

DOWN BY THE RIVER: BRONZE AGE AND ANGLO-SAXON OCCUPATION AT WILLOW FARM, CASTLE DONINGTON

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with contributions from:

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In *TLAHS* 73, 1999 (p. 87), the initial results of archaeological work on a development site at Willow Farm, Castle Donington were reported. The investigations provided an opportunity to examine the exploitation of a c.38 hectare landscape encompassing relic river channels and their adjacent banks, and a spur of higher ground extending from the gravel terrace.

The exploration of the area, including distinct geographical landscapes, revealed a wide range of archaeological activities. Two groups of pits on the gravel terrace, including a pit containing the charred remains of fruits, nuts and cereal grains, provided evidence of Early Bronze Age activity.

During the Middle and Late Bronze Age the area was more extensively exploited, possibly on a seasonal basis, with further evidence including burials surrounded by a ring ditch, two burnt mounds, a roundhouse and numerous pits.

The Late Bronze Age saw domestic activity in the form of post-built roundhouses, either side of a pit alignment boundary. The area was reoccupied by a small Anglo-Saxon settlement in the fifth–seventh century AD, which included two post-built halls and at least one sunken featured building.

INTRODUCTION

Until the construction of major riverbank revetments in the post-medieval period the River Trent was a highly mobile river, regularly migrating back and forth across the flood plain. These movements have resulted in both the destruction and preservation of archaeological remains. The ubiquitous alluvial overburden deposited by the Trent has often ensured that even organic remains have survived in the resulting anaerobic conditions. While it can be assumed that the river served as a resource for food and communication during all periods, the extent of settlement and range of activities, particularly in the more marginal areas, is less well known. The development of a large business park at Willow Farm, west of Station Road, Castle Donington (SK 445 288), which encompassed a landscape ranging from wet relic river channels to the dry gravel terrace, provided an opportunity to investigate the relationship between waterfront and its environs through time.

The development area, covering c.38 hectares, was located in the flood plain of the River Trent in the northern part of Castle Donington parish (Fig. 1). A desk-based

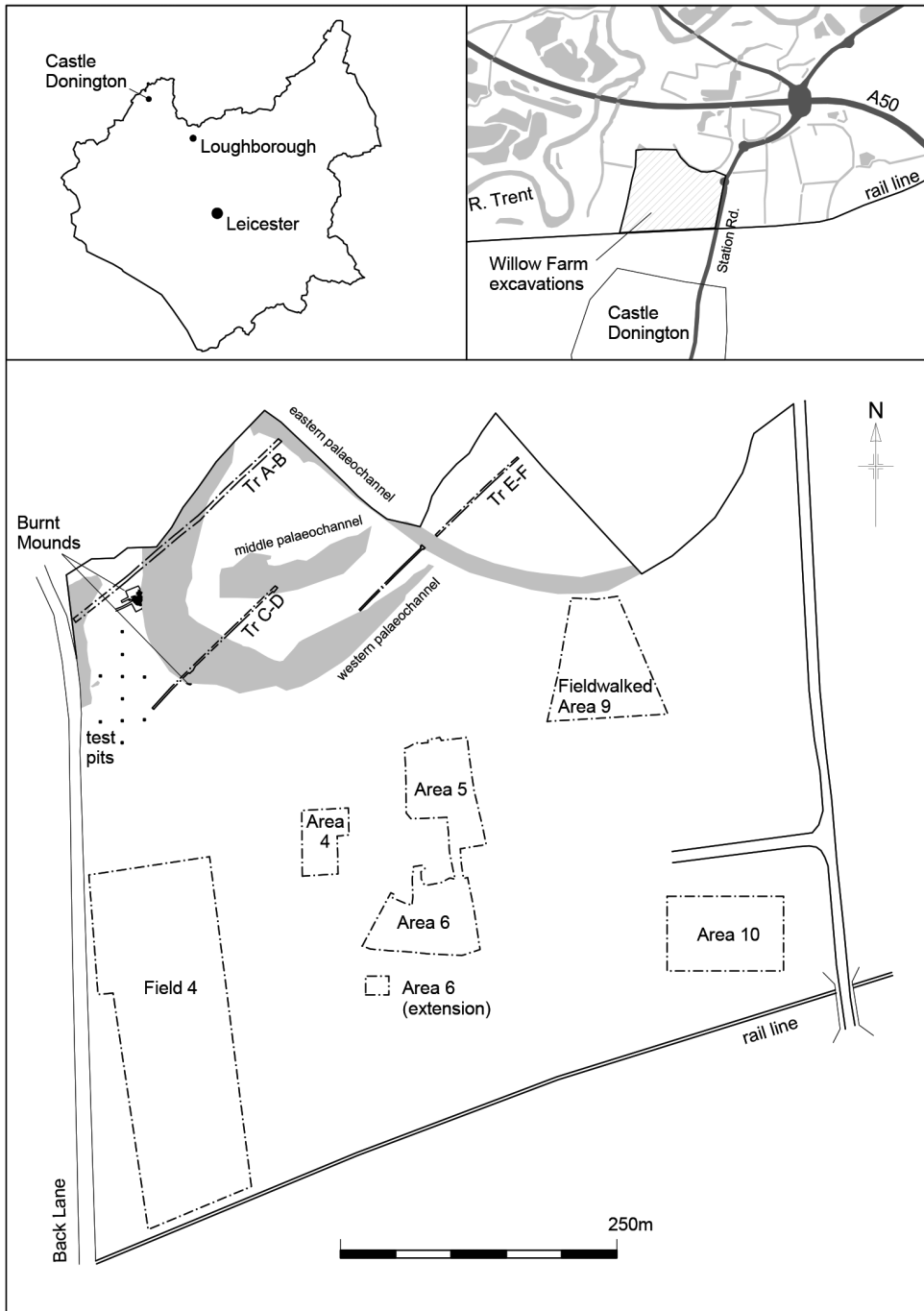


Fig. 1. Location of Willow Farm Development Area, Castle Donington within the Trent Valley. Below: Areas identified to have archaeological potential.



Fig. 2. Work in progress during the excavation.

assessment (Beswick 1997) had identified two relic channels of the River Trent from aerial photography and topographical survey, and highlighted a potential for archaeological remains. A topsoil magnetic susceptibility and gradiometer survey of the area by Oxford Archaeotechnics (Johnson 1997) identified linear anomalies, which prompted a programme of further fieldwork. Evaluative excavation, test-pitting and fieldwalking surveys refined five areas to target for excavation: Burnt Mound I, Area 4, Area 5, Area 6 and Area 10 (Figs 1 and 2). During a watching brief two further areas were targeted for excavation; a ring ditch to the south of Area 6, and the area between Areas 4 and 5. A topographical survey of well-preserved ridge and furrow east of Area 5 was also undertaken. The fieldwork took place in 1997 and 1998.

This paper is a synthesis of the fieldwork results. The archaeology was widely dispersed and covered several different periods, although many features remained unphased in the absence of dating evidence. Context numbers are only quoted to identify dated features or illustrated sections with cuts for archaeological features shown with square brackets – e.g [610]; while fills are within round brackets – e.g (609).

GEOLOGY AND ENVIRONMENT

(with Matthew Beamish, Angela Monckton, David Smith and Frances Green)

The Willow Farm Development Area was located in the flood plain of the River Trent (SK 445 288, Fig. 1). The underlying geology was gravel with alluvial cover,

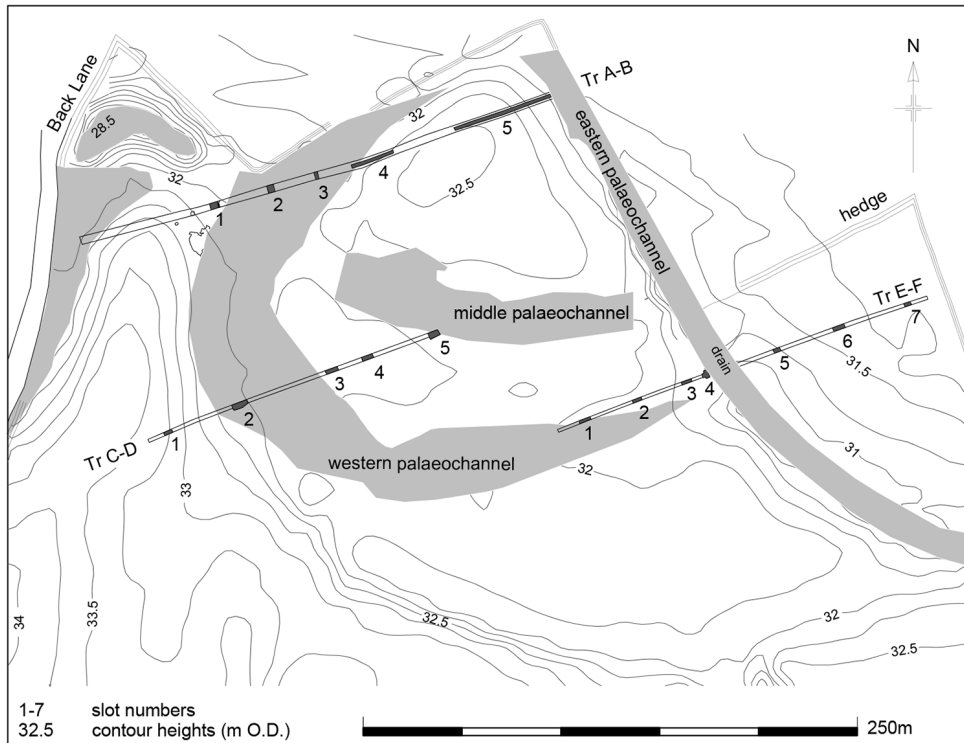


Fig. 3. Location of palaeochannels and trenched sections.

with the gravel surviving to a higher level to the south, while a spur of high gravel projected out from the gravel terrace, along the western perimeter of the site.

Three palaeochannels were identified: a 'western', an 'eastern' and a 'middle' channel (Fig. 3; Coward and Ripper 1998). Radiocarbon determinations from the lower silts of a western palaeochannel suggest an early-mid-Bronze Age date. The middle channel, being truncated by the western channel, was earlier, but in the absence of organic material in the leached sandy fills no radiocarbon dating was possible. The eastern channel provided a late Bronze Age to early Iron Age date.

Three sections through the relic river channels were sampled for environmental remains: Column 1 from the central deepest section of the western palaeochannel (Fig. 3; Trench AB slot 3); Column 2 from the edge of the eastern palaeochannel (Fig. 3; Trench EF slot 4); and Column 3 from the river bank of the western palaeochannel, adjacent to the Burnt Mound I site (Fig. 15; Sample Box 3). These were radiocarbon dated and analysed for waterlogged plant remains, surviving pollen, diatom and insect remains.

Plants identified from the early-mid-Bronze Age suggest the western palaeochannel was a slow-flowing channel with marshy edges. Water plants, such as duckweed (*Lemna*) and pondweed (*Potamogeton*), require permanent water, while areas of slow-flowing or standing water are also suggested by water-plantain (*Alisma plantago-aquatica*). Clear still water is suggested by stonewort (*Chara*

Code and sample	Material	Column	Depth from base (cm)		Radiocarbon age BP	$\delta^{13}\text{C}$	Calibrated date 95.4% probability
Beta-119647, 4	Sieved organic sediment	1	40–50	Top	3130 \pm 110	25*	1640–1110
Beta-119648, 8	Sieved organic sediment	1	0–10	Base	2830 \pm 60	25*	1200–830
Beta-119649, 12	Sieved organic sediment	2	40–50	Top	1420 \pm 80	25*	430–760
Beta-119650, 16	Sieved organic sediment	2	0–10	Base	2630 \pm 80	25*	930–540
Beta-119651, 60	Sieved organic sediment	3	34–40	Above stones of BM	2940 \pm 80	25*	1410–910
Beta-119652, 62	Sieved organic sediment	3	20–30	Below stones of BM	2840 \pm 60	25*	1210–840
Beta-119653, 64	Sieved organic sediment	3	0–10	Base	3280 \pm 70	25*	1740–1410
Wk-10074**, 82	Charred crab apple			Pit fill	3662 \pm 57	24.4 \pm 0.2	2210–1890

Material wet sieved on 0.3mm mesh; ** AMS, *estimated.

Table 1. Radiocarbon determinations. For Column locations, see Fig. 3.

sp), while crowfoot (*Ranunculus* subgen. *Batrachium*), which has floating leaves, grows in slow-flowing shallow water. At the waterside club-rush (*Schoenoplectus tabernaemontani*), together with occasional seeds of rushes (*Juncus* sp) and sedges (*Carex*), indicate marshy conditions. Other waterside plants included water-pepper (*Polygonum hydropiper*), gypsywort (*Lycopus europaeus*) and water-dropwort (*Oenanthe aquatica*).

The surrounding vegetation included nettles, thistles, sow-thistles and grasses, suggesting grassland used as pasture. Chickweed and docks suggested disturbed ground and a 'cleared' environment.

The majority of the insect species present were water beetles from slow-flowing or still bodies of water. In particular, the *Hydroporus* species, *Hydreana*, *Ochthebius* and *Hydrochus* species are typical of these conditions. The channel also contained quantities of emergent vegetation such as rushes and water reeds, to judge from the number of phytophage (plant feeding) insects present such as the *Donacia* and *Plateumaris* reed beetles, and the *Limnobaris* and *Notaris* weevils.

In terms of the environments near to the channels the insects in these faunas clearly suggest grassland and pasture were present. In particular, there are relatively large numbers of *Aphodius* dung beetles in these samples. In addition, some of the phytophage species such as the *Sitona* and *Apions*, which are present in large

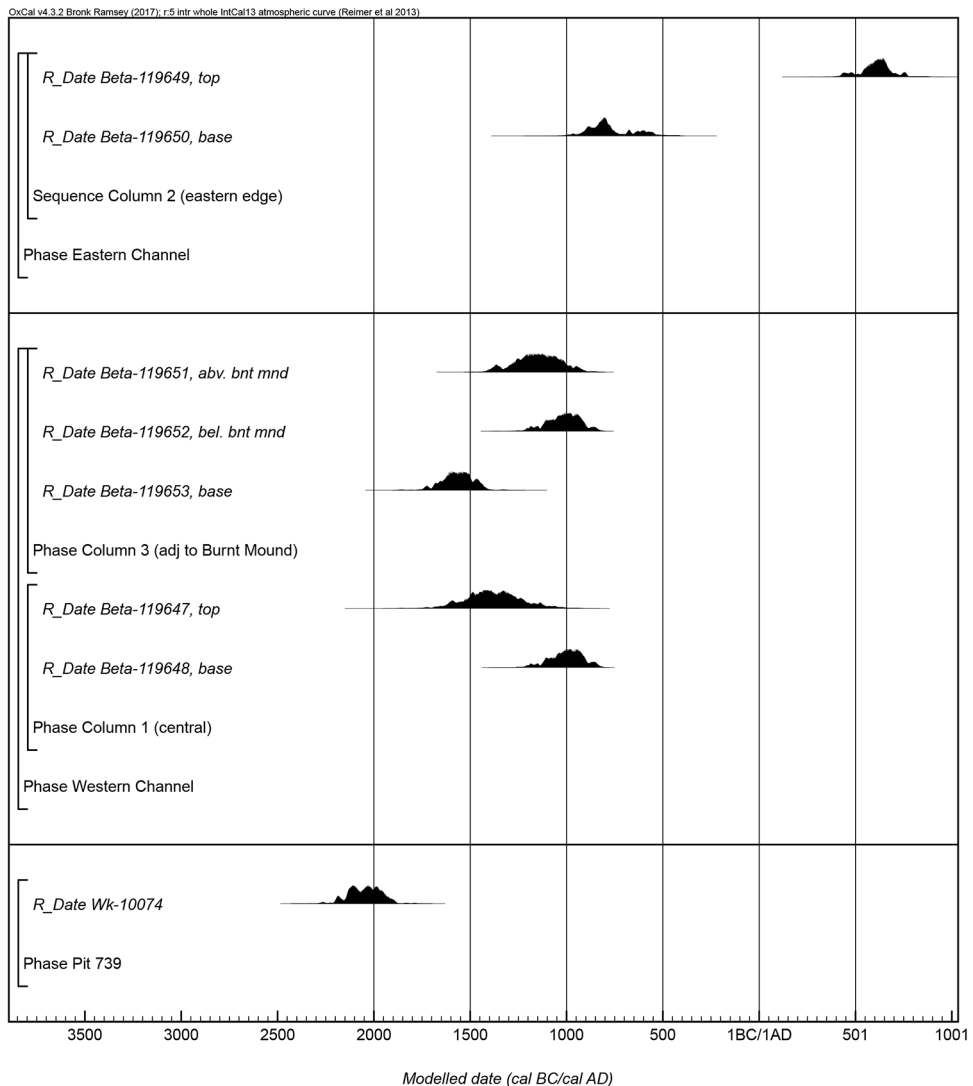


Fig. 4. Radiocarbon dates from the palaeochannels and archaeological deposits.

numbers, are associated with clovers, docks and plantains commonly found in such meadow-land.

