A BRONZE AGE BARROW CEMETERY AND LATER BOUNDARIES, PIT ALIGNMENTS AND ENCLOSURES AT GAYHURST QUARRY, NEWPORT PAGNELL, BUCKINGHAMSHIRE

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An excavation and watching brief was carried out in advance of gravel extraction on a group of seven ring ditches and three rectangular enclosures situated on the floodplain of the River Great Ouse, near Newport Pagnell. A double ring ditch, Barrow 2, still survived as a low earthwork. It was of Early Bronze Age date, with a sequence of five central burials. The primary inhumation, of a young man within an oak-lined chamber, radiocarbon dated to 2200–2050 Cal BC, was directly accompanied only by a pig fore limb. However, the inner barrow ditch contained the partial skeletal remains of some 300 cattle, deposited on the gravel mound but later raked down and buried. A preference for limb bones indicates that the animals had been slaughtered elsewhere, and the lack of butchery marks suggests that the carcasses had been exposed to decay naturally, and may have formed a symbolic feast for the dead rather than an actual feast for the living. Subsequently, an outer ditch was dug and the mound was enlarged twice and also re-capped with fresh gravel, with these events presumably contemporary with the secondary burials inserted into the central grave. These comprised a cremation deposit, a crouched inhumation of an older man in a timber-lined chamber, a further cremation and a final cremation within a Collared Urn. Accompanying grave goods include antler and bone spatula, a perforated bone pin and a few flint tools.

The six other ring ditches had been ploughed flat in antiquity, and only two contained surviving cremation deposits, including an urned cremation with a small Collared Urn as an accessory vessel. These later and smaller satellite barrows were of Early Bronze Age date, with use of the cemetery continuing to around 1450 Cal BC.

A system of undated linear ditches is interpreted as part of a Middle-Late Bronze Age boundary system. This may have influenced the setting out of a pit alignment, which had a sequence of development with circular pits replaced by rectangular pits, and a later partial re-cutting as an interrupted ditch. The final filling of one rectangular pit has been radiocarbon dated to the Early Iron Age, 800–520 Cal BC.

Three small rectangular enclosures were of Middle Iron Age date. There was a crouched inhumation burial in the ditch terminal at the entrance to one enclosure, and just outside the same enclosure there was a cremation of Late Iron Age/early Roman date. The mound of Barrow 2 had been a focus for burial in the late Roman period, with five inhumations surviving, one of which was a decapitation burial.

Introduction

Background

In the famous long, hot summer of 1976 aerial photographers had their finest hour, with new sites appearing across the whole of Britain. In the valley of the River Great Ouse local aerial photographer Ken Field had already been responsible for many new discoveries (Field 1975) and on 10 July 1976 he photographed a group of ring ditches of probable ploughed-out round barrows, as well as rectangular enclosures, close to the river in a field adjacent to the M1 motorway at Mill Farm, near Gayhurst, in the parish of Newport Pagnell, Buckinghamshire (NGR SP 853 447, Fig 1 and Plate 1). Ken Field's direct role in the story ends at this point, although in 1998, 22 years after his discovery, he visited the site while the largest of the round barrows was under excavation.

By the late 1980s, the local firm G F X Hartigan Ltd was seeking planning permission to extract sand and gravel from 33 hectares of agricultural land at Mill Farm. Among the issues of concern was the presence of the ring ditches and enclosures recorded in 1976. When planning permission was finally granted at the end of 1993, an area of *c* 7 ha containing these monuments was excluded from extraction (Site CAS No. 2553 in the Borough Sites and Monuments Record).

The western end of the area, adjacent to the M1 motorway, was subject to archaeological assessment in the early 1990s in relation to a proposed M1–widening scheme (BCMAS 1992, Carstairs *et al* 1993), and in 1996 trial excavation was carried out by Buckinghamshire County Museum Archaeological Service (Parkhouse (ed) 1996). The recovery of a deposit of cremated bone in a small pit within one of the ring ditches (Barrow 5 in the present report) confirmed that this was a ring ditch surrounding a ploughed-out Bronze Age round barrow, thus adding Gayhurst to the ever increasing list of Neolithic and Bronze Age monument complexes set along the midland river valleys of the Great Ouse, Nene and Welland (Fig 2).

By 1997 the available mineral reserve at the quarry was decreasing, and Northamptonshire Archaeology was commissioned by G F X Hartigan Ltd to carry out an archaeological evaluation to ascertain the state of preservation of the ring ditches and enclosures in the excluded area. Geophysical survey confirmed the presence of the ring ditches and trial excavation demonstrated that most of the area had been heavily truncated by ploughing and that, with one exception, the barrow mounds had been lost (Masters & Chapman 1997; Chapman 1997). The largest ring ditch, Barrow 2, still survived as a low earthwork, standing 0.2m high at ground level. While the mound had been largely lost, there was still preserved old subsoil across the central area, and this lay directly under the modern plough soil (Plate 2). The surface of this old subsoil stood around 0.5m above the truncated natural gravel adjacent to the outer ditch. This indicates that, apart from the loss of the prehistoric soil horizons, the surface of the natural gravel had also been truncated by some 0.20–0.30m by the centuries of ploughing. The inner barrow ditch was also found to contain a substantial quantity of cattle bone, an unusual occurrence for a round barrow. The river, which had been straightened when the M1 was built (Fig 3), was actively eroding the adjacent stream bank, where the outer ditch could be seen in section (Fig 4). The suspected Iron Age date of the three rectangular enclosures was also confirmed during the evaluation.

Following evaluation, the archaeological officer for Milton Keynes, Brian Giggins, decided that the six levelled ring ditches and the enclosures were not sufficiently well preserved to warrant preservation in-situ, but that mineral extraction was to be preceded by a programme of archaeological investigation comprising the excavation of all the known monuments and an intensive watching brief during soil stripping to locate and record any other features within the remainder of the area. Barrow 2 lay adjacent to the stream and could have been preserved in-situ, however, given the active erosion of the stream bank and the fact that the intact barrow would have been left isolated and vulnerable on a narrow strip of land between the stream and the quarry face, this too was included in the excavation programme (Fig 3).

Northamptonshire Archaeology was commissioned by G F X Hartigan Ltd to carry out the fieldwork. The individual ring ditches, two pit alignments and the enclosures were excavated in 1998, and a summary of the results was published in *South Midlands Archaeology* (1999, **29**, 17–20, figs 3 and 4). Through 1999 and 2000 a watching brief was maintained during subsoil stripping so that any exposed features could be recorded and examined. Two additional Bronze Age cremation

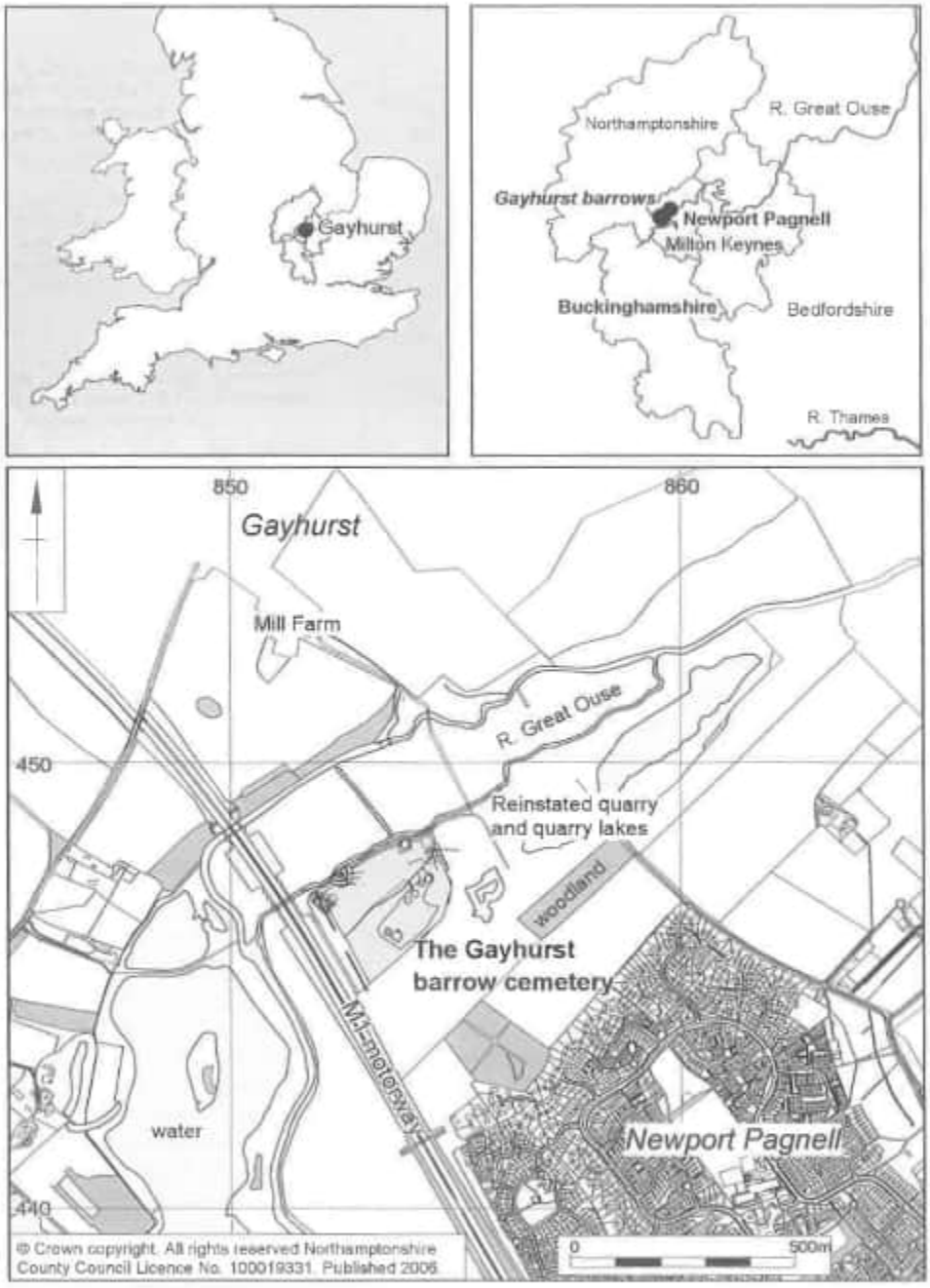


FIGURE 1 The location of the barrow cemetery at Gayhurst quarry, Buckinghamshire

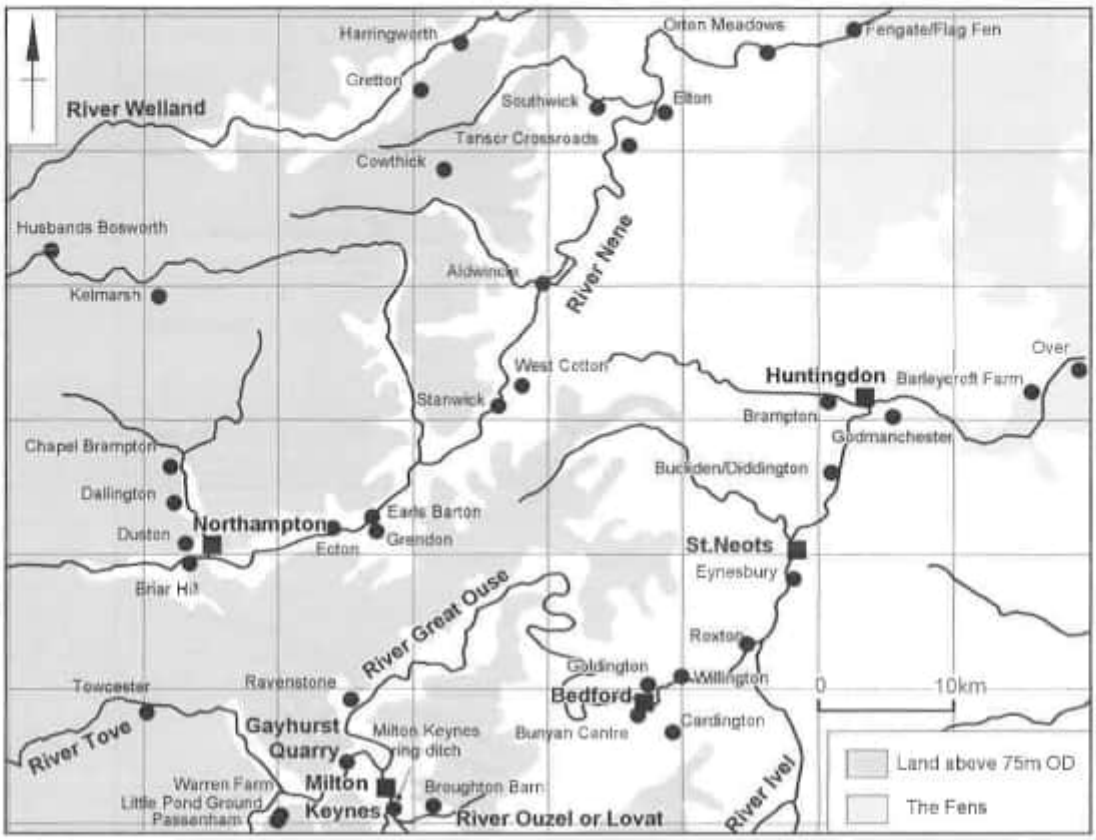


FIGURE 2 The Great Ouse and Nene valleys showing major prehistoric sites

deposits were found, along with an Iron Age pit and the recognition that a linear ditch system, initially thought to be a recent field boundary, was a further pit alignment, a length of which was excavated in 2000. The results of this work were also summarised in *South Midlands Archaeology* (2000, **30**, 21 and 2001, **31**, 25).

The total area examined in both formal excavation and by watching brief measured 270m NE-SW by 220m, an area of 5.65ha; a little less than 14 acres.

While work on the human bone, the finds and radiocarbon dating was largely carried out soon after excavation, the task of finding a suitable person to analyse the 183kg of cattle bone from Barrow 2 delayed the progress of the report. An article on the excavation and the cattle bone assemblage appeared in the popular magazine *Current Archaeology* in 2004 (Chapman 2004), with the aim of raising the profile of the site and generating interest in the bone assemblage. Shortly afterwards an agreement was reached with Sheffield University, Department of Archaeology, that the analysis could be carried out as a joint enterprise. Following the first article, we were also invited to enter the excavation for the British Archaeological Awards for 2004. The excavations were Highly Commended in the Developer-Funded Archaeology category, sponsored by *Current Archaeology*. Later that year a longer article was published in *Current Archaeology*, "Gayhurst: Reconstructing the burial rite of an Early Bronze Age Lord" (Chapman *et al* 2004) presenting the results of the analysis of the animal bone, and a shorter article by David Keys, "Buckinghamshire's sacred cows unearthed", appeared in *BBC History* magazine for February 2005.

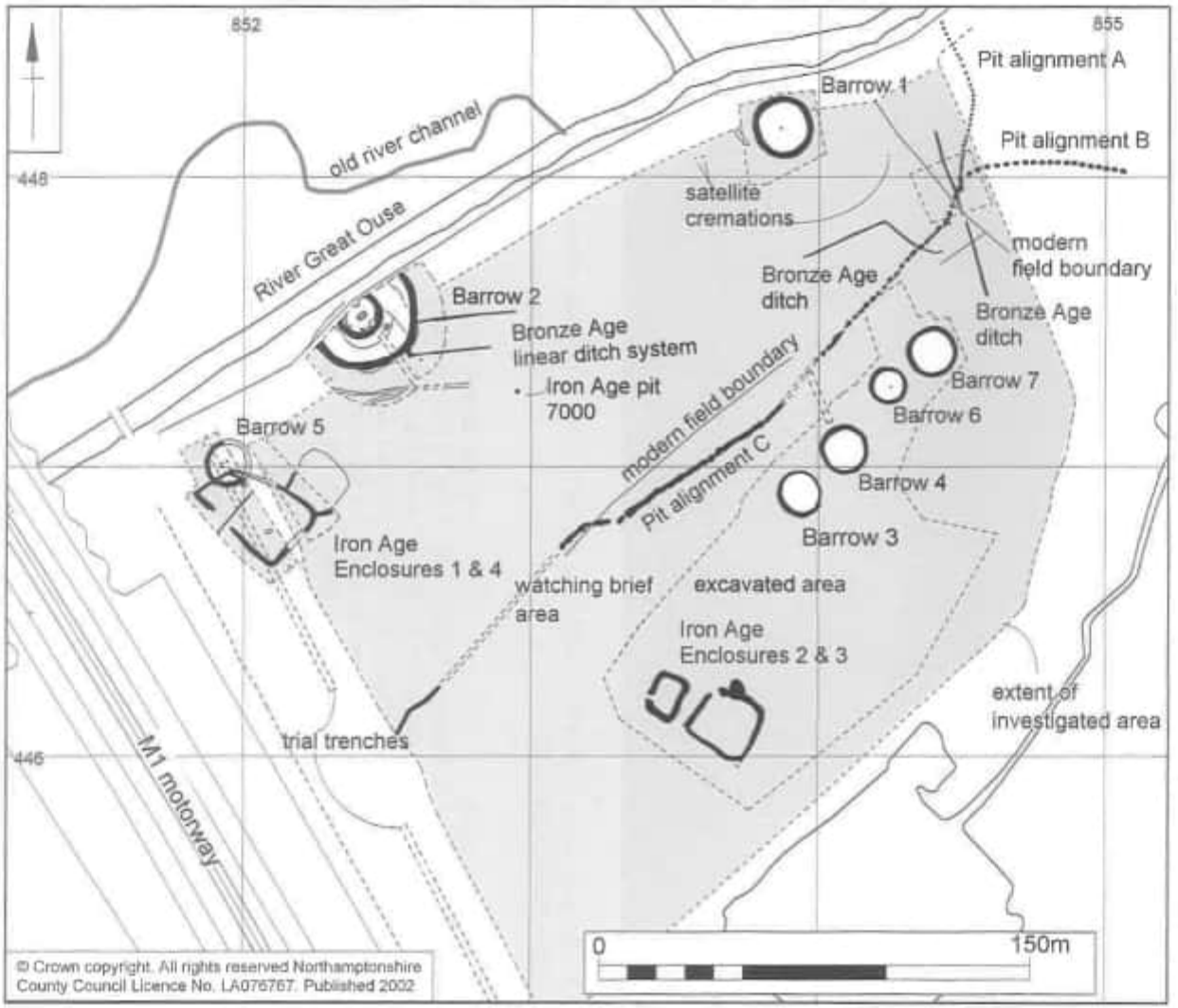


FIGURE 3 General plan of the excavated area showing the barrow cemetery, Bronze Age linear ditch systems, and the early Iron Age pit alignment and the middle Iron Age enclosures

FIGURE 4 The outer ditch of Barrow 2 visible as the darker soils within the clean gravel exposed in the eroded stream bank (Scale 2.0m)

Location and topography

The stretch of river between Newport Pagnell and Gayhurst is part of the upper reaches of the River Great Ouse. The Ouse, and its tributary the Tove, rise to the west in the Northamptonshire Uplands and flow north-eastward, over gradually levelling land, passing Bedford, St Neots and Huntingdon, on its way to the Fen edge, and eventually the Wash (Fig 2). The Lovat or Ouzel joins the Ouse in North Buckinghamshire and the Ivel to the east, in Bedfordshire. While the Ouse rises in the west, as it meanders eastward it drains a series of tributaries that run off the Limestone uplands and the Chalk ridge of the Chilterns.

At Gayhurst the river flows in two channels for just over a kilometre (Fig 1). The main channel lies at the northern margin of the floodplain, where there was once a watermill, while the southern channel carries a lesser flow. The western end of this southern channel formerly followed a more sinuous course further to the north, as indicated on the 1st edition Ordnance Survey map of 1885–86 (Fig 3). The channel was straightened when the M1 motorway was under construction, and the new channel must have sliced through the northern side of Barrow 2, removing part of the outer ditch circuit. This channel is currently reworking its own course, and is migrating southward, cutting into the north-western side of Barrow 2 (Fig 4).

The excavated area lies on sands and gravels of the first gravel terrace at the southern margin of the river floodplain, an area prone to winter flooding. The soils are characterised by the *Soil Survey of England and Wales* (1983) as Brown Soils and more specifically as an Argillic brown earth (572t); a deep, loamy soil over slightly clayey and slowly permeable subsoils prone to slight seasonal waterlogging.

The ground level, before quarrying, lay between 63.80m OD and a maximum of 64.40m OD at the centre of the low earthwork of Barrow 2.

Methodology

The excavation of the known monuments was carried out during 1998. Individual areas were opened around Barrow 1, Barrow 2, the pit alignment junction, and Barrow 5/Enclosure 4. To the south a single large area, up to 180m long, took in Barrows 3, 4, 6 and 7 and Enclosures 2 and 3 (Fig 3).

Topsoil and subsoil stripping was carried out using a 360° excavator using a toothless bucket. The exposed natural gravel was cleaned by hand as necessary to define the archaeological features. All ditch systems were sampled by cutting sections across them at regular intervals. For the smaller barrows the proportion of the ditches excavated was between 23% and 34%, while 53% of the available part of the inner ditch of Barrow 2 was excavated (Plates 3 & 4).

The watching brief on the remaining area began in the summer of 1998, concurrent with the area excavations, when the south-western end of the quarry was stripped. In the late spring of 1999 the area between Barrows 2 and 1 was stripped. In the autumn, the central area was stripped, uncovering the main length of the pit alignment. By the end of the year only a small area at the north-eastern end of the quarry remained, and this was stripped in the spring of 2000.

The stripping of the topsoil and subsoil was carried out in the same fashion as for the main excavated areas, but more rapidly and vigorously, leaving a less even and more truncated surface, but still clean enough to reveal any archaeological features. Regular visits were made in order to examine areas during or within a day or two of stripping, and there was no vehicle movement across stripped areas until they had been examined. The staff of G F X Hartigan provided every co-operation in terms of access and time for the recording and excavation of exposed areas.

Apart from numerous tree holes, a relatively small number of archaeological features were identified in the watching brief. Linear ditches to the immediate east of Barrow 2 continued eastward, and an isolated Iron Age pit was found in the same area. Two pits containing cremation deposits were found near Barrow 1, and a few further pits of pit alignment A were excavated.

However, the final stage of soil stripping in 1999 did produce a major new discovery. A discontinuous ditch running for most of the length of the quarry was recognised as a recut pit alignment (Fig 3; pit alignment C) that linked with those previously excavated at the north-eastern end of the quarry (pit alignments A and B). Its presence had not been suspected as it largely lay in an area of darker soil marks, which had obscured it. The parts that had been visible on the aerial photographs appeared as continuous ditches, and had been assumed to relate to recent field boundaries, one of which ran closely parallel to the pit alignment. In 2000, a length at the north-eastern end of this pit alignment was recorded and excavated in detail following the final episode of soil stripping, and the narrow ditches of a probable Middle to Late Bronze Age field system were also examined.

The full excavation area was the final part of the quarry to be extracted. In the latter stages of extraction the surrounding areas were already being landscaped, and this process was continued following the completion of extraction and the removal of all the associated buildings and plant. The excavated area is now a large lake, with its shape quite closely respecting the limits of the excavated area and the resultant quarry pit. To the north the lake edge runs parallel to the river apart from where it passes Barrow 2, where the edge diverts outwards, skirting the outer ditch. The unexcavated parts of Barrow 2, including the remainder of the cattle bone deposit within the inner ditch, are therefore preserved within the restored landscape.

Summary of site chronology

The archaeological features relate to three principal broad periods of use: the Early Bronze Age barrow cemetery; the Bronze Age to Early Iron Age boundaries and pit alignments; and the Iron Age settlement enclosures and subsequent Roman activity. Each period encompasses more than one phase of activity, and these are summarised below along with the broader history of local land use (Table 1).

Organisation of the report and the site archive

The report comprises three major sections, each dealing with both the excavated evidence and the finds from the major episodes of activity. More recent events are covered briefly in a further section, and the report ends with a general discussion setting the site in its regional and national context.

The site was excavated under site codes GAY97 for the evaluation and GAY98 for the main excavation and all subsequent work through to 2000. All the original site records, finds and all post-excava-

TABLE 1 Summary of site chronology

Period	*Nature of activity*
Post-glacial	Tree cover developing on the gravels
Mesolithic (c8000–5000 BC)	Deposition of microlithic flint blades
Neolithic	No certain evidence of activity
Early Bronze Age (2200–1850 Cal BC)	Origin and development of Barrow 2 Tree hole and mortuary enclosure Primary inhumation burial Mound construction Deposition of cattle bone
Early Bronze Age (1850–1450 Cal BC)	Development of barrow cemetery Enlargements of Barrow 2 and secondary burials Barrow 1 and satellite cremations Barrow 5 Barrows 3, 4, 6 & 7 Abandonment of barrow cemetery
Middle-Late Bronze Age (1450–800 BC)	Linear boundary ditches
Late Bronze Age/ Early Iron Age (800–500 Cal BC)	Pit alignments A, B & C Circular pits (alignment A) Rectangular pits (alignment B) Re-cutting as a ditch (alignment C)
Iron Age/early Roman (400BC – 1st century AD)	Small domestic enclosures (E1–E4) Inhumation burial in E1 entrance Early Roman cremation, outside E1
Late Roman (3rd-4th century AD)	Inhumation burials in mound Barrow 2
Medieval	Ridge and furrow field system Most barrow mounds levelled
Post-medieval to modern	Arable cultivation Barrow 2 levelled by ploughing

tion drawings and notes are labelled with these codes, and all of this material will be deposited in a recognised archaeological repository, the Buckinghamshire County Museum at Aylesbury, where the evaluation has been given Accession number 1999.35 and the excavation Accession number 1999.41.

Please note that the section drawings for Barrow 2 have all been compiled so that the centre of the barrow lies to the left. To achieve this it has been necessary to show a few sections as mirror images, and these are denoted by the convention (R), for reversed, following the section number on the figures. It should also be noted that one section of the inner ditch of Barrow 2 (Fig 14 & 15, S.168) included the only significant modern intrusion located on the mound, which had removed part of the bone deposit within the inner ditch. In order to portray the lost deposits the layers have been transposed from the opposing ditch section, S.164 (see Fig 7 for section locations). For the other barrows there are two sections from opposite sides of the barrow.

The Early Bronze Age Barrow Cemetery

The prehistoric topography and landscape

The aerial photographs showed a band of darker soils running the length of the area from south-west to north-east, together with a complex of side branches (Plate 1). It was assumed that these marked the course of a palaeochannel system, former river courses, perhaps both pre-dating and broadly contemporary with the barrow cemetery, with three barrows standing a little to the north and four lying immediately to the south and even partly across part of the channel system.

An attempt was made to section the main soil mark to the north-west of Barrow 4 (Fig 3). This clearly demonstrated that the soil differentiation was not the fill of an old river channel cutting the gravels, but was related to the deposition of the underlying geology. It marked a broad linear zone in which the clean gravel and sand was no more than 500mm thick, while to the north and south of this the gravel was up to 3.0m thick. Below a thin surface layer of clean gravel there were mixed clays and gravels which interleaved in a way that suggests that this roughly linear zone may have been a watercourse broadly contemporary with the deposition of the gravel itself. These gravels, sands and clays are fluvio-periglacial deposits dating to the late Devensian period, the last Ice Age cold stage, when there was a complex sequence of warmer and colder phases starting at about 80,000 BP and coming to an end at around 10,000 BP (Scaife 2000).

Once the topography of the valley bottom became essentially stable, the early Holocene (Flandrian I) period, the river would have been established in channels probably closely coincident with its present courses. With temperatures rising, the thin soils of this open, post-glacial landscape would have been rapidly colonised by juniper and birch, followed by pine and hazel, as has been established from pollen studies elsewhere along the Great Ouse and in other Midland river valleys (Scaife 2000). Subsequently, this pioneer woodland gave way to climax woodland types, oak and elm. While deciduous woodland was developing on the heavier clay soils and lime was dominant on the better drained river terraces, the wetter valley bottoms, as at Gayhurst, would have supported alder carr and willow. This warmer period spanned the Mesolithic and Neolithic, but there is very limited evidence of human activity at Gayhurst in these periods.

Within and around Barrow 1, the first area to be excavated, there were numerous irregular features within the gravel (see Fig 24). These were extensively sampled and shown to be irregular in plan and profile, and have been interpreted as tree holes derived from the first colonisation of the stable but thin soils of the valley bottom. They were typically 1.0–3.0m in diameter, occasional larger, and up to 0.5m deep. Similar features were seen across the rest of the quarry area both in the main excavation and during the watching brief. In the other excavated areas these features were recorded in plan, but were not excavated, while in the watching brief they were too numerous to record individually. There was a particular concentration in the central part of the site, with the concentration around Barrow 1 continuing southward towards the pit alignment. The fills of these tree holes were typically dark brown sandy loams, often with dark grey to near black manganese staining, and they were often darker and more obvious than the fills of both the ring ditches and the pit alignments, which they predated.

Among the small number of flint blades recovered from the site, including a few definite

microliths, two came from probable tree holes around Barrow 1, suggesting a later Mesolithic date for the loss of at least these particular trees. This may suggest that some clearance of woodland had commenced in the Mesolithic period, although the flints may merely have entered tree holes resulting from natural tree loss. They do, however, indicate exploitation of the river valley landscape in the later Mesolithic, perhaps broadly between 8000–5000 BC.

There are no flint types within the small assemblage recovered that can be dated specifically to the earlier Neolithic, although some of the ten blades could be of this date. There is no other evidence indicative of Neolithic exploitation of the local landscape.

The form and chronology of the barrow cemetery

As there are no known features and no more than perhaps a handful of residual flints that could be of Neolithic date, the Gayhurst barrow cemetery would appear to have been a completely new creation of the Early Bronze Age.

The seven round barrows may be classed as a dispersed cemetery (Fig 3). The three barrows to the north were individual monuments, standing respectively 130m (Barrows 1 & 2) and 40m (Barrows 2 & 5) apart. The other four barrows (3, 4, 6 and 7) lay 75m south of Barrow 1, and formed a tight linear group between only 4.0m and 12.0m apart, forming two pairs, and perhaps spanning quite a short time scale in construction and use. Three of the southern barrow group lay almost exactly on a common north-east to south-west alignment, at an angle of 43° to grid north, with the smallest barrow slightly offset towards the north-west.

There is no aerial photographic or geophysical survey evidence relating to the field to the north of the river, which was under pasture at the time of the excavation, but clearly this area could contain further associated barrows or other monuments.

The chronology of the barrow cemetery has been defined by a series of eight radiocarbon dates (Table 2). Seven of these dates are from samples of wood charcoal, and the eighth is from a cattle bone within the Barrow 2 cattle bone deposit. It should be noted that several of these samples included oak wood, some of which was heartwood, and these may be liable to an old wood effect, with oak heartwood potentially of some considerable age when burnt. However, the three dates that define the origin of Barrow 2 form a closely coincident group, even though two are from oak wood charcoal and the third from a bone sample.

For the benefit of future researchers, it may be noted that further charcoal samples, although sometimes of small size, were recovered and will be deposited as part of the site archive, and could be used in the future to further refine the overall chronology of Barrow 2 and the rest of the barrow cemetery.

Using the calibrated radiocarbon dates (Table 2) a general chronology can be proposed for the origin and development of the cemetery (Table 3).

Barrow 2 was the primary monument, and was initially a small bowl barrow, with the mound running to the edge of the ditch, but was later enlarged to a bell barrow form, with a broad berm between the mound and a new outer ditch (Ashbee 1960, fig 2). The three earliest radiocarbon dates are from residual charcoal, the oak lining of the primary grave, and cattle bone originally deposited on the central mound. Within the error limits, these dates could all relate to a single episode that encompassed the primary burial, mound construction and the accumulation of the cattle bone. The origin of Barrow 2 can therefore be placed between 2200 and 2050 Cal BC, and a narrower range of 2150–2100 Cal BC might be tentatively suggested.

There is also a radiocarbon date for the fourth of the five central burials in Barrow 2, and this suggests that the burial sequence was completed between 1950 and 1850 Cal BC. Taking the span of these dates, the active use of Barrow 2 would have occupied somewhere between 150 years (2100–1950 Cal BC) and 300 years (2150–1850 Cal BC). The five central burials might therefore have been at intervals of somewhere between 30 and 60 years, either one each generation or alternate generations. The author would prefer the shorter time scale, with respect for the mound maintained by the deposition of a new burial for each generation, perhaps as a direct family succession, but unfortunately radiocarbon dating is still too imprecise to allow the general construction of more precise chronologies.

Although no Beaker pottery was recovered, Barrow 2 was clearly of the right date to have Beaker associations and in terms of date, size, and the complexity of burial practice and monument

TABLE 2 The barrow cemetery, radiocarbon determinations

Laboratory and Sample No's.	*Context details*	*Sample Details*	*Conventional Age BP*	*Calibrated Age Cal BC 68% confidence 95% confidence*
Beta- 132792 GAY98/5028	**Barrow 2** Gully 5028 cutting upper fill, inner ditch	Wood charcoal, *Quercus* sp. (oak) sapwood and heartwood	3780 +/-50	2285–2135 2340–2035
Beta- 218227 GAY98/5057	**Barrow 2** Cattle bone deposit in inner ditch, 5057	Bone	3740 +/-50	2210–2040 2290–2010
Beta- 132795 GAY98/5087	**Barrow 2** Plank lining of grave, primary burial, 5086	Wood charcoal, *Quercus* sp. (oak), sapwood and heartwood	3640 +/-70	2125–1910 2200–1780
Beta- 132794 GAY98/5067	**Barrow 2** Pyre debris, 3rd secondary burial central grave, 5069	Wood charcoal, *Quercus* sp. (oak) largely sapwood	3560 +/-40	1945–1880 2010–1765
Wk- 9170 GAY98/7019	**Barrow 1** Satellite cremation	Wood charcoal *Quercus* (oak), including heartwood	3560 +/-60	1980–1770 2040–1730
Beta- 132793 GAY98/4005	**Barrow 1** Central unurned cremation, pit 4004	Wood charcoal, *Quercus* sp. (oak) sap & heartwood	3440 +/-60	1780–1680 1900–1610
Beta- 132790 GAY98/6006	**Barrow 5** Fill of pit, 6005, around urn	Wood charcoal, *Quercus* sp. (oak) and *Prunus* spp. (cherry etc)	3290 +/-40	1620–1515 1670–1485
Beta- 132791 GAY98/1047	**Barrow 6** Fill of barrow ditch, 1045	Wood charcoal, *Quercus* sp. (oak) and Pomoidae (hawthorn etc)	3230 +/-70	1540–1425 1670–1390

Laboratories: Beta Analytic Inc., Miami, Florida, USA for Beta-132790–132795 and Beta-218227 Radiocarbon Dating Laboratory, University of Waikato, New Zealand for Wk-9170 and Wk-9171

Methods: Radiometric-standard; Beta-132791, Beta-132793, Beta-132795, Wk-9170 and Wk-9171 Radiometric-extended counting; Beta-132790 and Beta-132794 Accelerator Mass Spectrometry (AMS); Beta-132792 and Beta-218227

Calibration to calendar years: INTCAL98

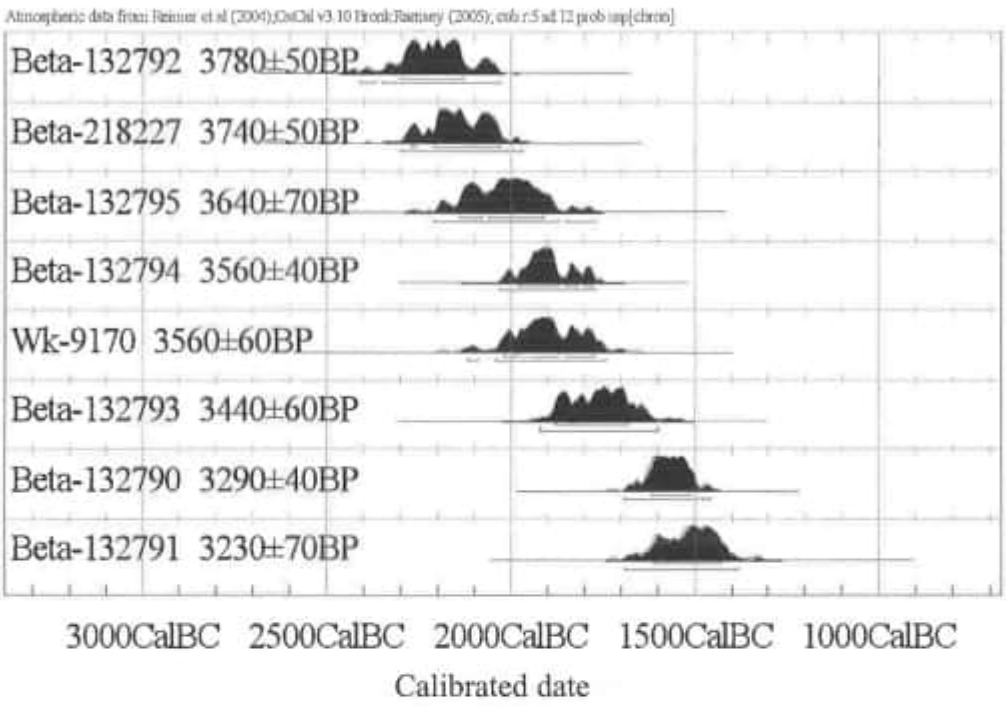


TABLE 3 The development of the barrow cemetery

Date	*Event*
2150–2100 Cal BC	Construction of Barrow 2 Primary inhumation and cattle bone deposit
2100–1950 Cal BC	Secondary burials at centre of Barrow 2 Digging of outer ditch and enlargement of mound
1950–1850 Cal BC	Re-capping of Barrow 2 Final secondary cremation deposits in centre
1850–1750 Cal BC	Barrow 1 with central cremation Satellite cremations to Barrow 1
1650–1500 Cal BC	Barrow 5 with succession of cremation deposits
1600–1450 Cal BC	The southern linear barrow group (3, 4, 6 & 7)

construction, it is closely comparable with large, multi-ditched Beaker barrows, such as those excavated in the 1980s a little to the north in the Nene valley of Northamptonshire at Stanwick and West Cotton as part of the Raunds Area Project (Harding and Healy in press; Windell *et al* 1990).

Barrow 1, to the east, which was constructed 1850–1750 Cal BC, can be seen as a direct successor to Barrow 2, its construction perhaps occurring within a generation or two of the final burial in Bar-

row 2. The satellite cremations to the west of Barrow 1 probably followed very shortly afterwards, perhaps as true satellite burials rather than as outlying secondary burials. Barrow 5, to the west, probably appeared around a century or two later, 1650–1500 Cal BC. The scatter of three cremations and other features within Barrow 5 suggest that there was either a single act of multiple burial predating mound construction, or perhaps that this was originally either a disk or a saucer barrow, within which successive deposits were made over a period of time, either covered by individual small mounds or inserted through a very low mound (Ashbee 1960, fig 2). Gravel deposited in the ditch might have been derived from a central mound, suggesting that a more substantial mound was present, even if only added as a final closing of the barrow.

Only a single radiocarbon date is available for the line of four barrows to the south (3, 4, 6 & 7) but this suggests that they were probably the last to be constructed, towards the end of the Early Bronze Age, 1600–1450 Cal BC, although they could have been contemporary with or close successors to Barrow 5. This area was more heavily truncated than the northern barrows, which may account for the absence of surviving cremation deposits.

The radiocarbon dating therefore indicates that direct use of the barrow cemetery occupied a period of no less than 500 years and perhaps as much as 800 years, spanning much of the Early Bronze Age.

It is appropriate here also to summarise briefly the later usage of the area, as these processes necessarily determined the quality of the evidence that survived to be excavated. Barrow 2, and probably all of the other barrows, stood in the landscape as grassed-over mounds for a long period. In the Middle to Late Bronze Age a field system may have been established with a pair of parallel ditches terminating on Barrow 2. The Early Iron Age pit alignments had no direct link to the barrows, although pit alignment C passed close to the southern barrow group and ran on a similar alignment, perhaps as a direct recognition of their visible presence. In the Iron Age, one of the enclosures impinged on the mound of Barrow 5, and the shallowness of the enclosure ditch at this point suggests that the ditch was climbing the slope of a substantial surviving mound. In the late Roman period, Barrow 2 was the centre for a final act of respect and re-use, around 2500 years after its construction, when several inhumation burials were inserted into the mound, which was therefore evidently still a prominent and recognised feature in the landscape.

The denudation of most of the barrow mounds, therefore, most probably occurred during the medieval period, when a ridge and furrow field system, running at right-angles to the river, developed across the area. This field system ran above all of the smaller barrows, indicating that their mounds had been levelled by this time. The margins of the mound of Barrow 2 had evidently been subject to plough damage, indicating that the ridge and furrow system ran across the filled outer barrow ditch and at least onto the margins of the mound, but perhaps not right across it. A ditch system on the same alignment as the ridge and furrow was cut into the eastern flanks of the barrow mound, indicating that the still visible mound had been chosen to mark one end of a field boundary, perhaps as part of a post-medieval system of field boundaries established after the abandonment of the ridge and furrow system. However, modern ploughing had shown no respect at all for Barrow 2, and had removed all traces of the mound itself, so that the surviving earthwork was actually the ghost of the former mound. Up to the time of excavation ploughing was cutting into the prehistoric subsoil that had previously been preserved beneath the mound. The modern ploughing was also disturbing the skeletal remains of late Roman burials, and had perhaps fully removed other similar burials.

Barrow 2, the primary monument

Barrow 2 was a double-ditched round barrow, with the outer of the two ditches enclosing an area 34.5m in diameter (Figs 5 & 6; Plates 3 & 4). It was by far the best preserved, largest and most complex of the barrows, and the story of its origins, development and re-use provides a dramatic illustration of life and death in the Early Bronze Age, and beyond. Radiocarbon dating indicates that this was the earliest of the barrows and the focus for the subsequent barrow cemetery. The sequence of development is briefly tabulated below (Table 4), and the full story unfolded event by event in all its considerable detail.

Three physically separate archaeological sequences were identified (Fig 5):

a) Five successive inhumation and cremation

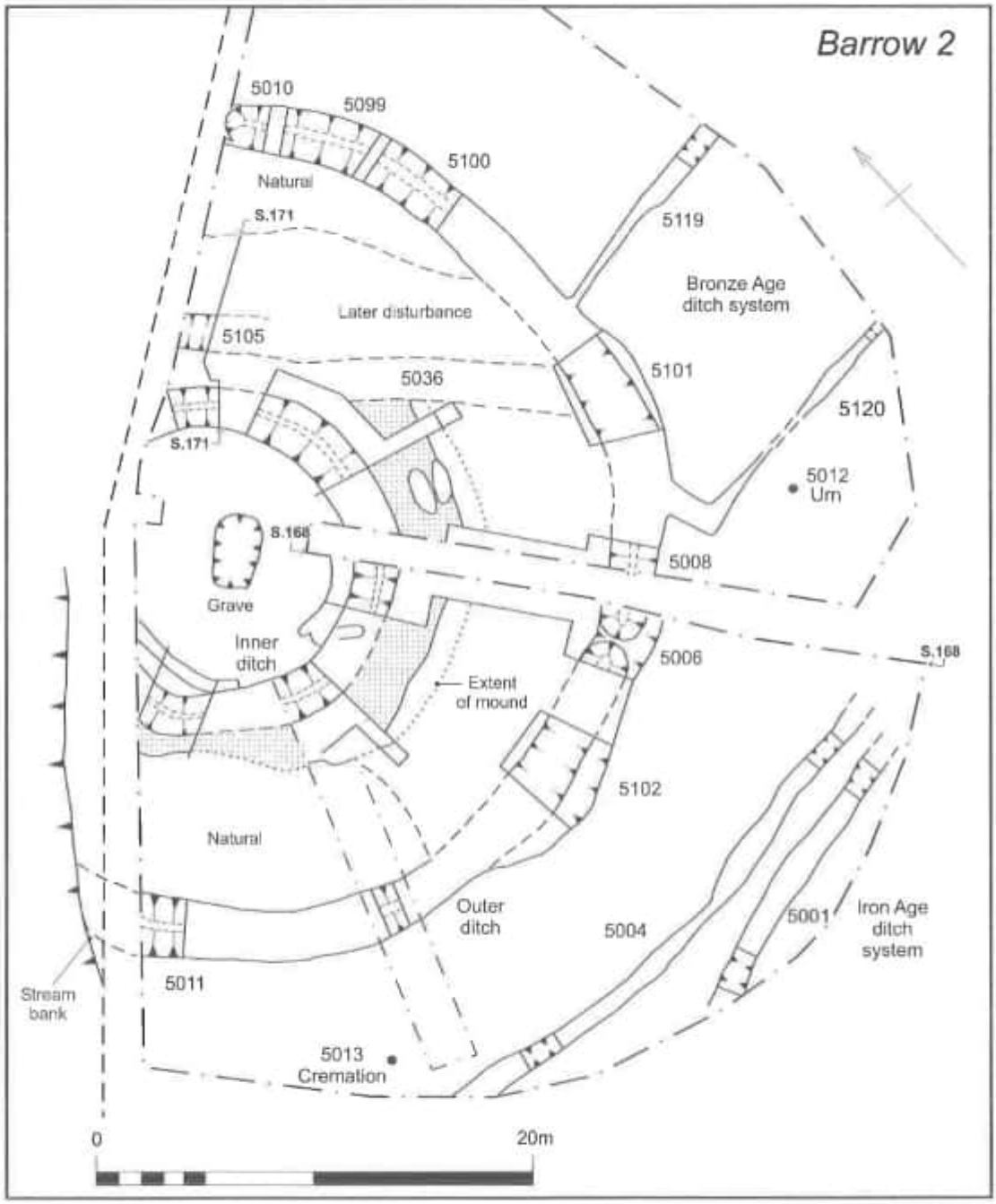


FIGURE 5 Barrow 2, general plan showing the central grave, the inner and outer ditches, the extent of the mound and later boundary ditches

FIGURE 6 Barrow 2, general view of the excavated barrow with flood water encircling the outer ditch and the raised central area, looking north-west

deposits within the central grave

b) The inner ditch, with its sequence of fills, including a cattle bone deposit, and the overlying truncated mound deposits

c) The outer ditch and its fills and isolated satellite cremation deposits

There were no stratigraphic links between these elements so, while the primary central burial, the initial mound construction and the deposition of the cattle bone can be equated, with support from radiocarbon dates, the sequence of later burials and the accompanying enlargements and refurbishments of the barrow mound can only be approximately equated.

The pre-barrow soil horizon

Across the central area of Barrow 2 the natural sand and gravel was capped by a prehistoric subsoil of red-brown, stone-free, sandy loam (Plates 3 & 4). This was generally no more than 0.20m thick, probably only a little short of its original thickness, but to the south-east of the central grave it also filled a broad natural depression in the top of the gravel. As the subsoil layer was not fully removed, this hollow was only seen in sections on and adjacent to the unexcavated baulk, but it would appear to have been an elongated tongue taking up much of the south-eastern quadrant of the barrow. At the inner edge of the inner barrow ditch it was 0.50m deep (see Fig 14, S.168; buried soil). The bottom 0.13m of the fill was recorded as slightly darker in colour than the rest of the buried soil. Beyond the inner ditch the pre-barrow subsoil had generally been removed, but the similar material filling the hollow remained in-situ, and had a maximum depth of 0.24m (see Fig 14, S.168; buried soil 5042 and Fig 15).

The stone-free nature of the subsoil suggests that the pre-barrow surface was a developed soil hori-

TABLE 4 Barrow 2, the episodes of development

Events
Pre-barrow soil horizon
The central tree hole
The mortuary enclosure
The central grave: primary burial
The inner ditch and the primary mound
The cattle bone deposit
The burial of the cattle bone
A period of abandonment
The outer ditch excavated and the mound enlarged
Gullies and a partial re-capping of the enlarged mound
A second period of abandonment
A further enlargement of the mound
The secondary burials
Satellite cremation deposits
Late Roman inhumation burials
Medieval plough damage
Post-medieval to modern levelling of mound

zon that had probably never been subject to cultivation, as otherwise it would be expected that some mixing of gravels and loams would have occurred.

The surface of the preserved subsoil lay directly beneath the modern topsoil, and to the north-west of the central grave plough marks were visible in its surface. Its presence indicates that the central area had not been stripped to the natural before the mound was constructed, although the prehistoric turf and topsoil is likely to have been removed.

