# Later Iron-Age Settlement and Burial near Aves Ditch: Excavations on the Angelinos Pumping Station to Ardley Reservoir Mains Pipeline Reinforcement

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SUMMARY

*Excavations by Cotswold Archaeology (CA) in advance of the Thames Water mains reinforcement between Kirtlington and Ardley reservoir examined parts of three Iron-Age farming settlements near Aves Ditch. The remains included pits and ditches dating mostly to the middle Iron Age and extending into the late Iron Age; three young child burials were present. Wider aerial and geophysical surveys indicate that two of the settlements were enclosed, and are similar to a number of examples in the vicinity. An opportunity was also taken to examine a section through Aves Ditch where the pipeline crossed the monument.*

Between October 2004 and August 2005 Cotswold Archaeology undertook a programme of archaeological recording in advance of the reinforcement of the mains pipeline from Angelinos Pumping Station to Ardley reservoir in north Oxfordshire. The work was undertaken at the request of Lang Hall Archaeology on behalf of Thames Water Utilities Ltd.

It was originally proposed that the pipeline reinforcement would run from Angelinos Pumping Station, about 2 km north-east of Woodstock (NGR SP 4600 1865), to Ardley reservoir (SP 5350 2558), including a spur at the northern end extending as far east as the M40 (SP 5480 2490) (Fig. 1). However, after initial archaeological surveys had been completed, the scheme was revised and the reinforcement works were undertaken north from Kirtlington (NGR SP 5013 2045), making a total length of *c.*8.5 km. The southern end of the route is located 1 km to the east of the river Cherwell. The route traverses gently undulating, largely arable, farmland to the east of the Cherwell on a plateau at around 100 m OD. The underlying geology is predominantly Jurassic Great Oolite Limestone.[1]

The programme of archaeological fieldwork followed on from a desk-based assessment,[2] and an aerial photograph assessment.[3] It consisted of a fieldwalking survey,[4] a geophysical survey,[5] evaluation trenching, two excavations, and a watching brief. The desk-based assessment drew attention to the presence of Roman Akeman Street and also Aves Ditch, a bank and ditch earthwork of probable late Iron-Age date which runs for 4.2 km in a straight line north-eastwards from Kirtlington and forms part of the modern parish boundary between Upper Heyford and

[1] British Geological Survey, *Geological Survey of Great Britain (England and Wales), Sheet 218: Chipping Norton*, Solid and Drift Edition, 1:63,360 Series (1968).

[2] Lang Hall Archaeology, 'Angelinos Pumping Station to Ardley Reservoir Mains Reinforcement, Oxfordshire: an Assessment of the Archaeological Implications', unpublished report (2004).

[3] Air Photo Services, 'Angelinos Pumping Station to Ardley Reservoir, Oxfordshire: Mains Pipeline Reinforcement. Air Photo Interpretation and Mapping, Stages 1 and 2', unpublished reports (2004–5).

[4] Cotswold Archaeology, 'Angelinos Pumping Station to Ardley Reservoir Mains Reinforcement, Oxfordshire: Archaeological Fieldwalking Survey', unpublished report (2004).

[5] Archaeological Surveys, 'Angelinos Pumping Station to Ardley Reservoir Mains Reinforcement, Oxfordshire: Magnetometer Survey', unpublished typescript report (2005).