The pollen data is largely regional in nature and shows the presence of *Quercus* (oak)-dominated woodlands with occasional stands of *Betula*, *Ulmus* and *Tilia* (birch, elm and lime). *Corylus* (hazel) may have also formed part of this mixed oak woodland on the drier parts of the valley or it may have been more marginal, forming scrub on the drier sites of the flood plain in association with *Alnus* (alder). *Alnus* would have formed the dominant vegetation as Alder carr on the wetter parts of flood plain.

Timber	Location	Description
1	Trench A-B, Slot 2	Whole ?alder log
2	Trench A-B, Slot 2	Oak side branch with numerous tool marks
3	Trench A-B, Slot 2	Small oak side branch with numerous tool marks
4	Middle palaeochannel East end	Roundwood with chopped end. Clean facets and consistency of angle on cut marks suggest metal rather than stone blade
5	Middle palaeochannel East end	Roundwood with chopped end
6	Middle palaeochannel East end	Roundwood fragment.
7	Middle palaeochannel East end	?Bog oak, c.50 rings. Slice kept
8	Middle palaeochannel East end	?Bog oak, c.80 rings. Slice kept
9	Middle palaeochannel East end	Unworked fragment.
10	Western palaeochannel, adjacent to Burnt Mound I (Fig. 15)	Branch with cut marks
11	Western palaeochannel, adjacent to Burnt Mound I (Fig. 15)	Branch chewed by beaver
12	Western palaeochannel, adjacent to Burnt Mound I (Fig. 15)	Oak branch from pre-burnt mound peat
13	Western palaeochannel, adjacent to Burnt Mound I (Fig. 15)	Charred wood, possibly pre-burnt mound
14	Western palaeochannel, adjacent to Burnt Mound I (Fig. 15)	Charred wood, possibly pre-burnt mound
15	Western palaeochannel, adjacent to Burnt Mound I	Roundwood with chopped end
16	Western palaeochannel, adjacent to Burnt Mound I	Roundwood with chopped end
17	Western palaeochannel, adjacent to Burnt Mound I	Roundwood with chopped end
18	Western palaeochannel, adjacent to Burnt Mound I	Roundwood with chopped end

Table 2. The timbers.

Slow or occasional waterflow is suggested by the presence of both rheophilous and limnophilous diatom species. The relatively high proportion of Filicales (fern) spores, which are highly resistant and frequently reworked also, suggests the input of pollen from outside the immediate area.

The sequence suggests this area was no longer the main river channel and was a quiet flowing/still backwater, only being flooded in periods of high flow. Colonisation of the channel by increasing proportions of macrophytic plants encouraged the expansion of plant epiphytic aquatic diatoms such as *Cocconeis placentula*. While the immediate vicinity of the channel probably comprised alder carr and fen, the presence of *Cereale* pollen and *Plantago lanceolata*, together with other weedy species indicating disturbed ground, suggests that cultivation and pastoral activity were being practised on the drier parts of the flood plain, and these pollen types were washed into the deposit.

Eighteen timbers were recovered from the palaeochannels, of which nine were worked (2, 3, 4, 5, 10, 15, 16, 17 and 18) and were mostly found in the western palaeochannel adjacent to Burnt Mound 1 (below p. 18). Timbers 7 and 8 were

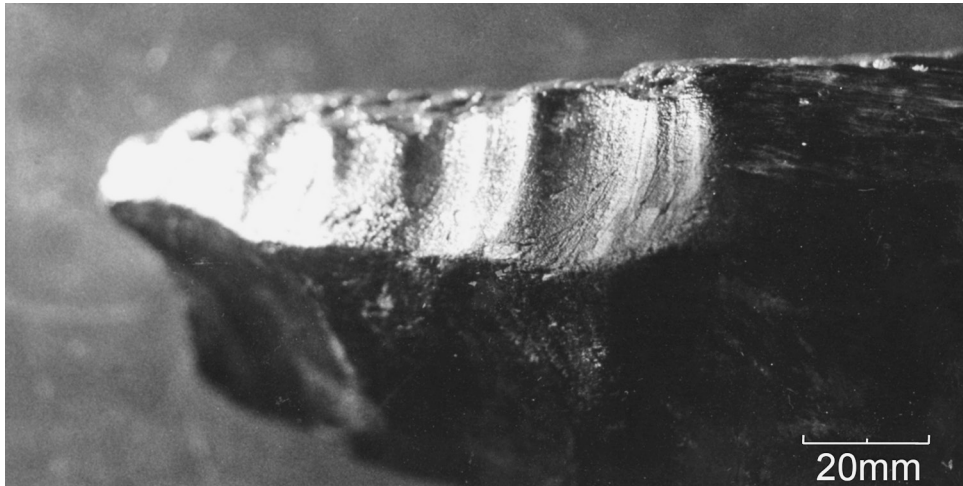


Fig. 5. Timber 11 from Western palaeochannel, adjacent to burnt mound I, showing Beaver teeth marks.

located at the eastern end of the middle palaeochannel. Although some timbers were broken, all were well preserved.

No timbers were jointed *in situ* or had joint remnants. Where identifiable the blade marks suggest working by metal tools. Given the type and location of most timbers (chopped roundwood fragments adjacent to the burnt mound), it would seem probable that they were unused fragments of firewood. A spread of wood at Willington was believed to be consolidating marshy ground and these may be performing a similar function (Beamish 2009). One fragment shows evidence of having been chewed by beaver (Fig. 5; Coles and Orme 1983), confirming their presence in this part of the river during the Bronze Age.

The overall image from the sequence is of a wet site, probably on the margins of a shallow standing body of water, with at least some running water. The area was surrounded by relatively dense alder woodland. Within this woodland there were *Corylus* stands, which may have been selectively removed for burning during the Middle–Late Bronze Age. A mixed *Quercus*-dominated woodland stood on the higher ground, and areas of grassland were present but limited in extent. Some disturbed ground was present and which increased later in the period, possibly with the development of limited local arable/pastoral activity.

RESULTS

The earliest evidence for human activity in the area is from the Late Upper Palaeolithic. A convex-backed flint blade, a *Feddermesser* or *Azilian* point, which had been slightly modified at a later date, was located in Trench CD to the north-west (Fig. 3). It is a rare example of a Late Glacial human presence on the Trent flood plain (Cooper and Jacobi 2001, 118–20). Earlier Neolithic activity is attested by worked flint located during the fieldwalking, including a willow leaf arrowhead

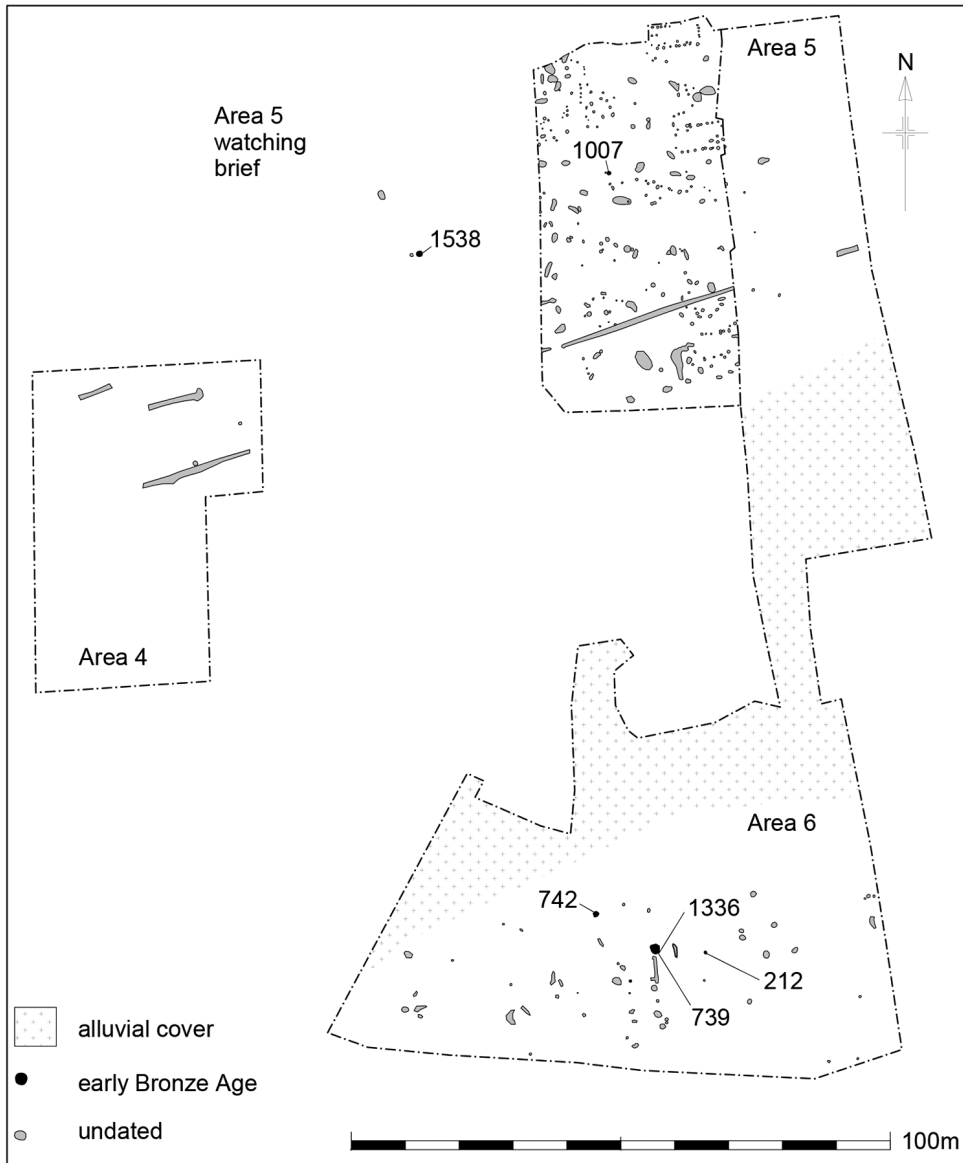


Fig. 6. Plan of Areas 4, 5 and 6 showing location of Phase 1 Early Bronze Age features.

from Field 4 to the west, while a late Neolithic transverse arrowhead was located in a flint scatter in Field 9 to the east (Fig. 1).

Towards the centre of the development area, the gravel terrace to the south of the flood plain contained two areas of low-density scatters of pits, post-holes, gullies and hearths (Fig. 1, Areas 4, 5 and 6). An area of thick alluvium, over a presumed palaeochannel, separated the two *foci*.

To the north of the channel (Area 5) *c.*200 cut features (pits and occasional post-holes) were revealed (Figs 6, 9, 18 and 24), most of which contained a clean light-coloured clay-silt fill with no dating evidence. No obviously coherent plan could be observed and some of the features may have been of natural geological origin. However, early settlement evidence often lacks the structured plans of later, more permanent habitations (Knight and Howard 2004, 67). While most of these remain undated, four phases of activity can be suggested from the features which have provided dating evidence.

PHASE 1 EARLY BRONZE AGE

Pits in Area 5 [1007] and Area 6 [739] (Fig. 6) were associated with grog-tempered sherds from ‘fingernail-rusticated’ Beakers. Pit [739] contained silt sand fills (736) and (738), with a cleaner sand lens (737) (Fig. 7).

Ten metres north-west of [739], a second pit [742] (Fig. 8) contained a deposit which lined the base of a 0.30m deep, round-bottomed circular pit, 0.70m in diameter. It was sampled in its entirety and was found to include crab apples, abundant hazel nutshell, a moderate number of cereal grains and a few weed seeds. The crab apples were whole fruits, half fruits, and large and small core fragments, representing about 50 fruits. A small number of apple pips were also identified. Cereals included barley, together with glume wheat, emmer or spelt, and some indeterminate grains. A single chaff fragment was identified as a rachis fragment of barley. One of the crab apples was submitted for radiocarbon dating by the AMS method, which gave a result of 3662 ± 57 BP (Wk10074), which is calibrated to 2210 – 1890 BC at 95 per cent probability (Table 1, Fig. 4).

Forty metres west of Area 5 a further pit [1538], located during the watching brief, contained a single sherd of Early Bronze Age pottery.

The Early Bronze Age Beaker pottery *Patrick Marsden and Nicholas J. Cooper*

Context [1007] contained a rim and body sherd of a grog-tempered vessel, the rim incised with diagonal and horizontal lines (Fig. 8.1) – probably from a rusticated

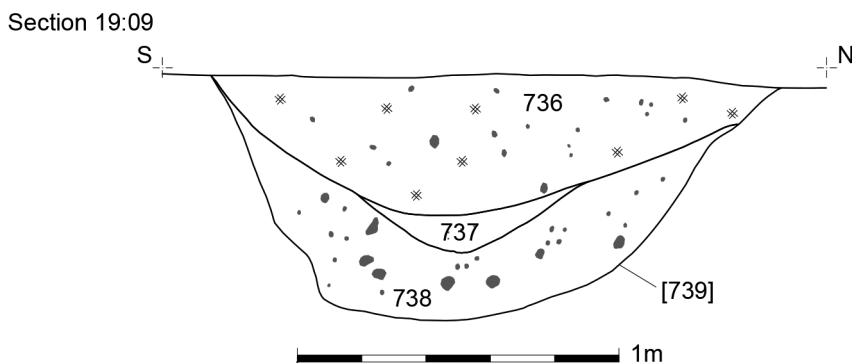


Fig. 7. South–North Section of Early Bronze Age pit [739].

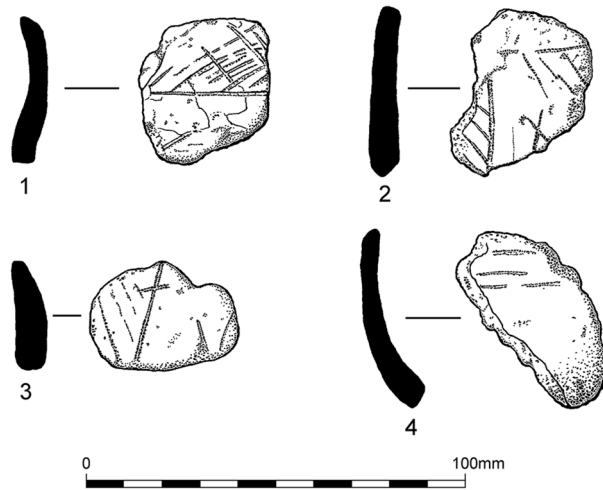


Fig. 8. Early Bronze Age Rusticated Beaker pottery. 1. [1008] (1007). Rim and body sherd with incised diagonal and horizontal lines. 2. [739] (736). This displays horizontal rows of finger-nail incisions externally and internally below the rim. 3. [739] (736). Incised lines are present on the surface. 4. [739] (738). Rim.

Beaker. Several sherds, including a rim sherd from a vessel in a grog-tempered fabric, were present in [739] (Fig. 8.2–4). The rim displays horizontal rows of finger-nail incisions externally and internally below the rim, and are probably from a ‘fingernail-rusticated’ Beaker (see Gibson and Woods 1997, 155).

There are a growing number of occurrences of Beaker sherds in non-funerary pit contexts in Leicestershire, including Asfordby, Melton Mowbray and Burough Hill. Rusticated and geometric Beakers, associated with a radiocarbon determination of 2280–2030 cal BC, were present at Loughborough Road, Asfordby, which, like the Willow Farm examples, showed evidence of grog tempering (Cooper 2012, 9, fig. 11: 12).

