



Northamptonshire Archaeology

A Bronze Age round barrow at Ketton Quarry, Rutland



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County Council

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**NORTHAMPTONSHIRE COUNTY COUNCIL
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**A BRONZE AGE ROUND BARROW
AT KETTON QUARRY
RUTLAND**

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QUALITY CONTROL

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OASIS REPORT FORM

PROJECT DETAILS		OASIS No. 139240
Project name	Ketton Quarry, Site AP8	
Short description (250 words maximum)	An early Bronze Age round barrow, excavated in 2005 in advance of a quarry extension, was situated on sloping ground at the edge of a spur overlooking the River Chater. The ring ditch enclosed an area 26m in diameter, but all traces of a former mound had been lost to later cultivation. Near the centre of the barrow a small pit contained an almost complete cremation burial of an adult, accompanied by a miniature cup, and mixed with other pyre debris that had been still smouldering when deposited. Oak sapwood charcoal from the pyre has given a radiocarbon date of 1940-1770 cal BC (68% confidence). A nearby pit contained parts of two collared urns. Another nearby pit contained cremated bone from a child aged 8-13 years, and some pyre debris. The primary ditch fills contained much limestone, suggesting that the barrow mound had either a stone revetment or capping. Most sections showed a dark secondary soil horizon, probably a buried turf line. The homogeneous upper fill contained a little Bronze Age pottery, a length of a human femur probably from a disturbed inhumation burial, and pottery no later than the Iron Age.	
Project type	Excavation	
Site status	None	
Previous work	Geophysical survey, aerial photography and trenching	
Current Land use	Arable	
Future work	Watching Brief on surrounding area	
Monument type/ period	Early Bronze Age	
Significant finds (artefact type and period)	Early Bronze Age cremation burials Pottery: collared urns and miniature cup	
PROJECT LOCATION		
County	Rutland	
Site address	Ketton Works, Hanson Cement, Ketton, PE9 3SX	
Study area (sq.m or ha)	55m by 50m (0.275ha)	
OS co-ords	SK 9723 0480	
Height OD	81.0-82.5m a OD	
PROJECT CREATORS		
Organisation	Northamptonshire Archaeology	
Project brief originator		
Project Design originator	Northamptonshire Archaeology	
Director/Supervisor	Christopher Jones	
Project Manager	Ian Meadows and Andy Chapman	
Sponsor or funding body	Castle Cement (now Hanson Cement, Heidelberg Cement Group)	
PROJECT DATE		
Start date	27.10.05	
End date	18.11.05	
ARCHIVES	Location	Content
Physical	Northamptonshire Archaeology	Pottery, bone, flint, copper alloy
Paper	Northamptonshire Archaeology	Site records, Photographs/Slides Drawing/Reports
Digital	Northamptonshire Archaeology	CD ROM
BIBLIOGRAPHY		
Title	A Bronze Age round barrow at Ketton Quarry, Rutland	
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A BRONZE AGE ROUND BARROW AT KETTON QUARRY, RUTLAND

Summary

An early Bronze Age round barrow, excavated in 2005 in advance of a quarry extension, was situated on sloping ground at the edge of a spur overlooking the River Chater. The ring ditch enclosed an area 26m in diameter, but all traces of a former mound had been lost to later cultivation. Near the centre of the barrow a small pit contained an almost complete cremation burial of an adult, accompanied by a miniature cup, and mixed with other pyre debris that had been still smouldering when deposited. Oak sapwood charcoal from the pyre has given a radiocarbon date of 1940-1770 cal BC (68% confidence). A nearby pit contained parts of two collared urns. Another nearby pit contained cremated bone from a child aged 8-13 years, and some pyre debris. The primary ditch fills contained much limestone, suggesting that the barrow mound had either a stone revetment or capping. Most sections showed a dark secondary soil horizon, probably a buried turf line. The homogeneous upper fill contained a little Bronze Age pottery, a length of a human femur probably from a disturbed inhumation burial, and pottery no later than the Iron Age.

1 INTRODUCTION

1.1 The round barrow

The round barrow lies in the parish of Ketton, Rutland (NGR SK 9723 0480: Fig 1) and was excavated by Northamptonshire Archaeology in 2005 in advance of the land being lost within a southward extension to Ketton limestone quarry, which occupies a large tract of land to the north-west of the village of Ketton on the slopes overlooking the River Chater, with the River Welland a little further to the east.

The ditch surrounding the levelled round barrow had been identified by aerial photography and its presence was confirmed by both geophysical survey and trial trenching in 2000 (NA 2000a), carried out as part of the investigation of a proposed quarry extension across fields to the immediate north and south of the Empingham Road.

The excavation of the round barrow was carried out in October and November 2005, by a team led by Christopher Jones under project manager Ian Meadows. Christopher Jones prepared an initial draft for the report and this has been revised and extended by Andy Chapman.

1.2 Ketton Quarry extension

In 2000, Castle Cement (now Hanson Cement, part of the Heidelberg Cement Group) received planning permission to extend its existing quarries at Ketton, Rutland (Appeal Decision APP/A2470/A/02/1081518). Extensive archaeological investigation, comprising examination of aerial photographs, fieldwalking, geophysical survey and targeted trial excavation, within the area of the proposed quarry extension was carried out by Northamptonshire Archaeology and the results were included in an environmental statement prepared in February 2000 (Castle Cement 2000a) and in a supplementary document issued in December 2000 (Castle Cement 2000b).

Castle Cement recognised that the quarry extension would affect archaeological deposits within the area, and resources and time have been made available for proper

investigation and reporting of these remains. The identified ring ditch (Site AP8) lay near the eastern edge of the proposed quarry extension and a decision was made to excavate this monument well in advance of the quarrying.

Detailed decisions on the scale of the works are made at each stage of the quarry extension plan, following the overall strategy that has operated successfully during previous years, working in conjunction with Rutland Council with archaeological advice from Richard Clark, Senior Planning Archaeologist, Leicestershire County Council.

1.3 The archaeological background

From the late 1990s there has been an ongoing programme of archaeological investigation at Ketton Quarry comprising desk-based assessment, fieldwalking, geophysical survey and trial trenching on areas proposed for future quarrying and other quarry works (Masters & Shaw 1997; Soden & Burgess 1999; NA 2000a; NA 2000b; Meadows 2000; Jones 2004; Simmonds 2007; Holmes & Fisher 2007; Simmonds, Holmes & Fisher 2008; Morris 2009 and Jones 2009).

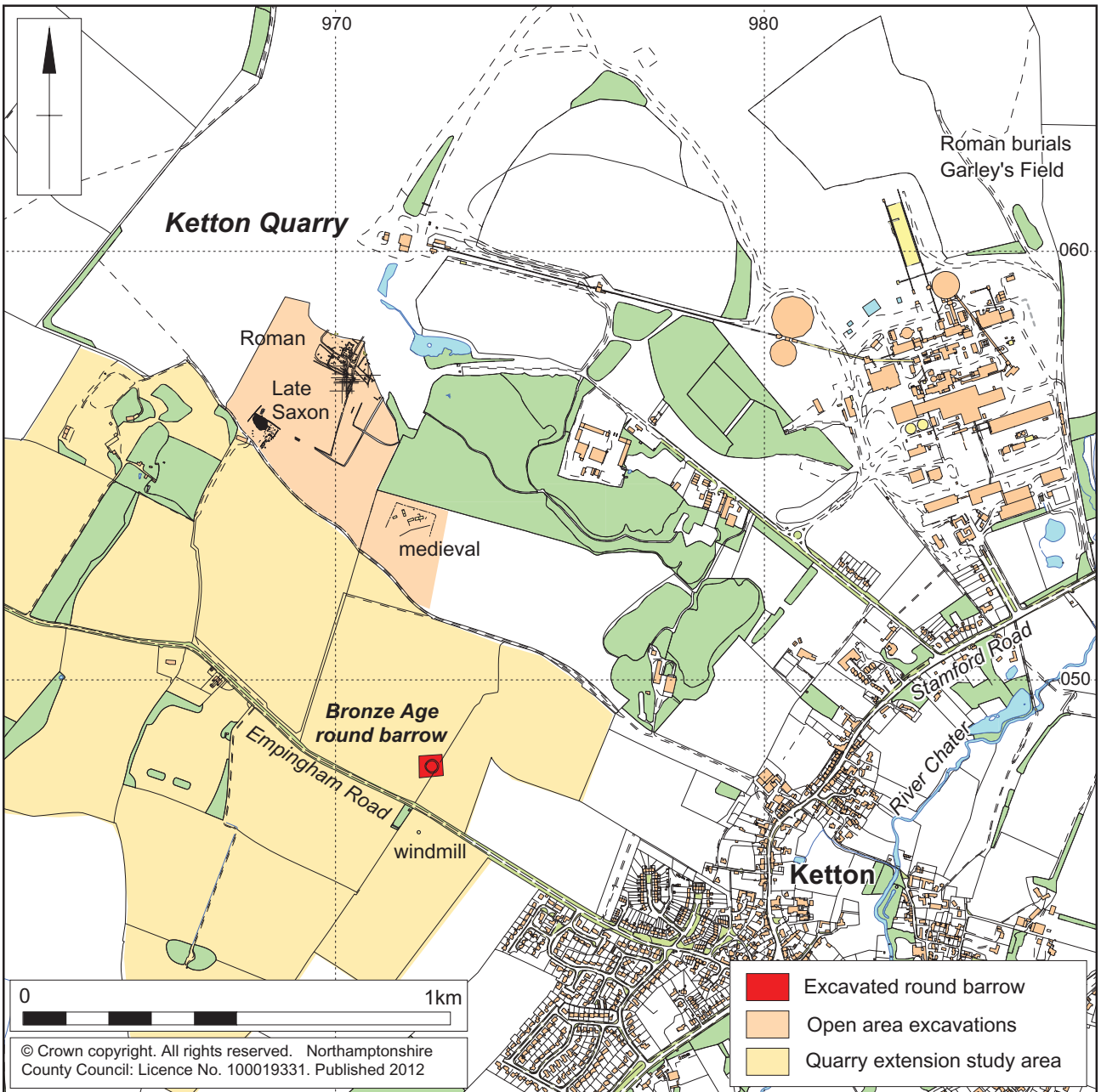
Within the main quarry there has been open area excavation of Roman, late Saxon and medieval settlements, all on the spur of Blisworth Limestone that lies to the north of the spur including the barrow and windmill (Fig 1: Chapman *et al* forthcoming). A group of Roman burials and an associated coin hoard have been excavated to the north-east of the quarry (Carlyle 2008).