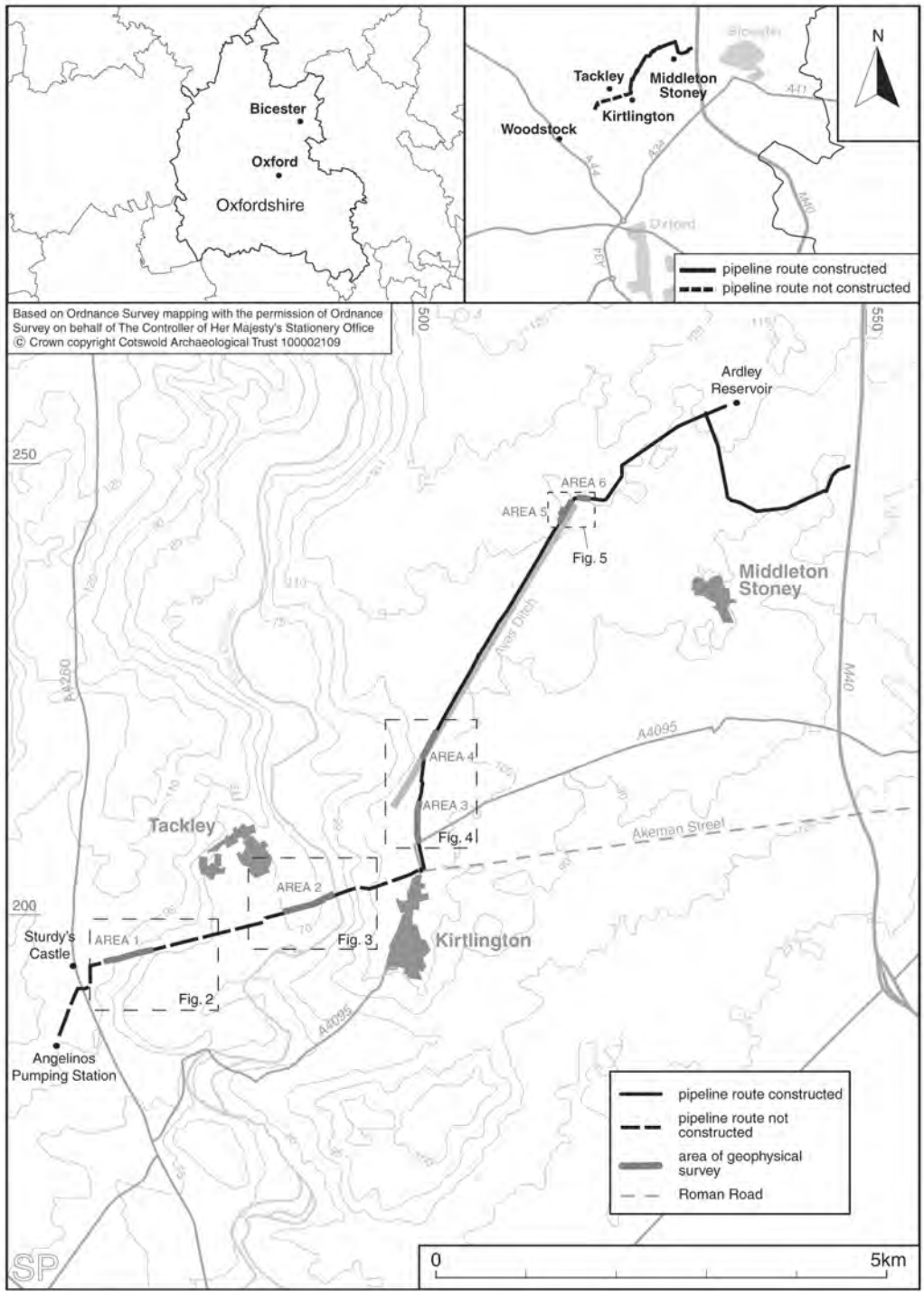


Fig. 1. The Thames Water reinforcement pipeline route, showing archaeological areas.

Middleton Stoney (Fig. 1).[6] The pipeline corridor ran closely parallel to the projected course of Akeman Street from Sturdy's Castle to north of Kirtlington. It also ran parallel to Aves Ditch and bisected it just south of The Gorse, where both the pipeline and the ditch meet the B4030 (Fig. 5).

The desk-based assessment concluded that the route traverses an area rich in cropmarks identified from aerial photographs and recommended a full assessment of the existing aerial photographic record. An assessment of aerial photographs within a 1 km-wide corridor along the originally proposed pipeline route was duly undertaken and six sites of archaeological significance (areas 1–6) within or close to the pipeline corridor were identified. These sites were subsequently investigated by magnetometer survey. Following this preliminary work, the length of the pipeline was reduced and only areas 3–6 fell within the final route.