PHASE 2 MIDDLE BRONZE AGE

The Middle Bronze Age at Willow Farm was defined by three main *foci* of activity: a ring ditch with two phases of central burial, an area of pits to the north of the ring ditch and two burnt mounds (Fig. 9). The ring ditch and pits were located on the gravel terrace towards the southern boundary of the development area, while the burnt mounds lay some 300m to the north-west, on the western bank of a former course of the River Trent (Fig. 15).

The ring ditch and burials

The ring ditch was sub-circular, *c.*10m in diameter to its outer edge and cut into an orange-brown silt gravel subsoil [1545]=[1548]=[1550]=[1581] (Figs 10 and 11). The ditch was *c.*1.40m wide with the internal ditch edge slightly steeper than the external slope, and the base rounded and irregular (Fig. 12). The infilling of

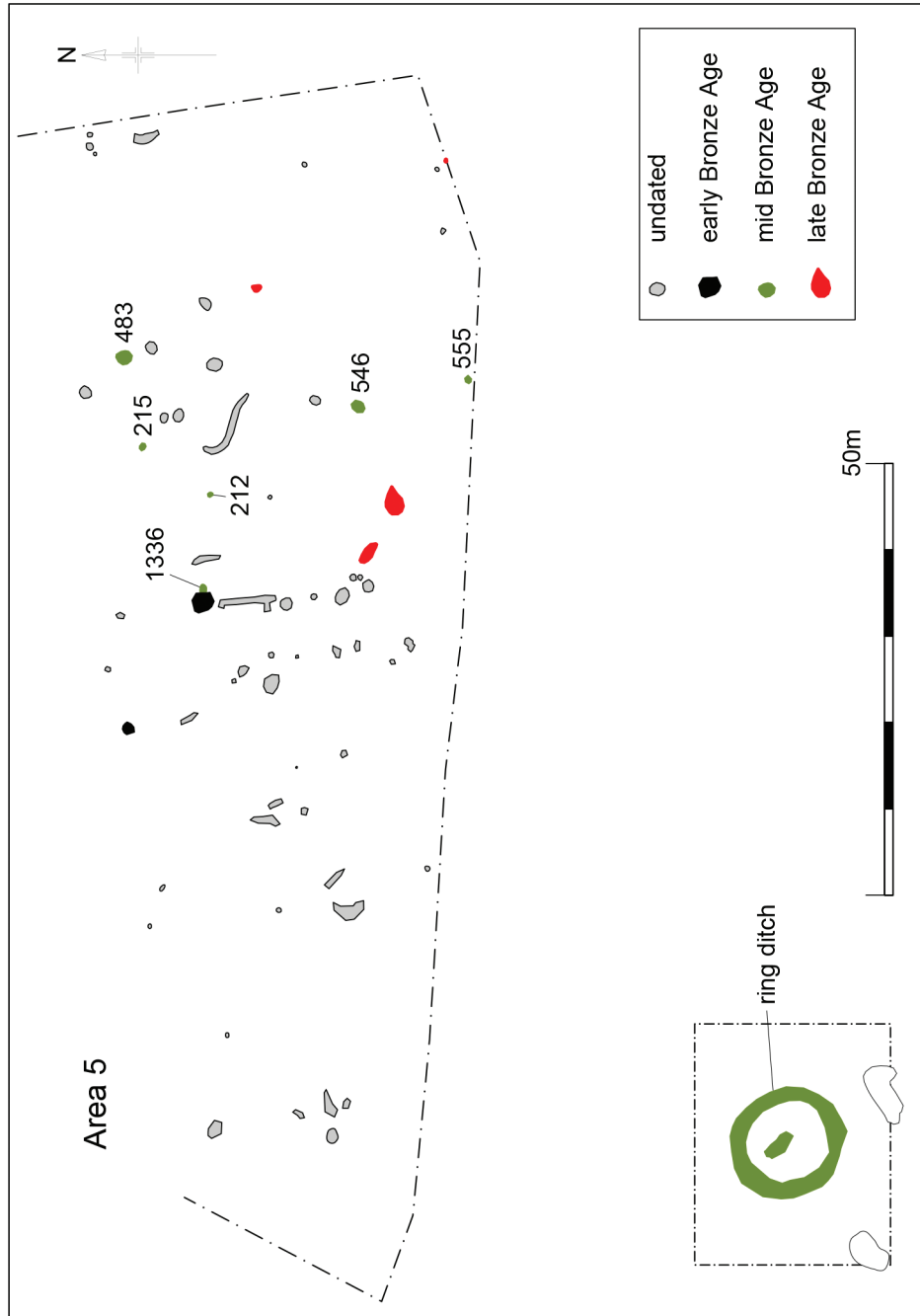


Fig. 9. Area 6 and Area 6 extension, showing Phase 2 Middle Bronze Age features.

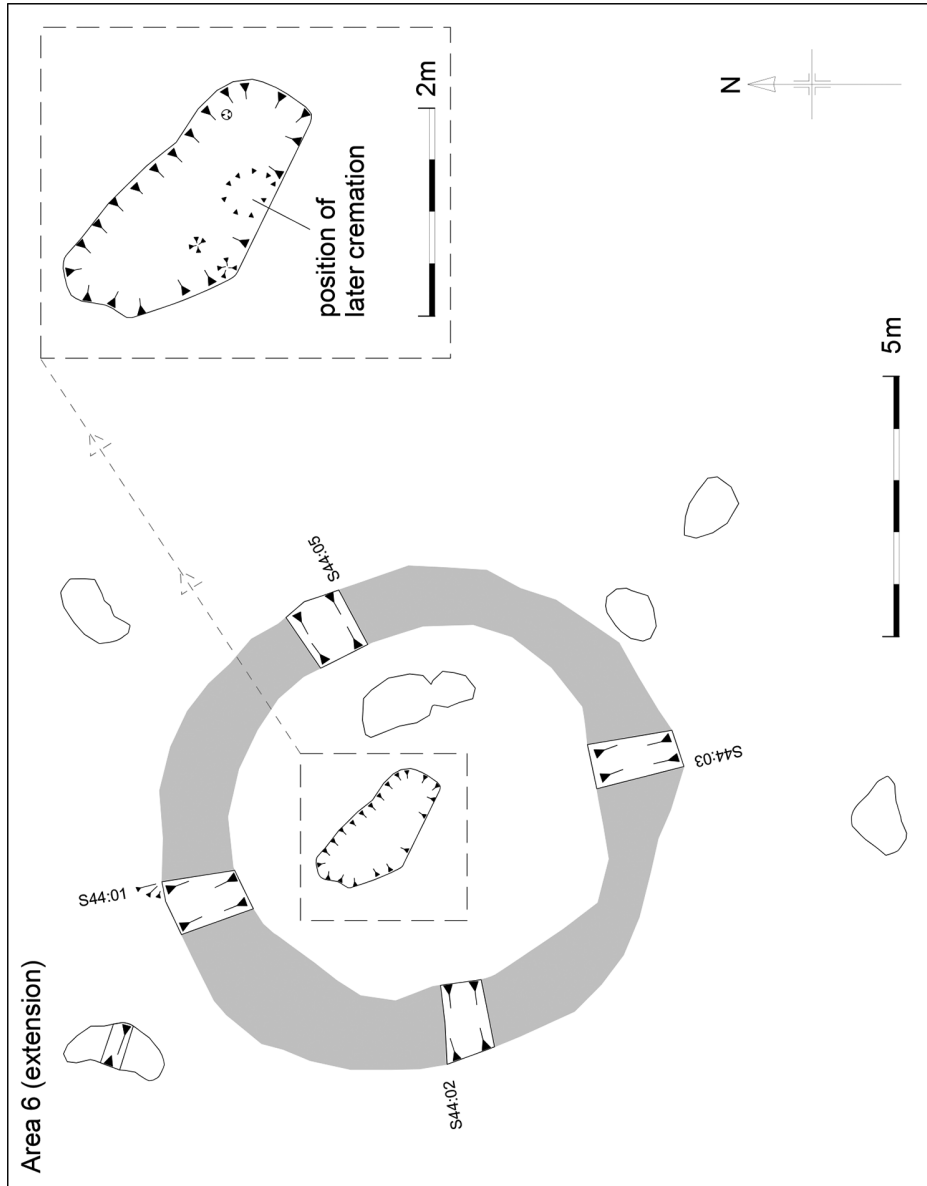


Fig. 10. Plan of ring ditch south of Area 6.



Fig. 11. Ring ditch viewed from the south-east.

the ditch appeared to have taken place rapidly with relatively homogenous layers, with evenly distributed inclusions (1543–4), (1546–7), (1556–61) and (1582–3). The primary silting-up then settled before a second period of infill. There was no evidence of re-cutting, although a series of tip lines on the external ditch edge of the southern section suggests the ditch was exposed for a period of time. No finds were recovered from any of the ditch sections.

Slightly north of the centre of the feature, a sub-rectangular pit of 2.8m long by 1.2m by 250mm deep was located (Fig. 10). The cut was poorly defined, and the fills leached and homogenous, without artefactual remains, but the shape and location of the feature suggests the possibility of an original inhumation burial. Other than burnt bone, no bone survived from the gravel terraces.

Inserted into the rectangular feature, and exactly at the central point of the ring ditch, was a secondary burial comprising an inverted Deverel Rimbury Urn containing cremated bone (Fig. 13). The pit cut was sub-square in plan, 600mm across at the surface, 400mm at the base, by 400mm deep. The urn had suffered some compaction and was cracked, with the rim being splayed outwards and with the base broken off in antiquity. Some charcoal and cremated bone were mixed into the upper portion of the pit fill. Analysis of the cremated bone by Simon Chapman suggests that the urn contained the remains of a single juvenile individual (7–15 yrs old), cremated ‘in the flesh’. The fragmented bones were heavily calcined, suggesting that high temperatures were achieved. Charcoal, presumably from a pyre, was present – along with the cremated bones.

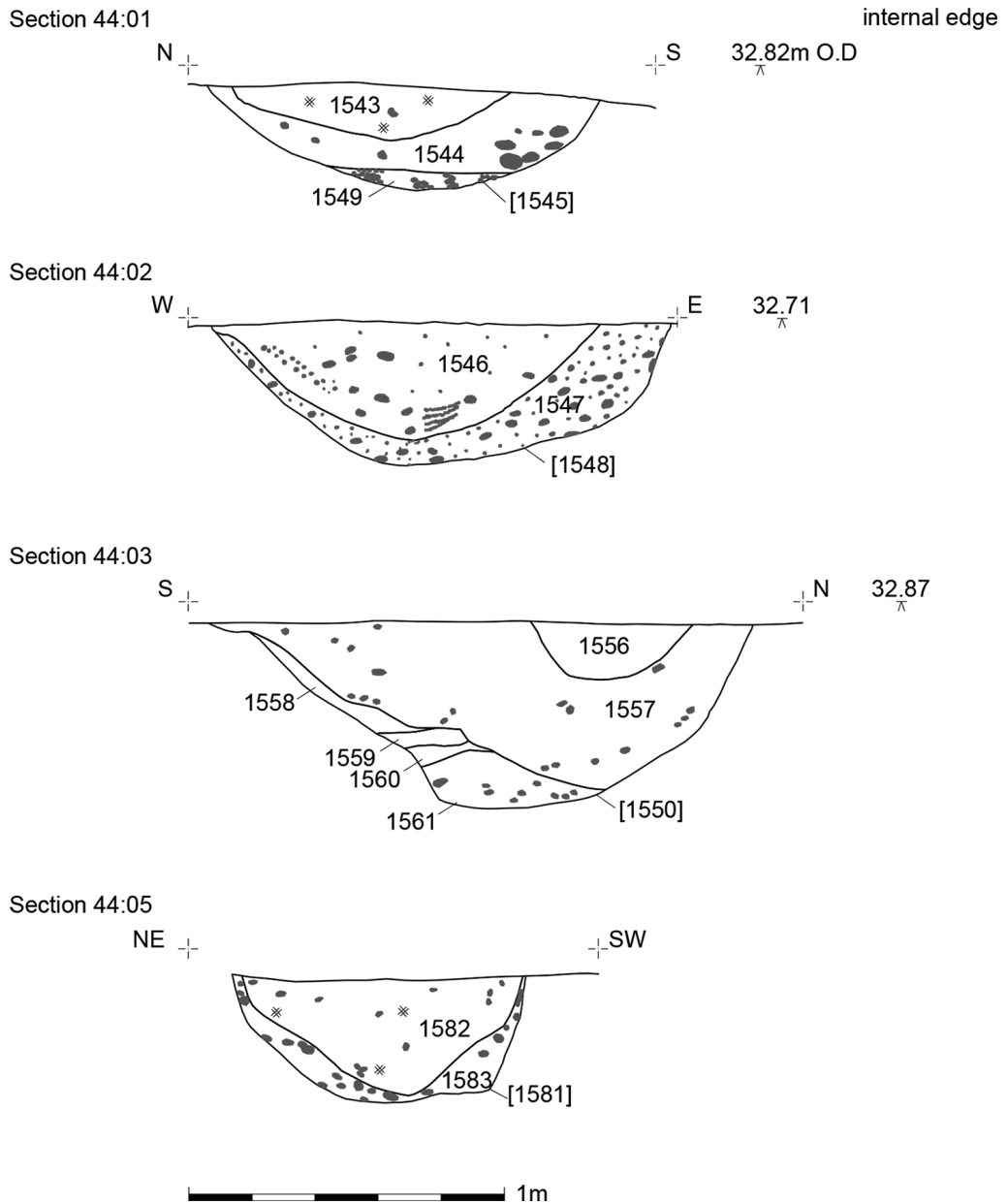


Fig. 12. Sections through the ring ditch.

Middle Bronze Age pits

Approximately 30m north-west of the ring ditch, in Area 6, a group of over 60 pits, post-holes and gullies were located. Apart from the Early Bronze Age pits (see above), a further six features contained Middle Bronze Age pottery (Fig. 9).

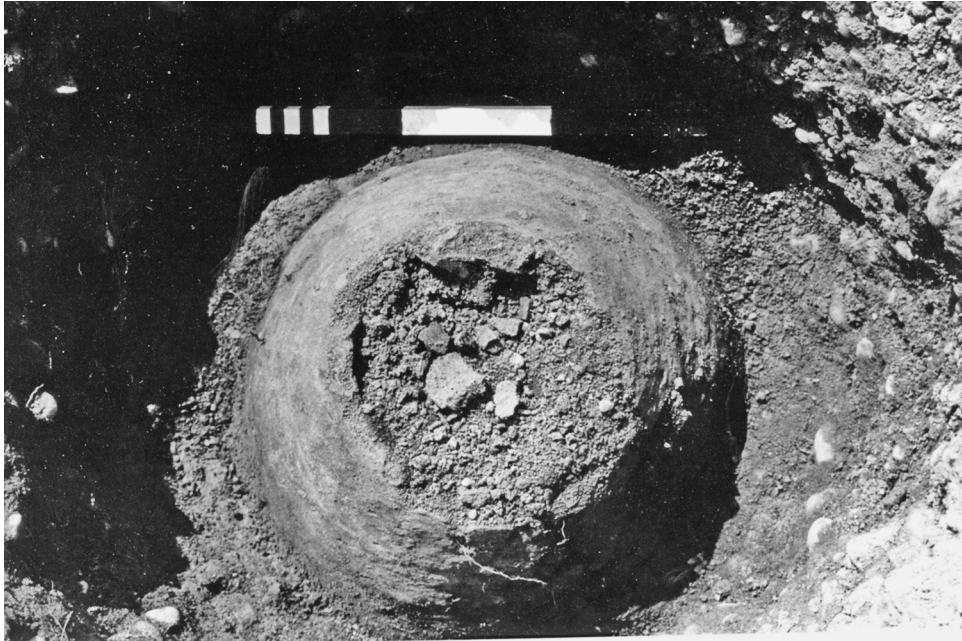


Fig. 13. Secondary cremation burial showing base of Deverel Rimbury urn.