1.4 Topography and geology

The field including the round barrow was under arable cultivation at the time of excavation. It lies on the upper slopes, overlooking the valley of the River Chater to the south-east (Fig 1). The modern ground levels fell by 1.5m from west to east across the excavation area, from 82.8-81.3m aOD, while there was a fall in the natural of 1.15m across the width of the round barrow from west to east, from 82.25-81.30m aOD. To the south-east the valley floor lies at 30m aOD. The River Chater flows north-eastwards, running roughly parallel to the River Welland before joining it only 2km to the north-east of Ketton.

The barrow was situated on a spur between two side valleys that cut back into the limestone plateau. To the south of the barrow, and south of the Empingham Road, there is the derelict tower of Ketton windmill.

The underlying geology of the area is primarily composed of Upper Lincolnshire Limestone, Upper Estuarine Series material and Blisworth Limestone. Small pockets of Boulder Clay may overlie the solid geology (*Geological Survey of Great Britain Sheet 157: Stamford*, 1978 edition). The round barrow sits on clay with limestone above Blisworth Limestone, with Rutland Clays and Lincolnshire Limestone on the lower slopes to the south-east.



Scale 1:15,000

Site location Fig 1

2 THE BRONZE AGE ROUND BARROW

2.1 Objectives and methodology

A near square area, measuring 55m by 50m (0.275ha), exposed the full extent of the round barrow and also its immediate surroundings for between 8-24m beyond the barrow ditch (Figs 2 -4).

Topsoil and subsoil was removed using a 360° mechanical excavator, fitted with a toothless bucket and working under archaeological control. The machine-excavated surface of the natural was cleaned by hand as required to enhance feature-definition. Features were excavated by hand in accordance with the sampling strategy in order to determine their date and character. A systematic metal detecting survey was conducted over the whole area of excavation. No archaeological finds were recovered.

Archaeological deposits were described on pro-forma context sheets including details of the context, its relationships, interpretation, and a check-list of associated finds. The barrow was planned at 1:100, and sections were drawn at a scale of 1:10, and levelled to Ordnance datum. A photographic record was kept of the general site as well as specific deposits, comprising both black and white negatives and colour slides.

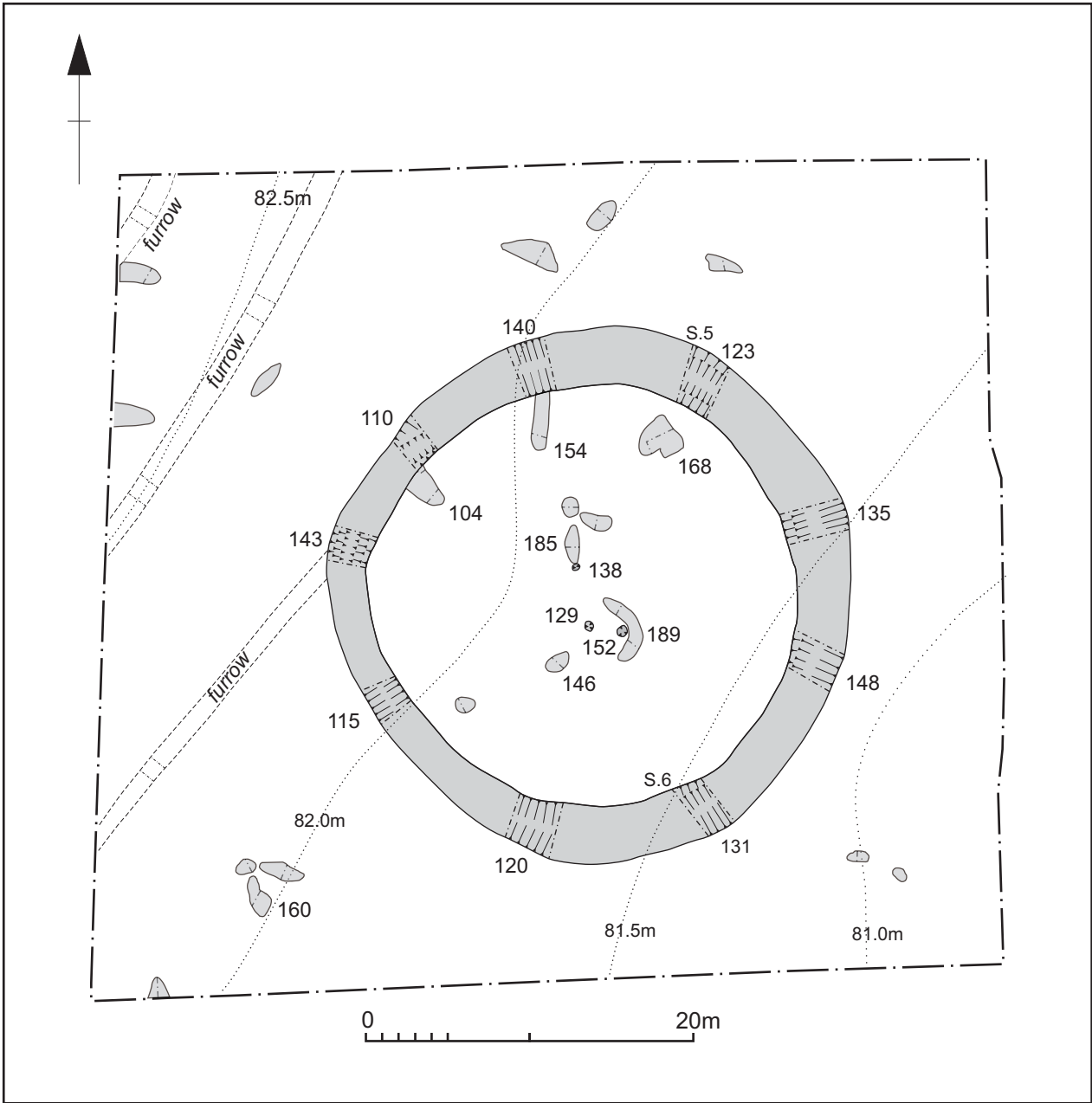
Bulk soil samples were taken from pits 138 and 152 for the recovery of cremated bone and other pyre debris and two samples, each of 2 litres, were taken from the dark soil horizon with the barrow ditch. All ancient finds and artefacts were retained.

After excavation it was agreed, in consultation with Rutland Council and their advisors that the contingency for extending the excavation would not be implemented, but an archaeological watching brief would take place when the soils were removed from the surrounding area.



