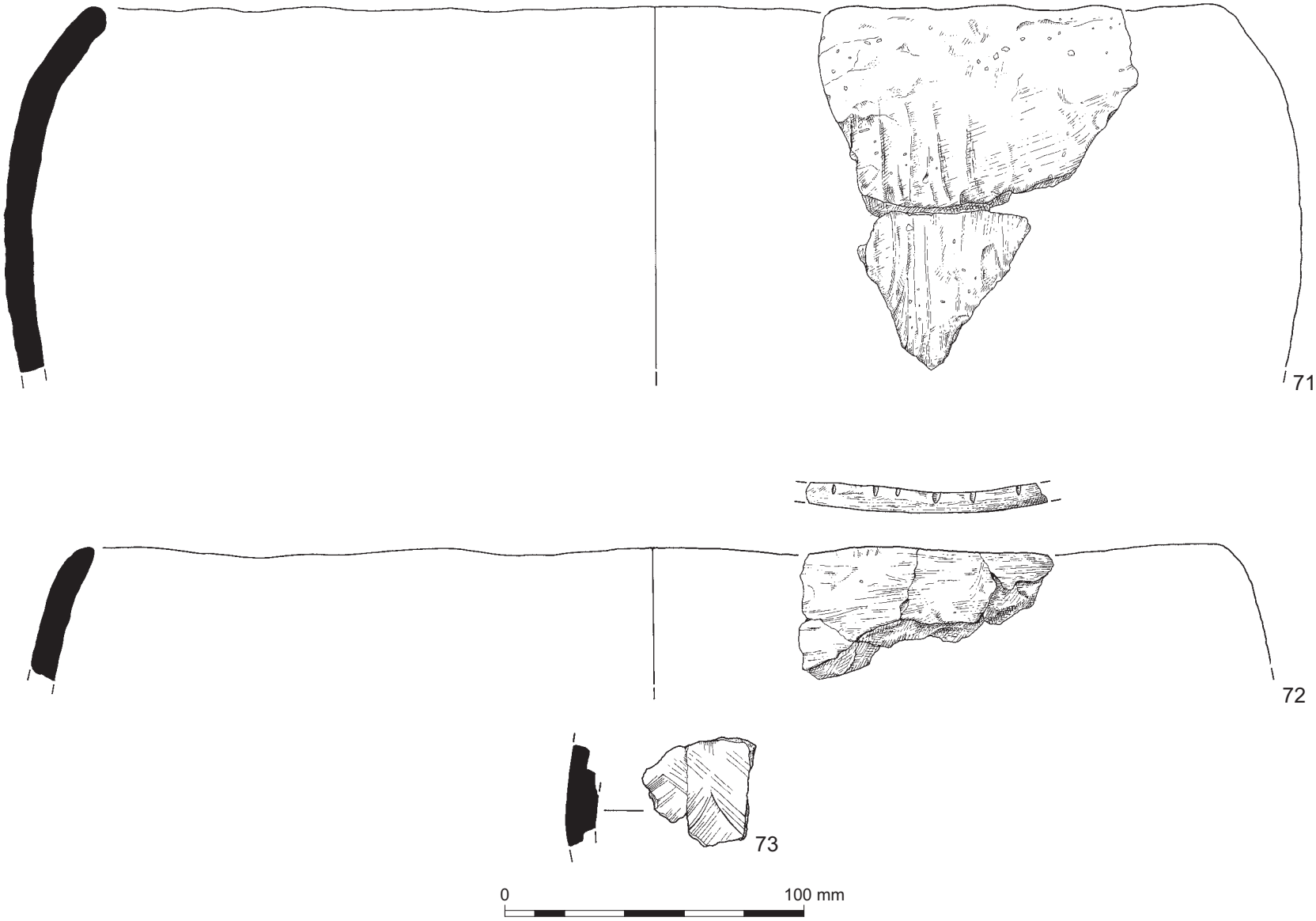


Late Bronze Age pottery from Waterhole CG8 *Figure 71*



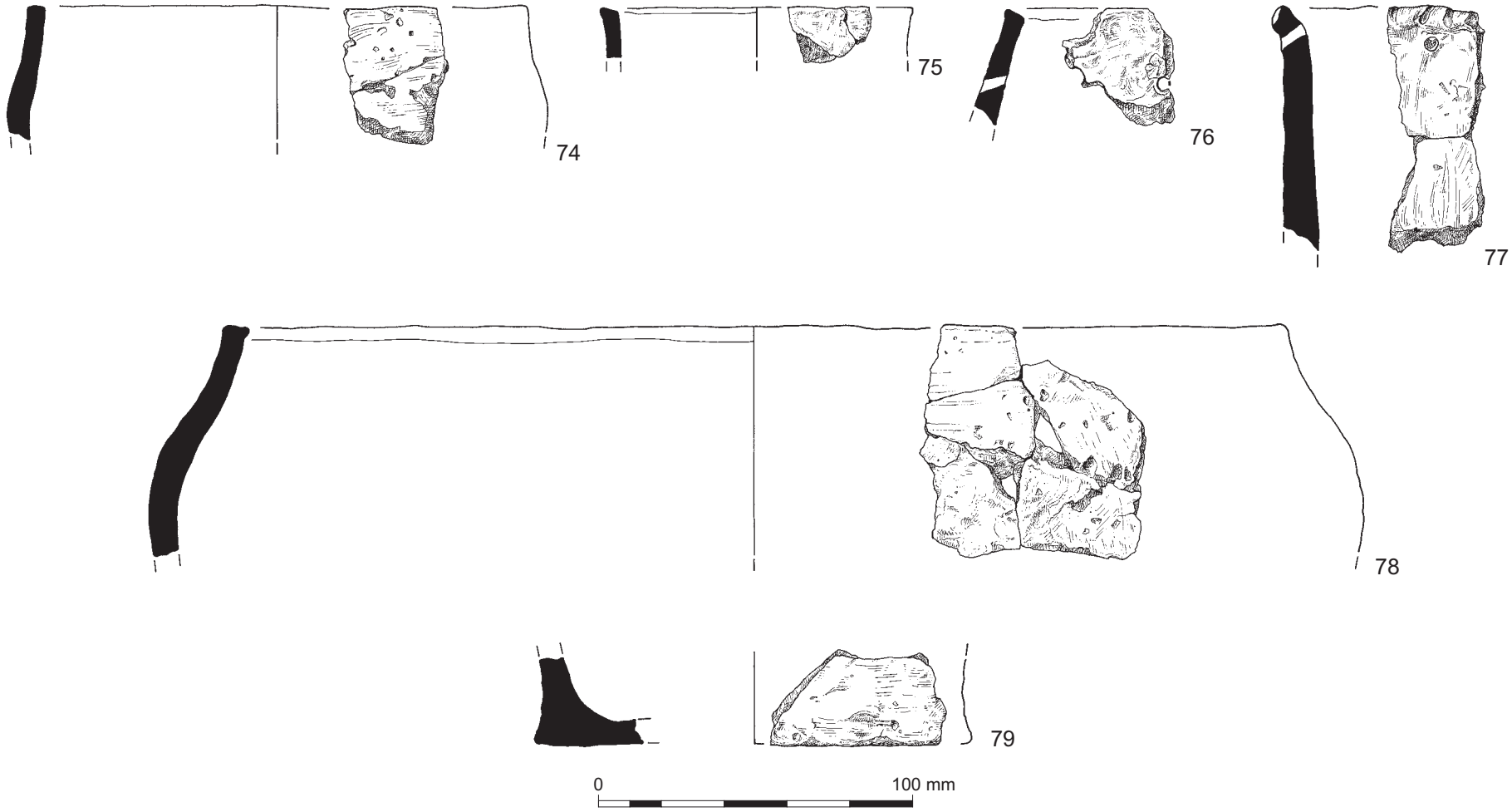
Late Bronze Age pottery from Pit CG9

Figure 72



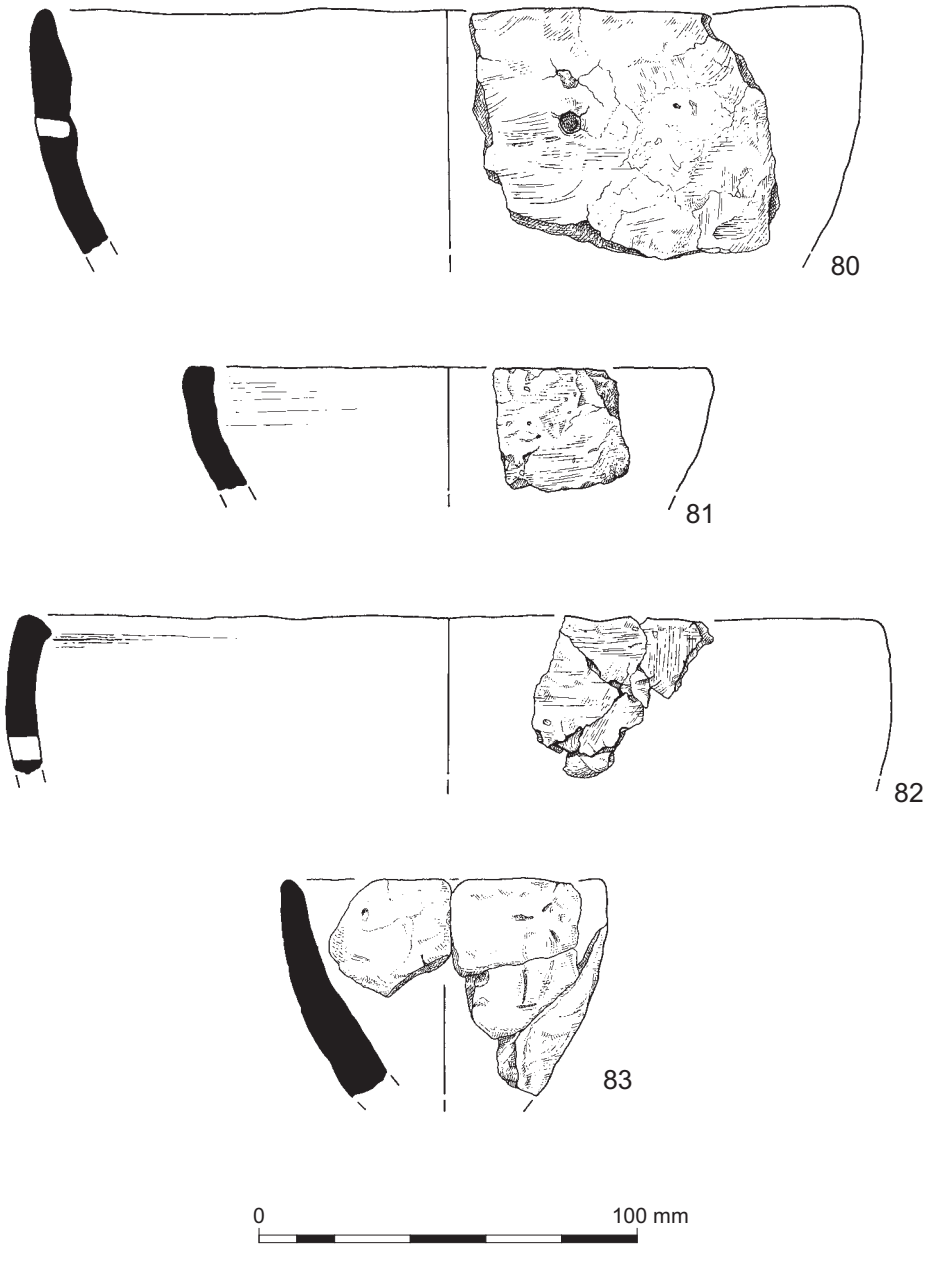
Late Bronze Age pottery from Pit CG9

Figure 73



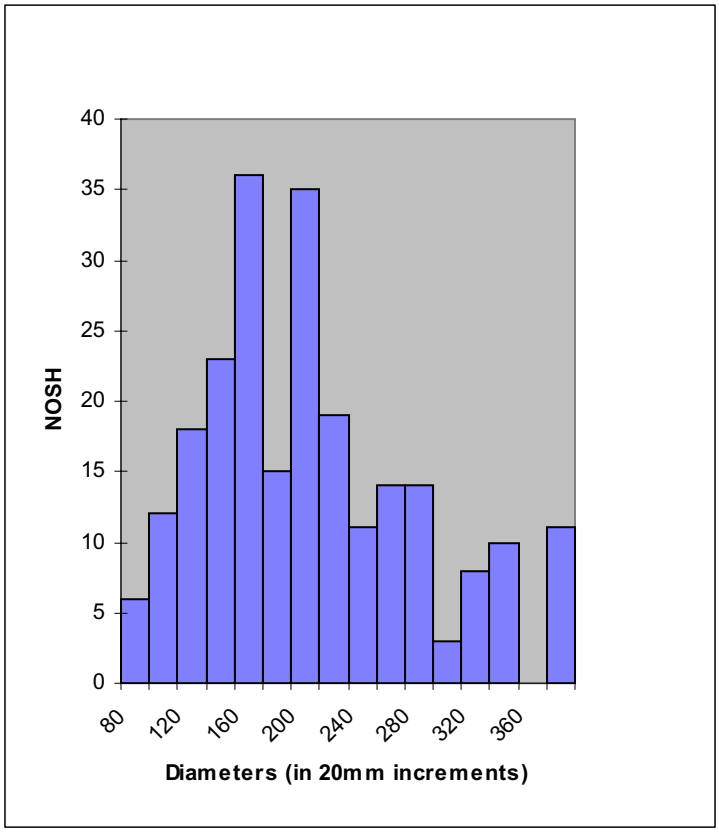
Late Bronze Age pottery from Pit CG10

Figure 74

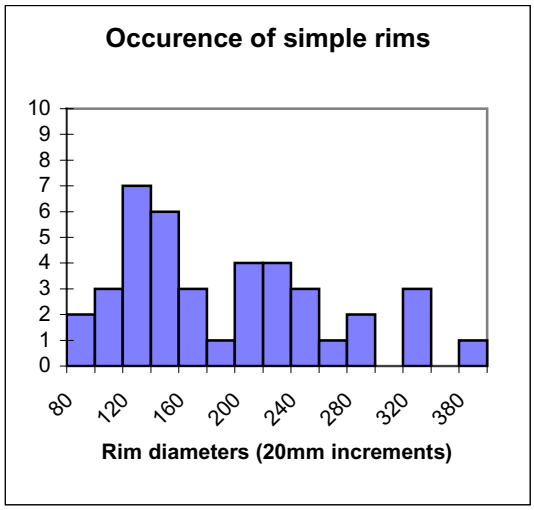


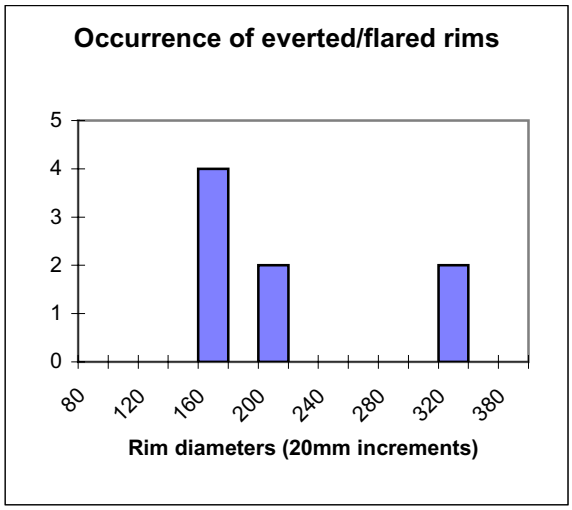
Late Bronze Age pottery from Pit/post CG25 and vessel of indeterminate type from Waterhole CG4

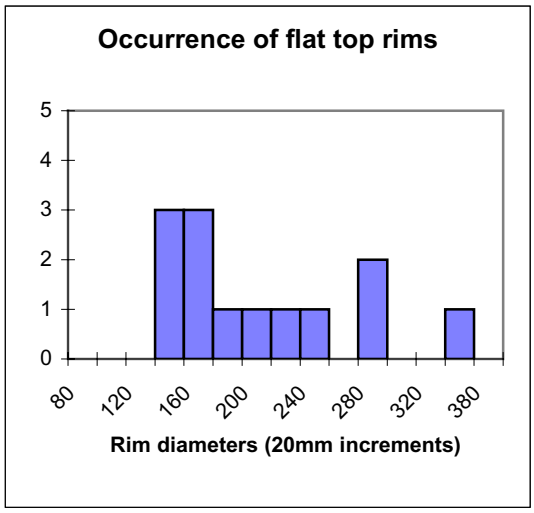
Figure 75

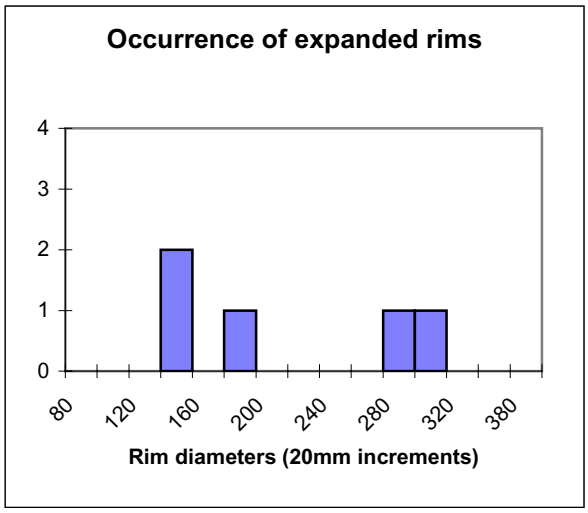


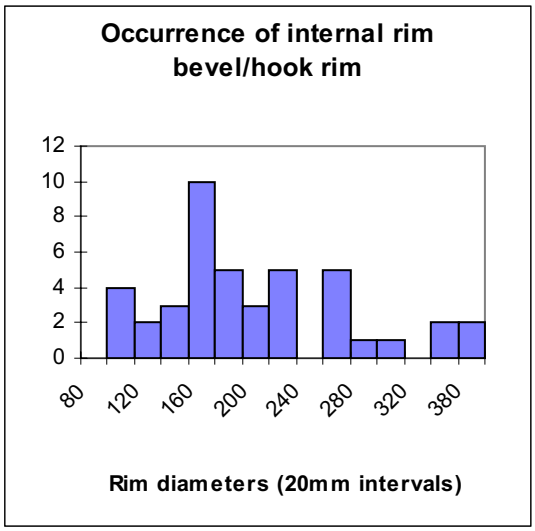
Rim diameters (whole assemblage) *Figure 76*

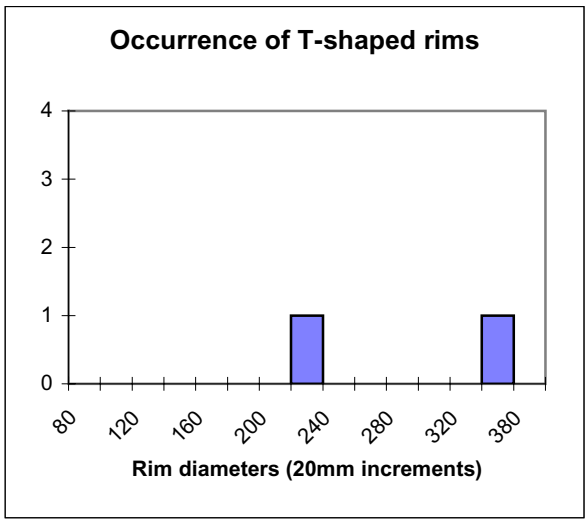




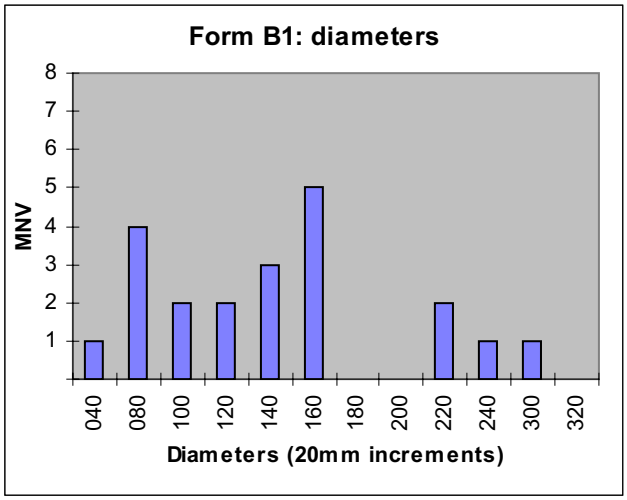


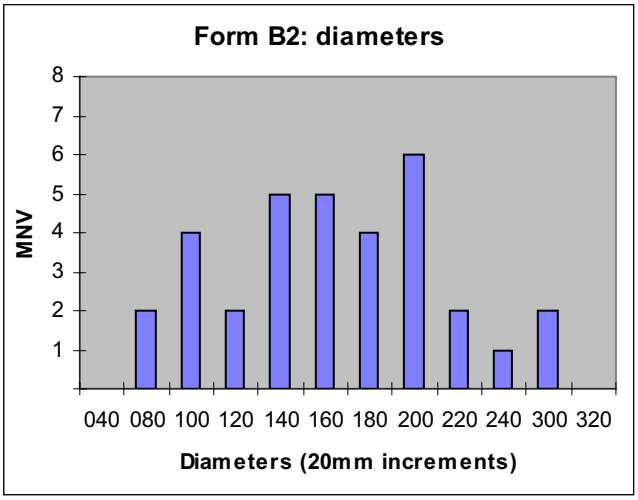


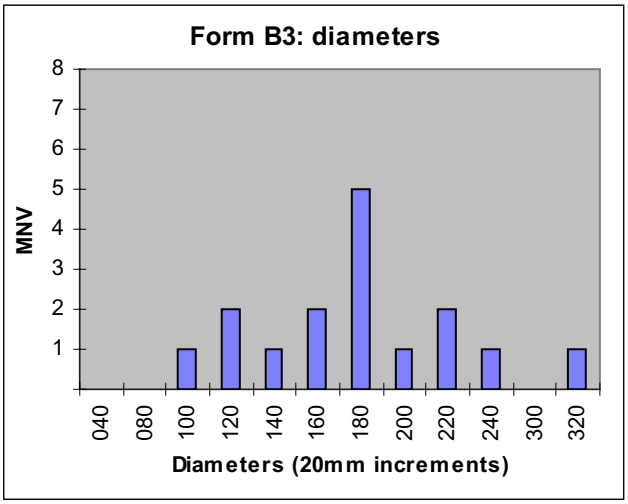




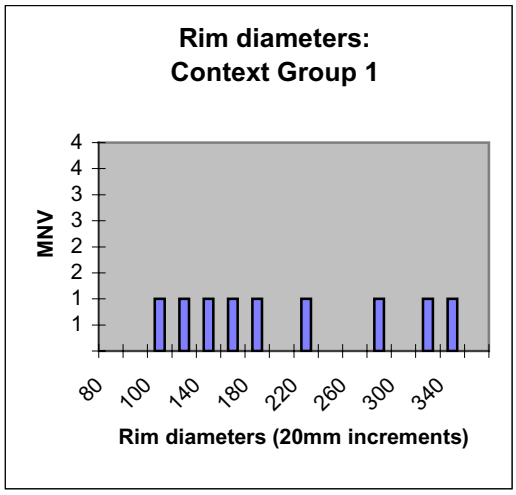
Occurrence of major form groups (by rim diameter) *Figure 77*