Two adjacent pits [546] and [555] both contained ash, charcoal and fire-damaged stones. The fill of [546] included two sherds of pottery and the surrounding natural substratum was scorched, suggesting *in situ* burning. Pit [555] contained 99 sherds of pottery (1.5kg in weight), in a matrix of charcoal blackened soil, but with no evidence of *in situ* burning. A further three pits contained pottery – [483] [215] and [1336] – which also contained burnt stone and two fragments of a single cylindrical loomweight.

A small oval pit [212] contained charcoal and unidentifiable fragments of burnt bone, and large fragments of Deverel Rimbury type pottery (Fig. 14.1–2). The volume of pottery (107 sherds or 3kg) in a relatively small pit suggests a deliberate deposition. A group of 72 pottery sherds of the same date was also present residually in pit [357], in Area 10 (Fig. 18).

The Middle Bronze Age pottery

Ann Woodward

The group of diagnostic Middle Bronze Age pottery from Area 6 forms a significant contribution to the corpus of such material from the county, and from the East Midlands in general. Most of the vessels belong to a regional tradition of Deverel-Rimbury ceramics, which was defined in detail during description and discussion of the substantial assemblages of urns from the cremation cemeteries at Coneygre Farm, Nottinghamshire, and Pasture Lodge Farm, Lincolnshire (Allen *et al.* 1987).

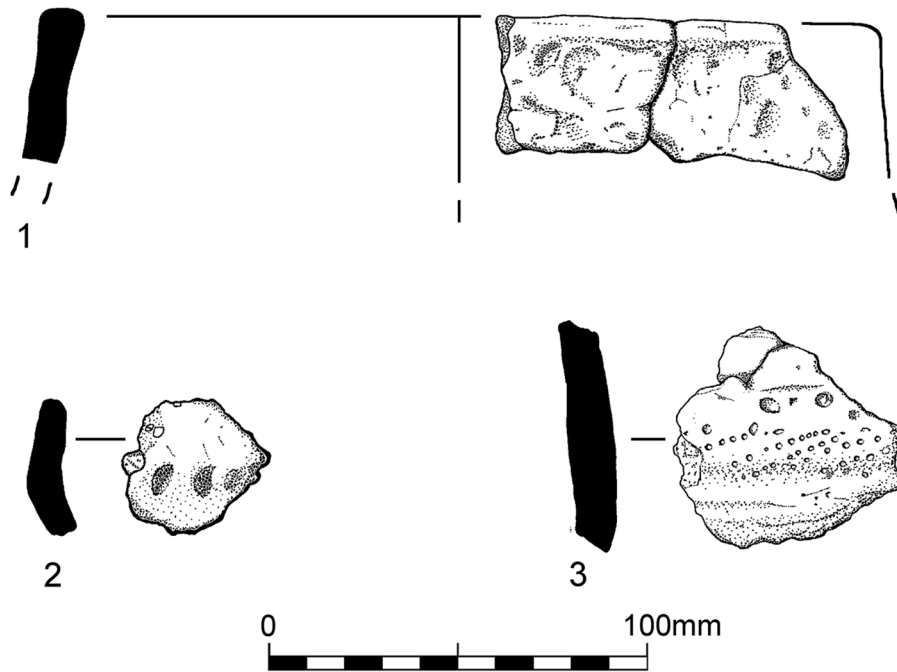


Fig. 14. Middle Bronze Age pottery. 1. [212] (216). Deverel Rimbury Type 1, rim and part of upper body. 2. [212] (216). Deverel Rimbury Type 2, rim and part of upper body, finger impressions on external surface below rim lip. Overfired or burnt. 3. (580). Sample Box 3 Burnt Mound 1 area. Sherd with broad-flattened girth cordons and point-toothed comb-impressed diagonal line motif. 1/2.

Vessels in this tradition fall into two main groups: straight-sided urns of Allen's type 1 (e.g. Fig. 14.1); and the more unusual type 2 forms, which are characterised by a distinctive profile with a markedly inturned rim and/or upper body (e.g. Fig. 14.2). Both types are represented at Willow Farm. Many of the vessels belonging to this tradition are plain; otherwise, the most common forms of embellishment are the addition of cordons and finger-tip impressed ornament. The finger-tip impressed cordon on a vessel from [212] (Fig. 14.1) can be matched at Pasture Lodge Farm, although there the cordons tend to be placed higher on the vessel (*op. cit.* fig. 14, 14 and fig. 15, 23). The diagonal lines found on the top of the rim of the same vessel are rarer, but similar decoration applied with a finger nail is also found at Pasture Lodge Farm (*op. cit.* fig. 14, 19). The uneven row of finger-tip impressions applied to the upper body, of another vessel from [212] (Fig. 14.2), is also well exemplified within the region, as at Coneygre Farm (*op. cit.* fig. 9, 26). Mixed recipe fabrics, with grog and sand as at Pasture Lodge Farm and Coneygre Farm, or sometimes including grog and igneous rock inclusions, as at Eye Kettleby, Leicestershire (Woodward and Marsden 2011) or Bromfield, Shropshire (Williams 1995, 46), are a common occurrence in Middle Bronze Age assemblages from the Midlands.

A sherd found immediately west of Burnt Mound 1, with broad-flattened girth cordons and a very unusual point-toothed comb-impressed diagonal line motif, is from a rather different form of vessel (Fig. 14.3). Similar cordons do occur on Middle Bronze Age urns throughout the eastern counties, especially in East Anglia, and the decoration does occur in Middle Bronze Age assemblages, as on the body of a vessel from Grimes Graves (Longworth *et al.* 1988, fig. 32, 247). However, it is more commonly found on Early Bronze Age pottery, including a series of Collared Urns, with a concentration in the counties of eastern and north-eastern England (Pryor 1980, fig. 59, 27; Longworth 1984 pls. 131–5). It is also found particularly on urns of the later Early Bronze Age biconical tradition in Wessex, and also in East Anglia, as at Mildenhall (Clark 1936, 40 and fig. 5, 14). Its presence on two vessels of mixed later Early Bronze Age biconical and cordoned urn affinities has also been recognised within a small assemblage of vessels from Meriden in Warwickshire (Hancocks 2005).

The Burnt Mounds

Approximately 400m north-west of the ring ditch, and on the western bank of a former palaeochannel of the River Trent, two burnt mounds were located (Figs 1 and 15). The first was discovered during the evaluation, and was subject to full excavation, while the second was identified during a watching brief and had been heavily machine truncated.

Burnt Mound I (Fig. 15) was located in a slight hollow, formed between the former river bank and a spur of higher gravel, shaped where alluvial clays had been removed as the river migrated eastwards. The burnt mound lay below *c.*0.5m of later alluvial deposits and partially sealed cut features, and the waterlogged fills of a palaeochannel. A limited programme of radiocarbon dating of organic material from palaeochannel sediments has allowed the broad dating of activity (Table 1, Fig. 4).

The original ground surface under the burnt mound was a light orange-brown clayey sand. A series of short linear scars, running in different directions, was observed, which may have been pre-mound plough scars. The main phase of burnt mound activity was represented by nine cut features.

Towards the western edge of the burnt spread was a circular hearth [610], cutting into a scorched natural sandy-clay. It had a primary fill (609) of a charcoal rich silty clay, and an upper fill (608) of charcoal, sandy clay and frequent large cracked stones. Immediately adjacent to the hearth was a rectangular feature, probably a trough, Trough 1 [625], its northern edge having been removed by a later feature (Fig. 16). The base of the cut was flat, while the sides were remarkably straight, with square corners. It is possible that the feature was once lined, perhaps with timber. It was filled with charcoal, silty clay and cracked stones (624), with an increase in the density of stones over the flat base of the cut. The stones may be remnants of a final heating episode. Flecks of daub around the edges of the cut also suggest that the timbers may have been packed with clay, perhaps to make the trough watertight, although it is also possible that the daub represents the scant remains of a clay superstructure. Just to the south-east of the trough, two

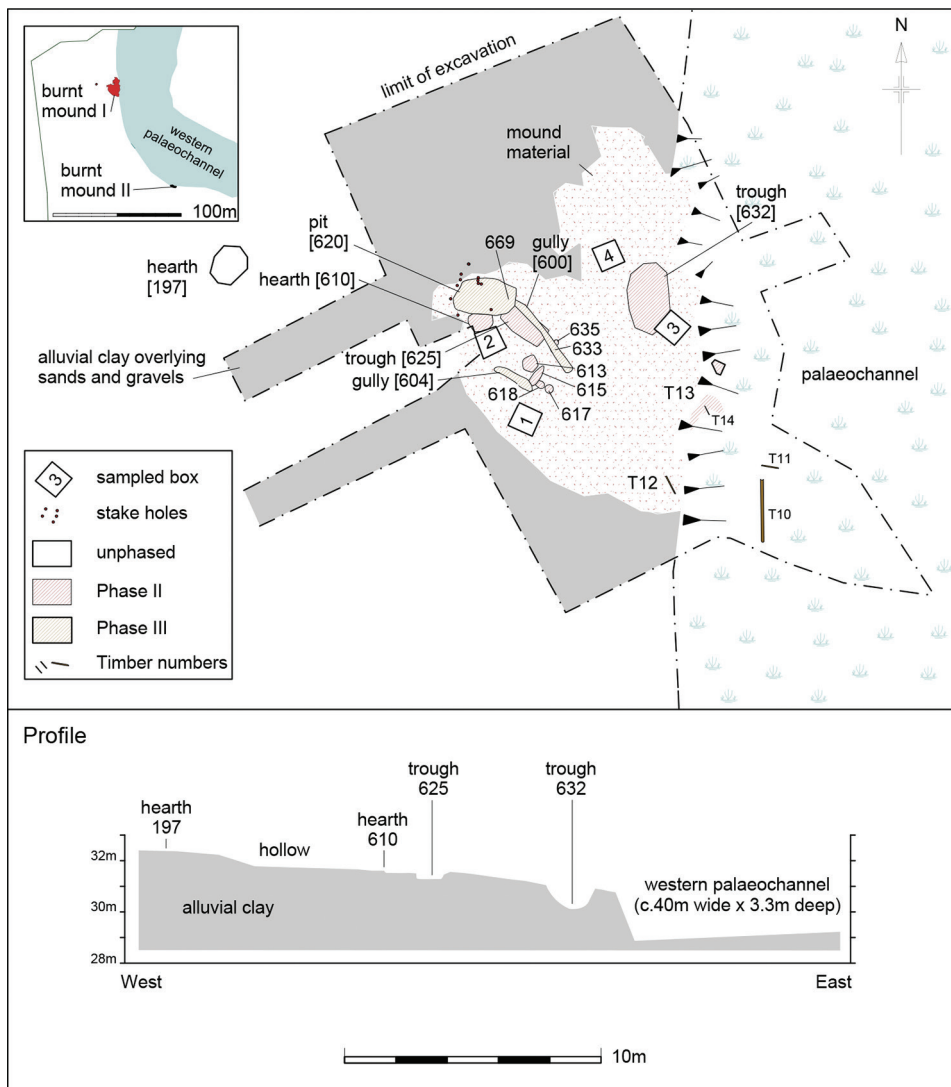


Fig. 15. Plan of Burnt Mound 1.

post-holes were noted – [633] and [635] – which may have been adjuncts of the same structure [635], containing fragments of clay daub. Four other small cuts/depressions were also noted in the locality of the trough – [613], [615], [617] and [618] – and were all poorly defined irregular pits or post-holes, again containing fragments of daub.

A second possible trough, Trough 2 [632] was identified adjacent to the western bank of the palaeochannel. The feature was roughly oval in shape, with a primary fill (622) predominantly comprising fire-cracked stones, while the upper fills were of mixed stone, charcoal and clay. Three cattle teeth were recovered from this fill. A

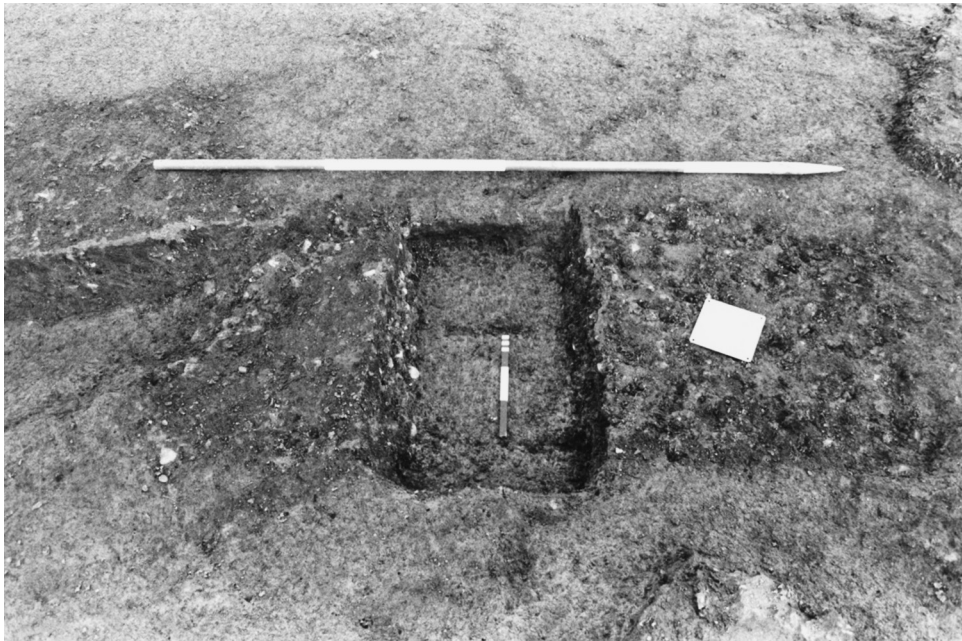


Fig. 16. Burnt Mound 1, Trough 1 [625], viewed from the south-west.

possible lining of a firm compacted layer of clay (626) was present on the western edge of the cut. The eastern edge of the trough had been eroded by inundations from the channel.

Seven metres to the west of the burnt spread a second hearth [197] was roughly circular, with a 1.5m diameter by 0.10m deep. It was filled with a dark grey silty clay with charcoal and fire-cracked stones.

The mound material of charcoal and fire-cracked stones appeared to both surround and fill all of the cut features. The spread was undoubtedly formed as the waste produced from a process that involved heating stones to a point at which they shattered. The build-up of waste was presumably the result of the clearing-out of the hearths/troughs following repeated 'firings'. The shattered stones and charcoal may have been deliberately spread-out, perhaps to consolidate marginal ground, or may just have accumulated. The mound was irregular in plan, but appears to 'arc' around both the postulated Troughs 1 [625] and 2 [632]. No stratigraphy was identified within the mound, but it is conceivable that the site was re-used over many years, with perhaps the trough being re-cut in a new location.

A contour survey of the mound, pre- and post-excavation, allowed the volume of the surviving material to be calculated (93.2m^2 by 0.20m deep = 18.64m^3), although quantities of burnt waste in the adjacent palaeochannel suggests it would once have been significantly larger. It was made up of very dark grey sandy-clay with frequent charcoal and cracked stone fragments. Hearth 1 contained generally larger stone fragments, suggesting they could represent a final heating event, after which the hearth was not emptied.

The spread was well defined on the higher ground (north, west and south), but was less so to the east where it extended over the marginal ground at the edge of the palaeochannel. It may have been eroded by subsequent flood events. Within the palaeochannel the stone spread could be clearly seen to lie over a peaty clay layer, suggesting that the channel was marshy ground when the burnt mound was in use. Amongst the burnt stone layer two fragments of cattle bone were recovered. Peaty clay with frequent reed fibres also formed a layer over the stone spread, suggesting that the environmental conditions did not significantly change.

A group of later features could be clearly seen to cut through the burnt mound. An oval pit [620] contained a sandy-clay fill with frequent charcoal and cracked flints (presumably derived from the burnt mound). A possible post-hole [669] was cut into the base of the feature at its southern end. Fragments of daub or fired clay were recovered from both the pit and the post-hole, but again these probably derived from the burnt mound. Twelve possible stake-holes were loosely arced around the northern end of the oval pit, which may have supported a superstructure. Two poorly defined linear gullies were noted, [600] and [604], immediately to the south of the oval pit. No pottery was recovered from the mound itself, although just beyond the western periphery of the burnt spread 12 sherds of prehistoric pottery were identified, including two sherds of a Bronze Age cordoned urn with impressed comb decoration diagonally across the cordon (see above; Fig. 14.3). Seven cattle and one pig bone fragments were recovered from the western palaeochannel contemporary with the burnt spread. One cow/ox bone is scraped, showing possible evidence of skinning.