The central tree hole

At the very centre of the barrow there was a shallow hollow, interpreted as a possible tree hole (Figs 5, 7 & 7, 5118). It had not been recognised in plan, as its upper fill was virtually indistinguishable from the subsoil, but was seen in the side of the excavated central grave pit (Plate 5). It may have been up to 3.0m long, and had evidently been well in excess of its surviving width of 1.0m. It was up to 0.45m deep, with a stepped edge and a concave bottom. Beneath this the surrounding gravel, for a distance of 0.15m below and 0.35m to the side, was mixed with brown sand and appeared to have been disturbed, perhaps as a result of root penetration. The fill of the main pit was homogeneous brown sandy-loam, containing very sparse small pebbles, and may have held the tree bole itself.

The mortuary enclosure

Lengths of shallow curvilinear gully to the east and west pre-dated the inner barrow ditch and appear to have formed the primary enclosure of the central area (Fig 7, 5018/5061 and 5032). One possibility is that this enclosure was centred on the tree hole to mark and preserve its location in preparation for the subsequent burials and barrow construction.

The mortuary enclosure comprised an interrupted gully system, with a 3.4m wide opening to the south, and was perhaps fully open to the north. It may, therefore, have been horseshoe-shaped, 9.5m wide by 8.0m deep, with the tree hole and the central grave situated inside the two horns of the enclosure.

The eastern gully was 10m long, and along its southern half there were two phases (see Fig 14, S.168; 5018). The earlier gully was at least 0.50m wide by 0.10m deep, with a flat bottom. It was filled with red-brown sand, identical to the pre-mound subsoil and was only distinguished from it by the presence of some gravel inclusions. The recut was 0.6m wide by 0.12m deep, with a flat bottom. Along its entire length it had been filled with clean gravel, which was probably a deliberate infilling at the time of the creation of the primary barrow mound. The western gully was up to 0.60m wide by 0.17m deep, with a bowl-shaped profile, and was filled with gravel in a matrix of brown sand, but lay in an area disturbed by recent ploughing (see Fig 13, S.167; 5032 and Plate 11). The shallowness of the surviving gullies might suggest that they had been cut from the original prehistoric ground level, and were therefore originally somewhat deeper.

The primary burial

The central grave of Barrow 2 was exceptional in containing a sequence of five successive burials (Figs 8 & 9). The primary inhumation burial had lain within a timber chamber and following the collapse of this chamber further burials had been inserted into the fills of the grave pit. They comprised a cremation deposit, a second inhumation, a further cremation and, finally, a cremation within a Collared Urn, which lay level with the surface of the preserved prehistoric subsoil. The primary burial is described below, and the secondary burials will be considered later, set within the broader sequence of barrow development to which they were related. For the upper levels of the grave a composite section was maintained as the upper four burials were excavated. It was not practical to maintain this through the looser and very mixed lower fills, and this part of the section (Fig 9) has been reconstructed from a series of plan drawings, which are not all reproduced in this report.

The grave pit lay just east of centre with respect to the inner ditch, cutting one edge of the tree hole (Fig 7). It was aligned north-east to south-west, at an angle of 51.5° to grid north, somewhere near the direction of midsummer sunrise. It was sub-rectangular, with near vertical sides and a flat bottom, 3.50m long by 2.15m wide and 1.50m deep (Figs 8–10).

The primary inhumation burial lay on the clean gravel at the base of the pit, indicating that it had not been within a coffin (Figs 8 & 9; Plate 6). However, a number of features indicated the former presence of a rectangular timber-walled and roofed chamber. The timber walling was denoted by the survival of patches of carbonised wood in the south-east corner (5087) and grey-black soil stains

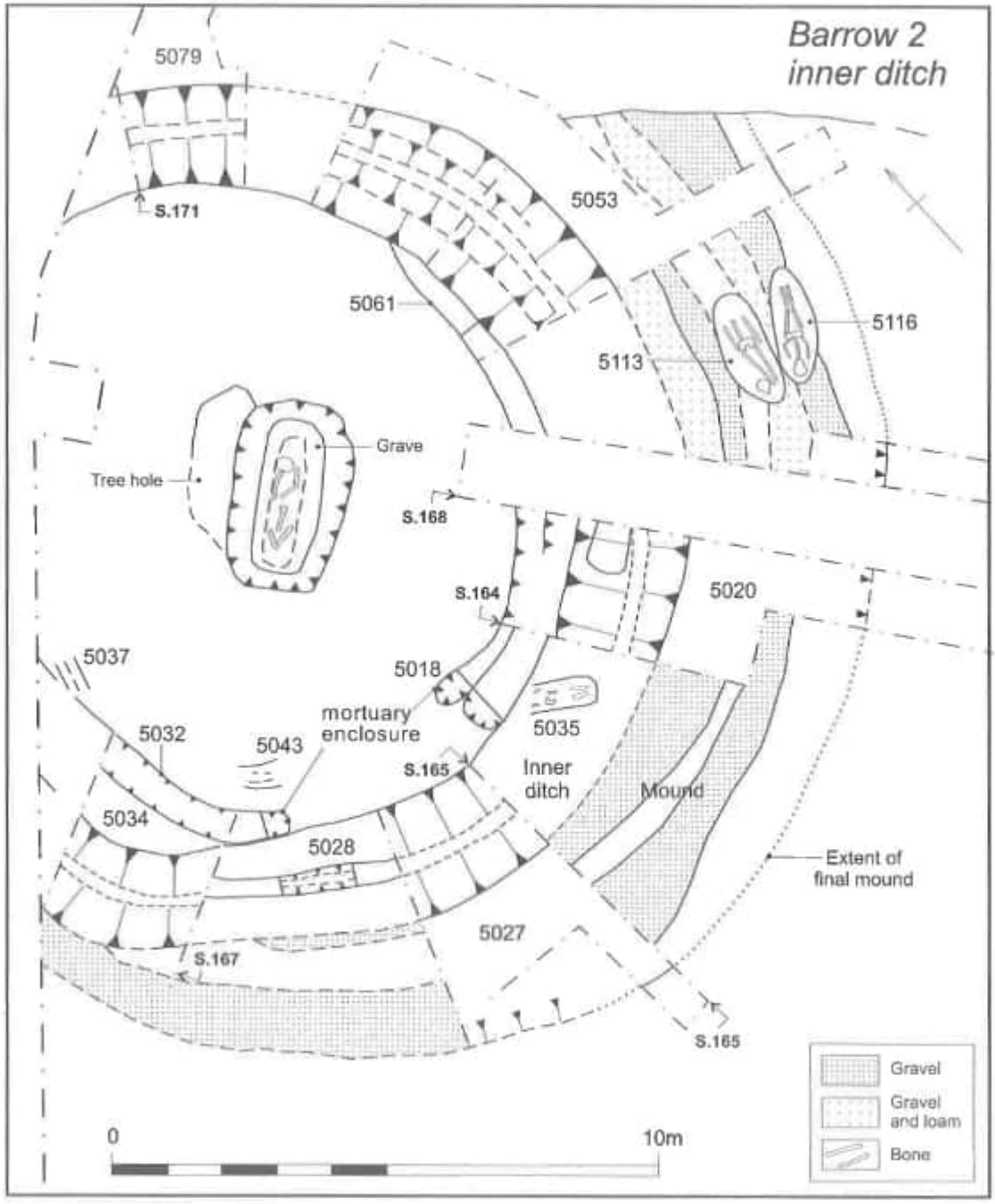


FIGURE 7 Barrow 2, showing the central grave, the mortuary enclosure, the inner ditch and the Roman burials (5035, 5037, 5043, 5113 and 5116)

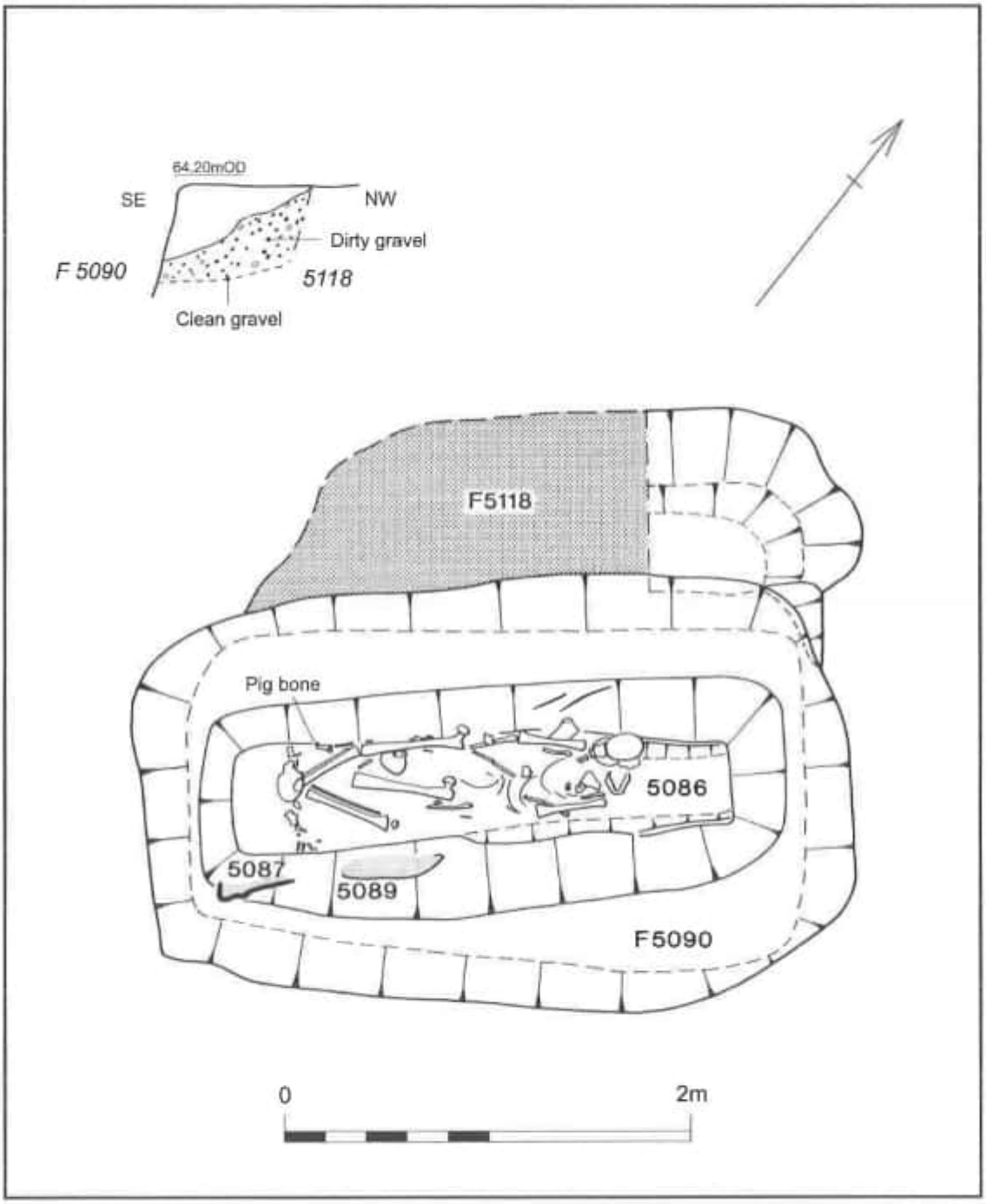


FIGURE 8 Barrow 2, the tree hole (5118) and the primary burial (5086), and section of tree hole

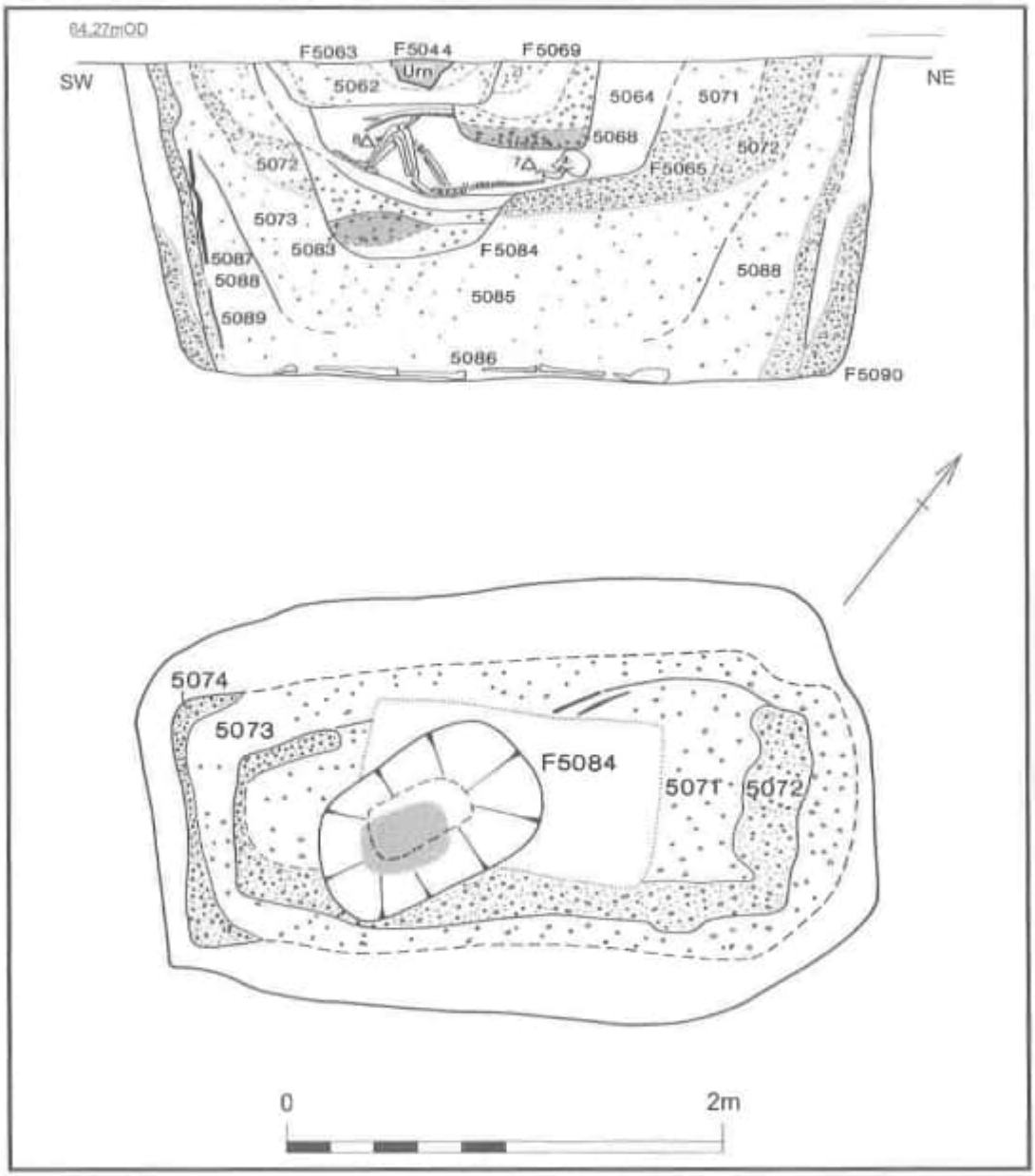


FIGURE 9 Barrow 2, section of central grave showing the entire burial sequence, and plan of secondary cremation (5084) cut into the gravels and soils filling the primary grave

(5089) against part of the south-eastern side of the grave (Figs 8 & 9; Plate 7). There were also some less well defined soil marks on the north-western side of the grave. These deposits were near-vertically inclined and it would appear that at least parts of the surfaces of plank-like timbers used in the construction of a timber-lining had been deliberately burnt, perhaps with the idea of hardening them. The wood has been identified as oak (*quercus* sp.) with both heartwood and softwood present.

FIGURE 10 Barrow 2; excavating the primary inhumation burial within the deep central grave

The space around the chamber was filled with sand and gravel, and stone-free, red-brown sandy loam, which was redeposited subsoil, but between this and the charcoal deposits there was a vertical band of clean fine gravel and sand, particularly well defined at the south-western end of the grave (Fig 9, 5074). It is suggested that this material had trickled down to fill the void left by the decay of the timber walls of the chamber, with only the carbonised areas of wood surviving. If so, this would suggest that the timbers had been around 50mm thick. In section, the best preserved stains and charcoal (5087) were seen as a near-vertical line rising to a height of 1.0m above the bottom of the grave (Plate 7). The upper part zigzagged, presumably where the timber had folded up on itself as it decayed. The adjacent vertically inclined tips of gravel against the sides of the grave cut, suggest that the timber chamber had stood to the full depth of the grave, 1.5m (Fig 9). The timber walls stood some 0.2m from the ends of the grave and around 0.5m from the sides, and would have formed a chamber 2.7m long at the base of the grave. The width is less easily determined. The fills and wood stains higher in the grave indicate a width of at least 0.70–0.80m, and perhaps as much as 1.0m, but the skeleton was confined in a zone no more than 0.55m wide, unless this represents some secondary container for the burial that was set within the wider timber-lined chamber.

Oak charcoal from the timber walls of the chamber has provided a radiocarbon date of 2200–1780

FIGURE 11 Barrow 2, the pig foreleg reassembled from the bones deposited by the legs of the primary inhumation burial (5086) (Scale 20mm)

Cal BC (95% confidence, 3640+/-70 BP, Beta-132795). This is comparable to dates from some residual charcoal and from the cattle bone (see Table 2), and together they indicate a construction date for the barrow of 2200–2050 Cal BC, and perhaps more specifically 2150–2100 Cal BC.

The primary inhumation burial had been laid on the gravel at the base of the pit, in a supine and extended posture, with his head to the north-east (Fig 8, 5086; Plate 6). He was a robust young adult male, 25–29 years old at death and 1.765m (5' 9¾") tall. He had been in good general health, with all his teeth and no cavities, although he did have some osteoarthritis in his lower back. Given the complexity of the rest of the associated burial rite, it was a surprise, and a disappointment to the excavation team, that the only item accompanying this young man was a foreleg of a young pig (Fig 11). It had been laid against the side of the chamber near the right knee, presumably as a leg of pork forming a food offering (Fig 8).

The presence of a roof to the chamber was indicated by a grey deposit immediately over and around, but not beneath, the skeletal remains, and this is assumed to have come from decayed wood that had fallen onto the skeleton. The steeply-tipped grave fills above the burial also support this interpretation (see below).

The skeleton was disarticulated with the bones displaced to greater and lesser extents. The skull had been knocked sideways and was flattened, while the lower jaw had been left in a more central position. The major limb bones were all roughly in position, although the lower arm bones were scattered and the left femur had been displaced. Both sides of the pelvis were also markedly displaced, and lay near the foot of the grave. The ribs and vertebrae were scattered and crushed, and few were recovered intact.

The displacement of the bones and the disarticulation at the major limb joints shows that this scattering took place only once the soft tissues and the

ligaments at the joints had fully decayed, probably a year or more after burial. Exactly how long cannot be determined as it would have depended on the unknown fine details of the micro-environment within the chamber. It is suggested that the disturbance was at least largely the result of the progressive collapse of the roof of the chamber, with wood, gravel and sand falling onto the skeletal remains and causing them to bounce around within the open chamber, although a contribution from animal disturbance cannot be entirely discounted. The first stage of this process appeared to involve material coming in around the junction of the walls and the roof of the chamber, and forming a compact deposit of mixed sands and gravel steeply tipped against the chamber walls (Fig 9, 5088). The second stage comprised a looser fill of sand and gravel (5073 & 5085). This probably cascaded in quite rapidly as the roof finally gave way completely; although if it was a plank construction there may have been more than one episode of collapse.

The sand and gravel that fell into the grave following the collapse of the chamber roof had evidently come from the overlying mound, and will be discussed below as it provides the only evidence for the nature of the primary barrow mound. However, it is possible that the resulting hollow in the centre of the mound was never fully restored, so that it provided a very visible target for the location of the subsequent four burials, as discussed later, which all lay precisely above their predecessors.

The inner ditch

The inner ditch of Barrow 2 enclosed an area 12.3m in diameter (Fig 7; Plates 3–4). The arc of the ditch was closely circular from the north-east to the south. To the south-west there was a 5.0m length that followed a flattened arc, with an abrupt change in direction at the end of this length, next to limit of excavation. The centre for the circular arc lay just to the north-west of primary grave, and above the tree hole, which provides further support for the suggestion that the tree hole determined the barrow location.

The ditch was up to 2.4m wide to the east, but narrowed to 1.75m in the north-east and also to the south and south-west. It was 0.95–1.07m deep, with a V-shaped profile (Figs 13–17; Plates 11–12). The upper edges showed little evidence of natural erosion from prolonged exposure, suggesting that they were covered quite rapidly. The only exception was a length of ditch to the north-east, and here the eroded inner edge was directly overlain by raked down mound material and the bone deposit, perhaps suggesting that the edge was itself disturbed during the process of burying the bone deposit.

Measured along the centre of the ditch, the circumference of the entire circuit would have been around 44m. A length of 28.7m was exposed and 15.2m was excavated. The excavated portion was therefore 53% of the available length and approximately 34.5% of the whole circuit.

Outside the inner ditch, later soils and mound deposits directly overlay either natural gravel (Fig 13, S.167 and S.165 and Fig 16, S.171) or the subsoil filling the hollow to the south-east (Fig 14, S.168 (164); 5042), indicating that the area surrounding the inner ditch had been stripped of both topsoil and much of the subsoil, presumably to contribute to the raising of the primary mound. Whether the turf and topsoil was stripped off the central area prior to mound construction cannot be determined, although the subsoil was evidently left intact.

Given the loss of the central mound, the sequence of mound construction, as described below, has been reconstructed from the evidence provided by the five sections that were excavated across the inner ditch (Fig 7; 5034, 5027, 5020, 5053 & 5079). The section faces showed both the sequence of inner ditch fills and the overlying ring of mound deposits that had been lost across the central area but still survived above and immediately outside the inner ditch (compare Figs 7 and 18). The ditch fills and mound deposits were individually numbered in each of the sectioned ditch lengths (Figs 13, 14 & 16) and further information was provided by the plan record of these deposits. From these two sources the layers seen in each section have been equated and a full sequence of development has been reconstructed (Fig 18). A concordance for the numbered contexts for both the inner ditch fills and the mound deposits is also provided (Table 5).

The primary mound

As no in-situ mound survived within the central area of Barrow 2, the make-up of that mound can only be determined by the nature of the material slumped into the central grave and forming the secondary fills of the inner ditch which surrounded it. The digging of the ditch would clearly have pro-

vided quantities of clean gravel and sand, while the stripping of the turf and topsoil from over the ditch, and perhaps from an extensive area beyond this, would have provided quantities of red-brown to brown sandy loams.

When the roof of the burial chamber gave way, the sand and gravel that fell into the grave had presumably formed the body of the overlying mound (Fig 9, 5088 and 5073/5085). This material was quite mixed, varying from clean sands and gravel to gravel in light-brown gritty sand, and including red-brown sandy loams from the subsoil. At the centre of the collapsed chamber it accumulated to a depth of 0.70m. This mixed deposit was overlain by a clearly defined layer, up to 0.30m thick, of clean gravel, which may have formed a gravel cap for the original mound (Fig 9, 5072). Its outer edges were steeply inclined against the underlying material, and there was a well-defined central hollow that may at least partly have been a result of subsequent subsidence of the loose fills beneath. There was therefore a 1.0m deep accumulation of material, suggesting that the primary mound had stood no more than 1.0m high. It should be noted that there was no animal bone in these deposits, so cattle bone had evidently not been laid across the central part of the mound above the grave. Above the clean gravel there was a layer of mixed gravel and medium brown sandy loam, which may have been introduced to at least partially infill the hole in the top of the barrow mound resulting from the collapse of the primary burial chamber (Fig 9, 5071).

The presence of a primary mound of mixed gravel and loam capped by a distinct layer of clean gravel was also indicated, if less clearly, by the nature of the secondary fills of the inner ditch (Figs 13, 14 & 16). In the section to the south there was a deposit of clean gravel against the ditch side, containing a few pieces of cattle bone, which may have been a localised collapse of gravel capping at the outer edge of the mound (Fig 13, S.165; 5025). The fill above, which contained the bulk of the cattle bone (5024), was more mixed, comprising red brown sandy loams with varying densities of gravel inclusions. This was typical of the gravel and bone deposits around the entire circuit. This might suggest that the capping of clean gravel was thinner around the margins of the mound, or that the deposits became mixed as the cattle bone and underlying mound material was being raked down into the ditch.

The primary mound can therefore be characterised as gravel-capped, perhaps standing around 1.0m high, and running to the very edge of the surrounding ditch, so that the original form was a ditched bowl barrow (Ashbee 1960, fig 1).

The cattle bone

The feature that makes Barrow 2 unique is the exceptionally large quantity of cattle bone which had originally been deposited around the margins of the central mound, and was later raked down into the ditch and buried (Fig 12; Plates 3, 8 & 9). A total of 183kg of cattle bone was recovered from the excavation of the five lengths of the inner ditch, which comprised about half the available length of the circuit, or about a third of the total length (see quantification of the inner ditch circuit presented above). Although there was some variation in the density of the bone deposit, it was present in all the excavated sections. It is therefore reasonable to suggest that the recovered material is probably about a third of the total deposited, and all quantifications can therefore be multiplied by three to provide a reasonable estimate of the full totals.

Given that the bone was recovered in a secondary location, the nature of its deposition is subject to interpretation utilising the results of the detailed analysis of the bone by Karen Deighton and Paul Halstead, which is presented separately. This evidence is summarised here in its chronological sequence; from the herd of cattle to the burying of the bone in the barrow ditch.

A sample of cattle bone has given a radiocarbon date of 2290–2010 Cal BC (95% confidence, 3740 +/- 50 BP, Beta-218227, see Table 2) which, within the limits of accuracy provided by radiocarbon dating, can be considered to be broadly contemporary with the date obtained from the oak lining of the primary grave, indicating that the deposition of the cattle bone did accompany the primary burial and probably comprised the remains of animals that had been killed shortly before for this specific purpose, rather than using bones retained in the community over a more extended period of collection.

The herd

In order to determine the number of animals that had contributed to the cattle bone deposit, the humerus was chosen as the best-preserved body part. The total of 102 humeri, with no plausible pairs, is therefore taken as the minimum number of

TABLE 5 Barrow 2, context concordance for inner ditch fills and mound deposits

location of ditch & context number (Section number) (S.171)	*South-west 5034 (S.167)*	*South 5027 (S.165)*	*South-east 5020 (S.164 & 168)*	*East 5061*	*North-east 5079*
Topsoil	In baulk removed	Machine	In baulk	Machine removed	In baulk
Post-mound subsoil	Not present	5009	5009	5060	Lost to disturbance
further gravel mound (M3)	Not present	5026	5019	5059	Lost to disturbance
Upper loam layer (L2)	Not present	5040	5038	5058	Lost to disturbance
Gully	5028	5028	Not present	Not present	Not present
Shallow recutting	5029	5021	5014	Not present	Not present
partial gravel recapping	Not present	Not present	Not present	(5096) 5095	Not present
new gravel mound (M2)	5033	5022	5015	5055	5076
Loam layer (L1)	5030	5023/5048	5016	5056/5097	5077
Gravel & bone deposit	5031	5049 5024	5017 5017	5057 5070	5078
Secondary fill	5051	5025	5046	5092	5103 5093
Primary fill	5052	5050	5047	5094	5104
Inner ditch	5034	5027	5020	5053	5079
Mortuary enclosure	5032	Not present	5018 phase 2 5018 phase 1	5061	Not present
Pre-barrow soil horizon	Not present	Not present	5042	5098	Not present

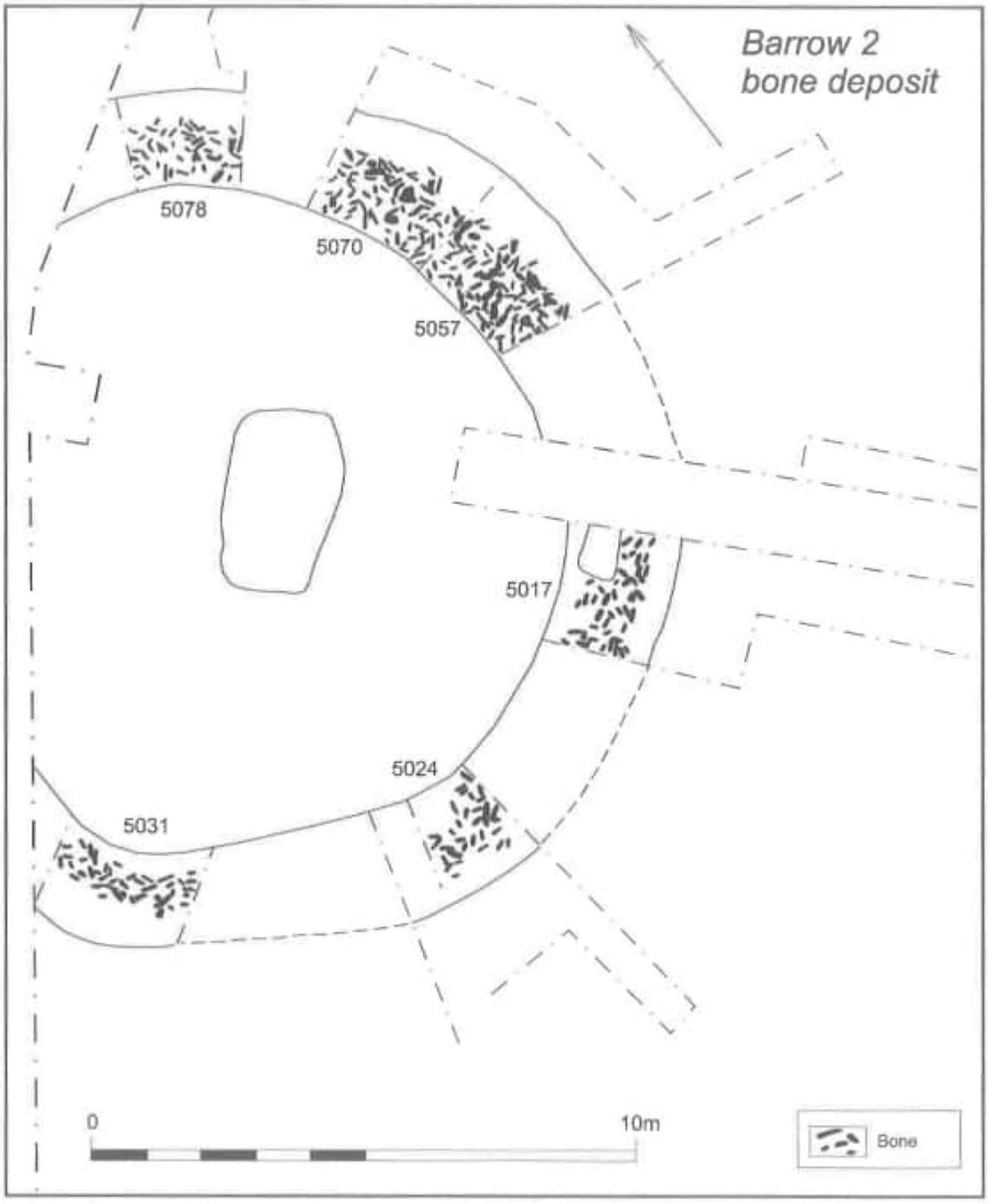


FIGURE 12 Barrow 2, the distribution of the cattle bone within the inner ditch, as reconstructed from the photographic record

animals in the recovered assemblage, from which a total for the entire circuit of some 300 animals is obtained. The values for the other major long bones are also closely comparable to this total (see Plate 10).

Examination of the pelves suggests a ratio of four females to each male, and bone fusion and dentition indicate that a wide range of ages are present, from yearling to fully adult. This suggests that the herd was culled fairly equally, with no obvious preferences for, say, prime steers or elderly cows. However, the assemblage does include extremes of gracile and robust specimens, and it is possible that the cattle had come from several different herds, which may explain how such large numbers were obtained in a short period of time. This conclusion suggests that it was not animals just belonging to the deceased that were slaughtered, but that several herds presumably belonging to other families or local groups each contributed animals to honour the passing of the man occupying the central grave. No exceptionally large bones are present, so there is no indication that any wild cattle or aurochs were included.

The slaughter

The most difficult question to answer definitively is: what happened to the cattle before their bones were deposited on the barrow? Only about 2% of the bones bear recognisable cut marks, and it has been suggested that these were probably made with a bronze knife. Most of these are very fine and while it is likely, given the slightly eroded surface condition of the bone, that other cut marks will have been lost, it appears that butchery was not carried out systematically. In addition, all the cut marks that are visible can be attributed to filleting, the cutting prime meat joints from the bone. No cut marks are in the positions relating to the skinning and dismembering of carcasses, such as on the ends of the larger foot bones, the metapodials. It would therefore appear that while choice meat cuts had been removed from a few animals following slaughtering, and were no doubt cooked and consumed, the animals were not systematically skinned and dismembered any further. The extent of meat joint removal could be seen as just sufficient to feed those carrying out the slaughter, and not the basis for large-scale communal feasting.

As the animals had not been skinned and dismembered, it would appear that the carcasses must have been left for the soft tissues to decay naturally. Given the number of animals represented, exposure seems to be a more practical method than burial and certainly the faster option, as an exposed carcass will always decay quicker than a buried one. The body part representation shows that complete carcasses were not deposited on the barrow, so the cattle were evidently slaughtered elsewhere and left to decay to a skeletal state before any remains were brought to the barrow.

However, it is notable that only about 2% of the bone has any recognisable traces of having been gnawed by dogs. In addition, a high proportion of the bone (at least 29% of long bones) were whole until they were incorporated into the barrow ditch, also indicating that these prize meat joints had not been open to access for scavenging animals to crack open and, similarly, they had not been cracked open by humans either.

We therefore have a scenario in which numerous cattle carcasses were left to decay, although not necessarily all at a single location, and were protected sufficiently to keep scavenging animals from having their own feast. This suggests that the cattle were exposed above ground and left to decay to a skeletal state, a process known as excarnation, on a grand scale. As the smell would have attracted every carnivore for miles around, this must have taken place within a secure enclosure with people continuously present to ward off the attracted animals.

No time-scale can be suggested for the duration of this process, as the process of decay is dictated by numerous factors, most of which we cannot know. Time of year is crucial, as temperature and humidity levels are important factors, but the way in which the animals were distributed, spread-out or in heaps, would also have a major influence on the rate of decay. However, even in the most favourable circumstances to promote decay, it must have taken many weeks and probably several months for the carcasses to reach a state where they could be pulled apart without use of a knife.

The bone collection

Once the carcasses had decayed sufficiently to be dismembered without extensive cutting of ligaments, which would have produced cut marks, a selection of the bones were removed and then brought to the barrow for deposition. The body parts recovered show that there were very specific

preferences in the selection of these bones. The preferred choice was the major limb bones, those that would have once held the prime meat (Plate 10). So, what was being deposited was not actual feasting debris but the bones that provided the physical representation of a feast. Perhaps, it was a symbolic feast for the dead. The major limb bones came from a minimum of some 90–100 animals, which can be multiplied by a factor of three to give a total of 270–300 animals for the entire ditch circuit. A curiosity here is that despite the presence of so many complete or near complete limb bones, during analysis no matching pairs could be found. This, and the consistency of the overall numbers for fore and rear limbs, would suggest that perhaps only a single fore limb and rear limb was taken from each carcass. This might suggest that the remains were actually equally shared among the living and the dead. The absent limbs may have provided a feast for the living, with the bones from these joints not coming to the barrow mound for deposition.

There is an absence of smaller foot bones but the larger foot bones, the metapodials, are present in some numbers. This might suggest that the carcasses were sufficiently decayed for all the small foot bones to have fallen off, but that some metapodials were still attached to the legs, and were therefore collected along with them.

The second choice for bone selection were skulls and mandibles, which came from some 50–60 animals, to give a total of 150–180 animals when multiplied by three to account of the entire ditch circuit. This is just over a half the number represented by the limb bones. Many of these, particularly the skulls, were poorly preserved and fragmented, and the overall number has been estimated by counting the recovered loose teeth. In the detailed photographic record of the bone deposits only two semi-intact skulls can be recognised, and both lay close together on the eastern side of the ditch circuit (Plate 9, top and bottom left). Slightly more mandibles are evident in general, but with a particular cluster on the eastern side of the ditch circuit near the two skulls. It would therefore appear that either few skulls had been brought to the mound intact, or that they had suffered much damage before they were deposited in the barrow ditch.

Despite being large bones that would form a significant proportion of a full carcass, vertebrae were quite uncommon and ribs were very scarce, indicating that they were largely deliberately excluded from collection. The atlas and axis vertebrae may be slightly more common than vertebra in general, with examples coming from some 28 animals, or up to 85 animals for the full ditch circuit. It is possible that at least some of these came to the barrow still attached to skulls.

The deposition of the cattle bone

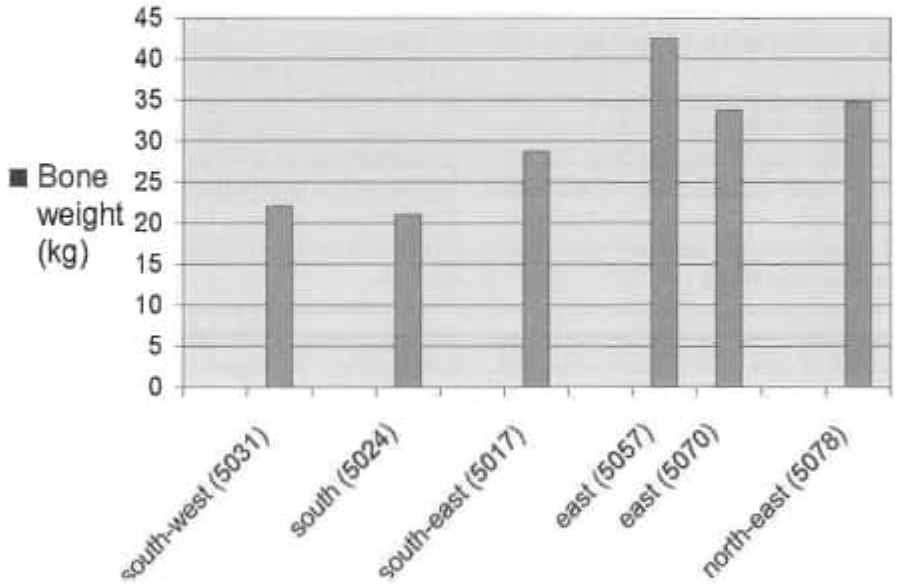
Given the nature of the final deposition of the bone within the inner ditch of Barrow 2 (see below), it has been concluded that the bone was originally spread across the gravel surface of the barrow mound. However, as no cattle bone was found within the upper fills of the central grave, which included mound material that had slumped in when the plank-lined burial chamber collapsed, the bone must have lain around the sides of the mound, but not across the central area.

Whether it was strewn across the surface or arranged more carefully cannot be determined, but as the six excavated segments of the ditch were of near-equal length, the quantity of bone redeposited can be used as an indicator of the varying density of distribution and of the distribution of body parts, as it seems likely that the material in the ditches came directly from the adjacent part of the mound.

The tabulation of the recovered bone weights per ditch-segment, show differences that are sufficiently large to suggest that the consistent pattern reflects real differences of deposition and is not merely random variations about a mean (Table 6). The material shows a distinct concentration across the eastern quadrant of the mound, declining slightly to the south-east, and is at its lowest to the south and south-west (Table 6 & Fig 12). So, while it would appear that the deposit had fully encircled the mound, there was a distinct preference for deposition on the eastern side. The distribution around the ditch circuit by body parts (see bone report, Table 10), does not reveal any pattern to the location of particular body parts, which all occur in roughly the same proportions around the circumference of the mound. The appearance of the only two skulls recognisable in the photographic record, and the similar excess of mandibles on the eastern side, as noted above, is therefore only reflecting the general concentration of all bones on the eastern quadrant of the ditch circuit.

TABLE 6 Barrow 2, distribution of cattle bone around the inner ditch circuit

Ditch segment (bone context)	*Bone weight (kg) (average = 30.47 kg)*	*Percentage of total bone (average = 16.67%)*
South-west (5031)	22.04	12.05
South (5024)	21.07	11.52
South-east (5017)	28.70	15.70
East (5057)	42.57	23.28
East (5070)	33.70	18.43
North-east (5078)	34.80	19.00
Total	**182.88**	**100.00**



Whether the bone was deposited as a single act or accumulated over a longer period cannot be determined specifically, but while the bone shows some signs of exposure to the elements, with eroded surfaces and some longitudinal splitting, this is not extreme and it appears that the bone had probably been exposed to the elements for no more than a few weeks or a few months at most. It therefore seems likely that while the accumulation of the bone, through slaughter and exposure of the carcasses, would clearly have taken at least some months to complete, deposition on the mound may well have been a single act that was the culmination of the rites associated with the primary inhumation burial, and may have occurred many months after both the burial and the construction of the overlying barrow mound.

Ditch silting

Following the excavation of the inner ditch, the construction of the primary mound and, at some subsequent stage, the deposition of the cattle bone onto the mound, there was a period of stability in which natural silts accumulated within the base of the inner ditch. In all sections, a primary silt of clean gravel in a variable matrix of yellow-brown to red-brown sand, had accumulated to a depth of around 0.25m (Figs 13, 14 & 16; S.167, 5052; S.165, 5050; S.168, 5047 & S.171, 5104). In some sections this could only be seen as a single homogeneous deposit, while in others there were distinct lenses with variable quantities of gravel and variations in the sand matrix. Such primary silting can accumulate quite rapidly within a ditch, and certainly over the course of a single winter.

Many of the ditch sections also showed the accumulation of a lower secondary fill, implying a longer passage of time, perhaps a year or more. The secondary fills were quite variable around the circuit. In some instances the secondary fill was largely derived from around the outer edge of the ditch. In these instances it comprised a medium brown sandy-loam containing a little gravel, suggesting that there was still some intact subsoil outside the inner ditch circuit (Fig 13, S.167; 5051 and Fig 16, S.171; 5103). The secondary fill was particularly well defined and thick to the south-east (Fig 14, S.168; 5046), where the ditch cut through the pre-mound subsoil where it filled a hollow in the gravel (5042). Here, the fill was a red-brown to brown, sandy loam virtually free of stones, and almost identical to the buried soil.

In some sections there was also a significant secondary fill against the inner edge of the ditch, and this always contained more gravel. To the south it was particularly well defined as a tip of clean gravel that also contained a few pieces of cattle bone (Fig 13, S.165; 5025). This may have rapidly accumulated from a slump or collapse of part of the mound adjacent to the ditch. To the east and north-east there were mixed sandy loams and gravels against the inner edge that had accumulated more slowly (Fig 16, S.171; 5103).

The burial of the cattle bone

As demonstrated above, the silting of the ditch was already underway before the cattle bone was raked down to be buried and concealed in it (Plates 8 & 9), perhaps as the deliberate closure of a prolonged series of events honouring the individual within the central grave. This extended sequence of burial rites, spanning at least many months and perhaps a year or more, show that the social context of the creation of this mound was of great importance to the community involved, and it had a social role that extended far beyond the burial and commemoration of a single individual.

As recovered, the cattle bone formed a disordered and tangled mass, with the largely intact long bones orientated at every possible angle (Fig 12; Plate 9). It was mixed with quantities of gravel and sand that had presumably formed the body of the barrow mound on which the bone had sat.

In each length of ditch there was a concentration of bone in the central hollow directly above the lower secondary fill, which accumulated to a depth of 0.20–0.25m (Figs 13–17; Plates 11 & 12). Generally, the bone only extended part-way up the side of the ditch, but in a short length to the south (Fig 13, S.165; Plate 12) and along much of the eastern quadrant the deposit was at its greatest density, and bone lay level with the truncated subsoil, vividly illustrating how it had been raked down from the mound.

To the south, the mixed gravel and cattle bone was covered by a further layer of mixed gravels and soil that contained virtually no bone (Fig 13, S.165; 5049). An equivalent deposit of mixed gravel to the south-east included more clean gravel, but still contained a proportion of the bone deposit (Fig 14, S.168; 5017 upper part). This suggests that in places more of the gravel mound was raked down to ensure that the bone deposit was fully concealed from sight, but this did not happen around the entire ditch circuit.

The methodology for the excavation and recording of the bone deposit are described in the bone report, which follows, and the full sequence of photographs recording all of the exposed bones are available in the archive report.

A period of abandonment

Following the raking down of the bone and gravel, the inner ditch would have survived as no more than a shallow hollow, only around 0.10–0.20m deep with respect to the external ground level.