The round barrow during machine stripping, looking north

Fig 2



Scale 1:400 (A4)

The round barrow Fig 3



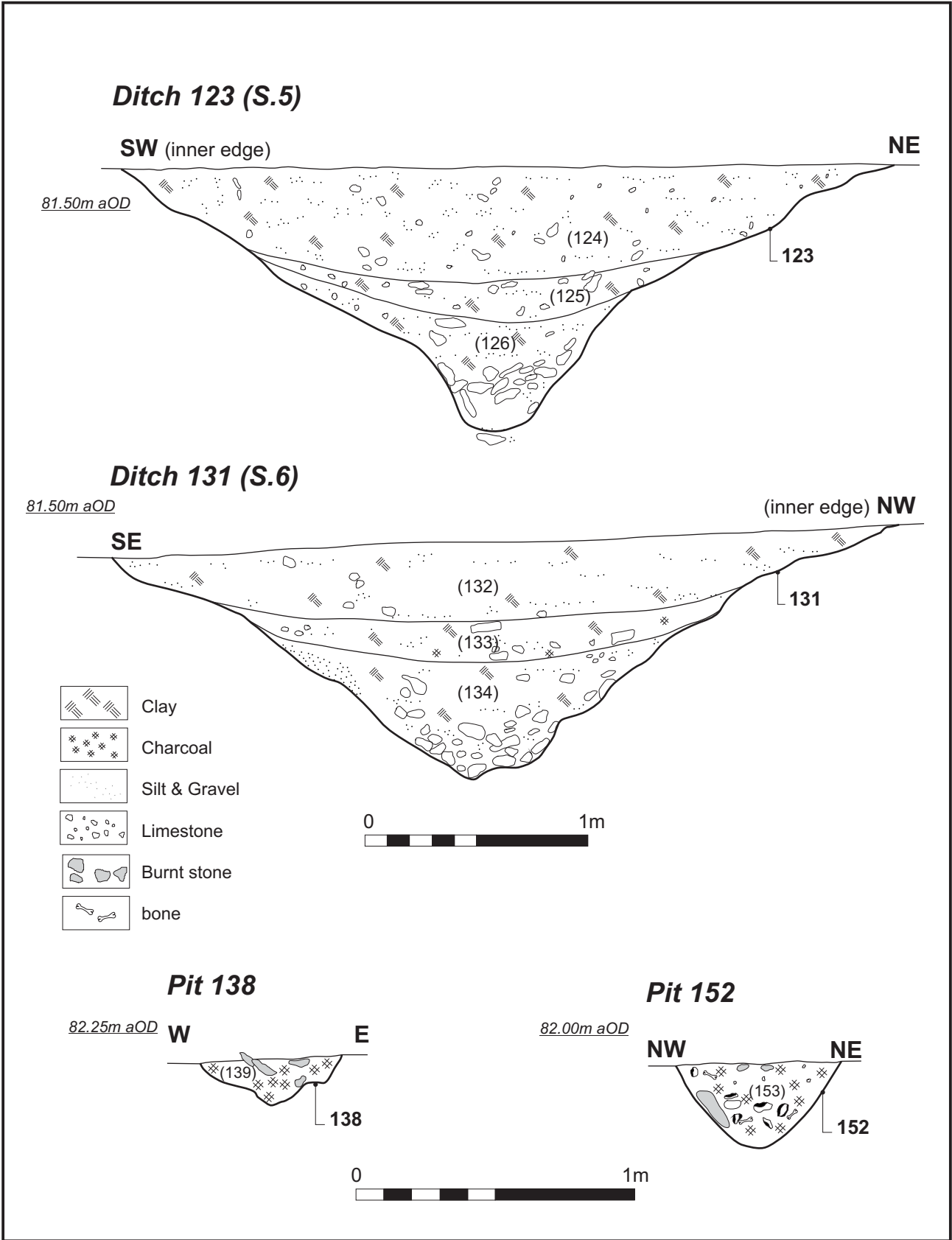
The round barrow during excavation, looking north-west Fig 4

2.2 Pre-barrow features

The natural comprised light yellow-brown clay containing frequent fragments of limestone. Across both the interior of the barrow and beyond it, there was a scatter of shallow generally irregular features. The majority of these were sectioned and shown to be natural features, perhaps tree-throw holes (Fig 3). The general characteristics were an asymmetrical profile, with one steep to near vertical side and the other less steep, and depths of around 0.35-0.45m. The fills were of red-brown silty clay that contained quantities of limestone. In some instances the limestone was concentrated towards the steeper edge and was often steeply to near vertically inclined, lying parallel to the edge. The edges were often difficult to define in excavation. Three of these features: 154, 168 and 160, produced small quantities of pottery, a total of 14 sherds, weighing 85g, which can be regarded as intrusive.

A little south of the centre of the barrow and immediately east of cremation burial 152, there was a curving gully, 189, 4.0m long by 0.70m wide and 0.35m deep. In excavation it was difficult to define the edges, and it had an asymmetrically V-shaped profile. A little north of the centre of the barrow, and immediately north of cremation burial 138, a cluster of three features, 185, also had asymmetrical profiles and fills of red-brown silty clay containing quantities of limestone.

To the north-west, two linear features, 104 and 154, cut by the barrow ditch, were both 1.0m wide by 0.40-0.45m deep, with asymmetrical profiles and fills of red-brown silty clay containing quantities of limestone. To the north-east, an irregular pit, 168, was up to 0.43m deep, with one near vertical edge and near vertically-pitched limestone within the fill. There was a scatter of similar features to the north and north-west of the barrow, and a cluster to the south-west, 160, also had the same general characteristics.



Sections of barrow ditches 123 and 131 and cremation burials 138 and 152 Fig 5

2.3 The round barrow

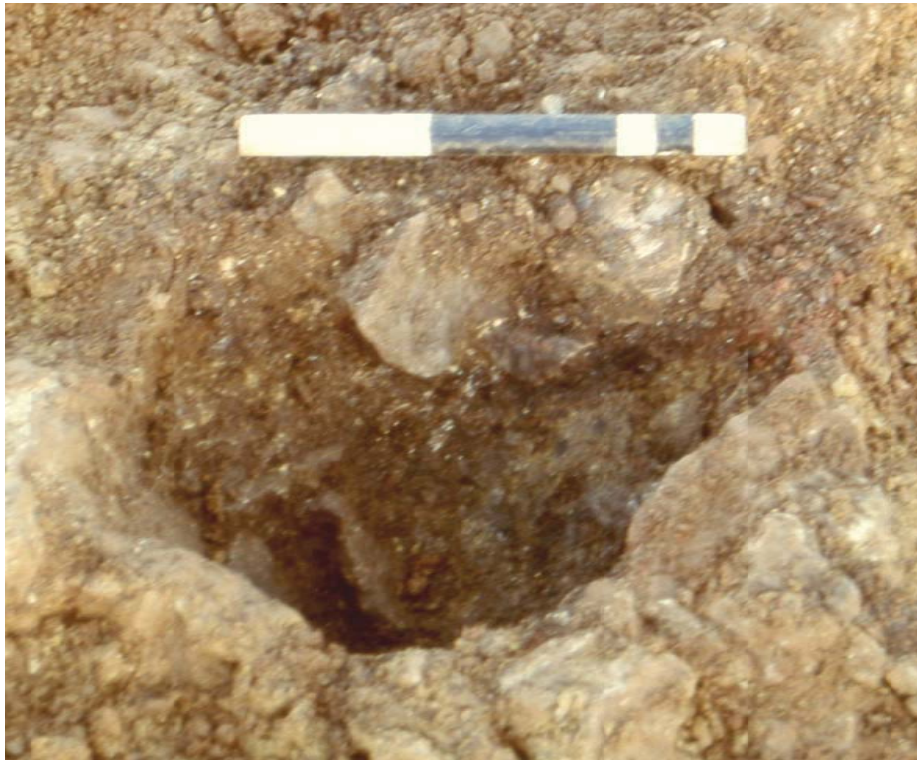
The barrow ditch

The ditch was near circular in plan, enclosing an area 26m in diameter (Fig 3). To the west, 115, the ditch was only 2.25m wide by 0.95m deep, but for most of the circuit it was 3.5-3.9m wide and 1.05-1.15m deep. It had a broad V-shaped profile, with the upper edges heavily eroded to a depth of up to 0.8m below ground level. The probable original profile was preserved at the base of a few sections (see Figs 5 & 9, Ditch 123), where there was a narrow flat base, 0.3m wide, and steeply inclined sides, which suggest that the original width would have been around 1.8-2.0m.

The central pits

None of the internal features lay at the centre of the barrow (Fig 3). Pit 138 was just under 2m to the north-west of centre, pit 129 lay a similar distance to the south, and pit 152 lay just over 3m to the south-east of the centre. Whether any one of these was the primary deposit cannot be determined and they may be best regarded as a group of contemporary or near contemporary deposits all pre-dating the construction of the barrow mound.

Pit 138 was near circular, 0.37-0.50m in diameter, with steep sides and an uneven base, up to 0.14m deep (Figs 5 & 6). The pit fill of brown silty clay contained 0.37kg of cremated bone, including many large fragments (see Fig 19). The fill also included some grey-black patches of soil with comminuted charcoal from the pyre. There were also a few small fragments of limestone with burnt edges, suggesting that the upper fill of the pit included material scraped up from the ground beneath the pyre. The soil adhering to the bone was typically brown in colour, indicating that the bone that had been picked from the pyre to separate it from the charcoal-rich pyre debris. This deposit comprised bone from a single individual, a child aged 8-13, and the quantity present suggests that most of the bone was recovered from the pyre.