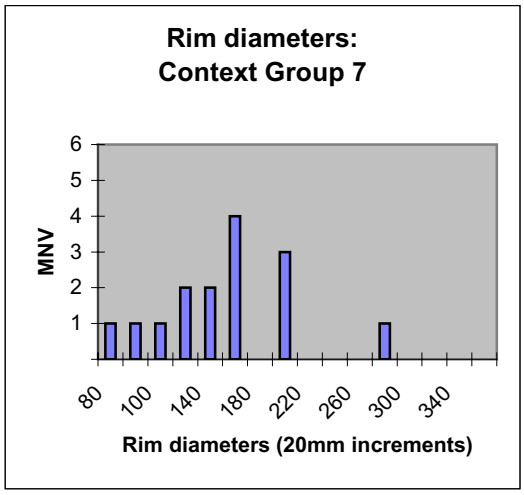


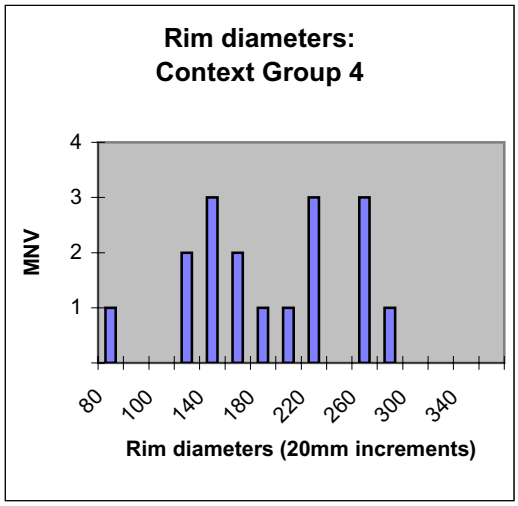


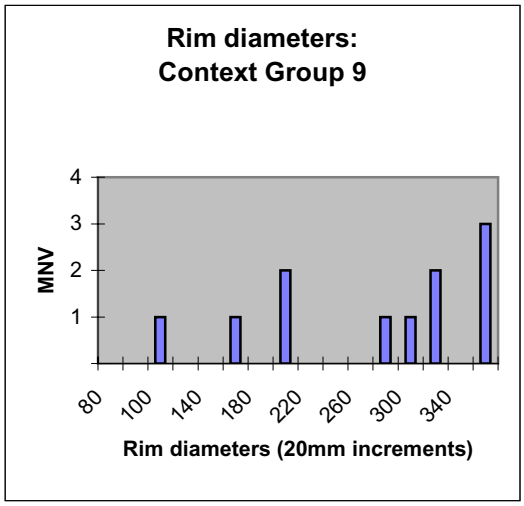


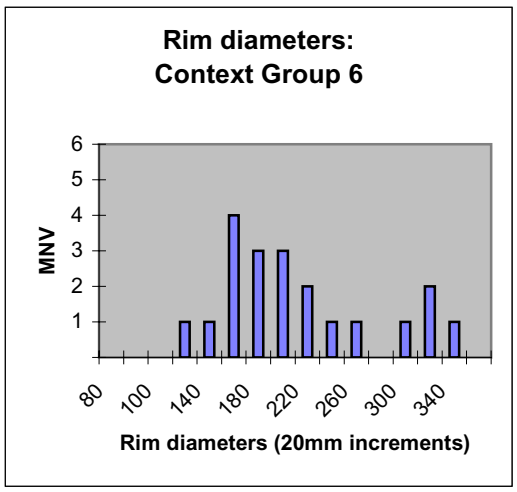
Occurrence of base forms (by diameter) *Figure 78*

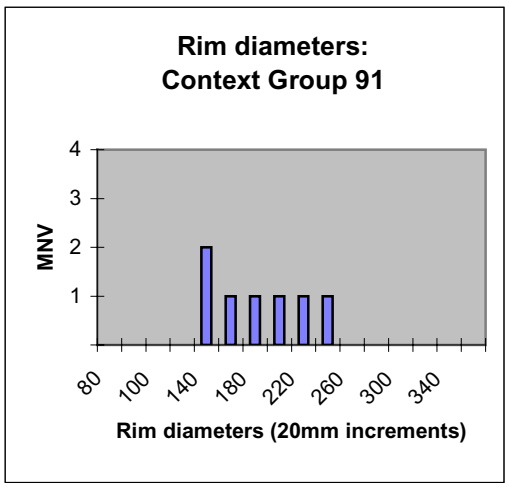




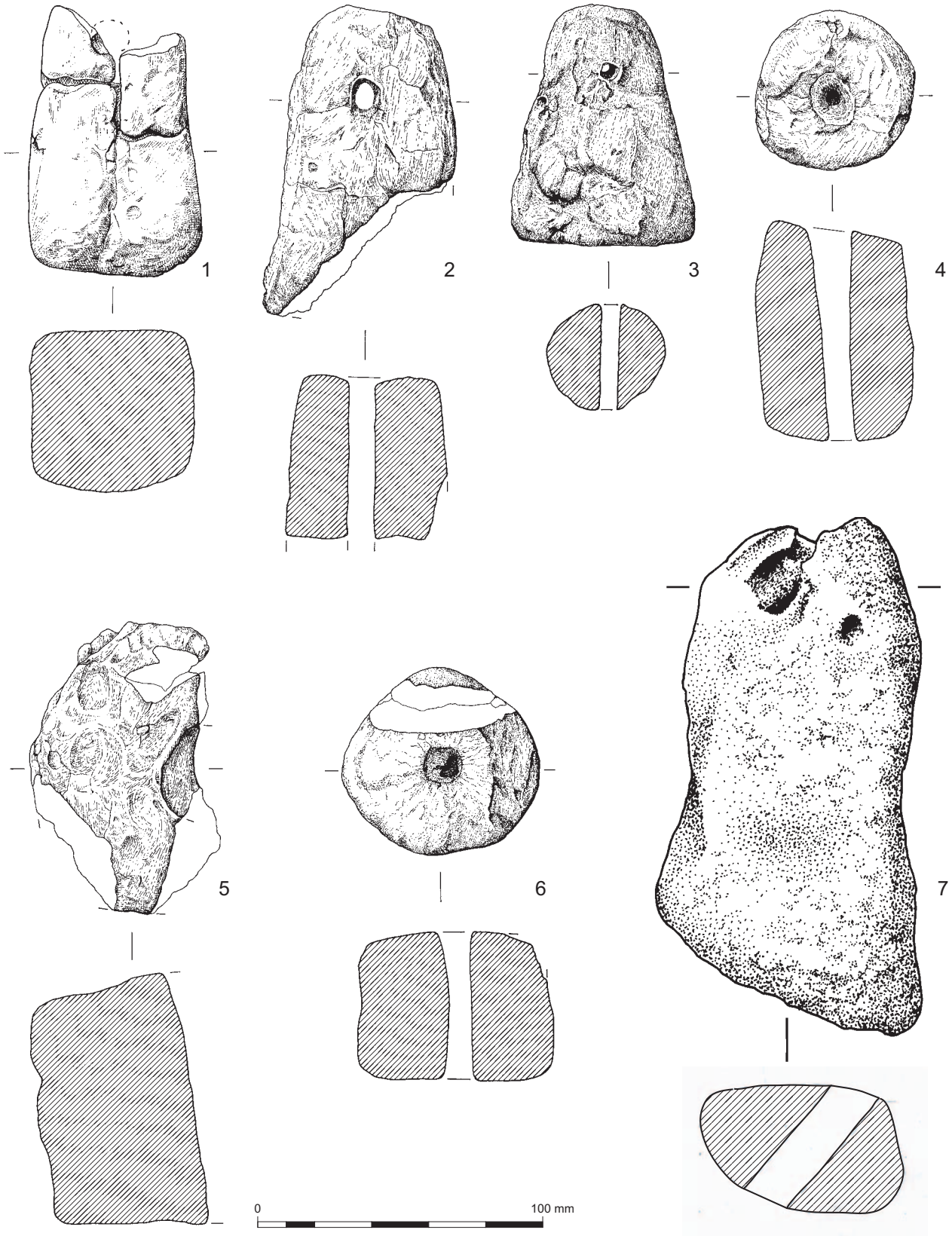




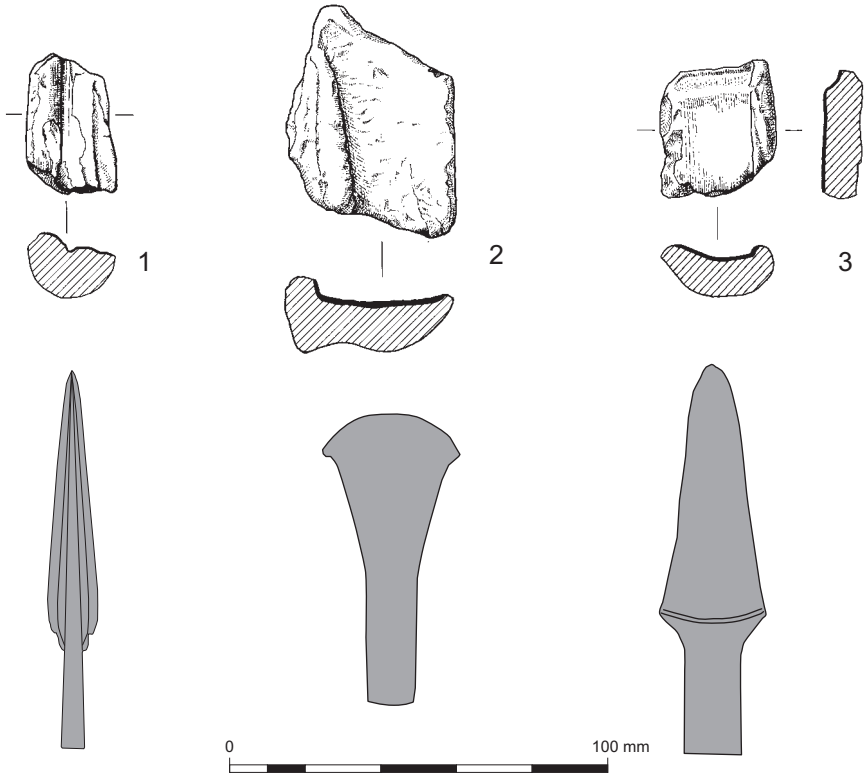




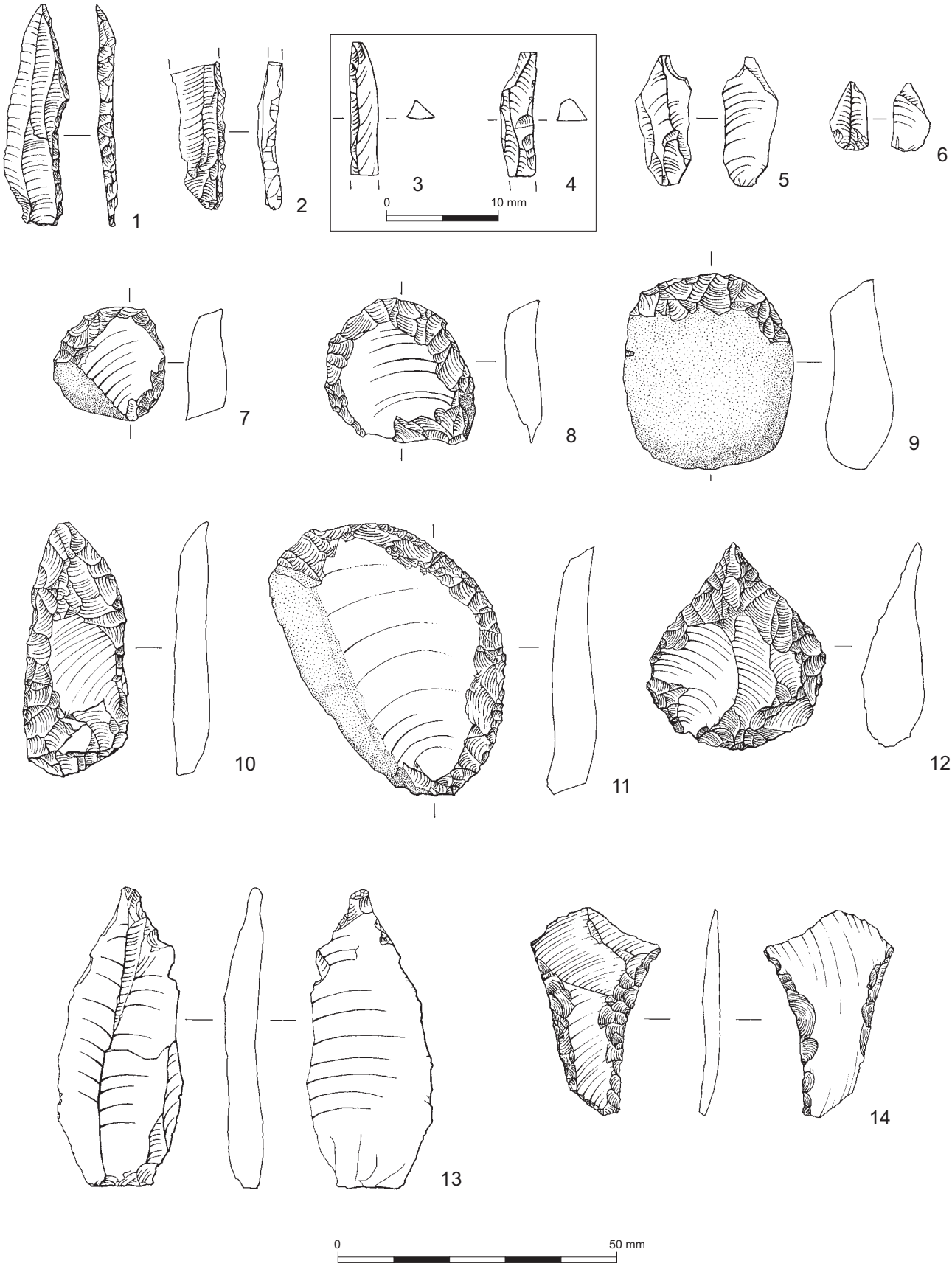
Occurrence of rim diameters in selected Context Groups *Figure 79*