Around the entire circuit, the raked down material was buried beneath a layer, 0.10–0.25m thick, of homogeneous red-brown sandy loam containing sparse small gravel pebbles. This first loam layer

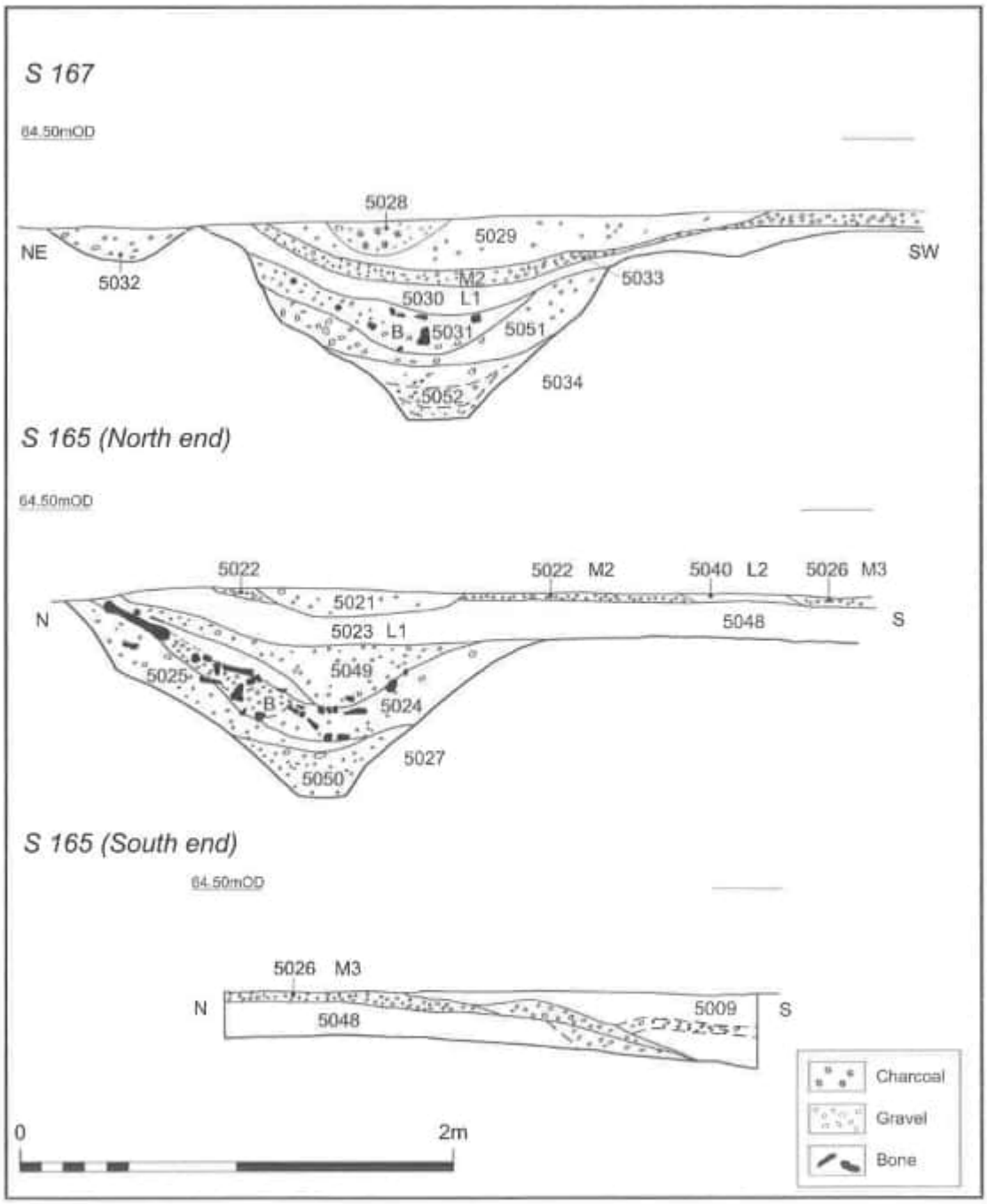


FIGURE 13 Barrow 2, sections of inner ditch and mound deposits, south-western (5034, S.167) and southern (5027, S.165) segments

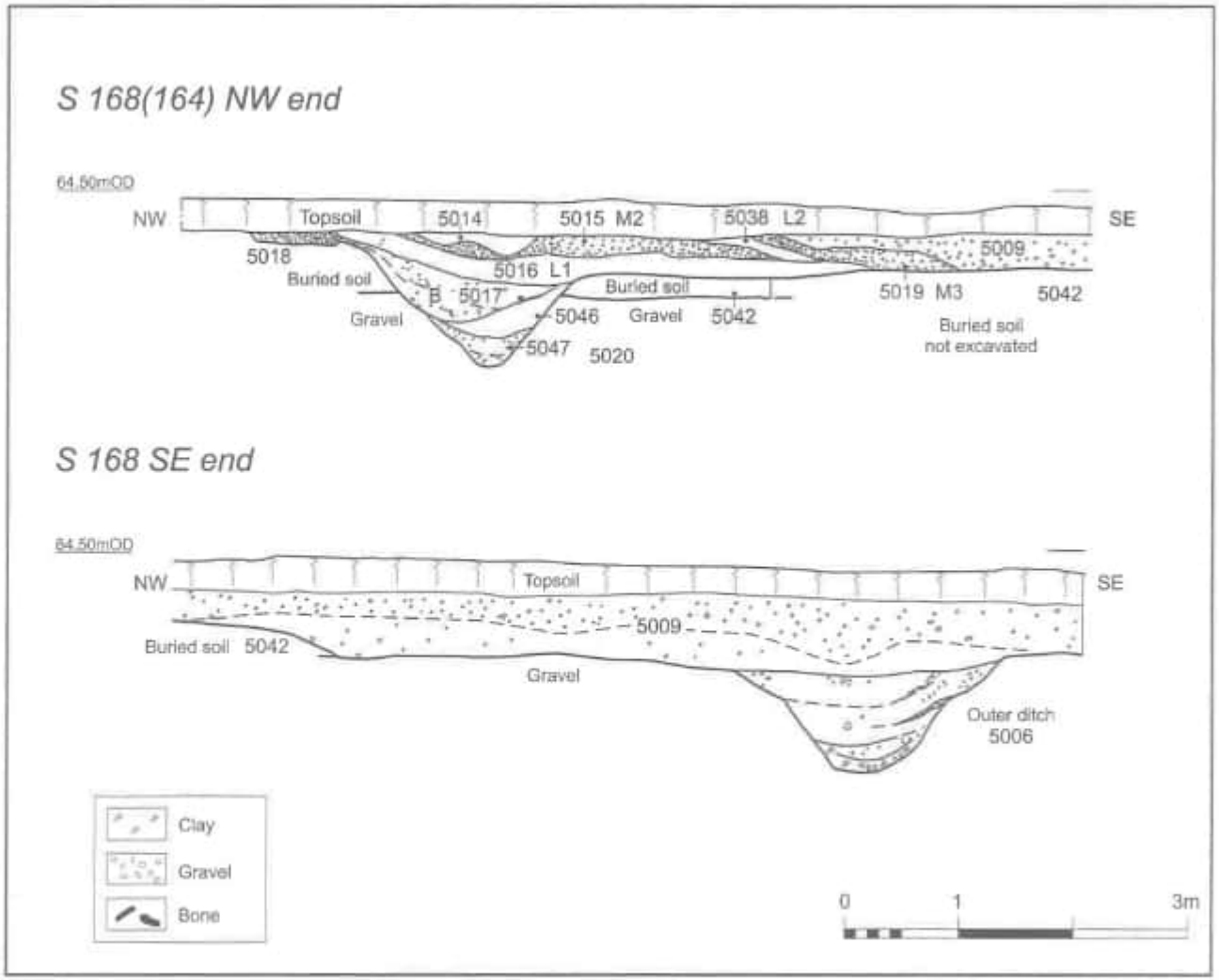


FIGURE 14 Barrow 2, section of inner (5020) and outer (5006) ditches and mound deposits (S.168 combined with S.164), south-eastern segment

FIGURE 15 Barrow 2, the inner ditch with overlying gravel mound and buried soils (centre to right) and a modern pit (left); south-eastern segment (see S.168) (Scale 2.0m)

(L1), was indistinguishable in colour and texture from the subsoil seen elsewhere (Fig 18, L1: Fig 13, S.167; 5030 & S.165, 5023: Fig 14, S.168; 5016: Fig 16, S.171; 5077). At the inner edge of the ditch the layer was truncated, but appeared to have formerly continued up onto the barrow mound. It also extended across the truncated ground surface outside the inner ditch for a distance of up to 2.5m. This loam layer was therefore part of a once more extensive deposit, and it is suggested that a stable soil horizon had formed over and outside the inner ditch, and also across the barrow mound. There would therefore appear to have been a prolonged period of abandonment of the barrow; the sparse stone content indicates that there was no cultivation across this area, which must have developed as grassland.

The outer ditch

The digging of a near-circular outer ditch, which enclosed an area 34.5m in diameter, marked the second phase of use for Barrow 2 (Fig 5). This occurred after a period of abandonment that must have amounted to many decades, given the depth of the developed subsoil over and around the inner ditch.

To the south-east there was a narrow, sunken causeway, with the ridge narrowing to 0.25m wide between two rounded ditch terminals (Fig 5; Plate 13). A single rounded terminal to the north-east, at the edge of the excavated area, was probably a second similar sunken causeway, 0.3m deep. The two sunken causeways were 110° apart, with the ditch segment 32m long; slightly less than a third of the estimated total circumference of 116m. It may therefore be suggested that the circuit was perhaps excavated as three separate segments of roughly the same length, or perhaps four of less similar lengths. At the nearby, and near contemporary, round barrow at Ravenstone, the ditch circuit was broken by four narrow causeways, which lay near the cardinal compass point, with two of the ditch segments 9.0m long while the others were 7.0m and 5.50m long (Allen 1981, 75–76).

A total of 25m of the outer ditch was at least partially excavated, representing 40% of the available length and 22% of the entire circuit. Sections to the south-west (5011), to either side of the baulk to the south-east (5006 and 5008), and a 10m length to the north-east (5010, 5099 and 5100) were fully excavated, while two further ditch lengths (5101 and 5102) were partially excavated to establish the line of the inner edge in areas where it was partly obscured by later soils.

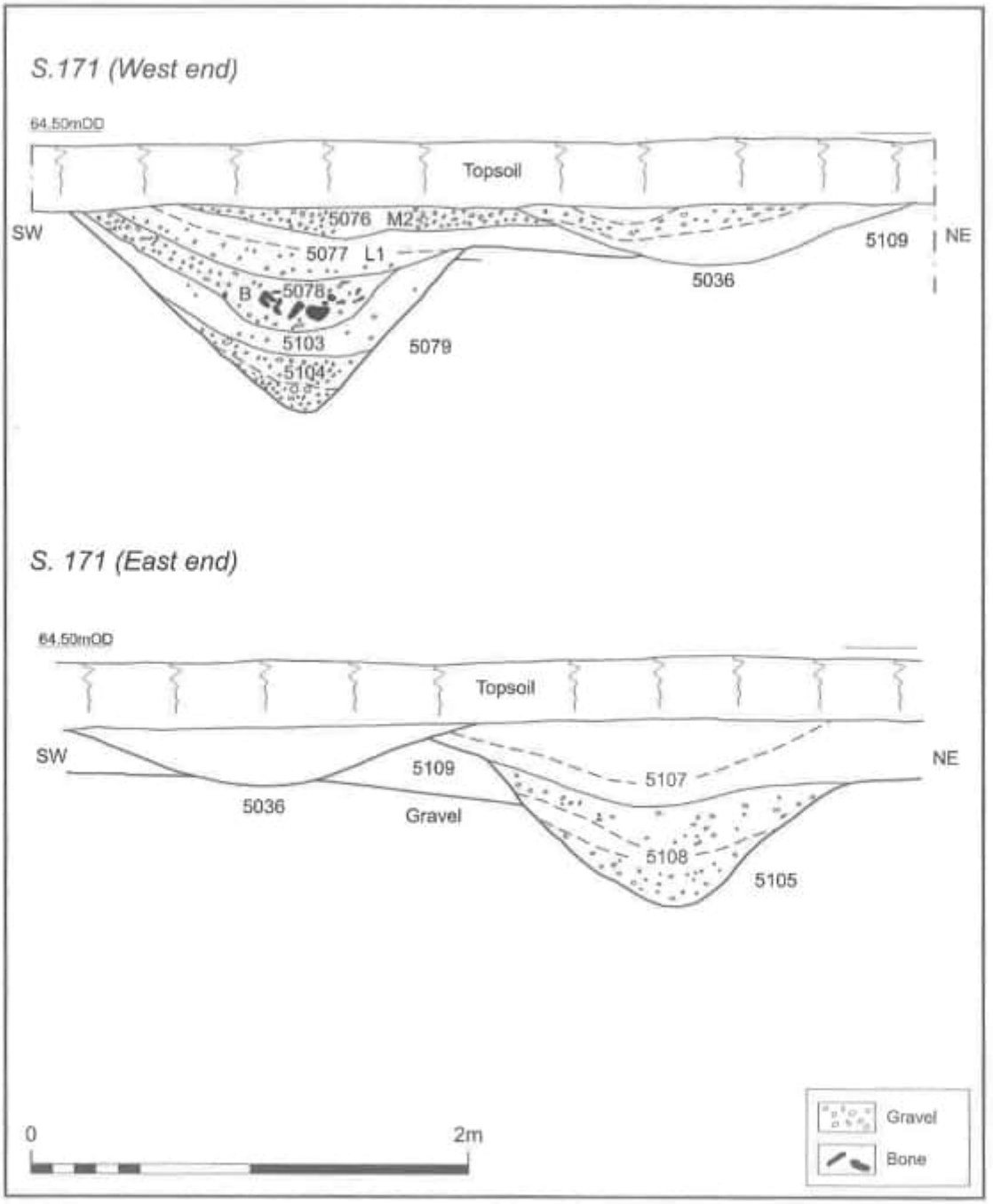


FIGURE 16 Barrow 2, section of inner ditch, mound deposits and later features (5079, S.171), north-eastern segment

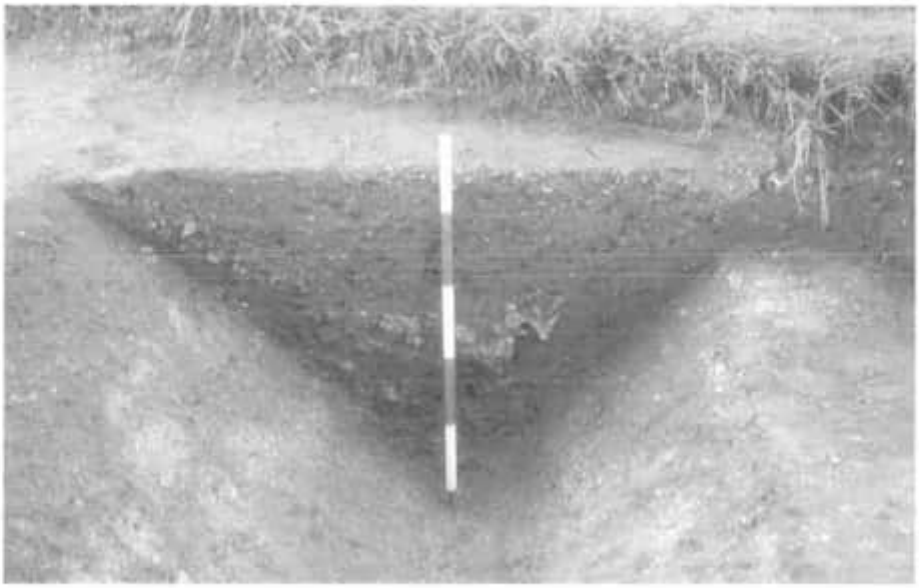


FIGURE 17 Barrow 2, the cattle bone deposit in the secondary fills of the inner ditch; north-eastern segment (see S.171) (Scale 1.0m)

The outer ditch was V-shaped, from 2.2–2.8m wide, and up to 0.9m deep with respect to natural gravel, although if it had been excavated from the top of an intact soil horizon it might have been as much as 1.2–1.3m deep. It had a broad flat base and the bottom 0.4–0.6m of the edges were side-sided, retaining something close to the original profile, while above this they were eroded to a shallower slope, indicating that the ditch had been left open to erode and silt naturally (Fig 14, 5006).

The primary fill of the outer ditch was of yellow sand and gravel, and the secondary and upper fills comprised red-brown clayey sand containing some pebbles. The clay content of the fill may indicate that the ditch was wet at least seasonally, and this outer area, beyond the barrow mound, may have been prone to winter flooding from a raised water table, as it has been in recent times (see Fig 6).

The enlarged mound

When the outer ditch was dug, Barrow 2 was probably a grassed-over mound, perhaps still with a central depression over the collapsed burial chamber and with the inner ditch surviving as no more than a shallow hollow in the turf around the base of the mound. The subsequent processes of mound reinstatement and enlargement were dramatically preserved in a narrow annular zone of soils some 5–6m wide, which overlay the inner ditch and an area immediately outside this ditch (Fig 18). Ploughing in antiquity had sliced the top off the barrow mound, but soils had accumulated around the margin to a sufficient depth to protect this zone from further plough damage. As a result, while modern ploughing had removed all of the central part of the mound, the protected margins of the truncated mound preserved a detailed record of the history of the whole mound, but one that required some effort to excavate and interpret. Similarly truncated mounds, also exhibiting successive phases of enlargement only preserved around the margins, have been seen in a multi-ditched Beaker barrows at Barnack, Cambridgeshire, in the Welland valley (Donaldson 1977) and at Raunds, West Cotton, in the Nene valley (Harding and Healy forthcoming).

After initial machining and cleaning, the truncated remnant of the mound comprised a complex pattern of multiple, concentric, rings of gravels, mixed loams and gravels and almost stone-free

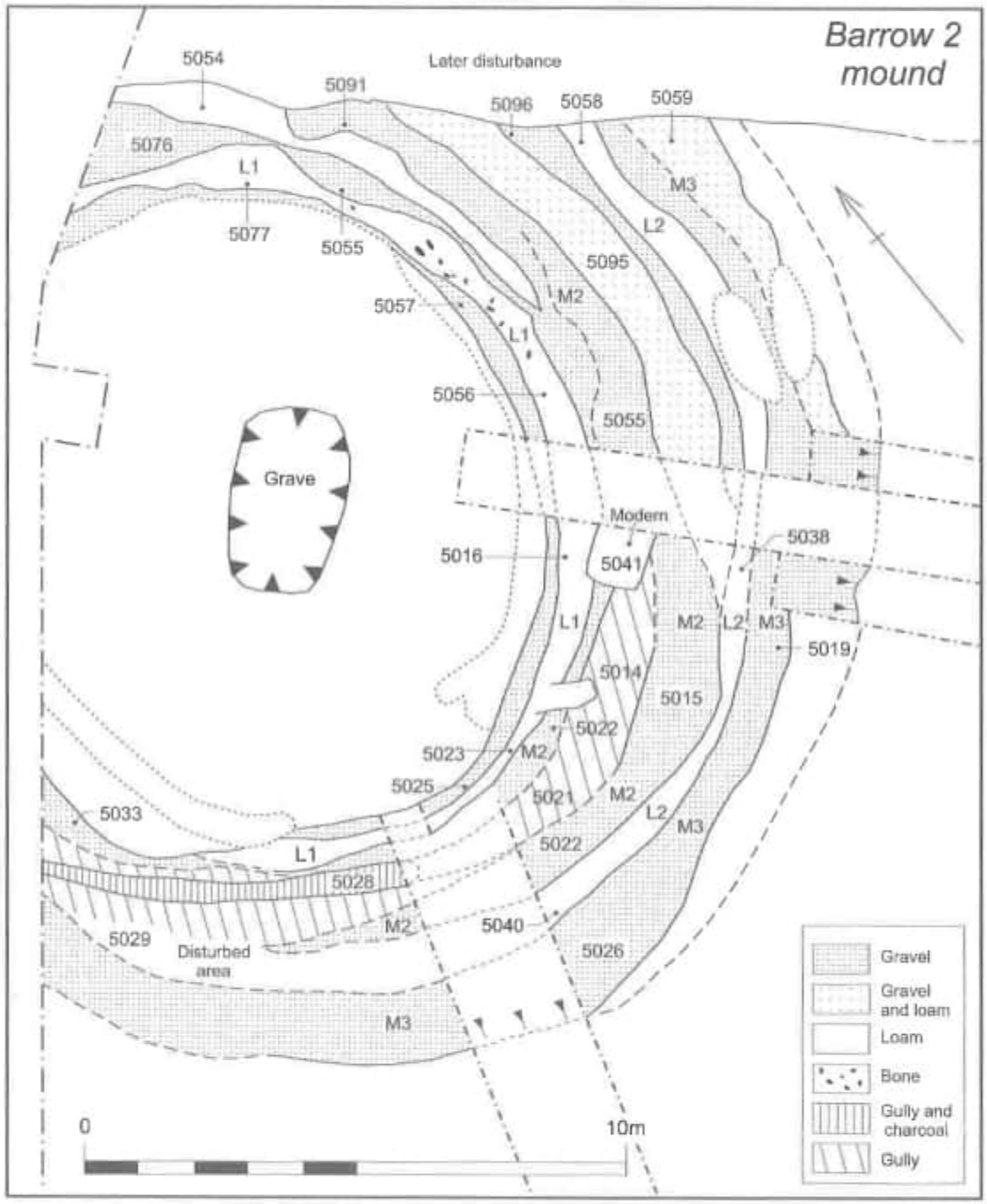


FIGURE 18 Barrow 2, the complex sequence of barrow mound deposits overlying the inner ditch

loams. The published plan (Fig 18) is based on the initial site plan but with areas of disturbance and uncertainty, particularly to the south-west, further interpreted by using the recorded sections across the underlying ditches. As a result of this partial survival, the process of mound enlargement can be recounted in exceptional detail.

In the first episode of mound enlargement, the soil horizon that had developed over the mound was probably fully stripped of its turf, to expose the red-brown sandy loam subsoil beneath (Figs 13, 14 & 16; L1). Gravel and soils, presumably derived from the digging of the outer ditch, were dumped directly on top of this subsoil to enlarge the mound, which was again capped with clean gravel (Figs 13, 14 &16; M2). To the south and west there appeared to be only a single layer of largely clean sand and gravel, although with some mixing with red-brown sands (Fig 13, S.167; 5033 & S.165; 5022: Fig 14, S.168; 5015). Around the eastern half of the barrow the new capping was more complex (Fig 18, M2). To the north-east an initial layer of gravel, mixed with some red-brown sand (5076), was overlain by red-brown loam containing some gravel (5054), with a capping of clean dense gravel (5055/5091). The simplest explanation is that various combinations of gravels and soils were used to enlarge and build up the height of the mound before a capping of clean gravel was added.

The enlarged mound would have measured around 22m in diameter, with the outer edge about 1.0–2.0m beyond the old inner ditch and some 6.0m from the outer ditch, indicating that its new form was a bell barrow, with a broad berm between the mound and the surrounding ditch (Ashbee 1960, fig 3).

Gullies and a partial re-capping of the enlarged mound

Following the first enlargement of the mound, the western and eastern sides were modified in very different ways. These events probably occurred quite soon after the mound enlargement, and certainly before any new stable soil horizon had accumulated.

On the southern and western sides, almost directly above the concealed inner ditch, a shallow gully was cut into the margin of the mound. The function of this feature is unclear. To the south the gully was up to 1.0m wide by 0.15m deep (Fig 13, S.165; 5021: Fig 14, S.168; 5014 & Fig 18, 5014 & 5021). To the south-west it cut appeared to be even wider and deeper (Fig 13, S.167; 5029 & Plate 11). The gully was filled with red-brown gritty sandy loam containing some gravel pebbles. To the south-west there was also a narrower re-cut, 0.5m wide by 0.15m deep, which was very clearly defined by a fill of brown to grey-brown sandy loam, which contained frequent but scattered flecks and small fragments of oak charcoal (Fig 13, S.167 & Fig 18, 5028). On account of the distinctive presence of charcoal in this fill, which did not appear in other ditch fills or mound deposits, this deposit was chosen for radiocarbon dating on the assumption that the charcoal might derived from some act contemporary with the cutting of the gully. However, the charcoal has given a date of 2285–2135 Cal BC (98% confidence, 3780+/- 50BP, Beta- 132792), the earliest of all the dates from Barrow 2, although broadly contemporary with the primary grave and the cattle bone deposit. We must therefore assume that the charcoal was residual from an event contemporary with the construction of the barrow, and had been unearthed either during the process of mound enlargement or in the insertion of a new deposit into the central grave.

The eastern half of the mound was given a new capping, with the western extent just overlapping with the end of the gully to the west, suggesting that these events were related. A layer of brown sand containing some gravel (Fig 18, 5095) was laid directly on the clean gravel capping of the second mound (M2), and was covered by a thin capping of dense clean gravel (5096).

A second period of abandonment

The gravel surface of the enlarged mound, including the re-capped area to the east, was overlain by a layer of sandy, almost stone-free red-brown loam (Figs 13–14 & 18; L2). This was most clearly seen in plan and section to the east (Fig 14, S.168; 5038 L2 and Fig 15), which enabled the plan and sections to the west to be interpreted (Fig 13; S.165; 5040 L2).

The similarity of this soil to the soil (L1) overlying the inner barrow ditch, suggests that this too can be interpreted as the lower part of a soil horizon that developed over the mound in a period of stability and long-term abandonment. Its stone-free nature would again suggest that this was undisturbed grassland.

A further enlargement of the mound

The soil (L2) overlying the enlarged mound of Barrow 2 was no more than 100mm thick, and was probably just the base of a developed soil horizon that was stripped of turf cover before a further, and probably final, enlargement of the mound was undertaken. Unlike the previous phases of mound building and enlargement, which included both clean gravels and quantities of red-brown loam, the final phase comprised almost exclusively clean sand and gravel, with only small quantities of red-brown loams incorporated (Figs 13–14 & 18; M3). The new mound deposits were well-preserved to the east (Fig 14, S.168; 5019 M3 and Fig 15) with only a thin remnant surviving to the west (Fig 13, S.165; 5026 M3).

The use of only clean gravels, suggests that the purpose of this episode of refurbishment was primarily to re-enhance the mound by giving it a new capping of fresh gravel, which was presumably dug from the surrounding ditch, as there was only a slight increase in the overall size of the mound. At this stage the mound reached a diameter of at least 24m, but there was still a berm of at least 6.0m between the mound and the ditch, so it retained its bell barrow form.

The secondary burials

The main stages of mound development for Barrow 2, described above, presumably coincided with episodes of secondary burial deposition within the fills of the central grave, to be described below. Unfortunately, lacking direct stratigraphic links or absolute dating for all of these events, it is not possible to provide anything more than a simplistic equation between the two sequences. The digging of the outer ditch and the first mound enlargement might have been contemporary with the first cremation burial and probably no later than the second inhumation, with later enhancements of the mound relating to the later cremation deposits within the upper fills of the central grave. It must also be noted that any secondary burials inserted into the mound itself would have been lost.

Burial 2: an unurned cremation deposit

The first cremation was deposited in a steep-sided, sub-rectangular pit, 1.10m long by 0.70m wide (Fig 9, F5084). The pit was cut 0.90m into the gravels (5072 & 5073) that had slumped into the grave when the timber roof of the primary burial chamber collapsed, indicating that it occurred at least some decades later.

The primary deposit was of brown loam that contained a little charcoal and some small fragments of cremated bone. Towards the southern end of the pit there was a heap of fragments of cremated bone in a mixed matrix of grey silt with charcoal flecks and brown sandy loam (5083), 0.40m long by 0.15m thick. A total of 330g of bone was present, so evidently only a proportion of the cremated bone from the pyre had been deposited here; an adult cremation can produce up to 2.5kg of bone. Many of the skull fragments from this individual are blue, rather than white like the remainder of the bone, and this may suggest that the skull had been scattered beyond the most intense heat of the pyre after it had exploded during the cremation process. The skull fragments make up a significant proportion of the total, and it may be that the skull was collected in preference to other bones.

The bone is from an adult individual, possibly male, who had some osteoarthritis of the upper spine. Within the bone deposit there was a small, unidentified fossil, comprising a tapering cylindrical rod (SF 77), 11mm long by up to 3mm in diameter, with a longitudinal groove along one side. It is unclear whether this was a deliberate or accidental inclusion.

The upper fill of the burial pit comprised collected pyre debris along with some burnt and scorched soils from beneath the pyre. These comprised grey to grey-black sandy silt with flecks of charcoal and the occasional small piece of cremated bone, and reddened, burnt sand containing both heat reddened gravel pebbles and flint pebbles, which were white and fractured. All of the charcoal submitted for examination was of oak (*quercus* sp.). The only grave good was a broken flint end/side scraper (SF 10). It was found within the pyre debris but was not burnt, indicating that it had not been on the funeral pyre (see Fig 33, 5). The upper fill of the pit had been partly disturbed and scattered in the digging of the subsequent overlying grave, and a linear trial of debris at a higher level in the grave fills might also suggest that there had been some disturbance from animal burrowing.

Burial 3: a crouched inhumation

A second inhumation burial lay within a sharply-rectangular grave pit, set slightly obliquely to the original grave, but still on a similar north-east to

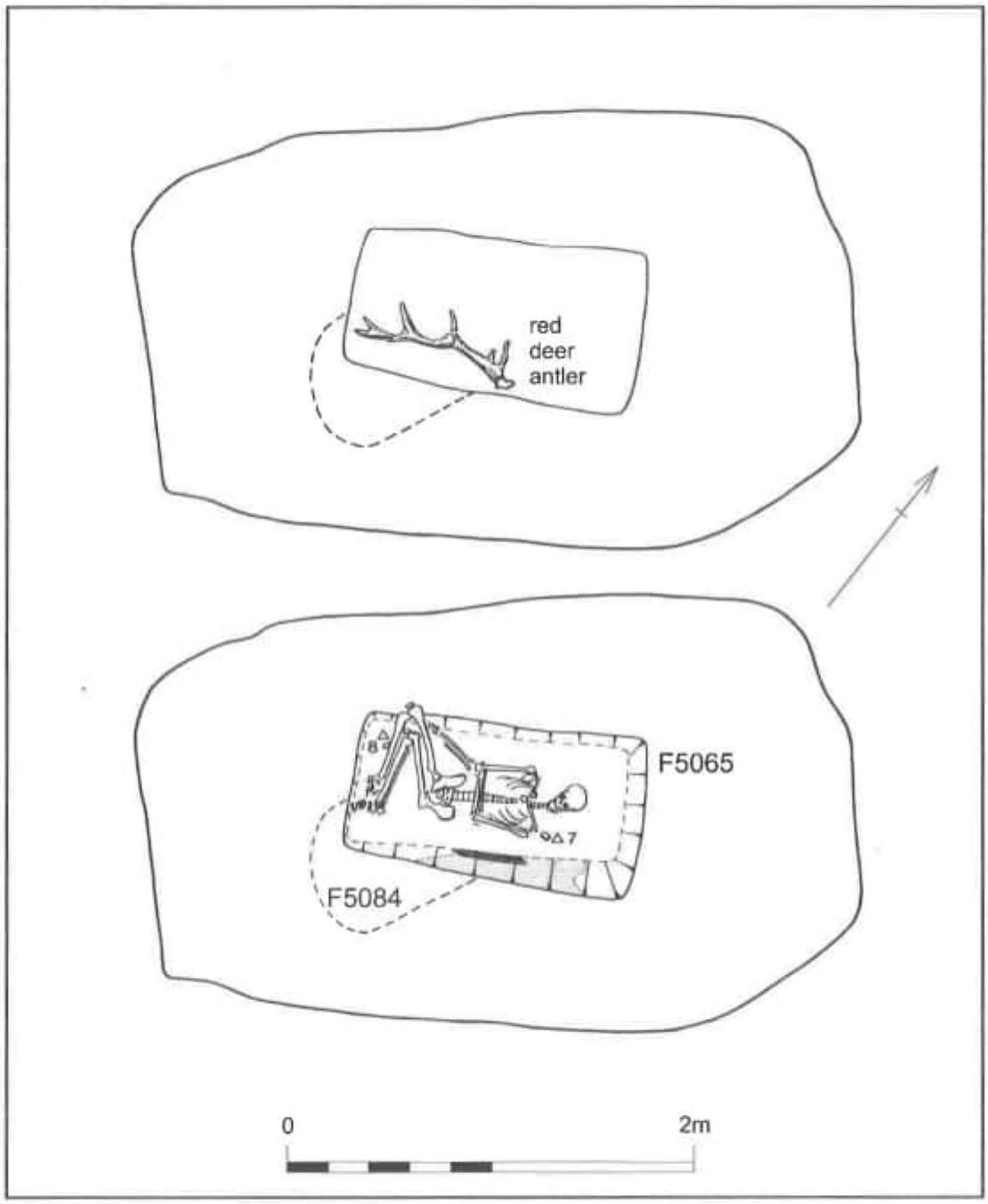


FIGURE 19 Barrow 2, the secondary inhumation (5065) lying in a rectangular chamber, with a red deer antler in the overlying fills

south-west alignment (Figs 7 and 19, F5065). At its base, the grave was 1.30m long by 0.60m wide, but the sides sloped back above this to 1.70m long to 0.80m wide. The grave was 0.60m deep, and the flat base had clearly subsided into the underlying fills of the pit containing the cremation deposit (F5084). Along the southern side of the grave there was burnt debris displaced from the underlying cremation, but this was bounded by a distinctive vertical band, 30–40mm thick, of brown sand, which may have filled the void from a decayed timber lining. In addition, in places above the skeleton there was a thin deposit of dark grey-brown sand, inclining down towards the centre of the grave, which may have been a partial soil stain from a timber roof. The presence of a walled and roofed timber burial chamber is also supported by the disposition of the skeleton and an overlying red deer antler (see below).

Within the grave, the skeleton of a man lay supine, with his head upright and well short of the north-eastern end of the grave (Fig 19; Plate 14). His left arm was folded across his chest while the right arm was extended, with the lower arm raised and resting against the wall of the chamber. His feet lay close to the end of the grave, with the legs tightly flexed. He had evidently been buried with his knees raised near-vertically, but on decay the legs had slumped over to the right with the knee and hip joints becoming dislocated. The knees had then rested against the chamber wall and partly over the right hand. All of this movement could only have occurred within an open burial chamber.

The man was 35–45 years of age, and 1.69m (5' 6¾") tall, with some interesting pathology. Probably as a result of excessive pressure and mechanical stress, he had extensive osteo-arthritic degeneration of the spine. He had also suffered a major traumatic injury to his right knee. He had a vertical fracture in the upper surface of the tibia, caused by the end of the femur being driven downward following a severe sideways impact. Today, these are termed bumper fractures, as they are invariably the result of a pedestrian being hit by a car, although in this instance it might be suggested that an impact from, say, the head of a charging cow could have been responsible. Despite the seriousness of the injury, the fracture had firmly reunited with minimal deformity, and the joint was still in use (Plate 31). There may have been restricted movement and his lower leg would have been angled away from the body with the foot twisted outwards, so he would have walked with a distinct limp, and this had caused stress on the right pelvis. He had clearly lived for some years following this accident.

Two finely-worked, plano-convex flint knives were found within the grave fill (see Fig 32 and Plate 26). One lay by the left shoulder within soil a little above the base of the grave, and it is possible that it might originally have lain on the body itself (Fig 19, 7 and Fig 32, 1). The other knife lay in the grave fill beneath the slumped right leg, well above the base of the grave, and is perhaps most likely to have fallen into the grave having originally been placed on the timber roof of the burial chamber (Fig 19, 8 and Fig 32, 2).

Just above the level of the knees, there was a complete red deer antler (Fig 19; Plate 15). It had also probably been laid on the timber roof of the chamber, and had slumped into the grave when the roof had decayed, although by then the chamber was evidently already partly filled with soil. The grave fill itself was a brown loam with some gravel, indicating the material above the chamber had been soils rather than gravel.

The antler was still attached to part of the skull, and had therefore come from a dead or killed animal, and was not a collected shed antler. It had been wrenched, rather than cut from the skull, and was 0.82m long with seven tines, indicating that it was from a mature stag. The large diameter of the burr end indicates that it came from a large animal in the prime of life, perhaps especially chosen as an exceptional animal.

Burial 4: an unurned cremation deposit

Following the collapse of the chamber containing the secondary crouched inhumation, a sub-rectangular pit, 0.72m long by 0.51m wide and 0.40m deep, with near vertical sides, was cut into the grave fills and the skull of the underlying inhumation was exposed at one end of the pit (Figs 7 and 20, F5069). Across the base of the pit there was a dense deposit of cremated bone in a matrix of brown sand. A total of 1.2kg of bone was deposited, about half of the possible total; the absence of any dark soils and charcoal shows that the bone had been carefully collected from the pyre piece by piece. The bone is from an adult, possibly male. The majority of the bone is white, indicating that the pyre reached a high temperature, but the pres-

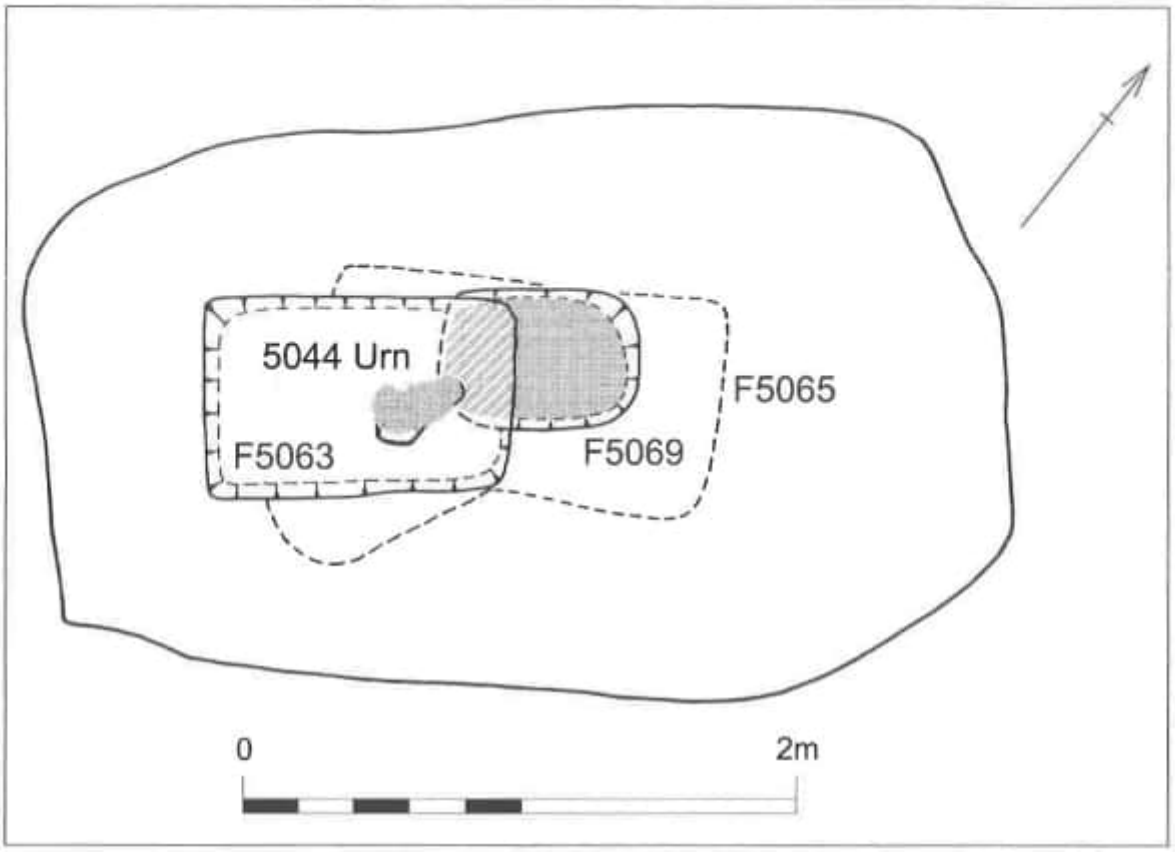


FIGURE 20 Barrow 2, the unurned secondary cremation in pit F5069, lying beneath Collared Urn (5044) in pit F5063

ence of some well-preserved finger bones might suggest that the hands had been on the chest, and were protected by the body from the main heat of the pyre beneath.

This man had been provided with a collection of grave goods. A small plano-convex flint knife had been burnt on the pyre (see Fig 33, 3); a length of split cattle rib had also been fragmented and distorted on the pyre (Fig 35, 3 and Plate 30); and two antler spatulae are fragmented but appear not to have been heavily burnt (Fig 35, 1 & 2 and Plate 30). Perhaps they too had been placed on top of the body and were protected from the most intense heat.

Immediately above the bone and heaped against the north-eastern end of the pit, was a deposit of pyre debris comprising mixed grey and brown loams, which contained scattered pieces of charcoal and some small pieces of bone, mixed with burnt, reddened sand and burnt gravel and flint pebbles, which had come from the ground beneath the pyre. All of the charcoal submitted for examination was of oak (*quercus* sp.) and it has given a radiocarbon date of 2010–1765 Cal BC (95% confidence, 3560+/-40 BP, Beta-132794).

The upper fill of the pit was of red-brown sandy loam, with a few patches of pebbles.

Burial 5: a cremation deposit in a Collared Urn

In the final episode of burial within the central grave, a cremation deposit (5044) was contained in a Collared Urn. These uppermost features were less well defined than those lower in the grave, but it appeared that a sharply rectangular pit, 1.10m long by 0.74m wide and 0.22m deep, had been cut into

the earlier grave fills (Figs 9 & 20, F5063). This contained a fill of brown sandy-loam and gravel, with the edges and bottom of the pit marked by a thin skin of stone-free loam, 10–30mm thick, which might suggest the former presence of some organic, perhaps wooden, lining. A Collared Urn had been set upright within this pit, but stood on some 100mm of soil, and not on the base of the cut. The urn was very poorly fired and had later buckled under its own weight, the thick collar being the most substantial part of the vessel (Plate 16). It had slumped onto its side and some of the cremated bone had spilled out through cracks in the wall of the urn. As found, the urn lay immediately beneath the modern ploughsoil and had been truncated, with more than a half of the rim and upper body of the vessel lost.

The urn was lifted and excavated off-site. The collapse and slumping of the vessel had inevitably displaced the contents, but the urn was still largely filled with a solid mass of cremated bone. The larger fragments lay towards the base, including pieces up to 50–60mm long, while the fragments above this were 30–40mm long. No differentiation by body part was noted. The matrix around the bone was of brown sand; indicating that the bone mass had been carefully collected from the pyre. A total of 1.45kg of bone survived, so more than half of the possible total was present. The bone is from an adult but there was nothing to suggest what sex the person may have been. There was some extra bone growth on the margins of the vertebrae, indicating that the person was old enough for some degeneration of the spine to have occurred. A small collection of grave goods mixed with the bone deposit comprised a burnt flint end scraper (see Fig 33, 4), a perforated bone point, which had distorted in the fire (see Fig 35, 4 and Plate 30) and a small piece of bone containing two fine perforations (Fig 35, 5 and Plate 30).

The Collared Urn was evidently a fairly squat vessel, although its poor state of preservation made it difficult to calculate the original height accurately. The collar and shoulder are decorated with patterns of cord impressions (see Fig 34, 1 & Plate 27). It was so poorly fired that much of the body was no more than a thin outer skin, 1–2mm thick, with only the collar and the base surviving to the full original thickness. It could never have functioned in daily use, and must have been specially made as a funerary urn.

Possible further cremation deposits

On the south-eastern side of Barrow 2 a few fragments of cremated bone, weighing 16g, were found within a post-mound soil horizon (5117) overlying part of the outer barrow ditch (Fig 5, 5101). This suggests that there had been at least one further cremation deposit, perhaps buried on the berm between the mound and the outer ditch. This had presumably been broken up by later ploughing, which had certainly penetrated to the natural gravel in this area. Other cremation deposits may have been totally lost.

Secondary satellite cremation deposits

Two secondary satellite cremations survived beyond the outer ditch of Barrow 2, but this area had been truncated and it is possible that other more shallowly buried deposits had been totally lost (Fig 5, 5012 & 5013).

A Collared Urn cremation deposit

A cremation deposit, beneath an inverted Collared Urn, lay to the south-east, 5.5m from the outer barrow ditch (Fig 5, 5012; Plate 17). A small circular pit, 0.45m in diameter and 0.08m deep, contained a fill of grey-brown sand containing some charcoal. This was presumably collected pyre debris, and the truncated cremated bone mass rested on this material and was surrounded by the rim of a Collared Urn, also largely lost (see Fig 34, 2 & Plate 28). The bone deposit weighed 46g, and was from a child of 8–9 years. No accompanying grave goods were present, and the charcoal from the pyre debris indicates that the principal wood was oak (*quercus* sp.) but with small quantities of hedgerow species of Pomoideae (hawthorn etc) and Prunus types (cherry etc).

An unurned cremation deposit

To the south-west, also 5.5m beyond the outer barrow ditch, there was a heavily truncated cremation deposit in a shallow bowl-shaped hollow, up to 0.55m in diameter by 0.06m deep (Fig 5, 5013). The fill of dark grey-brown sand contained charcoal flecks and small fragments of cremated bone, weighing 2g. Unlike the cremations in the central grave, where only oak was present, the 12g of wood charcoal recovered was all from Pomoideae species, such as hawthorn, indicating that the wood for this cremation had come from hedgerow species rather than mature trees. There was too

little bone to say anything about the individual from which it came.

Later activity on and around Barrow 2

While out of chronological sequence for the site as a whole, it seems appropriate to describe here the detail of the later features adjacent to Barrow 2. Later in the report they will be considered within their broader context.

Bronze Age and Iron Age ditch systems

Two sets of later ditches showed respect for the location of Barrow 2 (Figs 3 & 5). On the eastern side there were two linear ditches running parallel, 11m apart (Fig 5, 5119 & 5120, Bronze Age ditch system). They were from 0.6–0.9m wide and 0.20–0.35m deep, with steep-sided U-shaped profiles. The southern ditch of the pair turned abruptly northward and broadened as it met the barrow ditch. Both were filled with dark-brown sandy silt containing sparse pebbles, and in both cases the fills were indistinguishable from the upper fills of the barrow ditch. Both ditches continued eastward and, as observed in the watching brief area further to the east, appeared to end at rounded terminals, with the northern ditch 34m long and the southern ditch 30m long (Fig 3). These ditches produced no datable finds, but were similar in form to a linear ditch system at the eastern end of the site, discussed later, which is interpreted as part of a Middle-Late Bronze Age field system.

Eight metres south of Barrow 2 there was another pair of ditches that were less regular in plan (Fig 5, 5001 & 5004). The northern ditch (5004) followed a gentle curve, echoing the curve of the nearby outer barrow ditch. Its course further to the west was not recorded in the watching brief, but it continued eastward to a total recorded length of 48m, and may have continued further eastward, perhaps as far as an isolated Iron Age pit (Fig 3, Iron Age pit, 7000). The southern ditch (5001) was only observed in the excavated area around Barrow 2. At its western end it appeared to be turning south-westward towards Enclosures 1 and 4. Both ditches were up to 0.90m wide by 0.40m deep, with V-shaped profiles. The ditches produced no datable finds, but they did appear to relate to the nearby Iron Age enclosures and pits.

Late Roman inhumation burials on Barrow 2

A group of late Roman inhumation burials on the barrow mound indicate that subsequent to the final use of the mound in the Early Bronze Age, it was to remain a prominent feature in the landscape for the next 2000 years, and had evidently suffered little, if any, damage from ploughing during this time. It is assumed that it stood within pasture, or that any ploughing avoided this, the most prominent of the barrow group, and it can be visualised as a prominent grassy mound, probably still encircled by a shallow hollow over the surrounding ditch. The partial or complete remains of five adult inhuma-

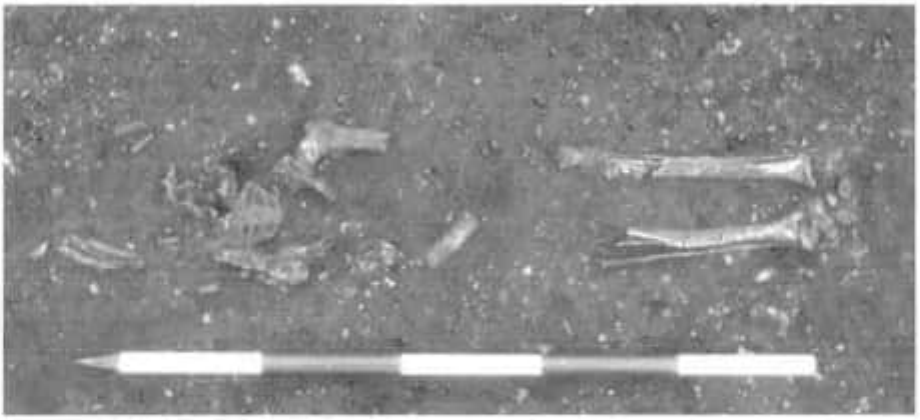


FIGURE 21 Barrow 2, Late Roman burial (5035), inserted into the barrow mound and disturbed by ploughing; only the legs, pelvis and some ribs partially survive (Scale 1.0m)

tion burials were recorded, and the varying degrees of preservation make it obvious that these had been inserted into the barrow mound when it was still upstanding and of some considerable height. Any burials near the centre of the mound would have been totally lost to later ploughing, and it seems likely that some others had been lost. The burials are dated to the late Roman period on the basis of the presence of a decapitation burial and the absence of any early Saxon grave goods.

On the western side of the barrow, two very poorly preserved burials lay just inside the inner ditch, and directly beneath the modern ploughsoil (Fig 7, 5037 and 5043). Burial 5037 had been supine and extended, aligned near north-south, but all that survived in-situ were the remains of five vertebrae, one finger bone and some fragments of the sacrum and pelvis. Burial 5043 had been supine and extended, aligned north-west to south-east, and all that survived in-situ were the lower leg bones immediately on each side of the knee joints, along with a few fragmentary finger bones.

A slightly better preserved inhumation burial (5035) lay on the south, also directly beneath the modern ploughsoil and within mound deposits overlying the inner ditch (Fig 7). The burial had been supine and extended, aligned north-west to south-east, and was a small adult, perhaps female. Both legs partially survived, although there was evident recent plough damage and bone displacement, along with parts of the pelvis and lower vertebrae, some ankle and finger bones, and a few ribs (Fig 21).

Two further inhumations (5113 & 5116) lay to the south-east, within mound deposits beyond the inner ditch in an area that had not been subject to recent plough damage (Fig 7). Both were complete and within graves 2.2m long by 0.30–0.40m deep. The graves lay side by side, suggesting that they were near-contemporary burials (Fig 22). Burial 5113 was laid supine and extended, aligned near north to south, with the decapitated skull lying on its side next to the lower right leg at the southern end of the grave, with the atlas vertebra nearby (Fig 23). This individual was an elderly male, aged 40–50 years, and was 1.75m (5' 9") tall with advanced degeneration of the spine leading to some deformity that would have flexed the neck to the left, commonly called wry neck. He had been decapitated with a heavy weapon, an axe or sword,

FIGURE 22 Barrow 2, Late Roman inhumation burials (5113 & 5116), looking north-west

FIGURE 23 Barrow 2, Late Roman burial (5113), showing the decapitated skull and the detached atlas vertebra, lying beside the feet

which had cut between the axis and the third cervical vertebra.

Burial 5116 was also supine and extended, but lay in the opposite alignment, south to north. This was an even older male, aged 50–60 and nearly 6 foot tall (1.81m). He too had degeneration of the spine, as would be normal for someone of this age, and he had squatting facets on both lower tibia.

Plough damage to Barrow 2

The recorded sections through the mound deposits show evidence for a number of episodes of plough damage to the outer margins of the barrow mound. These reveal a process of gradual encroachment onto the mound, although no dates can be provided for this sequence. It is possible that the process began as early as the Iron Age or Roman periods, with further encroachment and truncation of the mound as a result of medieval and later ploughing, but it is also possible that the entire process derived only from medieval and later ploughing. Plough damage to the mound could only commence once the outer barrow ditch had fully silted.