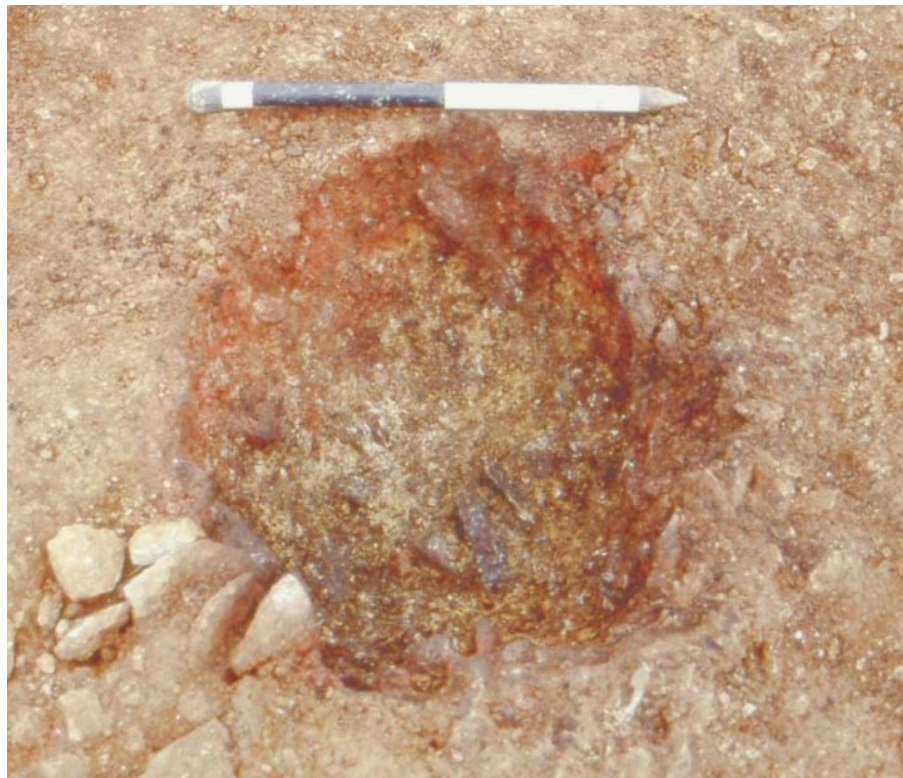
Pit 138, partially excavated, showing bone deposit Fig 6

Pit 152 was near circular, 0.54-0.60m in diameter, with a bowl-shaped profile up to 0.30m deep (Fig 5). The sides of the pit were heat reddened around the full circumference (Fig 7), and the fill was a deposit of pyre debris comprising 1.35kg of cremated bone, including many large bone fragments, in a matrix of grey-black clayey silt, from which 340g of charcoal was recovered, as well as the occasional small piece of burnt limestone and flint (Figs 8 & 20).

The evidence suggests that the pit fill comprised the mixed pyre debris of bone and charcoal deposited when it was not only still hot, but perhaps while much of the charcoal was still smouldering so that the pit sides were scorched by the heat. The bone weight represents near full recovery of the bone from the pyre and there had been no attempt to separate bone from the other pyre debris. A sub-sample of 25g of charcoal submitted for analysis indicated that the pyre had comprised almost exclusively oak, with both sap and heartwood present, while a single piece of the 179 identified was of hazel.

The pyre debris also included a miniature cup that had been shattered by the heat of the pyre, and a length of copper alloy rod. The bone deposit was from a single adult, aged 22-45 years, together with pieces of burnt mammal and bird bone, not identified to species, and an unburnt cow incisor.

Oak sapwood charcoal from the pyre has been radiocarbon dated to 1940-1770 cal BC (68% confidence, 3540 \pm 50BP, Beta-214230).



Pit 152 after excavation, showing the heat reddening of the pit sides Fig 7



Pit 152 during excavation, showing the charcoal and bone-rich fill Fig 8

Pit 129 was a small oval pit, up to 0.35m in diameter and 0.14m deep, with sloping sides and an uneven base, and a fill of dark orange-brown silty clay (Figs 5, 7 & 8). The fills also contained a few sherds from two collared urns (Figs 12 & 13). There is part of the rim and collar from one urn, representing around 25% of the rim and collar and perhaps some 15% of the entire vessel. A second collared urn is represented by a small section of the collar and a further four small abraded sherds. Miniature collared urns as accessory vessels to cremation burials, deposited in a nearby pit, are quite common, but usually comprise the entire vessel. In this instance, the fragmentary nature of the vessels may be due to later truncation and disturbance, but this is unclear as the disposition of the pottery within the fills was not recorded during excavation, although they seem most likely to have been scattered.

The majority of the features within and beyond the ring ditch appear to be of natural origin, probably tree-throw holes. A single feature, pit 146, to the south-west of the burial deposits, may have been contemporary with the burials (Fig 3). This was an oval pit, 1.5m long by 0.9m wide and 0.37m deep, with steep sides. The fill was of dark brown clay with small limestone fragments. The fill appears to be different from the that of the natural features, but the absence of any charcoal or finds leaves it uncertain whether this pit was of natural or human origin.

The barrow ditch and its silting

The profiles of the ditch sections were quite consistent in form, with a narrow often steep-sided base and eroded upper edges, indicating that the ditches were open for some considered time (Fig 5, Ditches 123 and 131 and Figs 9-11).

The primary fill had accumulated to a depth of 0.30m, and typically contained quantities of irregular fragments of limestone, often 200-300mm long, in a matrix of brown silty clay, with little evidence for the previous accumulation of a silty primary fill. It is unlikely that the majority of this material could have been derived from erosion of the ditch sides, and it is suggested that much of it derived from slippage of a central mound, indicating that the mound was either capped with limestone or had an outer revetment of limestone. If so, it would imply that this was a bowl barrow, with no significant berm between mound and ditch.

Although not distinguished by the context numbering, in some sections the stony primary fill gave way to a secondary fill with a similar matrix but containing sparser and typically smaller pieces of limestone (Fig 5, ditches 123 and 131). However, this was variable around the circumference of the mound and some sections, particularly those to the north-west, ditch 110, show no great concentration of limestone fragments within the any of the lower fills, while to the east, ditch 135, there was a looser scatter of large fragments through the lower fills (Fig 11). Only three of the nine excavated sections produced pottery from the lower fills, and four produced small quantities of animal bone. The upper part of lower fills was probably a gradual accumulation, as much of the erosion of the ditch edge occurred at this time.

Once the silting had accumulated to a depth of around 0.5m, the ditch edges above this eroded back to a shallow angle and a stable profile was achieved. Most sections show a distinctive dark soil horizon, up to 0.18m thick, comprising dark grey-brown silty clay, with some comminuted charcoal, which probably denotes the establishment of a turf line, although the layer still included some fragments of limestone (Fig 5, ditch 123, layer 125 and ditch 131, layer (133) and Figs 9-11). A little animal bone but no pottery was recovered from this horizon.

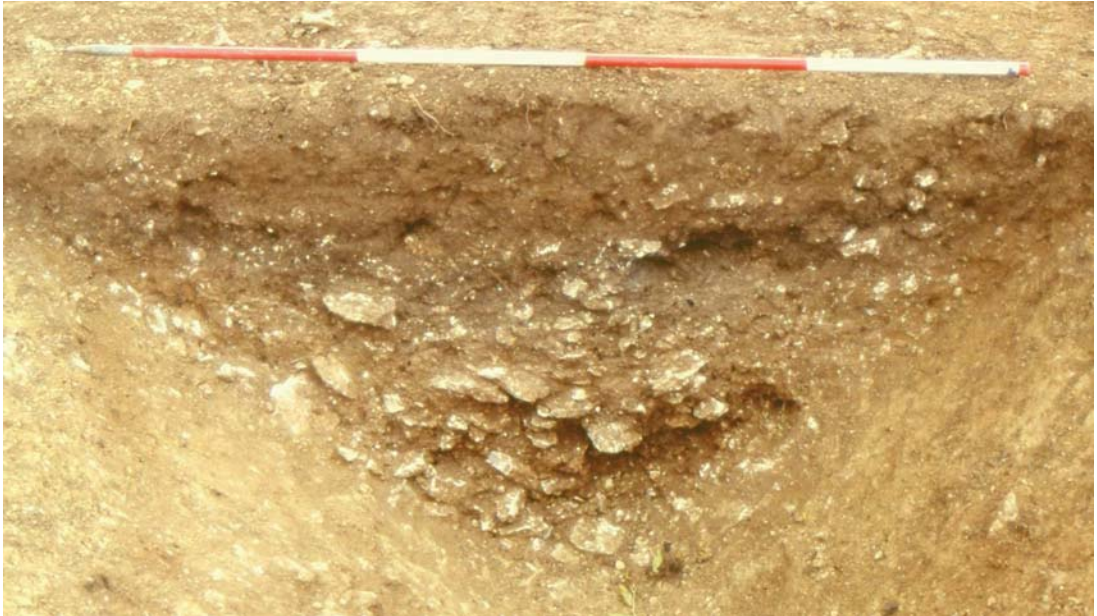
The upper ditch fill shows some variation around the ditch circuit but in all sections it was a homogeneous deposit for a depth of up to 0.5m. It comprised a uniform brown clayey loam, which in some sections showed only sparse limestone inclusions, ditch 131 (Figs 5 and 10) while others show quantities of small limestone chips, ditches 123 and 135 (Figs 5, 9 and 11). The small limestone chips were probably a product of ploughing, and the homogeneous nature of the fill could be interpreted as either the result of a long-term process of gradual infilling, and levelling of the mound, related to the use of the land for arable farming, or perhaps a single act of ditch infilling and mound levelling to remove the barrow to make way for ploughing. The upper fills contained pottery, some of which is decorated Bronze Age pottery that may have been associated with a burial set into the mound, and a length of human femur shaft might have come from a disturbed inhumation burial, perhaps indicating that the mound was re-used for burial in the Roman or early Saxon periods. None of the pottery from the ditch appears to be later than the middle Iron Age.