Weights *Figure 80*

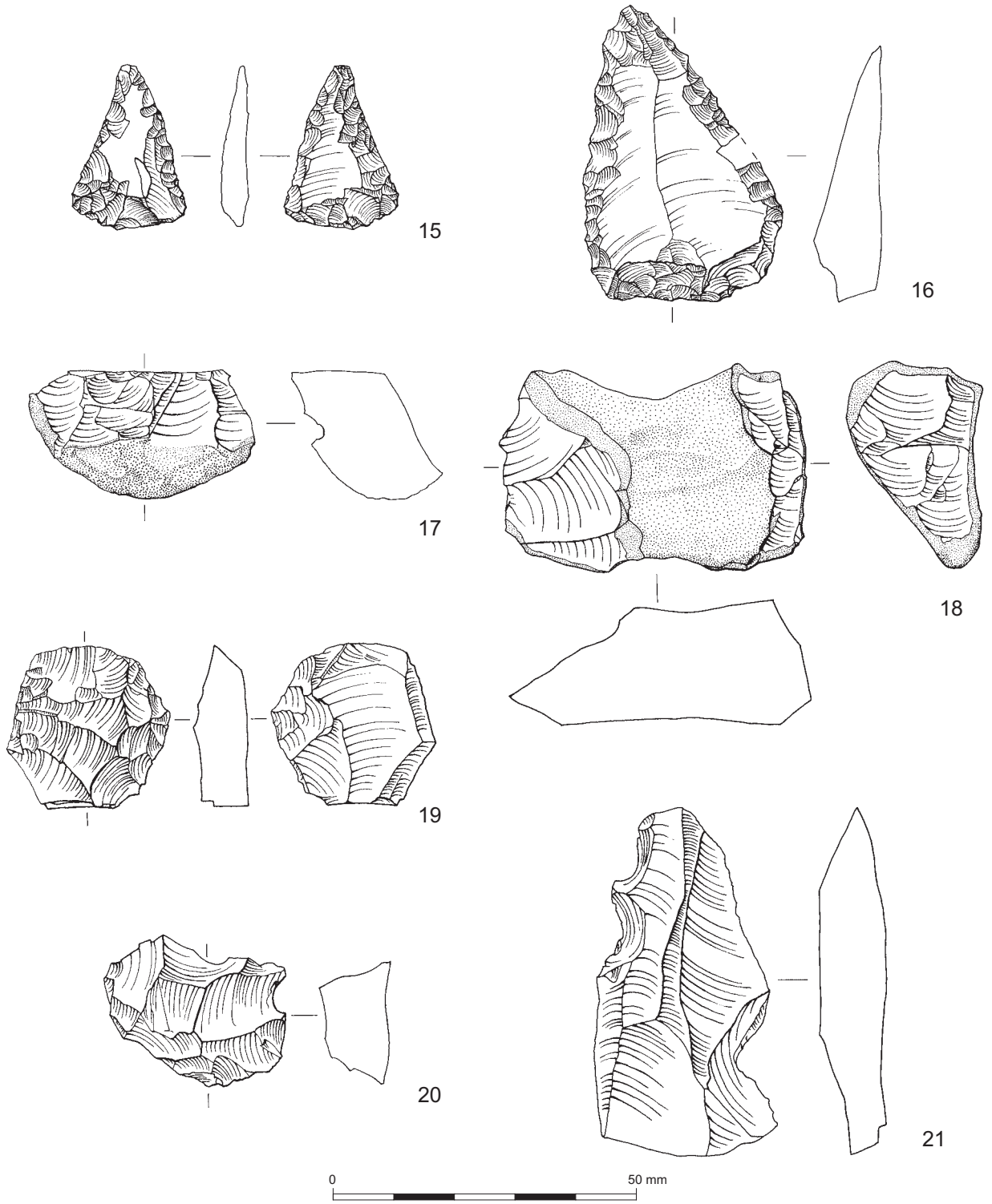


Ceramic mould fragments *Figure 81*



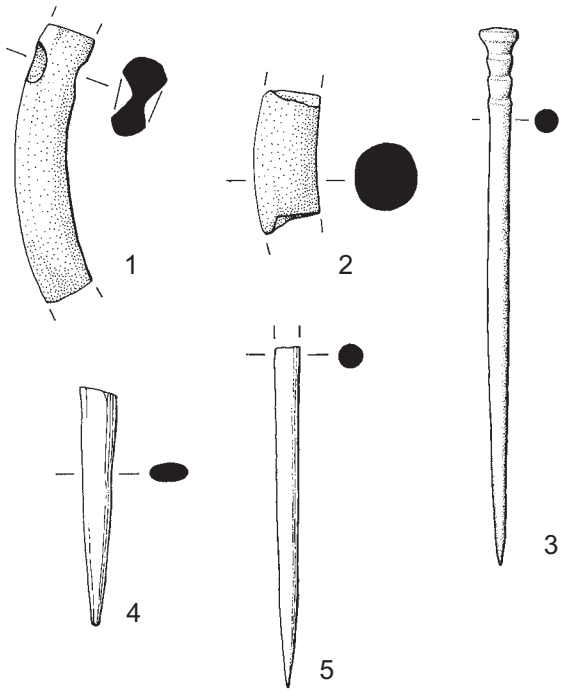
Flint

Figure 82

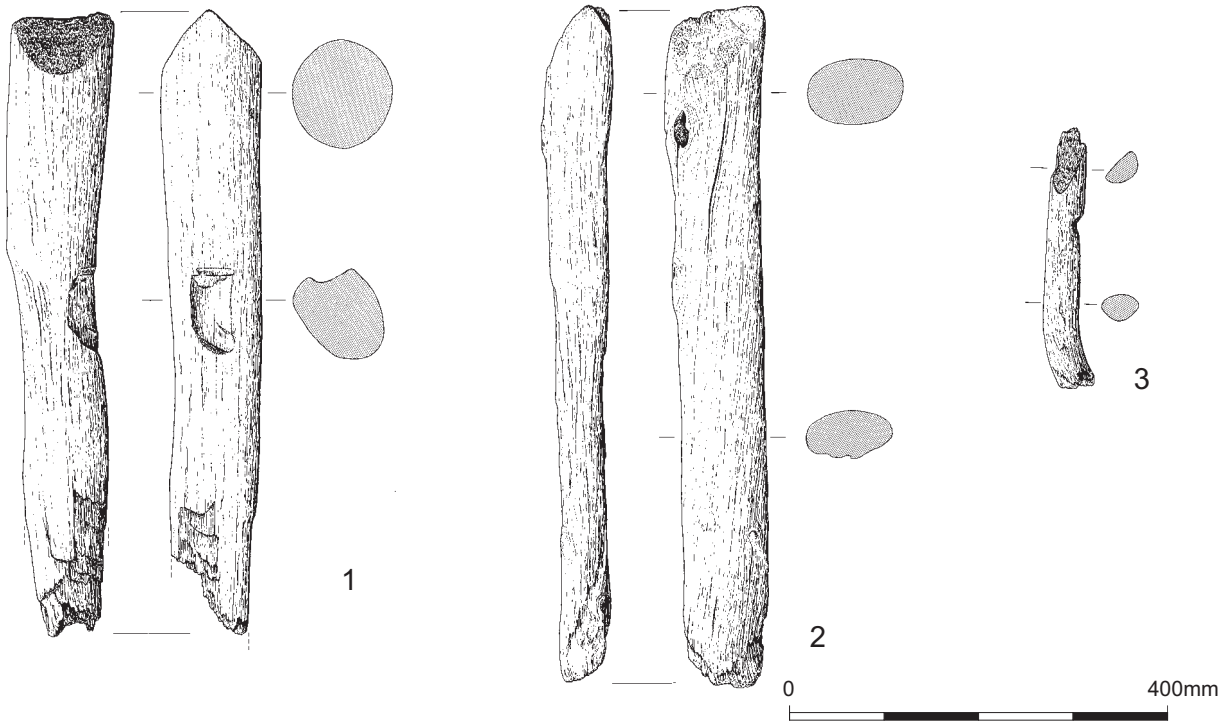


Flint

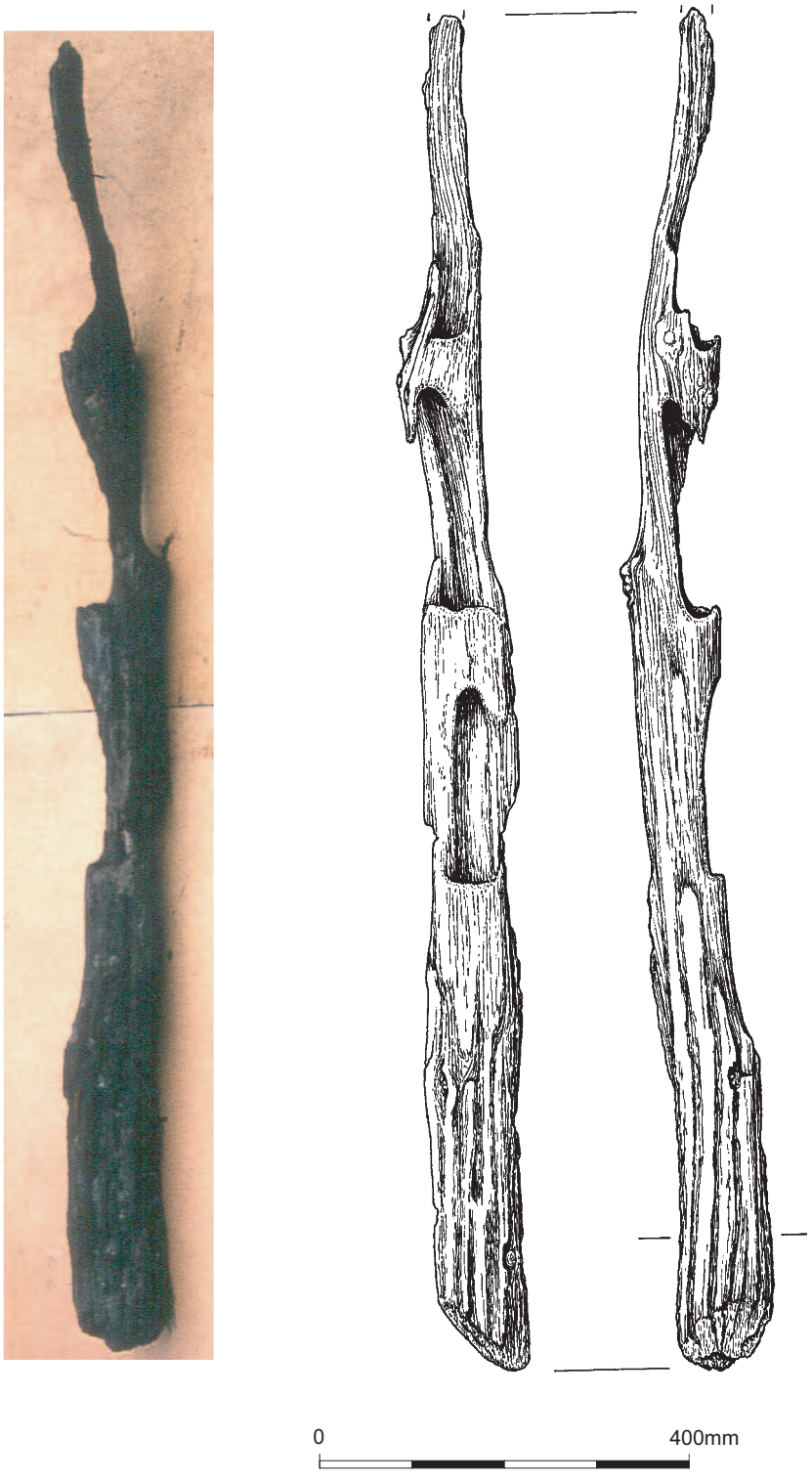
Figure 83



Shale and worked bone *Figure 84*

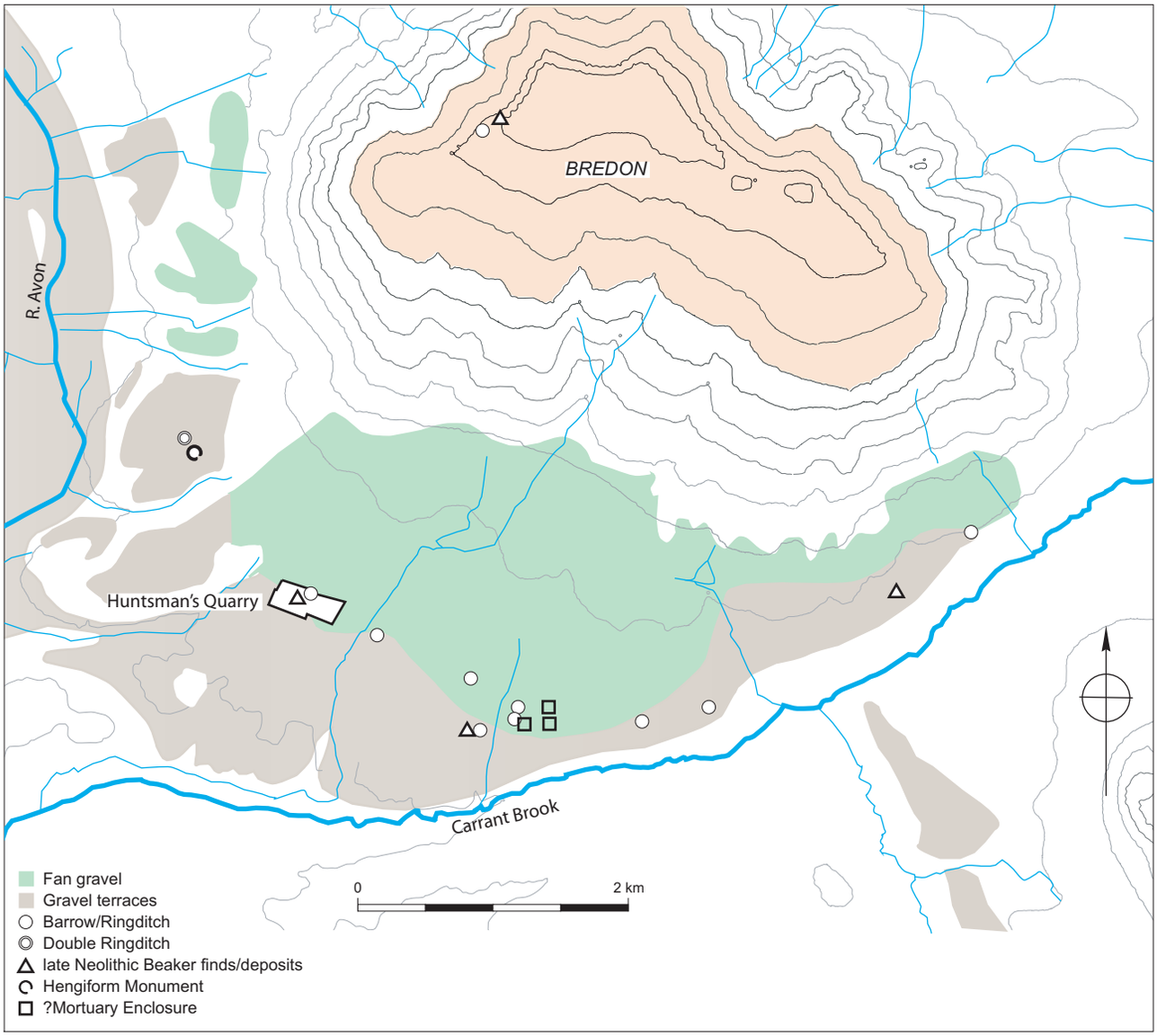


Worked wood *Figure 85*

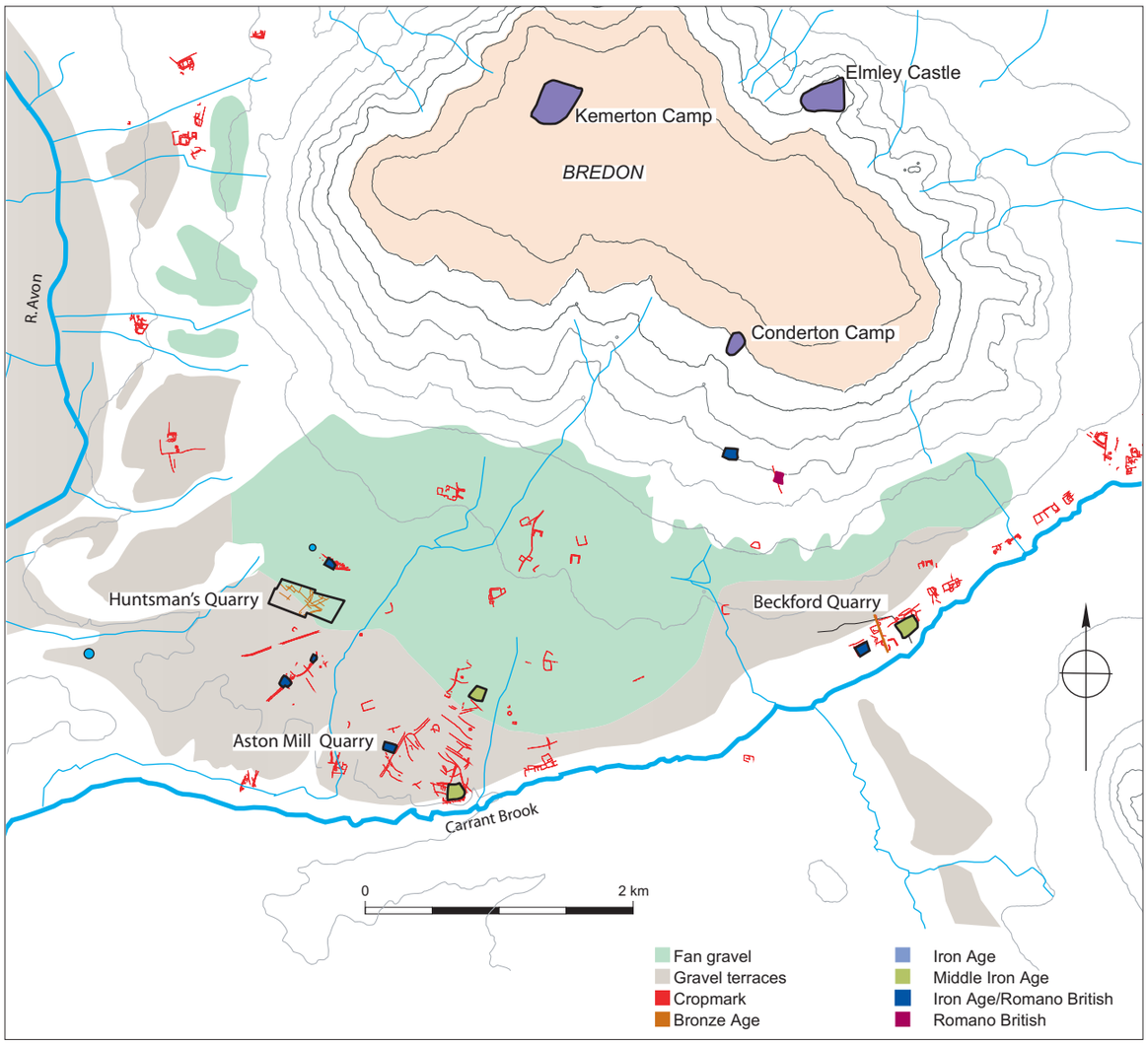


Worked wood

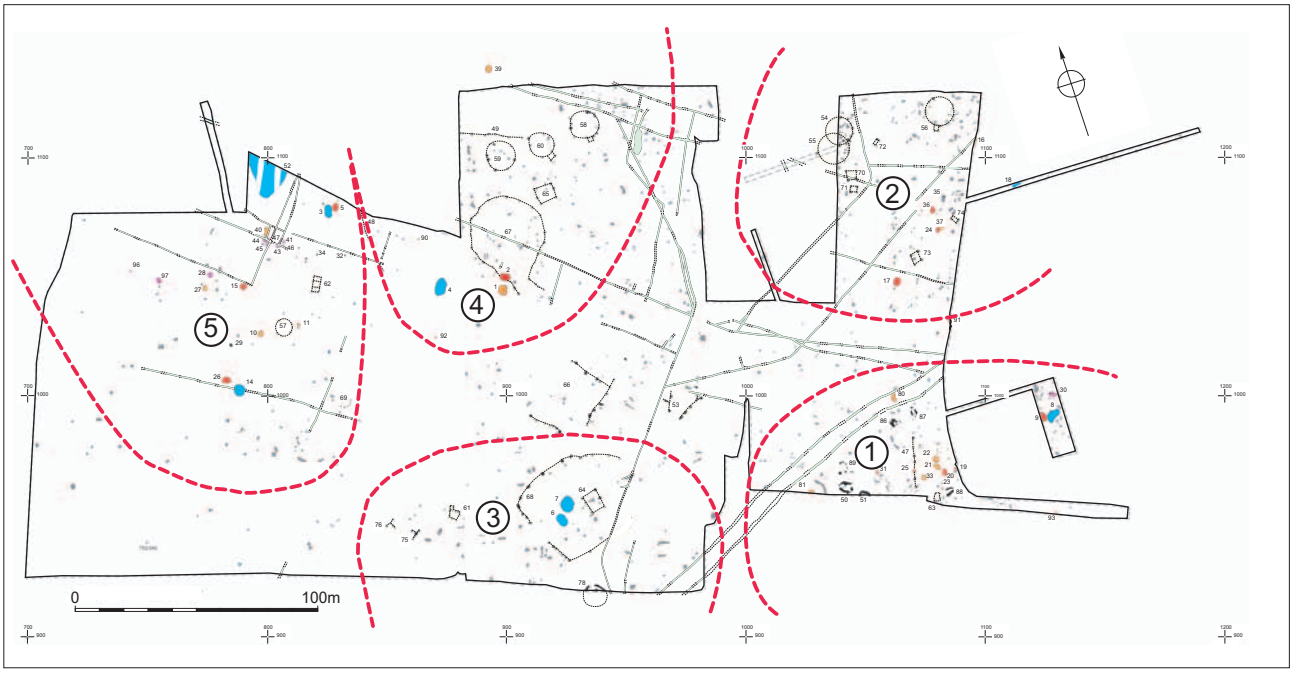
Figure 86



The early prehistoric landscape around Huntsman's Quarry *Figure 87*



The later prehistoric and early Romano-British landscape around Huntsman's Quarry *Figure 88*



Suggested Late Bronze Age settlement zones *Figure 89*

Laboratory Number	Sample Reference	Material	Radiocarbon Age (BP)	$\delta^{13}C$ (‰)	Calibrated date range (95% confidence)	Posterior density estimate (95% probability; Fig RC2)
OxA-10776	CG1 1830A	refitting pottery, charred residue	2852±36	-24.6	1190–900 cal BC	*1090–980 cal BC*
OxA-10777	CG1 1830B	refitting pottery, charred residue	2840±37	-25.8	1190–900 cal BC	*1080–980 cal BC*
OxA-9483	CG4 2032A	refitting pottery, charred residue	2970±40	-24.8	1380–1040 cal BC	*1100–1000 cal BC*
OxA-9484	CG4 2032B	refitting pottery, charred residue	2890±45	-26.0	1260–920 cal BC	*1100–990 cal BC*
OxA-10778	CG4 2032C	refitting pottery, charred residue	2861±37	-28.1	1210–910 cal BC	*1090–980 cal BC*
OxA-10779	CG4 2032D	refitting pottery, charred residue	2850±37	-24.1	1190–900 cal BC	*1090–980 cal BC*
OxA-10780	CG4 2032E	refitting pottery, charred residue	2868±37	-25.8	1210–910 cal BC	*1090–980 cal BC*
OxA-9490	CG4 2050A	wood, *Corylus/Alnus* roundwood (R Gale)	2895±45	-28.4	1260–920 cal BC	-
OxA-9424	CG4 2050B	wood, *Corylus* roundwood (R Gale)	2992±36	-28.1	1380–1120 cal BC	-
OxA-10781	CG6 1836A	refitting pottery, charred residue	2865±40	-23.2	1210–910 cal BC	*1090–980 cal BC*
OxA-10782	CG6 1836B	refitting pottery, charred residue	2812±37	-26.6	1050–830 cal BC	*1080–970 cal BC*
OxA-9486	CG7 1834A	refitting pottery, charred residue	2938±40	-27.0	1300–1000 cal BC	*1070–1000 cal BC*
OxA-9559	CG7 1834B	refitting pottery, charred residue	2950±80	-29.5	1410–910 cal BC	*1070–980 cal BC*
OxA-10783	CG7 1834C	refitting pottery, charred residue	2860±38	-24.2	1210–910 cal BC	*1070–980 cal BC*
OxA-10784	CG7 1838	refitting pottery, charred residue	2916±38	-27.2	1260–990 cal BC	*1090–1000 cal BC*
OxA-9435	CG7 1855B	refitting pottery, charred residue	2968±39	-23.3	1380–1040 cal BC	*1120–1010 cal BC*
OxA-10785	CG7 1855C	refitting pottery, charred residue	2862±37	-22.6	1210–910 cal BC	*1110–1010 cal BC*
OxA-10786	CG8 1103A	refitting pottery, charred residue	2882±37	-25.0	1220–920 cal BC	*1100–990 cal BC*
OxA-9488	CG8 1115A	wood, *Prunus Spinosa* (R Gale)	3122±39	-27.1	1430–1260 cal BC	-
OxA-10375	CG8 1115A	replicate of OxA-9488	3077±34	-26.5		
OxA-9489	CG8 1115B	wood, *Salix/Populus* sp. of 1-2 years growth (R Gale)	2980±40	-26.5	1380–1040 cal BC	-
OxA-10787	CG9 1111A	refitting pottery, charred residue	2860±40	-25.4	1210–900 cal BC	*1090–980 cal BC*
OxA-10788	CG9 1111B	refitting pottery, charred residue	2823±35	-24.9	1050–890 cal BC	*1080–970 cal BC*
OxA-10789	CG9 1111C	refitting pottery, charred residue	2894±37	-25.7	1260–930 cal BC	*1100–990 cal BC*
OxA-9485	CG10 2010B	refitting pottery, charred residue	2950±40	-28.1	1370–1000 cal BC	*1100–1000 cal BC*
OxA-9923	CG10 2010C	refitting pottery, charred residue	2910±60	-26.9	1370–910 cal BC	*1100–990 cal BC*
OxA-10790	CG10 2010D	refitting pottery, charred residue	2886±36	-25.7	1220–930 cal BC	*1100–990 cal BC*
OxA-10842	CG10 2010E	refitting pottery, charred residue	2810±50	-24.2	1130–830 cal BC	*1090–970 cal BC*
OxA-10791	CG19 1601A	charred seed, *Triticum* sp.	2885±40	-23.3	1260–920 cal BC	*1100–990 cal BC*
OxA-10792	CG19 1601B	charred seed, *Triticum* sp.	2891±36	-22.6	1260–930 cal BC	*1100–990 cal BC*

Table 1: Radiocarbon determinations

	Pottery	Flint	Other finds
CG12	98	28	Bone, burnt stone
CG13	17	1	Bone, burnt stone
CG42	19	0	Bone, burnt stone