To either side of the outer ditch ploughing had removed all earlier buried soils, and the truncated natural gravel lay at a depth of 0.90m below modern ground level. To the south-east, as visible in the sections along the unexcavated baulk, buried subsoil survived beneath the intact mound deposits, and up to a 2.5m beyond the outer edge of the mound, some 3.4m short of the outer ditch (Fig 14, S.168; Buried soil 5042). This suggests that ploughing had initially only truncated the soil horizons beyond the mound. However, continued ploughing and the steady accumulation of a ploughsoil would have reduced the angle of the slope around the margin of the mound, so that ploughing could have moved progressively closer and eventually began to cut into the margins of the final gravel capping (Fig 18, M3). This was evident

in plan to the east, where the outer part of the final capping of clean gravel was mixed with red-brown sand as a result of plough disturbance (Fig 18, 5059). It was also evident in section to the south-east, where there was a distinct flattened platform, perhaps a product of ploughing, that extended 1.0m into the final gravel capping of the mound (Fig 14, S.168; 5019 M3), and which was overlain by a mixed, gravely former ploughsoil (5009). To the south, the outermost margin of the gravel capping (Fig 13, S.165; 5026 M3) was disturbed, with gravel mixed into the underlying subsoil (5048), while there was also a distinct lens of more gravely soil within the overlying soil horizon (5009).

While the southern and western parts of the mound had been subject to progressive encroachment and truncation, there had been more extensive damage to the outer parts of the mound on the eastern side (Fig 5). A small area of a red-brown sandy loam survived (5109), which may have been a remnant of buried soil contemporary with the barrow (Fig 16, S.171). It was cut by a linear ditch (5105), 1.35m wide by up to 0.70m deep, filled with mixed red-brown sands and varying amounts of gravel (5108). This ditch produced no datable finds, but was on the same alignment as the furrows of the medieval field system, and was probably a field boundary ditch, perhaps sited at a headland that had been located with respect to the upstanding barrow mound (Fig 5). The presence of a headland here would also provide a partial explanation for the preservation of the barrow as an earthwork. At a later date, also undefined, once ditch (5105) had been concealed beneath a developed plough soil (5107), a new ditch (5036) was cut (Fig 16, S.171), running parallel to its predecessor and impinging even further onto the barrow mound (Fig 5). The ditch was 1.80m wide but had shallow sides and was no more than 0.3m deep. While these ditches were prominent features where they cut the mound deposits, neither had cut into the natural gravels to the south-east, beyond the barrow, so their full extent was not defined.

The other northern barrows, Barrows 1 & 5

Following the establishment of Barrow 2 in its fully developed form as a prominent, gravel-capped bell barrow with an encircling ditch 34.5m diameter, two further barrows were sited nearby; the three barrows would have formed a small, dispersed, but roughly linear, barrow cemetery (Fig 3). Barrow 1 and its satellite cremations are dated to the period 1850–1750 Cal BC, indicating it was constructed at about the same time as the final burial at the centre of Barrow 2. Barrow 5 was added at least a century after Barrow 1, at around 1650–1500 Cal BC.

Barrow 1

There was a dense scatter of irregular silt-filled hollows in the surface of the natural gravel in the area of Barrow 1, some of which evidently pre-dated its construction (Fig 24). Most of those within the excavated area were sectioned and, on the basis of their irregular plan and profile forms, have been interpreted as probable tree holes. To the north-west, and cut by the barrow ditch, there was a more substantial complex of features, but these too were seen to be variable in plan and profile, and appeared to derive from the intersection of a number of separate tree holes. Two flints recovered from these features may be microlithic blades from a late Mesolithic flint industry, and they suggest that there was a low level of exploitation of the local landscape in the Mesolithic period.

The barrow ring ditch was of near-circular plan, enclosing an area 16.0–17.5m in diameter (Fig 24; Plates 18 & 19). The ditch was excavated in seven evenly-spaced sections from 1.6–2.0m long; a further 0.70m wide section to the south had been excavated in the evaluation. The total excavated length of 13.7m represents 23% of the ditch length of 59.7m. The ditch was U-shaped, 2.0m wide by 0.60–0.74m deep, with a broad, flat bottom. It was only in excess of 0.70m deep to the east and north-east. The upper edges of the ditch had been eroded by weathering, and the outer edge had been particularly severely eroded to the west and north. This differential weathering may have partially resulted from the inner edge being protected by a more rapid accumulation of sands and gravel from mound erosion, although as it was the east and south facing slopes showing excessive erosion it may have purely resulted from the more extreme freeze and thaw action that these particular sides would have been exposed to.

The ditch fills showed a simple sequence, with a primary fill of gravel-rich silts (4111) and a secondary fill (4110) of red-brown sandy loam containing some gravel. The final fill (4109) was similar to the secondary fill, but there was generally a thin but distinct tip containing more gravel coming in from the inner edge of the ditch, and

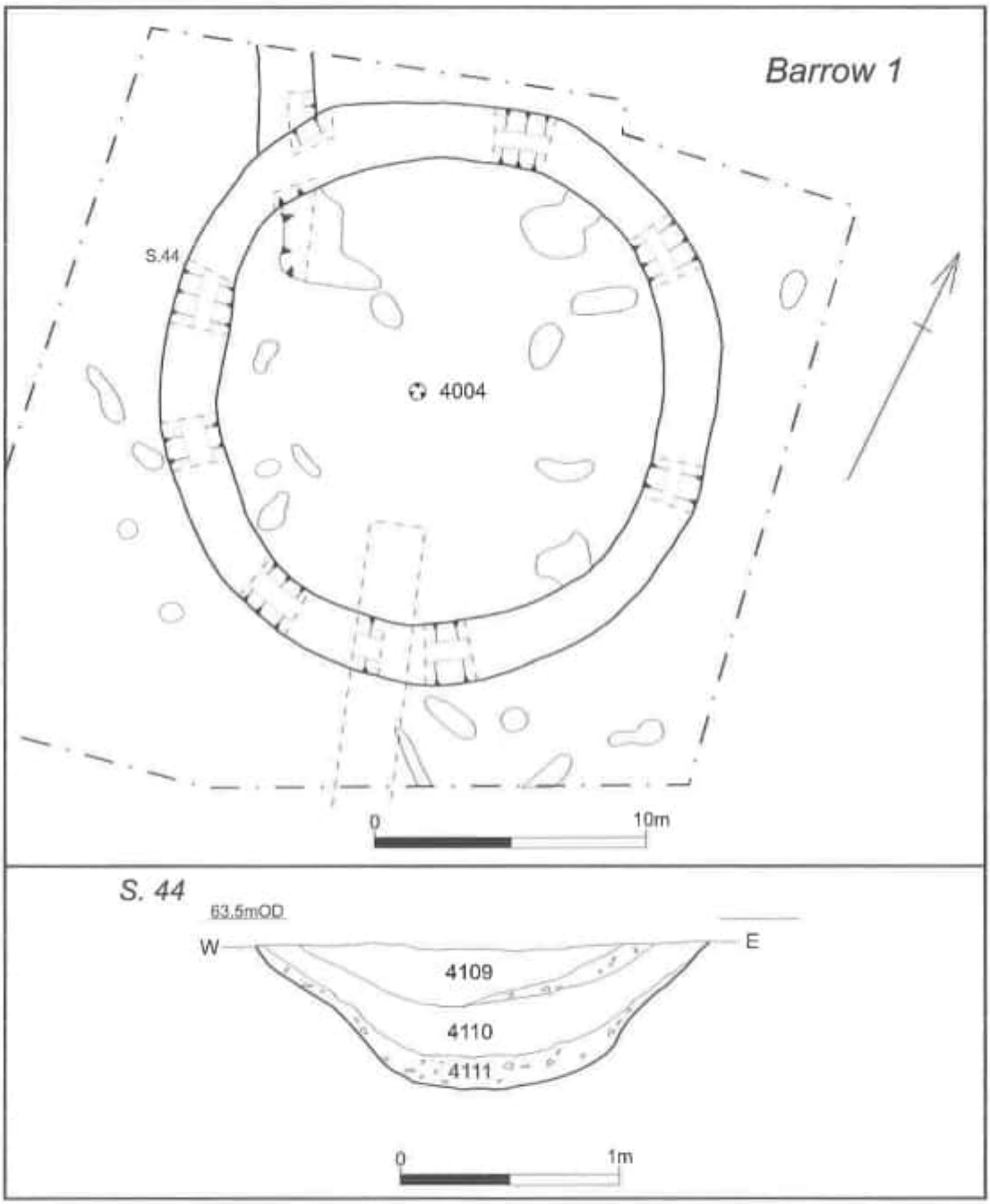


FIGURE 24 Barrow 1, general plan and section of barrow ditch

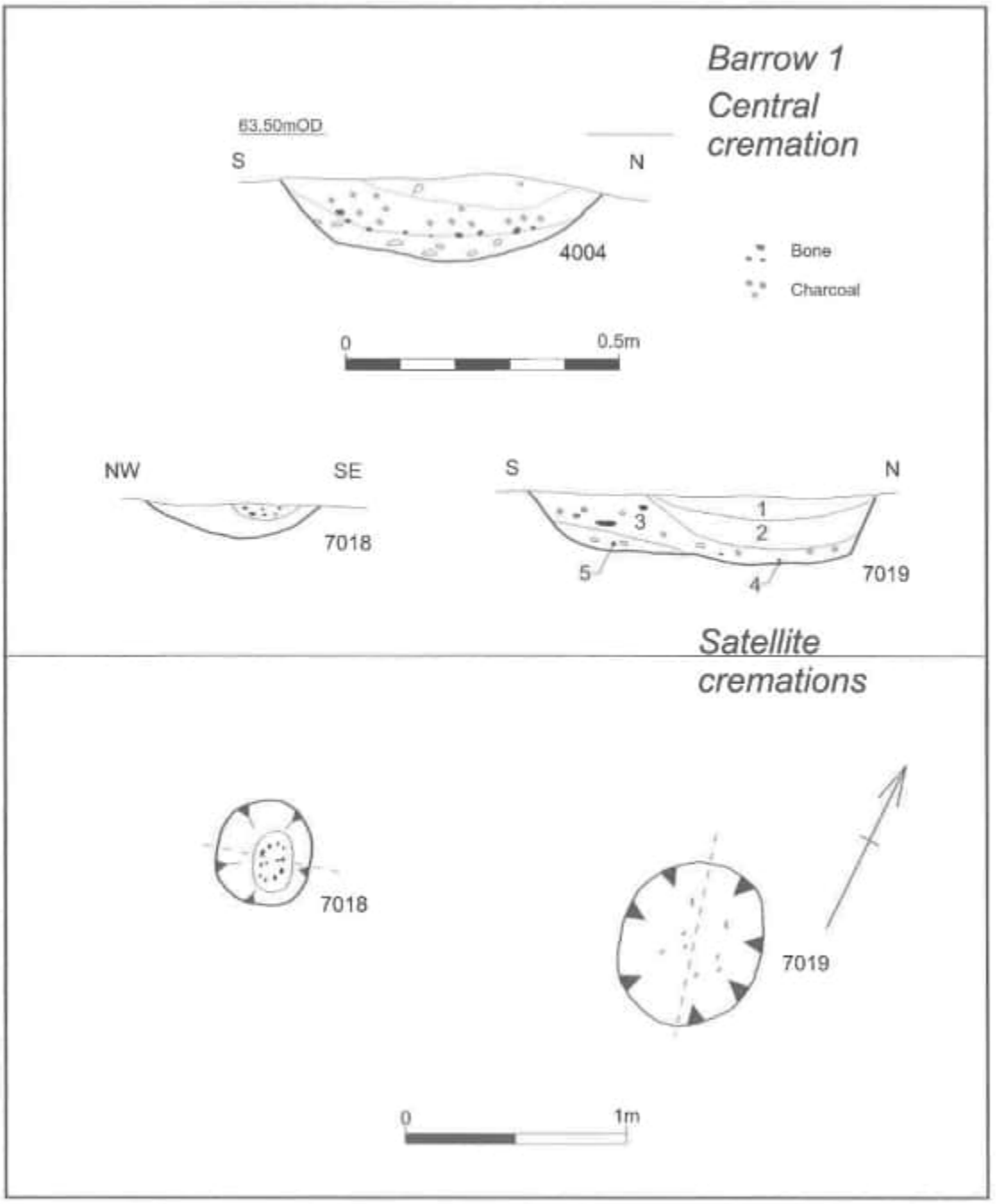


FIGURE 25 Barrow 1, section of central cremation (4004) and sections and plan of satellite cremations (7018 & 7019)

presumably derived by erosion from a former central mound of upcast soils and gravel.

A small pit, lying *c* 1.0m west of centre of the ring ditch, was 0.60m in diameter by 0.16m deep (Figs 24 & 25, 4004). The primary pit fill was of brown sandy-loam, and above this there was a mixed deposit of grey-brown soil containing both fragments of cremated bone and pieces of charcoal (4005). This material was scattered right across the pit, suggesting that it had not been in any container. A total of 1.09kg of human bone was recovered, probably representing over a half of the remains of an adult, possibly female. A total of 80g of charcoal was recovered, and the half subject to analysis was all of oak (*quercus* sp.). The charcoal has given a radiocarbon date of 1900–1610 Cal BC (95% confidence, 3440+/-60 BP, Beta-132793).

A pair of probable satellite cremation deposits, recorded in the watching brief, lay 20m to the west-south-west of Barrow 1 (Figs 3 and 36). The circular pits lay 1.5m apart (Fig 25, 7018 & 7019). The eastern pit (7019) was up to 0.80m in diameter by 0.13m deep. It had a complex fill, with brown sand and gravel against the southern end (5), and a deposit of grey soil containing mixed cremated bone and much charcoal spread across the base of the pit and against the southern end (4 & 3). The final fills were of clean sandy loams (2 & 1). A total of 1.21kg of cremated bone represents just over a half of an adult male, who was probably under 40 years of age but had some degeneration of the spine. The charcoal was all of oak (*quercus* sp.), and has given a radiocarbon date of 2040–1730 Cal BC (95% confidence, 3560+/- 60 BP, Wk-9170). This date is slightly earlier than the date from the central cremation within the ring ditch but, given the considerable overlap of the dates, it can only be stated that the development of both the barrow and the satellite cremations occurred within the two centuries between 1900 and 1730 Cal BC. These outlying cremations might therefore have been true satellite deposits, deposited at around the same time as the creation of the barrow, rather than secondary satellite cremations, deposited some time after the creation of the barrow.

The western pit (7018) was 0.5m in diameter by 0.06m deep. It was filled with brown sandy-loam that contained a small pocket of cremated bone, truncated by later activity, which may have been in a organic container, perhaps a bag. Only 45g of bone was recovered, leaving it uncertain whether the pits contained cremated remains from two individuals or two deposits from a single person. There were no accompanying grave goods.

A further probable satellite cremation deposit, lay 27m to the east-south-east of Barrow 1. A small pit (7021), 0.30m diameter by 70mm deep, had a fill of grey brown sand and within this there was a small lens of darker grey soil, 40mm in diameter, which contained sparse small pieces of cremated bone and a little charcoal. It appeared to be the very base of a cremation deposit, largely lost to later truncation.

Barrow 5

This barrow lay to the west of Barrow 2 (Fig 3). A ditch of near-circular plan enclosed an area 12.8m in diameter (Fig 26; Plate 20). It was excavated in four evenly spaced sections 1.60–1.90m long, with a longitudinal section at one of the intersections with the Iron Age enclosure. The total excavated length of 7.8m represents 26% of the available length of 30.0m, and 17% of the total length of *c*46m.

The ditch was 1.40–2.10m wide by 0.55–0.66m deep, and was U-shaped, with a broad, flat bottom, 0.25–0.40m wide (Fig 26, S.125 & S.130). The edges above the level of the primary silting had been eroded back to quite a shallow angle, indicating that the sides had been exposed to the elements for a prolonged period. The primary silt (6004) was of dark-brown sandy loam, but contained quantities of gravel and sand, some of which was quite clean and clearly derived directly from the eroded ditch sides. The secondary fills (6003) were of orange-brown sandy loam, and contained much less gravel. The upper fill (6002) was brown sandy-loam containing significantly more gravel than the secondary fill. Three of the four sections show a range from slight to markedly differential filling, with a clear concentration of gravel at the inner edge on the northern side of the circuit (Fig 26, S.125). This is interpreted as indicating the probable former presence of a central mound containing much gravel.

Approximately 0.50m north of the centre of the ring ditch there was a steep-sided circular pit, 0.50m in diameter by 0.40m deep (Fig 27, 6031). The fill was dark-brown sandy loam, and no finds or other material were present. It is suggested that the pit had either held some lost organic material that had formed an accessory deposit, like the

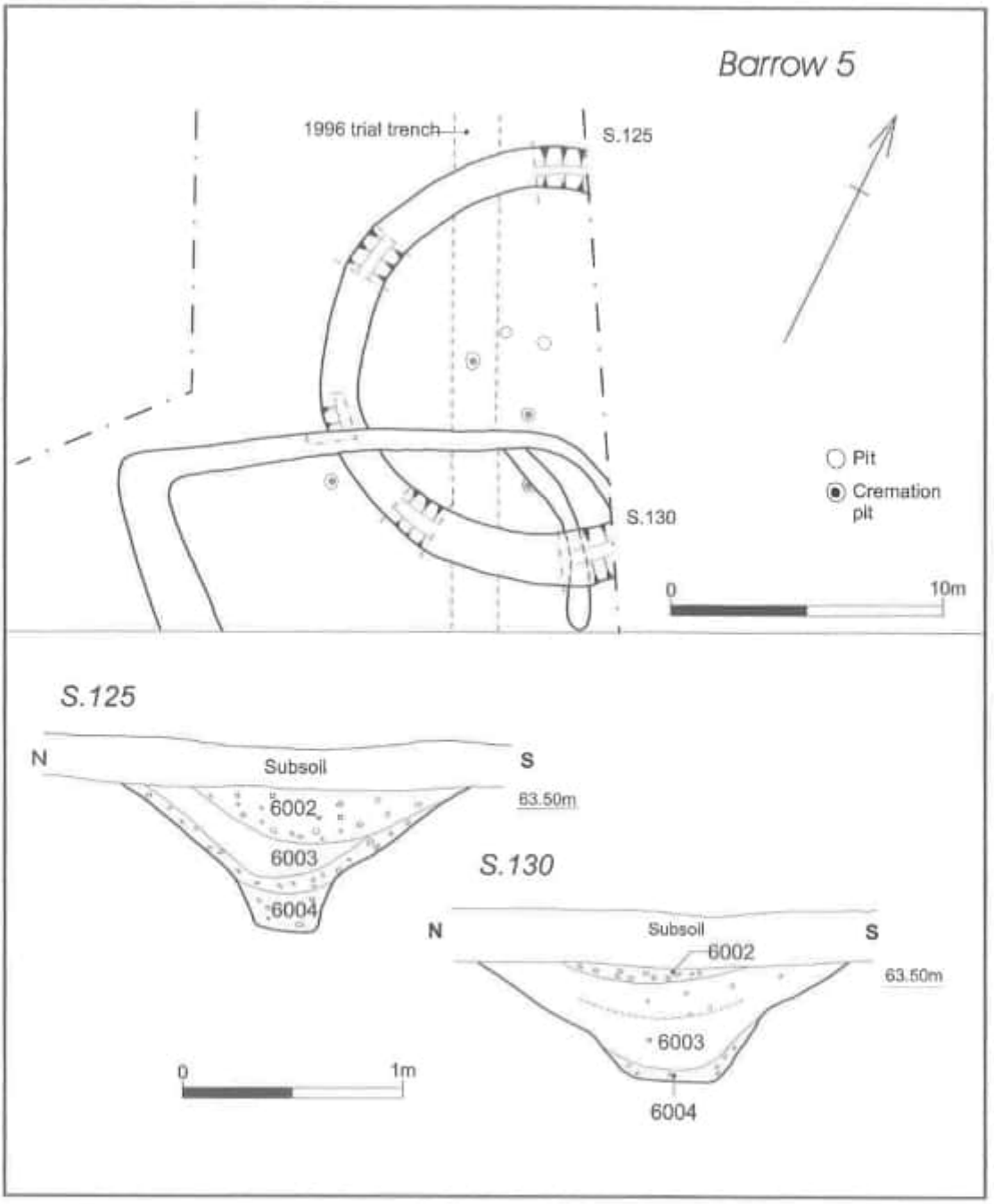


FIGURE 26 Barrow 5, general plan and sections of barrow ditch

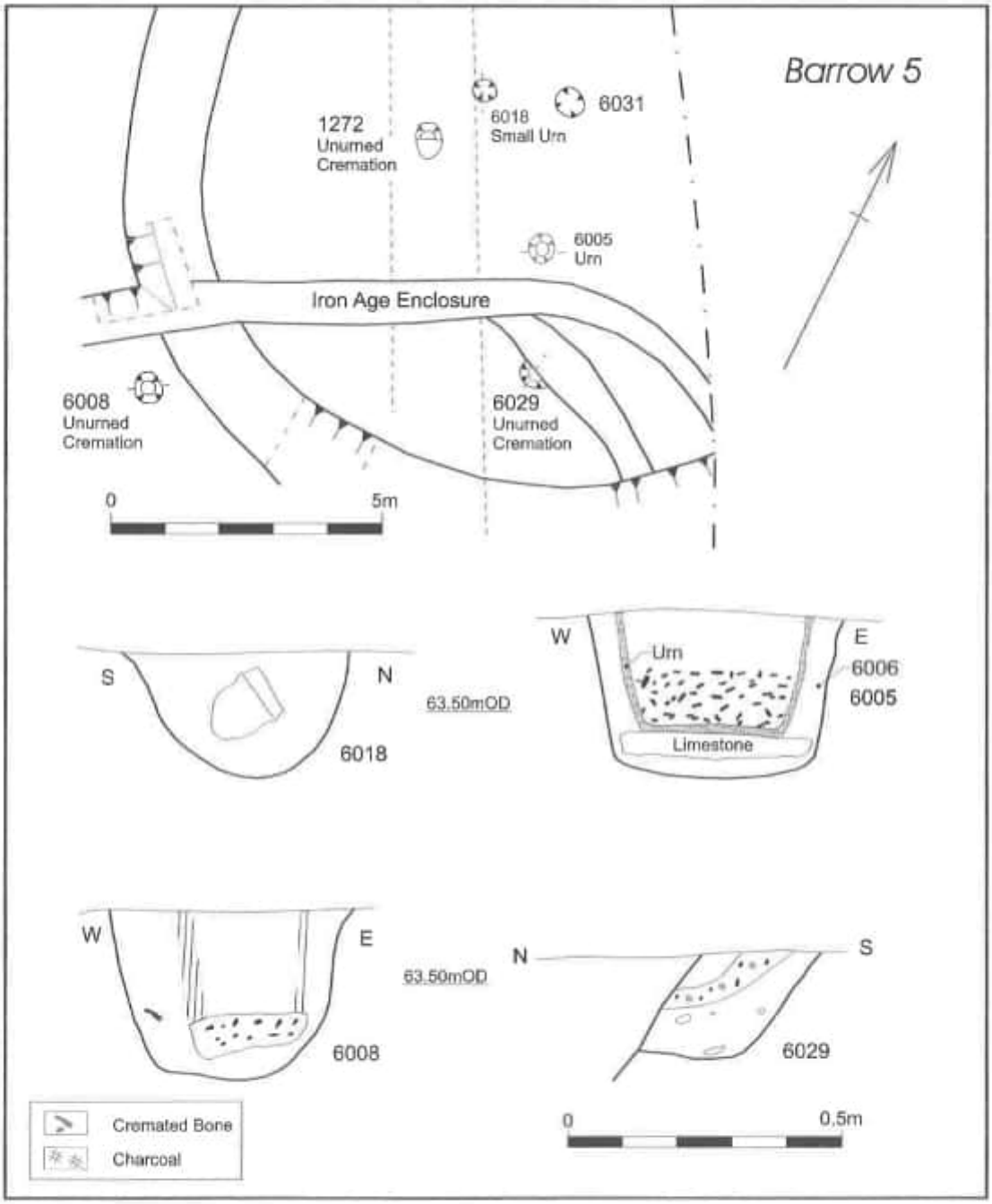


FIGURE 27 Barrow 5, plan and sections of the cremation deposits (6005, 6008 & 6029) and the pit containing the accessory vessel (6018)

small Collared Urn in an adjacent pit (6018), or that it perhaps held a timber post marking the centre of the barrow. A further four pits lay within the ring ditch, and three of these contained cremation deposits. A further cremation deposit lay to the south-west, immediately outside the ring ditch (Fig 27).

Approximately 1.0m west of the centre of the ring ditch there was a small, bowl-shaped pit (6018), 0.40m diameter by 0.23m deep. The fill was a dark-brown sandy loam that contained a little charcoal. Set within the fill, above the base of the pit and leaning over to the north, there was a complete small Collared Urn, only 122mm high (Fig 27; Plate 21). It is crudely fashioned and decorated, and so poorly fired that the vessel had distorted and cracked in the ground, leaving it with an elliptical plan form (see Fig 34, 3; Plate 29). The fill of the vessel was indistinguishable from the rest of the pit fill, and the urn is interpreted as an accessory vessel contemporary with one of the adjacent cremation deposits, perhaps that lying 1.0m to the south-west in pit 1272.

Pit 1272 had been excavated in the M1–widening trial trench evaluation of 1996 (Parkhouse 1996, 24 & fig 6). The steep-sided oval pit was up to 0.73m long by 0.39m deep. It contained a clean primary fill and above this a deposit of cremated bone in black silty loam was found "in a compact zone in the centre of the pit cut" perhaps suggesting that it had been collected and deposited separately from the pyre debris.

Two metres to the south of the centre of the ring ditch, a pit (6005), 0.45m diameter by 0.30m deep, held an upright, poorly-preserved, large urn, with the rim lost to later ploughing (Fig 27; Plate 22). The urn was plain, and stood on an irregular slab of limestone, up to 350mm long by 50mm thick (Plate 23). The base of the urn is 230mm in diameter and it has a maximum diameter of 320mm at a height of 170mm, but the full original form has been lost (Figs 23 & 34, 4). A deposit of cremated bone occupied the bottom 90–100mm of the vessel (Fig 27), and weighs just over 2kg, representing the near complete collection of the remains from the pyre. The deposit contained a high proportion of large bone fragments, certainly the largest from all of the excavated cremation burials, including long bone shaft fragments up to 95mm long and pieces of skull up to 50mm across, as well as some cylindrical bodies from the smaller vertebra, and complete digits and teeth. Given the better-than-normal preservation of the bone, it is possible to say that it came from a young adult, 20–25 years old, possibly female.

The bone deposit contained virtually no charcoal, showing that it had been carefully separated from the pyre debris. The upper part of the urn was filled with brown sand containing some charcoal but no bone. The fill of the pit around the urn was similar, and also contained charcoal, presumed to be some of the pyre debris, and no more than the occasional small piece of bone. The 28g of charcoal from the pit fill and the charcoal from the urn comprised a mixture of oak (*quercus* sp.) and *Prunus* types (cherry, bird cherry etc) (Table 11). This material has given a radiocarbon date of 1670–1485 Cal BC (95% confidence, 3290+/-40BP, Beta-132791).

Two short lengths from a small copper-alloy rod or rods, came from the bone deposit, and had probably come from some larger object that had not been recovered from the pyre. They might have been from fine copper-alloy pins, perhaps used to decorate the handle of a copper alloy knife (see Ashbee 1960, 99–100).

To the south, 1.8m from the inner edge of the ditch, a small pit, 0.65m in diameter by 0.20m deep, had been partly cut away by a ditch of Iron Age date (Fig 27, 6029). The lower fill was of brown sandy loam, but above this there was a thin layer containing mixed cremated bone and charcoal, with no attempt at separating the different elements of the pyre debris. The 0.29g of bone recovered is from a juvenile individual and, even allowing for later truncation, this would have been a token deposit of well under a half of the possible total weight. No grave goods were recovered.

To the south-west, lying 0.40m beyond the outer edge of the ring ditch, a circular pit, 0.40m diameter by 0.31m deep, contained a further cremation deposit (Fig 27, 6008). The general pit fill was dark brown in colour, and contained the occasional small piece of burnt bone. The main mass of cremated bone, in a matrix of dark brown loam, rested on the lower fill and was 220mm in diameter by up to 80mm thick. In section, two clear vertical bands of black sandy loam, 20mm thick and 200m apart, were seen to extend above this deposit. The fill between these bands and above the mass of cremated bone was of dark-brown to brown-black loam, which contained some small pieces of burnt

bone. These bands presumably defined the walls of an organic container, perhaps wooden, that had held the bone deposit. The shape was not properly defined in plan, but was most probably cylindrical, and the container may have been of birch bark or was perhaps a wooden bucket. A total of 1.28kg of burnt bone was present, and is from an adult aged 20–30 years. Over a half of the available material had been recovered from the pyre, with the low incidence of charcoal showing that some care had been exercised in its recovery.

The deposits within Barrow 5 had evidently not been inserted through a substantial mound so, unless they had all been inserted at almost the same time, it might be suggested that the original form of this barrow was as either a disk barrow, with only small mounds over the individual deposits, or a saucer barrow with a low central mound, perhaps around a central post, so that the interior could receive multiple burial deposits over an extended period of time (Ashbee 1960, fig 3). The presence of a cremation immediately beyond the ring ditch would suggest that there was either no external bank or that there was a berm between any external bank and the ring ditch. The incidence of gravel in the upper fill of the ditch and the evidence for differential filling does, however, suggest that once the sequence of burials came to an end, the barrow may have been closed by the addition of a more substantial central mound that ran at least near to the edge of the ditch. The presence of such a mound was also indicated by the ditch of the Iron Age enclosure, which was noticeably narrower and shallower within the ring ditch, indicating that the ditch had been cut into the flanks of an extant barrow mound, with a consequent reduction in the depth that it cut into the underlying natural. The change in depth would suggest that the outer parts of the mound may have stood at least some 0.5m high.

The southern barrow group, Barrows 3, 4, 6 & 7

Only a single radiocarbon date is available for the four southern barrows, and this indicates that they were probably the final stage of cemetery development, towards the end of the Early Bronze Age, 1600–1450 Cal BC, following shortly after or even overlapping with the final use of Barrow 5. The four barrows formed a tight linear group, aligned north-east to south-west, and appeared to comprise two pairs, with a wider central spacing (Fig 3 and 36). This area of the site had been more heavily truncated, and this may account for the absence of any surviving burial deposits, which for these later barrows would probably have been entirely as deposits of cremated bone.

Barrow 3

This was the most westerly of the southern barrow group. A ditch of slightly oval plan enclosed an area measuring 14.0m NW-SE by 12.5m NE-SW, with the long axis aligned 31 degrees west of Ordnance Survey grid north, a little off a right-angle to the alignment of the barrow group (Figs 3 & 28). The ditch was excavated in six evenly-spaced sections from 1.8–2.2m long, and a further length of 1.1m had been excavated in the evaluation. The total excavated length of 13.6m represents 30% of the total ditch length of 44.8m.

The southern half of the ditch circuit was typically V-shaped, and at the surface of the natural gravel it was 1.40–1.80m wide by 0.70–0.90m deep. There was a considerable depth of primary fill, which reflects the nature of the mixed sand and gravel natural in this area, which evidently eroded more rapidly than the gravel elsewhere on the site (Fig 28, Trial Trench Section, layer 4). At the interface of the primary and secondary fills there was a slight concentration of gravel coming from the inner edge of the ditch, which suggests the presence of a central mound containing upcast gravel, although this was not evident in all the excavated sections. The upper fills (2) perhaps contained a little more gravel towards the inner edge, but a distinctly gravel-rich fill above this (1) had evidently come from inside the ring ditch and clearly denoted the former presence of a central mound containing much gravel.

To the east there was a sudden reduction in both the width and the depth of the ditch, while to the west the change appeared to be more gradual. The northern half of the circuit varied from an eroded V-shaped profile to a steep-sided slot-like cut, 0.45–0.85m wide by 0.40–0.45m deep (Fig 28, S.91). Just east of north, a 2.80m length of the narrower ditch was recut. The recut was up to 0.70m wide by 0.35m deep, spanning the full width of the earlier ditch but bottoming within its primary fill. The general fill of the recut (1056) was darker than the earlier ditch fills and contained less gravel. Within this there was a well defined U-shaped slot, 1.95m long, 0.25m wide by 0.15m deep, with a fill

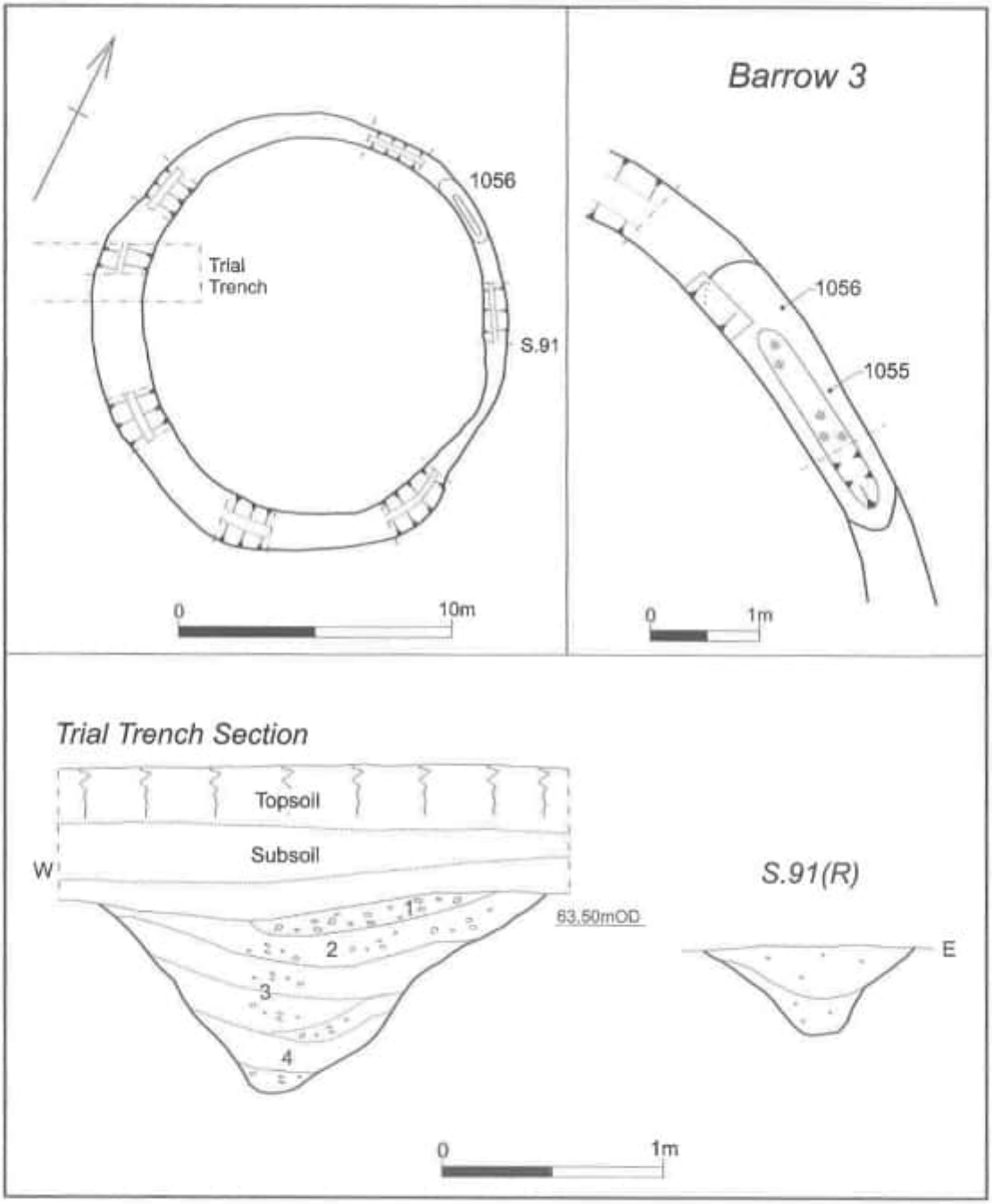


FIGURE 28 Barrow 3, general plan, plan of recut slot and sections of barrow ditch

of grey-brown sand containing moderate flecks and small pieces of charcoal (1055). The total of 13g of charcoal recovered was virtually all oak (*quercus* sp.) although there was a single piece of Hazel (*Corylus* sp.).

The sequence of ditch development was not established, and the absence of a visible cut in the fills at the excavated junction of the two circuits on the eastern side probably denotes that the recutting had occurred before any significant quantity of silt had accumulated within the earlier ditch. It is suggested that the narrower northern arc was the earlier ditch, forming either a C-shaped mortuary enclosure or perhaps fully encircling the burial area. The cutting of the southern, deeper ditch is presumed to follow the insertion of any burials in the central area, to provide material for a covering mound. At this time, or later, a short length of the narrow northern ditch was recut, with the fill of this recut containing a quantity of oak charcoal, perhaps derived from collected pyre debris.

No features survived within the interior of the ring ditch, and any former burials had been lost.

Barrow 4

A ditch of near-circular plan enclosed an area 14.0m in diameter (Fig 29). It was excavated in eight evenly spaced sections from 1.5–2.2m long. The total excavated length of 15.2m represents 31% of the ditch length of 48.7m. The ditch was typically broad and U-shaped, 1.10–1.90m wide by 0.44–0.73m deep. It was at its narrowest and shallowest to the south, 0.49–0.54m, at its deepest to the west and east, 0.70–0.73m, and at an intermediate depth to the north, 0.59–0.63m (Fig 29, S.96 & S.100).

The ditch profile varied considerably around the circuit, with one side often at a shallower slope, probably as a result of differently erosion. In the three most northerly sections it was the outer side that was eroded, while in the other five sections it was inner. This pattern suggests a relationship to the temperature extremes deriving from exposure to the sun, with the sun-facing slopes showing the most severe erosion.

As with the nearby Barrow 3, in this area the natural was quite sandy and the sides of the ditch had probably eroded quite rapidly. There was a thin primary fill (1042), containing gravel, and a thick, homogeneous, sandy secondary fill (1041), which contained only a little gravel. It had a sharp interface with an upper fill containing more and larger gravel (1040), which may have come from a central mound, although there was little asymmetry in the fills. A small quantity of fragmented and degraded animal bone from the ditch fill appears to be from an antler shaft.

No features had survived within the ring ditch.

Barrow 6

This was the smallest of all the round barrows. It had a ditch of near-circular plan enclosing an area 10.2–10.5m in diameter (Figs 3 & 30; Plate 24). It was excavated in six evenly spaced sections, varying in length from 1.7–2.4m. The total excavated length of 12.2m represents 34% of the ditch length of 36.1m.

The ditch was typically V-shaped, and 0.90–1.65m wide by 0.49–0.65m deep. The western half of the circuit was 0.60–0.65m deep, while the eastern half was 0.49–0.57m deep. A few sections show a slight asymmetry in the filling, with a greater thickness of silts containing gravel against the inner edge, which may suggest the former presence of a central mound. To the west a 1.0m length of carbonised timber was found at the centre of the ditch, resting on top of the primary fill (Fig 30; Plate 25). It was 150–200mm wide and 70–100mm thick, and may have been a partially-burnt timber recovered from a funeral pyre. The main timber was of oak (*quercus* sp.) but some hawthorn (Pomoideae type) charcoal formed a separate, smaller mass at its southern end. The charcoal has given a radiocarbon date of 1670–1390 Cal BC (95% confidence, 3230+/-70 BP, Beta-132791), the youngest date from any of the round barrows.

A shallow pit, 1.0m south-east of the centre of the ring ditch, was bowl-shaped, 0.35m in diameter by 0.10m deep, and was filled with grey brown sandy loam with some charcoal flecks (1043). There was no cremated bone, but this feature may have been the base of a truncated pit that had held a primary cremation deposit.

Barrow 7

This was the most easterly of the southern barrow group, with a ditch of near-circular plan enclosing an area 14.2–15.0m in diameter (Figs 3 & 31; Plate 24). It was excavated in eight evenly spaced sections varying in length from 1.4–2.7m. The excavated length of 17.10m represents 34% of

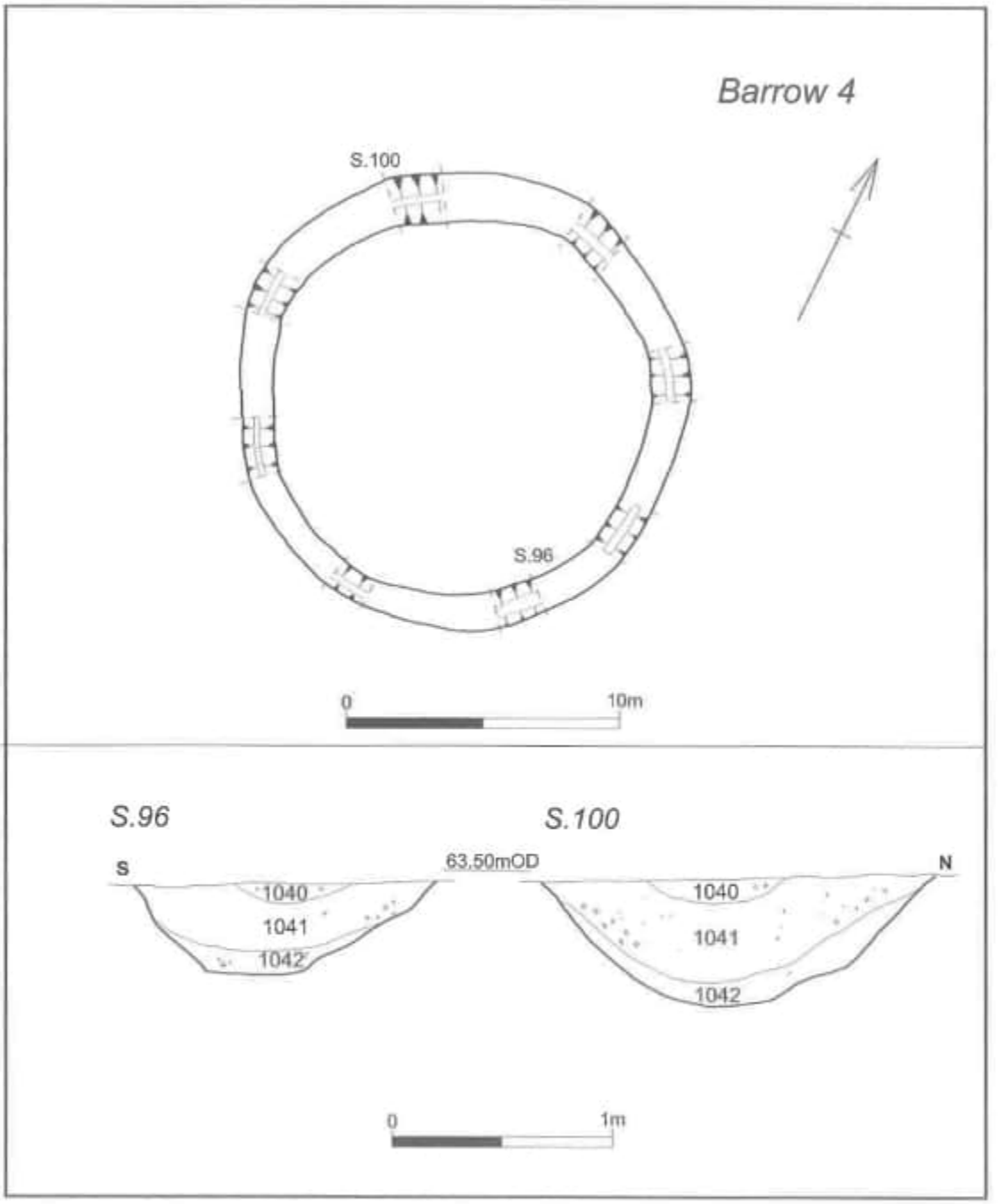


FIGURE 29 Barrow 4, general plan and sections of barrow ditch

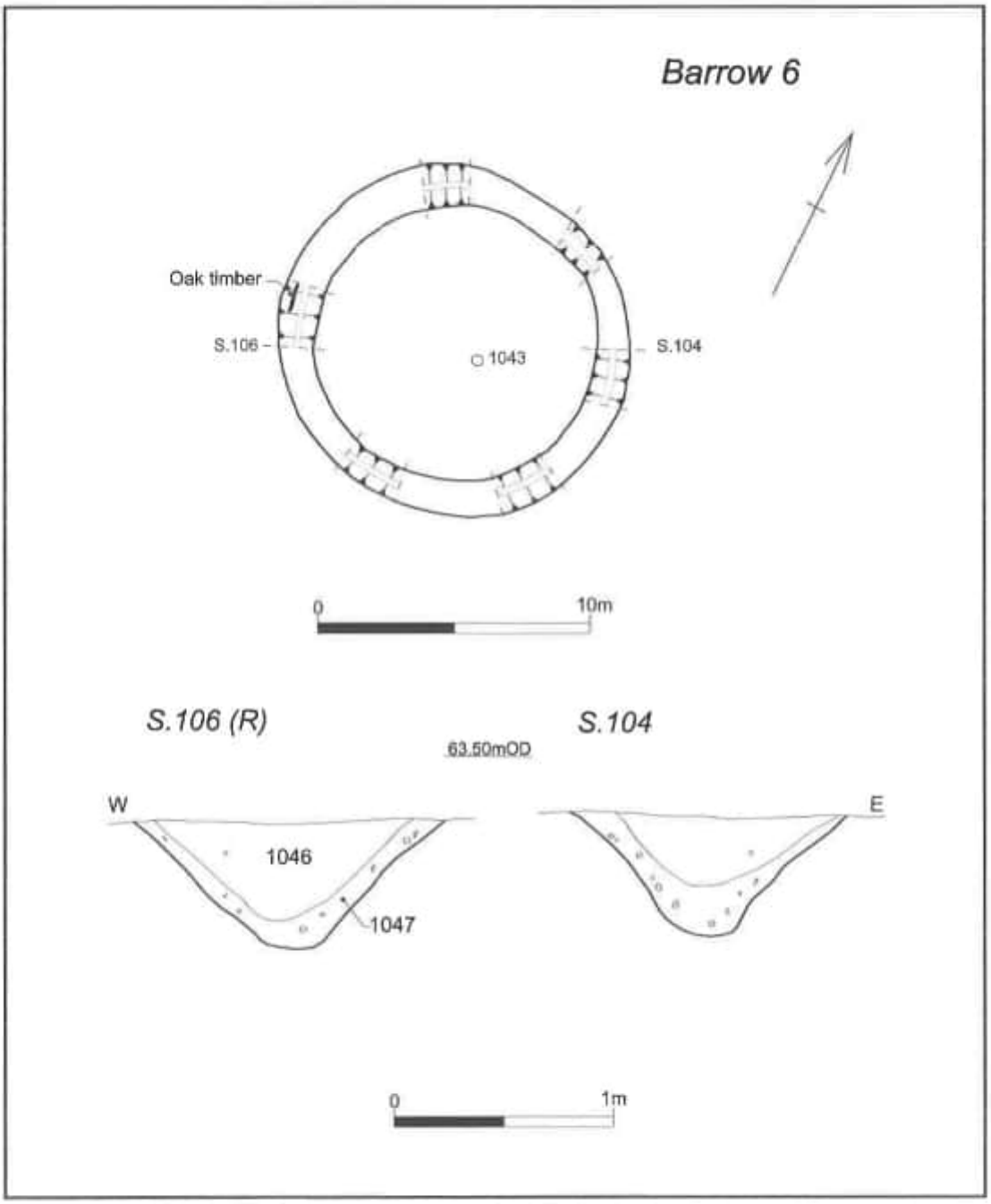


FIGURE 30 Barrow 6, general plan and sections of barrow ditch

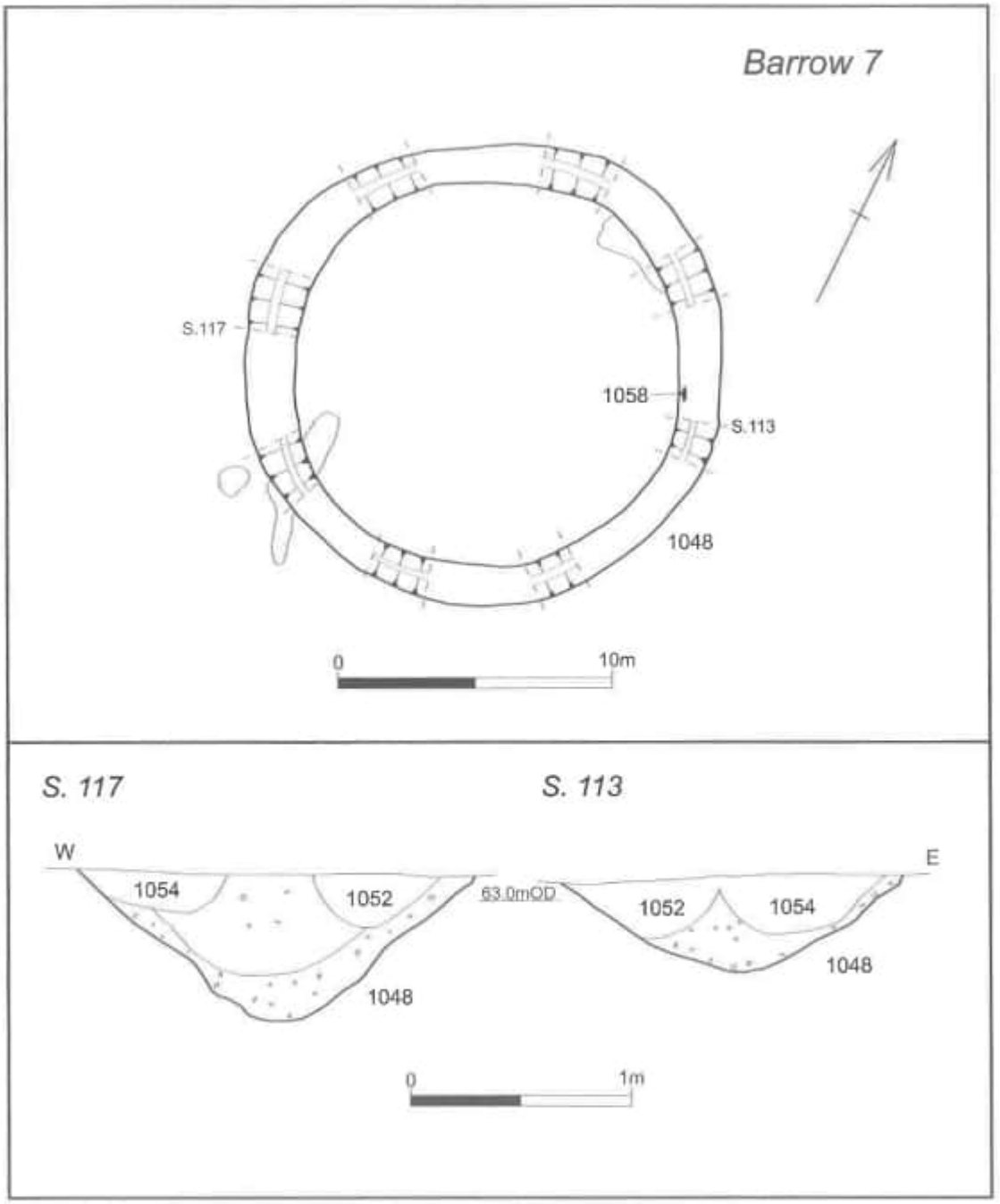


FIGURE 31 Barrow 7, general plan and sections of barrow ditch

the ditch length of 50.25m.