There is no survival of a subsidence hollow fill above the final fill, which supports the view that the ground levels have been heavily truncated by a combination of past and recent ploughing.



Ditch 123 (Section 5), looking west, inner edge to the left

Fig 9



Ditch 131 (Section 6, reversed), looking south-west, inner edge to the left Fig 10



Ditch 135 (Section 7), looking north, inner edge to the left Fig 11

2.4 Later activity

Across the north-western part of the area the bases of three furrows from a former ridge and furrow field system survived (Fig 3). The furrows were 9m and 11m apart, centre to centre, and survived up to 1.4m wide by 0.10m deep. The shallow depth of the surviving furrows indicates that the ground levels across this area had been considerably truncated by recent ploughing.

As no surviving furrows ran directly across the barrow, there was no indication as to whether the barrow mound had still been extent during the usage of the medieval field system.

The thin subsoil (102), only some 30-40mm thick, was of dark yellow-brown clay with moderate inclusions of small stones. The topsoil (101) was dark brown loamy clay up to 0.30m thick, containing frequent small stones and limestone fragments.

3 THE FINDS AND FAUNAL REMAINS

3.1 The flint by Andy Chapman

A heavily patinated blade, 34mm long (tip broken) by 15mm wide, came from the upper fill of barrow ditch 115.

Four pieces of heat-shattered flint came from the pyre debris in pit 152. The largest piece is a broken flake, 28mm long (broken) by 33mm wide. None of the pieces retain any evidence that they had been retouched implements.

3.2 The prehistoric pottery by Andy Chapman

Three vessels of Bronze Age date were associated with the cremation deposits within the ring ditch of the round barrow, and further pottery dating to both the Bronze Age and the Iron Age was recovered from the fills of the barrow ditch and, in small quantities, from probable tree holes.

The collared urns from pit 129

Fragmentary remains of two collared urns came from the fill (130) of a small pit 129 close to pit 152 containing the cremation deposit from an adult.

Vessel 1

Joining sherds, weighing 94g, come from the rim and collar of a miniature plain collared urn (Figs 12 and 14). It had a rim diameter of 135mm and would have stood c 150-160mm high. The fabric is 6-7mm thick, well-fired and contains sparse small, angular grit, and has a grey/black core and pale brown surfaces.



Rim of collared urn from pit 129, Vessel 1 (Scale 20mm) Fig 12

Vessel 2

There are five non-joining sherds, weighing 22g, from the collar of a second similar miniature plain collared urn (Fig 13). This is in a softer, less well-fired fabric, with a pink core and pale brown surfaces. It appears to be the less well-made of the two vessels. The base of the collar has been applied separately, and is irregular and poorly bonded to the body.



Fragment of collared urn from pit 129, Vessel 2 (Scale 20mm) Fig 13

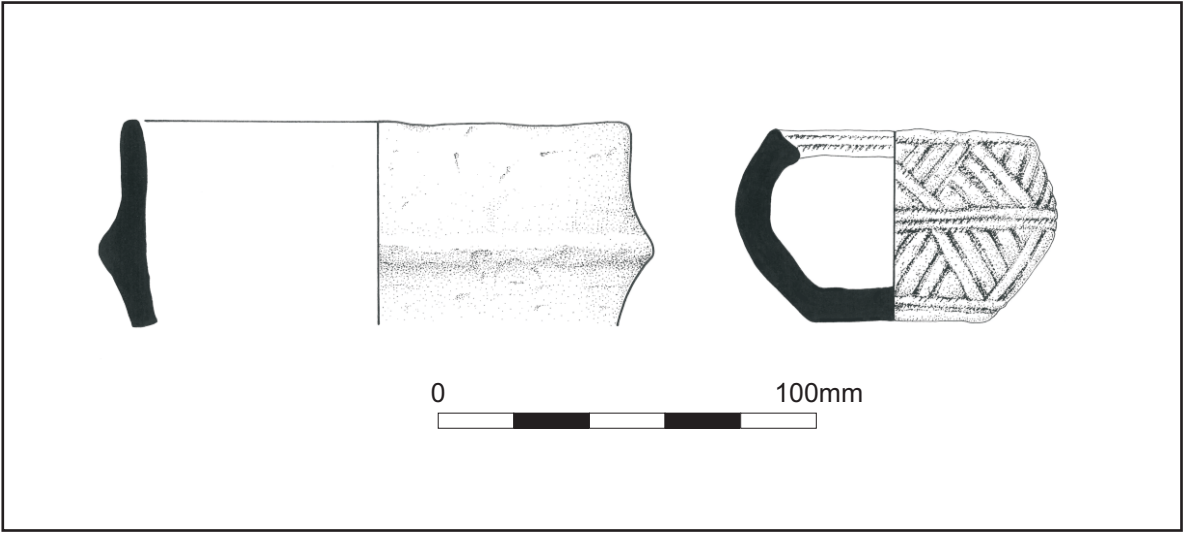
The deposition of plain or simply decorated miniature collared urns as accessory vessels in association with cremation deposits is well attested in the midland counties, with examples from West Cotton, Raunds, Northamptonshire (Harding and Healy 2007), and Gayhurst Quarry and Broughton Barn, Milton Keynes (Chapman 2007 and 2009). A small collared urn was also found at Cossington, Leicestershire, in a pit cut into the fill above a child inhumation in Barrow 2, and was accompanied by a miniature cup (Thomas 2008, 26 & 30, fig 33,7).

The miniature cup from pit 152

A complete miniature cup was found among the bone and charcoal of the cremation deposit (153) in pit 152 (Figs 14-16). The vessel is distorted and shattered, probably as a result of heating on the pyre. The fabric is grey and cindery, somewhat similar to a crucible fabric, while the outer surface is light brown. This heating had also produced crazing of the surface, particularly the base, and vertical cracks had formed around the rim prior to the vessel fragmenting. The condition of the vessel is indicative of the high temperature reached within the pyre, perhaps approaching 1000°C, similar to an activity such as copper casting.

The miniature cup stands 50mm high and has a bi-conical profile; 66mm in diameter at the rim, 84mm in diameter at its widest and 45mm in diameter at the base. The rim has an internal chamfer, which is decorated with two encircling lines of twisted cord decoration. The outer surface of the cup is decorated with running chevrons on the upper and lower parts, with double encircling lines at the base and middle, and a single line at the top. The impressed decoration has been executed using twisted cord, although given the poor state of preservation the cord impressions are only partially evident.

Miniature cups are frequently found accompanying urned cremation burials of the early second millennium, often in association with food vessels (Gibson and Woods 1997, 226-7). They appear in a wide variety of forms, often highly decorated and sometimes perforated (Gibson 2002, 104, fig 50). A simple bowl-shaped cup, with perforated lugs, was found together with a food vessel accompanying the inhumation burial of child, aged 8, in Barrow 2 at Cossington, Leicestershire (Thomas 2008, figs 28 & 32). Examples with a similar form and decorative scheme are known from as far apart as Boyton, Wiltshire (Annable and Simpson 1964, No. 441, 59 & 114) and Aberdeen, Scotland (Abercromby 1912, cinerary urns No. 332).



Scale 1:2

The collared urn and miniature cup Fig 14



The miniature cup from pit 152, showing the decorated rim (Scale 10mm) Fig 15



The miniature cup, showing the surface decoration (Scale 10mm) Fig 16

Pottery from the barrow ditch

Sixty-four sherds of pottery, weighing 430g, were recovered from the fills of six of the nine sections across the barrow ditch (Table 1). In most instances this comprised only one or two sherds per ditch section, indicating a very low incidence of deposition, with two exceptions. There are six sherds from ditch section 107, but these are small sherds with the total weight comparable to the other small groups. The largest group, from ditch 115 comprises c 50 abraded sherds, weighing 260g, all from the base and lower body of a single vessel.

There are two sherds of Bronze Age pottery that probably derive from activity on the barrow, and they may have been incorporated into the upper ditch fills when the mound was levelled. This material is distinguished by the twisted cord decoration on two body sherds from the upper fill (109) of ditch 107 in a soft grey-brown fabric with light grey surfaces, containing small pellets of grog (Fig 17).



Bronze Age pottery with twisted cord decoration from barrow ditch 107
(Scale 20mm) Fig 17

A plain body sherd from ditch 115 has a grey core, light brown surfaces and contains dense crushed flint. The rest of the material is all in fabrics containing dense finely crushed shell, typically with grey cores and either grey or brown surfaces. This mainly comprises plain body sherds, with a single rim sherd from either an open bowl or a neckless jar, with a simple rounded rim. The only large group is from ditch 115 and this comprises small sherds from the flat base and lower body of a single vessel. Given the lack of diagnostic features, it is difficult to provide a date for this material beyond a broad attribution spanning the middle Bronze Age to Middle Iron Age.

It appears that in a few sections small amounts of pottery entered the primary fills of the ditch, prior to the establishment of the stable soil horizon, but the majority of the deposits are in the upper fills. As the material cannot be closely dated it does not provide a dated sequence for the silting of the ditch. The latest likely date for the pottery is middle Iron Age, so it may be postulated that the stable soil horizon was established no later than the middle Iron Age, but while the upper fill also contains no pottery later than the middle Iron Age it is unlikely that the mound was levelled at this time, especially given the tibia that may have come from an inhumation burial.