Table 2: Summary of Beaker pit contents

Total sherd count	4392
Total sherd weight	33043 g
Average sherd weight	7.52g

		Context																				
Cxt grp	Data	1828	1830	1831	1834	1836	1837	1838	1839	1840	1841	1842	1843	1848	1853	1854	1855	2032	2036	2037	2060	Total
1	Sum of Qty	14	607	1												5						627
	Sum of Wt (g)	38	2255	30												30						2353
4	Sum of Qty																	565			33	598
	Sum of Wt (g)																	6778			130	6908
5	Sum of Qty																		108	13		121
	Sum of Wt (g)																		374	354		728
6	Sum of Qty					369	52			39		12										472
	Sum of Wt (g)					4013	378			652		110										5153
7	Sum of Qty				157			4	4		84		122	49	95		13					528
	Sum of Wt (g)				1268			58	154		1412		912	527	627		387					5345
Total Sum of Qty		14	607	1	157	369	52	4	4	39	84	12	122	49	95	5	13	565	108	13	33	2346
Total Sum of Wt (g)		38	2255	30	1268	4013	378	58	154	652	1412	110	912	527	627	30	387	6778	374	354	130	20487

		Context																				
Cxt grp	Data	1102	1103	1104	1111	1216	1242	1243	1438	1439	1440	1517	1601	1801	1810	1814	2010	2011	2013	2043	2101	Total
8	Sum of Qty	11	74	7																		92
	Sum of Wt (g)	50	237	30																		317
9	Sum of Qty				404																	404
	Sum of Wt (g)				3809																	3809
10	Sum of Qty																130					130
	Sum of Wt (g)																1024					1024
11	Sum of Qty																	58				58
	Sum of Wt (g)																	337				337
12	Sum of Qty																			108		108
	Sum of Wt (g)																			632		632
14	Sum of Qty																				132	132
	Sum of Wt (g)																				512	512
17	Sum of Qty											198										198
	Sum of Wt (g)											1258										1258
19	Sum of Qty												66									66
	Sum of Wt (g)												294									294
25	Sum of Qty					40	8	4														52
	Sum of Wt (g)					242	57	14														313
39	Sum of Qty													94								94
	Sum of Wt (g)													429								429
79	Sum of Qty														1	96						97
	Sum of Wt (g)														4	243						247
91	Sum of Qty								32	10	201											243
	Sum of Wt (g)								160	58	1311											1529
92	Sum of Qty																		50			50
	Sum of Wt (g)																		180			180
Total Sum of Qty		11	74	7	404	40	8	4	32	10	201	198	66	94	1	96	130	58	50	108	132	1724
Total Sum of Wt (g)		50	237	30	3809	242	57	14	160	58	1311	1258	294	429	4	243	1024	337	180	632	512	10881

Table 3: Count and weight data (whole site and by major context groups

		Form																	
Dec	**Data**	**B1**	**B2**	**B3**	**P3**	**P4**	**R1**	**R2**	**R3**	**R4**	**R5**	**R6**	**R7**	**R8**	**R9**	**R10**	**R11**	**R12**	**R13**	**Total**
D1	Qty											7	5							12
	Wt (g)											126	36							162
D2	Qty						2					1	2							5
	Wt (g)						18					2	26							46
D3	Qty													12						12
	Wt (g)													94						94
D3/P3	Qty													5						5
	Wt (g)													40						40
D4	Qty				9															9
	Wt (g)				106															106
D5	Qty				5		4													9
	Wt (g)				24		50													74
D5/D12	Qty													1						1
	Wt (g)													28						28
D8	Qty							5												5
	Wt (g)							33												33
D9	Qty							1												1
	Wt (g)							2												2
D15	Qty						12	12		6		14	16		1			2		63
	Wt (g)						106	16		64		200	164		6			94		650
D16	Qty						4						3		4					11
	Wt (g)						82						24		142					248
D16/13	Qty						4													4
	Wt (g)						42													42
D17	Qty												2							2
	Wt (g)												132							132
D18	Qty		7									4								11
	Wt (g)		44									54								98
D19	Qty	11					2			2										15
	Wt (g)	110					14			20										144
none	Qty	69	118	41	1	3	78	1		28	3	20	35	2		1	6		7	413
	Wt (g)	1086	2128	853	2	44	704	8		130	26	126	238	26		12	48		54	5485
Total Qty		81	129	41	15	3	108	22	1	36	6	49	65	23	7	1	6	2	7	602
Total Wt (g)		1242	2346	853	132	44	1048	79	4	214	32	618	664	232	172	12	48	94	54	7888

Total number of decorated rims = 145
Total number of decorated bases = 23
Total number of decorated body shreds = 293

Table 4: Occurrence of decoration (by form)

	Abr						
	0	1	1/2	2	2/3	3	Total
Qty	166	186	2	3136	167	735	4392
Wt (g)	399	1500	2	27740	365	3037	33043

Table 5: Occurrence of abrasion (whole site)

1 = Fresh
2 = Slightly abraded
3 = Very abraded

			Internal residue		
Fabric	**Fabric group**	**Data**	**no**	**yes**	**Grand Total**
4	N/A	Qty	171	0	171
		Wt (g)	91	0	91
4.7	J	Qty	241	0	241
		Wt (g)	1208	0	1208
4.8	N/A	Qty	47	0	47
		Wt (g)	36	0	36
4.8.1	E	Qty	114	120	234
		Wt (g)	811	1431	2242
4.8.2	E	Qty	98	35	133
		Wt (g)	798	255	1053
4.8.3	D	Qty	113	21	134
		Wt (g)	1194	206	1400
4.8.4	F	Qty	102	186	288
		Wt (g)	443	862	1305
4.8.5	F	Qty	12	0	12
		Wt (g)	79	0	79
4.8.6	D	Qty	86	2	88
		Wt (g)	380	8	388
4.9	N/A	Qty	295	2	297
		Wt (g)	432	12	444
4.9.1	G	Qty	254	150	404
		Wt (g)	1897	1515	3412
4.9.2	H	Qty	561	155	716
		Wt (g)	6883	2254	9137
4.9.3	H	Qty	116	20	136
		Wt (g)	1696	290	1986
4.9.4	I	Qty	241	246	487
		Wt (g)	1707	1658	3365
4.10.1	L	Qty	105	10	115
		Wt (g)	500	58	558
4.10.2	L	Qty	59	39	98
		Wt (g)	642	666	1308
4.11	M	Qty	39	20	59
		Wt (g)	254	270	524
4.12	C	Qty	27	0	27
		Wt (g)	249	0	249
5.3	B	Qty	99	17	116
		Wt (g)	448	38	486
5.7	B	Qty	93	2	95
		Wt (g)	302	4	306
5.8	A	Qty	47	0	47
		Wt (g)	237	0	237
5.9	B	Qty	56	0	56
		Wt (g)	301	0	301
5.10	K	Qty	12	0	12
		Wt (g)	50	0	50
5.11	L	Qty	117	26	143
		Wt (g)	977	303	1280
5.12	L	Qty	102	25	127
		Wt (g)	383	304	687
5.13	C	Qty	13	0	13
		Wt (g)	92	0	92
97	N	Qty	20	3	23
		Wt (g)	62	40	102
139	B	Qty	40	0	40
		Wt (g)	267	0	267
Total Qty			**3285**	**1079**	**4364**
Total Wt (g)			**22443**	**10174**	**32617**

Table 6: Occurrence of internal residues – by fabric (whole site)

Context Group	context	number of sherds	Rim	decorated wall	plain wall	base angle
12	2043	98	5	52	27	14
13	2046	17	1	9	7	-
42	2047	19	1	16	2	-

Table 7: Composition of main Beaker pottery groups

	CG1	CG4	CG5	CG6	CG7	CG9	CG10	CG14	CG17	CG91
No.sh.	627	598	121	472	528	404	130	132	198	243
Av.sh.wt.	4g	12g	6g	11g	10g	9g	8g	4g	6g	6g
Fabric group: *Limestone*										
E	-	67	12	48	64	68	-	18	76	6
F	188	37	8	-	1	-	7	-	4	3
Shell										
G	19	43	14	161	36	47	2	26	24	1
H	12	240	2	40	324	70	-	8	50	56
I	193	49	5	2	13	-	73	7	35	7
J	-	2	-	-	-	-	-	-	-	161
Quartz/Limestone										
L	47	47	55	135	13	16	43	3	-	-
Quartz/Igneous										
M	5	2	-	25	5	1	4	-	-	-
No. rims	39	50	11	49	27	32	26	1	19	20
No. bases	29	45	4	50	42	13	6	3	7	8
Form										
R1	5	25	2	16	14	19	5	1	-	3
R2	-	-	-	-	-	-	-	-	12	1
R3/R4	5	-	3	3	5	4	3	-	6	2
R6/R7	29	20	3	17	7	9	8	-	1	-
R8/R9	-	4	-	4	1	-	3	-	-	12
R5/10/R13	-	1	3	7	-	-	1	-	-	2
R11/12	-	-	-	2	-	-	6	-	-	-
B1	3	15	-	4	15	5	3	-	3	1
B2	26	26	4	30	20	6	3	3	3	2
B3	-	4	-	16	7	2	-	-	1	5
P3	-	-	-	-	-	-	-	-	-	14
P4	-	-	-	1	-	-	-	-	-	-
Decoration										
D1/D2	2	12	-	2	2	4	1	-	-	6
D3/D4	1	1	-	-	-	-	-	-	-	22
D11/D12	-	13	3	-	12	2	13	-	-	-
D13	1	2	-	-	6	-	-=	-	-	-
D15/D16	21	14	1	16	1	6	2	1	17	1
D17/D19	11	19	-	-	18	60	-	-	-	3

Table 8: Major Late Bronze Age Context Groups: occurrence of fabric, form and decoration

Attribute	South/central zone	South-east zone	North central zone	West zone
	CG 6, 7	CG 8, 9	CG 1, 2, 4, 39, 92	CG 3, 5, 10, 11 & 14
Fabric group				
Limestone (E, F)	13	31	33	13
Shell (G, H, I, J)	66	62	55	50
Quartz and limestone (L)	17	7	10	35
Quartz and igneous (M)	4	<1	2	1
Form				
R1	39	57	35	33
R3/R4	11	13	5	20
R6/R7	32	30	55	27
R8/R9	7	-	4	-
R5/R10/R13	9	-	1	20
R11/R12	2	-	-	-
Decoration				
D1/D2	7	5	14	-
D3/D4	-	-	2	-
D11/D12	21	3	13	50
D13	10	-	3	-
D15/16	30	9	37	33
D17/D19	32	83	31	17
Total sherds	867	233	1041	244

Table 9: Percentage occurrence of selected ceramic attributes amongst settlement zones (percentages are calculated on totals of attributes listed in this table only)

		Context																				
		1102	1103	1517	1814	1830	1831	1834	1836	1841	1843	1848	1853	1856	2010	2032	2036	2040	2058	2101	2113	Total
	Cxt Group	8	8	17	79	1	1	7	6	7	7	7	7	N/A	10	4	5	77	63	14	29	
Type	Data																					
Cylindrical	MNW	1				1										1			1			4
	Frags	2				1										1			70			74
	Wt (g)	302				488										256			198			1244
Cylinder - extended	MNW														1							1
	Frags														1							1
	Wt (g)														282							282
Cylindrical?	MNW		1				1									2				1		5
	Frags		2				2									7				4		15
	Wt (g)		252				176									418				282		1128
Indeterminate	MNW		2	1	1							1	1	1		2	1	1	1			12
	Frags		11	1	1							1	2	1		7	45	2	75			146
	Wt (g)		142	26	24							54	30	12		262	296	60	90			996
Pyramidal	MNW							6	1	1		1	1			1						11
	Frags							24	7	2		1	1			6						41
	Wt (g)							1266	300	44		382	296			218						2506
Pyramidal?	MNW		1		1						2				1						1	6
	Frags		1		1						3				1						1	7
	Wt (g)		200		48						100				92						28	468
Total weights represented		1	4	1	2	1	1	6	1	1	2	2	2	1	2	6	1	1	2	1	1	39
Total Frags		2	14	1	2	1	2	24	7	2	3	2	3	1	2	21	45	2	145	4	1	284
Total Wt		302	594	26	72	488	176	1266	300	44	100	436	326	12	374	1154	296	60	288	282	28	6624

Table 10: Occurrence of weights by context/context group (MNW = minimum number of weights represented)

Context Group	Context	Mould pieces	Mould weight (g)	Wrap pieces	Wrap weight (g)	Hearth material	Hearth weight (g)
N/A	515	0	0	0	0	2	15
1	1830	64	546	26	61	1	21
	1854	3	34	2	9	0	0
4	2032	12	86	15	49	6	67
6	1836	25	136	14	39	1	9
7	1843	2	22	0	0	0	0
	1834	4	16	0	0	0	0
Totals		110	840	57	158	10	112

Table 11: Ceramic wrap and mould pieces and hearth material

Context	Context group	Identification	Figure
1830	1	Weapon with mid rib (x2)	81.1
1830	1	Flat blade	-
1830	1	Palstave	81.2
1830	1	Weapon with mid rib	-
1830	1	Flat blade	-
1830	1	Spearhead socket (part of)	81.3
2032	4	Flat blade	-

Table 12: Mould fragments for which the objects cast in them were identifiable

Site area	Context/description	flakes	broken flakes	burnt flakes	blades	broken blades	burnt blades	cores	broken cores	tools	broken tools	burnt tools	chips	burnt chips	misc debitage	total
N/A	Fieldwalking	13/41	9/32	5/20	1/2	1/4		1/12	1/7	2/15	3/28	1/6	1/0		6/26	44/193
2	All features	1/1				2/2	2/1	1/30		2/7	1/0			2/1		11/42
3	All features			1/4					1/14				1/0			3/18
4	All features	1/4														1/4
5	All features	1/1		3/9					1/17		1/0		2/0	1/0		9/27
7	All features	1/1														1/1
11	All features	3/10	3/7					1/9		1/9	1/8		2/1	2/2	1/7	14/53
12	All features	3/20	2/5					1/20		2/21						8/66
13	All features	1/5														1/5
14	All features	2/11								2/18			1/1		1/3	6/33
15	All features	3/6		1/9	1/0	2/0			1/14				7/1	3/0		18/30
16	All features	2/7	2/5		1/0	1/0		1/23	1/8	2/26						10/69
17	All features	8/70	3/19	2/1	3/5	4/2		1/27		2/8	3/5		9/0	6/0		41/137
18	Ring-ditch CG 79	2/10		2/1												4/11
18	Pit CG 1	18/86	2/4	2/9		3/7		5/97	3/16	2/20	1/2		9/3	1/0	3/6	49/250
18	Waterhole CG 7	4/20	2/2					1/9					1/0	1/0		17/23
18	Waterhole CG 6	6/12						1/22		1/1	1/4					9/39
18	Other features	1/1											2/0	2/0	2/4	7/5
20	Beaker pits CG 12, 13 & 42	4/9	4/27	3/7				3/45	2/21	7/41	2/7	1/3			3/10	29/170
20	Pit CG 10							1/28			1/7					2/35
20	Waterhole CG 4	19/82	7/33	2/26	2/3	2/4			1/11	4/35	2/12	2/12	6/4	1/0	1/4	49/226
20	?Waterhole CG 3	1/4	1/1							1/9						3/14
20	Other features	3/4	1/4	2/9						1/10	1/9				1/8	9/44
21	Waterhole CG 14	6/9	2/6			1/1		4/47		2/2					2/5	17/70
21	Other features	1/1						1/7		1/4			1/0			4/12
All	unstratified	7/31	9/24	5/55		1/4		3/26			1/5		10/2	2/0	1/17	39/164
Total		111/446	47/169	28/150	8/10	17/24	2/1	25/402	11/108	32/226	18/87	4/21	52/12	21/3	21/90	397/1749

Table 13: Flint assemblage composition (no/wt)

Site area	Context/ description	single- platform blade cores	multi- platform blade cores	single- platform flake cores	multi- platform flake cores	discoidal flake cores	tested nodules, etc	core fragments	mean wt of complete cores (g)
Fieldwalking	fieldwalking								
2	All features			1					29
3	All features							1	
5	All features							1	
11	All features						1		11
12	All features	1							15
15	All features							1	
16	All features					1		1	26
17	All features		1						27
18	Pit CG 1			2	2	1		3	18
18	Waterhole CG 7							1	
18	Waterhole CG 6				1				22
20	Beaker pits CG 12, 13 & 42			1	2			2	15
20	Pit CG 10				1				28
20	Waterhole CG 4							1	
21	? Waterhole CG 3			1	3				11
21	Other features				1				9
All	Unstratified	1		1		1			8
Total		2	1	6	10	3	1	11	17

Table 14: Flint core typology

Site area	context /description	scraper	knife	piercer	scraper/ piercer	backed blade	shouldered point	transverse arrowhead	oblique arrowhead	projectile point	microlith	microburin	misc retouched blade	misc retouched flake	utilised
Fieldwalking	fieldwalking	4	1												1
2	All features	1						1			1				
5	All features												1		
11	All features				1									1	
12	All features													2	
14	All features	1												1	
16	All features													1	1
17	All features	1									1	2	2		
18	Pit CG 1	1		2											
18	Waterhole CG 6	1	1												
20	Beaker pits CG 12, 13 & 42	1	2						1					6	
20	Pit CG 10		1												
20	Pit CG 4	2								1				4	1
20	Pit CG 3														1
20	Other features		1	1											
21	Pit CG 14					1	1								
21	Other features		1												
All	unstratified	1													
Total		13	7	3	1	1	1	1	1	1	2	2	3	15	4

Table 15: Retouched forms

Context	Latin name	English name	Technology	Comment
1115	*Alnus* spp	Alder	Double facet cut end plus ?notch	
1115	*Alnus* spp	Alder	Single facet cut end	
1115	*Alnus* spp	Alder	Single facet cut end	
1115	*Alnus* spp	Alder	Modern flat top	
1115	*Alnus* spp	Alder	Modern flat top	
1115	*Alnus* spp	Alder		
2034	*Quercus* spp	Oak	Possible notch	Rotted heart
2034	*Quercus* spp	Oak	?Single facet cut end plus possible notches	Rotted heart
2034	*Quercus* spp	Oak		Badly preserved
2050	*Quercus* spp	Oak		Badly preserved

Table 16: The analysed timbers

Animal Species	Neolithic/Beaker	Late Bronze Age	
	NISP	NISP	MNI*
Cow (Bos taurus)	10	260	11
Pig (Sus scrofa)	-	138	8
Sheep (Ovis aries)	-	10	*
Sheep/Goat	3	145	9
Dog (Canis familiaris)	-	10	1
Red deer (Cervus elaphus)	-	35	1*
Roe deer (Capreolus capreolus)	-	8	2
Sheep/Goat/Deer	-	33	
Dog/Fox	-	1	
Small Artiodactyl	3	89	
Large Artiodactyl	-	63	
Large Mammal	7	215	
Unidentified Mammal	114	1818	
Total	137	2825	

Table 17: List of Animal Species from Neolithic/Beaker and Late Bronze Age contexts

Notes

The most frequent element used for calculated MNI for the cattle and sheep/goat is the first or second lower permanent molar, for the pig it is the first molar, and for the roe deer it was the mandible.

With no fragments identified as goat, fragments of sheep and sheep/goat bones have been grouped together for the remainder of the analysis.

While the fragments of antler are included in the fragment count they have not been included in the calculation of MNI as antlers can be collected without the killing of the animal and the three antler coronets present all show that the antlers had been dropped.

Neolithic/Beaker

Cattle

First phalanx					
GLpe 53.2	Bp 28.7	SD 23.7	Bd 26.0		

Late Bronze Age

Cattle

Scapula					
	GLP 58.2	LG 50.9	BG 43.9		
Humerus					
	Bd 64.5	BT 57.4	HTC 29.9		
	Bd 67.2	BT 61.1	HTC 28.0		
	Bd 76.6	BT 72.2	HTC 32.8		
Acetabulum					
	LA 59.1	MW 12.8			
	LA 65.5	MW 13.9			
Astragalus					
		GLm 54.1		Dm 33.1	Bd 38.6
	GLl 56.9	GLm 53.2	Dl 31.8	Dm 27.8	Bd 37.3
	GLl 60.1	GLm 54.5	Dl 32.1	Dm 28.8	Bd 38.0
	GLl 60.5	GLm 55.2	Dl 33.9	Dm 29.1	Bd 37.3
	GLl 61.9	GLm 56.8		Dm 32.1	Bd 40.8
	GLl 64.1	GLm 57.0			Bd 41.9
First Phalange					
	GLpe 58.9	Bp 28.6	SD 23.7	Bd 28.3	

Pig

First Mandibular Molar				
	L 15.2	W 10.5		
Third Mandibular Molar				
	L 30.2	Log ratio -0.108	Wa 14.9	Log ratio -0.163
	L 30.8	Log ratio -0.100	Wa 15.2	Log ratio -0.155
	L 34.9	Log ratio -0.046	Wa 16.2	Log ratio -0.127
	L 35.3	Log ratio -0.041	Wa 16.2	Log ratio -0.127
	L 35.5	Log ratio -0.039	Wa 16.3	Log ratio -0.124
Scapula				
	GLP 38.8	LG 30.1	BG 26.1	
Tibia				
	Bp 37.1			

Red deer

Antler	
41 203.2	
Tibia	
Bd 54.2	

Roe deer

Antler			
41 77.1			
Humerus			
Bd 27.2	BT 26.1	HTC 12.2	

Sheep/goat

Metatarsus				
SD 11.8	DD 10.3	B at F 22.8		
First Phalange				
GLpe 32.2	Bp 11.1	SD 8.4	Bd 9.4	

Table 18: Measurements from Neolithic/Beaker and Late Bronze Age contexts

	"large pits"	other pits
Conditions	%	%
Charred	1.8	2.3
Eroded, Abraded	33.0	51.8
Gnawed	0.5	0.4
Coloured	54.7	35.6
Unidentified fragments	61.1	68.5
Total number of fragments	1588	1237

Table 19: Preservation and taphonomy of bone from Late Bronze Age contexts

	Cattle		**Pig**		**Sheep/goat**	
	Total	O/E	Total	O/E	Total	O/E
Mandible	10	2.3	12	4.3	6	2.3
Scapula, glenoid	5	1.1	4	1.4	2	0.8
Humerus, distal	6	1.4	0	0.0	2	0.8
Radius, distal	3	0.7	0	0.0	0	0.0
Acetabulum	3	0.7	1	0.4	0	0.0
Femur, distal	0	0.0	1	0.4	0	0.0
Tibia, distal	5	1.1	2	0.7	4	1.5
2+3 Carpal	2	0.5	0	0.0	0	0.0
Astragalus	9	2.0	1	0.4	0	0.0
Calcaneum	2	0.5	0	0.0	0	0.0
Metapodia, distal	7	0.8	2	0.2	2	0.4
Phalanx, first	4	0.2	0	0.0	3	0.3
Molars, lower first and second*	33	3.8	22	3.9	33	6.3
Molar, lower third*	7	1.6	6	2.1	4	1.5

Table 20: Relative frequency of skeletal elements from Late Bronze Age contexts

Notes

The counts of the teeth include those in the jaws

The species total will not equal the total from the list of animals table because only selected element fragments were used.