The burnt mound material could be clearly seen to have spread into the adjacent silted palaeochannel. Sieved organic sediment from this sequence was submitted for radiocarbon dating. Although such a limited number of samples combined with the use of bulked material for Standard and not AMS accelerator determination precludes certainty, the radiocarbon dating suggests a channel that was silting up during the Early Bronze Age, while the burnt mound was in use in the Mid- to Late Bronze Age (Table 1, Fig. 4). A simple model to test the dates below and above the burnt mound layer shows agreement between the stratigraphical position and radiocarbon ages of the samples (Amodel = 72; Fig. 17).

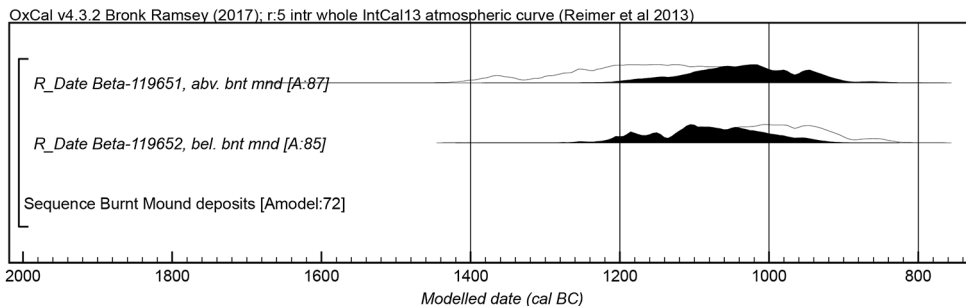


Fig. 17. Modelled radiocarbon dates from Burnt Mound I.

Burnt Mound II

Monitoring of the machine stripping of the rest of the northern portion of the development area was regularly undertaken to set Burnt Mound I into a wider context. Approximately 80m to the south of Burnt Mound I, a second spread of burnt material was noted (Fig. 15). This layer of mound material also lay on the west bank of the western palaeochannel, and consisted of a similar mix of charcoal and fire-cracked stones. It had been heavily truncated during the stripping, but had survived where it had spread into the palaeochannel. No cut features were identified.

Environmental evidence from Burnt Mound I

Charred plant remains

Angela Monckton

Nineteen contexts from both troughs, both hearths and the mound were sampled for charred plant remains, including four sample boxes (Fig. 15). Slightly less than a quarter of the burnt mound (360.5 litres of material) was sieved. The residues from ten contexts included plant remains, with five of the samples having some evidence of cereals. Generally, the charred plant remains were sparse, with a single wheat grain identified from Trough 1, and some wild plant seeds from Hearth 2 and the mound samples. Box 2 (Fig. 15) contained greater quantities of cereal grains: seven barley grains, two indeterminate cereal grains and two wheat glumes. Charred hazel nut fragments were found in very low numbers in Trough 1, Hearth 1 and from a mound sample (four fragments). Nuts may have been eaten on the site, but they may equally have been introduced to the site with wood fuel.

While the presence of cereal grains certainly suggests they were locally cultivated, the numbers of grains found are too low to suggest whether or not they were prepared and/or consumed at the burnt mound site. The preparation and/or consumption of cereals and nuts may have taken place at the burnt mound, although the low incidence of food debris suggests this was not its primary purpose.

The waterlogged plant remains

Angela Monckton

Three sub-samples from Column 3 and a sample from Trough 2 [632] were analysed for waterlogged plant remains. The samples showed evidence for a variety of waterside vegetation that have a preference for growing in slow-flowing water conditions. Below the burnt mound there was slightly stronger evidence of marshy conditions, although open vegetation was also represented in all the samples, which included damp grassy vegetation perhaps used as pasture. There were some indications of disturbed ground, particularly from the top of the section, post-dating the mound. Silverweed was notable from Trough 2 [632] as it grows on sandy soil. The land plants were dominated by plants of open ground, particularly those of disturbed ground, together with grasses and some plants of grassland. This indicated a cleared environment with little evidence for scrub vegetation in the area.

The pollen

Frances Green

Pollen was analysed from Column 3 pre- and post-dating the mound, with the two samples only showing slight differences. *Alnus* and *Corylus* dominated both. *Quercus*

was found at low levels (10–15 per cent) and other trees (*Betula*, *Pinus*, *Ulmus* and *Tilia*) contributed only a small proportion of the total land pollen. Grasses made up 6 per cent. Aquatic species indicating the presence of permanent open water or wet marshy areas include *Potamogeton*, *Typha latifolia* and *T. angustifolia* (pondweed and bulrushes). *Calluna* (heather) was found in both samples and typifies heathland, the development of which may be related to human disturbance of the landscape.

There was a slight increase in ruderal species above the burnt mound, especially Compositae *tub.* *Plantago media/major* (plantain), *Spergula Chenopodiaceae* and *Caryophyllaceae*, reflecting an increase in disturbed ground possibly related to the use of the burnt mound or to an exploitation of land close by.

There were occasional Cereale pollen grains in the upper sample, which together with a peak in *Plantago lanceolata* may indicate either local agricultural activity or that these grains had been imported to the burnt mound site, possibly in food. There is a reduction in *Corylus* in the upper sample, which may suggest the burning of hazel in the burnt mound, but this is very tentative. *Hedera helix* (ivy) is a shade tolerant species and reflects the dense tree cover in the local woodland in the lower sample.

The insects

David Smith

Water beetles dominated the samples taken from all three levels of Column 3 (pre-burnt mound, the mound material and post-burnt mound), with a distinct tendency towards species which had a preference for still, slow-flowing or even stagnant water. Ground conditions were indicated by species with a preference for muddy areas around bodies of water, or in amongst stands of water side vegetation. A few species indicated that some areas of the banks may have had a sandy substrate. Of the plant feeding (phytophages) species of beetles, the vast majority came from species that come from the stands of surface, emergent and waterside vegetation. The phytophages also suggest that a wide range of tall emergent waterside plant species were present, including a variety of reeds (common reed, common club rush, bur reeds and the reed sweet grass), suggesting a reed bed at the water's edge.

A very small number of woodland insects were identified and of those that were, all were from species associated with alder and willow trees: both trees that will tolerate wet conditions. The absence of dry land species may suggest that the environment surrounding the channel, at least on a medium scale, was predominantly cleared of woodland.

It would also appear that areas of pasture, meadowland or grassland were present in the wider area. This is indicated by the various *Aphodius* ('dung beetles') present. These usually are associated with the dung of herbivores lying in the open. *Phylopertha horticola* ('chaffer') is associated with areas of grassland where its larvae feed on the roots of grasses.

The faunas from the burnt mound were essentially the same as those from the wider environment described above. There were no species that were specific indicators for the presence of human or domestic waste. Equally, neither the beetles nor the few fly remains present suggest the presence of decaying animal flesh or bone, such as that from cooking waste.

PHASE 3 LATE BRONZE AGE

Late Bronze Age settlement was identified in Area 5 and Area 10, together with a more dispersed group of features along the eastern perimeter of the site (Field 9). Both settlement areas included at least one post-built roundhouse and possible post-holes, which may include remnants of further post-built structures together with several pits (Fig. 18).

The roundhouse structure consisted of nine post-holes *c.*5.5m in diameter, with a further four in two pairs, representing a probable eastern entrance (Figs 19 and 20). The southern post-hole of the entrance contained large quantities of vitrified Late Bronze Age pottery and five loomweights. To the east of this structure two groups of post-holes appear as ‘arc’ in plan, and may be the vestiges of further post-built structures.

A number of features were identified towards the east of the development in Area 10, with other features to the north and west becoming more dispersed westwards. The features included a pit alignment, another probable roundhouse, a concentration of *c.*70 pits/post-holes, together with hearths, stake-holes and linear gullies, and 32 other more dispersed pits/post-holes (Fig. 18). The concentration of pits/post-holes, hearths and other features did not immediately lend itself to interpretation in plan, although some intercutting features suggest repeated use.

The pit alignment comprised a sequence of 12 pits (1m–3m diameters), in general closely spaced, but with a series of apparent ‘gaps’ (Fig. 21). The fills were all similar dark brown silty sand, with larger densities of pebble inclusions in the lower fills (Fig. 22). Although grouped with the Late Bronze Age phase, no datable material was recovered from the pits, and they may have been of Iron Age date.

The Late Bronze Age pottery

Patrick Marsden

The pottery from this phase was the most common from the site (776 sherds weighing 5.5kg). This group is attributable to the tradition of post-Deverel-Rimbury (PDR) plainwares which were current in this region during the early first millennium BC, *c.*tenth–ninth century BC, and possibly the very late second millennium BC (Barrett 1980; Knight 2002). Key components of this ceramic tradition include round-shouldered and carinated forms, and ovoid, ellipsoid and open vessels (e.g. Barrett 1980, fig. 5). The presence of tapered rims, pronounced finger-smearing or smoothing, and the thin-walled nature of the vessels, is also typical of PDR plainwares of the Late Bronze Age (Fig. 23.1–4).

A small number of other sites in the East Midlands have produced PDR plainware assemblages. These include Stickford (Knight 2002), Billingborough (Chowne *et al.* 2001), Langtoft (Knight 1999), Tetney (Palmer-Brown 1993) and Welland Bank (Pryor 1998) in Lincolnshire. In Leicestershire, PDR groups are known from Lockington (Meek 2000), Eye Kettleby (Woodward and Marsden 2011) and Glen Parva (Briggs 1990). Other sites include Catholme, Staffordshire (Losco-Bradley and Kingsley 2002), Thrapston, Northamptonshire (Hull 1998) and Northborough, Nine Bridges, Cambridgeshire (Knight 1998).

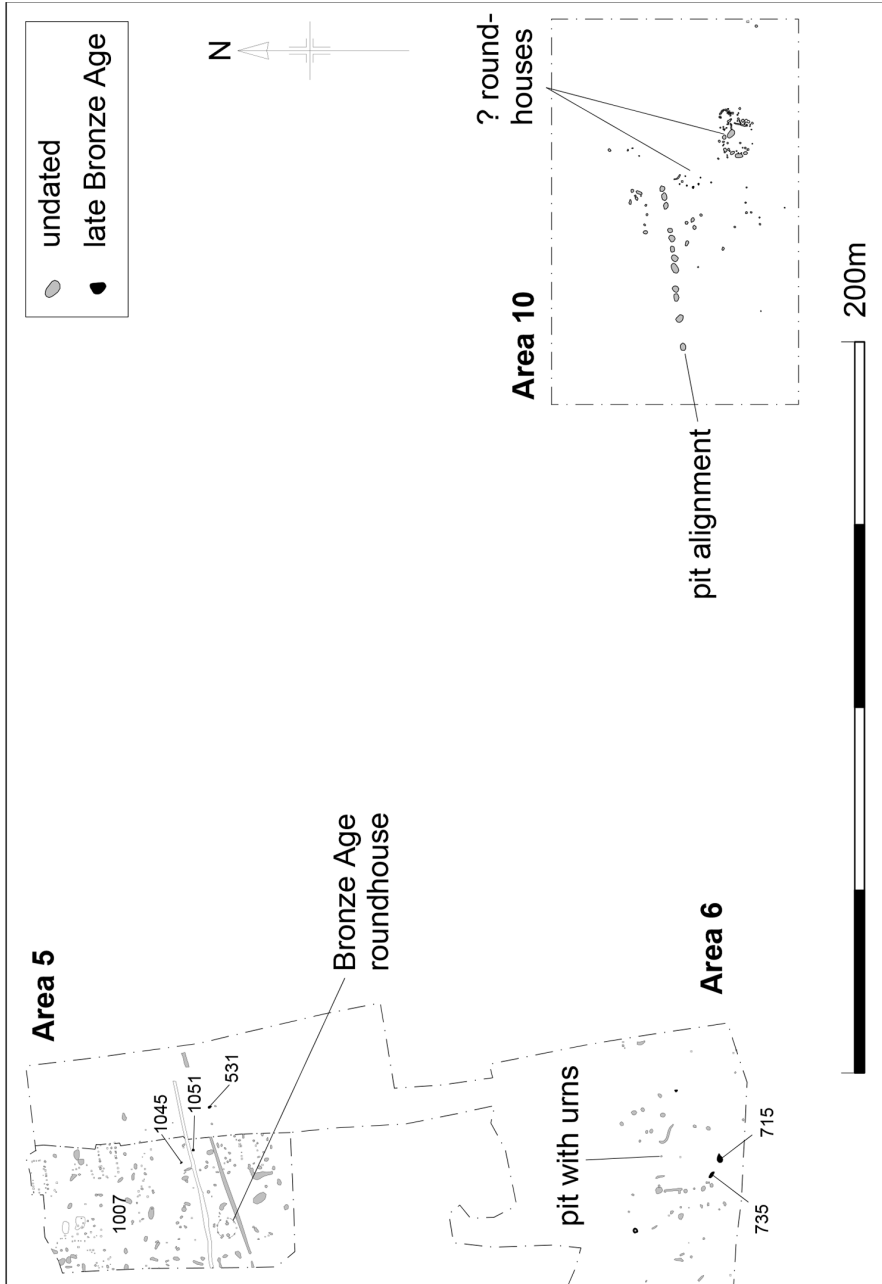


Fig. 18. Areas 5, 6 and 10 showing the location of Phase 3 Late Bronze Age features.

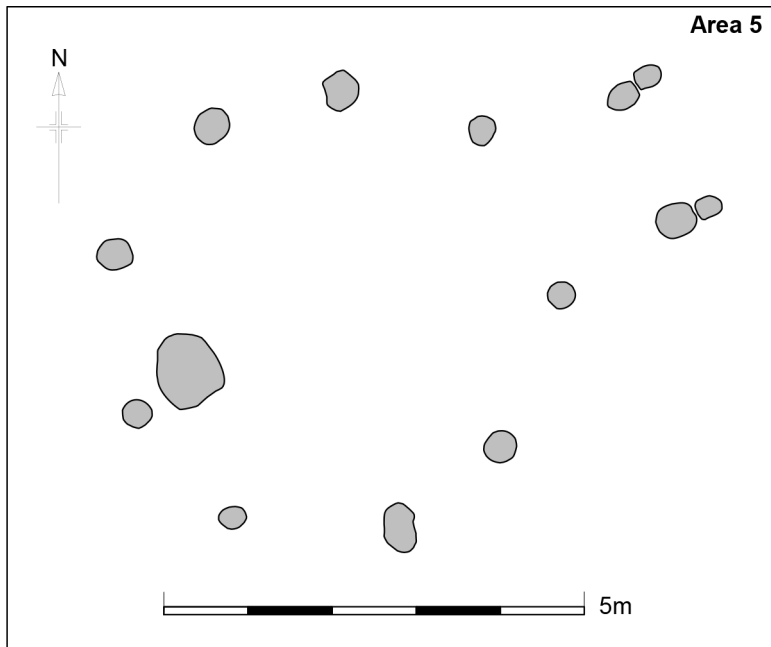


Fig. 19. Area 5 roundhouse.



Fig. 20. Area 5 roundhouse viewed from the south.