Table 1: Quantification of prehistoric pottery from the barrow ditch and pits

Context	Sherds	Weight (g)	Fabric shelly	Fabric grog	Fabric flint	Comments
Barrow ditch Upper fill	2	30	2	--	--	Round rim, plain body (Middle Iron Age)
109 upper fill Ditch 107	6	25	4	2	---	2 cord impressed (Bronze Age)
117 primary fill Ditch 115	c50	260	50	--	--	Flat base and plain body, single vessel (Middle Iron Age)
119 upper fill Ditch 115	2	15	1	--	1	Plain body sherds
121 upper fill Ditch 120	1	10	1	--	--	Plain body sherd
132 upper fill Ditch 131	1	5	1	--	--	Plain body sherd
134 primary fill Ditch 131	1	75	1	--	--	Plain body sherd
149 primary fill Ditch 148	1	10	1	--	--	Plain body sherd
Subtotal	64	430	61	2	1	
155 Pit 154	2	10	--	--	2	Plain body sherds
161 Pit 160	2	15	2	--	--	Plain body sherds
169 Pit 168	10	60	--	--	10	Plain body sherds
Subtotal	14	85	2	0	12	
Totals	78	515	63	2	13	

Pottery from other features

Fourteen sherds of pottery, weighing 85g, came from the fills of features interpreted as tree-throw holes or other natural features. Two of these features, 154 and 168 lay within the barrow ditch, on the northern side of the interior, and these contained sherds with flint inclusions, while the feature other, 160, was part of a cluster of natural features to the south-west of the barrow, with two sherds containing crushed shell.

3.3 Other Bronze Age finds by Andy Chapman

Within the cremation deposit of bones and pyre debris in pit 152 there was a short length of poorly preserved copper alloy that is probably part of a longer object that was deposited with the body on the funeral pyre (Fig 18). What survives is a slightly curving length of rod, with a near circular section, 17mm long and 2.0-2.5mm in diameter.

A range of copper alloy pins or various designs have been recovered in association with miniature vessels of the Wessex culture, as at Aldbourne and Normanton, Wiltshire (Ashbee 1960, figs 45 & 46).



Copper alloy object from the bone deposit in pit 152 (Scale 20mm) Fig 18

3.4 The cremated bone by Sarah Inskip

The two deposits of cremated bone were analysed. Pit 138 contained 372g of bone, which was probably the majority of the material originally deposited. Pit 152 contained 1350g of bone mixed with other pyre debris, probably still hot when deposited. This was all of the deposited bone, which also contained burnt bird and mammal bone, and an unburnt cow incisor.

Methodology

There are many obstacles to the study of cremated bone. During the cremation process, heat causes bone to fragment and warp making osteological analysis challenging. Loss or selective deposition of the cremated material is commonplace, and it is not unusual to have multiple or partial individuals. However, it is still possible to glean a substantial quantity of information from cremated bone. Data was collected following the guidelines of the IfA (Brickley and McKinley 2004) and English Heritage (Mays, Brickley and Dodwell 2004). Specific methodologies are presented with the results.

Fragmentation, skeletal representation and number of individuals

Each deposit was weighed and sieved through 10mm, 5mm, and 2mm sieves (Table 2).

Table 2: Bone sieve fraction weights (g)

Pit	Weight (g)	Weight (g) >10mm	Weight (g) 5-10 mm	Weight (g) 2-5mm	Weight (g) <2mm	Largest fragment
138	372	193	144	16	19	104.3mm
152	1350	753	513	52	32	68.4mm

Unusually large fragments of bone were recovered from both cremated deposits: 50% of the skeletal material is 10mm or larger (Figs 19 & 20). McKinley (1997) has suggested that this range of variation of fragment size would indicate that there was no post-cremation fragmentation of the remains.

Skeletal fragments were placed in anatomical groups. Where a long bone fragment could not be identified, it was classified as long bone (Table 3).

Table 3: Skeletal element representation by weight (g)

Pit	Skull	Vertebra & ribs	Lower limbs	Upper limbs	Hands & feet	Pelvis	Long bone	Unident.
138	32	25	82	72	12	8	50	91 (25%)
152	318	173	209	168	33	75	21	353 (26%)



The bone deposit from pit 138 (Scale 50mm)

Fig 19



The bone deposit from pit 152 (Scale 50mm)

Fig 20

Given the generally large fragment size, three-quarters of the bone was identifiable. Both deposits are dominated by skull and long bone fragments. In the case of pit 152, the skull makes up around a quarter of the identifiable fragments yet, proportionally, the skull does not make up this much of the living skeleton. This bias is an artefact of the large quantity of identifiable features on the skull which make even the smallest fragments recognisable. The pelvis, vertebrae and carpals/tarsals have a high trabecular bone content which is prone to disintegration on cremation and burial. These elements may make up a larger fraction of the unidentified fragments.

It might have been expected to find a higher percentage of skull fragments in pit 138. As all parts of the skeleton are represented in both deposits, it implies that whole bodies were placed on the pyre, and an attempt to recover all of the body was made.

The number of individuals represented in each burial was ascertained from duplication of unique skeletal landmarks or from any obvious discrepancy in the age or size of bone. Analysis proved that there was just one individual in each of the deposits, as no age inconsistencies or duplications appeared.

Identified skeletal elements

Pit 138

Skull: Parietal, sphenoid, temporal, occipital, 1 incisor, 1 molar, 1 canine,
 Post crania: Clavicle, left and right humerus, right ulna, radius, left and right femur, tibia and fibula. Axis, thoracic and lumbar vertebrae. Ribs. Pubis, Ilium and ischium.
 Hands: 4 metacarpals, 4 proximal phalanges, 6 intermediate phalanges, 1 distal phalange. Feet: Talus, metatarsal 5.

Pit 153

Skull: Frontal, parietals, temporal (left and right), occipital, sphenoid, left and right maxilla, left and right mandible. 21 adult teeth including 4 lower incisors, 1 upper incisor, 1 canine, 3 upper molars, 2 lower molars, 2 molars and 2 premolars.
 Post crania: Ribs, thoracic, lumbar and cervical vertebra (including atlas and axis). Sacral vertebra 2, 3 and 4. Clavicle, ilium, ischium and pubis. Clavicle, left and right humerus, left and right ulna, radius, femur, tibia and fibula
 Hands: 7 distal, 3 intermediate, 2 proximal and 9 proximal/intermediate with proximal fragment missing. 4 metacarpals and trapezium. Feet: 3 metatarsals, 2 proximal phalange, 1 distal phalange, calcaneous and talus.
 Animal bone: mammal and bird (not identified to species); unburnt cow incisor.

Pyre conditions

Pyre conditions can be accessed from the bone colour and fragmentation. White bone fragments are indicative of complete bone oxidation (McKinley 1997) and temperatures in excess of 600°C (Mays 2010). Low temperatures (around or below 300°C) and poor oxygen levels will produce brown and black bone fragments. Grey and blue colouration is produced at temperatures in between 300-600°C (see Mays 2010).

In general, both deposits are white/crème in colour suggesting that the pyre temperature and oxygenation was high and probably in excess of 600°C. A greater proportion of grey fragments are seen in pit 152, where the hands in particular are grey. As the individual in pit 152 is larger than the individual in pit 138, this variation is possibly due to the thicker bone which would have taken longer to cremate (McKinley 2008). This trend fits well with other Bronze Age sites where a predominance of white/crème fragments is observed, suggesting similarity with other sites in the region, such as Ardleigh, Essex (Mays 1996), Irthlingborough, Northamptonshire (Mays 1990) and Upton, Northampton (Inskip 2008a & b).

The most notable feature of the cremated deposit in pit 138 was that the lower half of the left humerus was significantly different in colour (grey) to the rest of the deposit (white/creme). This suggests that the left humerus was either incompletely in the pyre or that it was positioned/fell in a cooler area. This may represent movement of the body during the cremation process or through collapse of the fuel used to cremate the individual. Body position has also been inferred to cause differential colour patterning in Bronze Age cremations (Roberts 2003). It is possible that the lower left arm was in a position (covered perhaps) that prevented complete oxygenation. An additional factor could be wind direction which would influence heat and oxygen distribution over the pyre (McKinley 2008).

Age and sex

Progressive development and degeneration of the human skeleton provides osteologists with a range of skeletal indicators from which to infer age.

The long bones of the individual in pit 138 were not fused, which makes them below 13 years as the proximal radius, one of the earliest fusing long bone epiphysis, was unfused (Scheuer & Black 2000). Other notable unfused elements included the manual distal phalanges, which fuse at approximately 14 years of age, and the *os coxae*, normally fused by 15 years of age. Four adult tooth roots were identified including two lower incisors and one molar. The roots of the incisors were complete suggesting an age above 8 years (Ubelaker 1978). Therefore this individual is between 8-13 years of age. Sexing was not attempted as features used to osteologically assess sex do not appear until puberty and after.