An example of the calculations. For cattle the total counts for the elements are added up, after dividing the number of first phalanges by 4 and the metapodia and combined total of first and second molars by 2, giving a total of 62. This is divided by the number of elements being used (14) giving an expected total, if the elements were all equally abundant, of 4.4. The observed values (O) are then divided by this calculated expected value (E) to show whether the elements are under- or over-represented relative to one another. The elements for sheep/goat are treated the same way as cattle. For pig however, the metapodia are divided by 4 as pig have a greater number and all were used in the calculation.

Mandibles

dP4	M1	M2	M3
-	B	1	-
k	D	-	-
j	F	1	-
k	G	b	-
-	K	k	g
-	L	k	k

Individual teeth (including both loose teeth and those in mandibles)

dP4	wear stage	a	b-e	f-k	>k			
		-	-	7	-			
M1/2	wear stage	a	b-e	f	g/h	j	k-m	>m
		3	9	5	7	1	6	-
M3	wear stage	a	b-f	g/h	j	k-m		
		-	-	5	-	2		

Table 21: Mandible and mandibular tooth ageing data for cattle (following Grant 1982) from Late Bronze Age contexts

Mandibles

DP4	M1	M2	M3
14	6	-	-
17	7	v	-
16	9	4	u
23	9	-	-
-	15	11	11

Individual teeth (including both loose teeth and those in mandibles)

dP4	wear stage	0-12	13	14	16	>16
		-	-	2	1	3
M1/2	wear stage	0	1-4	5-8	9	>9
		1	2	11	13	5
	cumulative % age	3%	9%	44%	84%	100%
M3	wear stage	0	1-4	5-10	11	>11
		1	1	1	1	1

Table 22: Mandible and mandibular tooth ageing data for sheep/goat (following Payne 1973, 1987) from Late Bronze Age contexts

Mandibles

DP4	M1	M2	M3
J	c	1	-
-	d	a	-
-	-	b	3
-	f	c	-
-	f	d	-
-	j	c	-
-	j	g	c
-	j	g	c
-	k	j	d

Individual teeth (including both loose teeth and those in mandibles)

dP4	wear stage	a	b-d	e-h	j-m		
		-	1	-	1		
M1	wear stage	a	b	c/d	e/f	g/h	j/n
		1	-	2	2	1	6
M2	wear stage	a	b	c/d	e/f	g/h	j/n
		2	1	3	-	2	1
M3	wear stage	a	b	c/d	e/f	g/h	j/n
		1	1	5	-	-	-

Table 23: Mandible and mandibular tooth ageing data for pig (following Grant 1982) from Late Bronze Age contexts

Cremation 1814

Fragment size distribution

≥10mm	5.0g	38%
≥ 5mm	3.0g	24%
≥ 2mm	5.0g	38%

Anatomical fragment distribution

Unid	13.0g	100% of total
Skull	0g	0% of identified frags
Axial	0g	0% of identified frags
Long bone	0g	0% of identified frags

Cremation 2136

Fragment size distribution

≥10mm	60.0g	63%
≥ 5mm	15.0g	16%
≥ 2mm	20.0g	21%

Anatomical fragment distribution

Unid	54.0g	57% of total
Skull	1 g	2% of identified frags
Axial	0 g	0% of identified frags
Long bone	40 g	98% of identified frags

Table 24: Cremation fragment size and anatomical distribution

Botanical name	Family	Common name	Habitat	1814	2043
Charred plant remains					
Hordeum vulgare grain	Gramineae	barley	F		6
cf *Hordeum vulgare* rachis	Gramineae	barley	F		1
Cereal sp indet grain	Gramineae	cereal	A		7
Bromus sp grain	Gramineae	brome grass	A		2
Gramineae spp indet grain	Gramineae	grasses	AF		1
cf *Rumex conglomeratus*	Polygonaceae	sharp dock	CD		4
Uncharred plant remains					
Chenopodium/Atriplex sp	Chenopodiaceae	goosefoot/orache	AB		+
Lycopus europaeus	Labiatae	gipsywort	BE	+	

Key:

A= cultivated ground
B = disturbed ground
C = woodlands, hedgerows, scrub etc
D = grasslands, meadows, and heathland
E = aquatic/wet habitats
F = cultivar

+ = 1-10
++ = 11-50
+++ = 51-100
++++ = 100+

Table 25: Plant remains from Beaker pit and EBA ring-ditch

Botanical name	Family	Common name	Habitat	CG1 1830	CG2 709	CG2 1845	CG2 1846	CG4 2032	CG4 2049	CG4 2050	CG6 1836	CG8 1102	CG8 1103	CG8 1104	CG8 1110	CG8 1112	CG8 1114	CG8 1115	CG9 1111
Triticum dicoccum grain	Gramineae	emmer wheat	F	3					2	3	1	2	3	1					
Triticum cf *dicoccum* grain	Gramineae	emmer wheat	F								1	2	3	1					3
cf *Triticum dicoccum tail grain*	Gramineae	emmer wheat		3															
Triticum dicoccum glume base	Gramineae	emmer wheat	F						1			1							
Triticum dicoccum/spelta grain	Gramineae	emmer/spelt wheat	F							1		1							
Triticum dicoccum/spelta glume base	Gramineae	emmer/spelt wheat	F												1				
Triticum sp (free-threshing) grain	Gramineae	free threshing bread wheat	F								1			2					
Triticum sp grain	Gramineae	Wheat	F	3		1		1	1										1
cf *Triticum* sp	Gramineae	Wheat	F										1				1		
Hordeum vulgare sp grain	Gramineae	Barley	F									1		1					
straight, hulled grain	Gramineae	Barley	F						3				1						
twisted, hulled grain	Gramineae	Barley	F			1						1							
cf *Hordeum vulgare* grain	Gramineae	Barley	F			1													
Triticum/Hordeum sp grain	Gramineae	wheat/barley	F					5				1		1			1		
Triticum/Secale sp grain	Gramineae	wheat/rye	F										1						
Cereal sp indet grain	Gramineae	Cereal	A	11	1	5		12	3	2	1		1	2					8
Bromus sp	Gramineae	brome grass	AF					1	1										1
cf *Bromus* sp	Gramineae	brome grass	AF										1						
Avena sp	Gramineae	Oat	AF	1					1										
Gramineae spp indet grain	Gramineae	Grasses	AF	20	1	3		8	6+frag	2	1		4	1	4	1	1		2
Gramineae sp indet culm node	Gramineae	Grasses	AF		1														
Vicia/Lathyrus sp	Leguminosae	vetch/vetchling/pea	A								1								
cf *Vicia/Lathyrus* sp	Leguminosae	vetch/vetchling/pea	A																
Leguminosae sp indet	Leguminosae	legume	A										1						
Rumex acetosella sgg	Polygonaceae	sheep's sorrel	A									1							
Corylus avellana shell frag	Corylaceae	Hazelnut	C	1															
Galium aparine	Rubiaceae	goosegrass, cleavers	BCD				1												
unidentified	unidentified			4				1											

Table 26: Charred plant remains from major Late Bronze Age pits/waterholes

Key:

A= cultivated ground
B= disturbed ground
C= woodlands, hedgerows, scrub, etc
D= grasslands, meadows, and heathland
E= aquatic/wet habitats
F= cultivar

\+ = 1-10
++ = 11-50
+++ = 51-100
++++ = 100+

* = fragments

Botanical name	Family	Common name	Habitat	CG1 1830	CG2 709	CG2 1845	CG2 1846	CG4 2032	CG4 2049	CG4 2050	CG6 1836	CG8 1102	CG8 1103	CG8 1104	CG8 1110	CG8 1112	CG8 1114	CG8 1115	CG9 1111
Ranunculus acris/repens/bulbosus	Ranunculaceae	Buttercup	CD						+									+++	
Ranunculus sb gen *Batrachius*	Ranunculaceae	Crowfoot	E															++	
Fumaria sp	Fumariaceae	Fumitory	ABC						+										
Silene sp	Caryophyllaceae	Campion	CDE			1					+								
Stellaria media	Caryophyllaceae	Chickweed	AB										+						
Chenopodium album	Chenopodiaceae	fat hen	AB						+	+++								+	
Atriplex sp	Chenopodiaceae	Orache	AB						+										
Chenopodium/Atriplex sp	Chenopodiaceae	goosefoot/orache	AB					+		+		+	+						
Rubus fruticosus agg	Rosaceae	blackberry/bramble	CD						+	+								++++	
Prunus spinosa	Rosaceae	Sloe	C						+									2*	
Cornus sanguinea	Araliaceae	Dogwood	C															18	
Aethusa cynapium	Umbelliferae	fool's parsley	A					+	+	+		+							
Polygonum aviculare	Polygonaceae	Knotgrass	AB															+	
Corylus avellana shell fragment	Corylaceae	Hazelnut								+									
Solanum nigrum	Solanaceae	black nightshade	BC						+									++	
Lycopus europaeus	Labiatae	Gipsywort	BE															4	
Prunella vulgaris	Labiatae	Selfheal	CD							+								2	
Stachys sylvatica	Labiatae	hedge woundwort	C						+	+									
Plantago major	Plantaginaceae	Plantain	B							+									
Sambucus nigra	Caprifoliaceae	Elder	BC					+	+			+	+					+++	
Valerianella dentata	Valerianaceae	narrow-fruited cornsalad	B															2	
Carduus sp	Compositae	Thistle	ABCD															1	
Carduus/Cirsium sp	Compositae	Thistle	ABCD															4	
Sonchus asper	Compositae	sow thistle	AB															1	
Carex spp	Cyperaceae	Sedge	CDE				+	+		+								5	
Unidentified seed																		4	
unidentified leaf frags										++			+					+	
stem frags									+++										
twig fragments										+++								+++	
wood fragments									++++	++++								++++	
root frags									+++										
thorns																		++	

Table 27: Uncharred plant remains from major Late Bronze Age pits/waterholes

Key:

A= cultivated ground
B= disturbed ground
C= woodlands, hedgerows, scrub, etc
D= grasslands, meadows, and heathland
E= aquatic/wet habitats
F= cultivar

\+ = 1-10
++ = 11-50
+++ = 51-100
++++ = 100+

* = fragments

-50
1-100
100+

gments

Botanical name	Family	Common name	Habitat	1242	1243	1440	1501	1517	1601 CG 19	1604	1801	1802	2010	2013	2042 CG 90
Charred plant remains															
Triticum dicoccum grain	Gramineae	emmer wheat	F						93						***5***
Triticum cf *dicoccum* grain	Gramineae	emmer wheat	F		3	2									
Triticum dicoccum glume base	Gramineae	emmer wheat	F						8						
Triticum dicoccum/spelta grain	Gramineae	emmer/spelt wheat	F		1				30	4					***3***
Triticum dicoccum/spelta glume base	Gramineae	emmer/spelt wheat	F		1				4						
Triticum sp grain	Gramineae	wheat	F			1			13	1					
Triticum sp ?tail grain	Gramineae	wheat	F			1			2						
*Triticum/Secale*grain	Gramineae	wheat/rye	F						3						2
Hordeum vulgare grain	Gramineae	barley	F		1				5						
H.vulgare hulled, straight grain	Gramineae	barley	F		3				6						
H.vulgare hulled, twisted grain	Gramineae	barley	F						4						
Triticum/Hordeum sp grain	Gramineae	wheat/barley	F												2
Cereal sp indet grain	Gramineae	cereal	A	1	1+frags	6		1	86	10		+ frag			11
cf *Lolium/Festuca* sp	Gramineae	fescue/rye-grass	A		1										
Bromus sp	Gramineae	brome grass	AF						7	1					
Gramineae spp indet grain (large)	Gramineae	grasses	AF	3	1				13	2	1		2		5
Gramineae spp indet grain (small)	Gramineae	grasses	AF										1		
Vicia sp (small)	Leguminosae	vetch	A						1						
cf Leguminosae sp indet	Leguminosae		A			1									
Corylus avellana shell frags	Corylaceae	hazelnut	C			6			4						
Cyperaceae sp indet	Cyperaceae		AE			2									
Uncharred plant remains															
Chenopodium album	Chenopodiaceae	fat hen	AB											+	
Chenopodium glaucum/rubrum	Chenopodiaceae	glaucus/red goosefoot	AB										+		
Chenopodium/Atriplex	Chenopodiaceae	goosefoot/orache	AB		+		+								
Rubus fruticosus agg	Rosaceae	blackberry/bramble	CD								+				
Aethusa cynapium	Umbelliferae	fool's parsley	A							+			+		
Polygonum aviculare	Polygonaceae	knotgrass	AB				+			+					
Mentha sp	Labiatae	mint	ABCDEF												
Lycopus europaeus	Labiatae	gipsywort	BE				+								
roots						+									

Table 28: Plant remains from lesser Late Bronze Age features

Key:

A= cultivated ground
B= disturbed ground
C= woodlands, hedgerows, scrub, etc
D= grasslands, meadows, and heathland
E= aquatic/wet habitats
F= cultivar

+ = 1-10
++ = 11-50
+++ = 51-100
++++ = 100+

sample	2032	2049	2050	
pollen	**nr/%**	**nr/%**	**nr/%**	
Ranunculus	20 (6)	40 (8)	1(1)	buttercups
Ulmus	2 (1)	3 (1)	-	elm
Betula	-	1 (+)	-	birch
Alnus	10 (3)	17 (3)	2 (2)	alder
Corylus	65 (19)	71 (12)	12 (10)	hazel
Chenopodiaceae	10 (3)	18 (3)	2 (2)	goosefoot
Caryophyllaceae	4 (1)	4 (1)	-	pink fam.
Persicaria maculosa-type	1 (+)	1 (+)	-	persicaria
Persicaria bistorta-type	1 (+)	18 (3)	4 (3)	bistort
Polygonum aviculare	+ (+)	1 (+)	-	knotgrass
Tilia	-	1 (+)	1 (1)	lime
Brassicaceae	3 (1)	1 (+)	-	crucifers
Ericales	-	1 (+)	-	heathers
Potentilla-t	1 (+)	-	-	cinquefoils
Crataegus-type	-	1 (+)	-	hawthorn
Trifolium repens-type	1 (+)	4 (1)	-	white clover
Trifolium pratense-type	2 (1)	6 (1)	-	red clover
Linum usitatissimum	-	1 (+)	-	flax
Hedera	-	1 (+)	-	ivy
Apiaceae	2 (1)	-	-	umbellifers
Mentha-type	-	1 (+)	-	mint etc.
Plantago lanceolata	26 (8)	60 (10)	7 (6)	plantain
Rhinanthus-type	-	1 (+)	-	
Galium-t	1 (+)	-	-	bedstraws
Cirsium-type	2 (1)	+ (+)	1 (1)	spear thistle
Centaurea nigra	+ (+)	-	-	knapweed
Lactucae	24 (7)	88 (15)	18 (15)	
Artemisia	5 (1)	4 (1)	33 (28)	mugwort
Anthemis-type	11 (3)	5 (1)	-	mayweeds etc.
Aster-type	13 (4)	4 (1)	1 (1)	daisies etc.
Cyperaceae	4 (1)	18 (3)	7 (6)	sedges
Poaceae	88 (26)	167 (29)	22 (18)	grasses
Cerealia-type	40 (12)	23 (4)	2 (2)	cereals
Secale-type	-	1 (+)	-	rye
tree and shrub total	82 (24)	136 (23)	21 (18)	
land herb total	253 (74)	408 (70)	87 (73)	
aquatic total	6 (2)	38 (7)	11 (9)	
total pollen	341 (100)	582 (100)	119(100)	
spores				
Filicales	-	1 (+)	-	ferns
Polypodium	-	3 (+)	+ (+)	clubmoss
Pteridium	3 (1)	1 (+)	2 (2)	bracken
parasite ova				
Trichuris	2	-	1	whipworm

Table 29: Pollen and other microfossils from Waterhole CG 4; order according to Kent (1992)

Context	2043	302	1103	1109	1110	1111	1201	1440	1501	1601	1836	1844
Context Group	**12**	**16**	**8**	**N/A**	**9**	**9**	**N/A**	**91**	**N/A**	**19**	**6**	**2**
Carychium sp.											1a	
Succinea putris (L.)					1						1j	
Cochliopa lubrica (Müll)									1j		1a:1j	
Vertigo pygmaea (Drap)						1a			1a:2j			
V. angustior (Jefferys)											1a	
Acanthinula aculeata (Müll)											1a	
Vallonia pulchella (Müll)		2a	1a			2a		1a	3a			
V. excentrica (Støki)				1a:1j	1a	3a	3a			1a	6a	2a
V. spp		1j			2j	9j	3j		14j		10j	
Clausilia bidentata (Strom)									1a			
Ceciloides acicula (Müll)	12a:7j	10a: 24j	19a: 95j	2a:38j	8a:46j	6a:27j	10a: 11j	3a:4j	16a: 43j	8a:21j	1a:6j	1a:1j
Discus rotundatus (Müll)											3a:18j	
Aegopinella nitidula (Drap)												1a
Zonitidae indet.					1j				1j		3j	
Cepaea sp.	1				1	1	1	1	1			
Trichia hispida (L.) gp					1a:1j	2j	1j	3j	2j		2j	
Candidula gigaxii (Pfeiffer)		1j		1j			1j					
Lymnaea truncatula (Müll)					2j				3j		1j	
Segmentina nitida (Müll)					1j							

Table 30: Molluscs from Late Bronze Age contexts

Appendix 1: Additional Pottery Tables and Histograms

Fabric	Data	Total
4	Sum of Qty	171
	Sum of Wt (g)	91
4.10.1	Sum of Qty	115
	Sum of Wt (g)	558
4.10.2	Sum of Qty	98
	Sum of Wt (g)	1308
4.11	Sum of Qty	59
	Sum of Wt (g)	524
4.12	Sum of Qty	27
	Sum of Wt (g)	249
4.7	Sum of Qty	241
	Sum of Wt (g)	1208
4.8	Sum of Qty	47
	Sum of Wt (g)	36
4.8.1	Sum of Qty	234
	Sum of Wt (g)	2242
4.8.2	Sum of Qty	133
	Sum of Wt (g)	1053
4.8.3	Sum of Qty	134
	Sum of Wt (g)	1400
4.8.4	Sum of Qty	288
	Sum of Wt (g)	1305
4.8.5	Sum of Qty	12
	Sum of Wt (g)	79
4.8.6	Sum of Qty	88
	Sum of Wt (g)	388
4.9	Sum of Qty	297
	Sum of Wt (g)	444
4.9.1	Sum of Qty	404
	Sum of Wt (g)	3412
4.9.2	Sum of Qty	716
	Sum of Wt (g)	9137
4.9.3	Sum of Qty	136
	Sum of Wt (g)	1986
4.9.4	Sum of Qty	487
	Sum of Wt (g)	3365
5.10	Sum of Qty	12
	Sum of Wt (g)	50
5.11	Sum of Qty	143
	Sum of Wt (g)	1280
5.12	Sum of Qty	127
	Sum of Wt (g)	687
5.13	Sum of Qty	13
	Sum of Wt (g)	92
5.3	Sum of Qty	116
	Sum of Wt (g)	486
5.7	Sum of Qty	95
	Sum of Wt (g)	306
5.8	Sum of Qty	47
	Sum of Wt (g)	237
5.9	Sum of Qty	56
	Sum of Wt (g)	301
97	Sum of Qty	23
	Sum of Wt (g)	102
139	Sum of Qty	40
	Sum of Wt (g)	267

Table 1: Occurrence of fabrics (whole assemblage)

Fabric group	Data	Total
A	Sum of Qty	47
	Sum of Wt (g)	237
B	Sum of Qty	307
	Sum of Wt (g)	1360
C	Sum of Qty	40
	Sum of Wt (g)	341
D	Sum of Qty	222
	Sum of Wt (g)	1788
E	Sum of Qty	367
	Sum of Wt (g)	3295
F	Sum of Qty	300
	Sum of Wt (g)	1384
G	Sum of Qty	404
	Sum of Wt (g)	3412
H	Sum of Qty	852
	Sum of Wt (g)	11123
I	Sum of Qty	487
	Sum of Wt (g)	3365
J	Sum of Qty	241
	Sum of Wt (g)	1208
K	Sum of Qty	12
	Sum of Wt (g)	50
L	Sum of Qty	483
	Sum of Wt (g)	3833
M	Sum of Qty	59
	Sum of Wt (g)	524
N	Sum of Qty	23
	Sum of Wt (g)	102
N/A	Sum of Qty	548
	Sum of Wt (g)	1021
Total Sum of Qty		**4392**
Total Sum of Wt (g)		**33043**