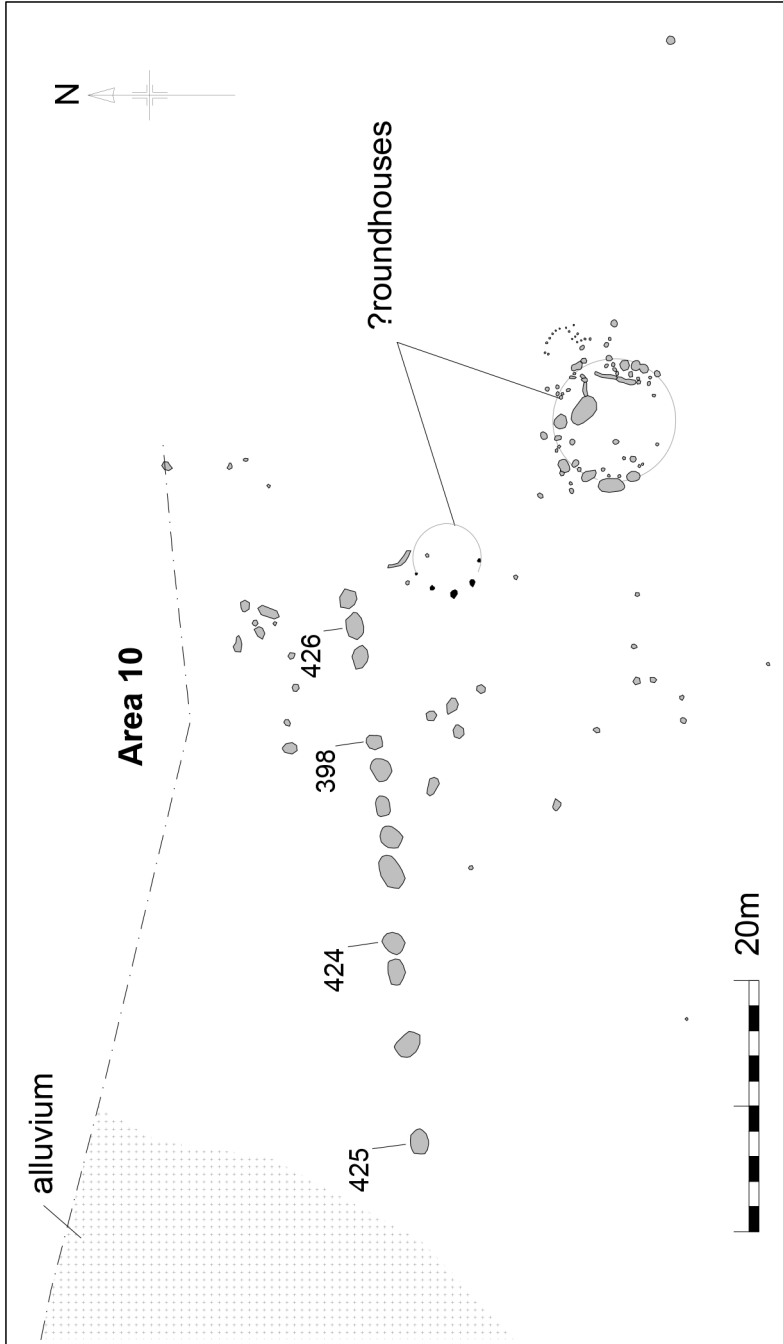
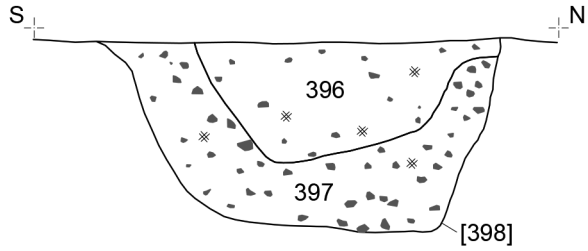


Fig. 21. Area 10 pit alignment and possible roundhouses.

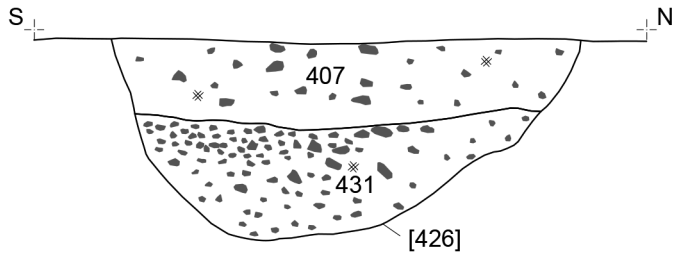
Section 10:01



Section 10:02



Section 10:03



Section 10:04

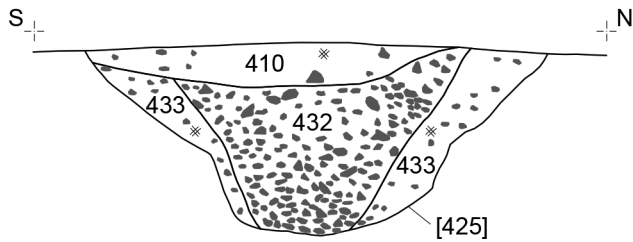


Fig. 22. Area 10 pit alignment. Sections of pits [398], [424], [426] and [425] (see Fig. 21).

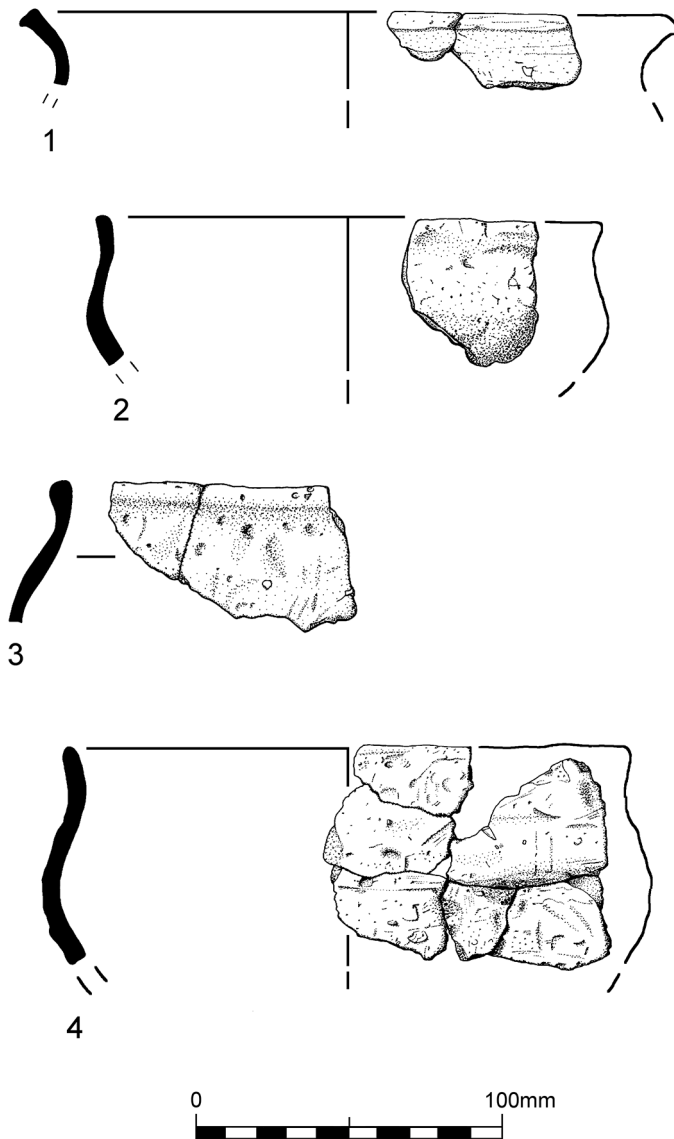


Fig. 23. Late Bronze Age post-Deverel-Rimbury pottery. 1. [428] (237). 2. [286] (285). 3. [743] (744). 4. [373] (368).

PHASE 4 EARLY ANGLO-SAXON

Evidence for Early Anglo-Saxon activity on the site is widespread but mostly disparate (Fig. 24). To the north and north-west, Early Saxon pottery was recovered from the trenches across the palaeochannels, from a surface assemblage and from an isolated small pit during the watching brief in field 9. In Area 10 three pits contained Saxon pottery, while immediately south-west of Area 6 the watching brief revealed

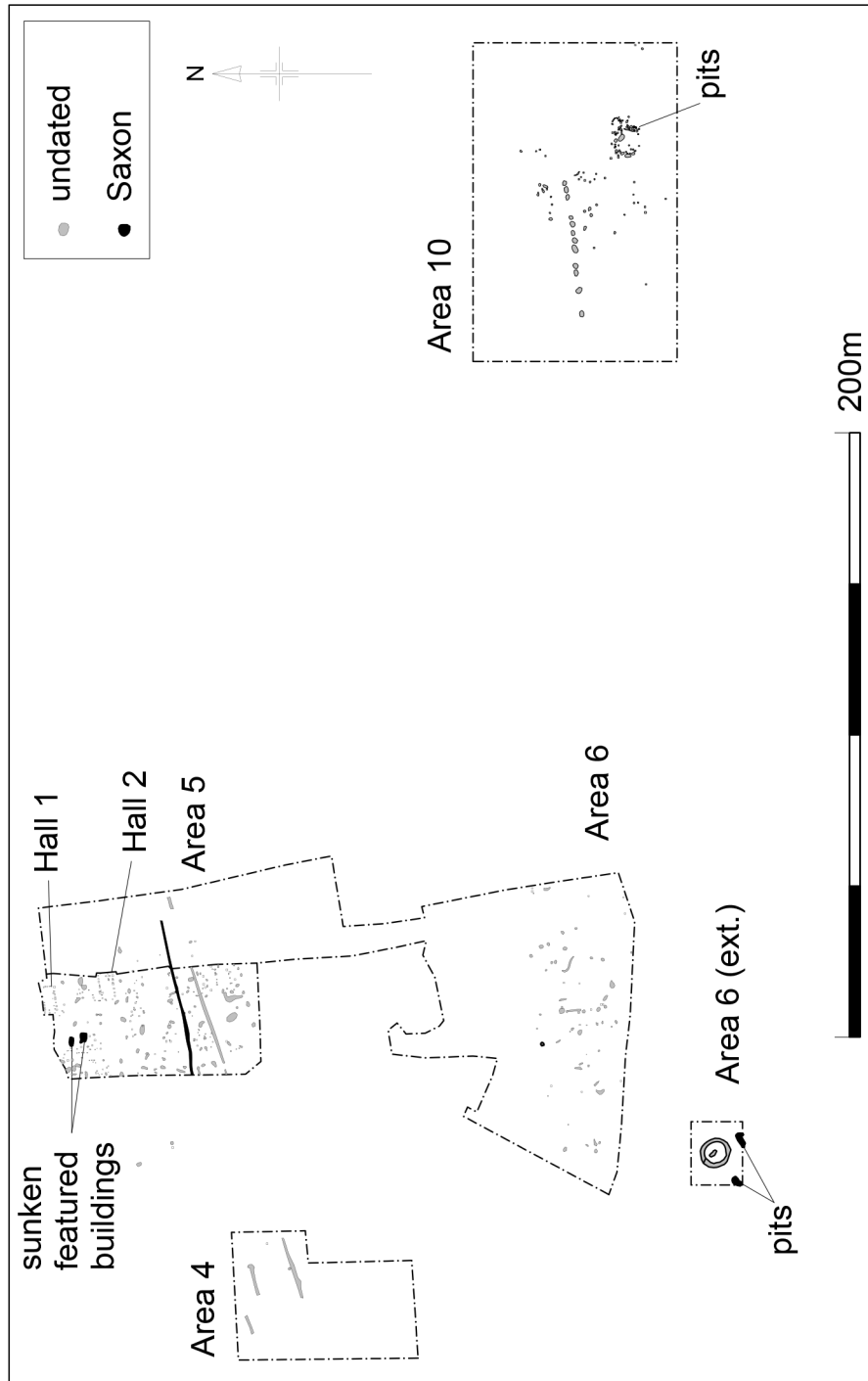


Fig. 24. Areas 4, 5, 6 and 10 showing the location of Phase 4 Early Anglo-Saxon features.

two scooped shallow pits with Saxon pottery, which may represent ploughed out sunken featured buildings. Only in Area 5 is there definite domestic habitation, with two post-built hall-houses, one post-built sunken featured building, and a probable post-less sunken featured building, all within 25m of each other (Fig. 25). The Early Saxon material can be dated to between AD 450 and 650.

Two rectangular post-built structures were revealed in Area 5 (Figs 25–29). Although there is no definite dating evidence, these are interpreted by their form as Early Anglo-Saxon hall houses. Hall House 1, on the northern edge of the stripped area, was *c.*8m by 4m, with the long axis east–west. It appears to have suffered truncation, with several of the post-holes surviving to only 0.15m or less, and some gaps on the north side presumed totally truncated in the shallow ploughsoil. Two adjacent post-holes in the centre of the south side may represent an entrance. Hall House 2, *c.*20m down slope to the south, was better preserved; this was parallel to Hall House 1, but slightly larger at *c.*8.5 by 4.5m. The short axis end wall lines appear to be less well defined than the long axis ones.

A Saxon sunken-featured building was located west of the two hall houses, and Saxon, pottery and a loomweight was recovered from the fill (Figs 30 and 31). A sample taken from the fill contained a few charred cereal grains of barley and free-threshing wheat with arable weed seeds. The building is sub-rectangular *c.*3m by 2.5m, cut 0.20m into the natural gravels, with two deep post-holes at each end of

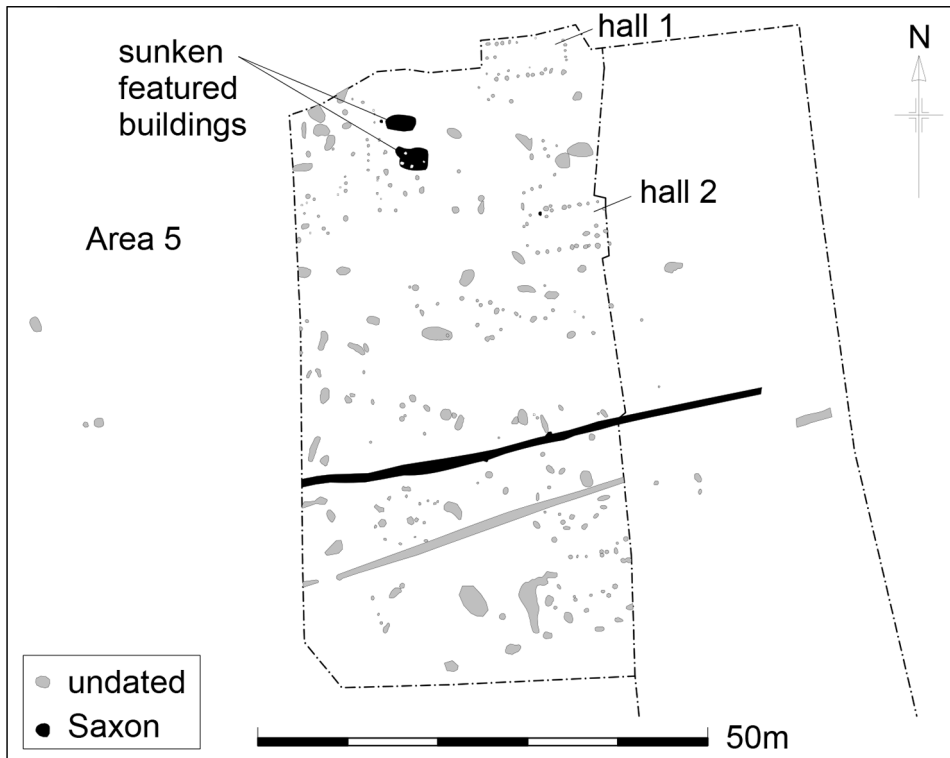


Fig. 25. Area 5 showing the location of Hall Houses and sunken featured buildings.

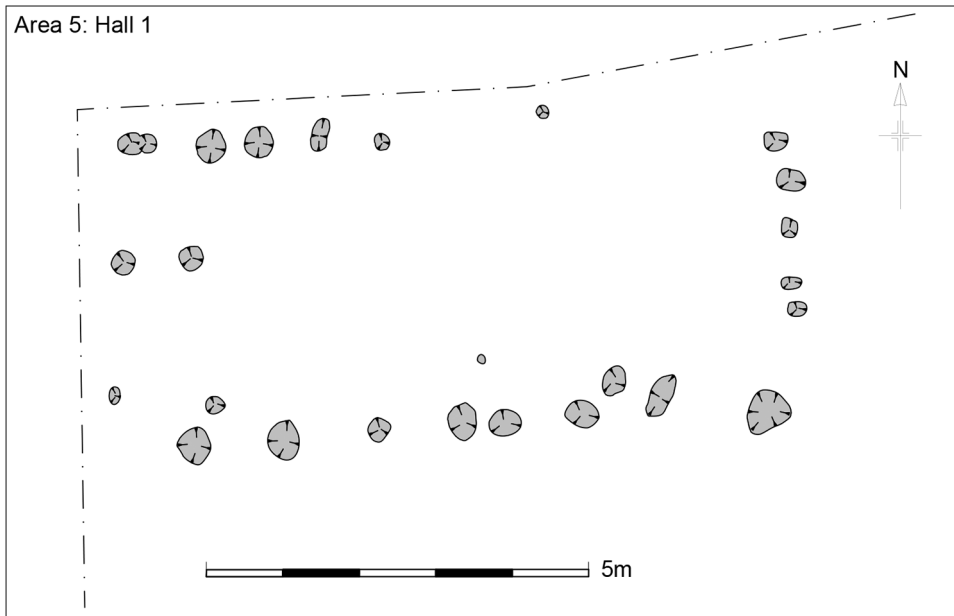


Fig. 26. Area 5 Hall House 1 (see Figs 24 and 25 for location).