The long bones of the individual in pit 152 were all fused with no visible fusion lines. Long bone fusion normally takes place by 18 years in females and 20 years in males (Scheuer and Black 2000). The iliac crest was fused with the epiphyseal line obliterated, indicating an age above 23 years (*ibid*, 372). Fusion of the spinal column was complete suggesting an age above 25 years (*ibid*, 218). There was no evidence of osteoarthritis on any of the observable joint surfaces. Osteoarthritis is uncommon in individuals below 40 years (Waldron 2009, 31) which may imply that the individual was not significantly advanced in age. The cranial sutures had split during the cremation process and showed no evidence of obliteration as observed in the elderly. These factors suggest that we are looking at a young to middle aged adult, aged 23-45 years. This individual appeared to be small, but no skeletal elements with defining sex characteristics were observable.

Discussion and conclusions

Pyre conditions were similar to other Bronze Age cremation deposits found in the region, with a white/creme colouration expected with hot, well oxygenated and possibly tended cremations (Roberts 2003). The cremated remains are those of a child between 8-13 years, in pit 138, and an adult probably between 23 and 45 years at death, in pit 152. No evidence of ill health survived in either individual.

The high percentage of larger bone fragments suggest that there was no post-cremation fragmentation of bone, and parallels can be made with Bronze Age Irthlingborough, Northamptonshire (Mays 1990), where fragments were as large as 92mm, and in a collared urn burial at Upton, Northampton (Inskip 2008a & b).

Modern studies demonstrate that a complete cremated adult skeleton should produce in excess of 1.0kg of bone (Mays 2010, 326, McKinley 2000, 404) and juveniles around 0.5kg (Trotter and Hixon 1973). The 1.35kg of bone in pit 152 is aged as adult and the 0.37kg of bone in pit 138 as juvenile, so it seems that both deposits may represent fairly complete collection from the pyre. There is great variation in the quantity of remains in Bronze Age cremated deposits across the country. For example Henderson (1988)

reported a range of 10g – 1800g at Hardendale Quarry, Cumbria. At Drayton Quarry, Sussex the burials ranged from 1g - 315g, with one deposit weighing 1449g (Inskip forthcoming). Mays (1996) found that deposits ranged from 20g to 1183g at Ardleigh, Essex. McKinley (1997) suggests that most bone deposits were of token amounts of the available pyre debris. At Ketton, however, it seems that it may have been important to the social group that most of the remains of these individuals were retrieved and placed in the ground.

The presence of animal bone within the deposit in pit 152 is common in cremations of all periods and may represent provisioning for the dead or as symbols of deceased (Serjeantson 2009). As the birds and mammal remains are unidentified it is not possible to make a link between specific animals and the deceased.

3.5 Animal and human bone from the barrow ditch

by Andy Chapman with identifications by Laszlo Lichtenstein

The sections across the barrow ditch produced a small assemblage of animal bone, c 143 fragments weighing nearly 1.5kg (Table 4). The majority of the sections produced only a handful of bone fragments weighing less than 100g in total, while ditch section 131, to the south-east produced 230g of bone. The adjacent ditch section 148, to the east, produced bone from both the primary and secondary fills totalling 845g, 57% of the total, with much of this weight made up by fragments from a cattle skull, including loose teeth, along with two fragments from a human tibia exhibiting a similar state of preservation, fragmented and weathered, to the associated animal bone.

Some of the bone assemblage derives from the stony primary fill and this may be of Bronze Age date. Ditch 148 is the only section where material has been allocated to the distinctive stable soil horizon. There is further bone from the upper fills, which produced some residual Bronze Age sherds along with poorly datable little Bronze Age/Iron Age pottery, indicating that the bone too is likely to be a similar mix of residual Bronze Age and Iron Age material.

Given the small quantity, the uncertain chronology and the poor state of preservation, the bone has been catalogued to species only, and no further analysis has been attempted.

In general, the bone is fragmented and often abraded, comprising lengths of long bone shafts and metapodial bones, some fragments of skull, horn core and loose teeth.

From the upper fill of ditch 148 there are numerous fragments of a cattle skull and loose teeth that might derive from a skull originally placed either on the barrow mound or in the ditch. This fill also contained two joining fragments, 165mm long, from the shaft of a human femur, probably adult but not particularly robust. It is in a similar condition to the animal bone, being both fragmented and abraded. It may have come from an inhumation burial set into the mound that was later broken up and redeposited into the ditch. It is impossible to provide a specific date for its origin, but Roman and Saxon reuse of Bronze Age burial mounds as inhumation cemeteries is well attested.

Table 4: Quantification of animal bone from the barrow ditch

Context	Weight (g)	No	Species
108 primary fill Ditch 107	85	4	<i>Sus</i> (pig)
109 upper fill Ditch 107	40	3	Small ungulate (pig or sheep/goat)
117 primary fill Ditch 115	100	6	<i>Bos</i> (cattle) <i>Ovicaprid</i> (sheep/goat)
119 upper fill Ditch 115	80	10	<i>Bos</i> (cattle) <i>Ovicaprid</i> (sheep/goat)
121 upper fill Ditch 120	85	6	<i>Bos</i> (cattle) <i>Sus</i> (pig) <i>Ovicaprid</i> (sheep/goat)
125 secondary fill Ditch 123	10	3	<i>Bos</i> (cattle)
132 upper fill Ditch 131	10	2	<i>Bos</i> (cattle)
134 primary fill Ditch 131	220	15	<i>Bos</i> (cattle) Small ungulate (pig or sheep/goat)
149 primary fill Ditch 148	270	9	<i>Bos</i> (cattle) Small ungulate (pig or sheep/goat)
150 secondary fill Ditch 148	575	c85	<i>Bos</i> (cattle) <i>Ovicaprid</i> (sheep/goat) Human (2 fragments of femur) (62g) Rodent (from soil sample)
Total	1475	143	

3.6 The wood charcoals by Rowena Gale

The charcoal from the cremation deposit in pit 152 was firm and well preserved. The sample was prepared using standard methods (Gale and Cutler 2000). Anatomical structures were examined using incident light on a Nikon Labophot-2 compound microscope at magnifications up to x400 and matched to prepared reference slides of modern wood. When possible, the maturity of the wood was assessed.

87 x oak (*Quercus* sp) sapwood
91 x oak (*Quercus* sp) heartwood
1 x hazel (*Corylus avellana*)

The sample comprises almost exclusively oak, with an equal balance of the heartwood and sapwood. There was a single specimen of hazel.

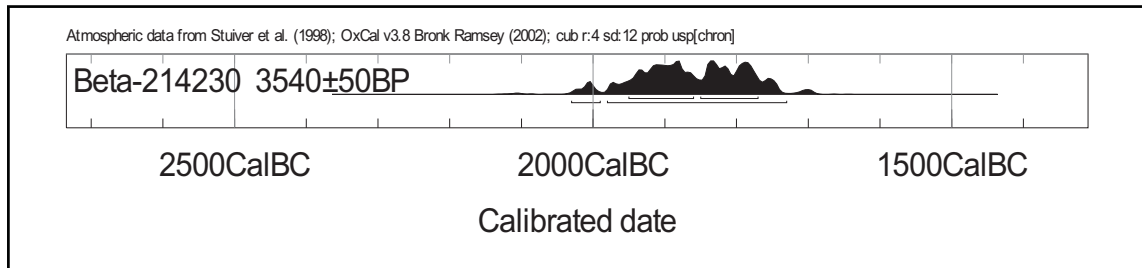
3.7 The radiocarbon dating

A sample of oak sapwood charcoal that formed part of the pyre debris buried with the cremated bone in pit 152 was submitted for radiocarbon dating (Table 5).

Table 5: Radiocarbon date

Laboratory and sample numbers	Context details	Sample details	13C/12C ratio	Conventional Radiocarbon Age BP	Calibrated Age cal BC intercept 68% confidence 95% confidence
Beta-214230 KAP8/153	Charcoal Oak sp. (<i>Quercus</i>) sapwood	Pyre debris	-22.7 o/oo	3540+/-50BP	1890 1940-1770 2010-1740

Laboratory: Beta Analytic, Miami, Florida, USA
 Method: Radiometric: standard
 Calibration: INTCAL 98. Plot: OxCal 3.8