The ditch varied from 1.3–2.0m wide by 0.47–0.74m deep (Fig 31, S.117 & S.113). The north-western half of the circuit was typically around 0.70m deep, while the south-eastern quarter was typically the shallowest, at around 0.50m deep. The profile varied from a steep-sided, V-shaped cut to a much broader-bottomed U-shape. This pattern might be similar to that seen in Barrow 3, and is perhaps similarly indicative of two phases of ditch digging, with at least one phase not fully encompassing the barrow, but in this instance the differences are not marked sufficiently clearly to be certain.

The primary fill contained gravel, and the secondary and upper fill was homogeneous, with no differential filling to denote the likely former presence of a central mound, although such evidence would have been at least partly obliterated by the disturbance of these fills by later recutting.

Once the ditch had silted to the level of the natural, as excavated, the circuit was fully redefined by the cutting of gullies running along the inner and outer edges of the ditch. They only intersected in three places and, given the similar fills, it is uncertain whether they were successive recuts or a single double recut. They were from 0.30–0.70m wide and typically 0.20–0.30m deep, but with extreme depths of 0.15m and 0.40m. The fills were of orange-brown sandy clay containing few pebbles.

No features had survived within the interior.

The Bronze Age finds from the barrow cemetery by A Chapman

The worked flint

Only 27 worked flints were recovered from the site (Table 7). The largest group, 19 pieces, came from Barrow 2, with 10 of these associated with burials. Two pieces came from pits in the area of Barrow 1, but these may be of Mesolithic date, and a single flint came from Barrow 3. Four pieces from the Iron Age pit alignment and the Iron Age enclosures are all assumed to be residual from earlier periods of activity on the site.

While flints within the topsoil and subsoil, which was largely removed by mechanical excavator, would have been lost, the extremely small numbers recovered from the fills of both the barrow ditches and the later features, indicate that little flint had been deposited either on the barrow mounds or on the ground surface immediately adjacent to these ditches, or anywhere near the later Bronze Age and Iron Age features. In fact, when the items deposited as grave goods are removed from the total, the 17 remaining flints constitute no more than a sparse background scatter. If such low numbers had been recovered in fieldwalking across an area equivalent to the 5.65ha that was examined at Gayhurst, they would be interpreted as no more than a background scatter with a broad date range from the Mesolithic to the Early Bronze Age, accumulated from sparse periodic activity of no particularly significance.

TABLE 7 The worked flint from the barrows and other deposits

Location/ type	*Core*	*Flake*	*Blade*	*Scraper*	*Knife*	*Arrowhead*	*Totals*
Barrow 2:							
Inner ditch	*2*	*0*	*3*	*0*	*0*	*0*	*5*
B2: Cremations	*0*	*2*	*0*	*2*	*1*	*0*	*5*
B2: Burial 5065	*0*	*2*	*1*	*0*	*2*	*0*	*5*
B2: Other	*0*	*2*	*2*	*0*	*0*	*0*	*4*
Barrow 2 (total)	2	6	6	2	3 (PC)	0	19
Barrow 1	0	0	2	0	0	0	2
Barrow 3	0	1	0	0	0	0	1
Pit alignment	0	2	0	0	0	1	3
Enclosure 4	0	1	0	0	0	0	1
U/S	0	0	0	1	0	0	1
Totals	**2**	**10**	**8**	**3**	**3**	**1**	**27**

Such a small total, and with a broad date range, certainly would not be taken as indicative of the presence of any substantial sub-surface features, let alone a cemetery containing seven round barrows.

No specific explanation can be offered for these low numbers, but in general terms there is no reason why a barrow cemetery should attract a greater rate of flint deposition, except as an accidental consequence of a higher intensity of general activity in the vicinity of the barrows. However, it may be that the presence of the barrows would be a positive disincentive to the carrying out of such activities as flint knapping in their immediate vicinity. Recent excavation of a group of four ploughed-down round barrows further upstream, next to the river Great Ouse near the village of Passenham, has found a similarly low level of flint deposition within the fills of the surviving ring ditches (Edmund Taylor, Northamptonshire Archaeology pers comm).

It may also be noted that at some barrows that have produced substantial quantities of worked flint, such as the intact mounds of Neolithic and Bronze Age date excavated as part of the Raunds Area Project in the Nene valley in Northamptonshire (Harding and Healy forthcoming), the flint recovered was largely within the upcast soils forming the mounds. The presence of identifiable types pre-dating the monuments from which they were recovered also demonstrated that the flint had lain within these soils as a result of earlier episodes of activity. The paucity of flint at Gayhurst may, therefore, be a further indication that the barrow cemetery was a new creation of the Early Bronze Age, and did not occupy an area that had seen any significant previous activity, beyond some limited usage in the later Mesolithic.

Over a half of the flints are in brown to grey vitreous flint, while the remainder are in a grey opaque or granular flint. The cortex, when surviving, is brown and some flints have a patchy light-blue surface patination. Most of the material is consistent with an industry based on the exploitation of flint nodules from the local river gravels, although the two particularly fine plano-convex knives with inhumation burial (5065) in Barrow 2 are evidently from large cores, certainly of better quality than the raw material typically available from the local gravels (Fig 32, 1 & 2; Plate 26).

Two cores were recovered from the inner ditch of Barrow 2, within the cattle bone deposits. Both were in grey granular flint and were small, maximum dimensions of 32mm and 55mm, with a single platform and two platforms at right angles respectively. They had both been used for the production of small flakes.

A total of eight blades were recovered, which would be considered a high proportion for an Early Bronze Age flint industry. There are five narrow blades, with four of these closely similar, at 39–42mm long by 11–12mm wide; the remaining example is both shorter and narrower, 26mm long by 9mm wide. None had been retouched. Six of the eight blades came from a range of contexts in Barrow 2, but of particular interest are two blades, one of which was narrow, from two of the irregular pits in the area of Barrow 1. These pits have been interpreted as tree holes, not as man-made features, and a number certainly pre-dated the barrow ditch. It is suggested, therefore, that the narrow blades are most likely to be debitage from a microlithic flint industry of Mesolithic date; a little of this material becoming incorporated into the tree holes and other later features. These two flints therefore provide the only evidence for human activity in the area prior to the barrow cemetery. There are ten flakes, of varying shapes, but often irregular, only one evidently coming from a well-prepared core. A couple have edge damage from utilisation as cutting tools.

Of the seven retouched flint implements, two are residual in their context; the others accompanied burials. It is likely that all are of Early Bronze Age date. The lack of any significant quantity of contemporary debitage indicates that they had all been manufactured elsewhere.

The two finest flints are the plano-convex knives deposited with the second inhumation burial (5065) in Barrow 2. They are both 70mm long and fashioned on large blades of grey opaque flint, but had been worked quite differently (Fig 32, 1 & 2; Plate 26). The broader knife (SF7), has an asymmetrical section with invasive pressure flaking across the thicker side of the dorsal surface, up to a distinct longitudinal ridge, while there is only marginal retouch along the opposite edge and at the proximal and distal ends (Fig 32, 1). The other knife (SF8), is evenly convex, and near symmetrical, and the entire dorsal surface has been pressure flaked, with marginal retouch on all but the proximal end (Fig 32, 2).

A smaller plano-convex knife, originally some 55–60mm long, with a distinct longitudinal ridge

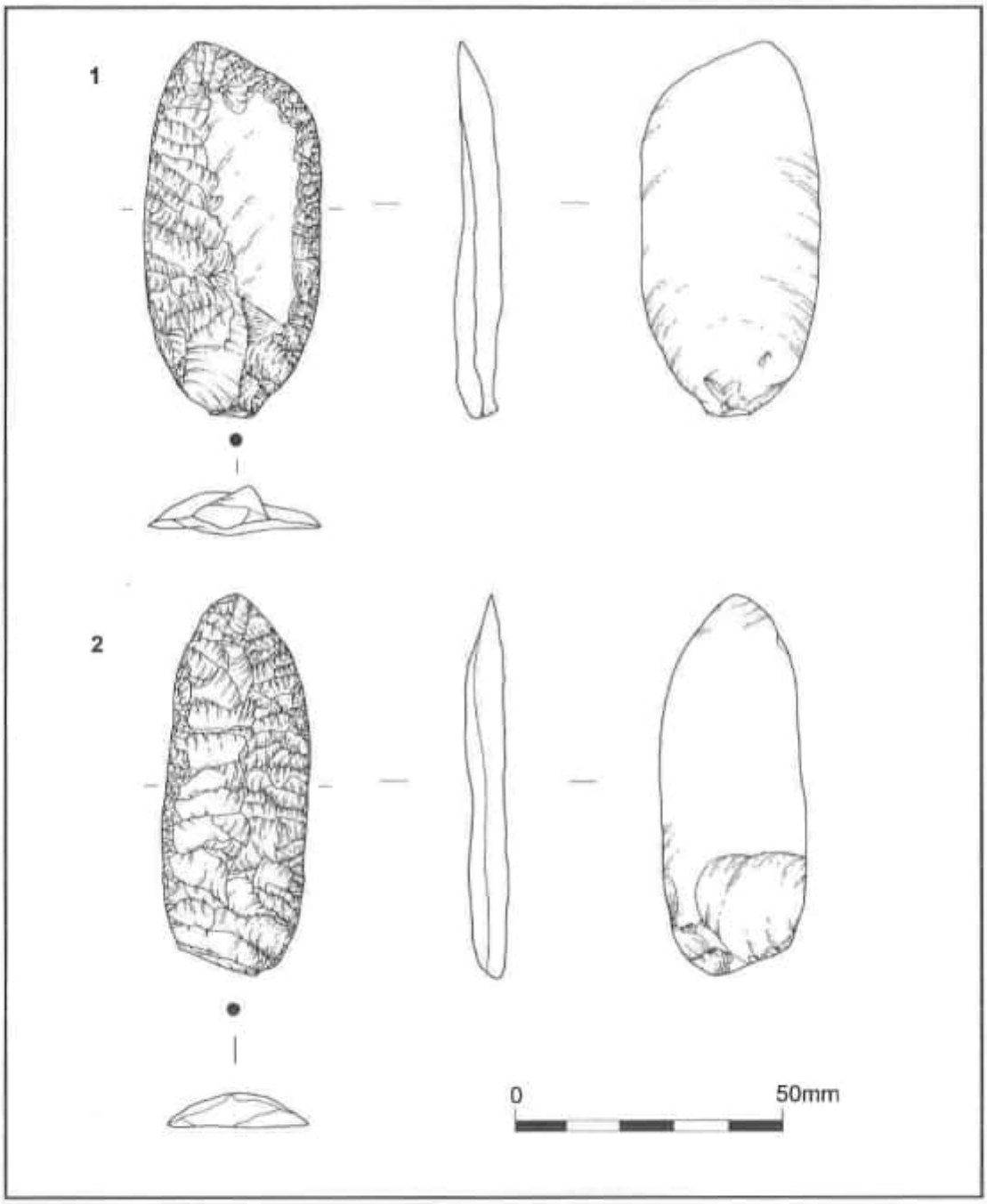


FIGURE 32 The plano-convex flint knives (1 & 2) with the secondary inhumation (5065) in Barrow 2

and marginal retouch on the dorsal surface was found with cremation (5068, pit 5069) in Barrow 2, and had been burnt on the pyre (Fig 33, 3). This deposit also contained two antler spatulae and a split rib bone, see below.

Three scrapers were recovered. A small discoidal scraper, up to 30mm in diameter, a typical Early Bronze Age form, was found on the surface of the field. A damaged end/side scraper (SF10), 36mm long, was found within the pyre debris above cremation deposit (5083) in pit 5084, Barrow 2, although the scraper itself was not burnt. The retouch on the side is less abrupt, tending towards a cutting edge, perhaps suggesting that this was really a composite tool (Fig 33, 5). A long, keeled end-scraper (SF15), 54mm long, and heavily burnt, was found with the cremated bone within the Collared Urn (5044) in Barrow 2 (Fig 33, 4).

The only arrowhead was a residual find in pit alignment B (pit 3035). It is a small barbed and tanged arrowhead, 32m long, finely worked, and in a grey vitreous flint (Fig 33, 6). It is not possible to assign this broken arrowhead to a precise category, but the straight sides, which are just turning outwards at the barbs, indicate that it is a 'fancy', geometrically shaped, piece, probably either Conygar Hill type C or Green Low type h, depending on the original shape of the ends of the barbs (Green 1980, 117–123).

Bronze Age pottery from Barrows 2 and 5

The pottery assemblage comprises the remains of four urns, two from Barrow 2 and two from Barrow 5. Both vessels from Barrow 2 are Collared Urns that had contained deposits of cremated bone. From Barrow 5 there is a small Collared Urn, an accessory vessel, and a very poorly preserved urn, with the upper part lost to later truncation.

Barrow 2, urn 5044

The poor firing of this Collared Urn was not immediately apparent as much of the outer surface of the vessel survived, although the upright urn had sagged, distorted and slumped onto one side, and the thicker collar had become detached from the rest of the vessel (Plate 16). In the off-site excavation of the contents, it was seen that only the collar retained both its original surfaces, at 10mm thick and thickening to 17mm at the base of the collar. The base of the vessel was less well preserved, but in part retained its original thickness of 16mm. In contrast, only the outer skin of the body of the urn retained any integrity, although on excavation it fragmented into numerous sherds each only some 1–4mm thick. The inner surface and most of the core had degenerated, although in places an original thickness of around 10mm is indicated. The distortion and fragmentation has made it difficult to reconstruct an accurate profile of the full vessel. In particular, the vessel wall was apparently thinnest immediately below the collar, and the lack of a join here has left the length of the neck uncertain. This, and probable vertical compression due to poor firing, has probably made the vessel appear too squat, and it may have stood higher than the depicted 267mm (Fig 34, 1). The rim diameter is 317mm and the base diameter is 103mm.

The fabric has laminated suggesting the former presence of organic inclusions. The external surface is smoothed and is oxidised orange on the body, while the collar has a rougher finish and is a darker orange-brown. The inner surface, where it survives on the collar, body and base is black, with a black core.

It is a tripartite vessel, with the collar, which is 55mm deep, standing above a shallowly concave neck, with a well-marked carination between the neck and the body. The collar and the lower neck are decorated with patterns of twisted cord impressions (Plate 27). On the collar three rows of oblique impressions in alternating directions, form an overall zigzag pattern. At the base of the neck, straddling the carination, there is an encircling line of cord impressions. Above this there was a second, similar encircling line, but the vessel had fragmented at this point and only remnants of the upper line survive. Between the two encircling lines there are short vertical lengths of cord impressions. Below the lower line, alternating oblique cord impressions form a chain of pendant triangles.

Barrow 2, urn 5012

This comprises much of the collar from a small Collared Urn that had been inverted over a deposit of cremated bone forming a satellite burial to Barrow 2. The surviving collar was well fired, and is up to 48m deep and 7–11mm thick, with a rim diameter of 167mm (Fig 34, 2; Plate 28).

The fabric contains sparse, small angular or rounded grit, measuring 1–2mm. The external surface is oxidised to a pale orange-brown, the inner surface is light grey and the core dark grey.

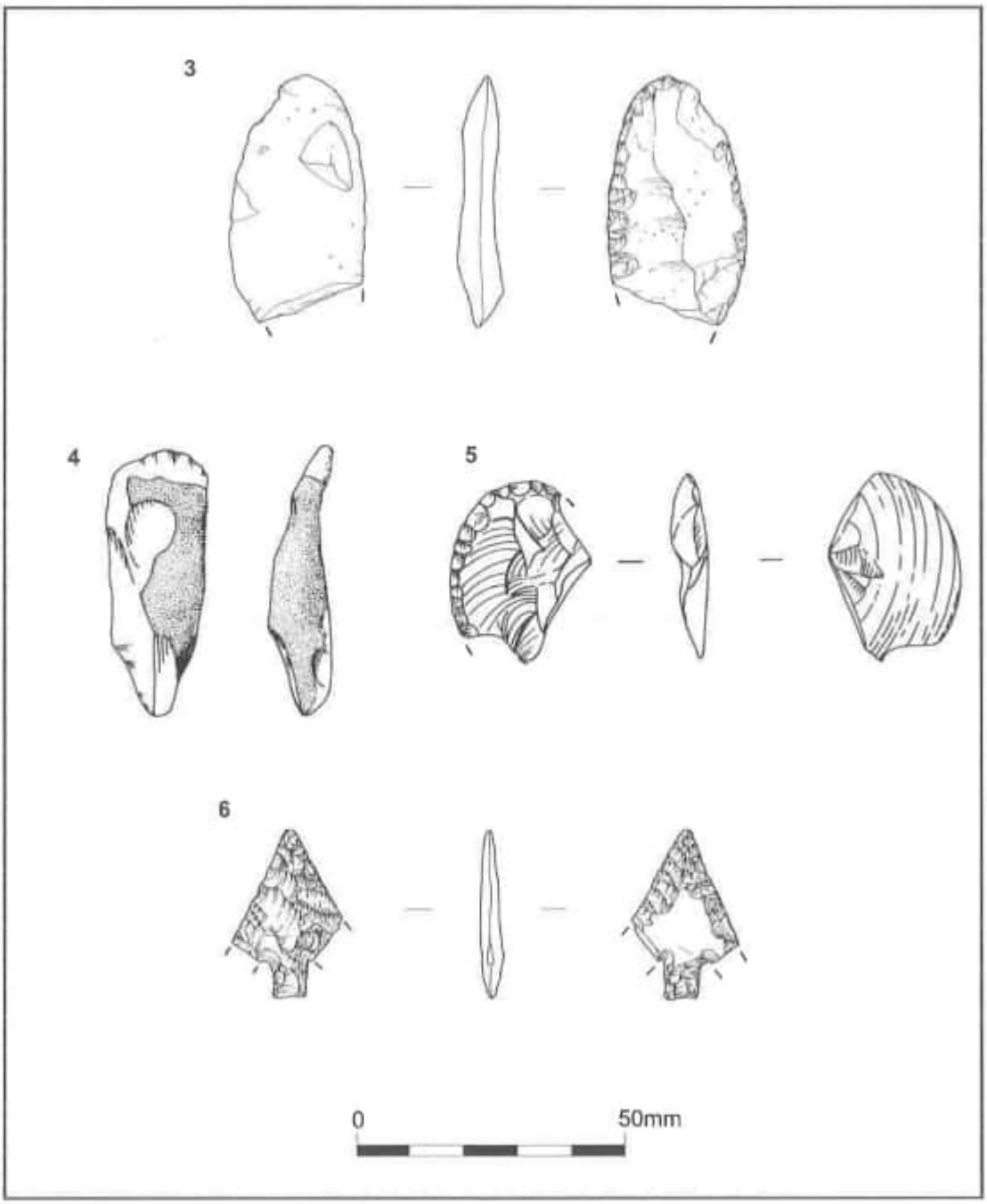


FIGURE 33 A plano-convex flint knife (3), scrapers (4 & 5) from cremations in Barrow 2, and a barbed and tanged arrowhead (6) from the pit alignment

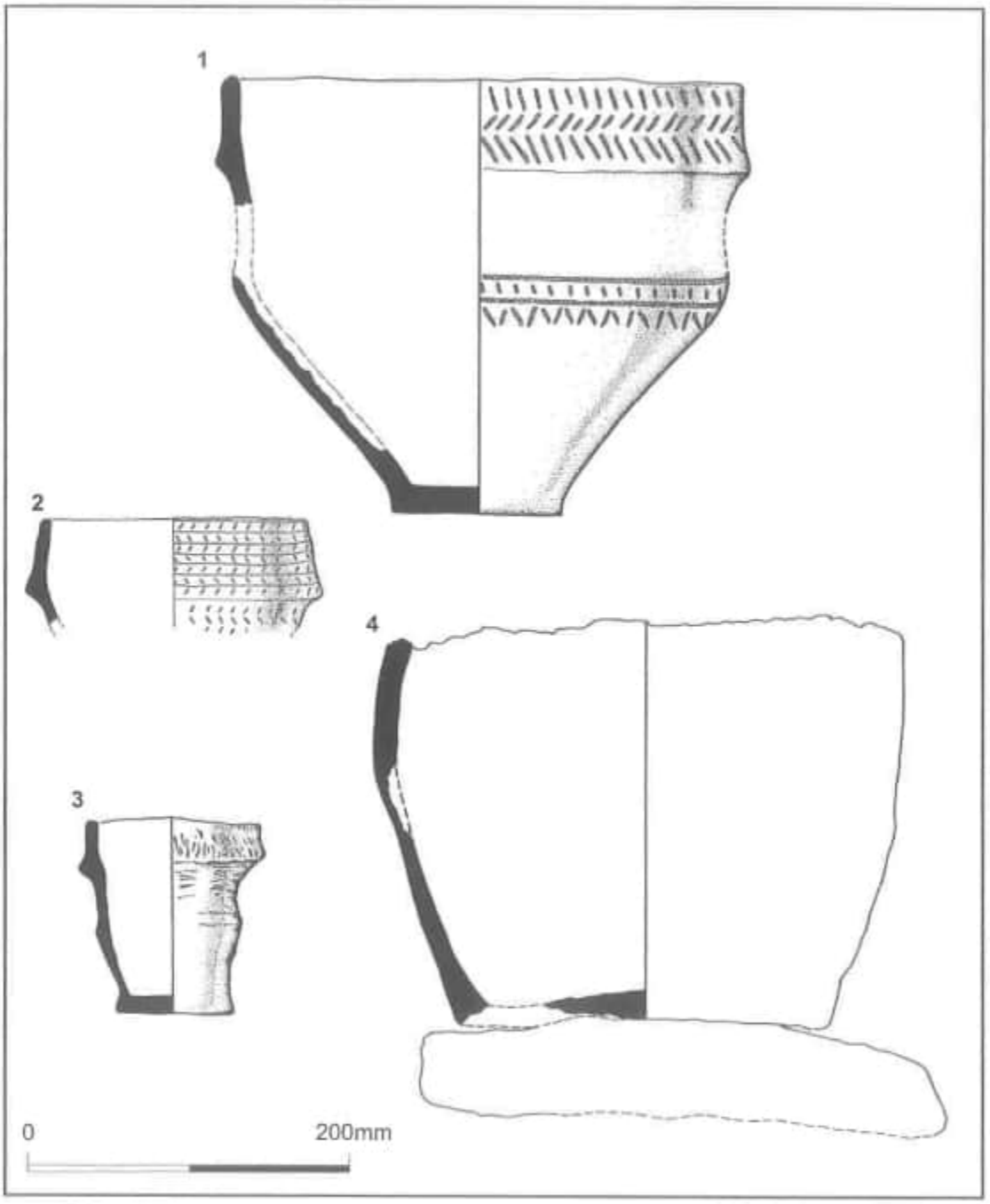


FIGURE 34 Early Bronze Age pottery from Barrow 2 (1 & 2) and Barrow 5 (3 & 4)

The collar and neck are decorated with cord impressions. On the collar these comprise seven rows of oblique, cord impressions, set in alternating directions to form a herringbone pattern. The twist is at near right-angles to the cord, and these may have been formed using whipped cord. The rows are separated by single encircling lines of fine, twisted cord. On the underside of the collar and continuing onto the neck there are three rows of oblique cord impressions, set in alternating directions, although the lowest row only partially survives as the remainder of the vessel is lost.

Barrow 5, urn 6019

A small Collared Urn, standing 122mm high with a rim diameter of 109mm and a base diameter of 70mm (Fig 34, 3; Plate 29). This vessel had been poorly fired and, as a result, it had sagged, distorted and cracked while in the soil, with the rim circumference elliptical rather than circular. The body is 8mm thick and the neck 5mm thick, while the collar is 7mm thick and up to 30mm high. The lower half of the collar, which is up to 12mm thick, had been thickened by applying an additional band of clay, which has been partly lost.

The fabric contains dense small pellets of grog, measuring 2–4mm. The external surface is oxidised to orange, with small grey mottles from the grog inclusions. The core is mottled, grey to grey-brown, as is the inner surface.

The collar is simply and crudely decorated with near-vertical incised lines, while the projecting base of the collar has been slightly more boldly decorated with fingernail incisions. The neck is decorated with multiple, well-ordered rows of wedge-shaped incisions, with six incisions per row and often a seventh on the underside of the collar.

Barrow 5, urn 6005

This vessel comprises the base of an urn, with the upper part lost to truncation. The base is 230mm in diameter and it has a maximum diameter of 320mm at a height of 170mm (Fig 34, 4; Plate 23).

This vessel was very poorly fired and much of the external and internal surfaces had been lost, and in places there are holes in the vessel wall. It was strengthened with PVA during the off-site excavation of its contents, though some of the surviving material is consolidated soil. The fabric contains fine lamination, suggesting the former presence of organic inclusions. It is probably up to 12mm thick, though this is difficult to determine given the poor state of preservation. The surviving parts of the external surface are oxidised, orange-brown, while the core is dark grey.

Cultural affinities of the Collared Urns

The two Collared Urns from Barrow 2 are characterised by the use of cord impressions to form repetitive short motifs forming zigzag patterns, and both have relatively narrow collars, which are rounded at the base. These characteristics place both urns within Longworth's Primary Series and within Burgess's group displaying early traits (Gibson and Woods 1997, 126–131). The decorative scheme of horizontal lines between short near upright impressions on the urn (Fig 34, 2) containing the satellite cremation is similar to the decoration on an urn from the Cotton Valley Farm ring ditch on the eastern side of Milton Keynes next to the River Ouzel (SP 88604091) (Green 1974, 121 & fig 20).

Neither urn has a directly associated radiocarbon date, but charcoal from a cremation deposit immediately preceding the deposition of the Collared Urn in the central grave of Barrow 2, and therefore perhaps only a generation or two earlier in date, has given a radiocarbon date of 2010–1765 Cal BC (95% confidence, 3560+/- 40 BP, Beta-132794), suggesting that a date of around 1900–1850 Cal BC would be appropriate for vessel 1.

While the small Collared Urn from Barrow 5 is not dated directly, charcoal in association with the nearby urned cremation deposit has been radiocarbon dated to 1620–1515 Cal BC (68% confidence, 3290+/-40 BP, Beta-132790). A similar small urn, but undecorated, has been recovered from a cremation deposit at a nearby site at Broughton Barn Quarry, Milton Keynes (Chapman forthcoming). This has an associated radiocarbon date of 1890–1740 Cal BC (68% confidence, 3510+/-50BP, Wk-9167). A further example, with similar crudely-executed incised decoration, has come from the Nene valley, associated with a satellite cremation deposit in the outer ditch of a triple-ditched Beaker barrow at Raunds, West Cotton (Windell et al 1990, fig 9; Harding and Healy in press), with a radiocarbon date from a nearby cremation of 1734–1533 Cal BC (68% confidence, 3350+/-54 BP, UB-3315).

The dating from these three examples suggests a currency for these smaller urns of some 300–400

years, from around 1900 to 1500 Cal BC. However, the two examples with crudely incised linear decoration are the later examples, spanning the period 1700–1500 Cal BC.

Worked bone and antler from Barrow 2

In the analysis of the cremated human bone from three separate cremation deposits within the central grave of Barrow 2, Trevor Anderson recovered fragments from five worked-bone objects, which had all been placed on the pyres and were consequently burnt and distorted (Fig 35 and Plate 30).

The antler and bone spatulae

Fragments from two antler spatulae came from cremation deposit (5068), the fourth of the five burials in the central grave of Barrow 2. One is complete (SF72), 137mm long by up to 11mm wide and 4mm thick (Fig 35, 1; Plate 30). It has been cut from either the shaft or a tine of an antler, and is 11mm wide for most of its length but tapers to 5mm at one end, where there is an original irregular end, that contains a slight concavity. The upper surface retains the clear pattern of the surface of the antler, while the spongy texture of the cancellous tissue is exposed on the under side. The sides and the thicker end have been smoothed and rounded. However, the absence of any smoothing and wear on the two flat surfaces suggests that the object had not been extensively handled following manufacturing. This might suggest that if these were practical tools, then the examples deposited on the pyre were newly-made and unused.

The other antler spatula (SF73) is incomplete but was evidently of virtually the same size, with a surviving length of 108mm, and 8–9mm wide by up to 5mm thick (Fig 35, 2; Plate 30). The upper surface shows the antler pattern and the under surface the cancellous tissue, while the sides and end are both smoothed and rounded, but without any additional wear on the flat surfaces.

Within the same cremation deposit (5068), there were also several fragments from a thin bone plate, probably split from a cattle rib (Fig 35, 3; Plate 30). The fragments partly join to from three longer pieces with a total length of 131mm, suggesting that the original piece was at least 150mm long. The bone is 11–13 wide by 2mm thick, with a smooth upper surface and the impression of the cancelleous tissue on the under surface. As with the two antler spatulae, the edges have been smoothed and rounded. One original end survives. This had been cut obliquely, with a marked chamfer on the under side, and the edge had been smoothed and rounded. The rough texture on the underside of the bone would again suggest that the object had not been extensively handled after manufacturing.

Antler and bone spatulae have many parallels, with examples occurring in association with Beaker inhumation burials and Early Bronze Age cremation burials across the country. In particular, an antler spatula was recovered only a few miles away in 1978 from the primary grave at the centre of a Beaker barrow near the village of Ravenstone, Buckinghamshire (Allen 1981, 85 and fig 9). This is a little larger than the Gayhurst examples, at 170mm long, 17mm wide by 5mm thick, but in form and manufacturing it is identical. An example only slightly larger than those from Gayhurst is from a Beaker barrow at Chilbolton, Hampshire (Russel 1990). The Chilbolton spatula is 152mm long, and the accompanying discussion in the published report lists six antler and one bone spatula ranging from 138–202mm long and a bone spatula at 308mm long (Foxon 1990, 166–167 & fig 6).

To the north of Gayhurst in the Nene valley, two bone spatulae probably cut from cattle ribs accompanied a crouched inhumation burial from Aldwincle, Northamptonshire (Jackson 1976, 62, fig 22, 1–2). A primary Beaker inhumation at Stanwick, Northamptonshire, where the grave was covered with a cattle bone assemblage comparable in the number of animals involved to that at Gayhurst, was accompanied by a wealth of grave goods including three long, cattle rib spatulae (Harding and Healy in press, and Parker Pearson 1993, 78–81). Similar elongated antler spatulae have come from Easton Lane, Winchester, Hampshire, where there were four examples at lengths of 220, 270, 328 and 340mm long, and also an associated perforated bone point (Fasham *et al* 1989, 103–105 and 116).

In the Thames valley, a single antler spatula came from a Beaker 'flat' grave at Barrow Hills, Radley, Oxfordshire, and another, together with a bone awl, came from a further crouched inhumation burial, this time within a ring ditch (Barclay and Halpin 1998, 64–65, 140–143 and 235–236). Further afield, and excavated in the mid-19th century, bone spatulae and a pin or awl accompanied a crouched inhumation burial at Green Low, Alsop Moor, Derbyshire excavated by Thomas Bateman

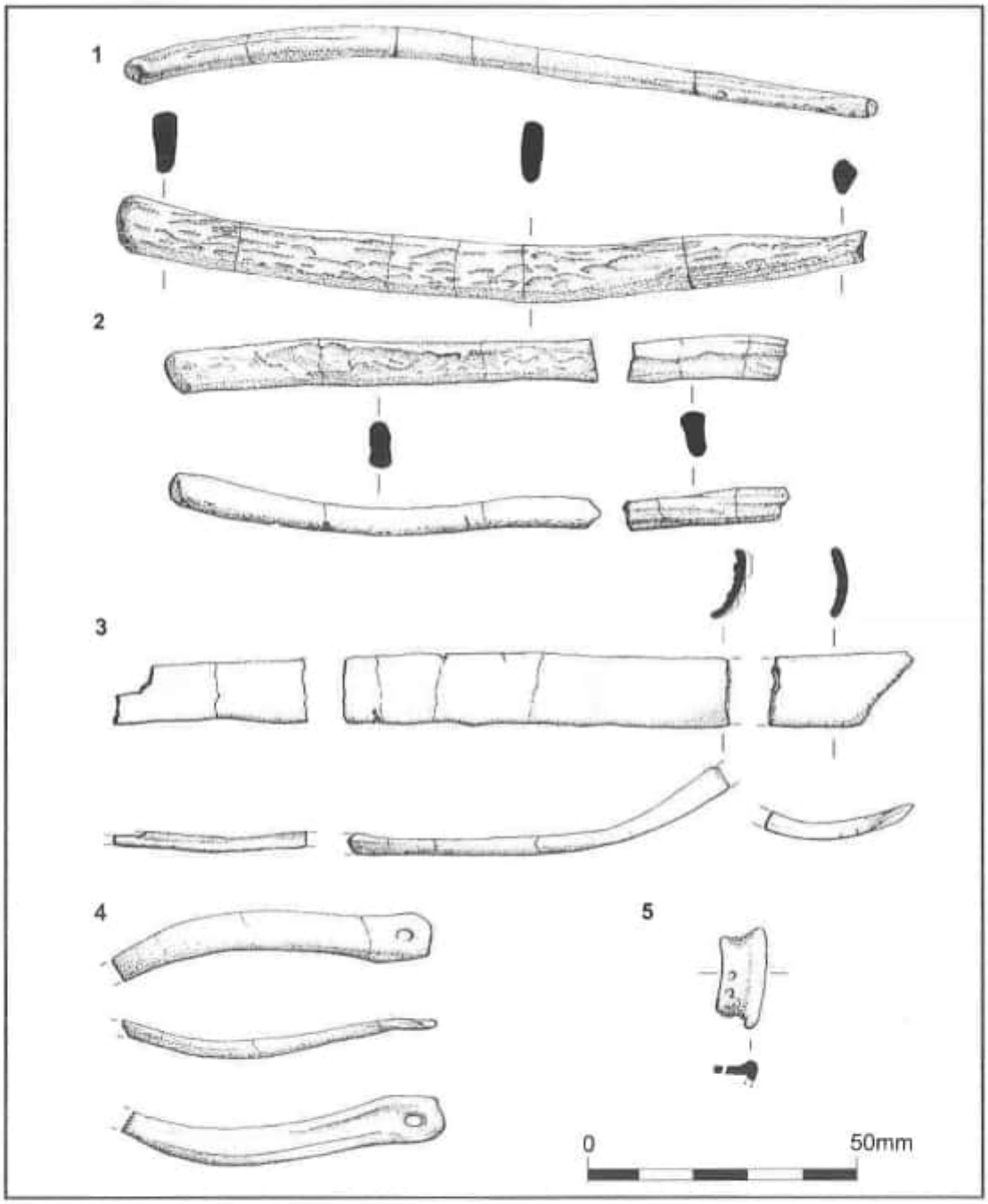


FIGURE 35 Worked antler spatulae (1-2), bone spatula (3), perforated bone point (4) and perforated fragment (5) with cremations in Barrow 2

(Howarth 1899, 55–56 and Parker Pearson 1993, 86).

Despite being so common, the function of these objects remains uncertain. It has been suggested that they were used for leather working, with the rounded ends used for burnishing, and this might be supported by the occasional association with perforated bone points, as at Green Low, Derbyshire, but many others are not associated with leather working tools. Many examples come from male burials accompanied by archery equipment, and it has been suggested that they were used as pressure flaking tools, perhaps specifically to fashion the barbs on flint barbed and tanged arrowheads (Olson 1989, 103–105).

The perforated bone point

A perforated bone point was recovered from cremation deposit (5063), the final burial within the central grave of Barrow 2. The point is 69mm long, with the missing tip adding around another 5mm to the length (Fig 35, 4; Plate 30). It has been distorted by burning, so that the pointed end now curls sharply round. It is up to 9mm wide tapering to 5mm at the broken point. It has been fashioned by splitting a small bone longitudinally, and the absence of cancelleous tissue might suggest that a bird bone was used. As a result, the outer surface is rounded while the under side has two distinct ridges that have only been largely removed around the perforation, although all the edges are well smoothed. The perforation is oval, 3mm long by 2.5m wide, and the edges are smoothed and rounded, perhaps as a result of use and wear, which might also have caused the elongation.

There are a number of parallels for perforated bone points from Wessex barrows, most spectacularly the forty-one examples from a barrow at Upton Lovell, Wiltshire (Annable and Simpson 1964, 49 and 104). A perforated bone point from the Easton Lane, Winchester was associated with antler spatulae (Fasham *et al* 1989, 116). There are also three examples from a barrow cemetery lower down the Great Ouse at Roxton, Bedfordshire (Fig 2), which all came from a single cremation deposit (Taylor and Woodward 1985, 121–122).

From the same cremation deposit (5063) at Gayhurst, the final burial within the central grave of Barrow 2, there is also a small fragment of bone, 19.5mm long, but broken at either end, by 9mm wide (Fig 35, 5; Plate 30). This contains two adjacent perforations, each 1mm in diameter, with very sharp edges as if they had been bored or drilled shortly before deposition. The function of this object is unknown.

Copper alloy from Barrow 5

Two small fragments of copper alloy (SF78) came from the urned cremation (6005) in Barrow 5. They comprise 3mm and 1mm lengths from similar or the same, copper alloy rod, 1.0–1.5mm in diameter (not illustrated). They are presumably part of a larger object placed on the pyre and mainly lost. They may have been small decorative pins, as used on the handles of some Bronze Age daggers (Ashbee 1960, 99–100).

The inhumation burials from Barrow 2
by T Anderson and J Andrews

Two inhumation burials lay within the central grave of Barrow 2 (Table 8). The skeleton of the primary burial (5086) is practically complete although highly fragmented. It consists of a damaged skull; highly fragmented spine; incomplete long bones,

TABLE 8 Barrow 2, the inhumation burials

Context/ type	*Age & sex*	*Stature*	*Pathology*	*Comments/ finds*
5086 Primary burial	25–29 Male	1.765m (5' 9¾")	Vertebral degeneration	Supine extended; partly disarticulated. SF 71: pig bones (fore leg)
5065 Secondary inhumation	35-45 Male	1.688m (5' 6¾")	Healed fracture R. tibial plateau. Vertebral degeneration	Supine, legs flexed and raised Red deer antler above burial SF 7; plano-convex knife SF 8; plano-convex knife

pelvis, hands and feet. The remains are those of a young adult male. The bones, especially the mandible, are extremely robust. Stature is estimated as 1.765m (5' 9¾"), based on the length of the right first metatarsal (Byers *et al* 1989). Available measurements indicate that he was long-headed (index 74.3); with a wide forehead (index 71.5). The left femur is flattened (platymeric).

The only evidence of pathology is osteoarthritis of the lowest cervical vertebra. However, the spine is so incomplete that the true extent of spinal degeneration is uncertain. All the teeth, except for the two right lower incisors were available for study. There was no evidence for ante-mortem tooth loss or for carious cavities. However, deposits of calculus, heavier on the mandible than the maxilla, are present on all the teeth. An upper right second premolar displays damage to the buccal aspect of its occlusal surface. The enamel had been chipped off during life, possibly due to the vigorous chewing associated with a coarse diet. A non-metric variant, a small, weakly-expressed, bony swelling or torus, was noted in the right premolar region of the mandible. Tori are probably inherited on a multifactorial basis, environmental factors acting on a genetic predisposition (Axelsson & Hedegaard 1981 and Sellevold 1980).

The secondary inhumation (5065) in the central grave was also male but slightly older, aged 35–45 years. The skeleton is practically complete, although the skull is damaged and the spine and the ribs are fragmented. Based on long bone lengths, stature is estimated as 1.688m (5' 6¾") (Trotter & Gleser 1958). He was extremely broad-headed (index 86.2). Both femora are platymeric. This individual was suffering from vertebral degeneration; extra-spinal osteoarthritis and healed trauma. All cervical vertebrae, except the first and the penultimate, display osteoarthritic degeneration with marked enlargement, porosity and lipping of their articular surfaces. Osteophytic outgrowths are widespread throughout the spine. The latter are thought to be a response to excessive pressure and are thus indicators of mechanical stress (Nathan 1962). Schmorls' nodes are restricted to the mid-lower thoracic spine (TV8 inferior surface). It is generally accepted that node formation is directly related to severe strain, especially compressional forces, which cause the intervertebral disc to rupture (Knowles 1983). Intervertebral osteochondrosis, evidence of disc degeneration, involved the typical site, the cervical spine (CV3–7). Porosity of both articular eminences, just anterior to the temporo-mandibular joint (TMJ) is an indication that he was suffering from osteoarthritis of the TMJ. The changes are more marked on the left and are very minor on the right. In modern material a prevalence of 8% has been recorded for arthritic degeneration at this site (Toller 1973) and its occurrence is rare under 40 years of age (Öberg *et al* 1971).

The most marked pathology involves the right knee joint. The lateral condyle of the tibia had been fractured during life. When the bone is viewed from above, the fracture line is visible running from the front to the back of the lateral condyle, some 15mm internal to the lateral edge of the plateau. The fracture line can also be seen, although less well defined, when the bone is viewed from the front (Plate 31). The fracture line is just lateral to the tibial tubercle and extends some 57mm from the condyle. The anterior portion of the condylar surface is depressed with a definite concavity and surrounding porosity. An oval sinus, just medial to the fracture line, is also visible at the surface of the lateral condyle. Minor osteophytic outgrowths are present on the lateral and inferomedial aspects of the tibial plateau. The corresponding articular surface of the distal femur is not involved. However, the lateral aspect of the femur fits accurately into the depressed fracture of the tibial plateau. The fibula is not fractured. The injury, a depressed fracture of the tibial plateau with detachment of a fragment of the lateral tibia, is the result of trauma to the lateral (outer side) aspect of the leg. The fact that the fibula was not involved precludes a direct blow to the side of the leg. Rather, an injury has caused rupture of the lateral and cruciate ligaments of the knee joint. As a result the femur tilts, the patient falls, the lateral femoral condyle is driven, like a chisel, into the tibia: the tibial condyle is depressed and a fragment of tibia is avulsed (Watson-Jones 1943, 739, figs 1104 & 1107).

In clinical practise, tibial plateau fractures are well known and are often termed 'bumper fractures' (or 'fender fractures' in the USA), due to the fact that they are invariably the result of a pedestrian being hit by a car (Adams 1965, 238). As far as I am aware, this is the first reported example of this type of fracture in archaeological material. In the pre-modern era, a possible causation would be

a heavy weight dropping on the outer side of the leg (Watson-Jones 1943, 737–740). Despite the seriousness of the injury the bones have successfully repaired and the fractured tibial fragment is firmly re-united with minimal deformity. Although the plateau is wider than normal this in itself would not be clinically significant. There is no marked osseous degeneration of the knee joint. The eburnation of the tibial plateau suggests that the joint was still in use and that the patient was mobile. However, the torn ligaments may have led to instability and the need to limit and restrict movements of the knee. The depressed plateau suggests that the lower leg would have been held in slight abduction (angled away from the body). It also appears that there was minor postero-lateral rotation of the knee joint and that the foot would have been everted (twisted outwards).

A non-metric variant, an accessory sacro-iliac articulation, was found on only the right side. Normally they present bilaterally and they are more frequent with advanced age and are related to compressional spinal forces and intervertebral disc degeneration (Seligmann 1935, Stewart 1938 and Trotter 1937 & 1964). In this case, it is possible that the injury and subsequent abnormal gait may have resulted in unnatural stress on the right pelvis.

There was no evidence for *ante-mortem* tooth loss or for carious cavities. However, deposits of calculus, most marked on the upper third molars, were present on most of the teeth. Abscesses had developed on both lower first molars. One tooth, the lower left third molar was congenitally absent. Two adjacent lower right teeth, a premolar and the canine, were both rotated *c* 20° towards each other; that is bucco-mesially and bucco-distally, respectively.

The cremation burials from Barrows 1, 2 & 5
by T Anderson and J Andrews

Thirteen cremation deposits were associated with Barrows 1, 2 and 5, although one was not available for study (Table 9). Seven are substantially intact and five had been heavily truncated by later activity. The deposits contained a total of 10532g of cremated bone, ranging from 2g (5013) to 1844g (6005), with a mean weight of 752g. The majority of the bones are hard, white or off-white and highly fragmented. However, in two of the deposits in the central grave of Barrow 2 (5069 & 5083) and two of the truncated deposits (5013 & 7018) a percentage of the bones are blue or grey. In 5084 and 6023 the cranial fragments are predominantly blue. Practically all the material was efficiently cremated; only in Barrow 5 (6005 & 6008) were relatively large fragments (pelvis and clavicle) identified.

Overall, less than half of the material, by weight, could be identified to particular skeletal elements. In the overall sample most elements were represented, with cranial being the most frequent, followed by lower limb and upper limb, with axial being least frequent. In Barrow 5 the axial elements appear to be more frequent due to the presence of large clavicular and pelvic fragments. Axial elements are least frequent in the central pit burials under Barrows 1 and 2. In four of the intact cremations (5063; 5069; 6005; 6008) the small hand bones are well represented.

The mean weight of individual identified bones is 1.4g, with pelvic, clavicular and limb bones being the largest and teeth roots, hand and rib fragments being the smallest. There was little difference in the mean weight between the three barrows. Nor was there any evidence that the identified bones in the central pit burials were larger or heavier than those found peripheral to the barrows. Only in pit 7019 (a satellite burial to Barrow 1) was it possible to re-unite any of the fragments: nine pieces of skull and four fragments of humeral shaft could be joined. The former was the heaviest (50g) bone and the latter the longest (140mm). In the primary cremation in Barrow 2, 5084, a frontal fragment from the main bone mass, 5082, was found to join another in the overlying pyre debris.