Fig. 27. Area 5 Hall House 1 viewed from the east.

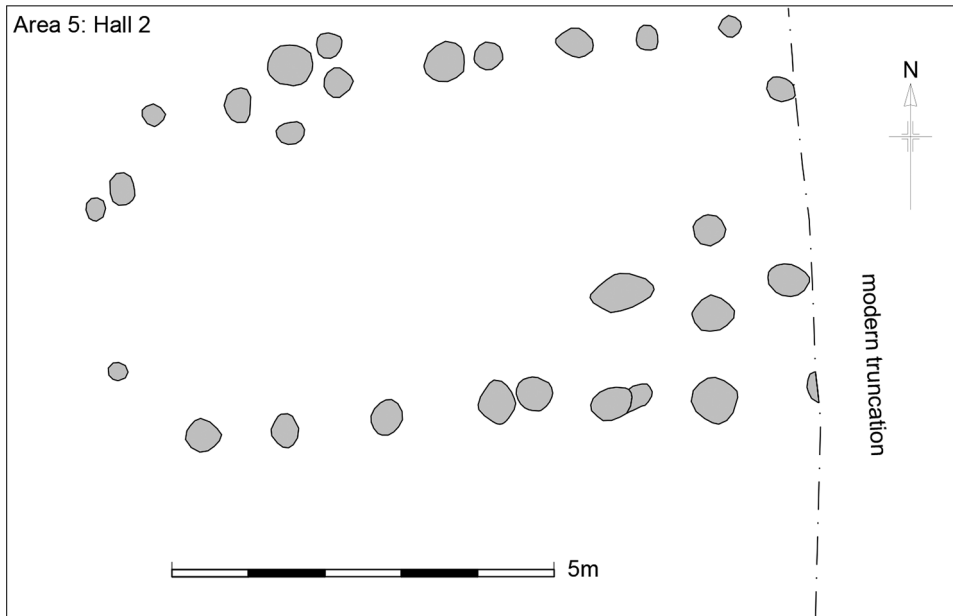


Fig. 28. Area 5 Hall House 2 (see Figs 24 and 25 for location).



Fig. 29. Area 5 Hall House 2 viewed from the east.

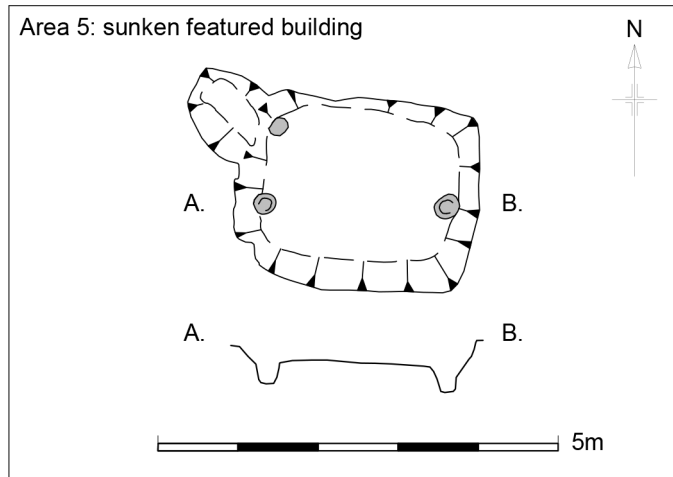


Fig. 30. Area 5 sunken featured building (see Figs 24 and 25 for location).

the long east–west axis. On the north-west corner is a step down cut into the gravel, which was possibly an entrance off-set to avoid the main post on entry.

Immediately to the north was a very shallow scoop of similar plan, which contained one sherd of Saxon pottery. Although no post-holes were present, this too may represent the truncated remains of a sunken featured building.

In Area 5 an east–west aligned ditch may have formed a boundary and Saxon pottery was recovered from the fill. A second almost parallel ditch some 7m to the south was also noted, which cut through the Late Bronze Age circular structure. These ditches appear to continue into Area 4 to the west (Fig. 24).

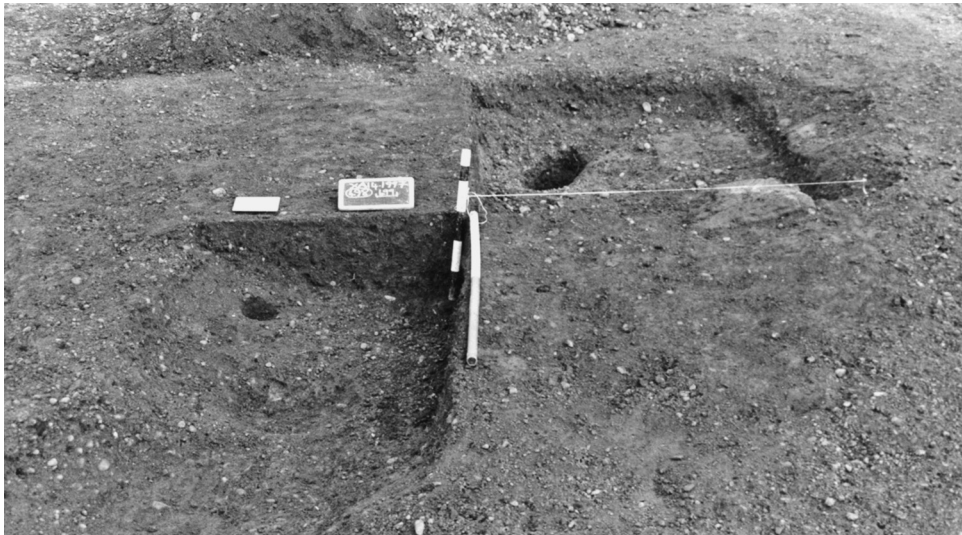


Fig. 31. Area 5 sunken featured building viewed from the north-east.

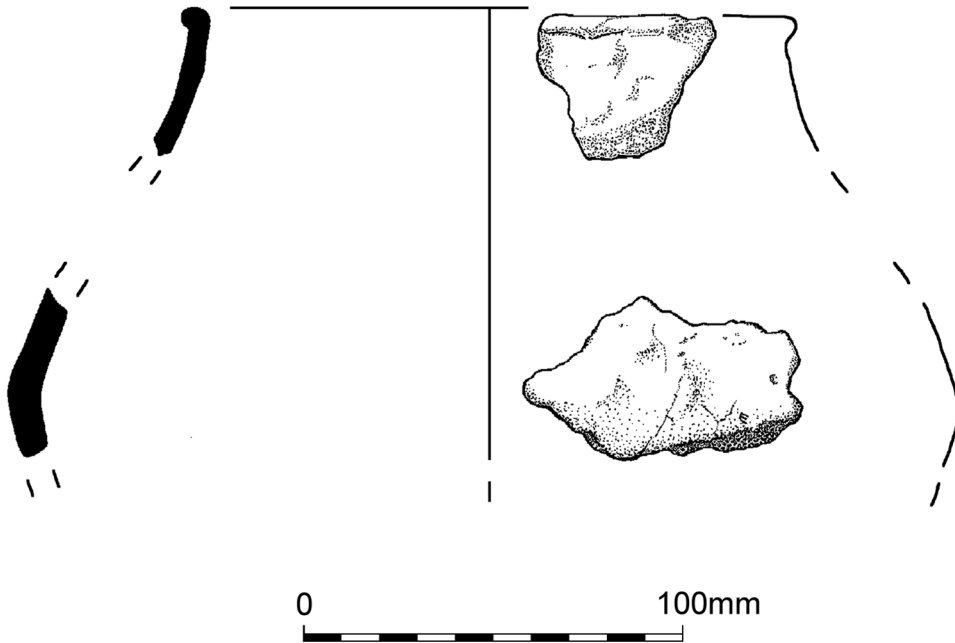


Fig. 32. Anglo-Saxon pottery. Globular form from sunken featured building.

The Anglo-Saxon Pottery

Nicholas J Cooper

In total, 198 sherds of early Anglo-Saxon pottery were identified widely distributed over the site, 110 of which (70 per cent by weight) being recovered from the sunken featured building. Where rims or partial vessel profiles can be reconstructed, the forms are globular with upright or slightly flaring rims (e.g. Fig. 32).

Only one decorated vessel has been recognised from the assemblage coming from the fill of the sunken featured building. The vessel is globular with a short upright rim; the shoulder is decorated horizontally with three parallel, incised grooves, above which is a row of hot-cross bun stamps immediately below the rim (five evenly spaced stamps are preserved). This is one of the most common stamp forms found on decorated forms and indicates a sixth century date.

DISCUSSION

The excavations at Willow Farm confirm the multi-period focus of this part of the Trent valley (cf. Score and Kipling 2015). Human activity was evident from the late Upper Palaeolithic through to the medieval period. While the earlier periods are characterised by the presence of lithic artefacts, there is more tangible evidence from the Early Bronze Age onwards. The site lies within a wide monumental landscape, with the Lockington Barrow cemetery to the east, and the Aston Cursus and further ring ditches over the River Trent to the west (Cooper 2006; Score and Kipling 2015). The site adds to the growing evidence of ceremonial monuments and settlement that suggests that both sides of this stretch of the river had great significance for prehistoric and later communities (Knight and Howard 2004).

Early Bronze Age

A disparate series of pits and post-holes was located in Area 5, some of which contained Early Bronze Age pottery. Of note was Pit [742], which included charred plant remains comprising crab apples, abundant hazel nutshell, a moderate number of cereal grains and a few weed seeds. The cereals were identified as barley, together with some glume wheat, emmer or spelt, and indeterminate grains. A radiocarbon date of 2210–1890 BC at 95 per cent probability was obtained from one of the crab apples. A combination of wild and cultivated foods have been found on other sites of these periods (Moffett *et al.* 1989). Crab apples are known from late Neolithic contexts including West Cotton, Northamptonshire (Allan *et al.* 2013), and hazelnut shell from many sites including Eye Kettleby (Monckton 2011) and Briar Hill, Northamptonshire (Perry 1985). Barley is more common from the late Neolithic onwards and is more suited than wheat to growth in cool wet conditions (Rowley-Conwy and Legge 2015, 440). It may have been a source of malt sugars connected with the production of ale (Dineley and Dineley 2000) and crab apples may also have been a source for fermented drinks (Piggott 1981, 53).

Middle Bronze Age

A small ring ditch 10m across was located to the south of Area 6, with a rectangular feature which would have been the location of a central burial, although no bone survived. Cutting this feature was a secondary burial comprising a Middle Bronze Age bucket urn containing the cremated remains of a single juvenile individual (7–15 years old). There are numerous examples of ring ditches along the River Trent, although their distribution is somewhat biased in favour of the river terraces with good cropmark visibility; for example, within the Aston cropmark complex, and west and east of Weston-on-Trent (Knight and Howard 2004, 59). North of the river, Swarkestone Lowes, contains several barrows with mounds surviving. This example does not appear to be part of a barrow cemetery, although it may be part of a dispersed group, similar to the Lockington barrow cemetery further to the east (Cooper 2006, 8).

The site also has evidence of domestic activity, with some pits and post-holes associated with Deverel Rimbury pottery. Of note is the large volume of this pottery in a small pit [21], which suggests a deliberate Structured deposit.

Associations of settlement evidence with Deverel Rimbury ware is rare in the Trent valley (Knight and Howard 2004, 86). Similar to the evidence from Willow Farm, these usually comprise sparse scatters of pits or post-holes with no clear patterning (e.g. Gonalston, Nottinghamshire; Elliot and Knight 2002).

The Burnt Mounds

The characteristics of Burnt Mound I were as those found elsewhere in the country: a proximity to water, troughs capable of holding water, two hearths with evidence that they were used to heat stones, and a mound, albeit shallow, of waste charcoal and fire-cracked stones. It is assumed that locally sourced rocks were heated in the hearth and transported to the water-filled trough to produce boiling water or steam.

With high temperatures and/or frequent use, the rocks gradually shattered and were discarded along with spent fuel, which eventually formed the ‘mound’ surrounding these features.

Two troughs were identified, the rectangular, flat-bottomed Trough 1 being similar to a well-preserved example recorded at Willington, Derbyshire, some 25km upstream. The Willington Burnt Mound II trough was of comparable dimensions (2.2m by 1.3m by 0.2m deep; Beamish 2009), but was lined with *in situ* whole and split alder logs, supported by upright corner posts. A rectangular trough, lined with two oak planks and a single vertical supporting each side, was also observed at Pig Pens, Tilm, Nottinghamshire (Garton and Priest 1998). However, fragments of daub in the fill of the Willows Trough 1 suggest the possibility that either the trough was lined with clay, or that the feature had some form of superstructure, perhaps an oven.

Locally, circular troughs have also been identified at Willington (Beamish 2009, Burnt Mound I), Gonalston, Nottinghamshire (Elliott and Knight 1999) and Birstall, Leicestershire (Ripper and Beamish 2012). At Birstall the circular base was lined with planks, while the sides were supported by woven willow withies. At Willington and Gonalston, multiple pits suggest the troughs were either re-dug or had multiple functions.

Both hearth features at Willow Farm were clearly identified by scorched earth surrounding the cut. Two hearths were similarly identified at Birstall, Leicestershire (Ripper and Beamish 2012), with the southern hearth being similarly ‘detached’ from the mound. In both instances there is no indication whether the hearths were used simultaneously, with different functions, or one replaced the other, indicating prolonged use of the monument.

Stone recorded in the mound was the same as that found in the underlying glacially deposited river gravels, although no quarrying evidence was recorded to suggest how these stones were retrieved. There was no discernible evidence for selection of particular rock types. The plan appears to loosely surround the two troughs, but it was unclear whether this was the deliberate placing of debris, to form an area of hard standing, or the accidental accumulation of material around a feature that was often emptied. The longest stretch of mound material ran parallel to the palaeochannel bank, perhaps suggesting a need for consolidated ground adjacent to the marshy area. With the assumption that these sites were used to heat troughs of water, experiments have shown that a single boiling produces half a cubic metre of burnt stones. This would suggest that the Willow Farm burnt mound was used approximately 35 times.

Recent work in the East Midlands has identified several burnt mound sites (Ripper and Beamish 2012). Of the dated examples there appears to be a broadly even distribution of dates ranging from the mid-third millennium cal BC to the second quarter of the first millennium cal BC (Beamish 2009), with the Willow Farm example falling in the middle portion of this range. They appear to be ubiquitous across both lowland and upland Britain, used by many different communities, and appear to be sites that were used on multiple occasions indicated by the huge accumulations of shattered stones and charcoal, as well as the possible re-building of troughs and hearths.

The environmental evidence suggests a marsh-filled channel with slow-flowing water, with the higher ground dominated by open ground species including stands of alder and hazel. The deliberate selection of backwater channels in the vicinity of open pasture is again a feature of many of the burnt mound sites (e.g. both Willington Burnt Mound 2 and the Birstall Burnt Mound have faunal and floral column profiles that suggest almost stagnant water in their adjacent channels). These waters would not sustain larger fish types, but perhaps would be prime locations for other types of wild fowl. Open pasture suggests the presence of livestock. The absence of insect species associated with human food waste implies cooking meat was not a primary function, but perhaps the processing of skins or wool was.

The most recent research based on eight well-preserved examples from Ireland (Brown *et al.* 2016) suggests that the most likely function for these sites is textile production, involving both cleaning and/or dyeing of wool and/or natural plant fibres, and functionally related to hide cleaning and tanning.