Table 2: Occurrence of fabric groups (whole assemblage)

Form	Data	Total
B1	Sum of Qty	81
	Sum of Wt (g)	1242
B2	Sum of Qty	129
	Sum of Wt (g)	2346
B3	Sum of Qty	41
	Sum of Wt (g)	853
P3	Sum of Qty	15
	Sum of Wt (g)	132
P4	Sum of Qty	3
	Sum of Wt (g)	44
R1	Sum of Qty	108
	Sum of Wt (g)	1048
R10	Sum of Qty	1
	Sum of Wt (g)	12
R11	Sum of Qty	6
	Sum of Wt (g)	48
R12	Sum of Qty	2
	Sum of Wt (g)	94
R13	Sum of Qty	7
	Sum of Wt (g)	54
R2	Sum of Qty	22
	Sum of Wt (g)	79
R3	Sum of Qty	1
	Sum of Wt (g)	4
R4	Sum of Qty	36
	Sum of Wt (g)	214
R5	Sum of Qty	6
	Sum of Wt (g)	32
R6	Sum of Qty	49
	Sum of Wt (g)	618
R7	Sum of Qty	65
	Sum of Wt (g)	664
R8	Sum of Qty	23
	Sum of Wt (g)	232
R9	Sum of Qty	7
	Sum of Wt (g)	172
Total Sum of Qty		**602**
Total Sum of Wt (g)		**7888**

Total numbers (whole site)	
Bases	251
Profiles	18
Rims	333

Table 3: Occurrence of form (whole assemblage)

	Decoration										
	D1	D2	D3	D3/P3	D4	D4/10	D5	D5/D12	D6	D7	D8
Sum of Wt (g)	162	46	102	40	128	14	196	28	18	40	125
Sum of Qty	12	5	13	5	10	1	19	1	3	11	30
	Decoration										
	D8/13	Dragged D8	D9	D10	D10/15	D10/16/12	D10/19	D11	D11/16	D12/D15	D13
Sum of Wt (g)	26	6	25	802	24	58	82	98	6	6	307
Sum of Qty	3	2	9	29	2	1	5	5	3	1	42
	Decoration										
	D13/21	D14	D15	D16	D16/13	D17	D18	D19	D20	P3	
Sum of Wt (g)	4	42	863	334	42	538	318	1050	40	12	
Sum of Qty	1	2	82	17	4	23	30	63	3	1	

Table 4: Occurrence of decoration (whole assemblage)

		Form																		
Fab group		B1	B2	B3	P3	P4	R1	R2	R3	R4	R5	R6	R7	R8	R9	R11	R12	R13	R11	Total
B	Sum of Qty	16	3	0	0	2	2	9	0	2	0	1	0	1	0	0	0	0	0	36
	Sum of Wt (g)	190	116	0	0	22	28	55	0	4	0	4	0	6	0	0	0	0	0	425
C	Sum of Qty	0	0	0	0	1	6	0	0	0	0	1	2	0	0	0	0	0	0	10
	Sum of Wt (g)	0	0	0	0	22	54	0	0	0	0	4	14	0	0	0	0	0	0	94
D	Sum of Qty	13	7	0	0	0	2	0	1	2	0	4	6	0	0	0	0	0	0	35
	Sum of Wt (g)	126	44	0	0	0	10	0	4	12	0	32	34	0	0	0	0	0	0	262
E	Sum of Qty	5	35	3	0	0	20	0	0	7	0	2	2	0	0	0	0	0	0	74
	Sum of Wt (g)	34	630	28	0	0	326	0	0	46	0	52	16	0	0	0	0	0	0	1132
F	Sum of Qty	15	5	0	0	0	5	0	0	5	0	4	8	0	0	0	0	0	0	42
	Sum of Wt (g)	348	38	0	0	0	20	0	0	14	0	14	50	0	0	0	0	0	0	484
G	Sum of Qty	3	15	9	0	0	20	0	0	4	4	9	7	0	0	0	0	5	0	76
	Sum of Wt (g)	32	116	114	0	0	114	0	0	28	10	176	52	0	0	0	0	36	0	678
H	Sum of Qty	8	36	21	0	0	20	13	0	6	1	4	16	4	4	0	0	0	0	133
	Sum of Wt (g)	310	1078	507	0	0	174	24	0	36	4	94	300	90	142	0	0	0	0	2759
I	Sum of Qty	3	18	0	0	0	18	0	0	1	0	12	10	5	0	0	0	0	0	67
	Sum of Wt (g)	18	210	0	0	0	152	0	0	10	0	142	98	40	0	0	0	0	0	670
J	Sum of Qty	1	1	1	15	0	1	0	0	0	0	0	1	13	0	0	0	0	0	33
	Sum of Wt (g)	4	28	20	132	0	8	0	0	0	0	0	4	96	0	0	0	0	0	292
K	Sum of Qty	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
	Sum of Wt (g)	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
L	Sum of Qty	9	9	7	0	0	12	0	0	3	1	9	11	0	3	6	2	2	6	74
	Sum of Wt (g)	112	86	184	0	0	152	0	0	48	18	88	80	0	30	48	94	18	48	958
M	Sum of Qty	4	0	0	0	0	1	0	0	6	0	2	2	0	0	0	0	0	0	15
	Sum of Wt (g)	36	0	0	0	0	6	0	0	16	0	2	16	0	0	0	0	0	0	76
Total Sum of Qty		81	129	41	15	3	107	22	1	36	6	48	65	23	7	6	2	7	6	602
Total Sum of Wt (g)		1242	2346	853	132	44	1044	79	4	214	32	608	664	232	172	48	94	54	48	7888

Table 5: Occurrence of form (by fabric group)

		Dec															
Fab group	Data	D1	D2	D3	D3/P3	D4	D4/10	D5	D5/D12	D6	D7	D8	D8/13	Dragged D8	D9	D10	D10/15
A	Sum of Qty	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0
	Sum of Wt (g)	0	0	0	0	0	0	104	0	0	0	0	0	0	0	0	0
B	Sum of Qty	0	0	0	0	0	0	0	0	3	11	30	3	2	9	0	0
	Sum of Wt (g)	0	0	0	0	0	0	0	0	18	40	125	26	6	25	0	0
C	Sum of Qty	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0
	Sum of Wt (g)	0	0	0	0	0	0	62	0	0	0	0	0	0	0	0	0
D	Sum of Qty	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
	Sum of Wt (g)	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	0
E	Sum of Qty	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	Sum of Wt (g)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0
G	Sum of Qty	9	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Sum of Wt (g)	140	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H	Sum of Qty	1	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0
	Sum of Wt (g)	12	0	0	0	0	0	6	28	0	0	0	0	0	0	6	0
I	Sum of Qty	2	0	1	5	0	0	0	0	0	0	0	0	0	0	16	0
	Sum of Wt (g)	10	0	8	40	0	0	0	0	0	0	0	0	0	0	600	0
J	Sum of Qty	0	1	12	0	10	0	5	0	0	0	0	0	0	0	9	0
	Sum of Wt (g)	0	8	94	0	128	0	24	0	0	0	0	0	0	0	134	0
L	Sum of Qty	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	Sum of Wt (g)	0	28	0	0	0	0	0	0	0	0	0	0	0	0	0	24
Total Sum of Qty		12	5	13	5	10	1	19	1	3	11	30	3	2	9	29	2
Total Sum of Wt (g)		162	46	102	40	128	14	196	28	18	40	125	26	6	25	802	24

		Dec															
Fab group	Data	D10/12/16	D10/19	D11	D11/16	D12/D15	D13	D13/21	D14	D15	D16	D16/13	D17	D18	D19	D20	P3
A	Sum of Qty		0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
	Sum of Wt (g)		0	0	0	0	0	0	0	0	0	0	0	0	0	40	0
B	Sum of Qty		0	0	0	0	33	1	0	0	0	0	0	3	1	0	0
	Sum of Wt (g)		0	0	0	0	239	4	0	0	0	0	0	22	4	0	0
C	Sum of Qty		0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
	Sum of Wt (g)		0	0	0	0	0	0	0	0	14	0	0	0	0	0	0
D	Sum of Qty		0	0	0	0	2	0	0	1	1	0	0	2	30	0	1
	Sum of Wt (g)		0	0	0	0	6	0	0	8	4	0	0	10	434	0	12
E	Sum of Qty		0	2	0	0	0	0	0	5	1	4	3	0	0	0	0
	Sum of Wt (g)		0	52	0	0	0	0	0	26	8	42	58	0	0	0	0
F	Sum of Qty		0	0	0	0	0	0	0	8	0	0	0	0	0	0	0
	Sum of Wt (g)		0	0	0	0	0	0	0	59	0	0	0	0	0	0	0
G	Sum of Qty		0	0	3	0	0	0	0	3	1	0	1	24	5	0	0
	Sum of Wt (g)		0	0	6	0	0	0	0	30	6	0	12	280	78	0	0
H	Sum of Qty		5	2	0	1	6	0	2	23	4	0	16	1	26	0	0
	Sum of Wt (g)		82	44	0	6	58	0	42	182	142	0	446	6	520	0	0
I	Sum of Qty		0	0	0	0	0	0	0	25	4	0	0	0	0	0	0
	Sum of Wt (g)		0	0	0	0	0	0	0	280	70	0	0	0	0	0	0
J	Sum of Qty		0	1	0	0	0	0	0	0	0	0	3	0	0	0	0
	Sum of Wt (g)		0	2	0	0	0	0	0	0	0	0	22	0	0	0	0
K	Sum of Qty		0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
	Sum of Wt (g)		0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
L	Sum of Qty		0	0	0	0	0	0	0	15	4	0	0	0	1	0	0
	Sum of Wt (g)		0	0	0	0	0	0	0	268	90	0	0	0	14	0	0
M	Sum of Qty		0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	Sum of Wt (g)		0	0	0	0	0	0	0	6	0	0	0	0	0	0	0
N	Sum of Qty		0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	Sum of Wt (g)		0	0	0	0	0	0	0	4	0	0	0	0	0	0	0
Total Sum of Qty		5		5	3	1	42	1	2	82	17	4	23	30	63	3	1
Total Sum of Wt (g)		82		98	6	6	307	4	42	863	334	42	538	318	1050	40	12

Table 6: Occurrence of decoration (by fabric group)

		Form																		
Av thick	Data	B1	B2	B3	P3	P4	R1	R10	R11	R12	R13	R2	R3	R4	R5	R6	R7	R8	R9	Grand Total
4	Sum of Nosh	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	4
	Sum of Wt (g)	0	12	0	0	0	0	0	0	0	0	0	4	0	0	0	0	2	0	18
5	Sum of Nosh	5	0	0	1	0	5	0	0	0	0	0	0	1	0	3	2	1	0	18
	Sum of Wt (g)	44	0	0	2	0	12	0	0	0	0	0	0	2	0	4	6	6	0	76
5/11	Sum of Nosh	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
	Sum of Wt (g)	204	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	204
5/8	Sum of Nosh	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Sum of Wt (g)	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
5/9	Sum of Nosh	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	Sum of Wt (g)	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
6	Sum of Nosh	1	7	3	1	2	22	1	0	0	6	8	0	9	2	4	11	11	0	88
	Sum of Wt (g)	22	30	40	2	22	158	12	0	0	38	43	0	36	8	32	68	84	0	595
6/12	Sum of Nosh	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Sum of Wt (g)	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
6/7	Sum of Nosh	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
	Sum of Wt (g)	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
6/8	Sum of Nosh	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
	Sum of Wt (g)	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
7	Sum of Nosh	12	10	8	7	0	22	0	6	0	1	1	0	11	0	6	8	0	0	92
	Sum of Wt (g)	126	132	114	50	0	228	0	48	0	16	12	0	90	0	46	48	0	0	910
7/10	Sum of Nosh	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Sum of Wt (g)	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
7/11	Sum of Nosh	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
	Sum of Wt (g)	0	54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54
7/5	Sum of Nosh	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Sum of Wt (g)	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
7/7	Sum of Nosh	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	Sum of Wt (g)	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
7/9	Sum of Nosh	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
	Sum of Wt (g)	36	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72
8	Sum of Nosh	6	33	7	6	0	26	0	0	2	0	13	0	12	4	15	20	3	0	147
	Sum of Wt (g)	46	540	146	78	0	225	0	0	94	0	24	0	72	24	108	166	70	0	1593
8/9	Sum of Nosh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4
	Sum of Wt (g)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	104	0	0	0	104
8/10	Sum of Nosh	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Sum of Wt (g)	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14
9	Sum of Nosh	18	12	3	0	0	15	0	0	0	0	0	0	2	0	6	9	1	3	69
	Sum of Wt (g)	390	390	90	0	0	189	0	0	0	0	0	0	8	0	130	190	10	30	1427
9/10	Sum of Nosh	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	Sum of Wt (g)	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26
9/13	Sum of Nosh	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	Sum of Wt (g)	0	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
9/16	Sum of Nosh	0	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
	Sum of Wt (g)	0	614	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	614
9/8	Sum of Nosh	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	Sum of Wt (g)	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
9/9	Sum of Nosh	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
	Sum of Wt (g)	8	74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	82
10	Sum of Nosh	6	15	6	0	0	13	0	0	0	0	0	0	0	0	7	13	6	4	70
	Sum of Wt (g)	80	278	217	0	0	174	0	0	0	0	0	0	0	0	128	156	60	142	1235
10/10	Sum of Nosh	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Sum of Wt (g)	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36
10/11	Sum of Nosh	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
	Sum of Wt (g)	0	0	108	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	108
11	Sum of Nosh	0	1	0	0	1	5	0	0	0	0	0	0	0	0	1	2	0	0	10
	Sum of Wt (g)	0	40	0	0	22	62	0	0	0	0	0	0	0	0	14	30	0	0	168
12	Sum of Nosh	0	2	6	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	9
	Sum of Wt (g)	0	10	120	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	136
13	Sum of Nosh	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3
	Sum of Wt (g)	0	12	0	0	0	0	0	0	0	0	0	0	0	0	48	0	0	0	60
14	Sum of Nosh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
	Sum of Wt (g)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4
N/R	Sum of Nosh	7	5	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
	Sum of Wt (g)	50	40	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	108
Total Sum of Nosh		81	129	41	15	3	108	1	6	2	7	22	1	36	6	49	65	23	7	602
Total Sum of Wt (g)		1242	2346	853	132	44	1048	12	48	94	54	79	4	214	32	618	664	232	172	7888

Table 7: Occurrence of form (by sherd thickness)

		Av thick													
Dec	**Data**	**4**	**5**	**6**	**7**	**8**	**8-9**	**9**	**10**	**11**	**12**	**13**	**15**	**N/R**	**Grand Total**
D1	Sum of Qty			1	1	4	4	2							12
	Sum of Wt (g)			6	12	30	104	10							162
D2	Sum of Qty		1	2	1				1						5
	Sum of Wt (g)		2	26	10				8						46
D3	Sum of Qty			11				2							13
	Sum of Wt (g)			84				18							102
D3/P3	Sum of Qty								5						5
	Sum of Wt (g)								40						40
D4	Sum of Qty				5	5									10
	Sum of Wt (g)				38	90									128
D4/10	Sum of Qty				1										1
	Sum of Wt (g)				14										14
D5	Sum of Qty			1	3	9							6		19
	Sum of Wt (g)			2	18	72							104		196
D5/D12	Sum of Qty					1									1
	Sum of Wt (g)					28									28
D6	Sum of Qty				3										3
	Sum of Wt (g)				18										18
D7	Sum of Qty			3	6			1	1						11
	Sum of Wt (g)			8	16			2	14						40
D8	Sum of Qty		2	19	2	1		1	1					4	30
	Sum of Wt (g)		5	91	14	4		4	4					3	125
Dragged D8	Sum of Qty			2											2
	Sum of Wt (g)			6											6
D8/13	Sum of Qty			3											3
	Sum of Wt (g)			26											26
D9	Sum of Qty			3	2			4							9
	Sum of Wt (g)			14	3			8							25
D10	Sum of Qty			1	2	2		19	5						29
	Sum of Wt (g)			66	18	38		504	176						802
D10/15	Sum of Qty							2							2
	Sum of Wt (g)							24							24
D10/16/12	Sum of Qty							1							1
	Sum of Wt (g)							58							58
D10/19	Sum of Qty								5						5
	Sum of Wt (g)								82						82
D11	Sum of Qty	1				2		2							5
	Sum of Wt (g)	2				44		52							98
D11/16	Sum of Qty					3									3
	Sum of Wt (g)					6									6
D12/D15	Sum of Qty				1										1
	Sum of Wt (g)				6										6
D13	Sum of Qty	1	1	22	6	4		4	2	1				1	42
	Sum of Wt (g)	4	4	128	54	25		22	36	32				2	307
D13/21	Sum of Qty			1											1
	Sum of Wt (g)			4											4
D14	Sum of Qty					2									2
	Sum of Wt (g)					42									42
D15	Sum of Qty		3	2	10	36		8	18	2	1	2			82
	Sum of Wt (g)		8	8	102	287		60	288	20	42	48			863
D16	Sum of Qty			3	2	3		3	5		1				17
	Sum of Wt (g)			22	10	82		20	144		56				334
D16/13	Sum of Qty			4											4
	Sum of Wt (g)			42											42
D17	Sum of Qty				1	8		11	3						23
	Sum of Wt (g)				12	136		312	78						538
D18	Sum of Qty			1	6	8		4	11						30
	Sum of Wt (g)			4	42	88		86	98						318
D19	Sum of Qty				16	11		25	10					1	63
	Sum of Wt (g)				152	208		518	168					4	1050
D20	Sum of Qty					3									3
	Sum of Wt (g)					40									40
P3	Sum of Qty				1										1
	Sum of Wt (g)				12										12
Total Qty		2	7	79	69	102	4	89	67	3	2	2	6	6	438
Total Wt (g)		6	19	537	551	1220	104	1698	1136	52	98	48	104	9	5582

Table 8: Occurrence of decoration (by sherd thickness)

		Int residue		
Form	**Data**	**no**	**yes**	**Total**
B1	**Sum of Nosh**	52	29	81
	Sum of MNV	33	7	40
	Sum of Wt (g)	684	558	1242
B2	**Sum of Nosh**	75	54	129
	Sum of MNV	37	17	54
	Sum of Wt (g)	1324	1022	2346
B3	**Sum of Nosh**	33	8	41
	Sum of MNV	17	3	20
	Sum of Wt (g)	693	160	853
P3	**Sum of Nosh**	15		15
	Sum of MNV	2		2
	Sum of Wt (g)	132		132
P4	**Sum of Nosh**	3		3
	Sum of MNV	2		2
	Sum of Wt (g)	44		44
R1	**Sum of Nosh**	81	27	108
	Sum of MNV	50	12	62
	Sum of Wt (g)	719	329	1048
R2	**Sum of Nosh**	22		22
	Sum of MNV	7		7
	Sum of Wt (g)	79		79
R3	**Sum of Nosh**	1		1
	Sum of MNV	1		1
	Sum of Wt (g)	4		4
R4	**Sum of Nosh**	32	4	36
	Sum of MNV	18	4	22
	Sum of Wt (g)	168	46	214
R5	**Sum of Nosh**	5	1	6
	Sum of MNV	3	1	4
	Sum of Wt (g)	14	18	32
R6	**Sum of Nosh**	41	8	49
	Sum of MNV	25	3	28
	Sum of Wt (g)	404	214	618
R7	**Sum of Nosh**	50	15	65
	Sum of MNV	30	8	38
	Sum of Wt (g)	510	154	664
R8	**Sum of Nosh**	19	4	23
	Sum of MNV	5	3	8
	Sum of Wt (g)	142	90	232
R9	**Sum of Nosh**	1	6	7
	Sum of MNV	1	2	3
	Sum of Wt (g)	28	144	172
R10	**Sum of Nosh**	1		1
	Sum of MNV	1		1
	Sum of Wt (g)	12		12
R11	**Sum of Nosh**		6	6
	Sum of MNV		2	2
	Sum of Wt (g)		48	48
R12	**Sum of Nosh**	2		2
	Sum of MNV	1		1
	Sum of Wt (g)	94		94
R13	**Sum of Nosh**	6	1	7
	Sum of MNV	2	1	3
	Sum of Wt (g)	38	16	54
Total Sum of Nosh		**439**	**163**	**602**
Total Sum of MNV		**235**	**63**	**298**
Total Sum of Wt (g)		**5089**	**2799**	**7888**

Table 9: Occurrence of internal residues (by form)