There was no indication that any of the deposits contained more than one body. An attempt at sex diagnosis was possible in five deposits. In Barrow 1, the central pit contained a possible female, and one of the deposits (7019) peripheral to the barrow contained an adult male, probably under 40 years of age. Two of the cremations in the central grave of Barrow 2, 5084 and 5069 were male, and one deposit in Barrow 5 (6005) was female. Two cremations were sub-adult: an 8–9 year old child from the inverted urn forming a satellite (5012) to Barrow 2, and a juvenile (6029) from Barrow 5. Two individuals from Barrow 5 (6005 & 6008) were considered to be young adults.

All three cremations in the central grave of Barrow 2 displayed evidence of vertebral degeneration. One male (5084) was suffering from cervical osteoarthritis and the two other individuals pre-

sented with osteophytic outgrowths, one involving the odontoid peg and the other in the thoracic region. The male (7019) peripheral to Barrow 1 also presented with cervical osteoarthritis.

A total of 201 tooth roots or root fragments were recovered from ten deposits. All were too incomplete to examine for dental disease. However, a fragment of mandible from a male (5069) in the central pit of Barrow 2 indicated that the left third molar was congenital absent.

Discussion

The fact that all the bones are hard and solid, leaving no mark when scratched, and are not calcined, suggests that the firing temperature was between 400°C and 750°C (Holck 1987, 131–2). Exfoliation of the tooth crowns supports the view that the temperature was in excess of 500°C (Buikstra & Goldstein 1973, 23). The colour of the fragments indicates that the majority of the bones were burnt efficiently in a well-oxygenated environment. The only exceptions to this were the blue-grey fragments from two of the deposits in the central grave (5069 & 5084) of Barrow 2, and two of the truncated deposits (5013 & 7018). In one of the males from Barrow 2 (5084), it is the cranial fragments that are predominantly blue. This suggests that fragments of the skull (which would explode during the cremation process) may have been scattered outside the intense heat of the cremation pyre.

Even in modern, highly-efficient cremations, bone shafts up to 250mm in length are recovered, prior to mechanical crushing (McKinley 1989). Also, archaeological evidence has demonstrated that the bones of cremated bodies are relatively intact as long as the burnt remains are left *in situ*, and are not collected (Buikstra & Goldstein 1973, fig 16). It appears that the majority of bone breakage is either mechanical, due to collapse of the pyre or deliberate during the collection process.

For six of the relatively intact deposits (Barrow 1: 4005 & 7019; Barrow 2: 5044 & 5068 and Barrow 5: 6005 & 6008) the mean weight of cremated bone was 1.38kg (range 1.09–2.07kg). In modern crematoria, an average adult body will yield around 1.6kg of bone (range 1.0 – 2.4kg) (McKinley 1997, 136). This suggests that for these intact or near-intact cremations perhaps as much as three quarters of the cremated bone was recovered and deposited in the ground. The most efficient recovery is found in cremation deposit 6005 from Barrow 5, with 2.70kg of bone from a small-boned female, which must represent a near complete recovery. However, in contrast, another intact deposit (Barrow 2: 5083) contained only 330g of bone from an adult male, which evidently represents less than a quarter of the available material. Including this example, the average recovery for the seven largely intact deposits would fall to 1.23kg.

It has been established that, in a complete body, the cranial; axial; upper limb and lower limb account for 18.2%; 23.1%; 20.6%; 38.1% of the skeleton, respectively (McKinley 1989). Based on these figures, in our sample, cranial elements are over-represented and axial elements are under-represented, especially in the central pit burials of Barrows 1 and 2. This may be due to the fact that in highly- fragmented remains, small pieces of skull can still be recognised. It is also possible that the lack of spinal elements, especially in the central pit burials, may be due to the fact that the bodies were placed on top of pyres. If the body was cremated lying on the ground one would expect that the spinal elements, being below the most intense heat of the pyre, would be lightly burnt. However, the high percentage of unidentified fragments means that no definite conclusions can be drawn from the percentage of different skeletal elements.

Interestingly, in four of the intact cremations (5063; 5069; 6005; 6008) several of the smallest hand bones were recovered. This may suggest that the body had been placed with the hands across the chest. In this position, the hand bones will be protected by the heat shadow of the body and should be well-represented (Holck 1989, 160).

There was no indication that any of the deposits contained more than one body. An attempt at sex diagnosis or age estimate was possible in ten deposits, with males and females, as well as adults and children being identified. Four individuals, including all three deposits in the central pit of Barrow 2, displayed vertebral degeneration. One of these was also found to have a wisdom tooth congenitally absent.

The cattle bone from Barrow 2
by K Deighton and P Halstead

A total of 183kg of cattle bone, stored in 52 archive boxes, was recovered from the secondary fills of the inner ditch of Barrow 2. It was fully disarticulated but comprised a high proportion of complete or semi-complete long bones and other skeletal

TABLE 9 Barrows 1, 2 & 5, the cremated human bone

Context/type	*Bone weight (g)*	*Age & sex*	*Pathology*	*Other finds*
Barrow 1, 4005/ 4004 Central pit, unurned	1091 (intact ?)	Adult Female?	None	None
Barrow 1, 7018 Satellite, unurned	45 (truncated)	? ?	None	None
Barrow 1, 7019 Beyond ditch, unurned	1206 (intact)	Under 40 Male?	Osteoarthritis, Cervical vert.	None
Barrow 2, 5044/ 5063 Central grave, urn (5th of 5)	1448 (intact)	Adult ?	Osteophytic lipping, thoracic vertebra	SF 6; Collared Urn SF 15; flint, end/side-scraper SF 75; perforated bone point SF 76; perforated bone
Barrow 2, 5068/5069 Central grave Unurned, (4th of 5)	1206 (intact)	Adult Male?	Osteophytic outgrowth, Odontoid peg	SF 69, flint, knife SF 72 & 73; Antler spatula SF 74; Split rib bone
Barrow 2 5083/ 5084 Central grave Unurned (2nd of 5)	330 (intact)	Adult Male?	Osteoarthritis Cervical vertebra	SF 10; flint end scraper SF 77; fossil
Barrow 2 5012 Beyond mound Urn, in pit	46 (truncated)	8–9 years ?	None	SF5; Collared Urn (inverted, rim only)
Barrow 2, 5013 Beyond mound, unurned	2 (truncated)	? ?	None	None
Barrow 2, 5117 Post-mound, ploughed out	16 (truncated)	? ?	None	None
Barrow 5, 1272 Unurned, in pit	unknown			Not available for analysis
Barrow 5, 6005 Urned, in pit	2070 (intact)	20–25 Female?	None	SF 3; urn (base and body) SF78; copper-alloy fragments
Barrow 5, 6008 Unurned, in pit(intact)	1276 ?	20–30	None	None
Barrow 5, 6029 Unurned, in pit	292 (truncated)	Juvenile ?	None	None

elements. It appeared to the excavators to have been raked down into the ditch having previously been deposited on the surface of the barrow mound, where it may have been exposed to the elements for a short period of time.

The bone has been analysed in the laboratory of the Department of Archaeology at Sheffield University by Karen Deighton of Northamptonshire Archaeology working with Dr Paul Halstead, zooarchaeologist in the Department of Archaeology.

The aim of analysis was three-fold:

- to quantify the bone to determine the demographic profile of the animals that had contributed to the assemblage.
- to establish the body-part representation to determine the preferences for bone deposition
- to analyse the condition and treatment of the bone in order to inform the interpretation of the burial rites that had accompanied its accumulation and deposition

While the assemblage has been fully quantified, as described below, it was not possible to fully analyse all of the metrical data prior to the compilation of this report. The cattle bone, and the recorded data, therefore still holds a considerable potential to contribute further to the understanding of the demographic profile of the animals, and it is hoped that the present report is only the initial analysis of this important cattle bone assemblage.

On-site recovery and recording by A Chapman

The trial trenching of Barrow 2 had resulted in the recovery of a quantity of cattle bone, much of which comprised intact or partial long bones. At the commencement of the main excavation it was therefore anticipated that a substantial quantity of bone would be recovered but, despite this foreknowledge, the quantity eventually retrieved exceeded all expectations. The recovery of this quantity of material posed a number of problems in terms of its recording. Given the finite resources and limited time-scale of the developer-funded excavation, it was evident that individual numbering and recording for each piece of bone was not practicable. In addition, while providing a very detailed record, this would have isolated the individual bones in a way that would have made analysis and comparison more cumbersome, actually limiting the potential to spread the bones in physically associated groups.

The chosen technique was to excavate six ditch sections of near-equal length, between 2.2m and 2.6m long, so that six closely comparable sample groups could be obtained at intervals around the circumference of the ditch circuit (Fig 12). A single context number was allocated to the bone deposit within each excavated section, with these essentially coinciding with single stratigraphic contexts. Small quantities of bone from other soil layers within the same ditch segment were incorporated with the main bulk of the material for quantification and analysis, and the material from the trial excavation was included with the appropriate ditch segment (5024). A simple quantification by bone weight, shows that the bone was distributed around the entire ditch circuit but with a greater density on the eastern side (Table 6).

The original intention was to excavate six separate sections but, given the visually spectacular nature of the deposits, two of the sections to the east were excavated as a single length to enhance the photographic opportunity (Plates 3, 8 & 9), although the bone from each half of this length was still numbered and recorded separately to maintain the principle of sampling equal ditch lengths.

The overlying mound deposits and the upper ditch fills were excavated down to the top of the cattle bone deposit, and the exposed bones were cleaned and photographed as a group. This uppermost layer was lifted and designated with its context number and a suffix 1, for the first spit of bones uncovered. Once these had been removed, the deposit was excavated further to expose the underlying bones, spit 2, and the process of cleaning and photography was repeated. The process continued until the bottom of the deposit was reached, which varied between three and five spits. As a result, although the bones were not individually recorded, every single bone will have been photographed before it was lifted, and can be related to a specific spit within a 2.5m length of ditch. In most instances it should be possible to identify the more complete individual bones on the photographs.

As the bones were photographed in-situ, they were not planned and the illustration showing the bone distribution around the ditch circuit has been reconstructed from the photographic record (Fig 12). The full photographic record of all the bone in each spit for each context is available in the archive

report, and figure 9 is extracted from that sequence.

The careful cleaning and photography of each exposed spit of the bone deposit also helped to minimise any bias towards the recovery of larger bones. So, even though sieving was not undertaken, the assemblage is still closely indicative of the actual deposit and the presence or relative absence of all body parts, irrespective of size, although there will inevitable have been some loss of small bone fragments through the process of cleaning, recovery and processing.

Methods of analysis

The faunal material was identified to body part and taxon with the aid of the modern reference collection in the Department of Archaeology, Sheffield University. The following anatomical units were selected for taxonomic identification and for detailed recording in terms of side of body, fragmentation, gnawing, burning, butchery, age (dental eruption/wear and epiphyseal fusion), sex, and standard measurements: horncore, occipital condyles, mandible (cheek tooth row), atlas, axis, scapula (glenoid and neck), proximal half of humerus, distal half of humerus, proximal half of radius, distal half of radius, proximal half of ulna, proximal half of metacarpal, distal half of metacarpal, pelvis (acetabular region), proximal half of femur, distal half of femur, proximal half of tibia, distal half of tibia, astragalus, calcaneum, proximal half of metatarsal, distal half of metatarsal, phalanx 1, phalanx 2 and phalanx 3. These anatomical parts were selected for detailed study because they are relatively durable, readily identifiable, informative on parameters such as age and biometry, and relatively easy to quantify. In practice, the astragalus and phalanges 1–3 were entirely absent and the calcaneum almost so. In addition, other vertebrae (centrum) and ribs (articular area) were recorded, but were only identified to broad size groups (cow-size and sheep-size) rather than to taxon.

Age at death of cattle was estimated from the state of eruption and wear of mandibular cheek teeth (following Grigson 1982 and Halstead's 1985 adaptation of Payne 1973). The ageing of postcranial bones on the basis of epiphyseal fusion follows Silver (1969). Pelves of cattle have been sexed on morphological grounds following Grigson (1982). Metrical data were recorded after von den Driesch (1976).

Bones were recorded as whole, 'new break' (ie broken in or since excavation) or 'old break'. In addition, long bone specimens with old breaks were classified as 'end', 'shaft' or 'end+shaft' and as 'cylinder' or 'splinter', following Binford's (1981) observations on the contrasting patterns of fragmentation associated with carnivore attrition and with human extraction of marrow. Traces of carnivore-type gnawing (cf Lyman 1994, 207–9, fig 6.19–21) and burning were recorded. Butchery marks were attributed, where possible, to stage of carcass processing, following Binford (1981).

To facilitate analysis of the cattle bone, all the material was spread out by context group and anatomical sub-group. After joining fresh breaks, where possible, all resulting fragments identifiable to one of these anatomical zones were recorded in detail, yielding the maximum number of anatomical units (MaxAU). Because quantification in terms of MaxAU might lead to over-representation of body parts, the minimum numbers of anatomical units (MinAU) (Halstead 1985) has also been estimated, and is the basic method of quantification used in analysing and interpreting this assemblage (Table 10).

MinAU was estimated by visual comparison of specimens and involved the laying out of anatomical groups (eg cattle humeri) into sub-groups (left/right, proximal/distal, etc). Physical joins between fragments were sought systematically between spits within each excavated section, in the case of mandible and radius, and between all contexts in the case of humerii. A loose second molar from context 5070, spit 4 was joined to a cattle mandible from the overlying material, context 5070, spit 3, and two humerus shaft fragments from 5057 spits 1 and 2 were also joined. No other physical joins were noted between either the spits in any one section or between separate ditch sections. The estimation of MinAU for all remaining body parts was, therefore, based on comparison of specimens within each excavated section.

The cattle bone from Barrow 2

Taxonomic and demographic composition

Taxonomic identification confirmed that the bones from the inner ditch of Barrow 2 are all from cattle (cranial and limb bones) or cow-sized animals (ribs and other vertebrae). They vary considerably in size, but this is attributed to sexual dimorphism:

morphologically female pelves were almost all smaller than their male counterparts.

None of the largest cattle bones exhibit a strikingly thick diaphyseal cortex, which might suggest a wild individual, and none of the material falls within the likely size range for the aurochs. This issue could be considered further by detailed analysis of the metrical data.

Morphological analysis of cattle pelves suggests a female to male ratio of nearly 4:1. Fusion and dental evidence indicate a wide range of ages, from yearling to fully adult. Full integration of sex, age and metrical evidence for herd structure has not been undertaken, but a preliminary assessment of the demographic composition tentatively suggests culling of a herd of cattle rather than of selected types of animal (eg prime steers, elderly cows, etc). On the other hand, the assemblage includes a range of gracile and robust specimens that may exceed the variation expected simply on the basis of sexual dimorphism. This hints at derivation of the material from several different herds or populations. This is another aspect that could be considered more fully with metrical analysis of the data.

Body part representation

The body-part representation clearly indicates that the material was deposited on the barrow in a disarticulated state, and not as complete carcasses (Table 10 and Plate 10). There is a complete absence of phalanges and astragali, and only a single calcaneum. These are all small skeletal elements, and ulnae and loose epiphyses from unfused long-bone articulations (most unfused diaphyses lacked the corresponding loose epiphysis), are similarly under-represented.

Given the methodology of excavation and recovery, under-representation of the small skeletal elements does not represent recovery bias, and suggests that the skeletons had been selectively treated prior to deposition on the barrow mound. Another aspect of selection is that no matching pairs or articulating bones (including none of the astragali or phalanges that once articulated with the tibiae and metapodials) found their way into the same ditch section. If the bone did indeed slump into the ditch, therefore, rather than being selectively placed there, it seems likely that it had been dismembered or allowed to disarticulate elsewhere, before selective deposition on the barrow.

The body-part representation also illustrates that none of the elements present show any measurable preference for deposition within a particular part of the ditch circuit, since either the variations or the total numbers are small enough to lie within the limits of random distribution.

The scale of the assemblage

The minimum number of individuals represented was assessed from detailed examination of the best-preserved body part, the humerus. All the cattle humerii were spread out together and sorted by side and size to facilitate comparison. No plausible pairs were found, indicating that the MinAU of 102 for the distal humerus is also the minimum number of individuals (MNI) (Table 10). Given that a third of the inner ditch was excavated, it is estimated that the whole ditch might therefore have contained remains from around 300 cattle, with this representing the minimum number of cattle slaughtered as part of the burial rite of the individual buried at the centre of Barrow 2.

The figures for the other major long bones; femur, tibia and radius, as well as for the scapula and pelvis are all of the same order of magnitude, suggesting that a similar strategy was followed for the selection and deposition of all the major long bones.

The remains of cattle skulls were poorly preserved, and the heads are best represented by the occipital condyles from the skulls and by the mandibles, some of which are only represented by cheek teeth rows. This quantification suggests that some 50 to 60 animals are represented by skulls in the excavated sample, about half the number indicated by the MNI for the humerus.

Butchery, bone fragmentation and canid gnawing

Arguably the most important question, and perhaps that most difficult to answer, is what happened to the cattle bones before deposition on the barrow. Unfortunately, direct evidence for carcass processing by humans is limited, although the absence itself may be highly informative. Only about 2% of the bones bear recognizable cut marks. Most of these marks are very fine, and an attempt was made, with the aid of a hand-lens, to distinguish between marks inflicted by stone and metal tools, following von den Driesch and Boessneck (1975), Binford (1981) and Collins (1987). The cut marks present revealed none of the classic hallmarks of butchery with a stone edge, and it is suggested that

PLATE 1 Aerial photograph showing cropmarks of barrows and enclosures, partly obscured by silt deposits, with the river (top) and M1 motorway (left), looking north (photograph by Ken Field 1976)

PLATE 2 The trial trenching of Barrow 2 in 1997, showing the outer ditch (foreground) and the inner ditch (background), with the slightly raised earthwork visible along the post and wire fence

PLATE 3 Barrow 2 in 1998, showing the inner ditch, containing the cattle bone deposit, and the central grave under excavation, looking south-west

PLATE 4 Barrow 2, showing the inner ditch and central grave at the end of excavation, looking west towards the M1 motorway with the adjacent stream channel subsiding after a flood (Scale 2m)

PLATE 5 Barrow 2, showing the possible central tree hole, partly sectioned (right), visible as a brown stone-free soil exposed in the side of the excavated central grave, looking north-west (Scale 1m)

PLATE 6 Barrow 2, the disturbed remains of the primary inhumation burial (5086), with the flattened skull and inverted jaw bone (right), the scattered ribs and vertebrae (centre) and the displaced leg bones (left)

PLATE 7 Barrow 2, remains of the oak plank lining of the chamber (5087) containing the primary burial (5086), visible as a vertical line of charcoal in the south-west corner of the grave (Scale 0.3m)

PLATE 8 Barrow 2, the deposit of scattered cattle bone within the inner ditch under excavation on the eastern side of the barrow (segments 5057 and 5070)

PLATE 9 Barrow 2, the upper two spits of the cattle bone deposit in the inner ditch on the eastern side, segments 5057 and 5070. Note the general presence of complete long bones, shoulder blades (right, top and bottom) and skulls and mandibles (left, top and bottom) (Scale 2m)

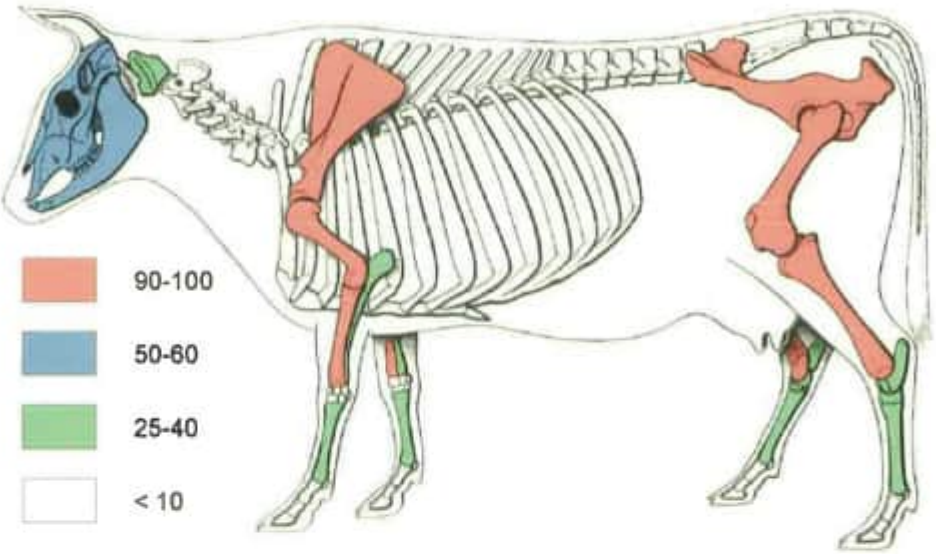


PLATE 10 Barrow 2, the cattle bone by body part representation, quantified by the approximate number of items (animals) present in the collected assemblage

PLATE 11 Barrow 2, the shallow mortuary enclosure ditch (5032, left) and the inner barrow ditch, south-west segment (5034, section 167), with cattle bones in the secondary fill, looking south-east (Scale 1m)

PLATE 12 Barrow 2, the cattle bone deposit in the secondary fill and against the inner edge of the inner ditch, southern segment (5027, section 165), looking east (Scale 2m)

PLATE 13 Barrow 2, the ridge of gravel forming a sunken causeway on the south-eastern segment of the outer ditch (5006, section 168) (Scale 2m)

PLATE 14 Barrow 2, the secondary inhumation burial (5065) in the central grave, with folded arms, raised legs and flint knives by the right leg and the left shoulder, looking north

PLATE 15 Barrow 2, a red deer antler within the grave fills above the secondary inhumation burial (5065), looking south (Scale 0.3m)

PLATE 16 Barrow 2, bone of the final cremation deposit (5044) within the central grave is visible within the Collared Urn, which was lying on its side and had been damaged by modern ploughing

PLATE 17 Barrow 2, secondary satellite cremation (5012), with the bone deposit exposed within an inverted Collared Urn, which had been truncated so that only the collar survived

PLATE 18 Barrow 1 before excavation, showing the dark fill of the circular barrow ditch within the clean gravel, looking north

PLATE 19 Barrow 1 after excavation, showing the excavated sections across the ditch and the tree holes, with the central burial under excavation, looking east

PLATE 20 Barrow 5, showing the excavated ditch and internal pits, with the Iron Age enclosure beyond, looking south (The dark stripe running across the area is the 1996 trial trench)

PLATE 21 Barrow 5, the Collared Urn accessory vessel lying on its side within the fill of a small pit (6018) (Scale interval 0.2m)

PLATE 22 Barrow 5, the truncated funerary urn in-situ (6005) (Scale interval 0.2m)

PLATE 23 Barrow 5, the excavated funerary urn (6005) set on a limestone slab, together with the bone deposit from within it, showing the large size of the bone fragments

PLATE 24 The excavated sections across Barrow 6 (foreground) and Barrow 7 (background), with flooded quarry in the distant background, looking north-east

PLATE 25 Barrow 6, a carbonised oak plank within the fills on the western side of the barrow ditch, looking north (Scale interval 0.2m)

PLATE 26 Barrow 2, the plano-convex flint knives found with the secondary inhumation burial (5065) (Scale 20mm)

PLATE 27 Barrow 2, the cord-decorated collar and neck sherds of the Collared Urn that contained the secondary central cremation (5044) (Scale 20mm)

PLATE 28 Barrow 2, the cord-decorated collar of the Collared Urn that contained a secondary satellite cremation (5012) (Scale 20mm)

PLATE 29 Barrow 5, the small poorly-fired Collared Urn accessory vessel from pit (6018), which had cracked and distorted in the ground (Scale 20mm)

PLATE 30 Barrow 2, the antler and bone implements deposited with the central secondary cremations; antler spatulae (top), bone spatula (centre), perforated point (lower left) and perforated fragment (lower right) (Scale 20mm)

PLATE 31 Barrow 2, the right tibia of the secondary inhumation burial (5065), viewed from the front with the healed fracture of the plateau and shaft visible as the vertical split left of centre

TABLE 10 Barrow 2, the distribution of the cattle bone by body parts and inner ditch sections

Ditch section context		*5031*	*5024*	*5017*	*5057*	*5070*	*5078*	*TOTALS*
Compass direction/		*SW*	*S*	*SE*	*East*	*East*	*NE*	
Anatomical Unit	*min/max AU*							
Horncore	min	2	0	2	4	3	1	12
	max	6	0	3	7	10	2	28
Occipital condyles	min	8	2	7	17	19	9	62
	max	8	2	7	17	19	9	62
Mandible (cheek tooth row)	min	6	4	5	12	12	11	50
	max	6	4	5	12	13	12	52
Axis	min	0	2	6	6	5	4	23
	max	0	2	6	6	5	4	23
Atlas	min	1	2	5	6	8	6	28
	max	1	2	5	6	8	6	28
Vertebrae	min	17	20	52	56	39	45	229
	max	17	20	52	56	39	45	229
Rib	min	1	4	14	7	15	20	61
	max	1	4	14	7	15	20	61
Scapula (glenoid & neck)	min	23	10	22	23	26	35	139
	max	23	10	22	23	26	35	139
Humerus (proximal half)	min	9	13	24	19	20	14	99
	max	9	13	24	19	21	14	100
Humerus (distal half)	min	10	12	23	21	22	14	102
	max	10	12	24	21	22	14	103
Radius (proximal half)	min	11	5	16	22	19	19	92
	max	11	5	16	22	19	19	92
Ulna (proximal half)	min	1	0	1	7	10	7	26
	max	1	0	1	7	10	7	26
Radius (distal half)	min	12	5	15	22	15	21	90
	max	13	6	15	22	15	21	92
Metacarpal (proximal half)	min	4	2	13	7	3	6	35
	max	4	2	13	7	3	6	35
Metacarpal (distal half)	min	4	2	14	7	3	7	37
	max	4	2	14	7	3	7	37
Pelvis	min	37	24	46	43	58	49	257
	max	57	29	67	68	83	68	372
Femur (proximal half)	min	14	5	17	23	15	20	94
	max	14	5	17	23	15	20	94
Femur (distal half)	min	19	5	23	23	16	17	103
	max	19	5	25	24	16	17	106
Tibia (proximal half)	min	8	6	14	20	23	21	92
	max	8	6	14	20	24	22	94
Tibia (distal half)	min	8	4	12	18	16	15	73
	max	8	4	12	18	16	15	73
Calcaneum	min	0	0	0	1	0	0	1
	max	0	0	0	1	0	0	1
Metatarsal (proximal half)	min	7	3	6	8	5	3	32
	max	7	3	6	8	5	3	32
Metatarsal (distal half)	min	8	3	6	7	5	3	32
	max	8	3	6	7	5	3	32
TOTALS	**min**	**210**	**133**	**343**	**379**	**357**	**347**	**1769**

butchery was probably effected with metal knives, presumably of copper or bronze.

Given the variable preservation of bone surfaces, it is a reasonable assumption that other cut marks have been missed, but as all identifiable specimens were scanned with a hand-lens it does seem clear that the assemblage was sparsely butchered. All the cut marks attributable to a particular stage of carcass processing (following Binford 1981) are typical of filleting; none were found in classic dismembering locations, despite intensive search. There is thus only modest evidence for the stripping of meat from these carcasses and none for dismembering.

The absence of evidence for skinning may simply be an artefact of the absence of phalanges as a result of skinning, but this does not account for the absence of dismembering cut marks on the distal articulations of the metapodials. The absence of astragali and near-absence of calcanea could likewise be attributed to discard during preliminary carcass dressing, but this leaves unexplained the presence of metatarsals which should also, on this hypothesis, have been discarded. There is also no evidence that any of the bones had been fragmented for marrow extraction, and there was no obvious evidence for selective treatment of right or left sides of the body.

The most plausible interpretation of both butchery and anatomical representation data is, perhaps, that the cattle were slaughtered away from the barrow; that a modest amount of meat was removed, presumably for consumption; and that the rest of the carcasses were left to rot. It seems that the larger bones were then selectively removed for deposition on the barrow, with this occurring *after* decomposition as it was achieved without dismembering with a knife.

About 2% of the identified specimens bore recognizable traces of canid gnawing and, although some examples may well have been obscured by poor preservation of bone surfaces, the overall pattern of bone fragmentation leaves little doubt that gnawing was sparse. This is striking because, with allowance for recent breakage, it is clear that a high proportion of the bones (at least 29% of long bones) were whole when incorporated in the ditch fills, and they would have offered a wealth of marrow to scavengers. There are a few unambiguous cases of canid gnawing, so scavengers, probably dogs, did have some access to the material. This implies either that the bones were never exposed on the surface for any length of time or that access to them when exposed was not readily available.

The only other possible explanation for the generation of so much skeletal material is that the cattle were pit-roasted whole, thus largely avoiding the need for either dismembering or filleting cuts, but the absence of any indication of burning would seem to rule out this possibility.

Depositional history

The photographs taken during the course of excavation offer no hint that the cattle bones in the secondary fill of the inner ditch represented articulating groups of elements, let alone whole skeletons, and this is confirmed by the body-part representation. To explore this issue further, a systematic attempt was made to match articulating bones from the same ditch segment. However, comparison of the better preserved specimens of the distal humerus and proximal radius yielded no plausible articulations. Thus it seems clear that the material slumping into the ditch was already disarticulated and, unless a considerable amount of bone had been removed from the mound itself, the bone had been disarticulated when deposited on the mound.

The lack of canid gnawing would suggest either that the bone on the mound was no longer attractive to carnivores, which seems unlikely unless it had been retained, curated, for many years prior to deposition, or that the deposit was protected from scavengers, as it may also have been while the carcasses were left to rot prior to bone selection. This may have been for no more than a few weeks or months, as the surfaces of the bones are fairly well preserved and suggest that cycles of wetting and drying after burial in the ditch, rather than exposure to weathering, were the main cause of observed degradation. Stratigraphic evidence suggests that the deposition of the bone in the ditch was rapid, most probably as a single episode of burial.

Whether the slaughter of the 300 or more animals that would have made up the entire assemblage took place as a single event, or possibly several such events as a number of separate herds may have been involved, cannot be determined, but it seems likely that the rite of deposition would have followed the primary burial and barrow construction within weeks or at most months, as only a

primary fill and a lower secondary fill had accumulated in the inner barrow ditch prior to the bone being raked down into the ditch.

While some of the detail of the processes involved may still be uncertain, what does appear clear is that this bone deposit represents a case of conspicuous wastage rather than conspicuous consumption.

Other animal bone from Barrow 2
by K Deighton, P Halstead and A Chapman

Pig bone from the primary burial, Barrow 2
The bones recovered in association with the primary inhumation burial in Barrow 2 comprised a single, left forelimb of a sub-adult pig, with evidence of dismembering at both the shoulder and elbow joints, but no trace of filleting. This suggests that a joint of pork had accompanied the inhumation burial.

Red deer antler from the secondary inhumation, Barrow 2
A single red deer antler had been deposited on the roof of the timber chamber containing the secondary inhumation in Barrow 2. The antler is approximately 820mm long from the end of the attached pedicle to the furthest crown tine. The pedicle is still attached to the burr, the base of the antler at its junction with the skull, indicating that it had come from a dead or killed animal, and was not a collected, shed antler. There are no cut marks and the break is largely along the sutures between the pedicle and the rest of the skull, indicating that the antler had been wrenched from the skull.

The antler has come from a mature red deer stag in excess of four years old. It possess seven tines; brow, bez and trez and a cluster of four crown tines. The tines show some natural wear and damage, but there is no evidence for any human working. Today, a stag with 12 points is considered a prime individual, a "royal", but in the past animals were typically larger, and antlers with up to 22 tines have been recovered from prehistoric deposits.

The burr is 258mm in circumference. This may be compared to the values from assemblages of antlers of Neolithic date recovered from Durrington Walls and Grime's Graves. These had average circumferences of 198.5mm and 212.97mm respectively, with the majority falling between 150–260mm (Simpson 1996, 294 & fig 2). The antler from Gayhurst is therefore at the upper end of the size range. This animal was therefore a mature, but not an elderly, red deer stag and an exceptionally robust specimen. It was perhaps deliberately selected as a large animal in the prime of life.

Wood charcoals from the barrow cemetery
by R Gale
Eight samples of wood charcoal from pyre debris deposited in association with cremated human bone and four samples of wood charcoals from other contexts associated with the Bronze Age round barrows, were submitted for analysis in 1999 and 2000, principally prior to submission of samples for radiocarbon dating (Table 11).

The charcoal was mostly firm, well preserved and abundant, although some samples contained slivers too narrow or degraded to identify. Samples were prepared for examination using standard methods. Fragments from each sample were fractured to expose fresh transverse surfaces and sorted into groups based on the anatomical features observed using a x20 hand lens. Representative fragments from each sample were selected for detailed study at high magnification. These were fractured to expose the tangential and radial planes, supported in washed sand, and examined using a Nikon Labophot microscope at magnifications of up to x400. The anatomical structure was matched to prepared reference slides.

When possible the maturity (i.e. heartwood/sapwood) of the wood was assessed. The charcoal was too comminuted to record the age of roundwood or to estimate stem diameters.

The anatomical structure of the charcoal was consistent with the taxa or groups of taxa listed below. Anatomical similarities between some related taxa prevent secure identification to generic level as, for example, with members of the Pomoideae (*Crataegus, Malus, Pyrus* and *Sorbus*). When a genus is represented by a single species in the British flora this is named as the most likely origin of the wood, given its provenance and period. However, it should be noted that it is rarely possible to name individual species from wood features, and some exotic species of trees and shrubs were introduced to Britain from an early period (Godwin 1956; Mitchell 1974). Classification follows that of *Flora Europaea* (Tutin, Heywood *et al* 1964–80).

Taxa identified:

Fagaceae: *Quercus* sp. (oak)

Rosaceae: Subfamilies:

Pomoideae which includes *Crataegus* spp. (hawthorn); *Malus* sp. (apple); *Pyrus* sp. (pear); *Sorbus* spp. (rowan, service tree and whitebeam). One or more taxa may be represented in the charcoal.

Prunoideae which includes *Prunus avium* (L.) L. (cherry); *P. padus* L. (bird cherry), and *P. spinosa* L. (blackthorn). In this instance the absence of broad heterocellular rays and sheath cells suggests *P. avium* and/ or *P. padus* as the more likely, although *P. spinosa* can not be ruled out.

Corylus sp. (hazel).

Barrow 1

Charcoal from the fill of the central pit (4005/4004), which contained an unurned cremation deposit, comprised oak (*Quercus* sp). A majority of this was sapwood, and the remainder was either heartwood or undetermined. The charcoal associated with a satellite cremation (7019), located about 20m west of the barrow, included oak (*Quercus* sp.), mostly heartwood but some of undetermined maturity, with fragments measuring up to 20mm in length. There was no evidence of narrow roundwood (ie diameter <20mm), but owing to the poor condition of the charcoal it was not possible to determine whether it represented wide roundwood, cordwood or trunkwood, or to establish a minimum age.

Barrow 2

Six charcoal deposits were analysed. Material from cremation deposits in pits 5084 and 5069 within the central grave consisted entirely of oak (*Quercus* sp.), and the sapwood was probably not narrow roundwood but included some fast-grown wood. In contrast, one of the external cremation deposits (5013) was entirely of the hawthorn/*Sorbus* group (Pomoideae), while the other (5012), although mainly of oak, included a single charred thorn, about 10mm in length, probably originated either from a member of the hawthorn group (Pomoideae) or blackthorn (*Prunus spinosa*).

The taxa identified therefore suggest a strong association between the species of wood used and the burial location. The exclusive use of oak appears to be related to the cremation deposits within the central grave, whereas the satellite burials included charcoal either from the hawthorn/*Sorbus* group (Pomoideae) and either the hawthorn group or blackthorn, and in one (5013), there was no oak present. It may also be noted that the plank-lined chamber containing the primary burial was also of oak.

Barrow 5

Charcoal from the upper fill of the urned cremation (6007/6005) consisted of oak (*Quercus* sp.) heartwood and some sapwood, and *Prunus* (probably cherry or bird cherry rather than blackthorn, see above). The same two species were also present in the scattered charcoal within the pit fill around the urn (context 6006/6005). The oak sapwood from the urn included some quite fast-grown, but probably from fairly wide stems and not narrow roundwood.

Barrow 6

A large quantity of charcoal was recovered from a single dense concentration in the ring ditch, interpreted on site as a carbonised plank. The material was very comminuted and mostly too thin to identify, however, it included both oak (*Quercus* sp.), probably mostly sapwood but too degraded to be certain, and Pomoideae, indicating that in addition to an oak plank there was also a second timber present.

Key: (*) = radiocarbon dated; h = heartwood and undetermined maturity; s = sapwood; t = thorn

The weight submitted for identification is listed, and total recovered is given (in brackets) when the whole sample was not submitted. The number of fragments identified is indicated.

Evidence for the ritual use of oak

The exclusive use of oak *(Quercus sp.)* in the central grave pit of Barrow 2 in both the plank-lined chamber and the wood charcoal associated with two unurned cremations has already been noted. The charcoal from the central, unurned cremation of Barrow 1 was also purely of oak. The importance of oak is further emphasized by its appearance in deposits from the inner ditch of Barrow 2, and the ditches of Barrows 3 and 6. In fact, of the 12 deposits examined from the barrow cemetery only one contained no oak charcoal.

TABLE 11 Barrows 1–6, wood charcoal identifications

Context /Feature	*Description*	*Weight (g)*	Corylus *(hazel)*	*Pomoideae hawthorn etc)*	Prunus *(cherry etc)*	Quercus *(oak)*
Barrow 1 4005/ 4004	Primary cremation Pyre debris (*)	40 (80)	– –	– –	– –	32h 92s
Barrow 1 7019	satellite cremation Pyre debris (*)	40	–	–	–	141h
Barrow 2 5087/ 5090	Central grave Plank lining (burial 1 of 5) (*)	23 (55)	–	–	–	51h, 82s
Barrow 2 5082/ 5084	Central grave, Pyre debris (burial 2 of 5)	4	–	–	–	49h, 18s
Barrow 2 5067/ 5069	Central grave Pyre debris (burial 4 of 5) (*)	21	–	–	–	5u 102s
Barrow 2 5028	Shallow gully Secondary fill Inner ditch (*)	8	–	–	–	31h, 4s
Barrow 2 5013	satellite cremation Unurned Pyre debris	12	–	52	–	–
Barrow 2 5012	satellite cremation Urned Pyre debris	1	–	(1t) or >	(1t)	11h
Barrow 3 1055	Fill of recut slot E. side of ring ditch	13	1	–	–	21s? 93s
Barrow 5 6006/ 6005	Urned cremation Pyre debris from pit around urn (*)	28	–	–	36	17s
Barrow 5 6007/ 6005	Urned cremation Pyre debris from upper fill of urn	10	–	–	21	151h, 2s
Barrow 6 1047/ 1045	Carbonised plank Ring ditch (*)	66 (164)	–	12	–	22s?

Key: (*) = radiocarbon dated; h = heartwood and undetermined maturity; s = sapwood; t = thorn
The weight submitted for identification is listed, and total recovered is given (in brackets) when the whole sample was not submitted. The number of fragments identified is indicated.

Although the charcoal was typically too comminuted to assess or measure roundwood diameters, it was apparent that none of the oak originated from narrow roundwood (ie diameter <20mm). A high proportion of the oak included sapwood, some of which was fast grown, and this was probably derived from fairly wide poles or cordwood. In a sample from a satellite cremation to Barrow 2 (5013), a fragment of Pomoideae charcoal included 26 growth rings and measured 26mm; both inner and outer regions were missing, but it was evident that a minimum diameter of 55mm could be anticipated (and probably considerably more since this estimate is based on charred material).

While the two central cremations of Barrow 2 contained only oak, charcoal from the two satellite cremations contained other taxa, in one case in addition to oak. This example might be taken to suggest that the exclusive use of oak occurred in burials prestigiously sited in the primary position while other species were present in satellite cremation burials. However, the other barrows do not present such a simple pattern. The charcoal from both the central cremation and a satellite cremation to Barrow 1 were both exclusively of oak, while the charcoal associated with the urned cremation burial within the ring ditch of Barrow 5 contained both oak (*Quercus* sp.) and *Prunus* taxa.

It is assumed that the charcoal recovered in association with deposits of cremated bone largely represents pyre fuel, although some may be attributable to wooden grave goods or artefacts included in the pyre. Despite the poor preservation of the charcoal there was no evidence to suggest the use of narrow oak roundwood (ie diameter <20mm), and the abundance of oak heartwood infers the use of poles or stems, or possibly cordwood. Oak poles or cordwood would have produced a long-lasting, high energy heat source, although other species identified from the site, such as *Prunus* (cherry and bird cherry), members of the hawthorn/*Sorbus* group (Pomoideae) and hazel (*Corylus avellana*) would also have been effective as pyre fuel.

The charcoal deposits from the cemetery at Gayhurst therefore suggest that the funereal use of oak certainly went beyond purely practical application. The ritual appears to have been related to status, but perhaps not exclusively so, and it may have had other connotations such as age or gender. The predominant use of oak as pyre fuel has also been recorded from cremation deposits at the nearby early Bronze Age site at Broughton Barn Quarry, Buckinghamshire (Gale forthcoming). The continuation of the practice of preferring oak as the pyre fuel into the middle Bronze Age has also been seen in later cremation cemeteries, including a small middle Bronze Age cemetery near Coton deserted medieval village, near Rugby Warwickshire (Gale 2001).

Carbonised plant remains and snails from Barrow 2 by K Deighton

Four soil samples were taken from Barrow 2 to provide an assessment of the potential for environmental evidence in terms of charred seeds and snails. From the inner ditch, samples were taken from the lower secondary fill beneath the cattle bone deposit (5103) and from the overlying cattle bone deposit (5078), in the north-eastern ditch segment (Figs 7 & 16; 5079). Two samples were taken from the lower and middle secondary fills of the outer ditch to the north-east (Fig 5, 5010).

The samples were of between 5 and 10 litres, and were wet sieved through 3.4mm, 1mm and 500micron sieves. The residues were collected, dried and sorted. The resulting ecofacts have been examined with a microscope (10x magnification). Preservation was fair with only a small proportion of the snails fragmented or abraded.

The coarse residues from the Barrow 2 cattle bone deposit (5078) inevitably contained numerous small indeterminate bone fragments. In addition, it was rich in snail shells, as had been noted during excavation. The coarse residue contained twenty shells, possibly of *Helix aspersa*. This snail has a particularly broad habit range so their use as environmental indicators is limited. The fine residue produced quantities of *A. pura* (Table 12). This could suggest a moist environment with deciduous woodland, however, without other habitat-specific species in significant numbers to confirm or contradict it this interpretation remains speculative. No charred seeds were recovered from the inner ditch fills.

The lower secondary fill (5010/2) of the outer ditch was totally sterile while the coarse residue from the middle secondary fill (5010/1) produced two *Cepaea nemoralis cf. hortensis* shells.

The very small quantity of charred seed recovered from the outer ditch of Barrow 2 was from a wild species, *G. palustre*, although this has been used as a dye plant.

TABLE 12 Barrow 2, ecofacts from the inner and outer ditches

Context	*Inner ditch secondary fill 5103*	*Inner ditch cattle bone 5078*	*Outer ditch secondary fill 5010/2*	*Outer ditch secondary fill 5010/1*
Volume (litres)	*5*	*10*	*5*	*5*
Seeds				
Galium palustre	–	–	2	–
Snails				
Ceciliodes Acicula	1	–	–	–
Bithynia sp.		1		
Aegopinella c.f.pura	–	20	–	–
Indet	9	3	2	–
Comments	–	–	–	Sterile

The small numbers and very restricted range of ecofacts present in these samples offered little value for environmental reconstruction and further sampling of the ditch fills was not undertaken.

The late Roman burials on Barrow 2
by T Anderson

Five inhumation burials inserted in the mound of Barrow 2 survived fully or partially (Table 13). Three of these (5035, 5037 and 5043), all fully-grown adults, were poorly preserved and the available bones were highly fragmented. One of these three skeletons could be sexed as male (F5043). The two better-preserved burials (5113 and 5116) were also both male, as well as elderly.

Burial 5113

The skeleton of this burial is practically complete, although the skull and the ribs are damaged. The remains are those of a mature adult male. Based on long-bone lengths, stature is estimated as 1.75m (5' 9") (Trotter & Gleser 1958). Available measurements indicate that he had a narrow forehead (index 65.0). The left femur is platymeric. There is advanced osteoarthritis, which is most noticeable in the cervical spine. There is marked enlargement and porosity of the cervical articular surfaces and two of the cervical vertebrae (CV3 & 4) are solidly fused together. When the seven cervical vertebrae are articulated, it can be seen that the advanced degeneration has caused definite reduction in height on the left side. The neck was, no doubt, painful; movement was limited and the loss of vertebral height suggests that in life the neck was visibly flexed to the left, pathological torticollis, commonly called wry neck.

This individual had been decapitated between the second and third cervical vertebrae. Unfortunately, both of these bones are eroded and damaged, but a sharp linear groove in the centre of the enlarged and degenerative inferior left axial facet appears to equate with the edge of the adjoining superior facet of the third cervical vertebra. The most inferior portion of the lower right axial facet has been removed and shows no evidence of healing. It appears that a heavy weapon (possible a sword or axe) had cut through the junction between the axis and the third cervical vertebra.

Osteophytic outgrowths are widespread and Schmorls' nodes are present in the lower thoracic spine (TV10–12) and intervertebral osteochondrosis involves the mid-lower thoracic (TV 8–10) and lumbar spine (LV3–5), as well as the typical cervical (CV4–7) presentation. The overall picture is one of mechanical stress, disc degeneration and compressional spinal forces (Knowles 1983 and Nathan 1962).

Three maxillary teeth, both first molars and the left first premolar, had been lost during life. One tooth, the upper left second molar, is carious. Widespread deposits of calculus are present on all the teeth.

Burial 5116

The skeleton of this burial is practically complete, although the skull and the ribs are damaged and the

TABLE 13 Barrow 2, the late Roman inhumation burials

Context	*Age & sex*	*Stature*	*Pathology*	*Comments*
5035	Adult ?	?	?	Supine, extended (disturbed)
5037	Adult ?	?	?	Supine, extended? (very fragmentary)
5043	Adult ?	?	?	Supine, extended? (very fragmentary)
5113	40–50 Male	1.750m (5' 9")	Vertebral degeneration	Supine, extended Decapitation, head by feet
5116	50–60 Male	1.810m (5' 11½")	Vertebral degeneration	Supine, extended

spine is highly fragmented. The remains are those of a mature adult male, in which the vault sutures are obliterated. Based on long-bone lengths, stature is estimated as 1.81m (5' 11½") (Trotter & Gleser 1958). Available measurements indicate that he is long-headed (index 72.6) and has a wide forehead (index 72.7). The left femur is platymeric.

In the fragmented spine, there is evidence of degeneration. The cervical spine displays osteoarthritis; osteophytic outgrowths and intervertebral osteochondrosis. Schmorls' nodes could also be demonstrated in the fragmented thoracic spine. Such changes are not surprising in an elderly individual. Additional facets on both lower tibiae indicate that this person had also been engaged in activities which involved periods of squatting (Kennedy 1989, table 1).

The standard of oral health was poor: ten mandibular teeth had been lost during life. Two of the three available mandibular molars were carious. Five of the nine available teeth displayed deposits of calculus.

THE BRONZE AGE TO IRON AGE BOUNDARIES AND PIT ALIGNMENTS

Following the site evaluation in 1997, two pit alignments were identified on an aerial photograph taken by Michael Farley (Figs 3 and 36; pit alignments A and B). They lay at the north-east margin of the excavated area, and had already been largely lost to earlier episodes of gravel extraction. The investigation of the surviving parts of these alignments was added to the main excavation programme, and an area measuring 19.0m N-S by 22.5m E-W was excavated in 1998 at their apparent western junction.

During the watching brief in 1999, subsoil stripping across the central area of the site exposed a long length of an interrupted ditch that was recognised as a further and associated pit alignment (C). For much of its course it had been recut by lengths of ditch and this had disguised its original form, so that although it did partially appear on aerial photographs, its early date had not been suspected. The eastern end of pit alignment C, adjacent to its junction with alignments A and B was exposed and excavated during the final stage of soil stripping in 2000.

In addition to the pit alignments, a number of relatively inconspicuous linear ditch systems were also recorded. It is now suggested that these were probably elements of a Middle to Late Bronze Age field system, and that the pit alignments were set out so that the junction of the three alignments respected the junction of ditches within the earlier Bronze Age field system. The field system ditches may have been contemporary with and related to a pair of parallel linear ditches that ran eastward from Barrow 2, which were described within the account of Barrow 2.