Late Bronze Age

Approximately 300m south-east of the Burnt Mound a broad spread of archaeological features, including at least one circular post-built structure, two ditches, a pit alignment and numerous pits/post-holes, were identified. While it was not possible to discern clear patterns or forms from these features, it does indicate long-term if intermittent re-use of this part of the flood plain during the Late Bronze Age. Post Deverel Rimbury pottery from these periods was by far the most common on the site. The southern post-hole of the roundhouse contained large quantities of vitrified Late Bronze Age Post Deverel Rimbury ware pottery and five loomweights, which again suggests the possibility of Structured deposition.

Evidence for this period is limited in the region often as a result of problems of archaeological visibility (Willis 2006, 97). Settlements are known from the Trent valley at Epperstone, Gamston, Willington, Dorket Head and Red Hill (*ibid*). Small settlements, often unenclosed, with circular post-built structures and associated pits are typical of the period (*ibid* 99). An unenclosed settlement was recorded at Catholme, Staffordshire, which included several roundhouses associated with Post Deverel Rimbury ware pottery (Losco-Bradley and Kinsley 2002, 15). The pattern appears to support largely unbounded landscapes with thinly spread settlements along the river terraces of the Trent, perhaps with an emphasis on a shifting transhumant pattern of agriculture (Knight and Howard 2004, 87).

Early Anglo-Saxon period

No evidence of Late Iron Age or Roman occupation was found at Willow Farm. However, two hall houses and at least one sunken featured building were present in Area 5, and three pits in Area 10 of fifth–seventh century date. These are rare from the middle Trent valley (Knight and Howard 1994, 122), although extensive settlements are known from Catholme in Staffordshire to the west (Kingsley and Losco-Bradley 2002), and from the Wreake valley at Eye Kettleby to the south-east (Finn 1998); 2.5km to the north-east, excavations at Hemington Quarry revealed

two sub-square post-built structures, and a dense cluster of pits and post-holes associated with early Anglo-Saxon pottery (Cooper and Ripper 2012, 37). Similar small Early Anglo-Saxon settlements with few structures are known from other parts of the Trent valley; for example, Girton (Kinsley and Jones 1999) and Holme Pierrepont (Elliot *et al.* 2004, 167). Examples such as these fit into the interpretation that most settlements of this date were small, dispersed and impermanent (Hamerow 1993).

CONCLUSION

The archaeological work at Willow Farm has shown how this part of the Trent valley flood plain was exploited during the prehistoric and Anglo-Saxon periods, and how a variety of different activities were undertaken. It has enabled a transect from a former river channel across the flood plain and on to a gravel spur to be examined. Located at the edge of a gravel island, seasonal use of the area might be interpreted from the Early Bronze Age pits and Middle–Late Bronze Age burnt mounds, while a burial area is represented by the ring ditch with a central grave. The investigations have located settlement evidence associated with Deverel Rimbury and Post Deverel Rimbury wares, which are scarce in the East Midlands. In contrast to many Trent valley sites there is no evidence of Iron Age or Roman activity, although it is possible the area continued to be used during the first millennium BC and the pit alignment boundary system may have been of Iron Age date. Settlement evidence, including probable dwellings, is present from the Early Anglo-Saxon period. Rather than indicating permanent settlement the evidence from all these periods appears to indicate seasonal occupation, with repeated visits exploiting the river edge environment, offering access to wild resources including wildfowl and fish.

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curve of Reimer *et al.* (2013) and the computer program OxCal (v4.3.2) (Bronk Ramsey 1995, 1998, 2001, 2009). They are quoted in the form recommended by Mook (1986), with the end points rounded outward to ten years on the basis of the error terms.

The original reports were prepared in 2004, with updates in 2008 and 2016–17. The plans were prepared by Susan Ripper and the pottery illustrations by David Hopkins. The report was edited by Patrick Clay, who also managed the project.

BIBLIOGRAPHY

- Allan, A., Humble, J. and Rault, S., 2013 'The terrace south of West Cotton', in J. Harding, *A Neolithic and Bronze Age Landscape in Northamptonshire: The Raunds area project Volume 2*, 294–5. London: English Heritage.
- Allen, C. S. M., Harman, M. and Wheeler, H., 1987 'Bronze Age Cremation cemeteries in the East Midlands', *Proceedings of the Prehistoric Society* 53, 187–221.
- Barfield, L. and Hodder, M., 1989 'Burnt mounds in the West Midlands: surveys and excavations', in A. Gibson (ed.), *Midlands Prehistory*, 5–13. British Archaeological Reports (British Series) 204.
- Barrett, J. C., 1980 'The Pottery of the later Bronze Age in Lowland England', *Proceedings of the Prehistoric Society* 46, 297–319.
- Beamish, M., 2009 'Island visits: Neolithic and Bronze Age activity on the Trent valley floor. Excavations at Egginton and Willington, Derbyshire 1998–1999', *Derbyshire Archaeological Journal* 129, 17–172.
- Beswick, K., 1997 *An Archaeological Assessment of a Proposed Development Area at The Willows, Castle Donington*. Trent and Peak Archaeological Trust.
- Briggs, A., 1990 *The Glen Parva, Leicestershire, Moated Site: A Re-Appraisal of the Prehistoric Levels*. Post-Excavation Studies Dissertation University of Leicester.
- Bronk Ramsey, C., 1995 'Radiocarbon Calibration and Analysis of Stratigraphy: The OxCal Program', *Radiocarbon* 37, 425–30.
- Bronk Ramsey, C., 1998 'Probability and dating', *Radiocarbon* 40, 461–74.
- Bronk Ramsey, C., 2001 'Development of the radiocarbon calibration program OxCal', *Radiocarbon* 43(2A), 355–63.
- Bronk Ramsey, C., 2009 'Bayesian analysis of radiocarbon dates', *Radiocarbon* 51(1), 337–60.
- Brown, A. G., Davis, S. R., Hatton, J., O'Brien, C., Reilly, F., Taylor, K., Dennehy, E., O'Donnell, L., Bermingham, N., Mighall, T., Timpany, T., Terlow, E., Wheeler, J. and Wynne, S., 2016 'The Environmental Context and Function of Burnt Mounds: New Studies of Irish *Fulachtai Fiadh*', *Proceedings of the Prehistoric Society* 82, 259–90.
- Chowne, P., Cleal, R. M. J. and Fitzpatrick, A. P., with Andrews, P., 2001 *Excavations at Billingborough, Lincolnshire, 1975–8: a Bronze Age–Iron Age Settlement and Salt-Working Site*. East Anglian Archaeology 94.

- Clark, J. D. G., 1936 'Report on a Late Bronze Age Site in Mildenhall Fen, West Suffolk', *Antiquaries Journal* 16, 29–50.
- Coles, J. and Orme, B., 1983 'Homo sapiens or Castor fiber?', *Antiquity* 57, 95–102.
- Cooper, L., 2006 'Archaeological Assessment of the Trent–Soar Confluence Zone', *TLAHS* 80, 1–25.
- Cooper, L. and Jacobi, R., 2001 'Two late glacial finds from north-west Leicestershire', *TLAHS* 71, 118–21.
- Cooper, L. and Ripper, S., 2012 *A Medieval Manorial Fishery at Hemington Quarry, Castle Donington, Leicestershire, UK*. ULAS Report 2012-023.
- Cooper, N. J., 2012 'The Beaker pottery', 9–20, in W. Jarvis, 'Late Mesolithic and Beaker Assemblages at Loughborough Road, Asfordby', *TLAHS* 86, 1–35.
- Coward, J. and Ripper, S., 1998 'Castle Donington, Willow Farm (SK 445 288)', *TLAHS* 73, 87–91.
- Dineley, M. and Dineley, G., 2000 'Neolithic Ale: Barley as a Source of Malt Sugars for Fermentation', in A. S. Fairbairn (ed.), 2000, 137–55.
- Elliott, L. and Knight, D., 1998 'Gonalsdon, Holme Dyke', *Transactions of the Thoroton Society*, 102, 15–24.
- Elliott, L. and Knight, D., 2002 'A burnt mound in Holme Dyke, Gonalsdon, Nottinghamshire', *Transactions of the Thoroton Society*, 106, 14–89.
- Elliot, L., Jones, H. and Howard, A. J., 2004 'The Medieval Landscape', in Knight and Howard (2004), 153–92.
- Fairbairn, A. S. (ed.), 2000 *Plants in Neolithic Britain and Beyond*. Oxford: Oxbow Books.
- Finn, N., 1998 'Melton Mowbray, Eye Kettleby, Leicester Road (SK 731 180)', *TLAHS* 72, 178.
- Finn, N., 2011 *Bronze Age Ceremonial Enclosures and Cremation Cemetery at Eye Kettleby, Leicestershire: the development of a prehistoric landscape*. Leicester Monograph 19.
- Garton, D. and Priest, V., 1998 'Pigs Pens, Tilm (SK700844)', 139–142, in K. Challis (ed.), 'Fieldwork by Trent and Peak Archaeological Trust in Nottinghamshire, 1996–7', *Transactions of the Thoroton Society* 102, 135–46.
- Gibson, A. and Woods, A., 1997 *Prehistoric pottery for the Archaeologist*. Leicester: Leicester University Press.
- Hamerow, H., 1993 *Excavations at Mucking, Vol. 2: The Anglo-Saxon Settlement*. London: English Heritage Archaeological Report 21.
- Hancocks, A., with Woodward, A., 2005 'The pottery', 6–21, in C. Stephens, 'Excavations at a Bronze Age and Iron Age settlement at Meriden Quarry, Solihull', *Transactions of the Birmingham and Warwickshire Archaeological Society* 109, 1–26.
- Hull, G., 1998 *The Excavation of a Late Bronze Age Ringwork and Pits and Late Iron Age Pits on land off Huntingdon Road, Thrapston, Northamptonshire*. Unpublished Thames Valley Archaeological Services report.
- Johnson, A. E., 1997 *Willow Farm, Castle Donington, Leicestershire: Topsoil Magnetic Susceptibility and Gradiometer Survey*. Oxford Archaeotechnics Limited.
- Kinsley, G. and Jones, H., 1999 'Summary report on archaeological watching briefs and excavations at Girton Quarry Extension, Newrak', *Tarmac Papers* 3, 57–68.

- Knight, D., 1999 'Prehistoric pottery and fired clay', in C. Hall, *The excavation of terminal Bronze Age and Medieval settlement remains at Baston no. 2 quarry Landtoft, Lincolnshire Phase IV Area A*. Unpublished Cambridge Archaeological Unit Report 288.
- Knight, D., 2002 'A regional ceramic sequence: pottery of the first millennium BC between the Humber and the Nene', in A. Woodward and J. D. Hill (eds), *Prehistoric Britain: The Ceramic Basis*, 119–142. Oxford: Oxbow Monograph.
- Knight, D. and Howard, A. J., 1994 *Archaeology and Alluvium in the Trent Valley*. Nottingham: Trent and Peak Archaeological Trust, University Park.
- Knight, D. and Howard, A. J., 2004 *Trent Valley Landscapes*. Kings Lynn: Heritage Marketing and Publications Ltd.
- Knight, D. and Southgate, M., 2001 'Barrow-Upon-Trent: Fleak Close And Captain's Pingle', *Derbyshire Archaeological Journal* 121, 201–2.
- Knight, M., 1998 *The Archaeological Investigation of the Anglia Water Northborough–Etton Watermain and Excavation of a Terminal Bronze Age Settlement at Nine Bridges*. Cambridge Archaeological Unit Report No. 287.
- Longworth, I., 1984 *Collared Urns of the Bronze Age in Great Britain and Ireland*. Cambridge: Cambridge University Press.
- Longworth, I., Ellison, A. and Rigby, V. 1988 *Excavations at Grimes Graves, Norfolk 1972–1976. Fascicule 2. The Neolithic, Bronze Age and Later Pottery*. London: British Museum Publications.
- Losco-Bradley, S. and Kinsley, G., 2002 *Catholme: An Anglo-Saxon Settlement on the Trent Gravels in Staffordshire*. Nottingham: Department of Archaeology, University of Nottingham.
- Meek, J., 2000 'Site V', in G. Hughes, *The Lockington Gold Hoard: An Early Bronze Age Barrow Cemetery at Lockington, Leicestershire*, 56–8. Oxford: Oxbow Books.
- Moffett, L. C., Robinson, M. A. and Straker, V., 1989 'Cereals, fruit and nuts: charred plant remains from Neolithic sites in England and Wales and the Neolithic economy', in A. Milles, D. Williams and N. Gardiner (eds), *The beginnings of agriculture*, 243–61. British Archaeological Reports International Series 496.
- Monckton, A., 2011 'Charred plant remains', in N. Finn (2011), 79–80.
- Mook, W. G., 1986 '*Business meeting*: recommendations/resolutions adopted by the Twelfth International Radiocarbon Conference', *Radiocarbon* 28, 799.
- Palmer-Brown, C., 1993 'Bronze Age salt production at Tetney', *Current Archaeology* 136, 143–5.
- Perry, A., 1985 'The carbonised plant remains', in H. M. Bamford (1985), *Briar Hill. Excavation 1974–1978*, 126. NDC Monograph 3. Northampton: Northampton Development Corporation.
- Piggott, S., 1981 'Early Prehistory', in S. Piggott (ed.), *The Agrarian History of England and Wales. Volume 1 Prehistory*. Cambridge: Cambridge University Press, 3–62.
- Pryor, F. M. M., 1980 *Excavation at Fengate, Peterborough, England: The Third Report*. Toronto and Northampton: Northamptonshire Archaeological Society Monograph 1. Royal Ontario Museum Archaeology Monograph 6.

- Pryor, F. M. M., 1998 Welland Bank Quarry, South Lincolnshire, *Current Archaeology* 160, 139–45.
- Reimer, P. J., Bard, E., Bayliss, A., Beck, J. W., Blackwell, P. G., Bronk Ramsey, C., Buck, C., Cheng, H., Lawrence Edwards, R., Friedrich, M., Grootes, P. M., Guilderson, T. P., Haflidason, H., Hajdas, I., Hatte, C., Heaton, T. J., Hoffmann, D. L., Hogg, A. G., Hughen, K. A., Kaiser, K. F., Kromer, B., Manning, S. W., Niu, M., Reimer, R. W., Richards, D. A., Scott, E. M., Southon, J. R., Staff, R. A., Turney, C. S. M. and van der Plicht, J. 'IntCal13 and Marine13 Radiocarbon Age Calibration Curves 2013 0–50,000 Years cal BP', *Radiocarbon* 55(4), 1111–50.
- Ripper, S. and Beamish, M., 2012 'Bogs, Bodies and Burnt Mounds: Visits to the Soar Wetlands in the Neolithic and Bronze Age', *Proceedings of the Prehistoric Society* 78, 173–206.
- Rowley-Conwy, P. and Legge, T., 2015 'Subsistence practises in Western and Northern Europe', in C. Fowler, J. Harding and D. Hofmann (eds), *The Oxford Handbook of Neolithic Europe*, 429–46. Oxford: Oxford University Press.
- Score, V. and Kipling, R. W., 2015 'Archaeological Excavations at Park Lane, Castle Donington', *TLAHS* 89, 37–60.
- Stuiver, M. and Kra, R. S. (eds), 1986 'Calibration issue, Proceedings of the 12th International 14C conference', *Radiocarbon* 28(2B), 805–1030.
- Stuiver, M. and Polach, H. A., 1977 'Discussion: Reporting of 14C Data', *Radiocarbon* 19, 355–63.
- Stuiver, M. and Reimer, P. J., 1986 'Programs Calib and Display', *Radiocarbon* 28, 1022–30.
- Williams, D., 1995 'The ceramic petrology', 45–6, in G. Hughes, P. Leach and S. C. Stanford, 'Excavations at Bromfield, Shropshire 1981–91', *Transactions of the Shropshire Archaeological and Historical Society* 70, 23–94.
- Willis, S., 2006 'Later Bronze Age and Iron Age', in N. J. Cooper (ed.), *The Archaeology of the East Midlands. An Archaeological Resource Assessment and Research Agenda*. Leicester Archaeology Monograph 13, 89–136.
- Woodward A. and Marsden, P., 2011 'The Middle Bronze Age Pottery', in N. Finn (2011), 68–75.