		Cxt grp																		
Fabric	**Data**	**1**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**14**	**17**	**19**	**25**	**39**	**79**	**91**	**92**	**Total**
4	Sum of Qty	96	3	8	0	0	36	0	0	0	0	0	0	0	0	0	0	0	24	167
	Sum of Wt (g)	64	2	6	0	0	8	0	0	0	0	0	0	0	0	0	0	0	8	88
4.10.1	Sum of Qty	39	9	38	3	0	0	7	1	15	0	0	0	0	0	0	0	0	0	112
	Sum of Wt (g)	202	76	132	14	0	0	48	8	70	0	0	0	0	0	0	0	0	0	550
4.10.2	Sum of Qty	0	5	0	65	9	0	2	14	0	0	0	0	0	1	0	0	0	0	96
	Sum of Wt (g)	0	40	0	900	68	0	36	180	0	0	0	0	0	64	0	0	0	0	1288
4.11	Sum of Qty	5	2	0	25	5	0	1	4	2	0	0	0	0	0	0	0	0	15	59
	Sum of Wt (g)	14	18	0	316	40	0	6	26	24	0	0	0	0	0	0	0	0	80	524
4.12	Sum of Qty	1	0	0	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27
	Sum of Wt (g)	12	0	0	237	0	0	0	0	0	0	0	0	0	0	0	0	0	0	249
4.7	Sum of Qty	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	63	161	0	226
	Sum of Wt (g)	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	109	1067	0	1184
4.8	Sum of Qty	0	0	0	0	0	0	47	0	0	0	0	0	0	0	0	0	0	0	47
	Sum of Wt (g)	0	0	0	0	0	0	36	0	0	0	0	0	0	0	0	0	0	0	36
4.8.1	Sum of Qty	0	22	12	29	10	0	63	0	0	0	18	73	0	0	4	0	3	0	234
	Sum of Wt (g)	0	416	62	406	144	0	541	0	0	0	201	432	0	0	28	0	12	0	2242
4.8.2	Sum of Qty	0	45	0	19	54	0	5	0	0	0	0	3	0	0	0	0	3	0	129
	Sum of Wt (g)	0	306	0	132	389	0	126	0	0	0	0	34	0	0	0	0	32	0	1019
4.8.3	Sum of Qty	0	5	13	5	23	1	65	0	0	0	0	3	0	0	0	0	5	0	120
	Sum of Wt (g)	0	12	316	40	171	2	746	0	0	0	0	34	0	0	0	0	17	0	1338
4.8.4	Sum of Qty	188	37	8	0	1	3	0	7	0	0	0	4	0	0	36	0	3	0	287
	Sum of Wt (g)	440	603	37	0	2	20	0	52	0	0	0	9	0	0	131	0	9	0	1303
4.8.5	Sum of Qty	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	7
	Sum of Wt (g)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72	0	0	0	72
4.8.6	Sum of Qty	52	8	4	1	4	0	10	0	0	0	1	0	0	0	2	0	0	0	82
	Sum of Wt (g)	228	28	12	10	26	0	52	0	0	0	2	0	0	0	8	0	0	0	366
4.9	Sum of Qty	0	66	0	27	44	11	80	0	0	0	69	0	0	0	0	0	0	0	297
	Sum of Wt (g)	0	144	0	78	86	8	100	0	0	0	28	0	0	0	0	0	0	0	444
4.9.1	Sum of Qty	19	43	14	161	36	7	47	2	3	0	26	24	0	1	0	0	1	3	387
	Sum of Wt (g)	170	648	92	1109	260	62	512	16	16	0	214	175	0	14	0	0	2	20	3310
4.9.2	Sum of Qty	0	195	2	39	288	12	67	0	0	0	8	50	0	8	0	0	34	0	703
	Sum of Wt (g)	0	2662	6	972	3508	127	1270	0	0	0	38	215	0	82	0	0	173	0	9053
4.9.3	Sum of Qty	12	45	0	1	36	7	3	0	0	0	0	0	0	1	0	0	22	0	127
	Sum of Wt (g)	62	770	0	10	529	30	282	0	0	0	0	0	0	6	0	0	149	0	1838
4.9.4	Sum of Qty	193	49	5	2	13	2	0	73	35	0	7	35	0	23	17	0	7	0	461
	Sum of Wt (g)	1082	869	12	8	72	12	0	424	143	0	25	333	0	77	88	0	42	0	3187
5.10	Sum of Qty	0	0	0	0	1	0	0	1	1	0	0	0	0	0	5	0	0	0	8
	Sum of Wt (g)	0	0	0	0	4	0	0	2	2	0	0	0	0	0	34	0	0	0	42
5.11	Sum of Qty	0	0	0	67	3	0	0	1	0	0	0	0	66	1	0	0	0	0	138
	Sum of Wt (g)	0	0	0	911	42	0	0	14	0	0	0	0	294	12	0	0	0	0	1273
5.12	Sum of Qty	8	33	17	0	1	0	7	27	1	0	3	0	0	0	0	0	0	8	105
	Sum of Wt (g)	41	102	53	0	4	0	54	302	20	0	4	0	0	0	0	0	0	72	652
5.13	Sum of Qty	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
	Sum of Wt (g)	0	92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	92
5.3	Sum of Qty	5	1	0	0	0	1	0	0	0	63	0	0	0	0	0	0	2	0	72
	Sum of Wt (g)	16	6	0	0	0	16	0	0	0	305	0	0	0	0	0	0	10	0	353
5.7	Sum of Qty	9	11	0	0	0	0	0	0	0	6	0	4	0	17	19	1	0	0	67
	Sum of Wt (g)	22	60	0	0	0	0	0	0	0	64	0	12	0	58	48	4	0	0	268
5.9	Sum of Qty	0	0	0	0	0	12	0	0	0	0	0	0	0	0	4	13	0	0	29
	Sum of Wt (g)	0	0	0	0	0	32	0	0	0	0	0	0	0	0	20	72	0	0	124
97	Sum of Qty	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	23
	Sum of Wt (g)	0	40	0	0	0	0	0	0	0	0	0	0	0	0	0	62	0	0	102
139	Sum of Qty	0	0	0	0	0	0	0	0	0	39	0	0	0	0	0	0	0	0	39
	Sum of Wt (g)	0	0	0	0	0	0	0	0	0	263	0	0	0	0	0	0	0	0	263
Total Sum of Qty		627	597	121	470	528	92	404	130	57	108	132	196	66	52	94	97	241	50	4062
Total Sum of Wt (g)		2353	6902	728	5143	5345	317	3809	1024	275	632	512	1244	294	313	429	247	1513	180	31260

Table 10: Occurrence of fabrics (by major Context Group)

		Cxt grp																		
Fab group	Data	1	4	5	6	7	8	9	10	11	12	14	17	19	25	39	79	91	92	Total
B	Sum of Qty	14	12	0	0	0	13	0	0	0	108	0	4	0	17	23	14	2	0	207
	Sum of Wt (g)	38	66	0	0	0	48	0	0	0	632	0	12	0	58	68	76	10	0	1008
C	Sum of Qty	1	13	0	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
	Sum of Wt (g)	12	92	0	237	0	0	0	0	0	0	0	0	0	0	0	0	0	0	341
D	Sum of Qty	52	13	17	6	27	1	75	0	0	0	1	3	0	0	2	0	5	0	202
	Sum of Wt (g)	228	40	328	50	197	2	798	0	0	0	2	34	0	0	8	0	17	0	1704
E	Sum of Qty	0	67	12	48	64	0	68	0	0	0	18	76	0	0	4	0	6	0	363
	Sum of Wt (g)	0	722	62	538	533	0	667	0	0	0	201	466	0	0	28	0	44	0	3261
F	Sum of Qty	188	37	8	0	1	3	0	7	0	0	0	4	0	0	43	0	3	0	294
	Sum of Wt (g)	440	603	37	0	2	20	0	52	0	0	0	9	0	0	203	0	9	0	1375
G	Sum of Qty	19	43	14	161	36	7	47	2	3	0	26	24	0	1	0	0	1	3	387
	Sum of Wt (g)	170	648	92	1109	260	62	512	16	16	0	214	175	0	14	0	0	2	20	3310
H	Sum of Qty	12	240	2	40	324	19	70	0	0	0	8	50	0	9	0	0	56	0	830
	Sum of Wt (g)	62	3432	6	982	4037	157	1552	0	0	0	38	215	0	88	0	0	322	0	10891
I	Sum of Qty	193	49	5	2	13	2	0	73	35	0	7	35	0	23	17	0	7	0	461
	Sum of Wt (g)	1082	869	12	8	72	12	0	424	143	0	25	333	0	77	88	0	42	0	3187
J	Sum of Qty	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	63	161	0	226
	Sum of Wt (g)	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	109	1067	0	1184
K	Sum of Qty	0	0	0	0	1	0	0	1	1	0	0	0	0	0	5	0	0	0	8
	Sum of Wt (g)	0	0	0	0	4	0	0	2	2	0	0	0	0	0	34	0	0	0	42
L	Sum of Qty	47	47	55	135	13	0	16	43	16	0	3	0	66	2	0	0	0	8	451
	Sum of Wt (g)	243	218	185	1825	114	0	138	504	90	0	4	0	294	76	0	0	0	72	3763
M	Sum of Qty	5	2	0	25	5	0	1	4	2	0	0	0	0	0	0	0	0	15	59
	Sum of Wt (g)	14	18	0	316	40	0	6	26	24	0	0	0	0	0	0	0	0	80	524
N	Sum of Qty	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	20	2	0	25
	Sum of Wt (g)	0	40	0	0	0	0	0	0	0	0	0	0	0	0	0	62	16	0	118
N/A	Sum of Qty	96	70	8	29	44	47	127	0	1	0	69	2	0	0	0	0	0	24	517
	Sum of Wt (g)	64	152	6	88	86	16	136	0	62	0	28	14	0	0	0	0	0	8	660
Total Sum of Qty		627	598	121	472	528	92	404	130	58	108	132	198	66	52	94	97	243	50	4070
Total Sum of Wt (g)		2353	6908	728	5153	5345	317	3809	1024	337	632	512	1258	294	313	429	247	1529	180	31368

Table 11: Occurrence of fabric groups (by major Context Group)

Cxt grp	Data	B1	B2	B3	P3	P4	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	Total	Cxt grp	Form	Nosh
1	Sum of Qty	3	26				5			5		16	13							68	1	Bases	29
	Sum of Wt (g)	26	162				26			14		158	84							470		Rims	39
4	Sum of Qty	15	26	4			25				1	7	13	4						95	4	Bases	45
	Sum of Wt (g)	394	596	220			215				4	180	136	68						1813		Rims	50
5	Sum of Qty		4				2			3	3		3							15	5	Bases	4
	Sum of Wt (g)		36				6			6	6		14							68		Rims	11
6	Sum of Qty	4	30	16		1	16			3		3	14		4			2	7	100	6	Bases	50
	Sum of Wt (g)	64	676	298		22	106			26		50	112		142			94	54	1644		Rims	50
7	Sum of Qty	15	20	7			14		1	4		3	4	1						69	7	Bases	42
	Sum of Wt (g)	140	414	138			115		4	26		62	38	28						965		Rims	27
8	Sum of Qty	2	1				2			1			2							8	8	Bases	3
	Sum of Wt (g)	24	40				24			4			18							110		Rims	5
9	Sum of Qty	5	6	2			19			4			9							45	9	Bases	13
	Sum of Wt (g)	222	102	54			328			52			212							970		Rims	32
10	Sum of Qty	3	3				5			3	1	7	1		3		6			32	10	Bases	6
	Sum of Wt (g)	18	56				22			18	18	48	6		30		48			264		Bases	24
11	Sum of Qty	6					1					1								8	11	Rims	6
	Sum of Wt (g)	50					10					4								64		Bases	2
12	Sum of Qty	14						7												21	12	Rims	14
	Sum of Wt (g)	162						41												203		Bases	7
14	Sum of Qty		3				1													4	14	Bases	3
	Sum of Wt (g)		54				4													58		Rims	1
17	Sum of Qty	3	3	1				12		6		1								26	17	Bases	7
	Sum of Wt (g)	4	36	12				16		40		10								118		Rims	19
19	Sum of Qty											1								1	19	Bases	
	Sum of Wt (g)											2								2		Rims	1
25	Sum of Qty		1				1			1		5								8	25/47	Bases	1
	Sum of Wt (g)		12				64			12		10								98		Rims	7
39	Sum of Qty	4		2								1	3							10	39	Bases	6
	Sum of Wt (g)	32		16								4	22							74		Rims	4
79	Sum of Qty						1													1	79	Bases	
	Sum of Wt (g)						26													26		Rims	1
91	Sum of Qty	1	2	5	14		3	1		2	1			12		1				42	91	Bases	8
	Sum of Wt (g)	22	36	59	130		16	8		4	4			94		12				385		Rims	20
92	Sum of Qty	1					7													8	92	Bases	1
	Sum of Wt (g)	12					66													78		Rims	7
Total Sum of Qty		76	125	37	14	1	102	20	1	32	6	45	62	17	7	1	6	2	7	561	Totals	Bases	238
Total Sum of Wt (g)		1170	2220	797	130	22	1028	65	4	202	32	528	642	190	172	12	48	94	54	7410		Rims	308

Table 12: Occurrence of forms (by major Context Group)

		Cxt grp																
Dec	**Data**	**1**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**12**	**14**	**17**	**25**	**39**	**79**	**91**	**92**	**Total**
D1	Sum of Qty	2	4		1			4	1									12
	Sum of Wt (g)	10	104		12			30	6									162
D2	Sum of Qty		1		1	1										1		4
	Sum of Wt (g)		10		16	10										8		44
D3	Sum of Qty		1													12		13
	Sum of Wt (g)		8													94		102
D4	Sum of Qty															10		10
	Sum of Wt (g)															128		128
D4/10	Sum of Qty	1																1
	Sum of Wt (g)	14																14
D5	Sum of Qty		7			1										5		13
	Sum of Wt (g)		62			6										24		92
D5/D12	Sum of Qty					1												1
	Sum of Wt (g)					28												28
D6	Sum of Qty									3								3
	Sum of Wt (g)									18								18
D7	Sum of Qty									9								9
	Sum of Wt (g)									24								24
D8	Sum of Qty									21								21
	Sum of Wt (g)									96								96
Dragged D8	Sum of Qty									2								2
	Sum of Wt (g)									6								6
D8/13	Sum of Qty									3								3
	Sum of Wt (g)									26								26
D9	Sum of Qty									2								2
	Sum of Wt (g)									12								12
D10	Sum of Qty		7			10			11									28
	Sum of Wt (g)		250			302			184									736
D10/15	Sum of Qty								2									2
	Sum of Wt (g)								24									24
D10/16/12	Sum of Qty		1															1
	Sum of Wt (g)		58															58
D10/19	Sum of Qty		5															5
	Sum of Wt (g)		82															82
D11	Sum of Qty					2		2										4
	Sum of Wt (g)					52		44										96
D11/16	Sum of Qty			3														3
	Sum of Wt (g)			6														6
D12/D15	Sum of Qty		1															1
	Sum of Wt (g)		6															6
D13	Sum of Qty	1	2			6				24					1			34
	Sum of Wt (g)	2	36			30				170					26			264
D13/21	Sum of Qty									1								1
	Sum of Wt (g)									4								4
D14	Sum of Qty		2															2
	Sum of Wt (g)		42															42
D15	Sum of Qty	19	14	1	7	1	1	1	4			17	5	2		1	5	78
	Sum of Wt (g)	211	178	16	150	8	4	28	44			46	10	26		4	64	789
D16	Sum of Qty	2			9			1	2		1		1					16
	Sum of Wt (g)	60			182			8	10		6		64					330
D16/13	Sum of Qty							4										4
	Sum of Wt (g)							42										42
D17	Sum of Qty		11			5	1	2					1			3		23
	Sum of Wt (g)		220			128	12	132					24			22		538
D18	Sum of Qty	11	5			1		13										30
	Sum of Wt (g)	98	32			6		182										318
D19	Sum of Qty		3			12		45										60
	Sum of Wt (g)		110			118		804										1032
P3	Sum of Qty	1																1
	Sum of Wt (g)	12																12
Total Sum of Qty		37	64	4	18	40	2	72	20	65	1	17	7	2	1	32	5	387
Total Sum of Wt (g)		407	1198	22	360	688	16	1270	268	356	6	46	98	26	26	280	64	5131

Table 13: Occurrence of decoration (by major Context Group)

	Abr					
Cxt grp	**1**	**2**	**2/3**	**3**	**N/R**	**Total**
1	53	419	0	41	114	627
4	6	546	2	44	0	598
5	0	86	0	35	0	121
6	6	428	2	36	0	472
7	22	471	0	35	0	528
8	14	20	1	44	13	92
9	0	252	136	16	0	404
10	0	98	0	13	19	130
11	0	12	9	37	0	58
12	0	98	1	9	0	108
14	0	51	0	81	0	132
17	35	115	0	48	0	198
19	0	2	0	64	0	66
25/47	10	27	0	15	0	52
39	3	76	0	15	0	94
79	1	54	0	42	0	97
91	5	195	0	43	0	243
92	0	26	0	24	0	50
Total	**155**	**2976**	**151**	**642**	**146**	**4070**

Table 14: Occurrence of abrasion (by major Context Group)

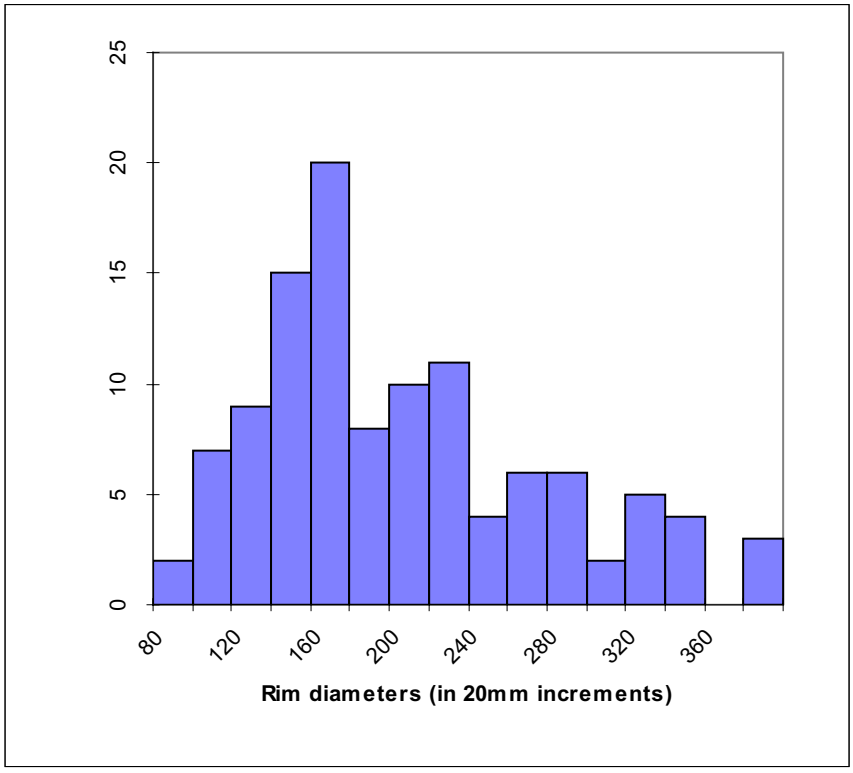
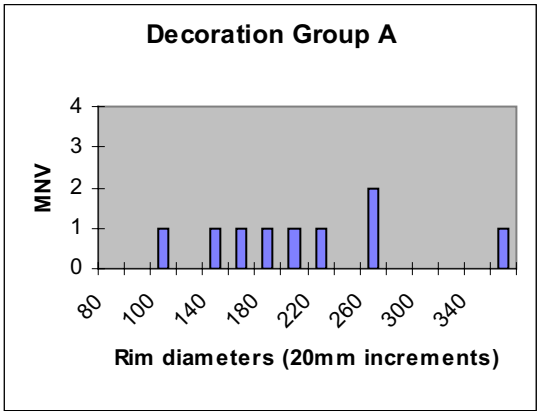
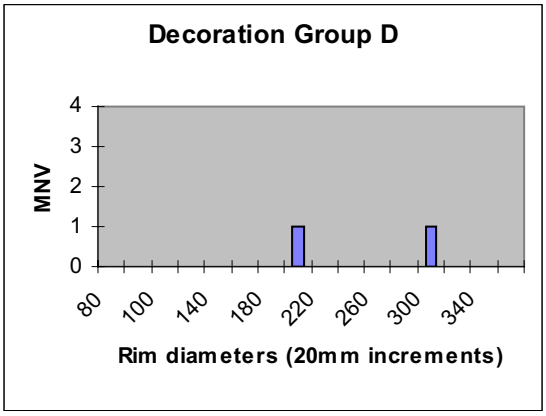
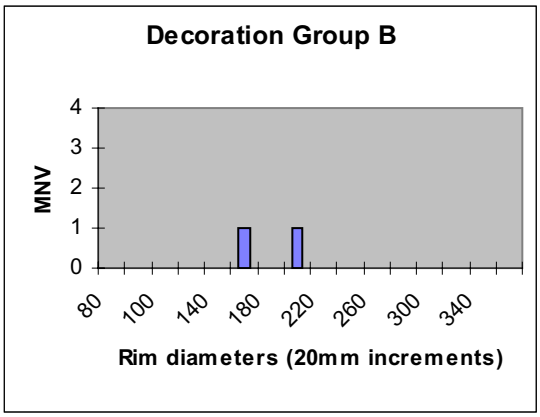
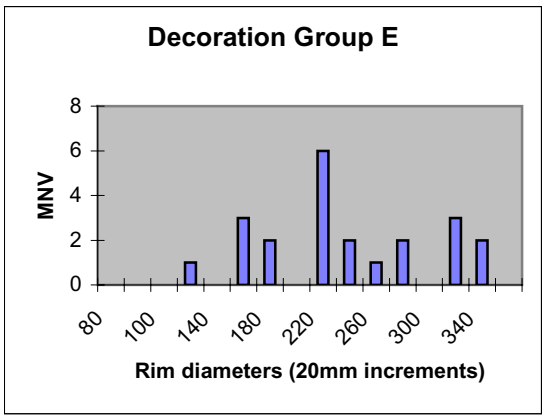