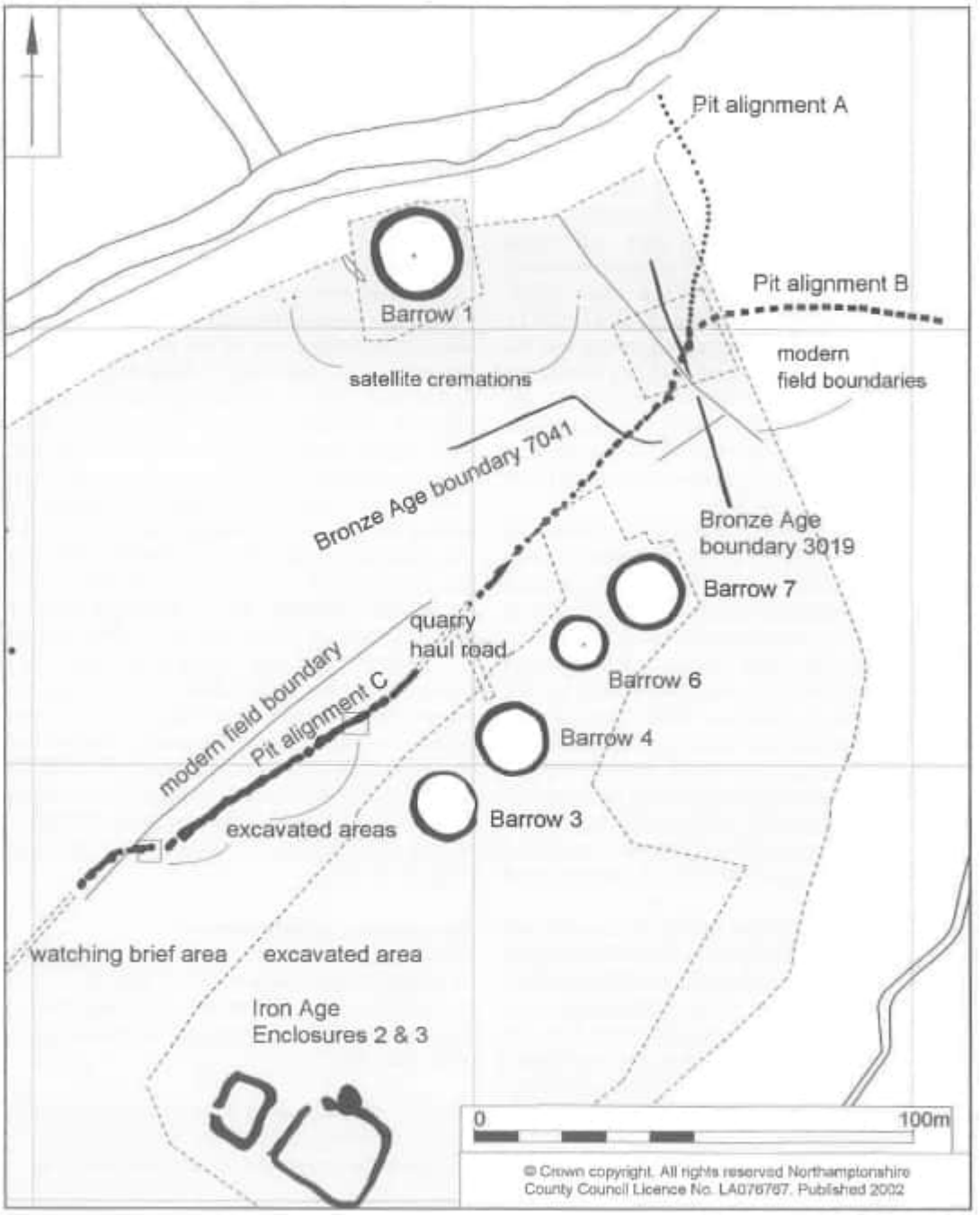


FIGURE 36 The eastern end of the site, showing the round barrows, the Bronze Age boundaries and the Iron Age pit alignments and enclosures

The Middle to Late Bronze Age boundaries

At the north-eastern end of the site there were two minor linear ditch systems (Fig 36, 3019 & 7041); as well as later ditches of the post-medieval field system. One ditch ran on an alignment just west of north-south (Figs 36 & 37, 3019). At its northern end there was what appeared to be a well-defined terminal, but to the south the ditch faded out and may once have continued further southward. It was 0.5–0.6m wide by up to 0.30m deep, with steep sides and a flat base, and a fill of greyish-brown sandy clay containing gravel. The other ditch, which was of similar form (Figs 36 & 37, 7041), ran partly almost at right angles, suggesting that the two ditches might have formed part of a rectilinear boundary system, but it turned abruptly to the south-east and was lost 14m before it reached the north-south ditch. This curving length may perhaps have flanked an opening or entrance set at the junction of the two ditch systems.

Neither of these ditches produced any finds, and at the intersections with the pit alignment similar fills left the relationships uncertain. The principal reason for favouring an earlier date for the linear ditches is that they would seem to most closely parallel the Bronze Age field systems and droveways excavated at various Fen edge sites, such as the complex system at Fengate, near Peterborough (Pryor 2005, fig 27). These have been largely interpreted by Pryor in terms of stock control, and the provision of the curving arc of ditch flanking the opening at the junction of the two rectilinear ditches at Gayhurst could have formed a corral for the collection and control of stock at the corner of a field.

A pair of parallel ditches further to the west and running eastward from Barrow 2 (described as part of the Barrow 2 sequence), were of similar appearance, and may also have been contemporary and part of the same boundary system (Figs 3 & 4). Given how narrow and shallow the recovered ditches were, it is possible that other shallower lengths of ditch may have been completely lost, particularly further to the south where the old ground surface had been more heavily truncated.

The Early Iron Age pit alignments

Pit alignments A and B were simple, single-phase pit systems, one comprising circular and other rectangular pits (Fig 36). In contrast, Pit alignment C possessed a lengthy history of refurbishment. It was observed over a total length of 255m (Figs 3 & 36). At the western end of the quarry a length was recorded during the watching brief in 1998, but was not further investigated as it was assumed to be part of the recent field boundary system, which comprised a linear ditch on the same general alignment (Fig 3). In retrospect, the two abrupt changes in alignment, following the pattern seen to the east, identify this securely as part of Pit alignment C. While the system clearly continued westward, its full extent is unknown.

The true nature of Pit alignment C was only recognised towards the end of 1999, when a large area of the central part of the quarry was stripped for extraction, exposing a long length of interrupted ditch, cut at one point by a quarry haul road (Fig 36). The ditch was planned in detail, using a total station theodolite to record the interrupted ditch system and the numerous bulges and irregularities in the sides of the longer ditch lengths, suggesting the presence of underlying pits. The system was sampled in two places to confirm that it was indeed a pit alignment with later recutting (Figs 40 & 41). The intention was to investigate this complex sequence in greater detail in 2000, when the north-eastern end was exposed. However, to the north-east it was found that the overlying interrupted ditch system was no longer present, having ended at a point to the north-west of Barrow 6 (Fig 36). Eleven clusters of inter-cutting pits at the eastern end of Pit alignment C were excavated in 2000, and a concentration of charcoal from the upper fill of one of these pits provided a radiocarbon date (Figs 37 & 39).

The sequence of development

From the complex history of Pit alignment C, and its relationship to alignments A and B, it is suggested that a three-fold model can be applied to the development of the entire pit alignment system (Figs 3 & 36).

Phase 1: Pit alignments A and C, comprising only regular circular pits, with the ends of the two alignments separated by a 10m-wide opening

Phase 2: Pit alignments B and C, comprising only rectangular pits, with the ends separated by an opening that was later blocked by the insertion of further rectangular pits

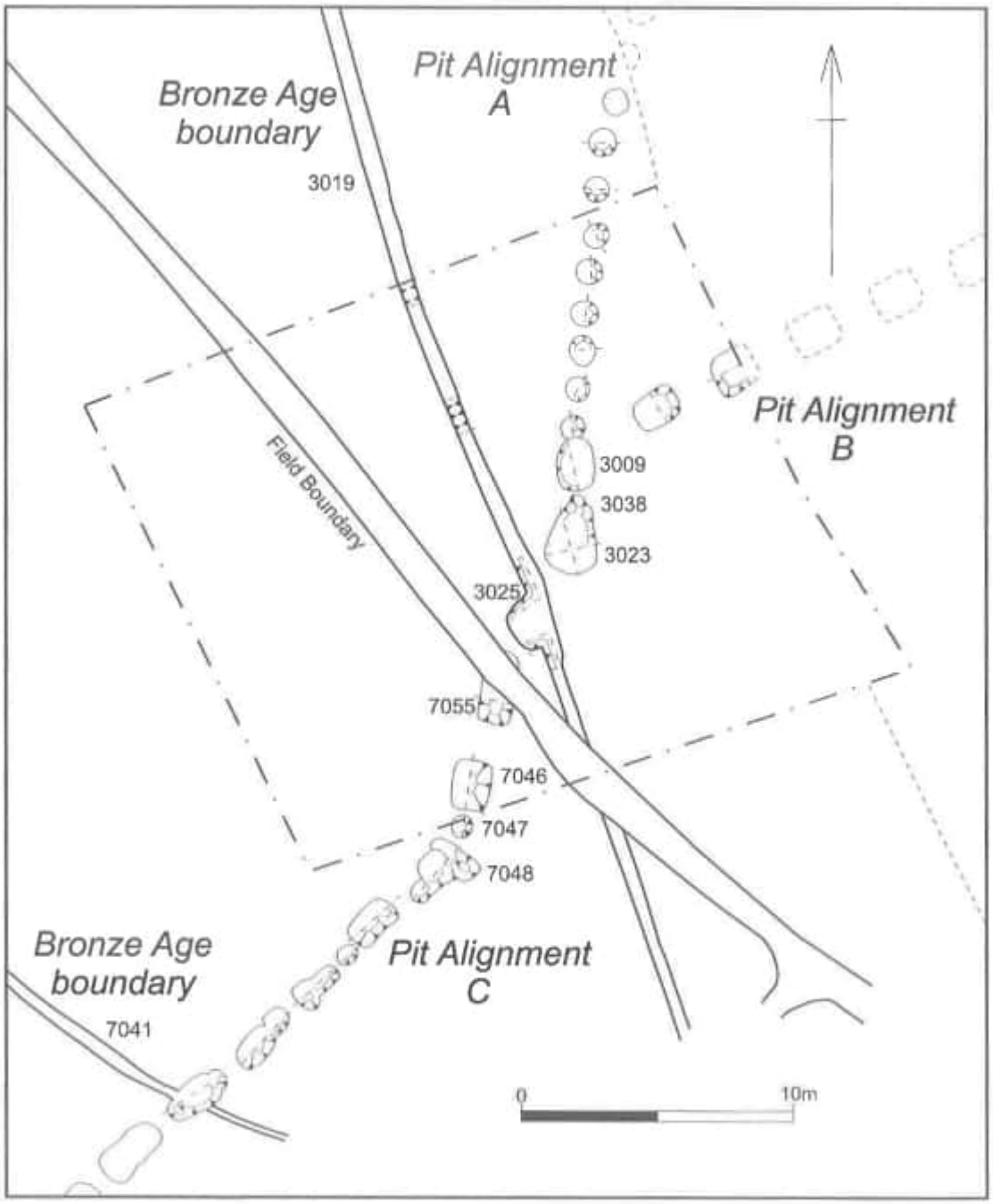


FIGURE 37 The Bronze Age ditches (3019 & 7041) and the junction of pit alignments A, B and C

Phase 3: Pit alignment C, with the north-eastern end of the system (A and B) abandoned and the remainder re-established by cutting interrupted ditch lengths over the earlier pits.

The junction of the pit alignments, and the opening that was probably initially present at this junction, lay in the same area as the opening at the junction of the linear boundary ditch system that probably preceded it. This suggests that the creation of the pit alignment showed respect for a key point in the layout of an earlier ditched field system, although the alignments of the two systems have nothing in common.

As is typical of many pit alignments, despite the excavation of 26 pits, finds were rare and those present were probably residual. However, a concentration of charcoal within the upper fill of a pit towards the eastern end of alignment C has been radiocarbon dated to 800–520 Cal BC (68% confidence, 2510+/-70BP, Wk-9171). This places the final filling of the Phase 2 rectangular pits within the Early Iron Age. It is obviously not possible to establish dates for the origin or of the demise of the system, but these are most likely to also have lain within the Early Iron Age, and the error applied to the single date may provide a reasonable indication of the total span of the system. A pit alignment at Upton, Northampton in the Nene valley has been shown by radiocarbon dating to have been open into the Middle Iron Age, 400–200 Cal BC (see McAree 2005, which includes a discussion of and a detailed bibliography for, excavated pit alignments in Northamptonshire). Where pit alignments have been respected, into the Late Iron Age, and even into the Roman period, the pit alignment itself had usually been replaced by a nearby ditch system on the same alignment, as at St. Ives Cambridgeshire (Pollard 1996).

Phase 1

Pit alignment A

This comprised a north-south alignment of regularly spaced, circular pits (Fig 36). The direction of alignment changed gradually from a line west of north, to a line east of north; in contrast to the abrupt changes in direction of alignment C. Pit alignment A is visible on an aerial photograph for a length of 56m (a total of 31 pits). To the north it was lost as it approached the river, and there is no aerial photographic coverage of the field to the north of the river. To the south it ran to a junction with pit alignments B and C, and it probably terminated at this point (Fig 37, pit 3038).

A group of 10 complete pits lay within the excavated area, of which eight were excavated (Figs 37 & 38; 3027–3007, 7022 & 7023). These were all circular to oval, steep-sided with concave bottoms, averaging 1.0m in diameter by 0.30m deep (Fig 38). They were closely spaced at 0.30–0.65m apart, and the aerial photograph indicates that this size and spacing was consistent over the full recorded length of the alignment.

The pits all contained a rapidly-accumulated primary fill of light-brown sandy silt, which was slightly clayey and contained some gravel inclusions. The fill was sometimes slightly greyish in colour and the silt and clay content indicates that they had been waterlogged or at least wet during much of the time while they were silting. Given the permeable sands and gravel into which they were cut, this is most likely to have been a result of a raised water table during the winter months. The primary fill had protected the lower pit edges from erosion, and it must be suspected that the pits had originally been significantly deeper than this, with the upper parts lost to later ploughing. The secondary fills were closely similar to the primary fills, but contained fewer gravel inclusions.

Pit alignment C

Pit alignment C had a distinctive plan-form, comprising a series of straight lengths with abrupt and sharply-angled changes in alignment (Fig 36). The straight lengths were either short, at around 11–12m long, or long, at 45–62m. The overall effect was that the general alignment, based on the long lengths, was consistently south-west to north-east, with the shorter lengths creating abrupt doglegs within that general alignment. It may also be noted that the alignment ran to the north of the southern barrows on a similar alignment to the linear barrow group, indicating that the barrows were probably still prominent landscape features at this time.

The north-eastern end of alignment C comprised a series of inter-cutting pits that can be resolved into two principal phases (Figs 37 & 39). A number of circular pits, similar to those of alignment A, either fully or partially survived (Fig 39; 7047, 7049, 7051, 7045, 7056 & 7057), however, all of

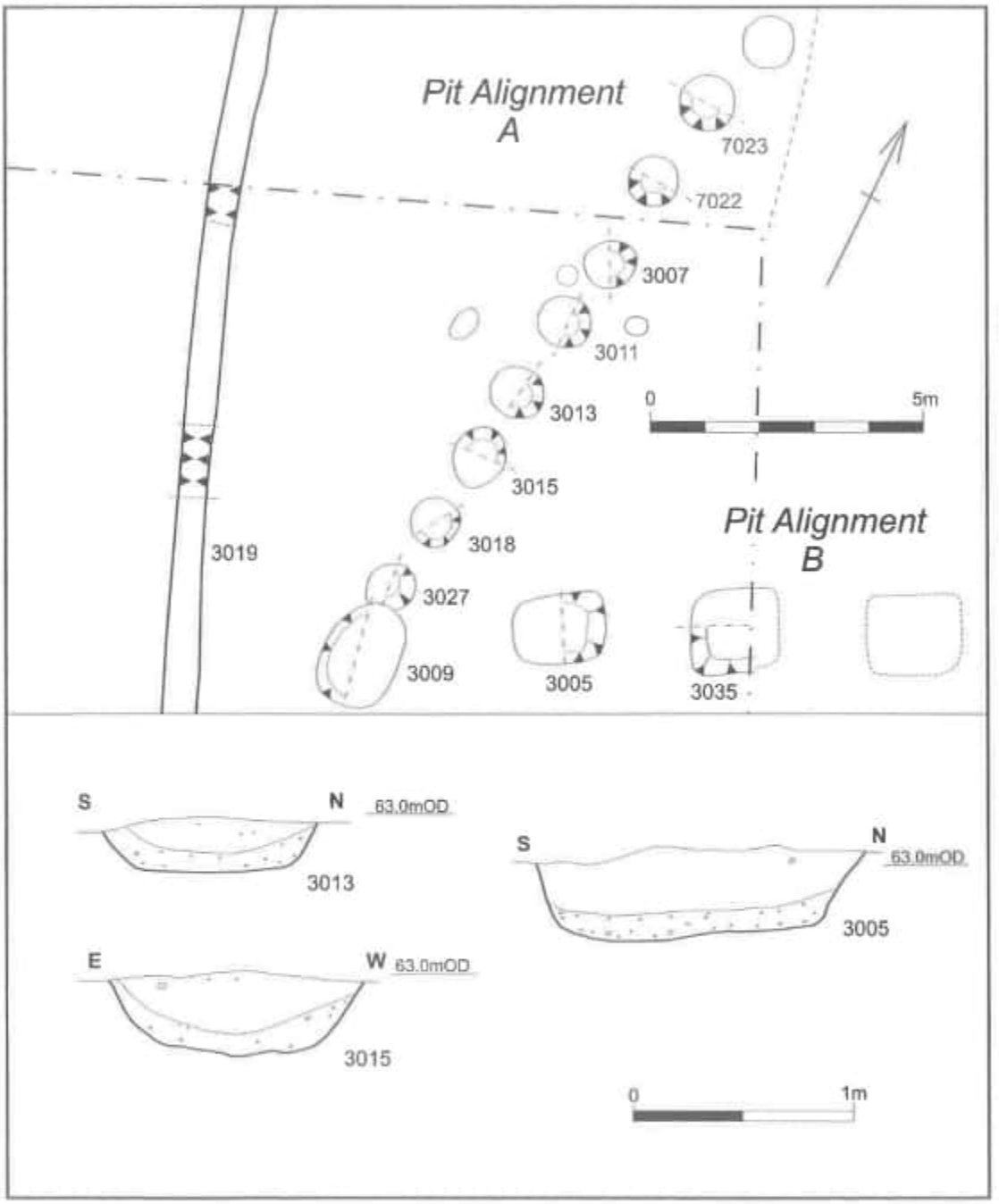


FIGURE 38 Detail of the junction of Pit alignments A and B, and sections of pits

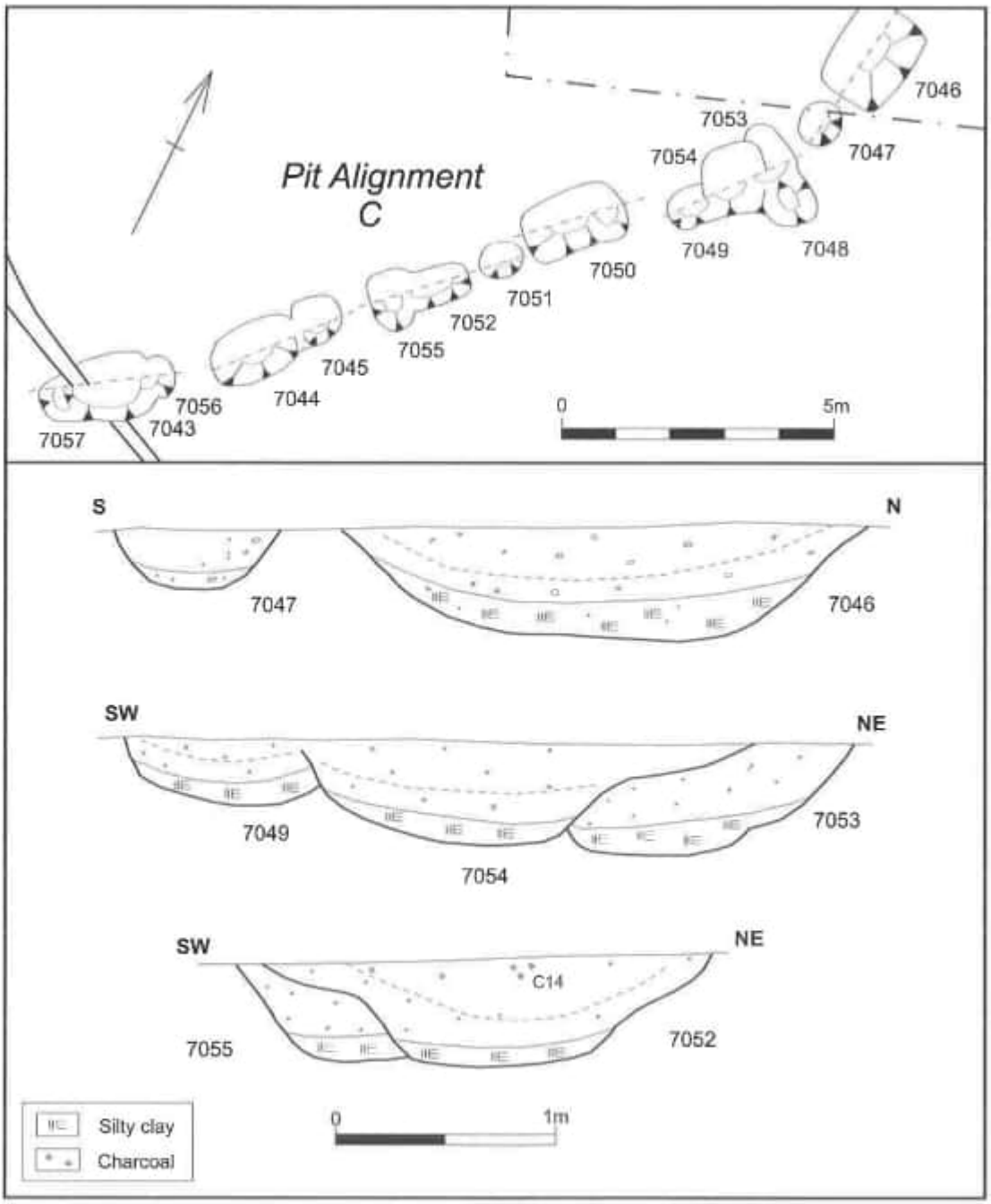


FIGURE 39 Detail of Pit alignment C, east end, and sections of pits

the disturbed examples had been cut by longer rectangular pits, indicating that the alignment may originally have comprised only circular pits, probably set around 1.3–1.5m apart. The pits were around 0.90m in diameter by 0.30–0.45m deep, with steep sides and rounded bases. The upper edges were quite steep sided, indicating that they had silted more rapidly than the later rectangular pits, although this may just have been a result of their smaller size.

The circular pits of alignment C were apparently not set as closely together as the pits on alignment A. To the north-east, alignment C ended at a pit (7047), some 12m from the southernmost circular pit of alignment A (Fig 37, pit 3038), and there was no indication that there had ever been any circular pits between them. It therefore appears that the original pit alignment complex comprised two lines of circular pits, A and C, at different spacing and on different alignments, with a 12m gap between the ends of the two alignments.

Phase 2

Pit alignment B

This alignment could be traced on the aerial photograph for a distance of *c*55m west-east, a total of 19 pits (Fig 36). Further east it was lost in an area of darker soils. It did not appear to emerge from the other side of this area, so its original extent is undefined. The alignment followed a gentle curve, and then curved more sharply near the southern end of pit alignment A. The final pit (3005) lay 2.0m short of the southern terminal of alignment A (Figs 37 & 38); perhaps showing respect for an existing pit alignment terminal.

The alignment comprised regular rectangular pits, and the single complete pit available for excavation was 1.65m long by 1.25m wide and 0.36m deep, with steep-sides and a flat base (Fig 38, 3005). The two located pits were 1.5m apart, and the aerial photograph again indicates that the size and spacing of the pits was closely consistent along the entire recorded length of the alignment. The fills were closely similar to those of the pit alignment A.

Pit alignment C

The second phase of Pit alignment C comprised rectangular pits, typically 1.5–2.0m long by 0.7–1.2m wide and 0.40–0.50m deep, set around 1.0m apart. The upper edges of these pits were often eroded, indicating that they had been left open to silt slowly. As a result, they were far more irregular and rounded in plan than the pits of alignment B. Although part of the irregularity came from erosion of the fills of the earlier circular pits, this does not fully account for the disparity, and it would seem that the rectangular pits of alignment C were either less precise in their original cutting than those of alignment B, or that they had been open for longer, perhaps with episodes of scouring that had left no evident traces within the fills.

The primary fills typically comprised grey clayey-silt with gravel inclusions, indicative of standing water resulting from seasonally high water tables. The secondary fills were fairly homogeneous brown sandy-clays containing some gravel inclusions. The fills were typically clean containing virtually no artefacts or bone, apart from a few residual worked flints. However, in a single pit there was a quantity of charcoal that probably lay on top of the secondary fill, and had therefore been deposited when the pit was visible as no more than a shallow hollow (Fig 39, 7052). It comprised a mixture of tree species; oak, ash and the hawthorn and cherry families, and provided the only sample suitable for radiocarbon dating.

It is suggested that to the north-east Pit alignment C terminated at a distinctive pit group that included two adjacent pits set transversely to the alignment, and projecting beyond the normal width of the line of pits (Figs 37 & 39; 7048 & 7053). The relationship of the two square terminal pits was not established, as their intersection was only seen in plan. They were later replaced by another square pit (Fig 39, 7054), which was also distinct from the rectangular pits that continued the alignment to the south-west. The upper edges of these pits had all eroded back into earlier pit fills, suggesting that they were open pits like the rest of the alignment, and there is no evidence that they contained terminal posts.

The distinct terminals to alignments B and C suggest that the 12m-wide opening at this point in Phase 1, denoted by the absence of circular pits, was retained in the arrangement of the rectangular pits of Phase 2. However, at some later date the opening was evidently blocked by the insertion of several rectangular pits (Fig 37; 7046, 7055, 3025, 3023 & 3009). These pits all had dimensions and fills closely comparable to the main pits of

alignments B and C, and they were all of a single phase, with no evidence of recutting.

Phase 3

Pit alignment C

While the north-eastern end of alignment C showed two distinct phases of use, to the south-west the pattern was more complex, with the presence of an interrupted ditch system denoting a third phase of major reworking. This ditch cutting did not extend along the full length of the alignment, and it is suggested that Pit alignment B and the north-eastern end of alignment C were abandoned, with a new north-eastern terminal lying adjacent to the linear barrow group (Fig 36).

The overall plan form on this length of the alignment, included what appeared to be occasional individual large pits of circular or oval plan, 2.0–3.0 m long by 1.5–2.0m wide. It is suggested that these may have been survivors from the initial phase of circular pits (Figs 40 & 41). Some of the shorter ditch lengths, 5.0–7.0m long, also appeared to overlie either two or three circular pits. Excavation at the terminal of one ditch length confirmed the presence of a large circular pit (Fig 40, 7031), 1.40m diameter by 0.53m deep with steep sides and a flat bottom, truncated by a later and shallower ditch (7030). A section across a longer length of ditch uncovered the sharply-angled corner of an underlying rectangular pit (Fig 41, 7029), 0.55m deep, with steep sides and a flat-bottom, which had been largely cut away by the later ditch (7028). The limited evidence from this area therefore suggests that the final ditch cutting had followed on from the same pattern of circular and rectangular pits as seen to the north-east.

It was only after the original pits had largely silted, that the partial ditch recutting occurred. This appears to have had little consistency in its execution. The shorter ditch lengths were only 5.0–7.0m long, linking two or three earlier. The three longer lengths of ditch that were fully recorded had a wide range of lengths: 10.5m, 15m and 34m. The depth of the ditch cuts was also quite variable. In one section the ditch was 1.35m wide by 0.45m deep, with steep sides and a flat bottom (Fig 41, 7028), but in the other section it was only 0.3m deep (Fig 40, 7030). Along the ditch lengths the causeways were typically only 0.5–1.0m wide. The single wider causeway, 2.2m wide, lay at the end of one of the abrupt dog-legged changes in direction (Fig 40).

The intention would appear to have been merely to do enough to re-establish the general line of the alignment, with no particular concern for the fine details of the appearance of that boundary, in distinct contrast to the highly regular form of the previous two phases. The fills were similar to the earlier pit fills, and were similarly clean and free from artefacts and animal bone. As with the pits, it would appear that in this final phase the ditch lengths were allowed to silt naturally, until eventually all trace of the alignment had been lost.

Finds, environmental evidence and radiocarbon dating from the pit alignments by A Chapman, R Gale and K Deighton

The pottery by A Chapman

Two sherds of pottery were recovered from pit alignment C. A base sherd with a black core and inner surface and a brown outer surface came from the length at the westernmost end of the quarry. The other sherd, the only diagnostic piece, is from pit (7048) at the eastern end of the alignment (Fig 39). It is a thin-walled body sherd, 5mm thick, in a sandy fabric, with a black core and inner surface and a light brown outer surface. The sherd is only 26mm across, and is not illustrated, but the fragment of decoration comprises closely parallel obliquely incised lines bordered by an open area, with both bordered by a single, more deeply incised line that probably encircled the vessel. This suggests that there was a bordered zone that contained filled and open chevrons. Such a thin-walled, highly decorated piece would be consistent with an Early Iron Age date, spanning the 8th to 6th centuries BC, as given by the radiocarbon date from charcoal in a nearby pit (7052).

Residual flint by A Chapman

Three flints were recovered. These comprise two flakes from the north-east end of alignment C and a barbed and tanged arrowhead (see Fig 33, 6) from pit (3035) in pit alignment B. These can all be assumed to be residual finds of early Bronze Age date.

The wood charcoals by R Gale

A single sample of wood charcoal from pit (7052) in pit alignment C was submitted for analysis.

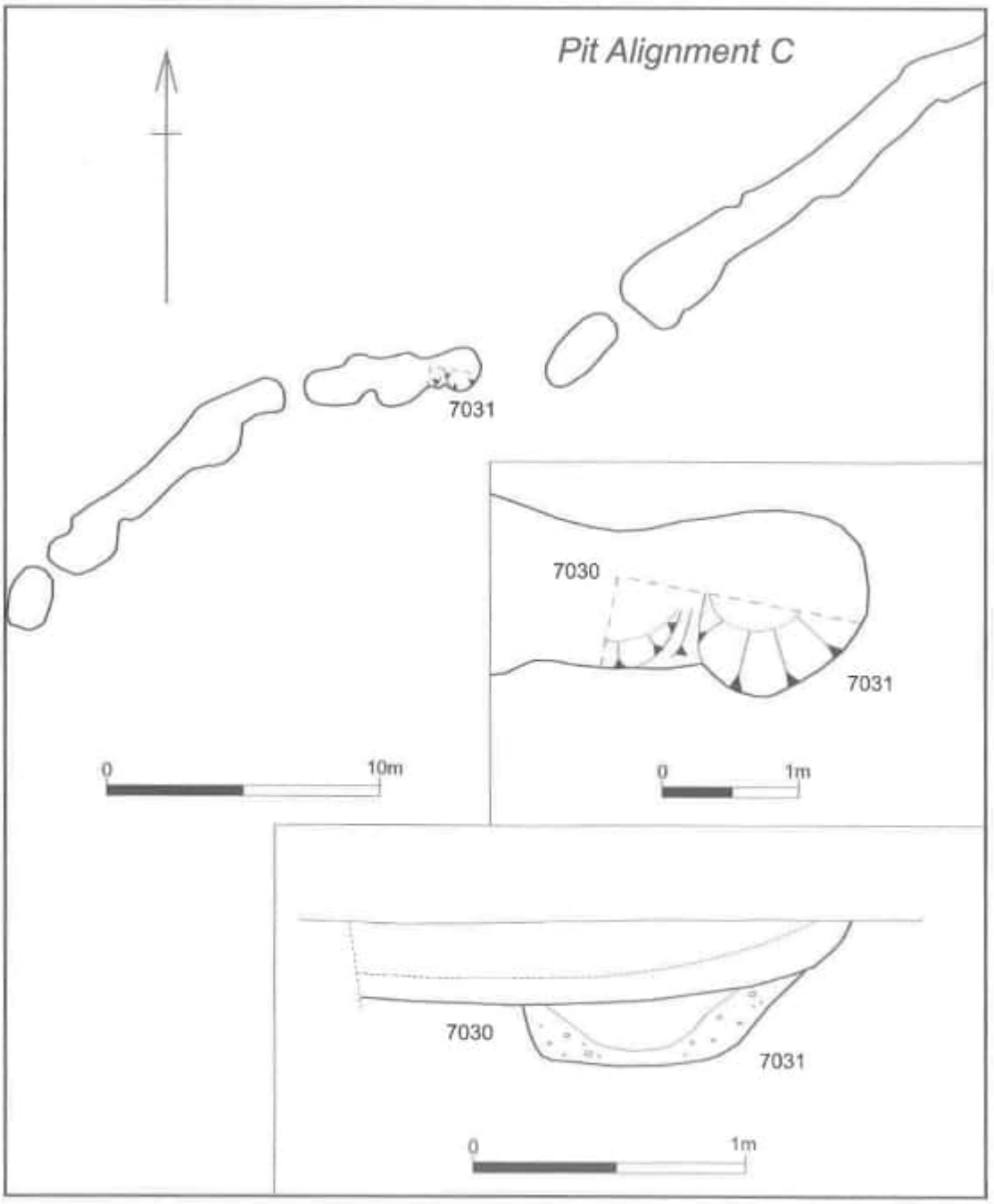


FIGURE 40 Detail of Pit alignment C, west end, and section of pit

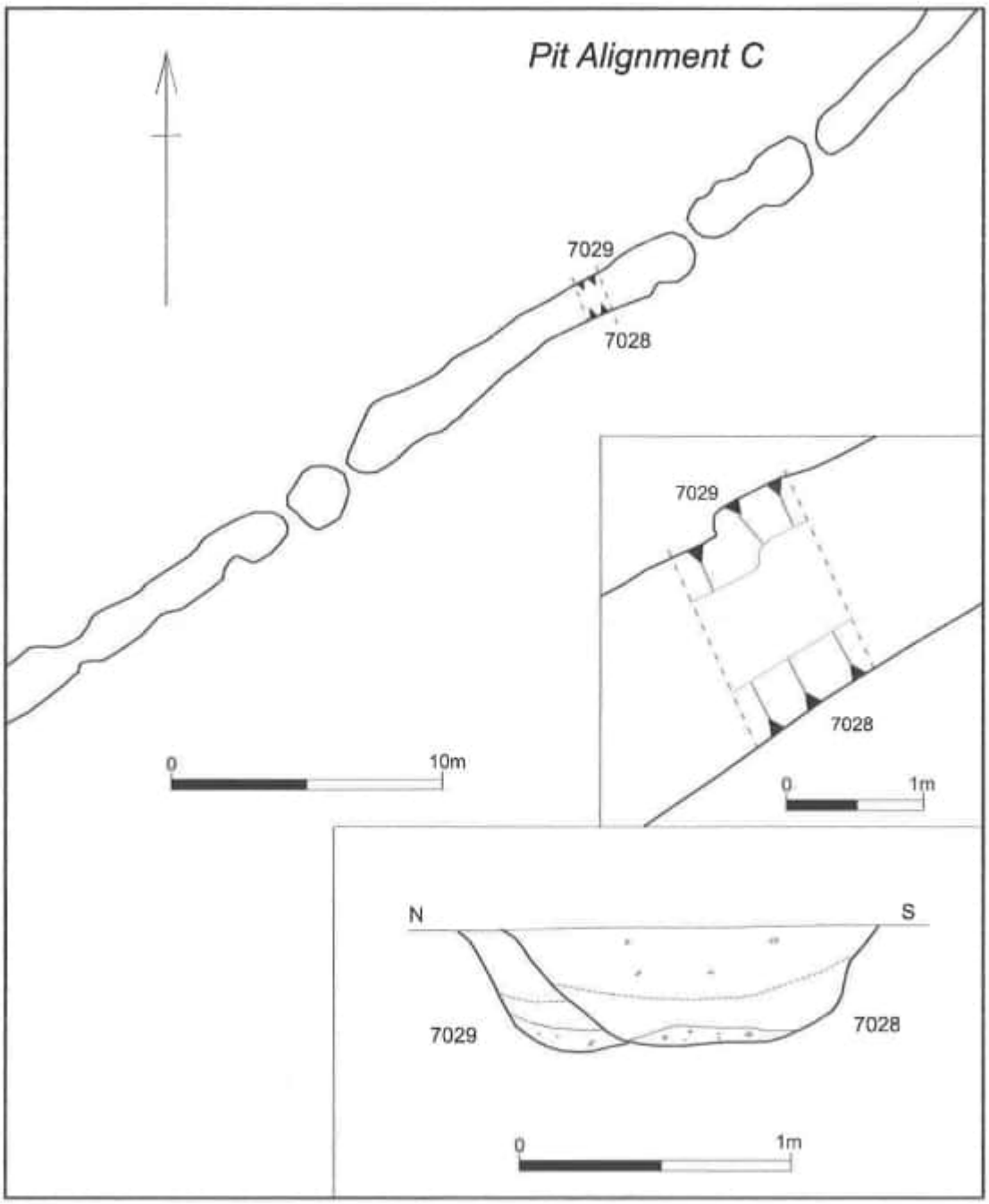


FIGURE 41 Detail of Pit alignment C, central part, and section of pit

Classification follows that of *Flora Europaea* (Tutin, Heywood *et al* 1964–80).

Taxa identified:

Fagaceae: *Quercus* sp. (oak)

Oleaceae: *Fraxinus excelsior* L. (ash)

Rosaceae: Subfamilies:

Pomoideae which includes *Crataegus* spp. (hawthorn); *Malus* sp. (apple); *Pyrus* sp. (pear); *Sorbus* spp. (rowan, service tree and whitebeam). One or more taxa may be represented in the charcoal.

Prunoideae which includes *Prunus avium* (L.) L. (cherry); *P. padus* L. (bird cherry), and *P. spinosa* L. (blackthorn). In this instance the absence of broad heterocellular rays and sheath cells suggests *P. avium* and/ or *P. padus* as the more likely, although *P. spinosa* can not be ruled out.

Carbonised plant remains and snails by K Deighton

Two soil samples, of 10 and 20 litres respectively, were taken from the secondary fills of two pits within pit alignment C, pit (7037) (not illustrated) and pit (7052) (Fig 39), to provide an assessment of the potential for environmental evidence in terms of charred seeds and snails. They were wet sieved through 3.4mm, 1mm and 500micron sieves. The residues were collected, dried and sorted. The resulting ecofacts have been examined with a microscope (10x magnification). A single charred seed of *Polygonum sp.*, a wild species, came from pit (7037), and only wood charcoal was recovered from pit (7052). There was no further sampling of the pit alignment.

Radiocarbon dating of Pit alignment C

A sample of the charcoal from pit (7052) was submitted for radiocarbon dating.

TABLE 14 The pit alignments, wood charcoal identifications

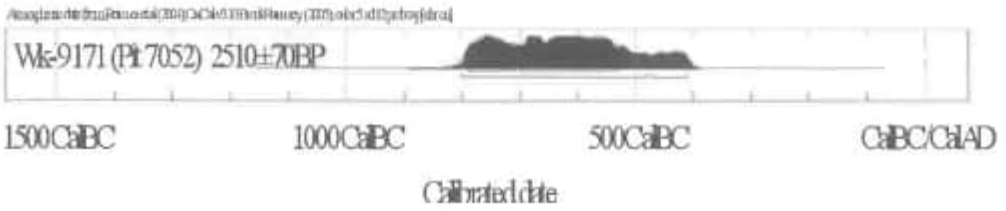
Feature/ Context/ sample	*Description (ash)*	Fraxinus *(hawthorn etc)*	*Pomoideae (cherry etc)*	Prunus *(oak)*	Quercus
Pit alignment C Pit 7052	Upper pit fill	6h	46	2	2h

Key: h = heartwood and undetermined maturity. The number of fragments identified is indicated.

TABLE 15 Radiocarbon dating for the pit alignments

Lab.and Sample number	*Context details*	*Sample details*	*Conventional C14 Age BP 95% confidence*	*Calibrated Age Cal BC 68 % confidene*
Wk-9171 GAY98/7052	Pit alignment C Pit 7052	Wood charcoal Pomoidae (hawthorn etc) with some *Quercus* (oak)	2510 +/-70	790–520 800–410

Laboratory: Radiocarbon Dating Laboratory, University of Waikato, New Zealand
Method of analysis: Radiometric-standard. Calibration to calendar years: INTCAL98



The Iron Age Enclosures and Roman Activity

Three Iron Age enclosures and part of an attached annexe were excavated in 1998, and parts of a ditch system and a single Iron Age pit were recorded in the watching brief in 1999 (Fig 3, Enclosures 1–4 and Iron Age pit).

The enclosures formed two separate occupation areas. Enclosures 2 and 3 lay side-by-side as a pair of contemporary enclosures. The small assemblage of pottery from them is broadly dated to the Middle Iron Age, and it is tentatively suggested that Enclosures 2 and 3 were the earliest; probably in use in the earlier Middle Iron Age, perhaps through the 4th century BC. Enclosures 1 and 4 were perhaps Middle to Late Iron Age in date, this date partly being suggested by the presence of a cremation deposit dated to the 1st century AD, which lay just outside Enclosure 1. A nearby pair of linear ditches, running past Barrow 2, and an isolated Iron Age pit, may have been contemporary with Enclosures 1 and 4.

The recovery of pottery, a little domestic animal bone and some burnt cobbles confirms that there was domestic occupation in these small enclosures. However, as small domestic farms these could only have been the most basic arrangement, containing no more than a single roundhouse occupied by a small family group, while the adjacent smaller enclosure or annexe may have been a stock enclosure or fulfilled some other ancillary role. While these enclosures might represent the domestic enclosures of a small independent family unit, they might have been outlying ancillary structures to a more substantial nearby settlement, perhaps on the higher ground to the south-east.

Enclosures of similar size and plan form are common in the Midlands. In fact, the nearest comparable example is a sub-rectangular enclosure at nearby Ravenstone (Mynard 1970). The Ravenstone enclosure, measuring 76m by 45m (250 by 150 feet), was considerably larger, and could evidently have accommodated more people, but was similarly isolated from other settlement. Enclosures of closely similar size have been found at nearby Iron Age settlements, such as Wavendon Gate (Williams *et al* 1996) and Pennyland and Hartigans (Williams 1993) in Milton Keynes, but these were within large settlement complexes that included several enclosures associated with nearby roundhouse ring ditches. An arrangement similar in form and size to Enclosures 2 and 3, with two adjacent enclosures of disparate size, has been seen at Briar Hill, Northampton on the slopes above the Nene valley, where two small Iron Age enclosures were sited within the Neolithic causewayed enclosure (Bamford 1985), while larger settlements, including the Hunsbury hill fort lay on nearby higher ground

The most notable find associated with the Iron Age settlements was a crouched inhumation burial, which had been placed in the northern entrance terminal of Enclosure 1 (Figs 42 and 44). It was inserted into the partially silted ditch, and may have been buried near to, or even following, the abandonment of the enclosure, perhaps during the 1st century BC. This enclosure also appears to have been recognised and respected in the 1st century AD, when a cremation burial, accompanied by a pottery jar and a pair of hobnail boots, was buried in a small pit just outside the enclosure ditch.

The only evidence for later Roman use of the area was a small inhumation cemetery, previously noted, sited on the upstanding mound of Barrow 2. The remains of at least five individuals had survived, and others may have been lost. A decapitation burial suggested a late Roman date. These burials must have been of individuals from a nearby settlement, perhaps located above the floodplain on the higher ground to the south-east, and possibly a direct successor to an Iron Age settlement. Burial on the barrow mound may have retained an ancestral connection with the earlier settlement on the floodplain.

It may also be noted that settlement enclosures of Roman date lying less than a kilometre to the south, and to the west of the M1 motorway, were excavated in 2005 (Steve Morris and Anthony Maull, Northamptonshire Archaeology pers comm).

Iron Age Enclosures 1 and 4

Enclosure 1 was trapezoidal in plan, measuring 33m north-west to south-east by 14–22m wide; enclosing an area of 610m sq (Fig 42).

To the south the enclosure ditch varied from 1.3–2.0m wide by 0.45–0.70m deep. There had been no general recutting but the upper edges of the ditch had been eroded back to shallow angles in the relatively soft sand and gravel natural (Fig 43, S.144). This suggests that the ditch had been open

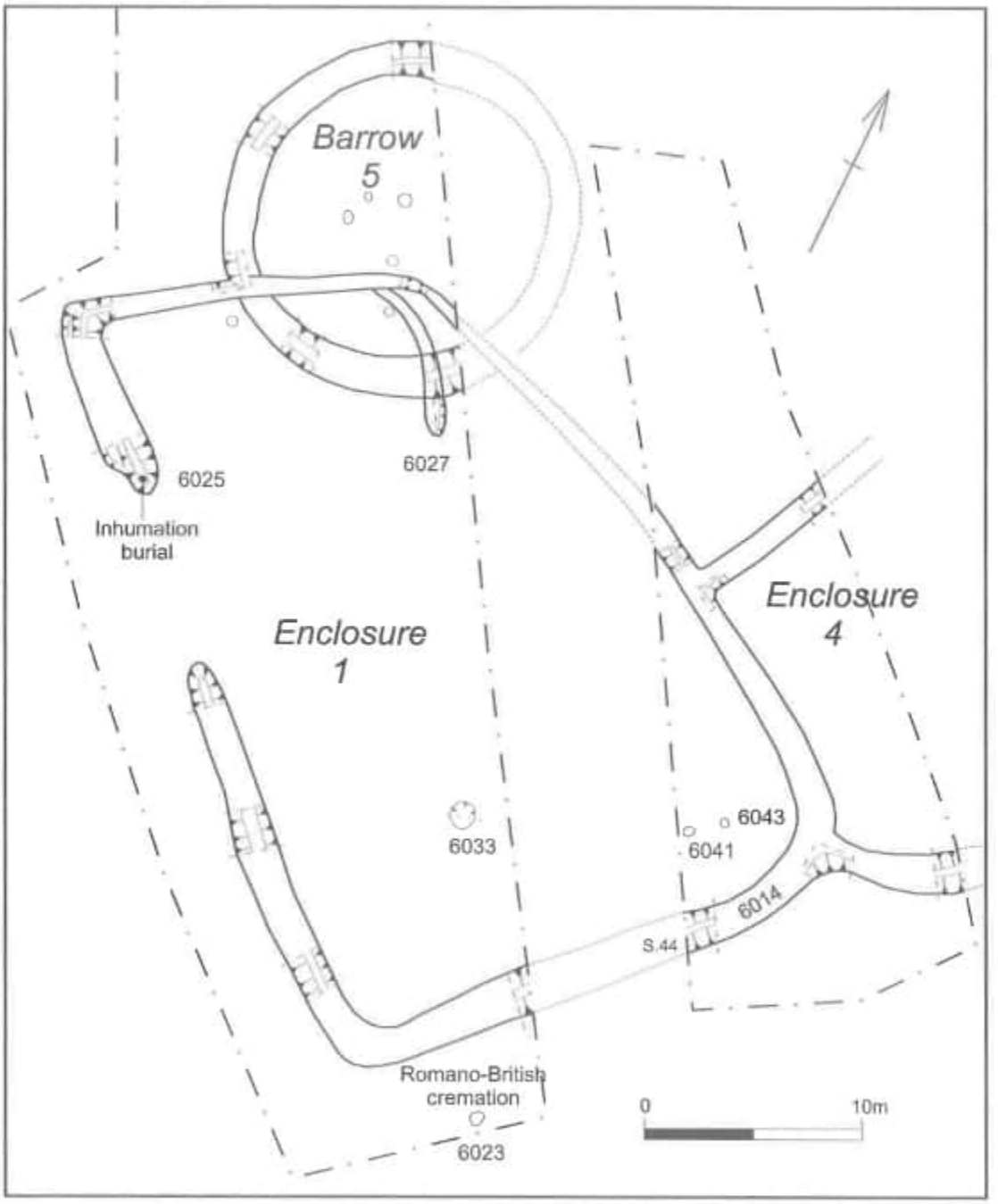


FIGURE 42 Iron Age enclosures 1 and 4, partly overlying Barrow 5

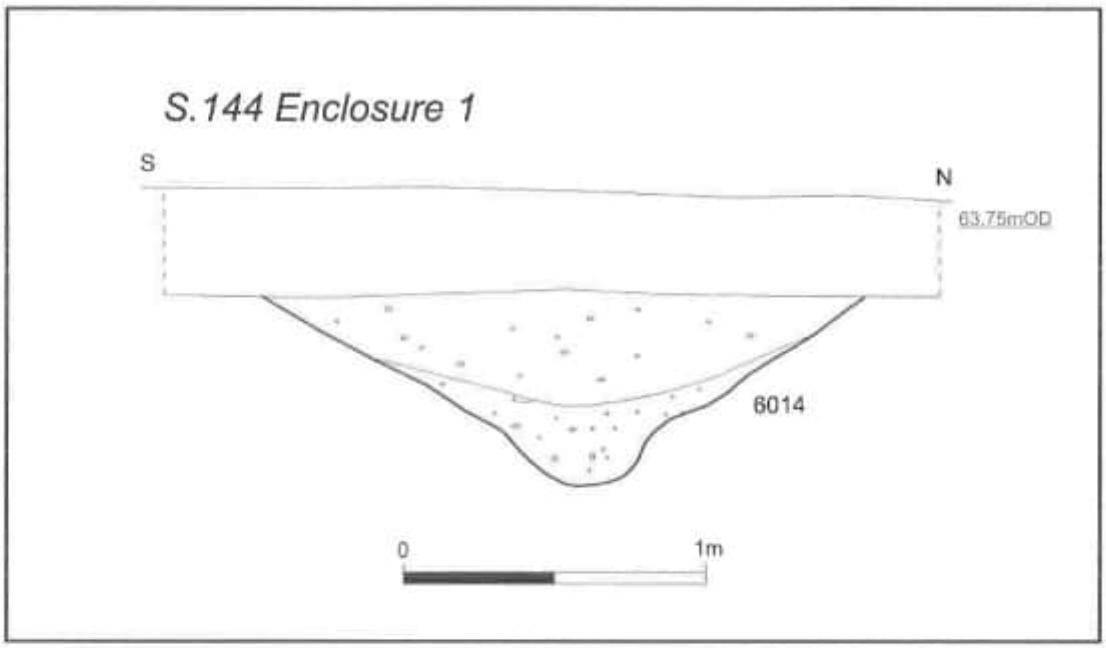


FIGURE 43 Iron Age enclosure 1, section of ditch (6014)

for an extended period, and was probably regularly scoured to keep it open. It may originally have been only 1.0m wide, with a steep-sided V-shaped profile and a broad base, 0.30m wide. To the east the ditch had a narrower, more slot-like profile, suggesting that it may have silted quite rapidly and had not been subsequently scoured or re-cut. It may be that the ditch was allowed to silt or had been backfilled to provide access into the abutting annexe, Enclosure 4.