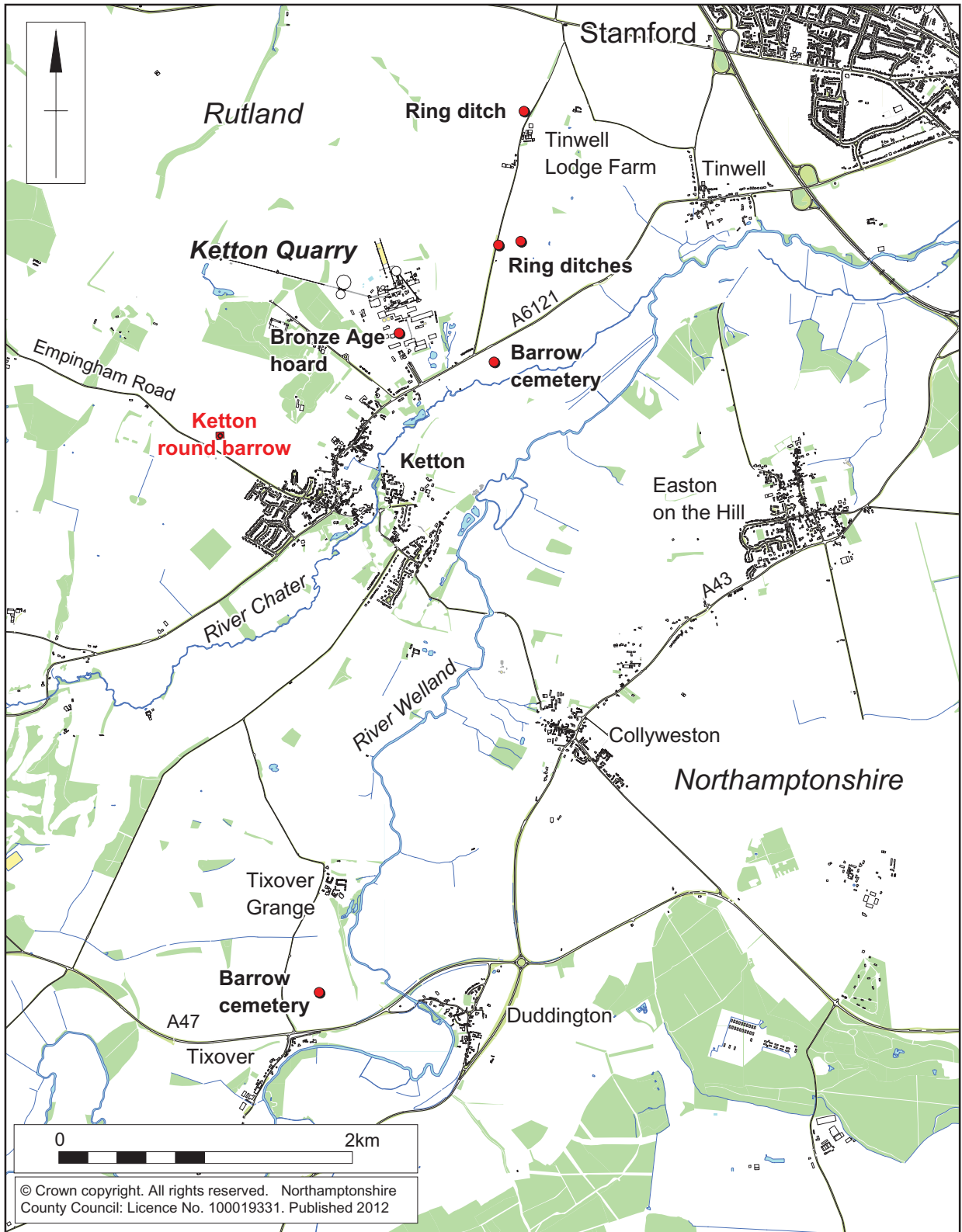


4 DISCUSSION

4.1 Round barrows in Rutland and Leicestershire

This isolated ring ditch of a ploughed-out early Bronze Age round barrow adds to the small corpus of excavated sites within Rutland and neighbouring Leicestershire. In his assessment of the Neolithic and Bronze Age within these two counties, Clay (1999, 10) listed a single nearby site, a ring ditch at Tixover, which is discussed further below. Other local ring ditches are recorded on the Leicestershire and Rutland Historic Environment Record (Fig 21). Some 2.5-3.0km to the north-east of the Ketton barrow, between Ketton and Tinwell, near Tinwell Lodge Farm, there are cropmarks of an individual ring ditch and a pair of ring ditches (MLE5802 at SK993070 and MLE5392 at SK991061). These lie on the east facing slopes, similar to the Ketton barrow, and overlooking the confluence of the River Chater with the River Welland, with a Bronze Age barrow cemetery (MLE5387 at SK001053) lying on lower ground close to the River Chater. A denuded barrow was trial trenched in 1989, but no finds were recovered (MLE5399 at SK99280612). Just over 1km to the north-east of the Ketton barrow (MLE 6418 at SK98450550) a hoard of Bronze Age metalwork included 19 socketed and looped axes, a looped knife and a fragment of ingot.

Some 4km south of Ketton, and south of Tixover Grange (SK 979 010), there are cropmarks of at least seven ring ditches forming a barrow cemetery (MLE5826). These overlook the River Welland. One barrow was excavated in 1991 on a water pipeline (MLE5827). The barrow ditch was 23m in diameter and there was a central pit containing a cremation burial (Beamish 1991).



Scale 1:40,000

Ring ditches in the environs of Ketton Fig 21

To the east of Ketton on the slopes east of the Welland, in Northamptonshire, ring ditches have been recorded by aerial photography in the parishes of Easton on the Hill and Collyweston, but none have been excavated (RCHME 1975).

Further afield, to the south-west of Oakham a small site that began life as a Neolithic pit circle ended in the early Bronze Age with a small ring ditch, 10m in diameter, enclosing a grave containing the crouched inhumation of a adolescent boy, radiocarbon dated to 1860-1620 cal BC at 68% confidence (Clay 1998). The major barrows and barrow cemeteries investigated in Leicestershire are those at Sproxton and Eaton (Clay 1981), Lockington (Hughes 2000) and Cossington (Thomas 2008), all of which lie away from the Welland valley.

4.2 The Ketton round barrow

The Ketton barrow had a classic location, sitting on sloping ground towards the edge of a prominent spur between incised valleys, overlooking the valley of the River Welland. The barrow would have been visible against the skyline from below. It is no coincidence that a little to the south the same spur was later chosen as an appropriate location for a windmill.

There were two primary cremation burials, one of an adult and the other of a child aged 8-13, both in shallow pits. For both burials the collection of bone from the pyre had been very thorough. For the child the bone had been collected separately from the other pyre debris, and individual finger bones are present. A token quantity of pyre debris and soil was then placed in the pit above the bone deposit. For the adult, the deposit comprised most of the available bone, again including finger bones, but this was mixed with pyre debris. Scorching on the sides of the pit suggests that the pyre debris was collected and deposited whilst the charcoal was still smouldering, indicating that the pyre was nearby. A decorated, bi-conical miniature cup within the mass of bone and pyre debris had shattered through heating on the pyre. The pyre had comprised almost exclusively oak, wood and sapwood charcoal from the pyre debris gave a radiocarbon date of 1940-1770 cal BC (68% confidence), centred on the 19th century BC.

Between these two burial deposits, which both lay slightly to one side of the centre of the ring ditch, another pit contained the fragmented remains of a small plain collared urn, and a very small amount from a further collared urn. It is suggested that at the least the larger of the two urns had probably been deposited as a complete vessel, but had been largely lost to later truncation of the ground surface.

This was a small barrow, 26m in diameter, with a single ditch surrounding a mound capped with limestone taken from the upcast clays excavated from the barrow ditch. Fragments of limestone had started to fall back into the ditch soon after its construction, indicating that this was a bowl barrow, with no significant berm between mound and ditch, which was either capped with limestone or had an outer stone revetment.

There was a little evidence that later burials had been inserted into the mound. Sherds of decorated pottery might derive from an early Bronze Age burial and a single length of human tibia is probably from an inhumation burial, perhaps denoting a Roman or Saxon reuse of the mound. The pottery from the barrow ditch was no later in date than the Iron Age, and a stable soil horizon had formed within the ditch during this period. The barrow mound may well have stood until more intensive arable exploitation began, and the remnant furrows might suggest that this occurred in the medieval period, with further degradation of the ground level being caused by modern ploughing.

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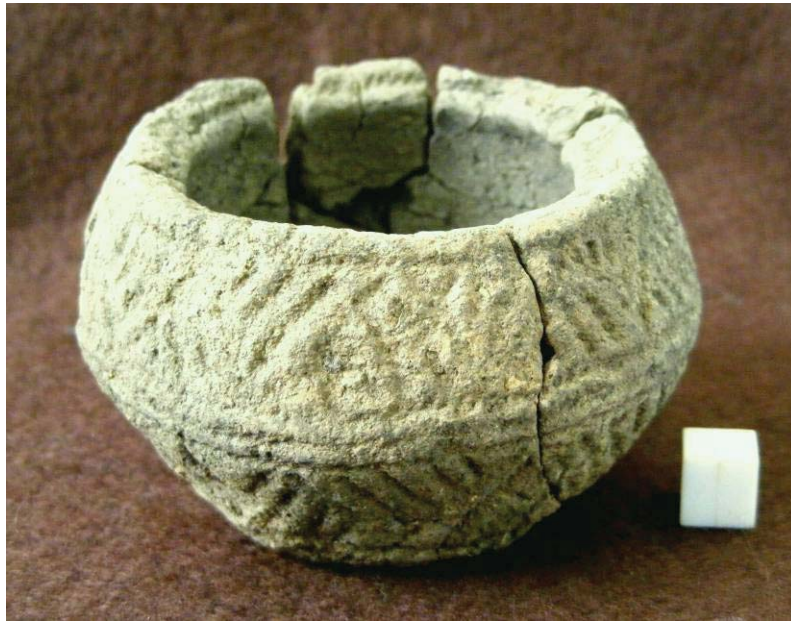
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