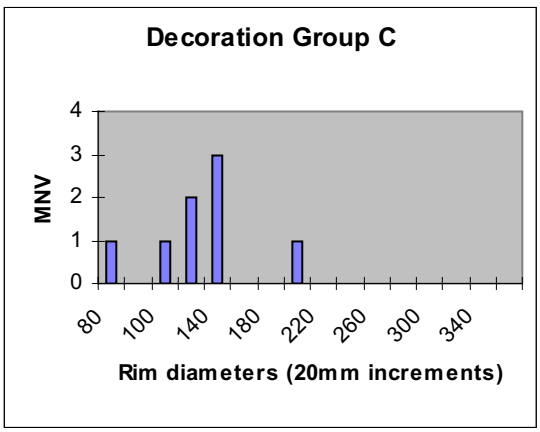
Figure 1: Rim diameters - MNV (whole assemblage)

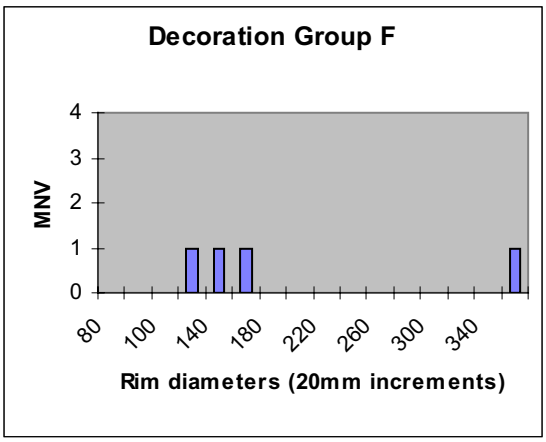






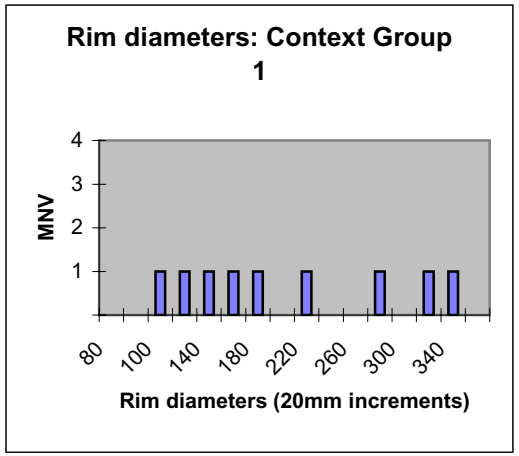


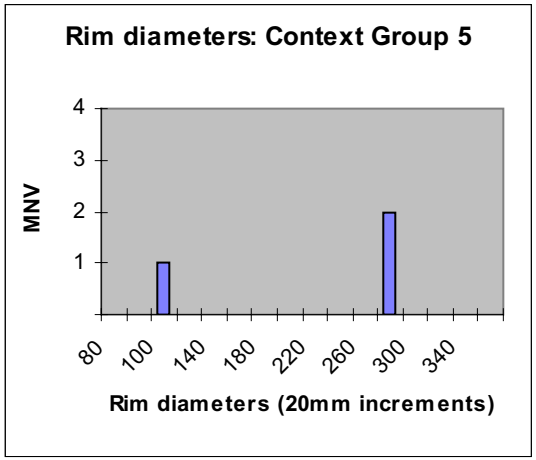


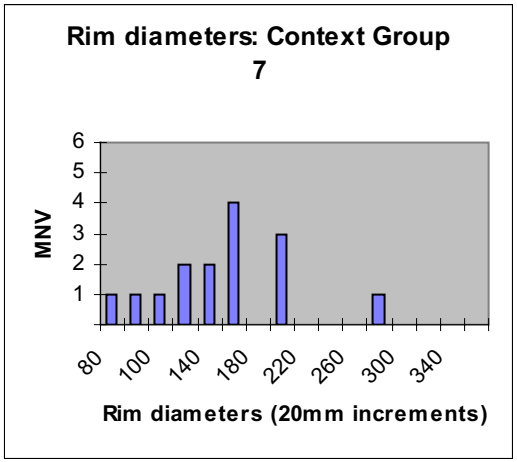


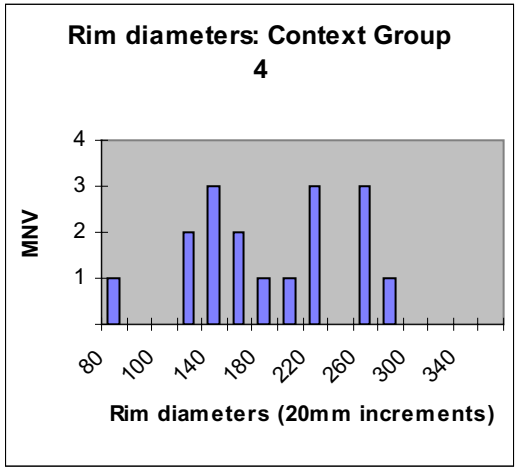
Decoration Group A = D01 and D02
Decoration Group B = D03 and D04
Decoration Group C = D05, D06, D07, D08, D09, D13 and D14
Decoration Group D = D11 and D12
Decoration Group E = D15 and D16
Decoration Group F = D10, D17, D18 and D19

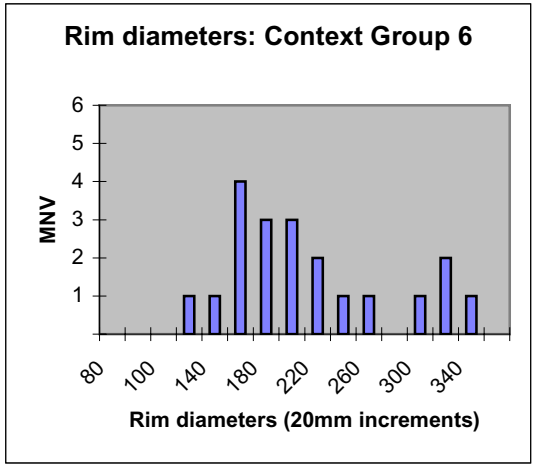
Figure 2: Occurrence of major decoration styles (by rim diameter)

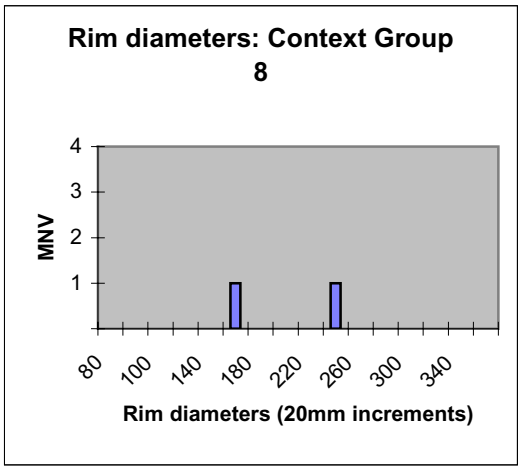

Rim diameters: Context Group 1
MNV
4
3
2
1
80 100 140 180 220 260 300 340
Rim diameters (20mm increments)

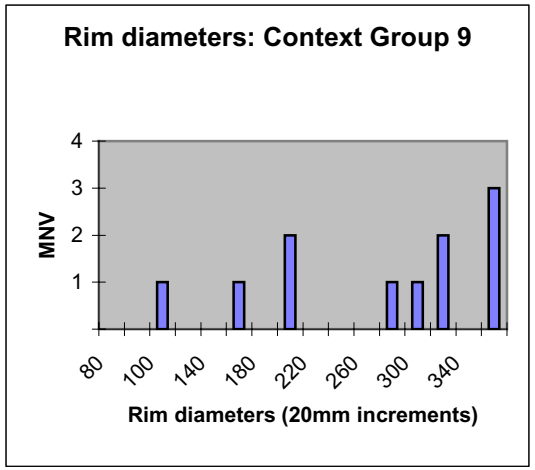

Rim diameters: Context Group 5
MNV
4
3
2
1
80 100 140 180 220 260 300 340
Rim diameters (20mm increments)

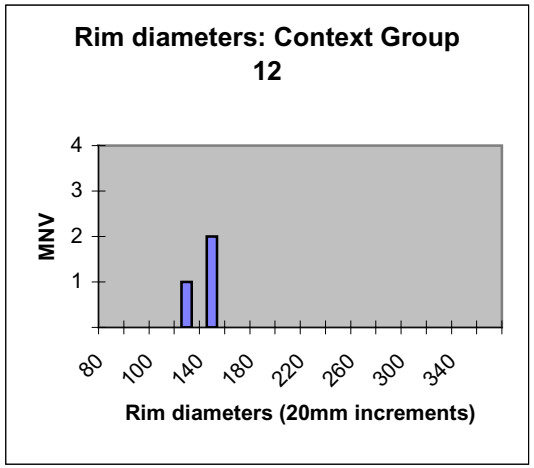

Rim diameters: Context Group 7
MNV
6
5
4
3
2
1
80 100 140 180 220 260 300 340
Rim diameters (20mm increments)

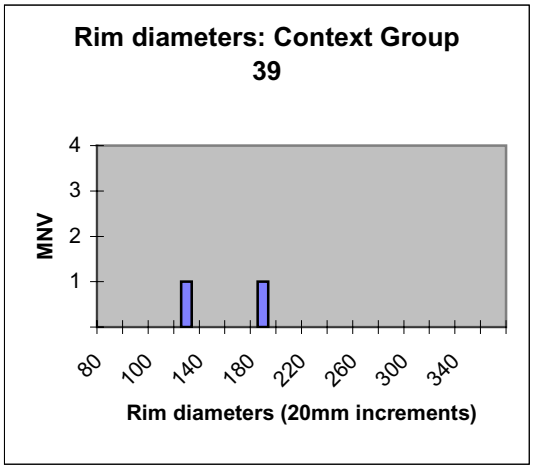

Rim diameters: Context Group 4
MNV
4
3
2
1
80 100 140 180 220 260 300 340
Rim diameters (20mm increments)

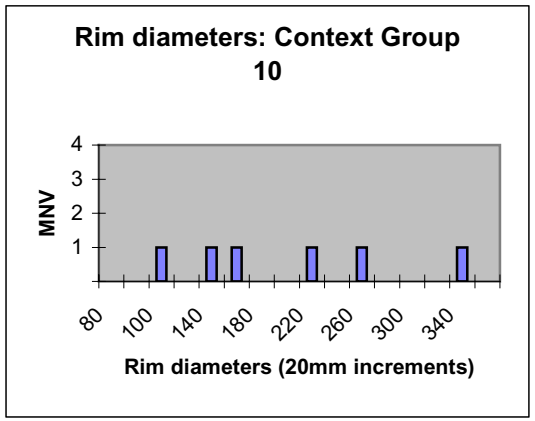

Rim diameters: Context Group 6
MNV
6
5
4
3
2
1
80 100 140 180 220 260 300 340
Rim diameters (20mm increments)

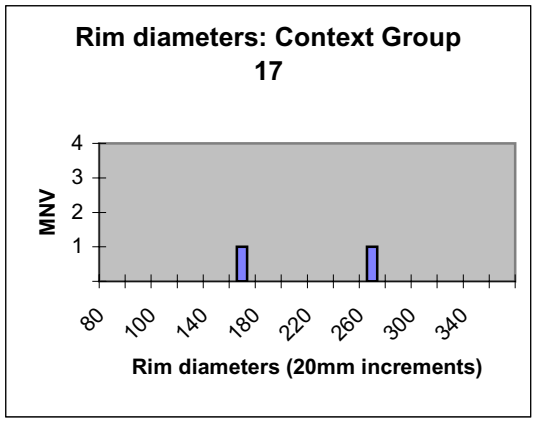

Rim diameters: Context Group 8
MNV
4
3
2
1
80 100 140 180 220 260 300 340
Rim diameters (20mm increments)

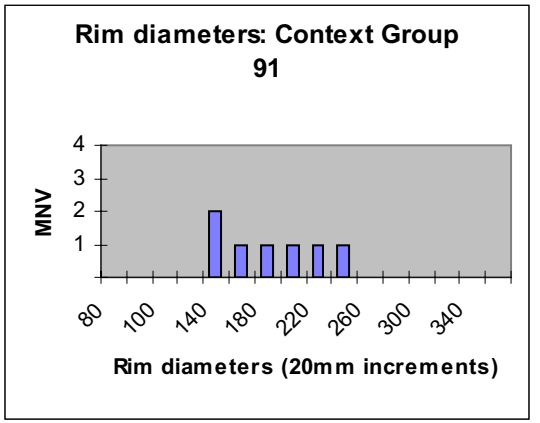

Rim diameters: Context Group 9
MNV
4
3
2
1
80
100
140
180
220
260
300
340
Rim diameters (20mm increments)

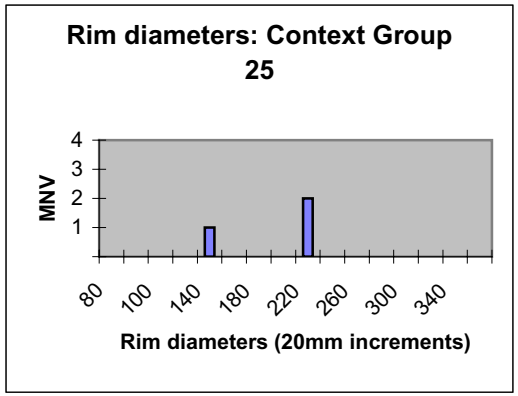

Rim diameters: Context Group 12
MNV
4
3
2
1
80
100
140
180
220
260
300
340
Rim diameters (20mm increments)


Rim diameters: Context Group 39
MNV
4
3
2
1
80
100
140
180
220
260
300
340
Rim diameters (20mm increments)


Rim diameters: Context Group 10
MNV
4
3
2
1
80
100
140
180
220
260
300
340
Rim diameters (20mm increments)


Rim diameters: Context Group 17
MNV
4
3
2
1
80
100
140
180
220
260
300
340
Rim diameters (20mm increments)


Rim diameters: Context Group 91
MNV
4
3
2
1
80
100
140
180
220
260
300
340
Rim diameters (20mm increments)


Rim diameters: Context Group 25
MNV
4
3
2
1
80
100
140
180
220
260
300
340
Rim diameters (20mm increments)

Appendix 2: Pottery fabrics (Derek Hurst and Robin Jackson)

The following are pottery fabrics defined during Kemerton post-excavation analysis with the addition of a few fabrics previously defined at Aston Mill but not fully published in that report. All the latter were present on the Kemerton site. The definition of the Kemerton fabrics was undertaken through consultation between Derek Hurst, Robin Jackson, and Ann Woodward. The descriptions have been compiled as part of the County fabric series (Hurst and Rees 1991; Hurst 1994 (as amended)), and follow guidelines drawn up by the Prehistoric Ceramics Research Group (1995).

Fabric 4.7 Fossil shell and grog

Manufacture	Handmade
Firing	Fairly hard; dark grey outer surface and core (10YR 4/1) inner surface greyish brown (10YR 5/2)
Texture	Soapy
Surface Treatment	Wiped
Thickness	8 - 11mm
Inclusions	Frequent inclusions of shell (< 2mm) scattered throughout the clay matrix, together with a little sparry calcite indicating that the shell is fossiliferous, some shelly limestone, a few quartz grains under 0.05mm in size, flecks of mica, iron ore and some pieces of angular grog (< 2mm) which contain small pieces of shell and limestone. Represented by only one sherd at Aston Mill Farm (Evans 1990, 27).
Source	Unknown - ?local
Period	Bronze Age

Description based on petrological report (Aston Mill).

Fabric 4.8 Limestone

Manufacture	Handmade
Firing	Soft. Pinkish red to dark brown outer surface and variably coloured inner surface with a grey core.
Texture	Soapy
Surface treatment	Both surfaces occasionally burnished.
Thickness	4 -14mm
Inclusions	Very common fossilised shelly limestone which is poorly sorted, angular and generally less than 5mm in size; rare quartz sand which is rounded and of 0.25 - 0.5mm.
Source	Unknown - ?Malverns/May Hill area
Period	Bronze Age

Fabric 4.9 Shell

Manufacture	Handmade
Firing	Soft. The inner and outer surfaces are red or brown (inner surface occasionally black), and the core is medium grey.
Texture	Soapy
Surface treatment	Wiped surface inside
Thickness	4 - 14mm
Inclusions	Common shell which is poorly sorted, and less than 6mm in size.
Source	Unknown - ?local
Period	Bronze Age

Fabric 4.10 Limestone and quartzite tempered ware

Manufacture	Handmade
Firing	Fairly hard. The surfaces are reddish buff and the core can be oxidised or reduced.red throughout
Texture	Rough
Surface treatment	
Thickness	4 - 11mm
Inclusions	Common to moderate, subangular fossiliferous limestone which is poorly sorted, and less than 8mm in size.
Source	Unknown - ?local
Period	Bronze Age

Fabric 4.11 Shell and quartzite

Manufacture	Handmade
Firing	Soft. The external surface is red while inner surfaces are oxidised or reduced; the core is grey.
Texture	Soapy
Surface treatment	
Thickness	7 - 10mm
Inclusions	Common fossil shell which is poorly sorted, and less than 8 mm; rare white, angular ?quartzite which is well sorted and less than 2mm in size.
Source	Unknown - ?local
Period	Bronze Age

Fabric 4.12 Shell

Manufacture	Handmade
Firing	Pale buff surfaces and margins, except for pale red external surface. There is a grey core.
Texture	Soapy or smooth
Surface treatment	
Thickness	6 - 12mm
Inclusions	Moderate plate shell which is poorly sorted and less than 2mm; rare rounded quartz which is 0.1-0.5mm in size.
Source	Unknown -?Local
Period	Bronze Age

Fabric 5.3 Coarse quartz (and ?grog)

Manufacture	Handmade
Firing	Soft. Oxidised red throughout
Texture	Rough
Surface treatment	None represented
Thickness	5 - 10mm
Inclusions	Abundant medium (<0.5mm) sub-rounded to sub-angular quartz; moderate coarse quartz/quartzite; sparse-moderate clay pellets/mudstone (,2.5mm)
Source	Unknown - ?local
Period	Beaker

Fabric 5.7 Quartz and limestone

Manufacture	Handmade
Firing	Hard, shades of dark grey (5YR 4/1) throughout
Texture	Rough
Surface treatment	May be wiped
Thickness	5 - 13mm
Inclusions	Clean matrix containing sub-rectangular quartz grains up to 0.60mm in size together with small fragments of limestone, iron ore, a little calcite and some largish pieces of grog containing small pieces of limestone
Source	Unknown - ?Local
Period	Beaker

Description mainly based on petrological report (Aston Mill). Kemerton suggests that the **XX** is poorly sorted and less than 1mm in size, and that period is Beaker.

Fabric 5.8 Quartzite

Manufacture	Handmade
Firing	Soft. Generally brown surfaces and margins and a grey core.
Texture	Smooth or rough
Surface treatment	Smoothed inside surface
Thickness	7 - 15mm
Inclusions	Very common angular white ?quartzite which is well sorted and generally less than 5mm.
Source	Unknown - ?local
Period	Neolithic

Fabric 5.9 Quartz

Manufacture	Handmade
Firing	Soft. Surfaces and margins are brown, except for red to pale brown external surface. The core is dark grey.
Texture	Rough
Surface treatment	Inside surface possibly smoothed.
Thickness	5 - 10mm
Inclusions	Common rounded quartz which is 0.25-1.00mm in size and generally well sorted; rare, rounded, red iron rich ?silty pellets which have a dark surface and which are moderately sorted. Mica is also present.
Source	Unknown - ?local
Period	Beaker

Fabric 5.10 Fine quartz

Manufacture	Handmade
Firing	Soft. Dark grey surfaces and a brown core.
Texture	Smooth
Surface treatment	
Thickness	4 - 10mm
Inclusions	Common rounded quartz which is poorly sorted and mainly 0.1mm, but occasionally 1.0mm in size; common fine mica which is well sorted.
Source	Unknown - ?local
Period	Bronze Age

Fabric 5.11 Quartz, quartzite, and limestone

Manufacture	Handmade
Firing	Soft. red surfaces and a grey core
Texture	Rough
Surface treatment	
Thickness	5 - 15mm
Inclusions	Very common rounded quartz sand which is well sorted and 0.25-0.50mm in size; white angular quartzite which is rare and less than 5mm in size; rare limestone which is well sorted and 0.1-0.25mm in size.
Source	Unknown - ?local
Period	Bronze Age

Fabric 5.12 Quartz and limestone

Manufacture	Handmade
Firing	Soft. Oxidised throughout to buff or red, or reduced on the inside.
Texture	Rough
Surface treatment	
Thickness	6 - 13mm
Inclusions	Common rounded quartz sand which is well sorted and 0.1-0.25 in size; moderate subrounded limestone which is poorly sorted and less than 6mm in size.
Source	Unknown - ?local
Period	Bronze Age

Fabric 5.13 Quartz

Manufacture	Handmade
Firing	Soft. Brown throughout except for orange external surface.
Texture	Rough
Surface treatment	
Thickness	6 - 10mm
Inclusions	Abundant rounded quartz sand which is well sorted and 0.1-0.5mm in size.
Source	Unknown - ?local
Period	Bronze Age

Fabric 139 Grog (?), quartz and limestone

Manufacture	Handmade
Firing	Soft. Buff external surface and dark grey inside surface with a dark grey core.
Texture	Soapy
Surface treatment	
Thickness	6 - 8mm
Inclusions	Rare subrounded clay pellets (?grog) which are less than 8mm insize; rare rounded quartz sand which is well sorted and 0.1-0.25 in size; rare limestone which is well sorted and c 0.25mm in size.
Source	Unknown - ?local
Period	Beaker