To the north-east, where the enclosure ditch cut across the southern part of Barrow 5, it was particularly narrow and shallow, at 0.60m wide by 0.22m deep, perhaps as a result of being cut into the flanks of an extant barrow mound, with a consequent reduction in the depth that it cut into the natural. In addition, there was an arc of shallow gully (6027) that may have been an original terminal for an eastern entrance, later backfilled with clean sand and gravel, but this could not be confirmed as the relevant part of the eastern arm lying further south was not available for excavation.

There was a broad entrance, 8.0m wide, in the northern half of the western arm, and the ditch to the north of entrance was the only part that was re-cut. The original ditch here was 0.40m deep, and it had fully silted before it was re-cut along its inner edge by a V-shaped ditch, 0.80m deep, with a new entrance terminal 1.5m south of its predecessor. The later ditch had also fully silted before a circular pit (6025), 1.1m in diameter by *c* 0.5m deep, was excavated into the terminal to hold the inhumation burial of an adult women, aged 35–45. The burial lay on its right side, but facing downwards, with its head to the north and the arms folded across the chest (Figs 44 and 45). The legs were so tightly contracted that the individual must have been trussed in this position. The upper fill of the pit contained a layer of placed and closely packed irregular fragments of limestone and water-worn cobbles, including a fragment from a saddle quern or rubbing stone. The limestone slabs around the margin of the pit were inclined, but perhaps only as a result of subsidence of the pit fills.

The ditch fills generally showed a fairly simple sequence. A rapidly accumulated primary silt of clean sand and gravel preserved the lower profile of the ditch. Above this, the secondary and upper fills

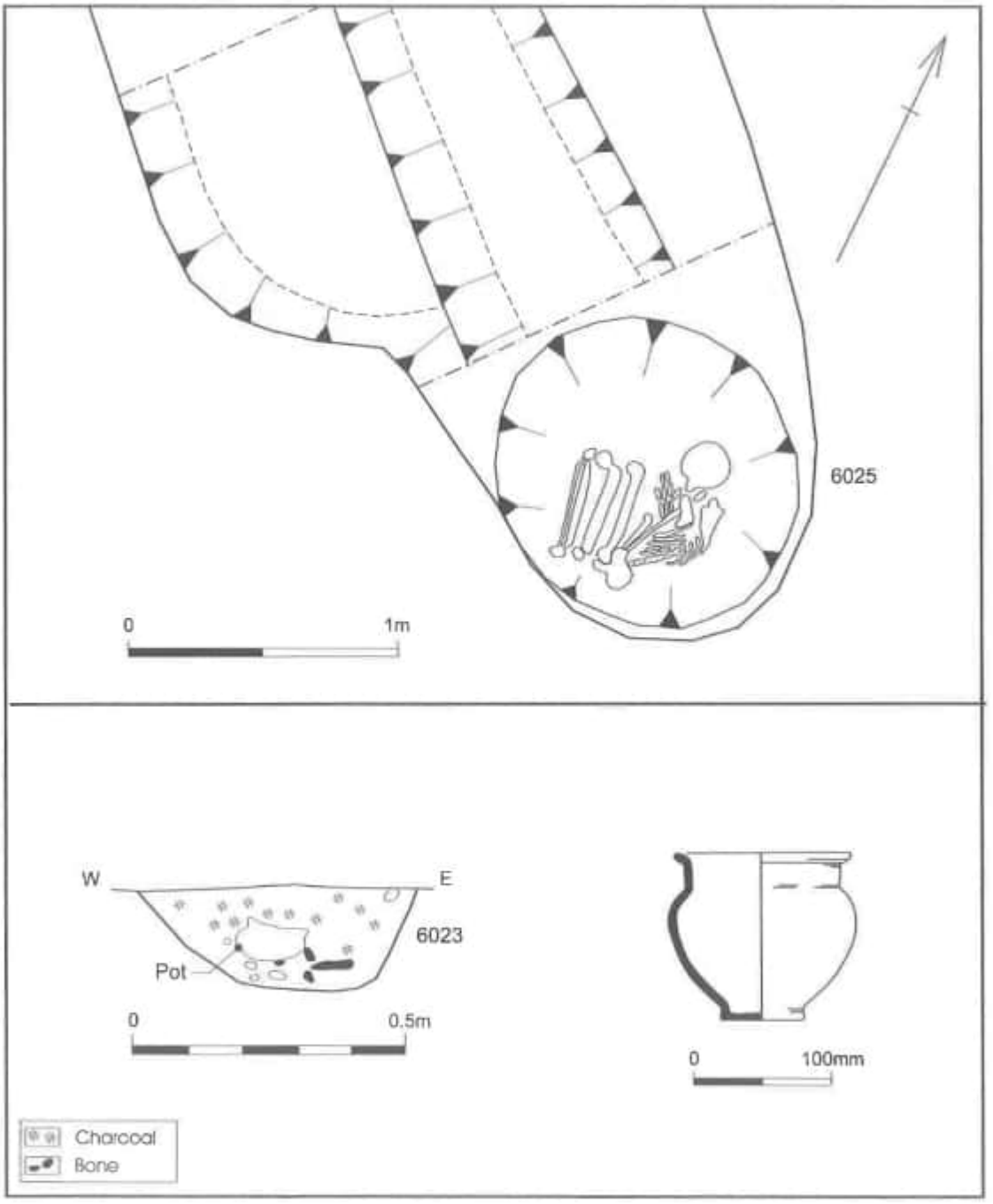


FIGURE 44 Iron Age enclosure 1, inhumation burial (6025) and Romano-British cremation (6023)

FIGURE 45 Iron Age Enclosure 1, the crouched inhumation burial (6025) in the ditch at the entrance

were generally fairly homogeneous and comprised red brown to medium-brown sandy loam containing gravel pebbles. There were some localised deposits containing higher gravel densities, which were probably derived from erosion or collapse of the ditch sides. Some burnt cobbles were present in the secondary ditch fills. There was no consistent asymmetry in the ditch fills to provide evidence for the presence of an internal bank.

A total of 86 sherds of pottery, weighing 1520g, was recovered, suggesting that the enclosure was a focus for domestic activity, even if with a low level of finds deposition. Two fragments of saddle quern or rubbing stone were also recovered.

There were few internal features, and this was apparently a genuine absence, and not just a loss through truncation, as several shallow features of Bronze Age date lay within and around Barrow 5 at the same level. To the south, there was a small sub-circular pit (Fig 42, 6033), and two more lay in the south-eastern corner of the enclosure (6041 and 6043). These were from 0.25–1.0m in diameter but only 0.15m deep. The fill of pit 6041 contained a little charcoal and burnt clay.

Enclosure 4 was sub-square, measuring 17m north-west to south-east by *c*17m, and formed an abutting annexe to Enclosure 1 (Fig 42). The ditch was up to 1.2m wide by 0.6m deep with a broad-bottomed, V-shaped profile. The eroded upper edges suggest that it had been kept open for some time, but there was no evidence of recutting. The fills were comparable to those of the main enclosure ditch. There were no internal features within the small part of the interior investigated, and the

FIGURE 46 Iron Age Enclosure 1, the Romano-British cremation (6023), section of pit showing the pottery urn in-situ

remainder was removed before the watching brief began.

Iron Age Enclosures 2 and 3

These two enclosures were probably contemporary with each other, as they were on the same alignment and stood only 5.0 apart (Fig 47). The larger enclosure could have comfortably contained a large roundhouse of up to 12m diameter, but only a rectangular structure could have stood within the smaller enclosure. There were no surviving internal features, but shallow postholes, slots or pits could have been lost to truncation. The small pottery assemblage from these enclosures included only four rim sherds, and the presence of two finger-impressed rim sherds may suggest a date in the early part of the Middle Iron Age, perhaps the 4th century BC.

Enclosure 2 was sub-rectangular, 11.0–12.0m long by 8.0m wide, with an internal area of only 92m sq. There was an entrance at the north-western corner, with a causeway 1.6m wide. The adjacent ditch terminals were slightly out-turned.

The ditch was typically around 2.0m wide, although varying between 1.6m and 2.8m. It comprised three successive, near-parallel cuts, which were observable in the sections across all four arms, showing that the entire circuit had been recut on each occasion. The recutting progressed outwards and the individual cuts were probably each around 1.2m wide (Fig 48, S.65). The original ditch was U-shaped, with a broad flat bottom, 0.55m deep (1007). It had almost fully silted before it was recut with a V-shaped ditch, 0.65m deep (1009). This was at least half silted before it was recut, but all but the upper part had been removed by the second recut (1003). This was U-shaped, and very similar to the original profile. The profiles of the original and final cuts, where they cut natural gravel, were steep-sided, with little evident erosion. This suggests that each phase of ditch was left to silt naturally, and that the silting occurred rapidly enough to largely preserve the original profiles. The recut edges into the softer, earlier ditch fills had eroded considerably.

The fill of the original ditch was quite clean, comprising yellow-brown silty sand with frequent gravel pebbles. The silty, almost clayey, matrix suggested that the ditch had held water at least seasonally. The fill of the first recut (1009) was similar in nature but darker in colour. The primary and secondary fill of the second recut (1003) was a dark-

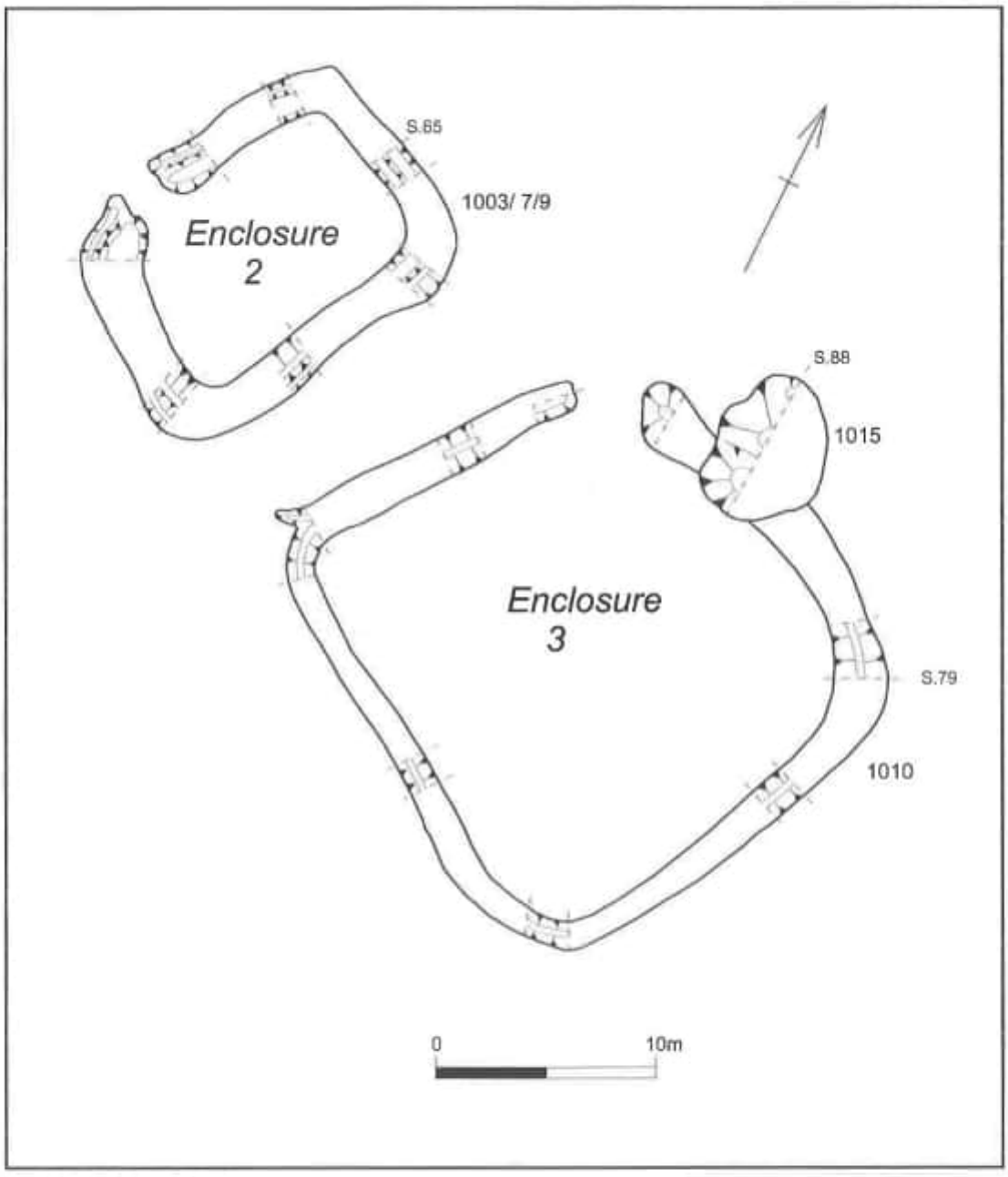


FIGURE 47 Iron Age enclosures 2 and 3, and pit (1015)

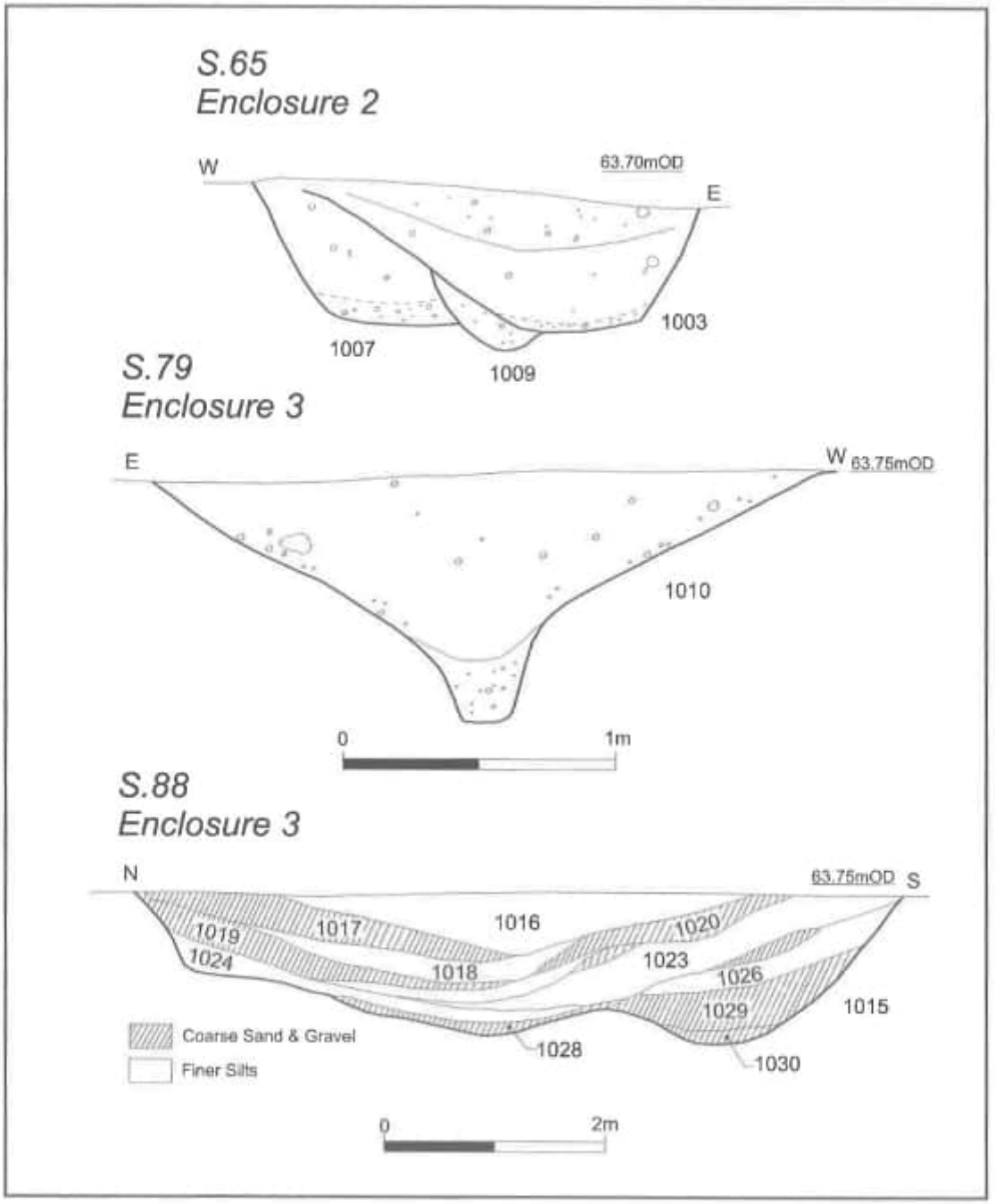


FIGURE 48 Enclosures 2 and 3, sections of ditches (1013) and (1010) and pit (1015)

brown sandy to clayey loam containing frequent gravel pebbles and with some charcoal flecking, while the upper fill was a lighter brown and contained no charcoal.

Enclosure 3 was sub-square, measuring 19.0m north-west by south-east by 18.0m north-east to south-west, an area of 342m sq (3.6 times that of Enclosure 2). There was an entrance at the northern corner, with a causeway 2.8m wide (Fig 47).

The enclosure ditch varied from 1.5m to 2.4m wide, and it typically had a V-shaped profile, 0.60–1.00m deep. At the western corner, one of the shallower lengths, the ditch was U-shaped and the base was typically narrow and steep-sided as a result of rapid silting preserving the original lower profile (Fig 48, S.79). Above this, the sides had eroded back to quite shallow angles, suggesting that the ditch had probably been kept open by regular scouring, but not by recutting. The primary fill was of sand and silt with some gravel pebbles, with occasionally some charcoal flecking. The secondary and upper fills were fairly homogeneous, brown sandy-loams with varying densities of gravel and also occasional larger cobbles of up to 250mm, some of which had been burnt.

There were no features within the enclosure, but a large pit complex (1015) had cut the enclosure ditch when it was near fully silted (Fig 47). It was oval in plan, measuring 7.0m by 5.2m. The earliest pit lay to the south and was *c* 3.5m in diameter by 1.4m deep, with a bowl-shaped profile (Fig 48, S.88). The lower fills (1030 and 1029) comprised thin, interleaved layers of gravel with sand and finer, clayey silts. The fine banding may have derived from the settling of the coarser gravel and sand components during periods when there was standing water within the pit. There was a secondary fill (1026) of brown sandy loam with gravel. The later recut was 1.3m deep, with very shallowly sloping sides. The primary fill (1028) was of coarse sand and gravel, and directly above this there was a thin layer of dark brown sand containing less gravel (1024). The lower secondary fills (1023) only survived to the south, probably as a result of later recutting. They comprised multiple interleaved layers of sandy loam with gravel and grey-brown clayey layers, similar to the fills of the original pit and probably similarly deposited under standing water. The upper secondary fills comprised a layer of brown sandy-loam with gravel (1019–1020) overlain by a fine silty clay, that appeared to be water-deposited (1018). At the base of this layer and embedded in the underlying gravel there were a number of fragments of limestone. Above this there was a further layer of brown sandy-loam and gravel (1017) and the final fill was a brown sandy-loam containing some gravel. The purpose of the pit is unknown, but as it clearly held water at least seasonally it may have functioned as a water hole.

The majority of the pottery recovered came from the enclosure ditch, but there were five sherds from the pit complex (1015).

An Iron Age pit

An isolated pit recorded during the watching brief lay 65m to the north-east of Enclosures 1 and 4 and 110m north-west of Enclosures 2 and 3 (Fig 3, 7000). The stripping of this area was observed under good conditions and any associated pits should not have been missed, so this does appear to have been a solitary feature.

The pit was circular, 1.32m in diameter by 0.42m deep, with near vertical sides and a flat base. The lower fill was of clean medium-brown sandy clay, containing frequent small gravel pebbles. The convex upper surface of this deposit suggested that it derived from deliberate dumping. Above this there was a fill of dark-brown sandy clay, containing frequent gravel pebbles, with some sparse charcoal flecks. The pit contained nearly 1kg of pottery, but this was probably from no more than two vessels, comprising about half of a plain jar with a large lug or handle, and part of a second smaller jar. Unfortunately, these vessels lack diagnostic features and can only be broadly assigned a Middle Iron Age date. The pit also contained a small assemblage of animal bone from a single small but mature sheep/goat, indicating that parts of a single carcass, largely comprising limb bones but including part of a mandible, had been deposited here. In addition, a fragment of limestone with a smoothed surface was probably part of a quern or rubbing stone.

Iron Age finds, human bone and animal bone by A Chapman, T Anderson and K Deighton

The Iron Age pottery by A Chapman

A total of 228 sherds of hand-built Iron Age pottery, weighing 2694g, was recovered from Enclosures 1–4 and from the isolated pit (7000) (Table 16). Isolated plain body sherds, probably also of

Iron Age date, were recovered from the upper fill of the outer ditch of Barrow 2, from one of the linear ditches (5004) south of Barrow 2, from the fill of a probable Roman grave (5113) cut into Barrow 2, and from the subsoil over Barrow 2.

The three groups; Enclosures 1 & 4, Enclosures 2 & 3 and pit 7000 all produced similar overall quantities. However, the material from pit 7000 is a primary deposit containing sherds that appear to come from no more than two vessels, while the similar overall quantities from the enclosure ditches come from larger groups of vessels as the more fragmented products of secondary deposition.

The average sherd weight of 12g is consistent across the site, but represents a broad spectrum from large sherds down to small, abraded fragments. This also undervalues the original sherd weight as there was fragmentation on excavation due to the friable nature of much of the material. Although in a few instances there are evidently several sherds from single vessels, the poor condition and the incompleteness of the recovered material has made it impossible to reconstruct even partially any vessels, leaving overall forms and sizes undefined. As a result of this poor representation of form, and a paucity of decoration, no illustrations are presented, although comparisons can be made to larger nearby assemblages from Iron Age and Roman settlements at Wavendon Gate (Elsdon 1996) and Pennyland and Hartigans (Knight 1993) in Milton Keynes.

Fabrics

Given the small size and limited potential of the assemblage, the fabrics have been defined by simple visual examination into four broad groups, listed below in order of occurrence:

1) Organic (& grog): Soft fabric, characterised by a tendency to laminate. Contains linear voids from lost organic inclusions. Sometimes with sparse small pellets of grog.
   Percentage of group: Enclosures 1& 4, 35%; Enclosures 2 & 3, 74%; Pit (7000), 0%
2) Sandy: Contains fine quartz, up to 1mm. Typically hard, with rough surfaces
   Percentage of group: Enclosures 1& 4, 28%; Enclosure 2 & 3, 3%; Pit (7000), 0%
3) Sparse fine shell: Contains sparse finely-crushed shell, usually hard with well smoothed surfaces.
   Percentage of group: Enclosures 1 & 4, 12%; Enclosures 2 & 3, 13%; Pit (7000), 100%
4) Coarse shell: Contains moderate to dense large shell, up to 5mm. Some sherds are soft with large voids, probably from leached shell inclusions.
   Percentage of group: Enclosures 1 & 4, 7%; Enclosures 2 & 3, 10%; Pit (7000), 0%

The core of the fabric is always dark grey to grey-black but interior and exterior surfaces range from grey-black, to brown and orange. The surface colours can be quite variable on single vessels, suggesting that they were fired in bonfires with little control of conditions.

Form, finish and decoration

Although vessel forms cannot be determined due to the fragmentation of the assemblage, by comparing characteristics of the recovered material to better-preserved assemblages, some suggestions can be made. The vessels present are likely to range from small bowls and jars up to some larger jars, although there are only a few exceptionally thick-walled sherds, indicating that large storage jars made up a small part of the assemblage.

The rims are usually upright and either rounded or flattened, and sometimes slightly tapered. A few are either from shouldered vessels or are everted above concave necks. There are single rim sherds

TABLE 16 Quantification of Iron Age pottery

Structure group	*Sherds*	*weight (g)*	*average sherd weight (g)*
Enclosures 1 and 4	77	900	12
Enclosure 2	26	350	13
Enclosure 3	44	450	10
Isolated pit (7000)	81	994	12
Totals	**228**	**2694**	**12**

from Enclosures 2 and 3, with lips rounded externally and three rims from Enclosure 1 probably come from bowls with beaded rims. There are two examples of large handles/perforated lugs, one each from Enclosure 1 and pit 7000 (*cf* Knight 1993, fig 94, 57 and fig 97, 91). Two flattened rims, from Enclosures 2 and 3 are decorated with shallow finger-impressions. All bases are flat.

Only two small body sherds, both from a single ditch fill in Enclosure 1, have incised surface decoration, and probably come from scored ware jars, but the site does lie towards the southern margin of the midland zone in which scored wares characterise the Middle Iron Age assemblages (Knight 1993, 238). Otherwise, the body sherds are plain. A single small sherd appears to come from a small carinated bowl. The surface treatment is variable: some vessels have rough surfaces that have been no more than roughly smoothed by brushing, leaving faint striations, while others have smoothed, wiped surfaces, although none appear to have been burnished.

Dating

There is a paucity of positive diagnostic characteristics to provide a clear date for this assemblage, and reliance must be placed on absences. The absence of finger-nail decorated rims, together only two examples of finger-impressed rims and a single sherd from a carinated bowl, suggest that the assemblage is not of Early Iron Age date. Similarly, the apparent absence of globular bowls, burnishing and the better-fired, reduced fabrics that tend to be associated with later vessels, suggests that there is no Late Iron Age presence either. It is therefore suggested that the assemblage can be best ascribed to the Middle Iron Age, broadly 400–100BC. There is little evident distinction between the two enclosure groups; although the recovery of two decorated rim sherds from Enclosures 2 and 3 might suggest that these date to the earlier part of the Middle Iron Age, perhaps the 4th century BC, while the presence of the Late Iron Age/early Roman cremation adjacent to Enclosure 1 would suggest that perhaps this enclosure was in use into at least the 1st century BC and was respected in the deposition of the cremation burial in the 1st century AD.

The worked stone by A Chapman

Two fragments of worked stone came from Enclosures 1 and 4. The stone deposited above the inhumation burial (6025), included a fragment from a quartzite cobble, which was reddened by burning and had a convex polished surface. A similar fragment from another quartzite cobble, from the ditch of the annexe, Enclosure 4, was also reddened by burning and had a concave polished surface. In both cases the fragments have probably come from broken-up saddle querns or large rubbing stones.

The Iron Age inhumation burial by T Anderson

A single crouched inhumation lay in a ditch terminal at the entrance to Enclosure 1 (Figs 44 and 45). The skeleton is largely complete although highly fragmented. It consists of a damaged skull, a highly fragmented spine and incomplete long bones, pelvis, hands and feet. The remains are those of an adult female, 35–45 years old at death, and her stature is estimated at 1.535m (5' 0½"); based on the mean length of the complete metacarpals (Musgrave & Harneja 1978). Available measurements indicate that she was long-headed (index 72.2); with a wide forehead (index 75.5). The femora are platymeric and the tibiae are platycnemic.

The only evidence of pathology was fine porosity of the superior occipital bone. Advanced porosis of the cranial vault, caused by expansion of the diploë, is generally considered to be evidence for iron deficiency anaemia (Stuart-Macadam 1989). However, it must be stressed that other factors apart from diet can lead to iron shortage (Von Endt & Ortner 1982); perhaps the most frequent is parasitic infestation (Hengen 1971 and Kent 1987). Also, multiparous (multiple birth) females may display evidence of iron deficiency. However, the pelvis was too fragmentary to assess parity status in this case.

Standard of oral health was extremely poor. There was widespread *ante-mortem* tooth loss; some evidence of caries and marked deposits of calculus.

The Iron Age animal bone by K Deighton

A small quantity of highly-fragmented animal bone was recovered from the enclosures. A total of only 0.9kg came from Enclosure 1 and 1.2kg from Enclosures 2 and 3. In addition, the total of 0.2kg of bone from the isolated pit (7000) is virtually all from a single animal. Given the small size of the assemblage it has not been fully quantified to body part, but has been identified to species level.

The group is dominated by sheep/goat (*ovicaprid*) and cattle bones (*bos*), with remains of long bones, vertebrae, ribs, mandibles and horn cores present. In addition, from Enclosure 1 there is part of a mandible from a pig and a full mandible from a *canid*, probably a dog. The bone from pit (7000) is from a single sheep/goat (*ovicaprid*) and denotes the deposition of parts of an animal carcass comprising mainly the limb bones but including part of a mandible. As is typical of Iron Age assemblages, the material is all from the common domesticated species.

A Late Iron Age/early Roman cremation burial

To the immediate south of Enclosure 1 an isolated circular pit, 0.5m in diameter by 0.20m deep, contained a complex cremation deposit (Fig 42, 6023). The lower pit fill of mid-brown sandy loam contained some burnt bone fragments and a cluster of iron nails, largely hobnails. On top of this there was a small pottery jar, dated to the 1st century AD, which contained further bone fragments. The upper pit fill contained burnt soils and charcoal, presumably recovered pyre debris (Figs 44 & 46).

The human bone

Examination by Trevor Anderson indicates that the remains come from a young adult, 25–30 years old. A total of 1.4kg of cremated bone was recovered, indicating that virtually all of the burnt skeletal remains were deposited. Of this total, 0.5kg was within the urn, and is dominated by skull fragments, while the other 0.9kg came from the pit fill. The colour of the bone fragments indicates that the majority were burnt efficiently in a well-oxygenated environment. However, the cranial fragments are predominantly blue, suggesting that fragments of the skull, which would explode during the cremation process, may have been scattered outside the intense heat of the cremation pyre, and were then separately collected and placed in the pottery jar for burial.

The pottery vessel

The vessel containing the cremation deposit is a small, undecorated necked-jar, 103mm high (Fig 44). The fabric is sand-tempered with coarse quartz inclusions and occasional small pellets of brown grog. The core and half of the external surface is dark grey, while the internal surface and the other half of the exterior are light brown. Lacking other contemporary datable finds, it is difficult to assign a precise date to this vessel. However, the form is broadly comparable to some plainer jars of local Belgic-style grogged ware (eg Marney 1989, fig 35, 43 & fig 36, 53), which suggests a date in the 1st century AD. A cremation burial of 1st century AD date accompanied by small necked jars and Butt beakers has come from the Late Iron Age and Roman settlement at Wavendon Gate, Milton Keynes (Williams *et al* 1995, Cremation 17, 47, figs 28 & 111).

The nails

Approximately 102–130 iron nails, weighing 181g, largely from a hobnailed boot or boots, were recovered. Many of the nails are corroded lumps, but others are in better condition. Two well-preserved examples, and a few others less well-preserved, had not been clenched. These ranged in length from 18–25mm, with square-sectioned shanks, 2mm thick, tapering to a point. The better-preserved examples have circular to oval flat heads, 10–12mm in diameter, and set off-centre with respect to the shanks. The clenched examples are of similar overall dimensions, and had been clenched 7–10mm below the head.

A further three or four nails are significantly larger, at around 35mm long and probably originally *c* 40mm long, with flat heads up to 14mm in diameter. These may have been coffin nails.

Late Roman activity

The only evidence of late Roman activity on the site comprised the five adult inhumation burials that had been inserted into the upstanding mound of Barrow 2, which have been fully described in the description of the barrow. While they are undated, the presence of a decapitation burial, with the head placed beside the feet, has been taken as indicative of a late Roman date, and it is assumed that the other burials were broadly contemporary. The absence of any grave goods indicates that they were not of early Saxon date.

Later Land Use

The medieval field system

The natural gravel, into which all the Roman or earlier features were cut, was sealed by a layer of subsoil, comprising a red-brown sandy loam containing some gravel. In the surface of this layer

there was a system of regular parallel undulations that were aligned north-west to south-east, perpendicular to the river. These represented the truncated furrows of a former medieval ridge and furrow field system, flattened by more recent ploughing. As the ring ditches were sealed by this subsoil it indicates that the ploughing down of the former mounds of the round barrows had occurred during, or prior to, the medieval period, while the preservation of the truncated furrows shows that the modern ploughing was not penetrating to the level of the natural and so was not causing any further damage. The only exception to this pattern was Barrow 2. This survived as a partial earthwork and so had not been systematically ploughed down during the medieval period. However, once the outer barrow ditch had silted ploughing had at least cut into the margins of the mound. The northern side of the mound, as already dealt with in the description of Barrow 2, was disturbed by two later ditches on the same alignment as the medieval field system.

Recent land use and plough damage

Prior to excavation and gravel extraction, the area was under arable cultivation, and was therefore subject to at least annual ploughing. As a subsoil layer lay beneath the ploughsoil, this sealed the majority of the archaeology and the ploughing was not causing any new damage to the majority of the monuments. However, as Barrow 2 was an upstanding earthwork and the soil cover in the central area was only 0.1m thick, the ploughing was damaging the central area of the best preserved of the barrows. Three secondary inhumation burials only barely survived; all showed damage from recent ploughing, and others may have been totally lost. Ploughing had also damaged the final Bronze Age burial in the central pit, and part of the Collared Urn and a little of the cremation deposit had been lost. The preservation of the site under arable cultivation would therefore have resulted in continuing damage to the only one of the seven barrows that was well preserved.

Discussion

The barrow cemetery

Since the early to mid 1960s, when aerial photography began to reveal the unexpectedly complex and dense prehistoric landscapes of the Midland river valleys, opportunistic excavation, much of it carried out in relation to mineral extraction, has uncovered a wealth of archaeological information. Numerous Neolithic and Bronze Age sites have been excavated, and some of the sites along the Ouse, Nene and Welland valleys have been referred to already or will appear in this final discussion (see Fig 2 for site locations).

With the intensive arable exploitation of the fertile soils along these river valleys for the past 2000 years or more, many of the smaller Bronze Age burial mounds had been levelled in antiquity; so much has been lost. However, some sites have survived largely or partially intact, often avoiding ploughing by chance, as a result of lying at the margins of the floodplain and either beyond the limits of earlier arable exploitation or protected beneath a blanket of alluvium. For some of the larger barrow mounds an important element in their survival has been that they were sufficiently prominent to have been avoided, and some were even reused as burial sites in the Roman and early Saxon periods.

In terms of the archaeology along the course of the River Great Ouse, the Gayhurst barrow cemetery conforms to the previously noted pattern of site distribution. In the middle and lower reaches of the river, and particularly on the margins of the Fenland, as at Godmanchester, Brampton and Barleycroft Farm, Haddenham (Malim 2000), there is a rich diversity of monuments spanning the Neolithic and Bronze Age periods, with the principal barrow cemeteries often showing a clear respect for earlier monument groups (Fig 2). Neolithic monuments extend as far up river as the Bedford area, where there are several major monument complexes, including important Neolithic sites at Cardington and Biddenham, and smaller monument groups at the Bunyan Centre, Bedford (Steadman 1999) and Cambridge Road, Bedford (Simon Carlyle, Northamptonshire Archaeology pers comm).

While there are numerous barrows and barrow cemeteries on the upper Great Ouse, as at Ravenstone, Gayhurst, Warren Farm and Little Pond Ground, all lying between Newport Pagnell and Milton Keynes, none of these were associated with pre-Beaker monuments (Malim 2000, 57). The same is also true for a Bronze Age barrow cemetery recently excavated near Passenham, on the Buckinghamshire side of the river (Edmund Taylor and Tony Walsh, Northamptonshire Archaeology pers comm). It would therefore seem that Gayhurst

characterises all the Early Bronze Age barrow cemeteries along the upper Ouse, in being created within a valley bottom landscape that had little previous usage, and certainly an absence of earlier monuments.

The primary burial mound, Barrow 2

The inhumation burials

The better-preserved round barrows have offered rich pickings to the archaeologist, typically producing a wealth of human remains both as skeletons from inhumation burials and as deposits of cremated bone, with both typically accompanied by a range of pottery vessels, flint tools and items in bone, bronze and other materials. These remains provide assemblages of related cultural material but, in the better-preserved barrows, as at Gayhurst, they give us much more than this. With well-preserved sequences of mound construction and multiple burials they speak of the longevity of these monuments, and their consequent social importance to the communities that both created and maintained respect for them over many centuries. Round barrows are therefore an important source for the construction of models of social organisation within Bronze Age society.

The well-preserved sequences, however, also provide a wealth of minutiae as well, giving life to the bones of the dead; making it possible to reconstruct such details as the presence of the oak- lined chamber, with no floor but a roof, containing the primary inhumation in Barrow 2, as well as making it possible to describe the subsequent decay of the timbers and the disarticulation of the skeleton as slides of gravel cascaded into the open chamber and bounced the bones around before the entire roof gave way. In a similar fashion, examination of the human bone has shown that the second person inhumed in Barrow 2 had suffered from a serious leg fracture that had healed cleanly; and it is even possible to describe how following his recovery he would have had his foot turned outward, and would consequently have walked with a distinct limp.

The two inhumation burials in Barrow 2, and at least two of the three cremation burials, also conform to a widely-seen pattern in which the principal burials in round barrows are most commonly male. However, the central cremation under Barrow 1 may have been of a female, as may the single urned cremation deposit in Barrow 5, showing that occasionally a female did provide the focus for the creation of a barrow mound.

The central grave of Barrow 2 was also exceptional in producing a sequence of five consecutive burials. Many barrows, even quite large examples, often have surviving evidence for only a single central burial, with perhaps outlying satellite or secondary burials. In this instance the depth of the primary grave, at 1.50m, was well above average, and the substantial hollow in the top of the barrow mound that would have been created by the decay of the primary burial chamber and the resultant slumping of the mound, may itself have attracted at least the first secondary burial. Perhaps this hollow was never fully restored and attracted further secondary burials.

Whilst exceptional, there is at least one other instance of a succession of five burials at the centre of a round barrow. A multi-phase ring ditch, X.6, formed part of a linear cemetery at Gravelly Guy, to the north of the Devil's Quoits henge, Oxfordshire (Barclay *et al* 1995, figs 39, 44, 47–48, 90–93). Most of a shallow primary grave had been lost when a deeper grave pit was cut to contain an inhumation burial lying within a timber-lined chamber, evidently quite similar to the Gayhurst example. A third grave, containing a further inhumation, lay at a higher level, and two cremation deposits lay in pits dug into the top of the grave backfill. In this example too, it might be suggested that the collapse of a timber-lined chamber had created a hollow at the centre of the mound that attracted the deposition of secondary burials to this location. Three radiocarbon dates span the period 2280–1910 cal BC, making the barrow broadly contemporary with Barrow 2 at Gayhurst.

The cattle bone deposit

While the long sequence of development and the five central burials make the primary barrow at Gayhurst of considerable interest, there is a further factor that has made it unique. While the recovery of deliberately deposited animal bone is not uncommon in round barrows, the deposition of the partial remains from perhaps some 300 cattle is exceptional, and in some respects unique.

At Gayhurst, a first conclusion would be that as the cattle bone was dominated by prime meat joints, along with a reasonable number of skulls, we could be looking at a huge ritual feast accompanying the laying to rest of a tribal leader, with the

food debris cast onto the mound as an offering. However, the detailed analysis of the bone has indicated that the process was far more subtle and complex. Few bones had cut marks which would indicate that the animals had been skinned and dismembered. On a small proportion, some of the meat had been removed, but this was perhaps only for consumption by those slaughtering the animals. It therefore appears that the carcasses had been left to decay naturally, however, the small amount of animal gnawing indicates that wherever the carcasses had been left they must have been protected from scavengers, perhaps within a secure enclosure that was also constantly guarded. Even following collection and deposition on the barrow mound, they may have been similarly looked after and protected from scavengers for a period of weeks or even some months before they were finally raked down into the ditch and buried.

The ritual accompanying the slaughter and deposition of the bone from these cattle would therefore appear to be one of conspicuous waste, although it might not have been seen in those terms by those who were perhaps providing a feast that was to be enjoyed by the dead individual and his ancestors in the afterlife. Only the capping of the central cairn with the skulls and shoulder blades from some 100 cattle at the Irthlingborough barrow, near Stanwick in Northamptonshire comes close to this scale of conspicuous waste (Harding and Healy forthcoming). Other examples of associated cattle bone tend to comprise material from only a small number of animals. A classic, and often-quoted example, is the Beaker barrow at Hemp Knoll, Wiltshire, where a coffined burial was accompanied by a range of grave goods, while in the grave pit, outside the coffin, there was an antler and the head and hooves of an ox (Thomas 1991, 129 & fig 6.12).

The cattle deposit at Gayhurst confirms patterns of behaviour noted at other contemporary sites, but adds a particular dimension of its own in the unique occurrence of the selected bones from some 300 cattle, apparently deposited as a symbolic feast for the dead rather than as the debris of an actual feast for the living. In the exceptional scale of the deposits at both Gayhurst and the Irthlingborough we see a common interest in the importance of the cattle herd as a symbol of wealth and power, and the exhibition of that wealth in acts of extreme conspicuous waste, but perhaps directed as much towards the ancestors as towards the living.

Apart from informing us of the ritual processes that led to their death and deposition, this exceptionally large Bronze Age cattle bone assemblage should also have much to say about animal husbandry at the time. The initial conclusions have shown that a range of ages are present, and it has been suggested that the cattle were drawn from a number of herds with slightly different characteristics It is hoped that it will be possible at some stage in the future to fully analyse the metrical data already recorded from the cattle bone, so that further details of the herd structure can be determined.

It is also of interest that while the man within the primary burial chamber of Barrow 2 was put in his grave accompanied by no more than a small joint of pork, he is contemporary with many rich Beaker burials, where the primary interment was often accompanied by a wealth of material goods, including one or more Beaker pots and items in flint, antler, bone and jet. It can only be concluded that in this instance the wealth of this individual and those who created his burial monument, was fully marked by the cattle bone assemblage itself which far exceeded any statement that these other objects could have provided for him.

Cremation deposits

The transition in the Early Bronze Age from inhumation burial to cremation is well recognised. At Gayhurst the deposition of a cremation burial between two inhumations, followed by further cremations, illustrates how there was a gradual transition through a period in which both forms of burial were current.

Cremation burials appear to offer far less potential for interpretation, comprising no more than a heap of burnt and distorted bone fragments and some charcoal rich soils, perhaps deposited within a pottery urn. However, as has become appreciated in recent decades, careful excavation and examination of the collected remains can produce much information, and there has been a growing literature on the subject (eg McKinley 1997). The colour of the bone is indicative of the heat of the pyre, and all of the cremations at Gayhurst had been efficiently burnt in a well-oxygenated environment, with the pyres reaching temperatures of 500°C to 750°C. In some instances bones from the skull are blue in colour, perhaps indicating that the skulls

had exploded scattering fragments beyond the pyre from where they had been carefully collected for inclusion in the deposited bone.

The fuel used on the pyres was almost exclusively oak, which had evidently been specifically collected for the purpose. A charred oak log, 1.0m long, deposited in the ditch of Barrow 6 may have come from such a pyre. The only pyre debris that included wood from other species came from secondary and satellite cremation, perhaps suggesting that these people were of lesser status, with the process of pyre construction in oak less rigidly adhered to, although even in these instances oak still tended to be the principal fuel.

The collection of remains from the pyre and the deposition of these in the ground was carried out with great care. The deposited bone often comprised clean fragments that had evidently been carefully picked from the pyre piece-by-piece. In some instances over a half of the bone had been recovered, but in others the collection of no more than a quarter of the material had been considered adequate. In many instances, charcoal from the pyre and burnt soil from beneath the pyre, were also collected and deposited on top of the bone within the urn or pit, indicating that the fuel and even the very ground on which the pyre was built, had acquired a significance in the ritual process of burial. For some individuals such extreme care was not warranted, and a pit near Barrow 5 contained the remains of a juvenile with the bone and charcoal mixed together, and representing only a small part of the total pyre debris.

The pit alignments

The barrows and barrow cemeteries of the Early Bronze Age exhibit, as would be expected for major funerary monuments, a high degree of controlled and structured construction. In contrast, boundary ditches do not tend to exhibit such attributes, as their function is the utilitarian one of defining control and ownership of blocks of land. However, in the late Bronze Age and Early Iron Age, particularly across the landscapes of the Midland counties, an anomalous boundary form, the pit alignment, often shows elements of structured design that clearly exceeded any practical requirement. This can be exhibited both in the overall plan form and in the regularity of the shape and size of the pits forming the alignments.

At Gayhurst both aspects of structured design are evident. The overall plan comprised straight lengths of pits often for many tens of metres, but at intervals there were abrupt changes in alignment that have no apparent practical purpose. Perhaps these defined distinct groups of pits excavated by individual social groups or families. The plan forms of many pit alignment provide a distinct contrast to the far less regular courses of both earlier and later boundary ditch systems. It has also been shown that at Gayhurst the system originated as lines of circular pits set at regular intervals, while in a second phase the system was completely replaced with similarly regular rectangular pits. In the final phase of use, part of the line was recut with shallow lengths of ditch of variable lengths running across the tops of the earlier pits. This suggests that in the final use of the system the emphasis had shifted to a more practical maintenance of a useful boundary marker, and that the earlier ritualised elements of planning had been largely abandoned.

The Iron Age and beyond

The Middle Iron Age enclosures are a move into a world more rooted in the practicalities of day-to-day farming, and exhibit little that can be seen as structured practice in their creation. We do know from many other sites that small-scale rituals relating to the deposition of material goods and animal bone in the ground were still prevalent, and the presence of a partial sheep carcass in an isolated Iron Age pit might be an example of such 'structured deposition'.

In the late Roman period, the re-use of Barrow 2 as the site for a small inhumation cemetery, with its evident recognition of a then 2500 year old burial mound, provides a final example of a deeply rooted respect both for the landscape and for the ancestors that had lived and died within it.

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