The fieldwalking survey was undertaken in October 2004 along four sections of the proposed pipeline corridor. Of these, two lay within the final pipeline corridor, both alongside Aves Ditch. Most of the recovered material was post-medieval in date and no concentration of earlier material was identified.[7]

## EXCAVATION METHODOLOGY

A methodology for archaeological recording was detailed in a Written Scheme of Investigation covering both the trial trenching and area excavations.[8] Trial trench evaluation was undertaken in areas 3, 4, and 6 (Figs. 4 and 5). Areas 3 and 4 were evaluated by extended 2 m-wide trenches measuring 450 m and 330 m in length respectively along the centre line of the pipeline. Area 6 was evaluated by means of a single 110 m-long trench. Following the discovery of significant archaeological features, the strip in area 6 was widened to the full available 10 m width of the corridor. The presence of known archaeological features within area 5 meant that 250 m in this area was stripped to 10 m width with no preparatory evaluation. In both cases the length of the excavation area was determined by the presence of archaeological features. Excavations commenced with the removal of the topsoil and subsoil using a mechanical excavator equipped with a toothless bucket and continued by hand thereafter. A watching brief was undertaken throughout the intrusive works with significant results recovered from an intersection across Aves Ditch (Fig. 5) but not elsewhere.

## DISCUSSION

### *Nature of the Settlement*

Enclosures 1 and 2 appear to be typical of small enclosed farmsteads of the middle Iron Age found widely in pre-Roman Britain, which tend to be occupied by a small number of roundhouses likely to be of a family or extended family group. The form of occupation in area 6 is less clear although it may be part of an unenclosed type of settlement. The combination of field techniques has not enabled the form of these settlements to be defined with any clarity, although enclosures 1 and 2 appear to be of a type with more or less elaborated entrance 'antennae' or 'hornworks'. It is possible that enclosure 1 is of 'banjo' form, with ditch 1 forming an extended 'antenna' acting as a droveway toward the enclosure, but it is not clear that the two groups of features were linked in this way, and nor is there evidence for an opposed antenna ditch. There is another possible

[6] E.W. Sauer, *Linear Earthwork, Tribal Boundary and Ritual Beheading: Aves Ditch from the Iron Age to the Early Middle Ages,* BAR BS, 402 (Oxford, 2005).

[7] Cotswold Archaeology, 'Archaeological Fieldwalking Survey'.

[8] Cotswold Archaeology, 'Angelinos Pumping Station to Ardley Reservoir Mains Reinforcement, Oxfordshire: Written Scheme of Investigation for a Programme of Archaeological Recording', unpublished document (2005).

'banjo' enclosure showing as a cropmark immediately north of area 6, although again the quality of the evidence is poor.

In general terms, the sites are typical of the Cotswold uplands and the cropmarks plotted in connection with the present project illustrate several in the vicinity (Figs. 3, 4, and 5). Hingley emphasised possible social differences between the enclosed settlements of the uplands and the unenclosed settlements of the Upper Thames Valley,[9] although this distinction is not altogether clear-cut since enclosed settlements sometimes have unenclosed components or phases,[10] and open settlements are also found.[11] The economic evidence here as elsewhere tends to suggest a mixed animal and crop husbandry. Aerial survey in north Oxfordshire has indicated a dense distribution of probable later Prehistoric and Romano-British enclosures of various forms and degrees of complexity, many of which are extremely irregular.[12] The controlled approach to some of these enclosures, which is most elaborate in the 'banjo' form, suggests the need to manage livestock,[13] and it is possible that some enclosures had a stock management role within a wider integrated mixed-farming settlement.

*Dating*

The pottery and limited dating from three radiocarbon samples indicate that all three of these 'sites' (enclosure 1, enclosure 2, and area 6) can be dated to the later Iron Age, in pottery terms dominated by 'middle' Iron-Age hand-made forms, with a small quantity of wheel-thrown grog-tempered sherds suggesting occupation into the first half of the first century AD, and the absence of Roman pottery indicating that occupation ceased before the later first century AD. Within this time-frame it is not possible to suggest a development sequence, although there are stratigraphically early pits pre-dating enclosure 2 (ditch 4) which may relate to a different form of settlement here. One of the pits (pit 5101, which may have been for grain storage) had a primary fill dated to 380–170 cal. BC through two radiocarbon dates on wood charcoal (Wk-22781 and Wk-22782; Fig. 18). The later ditch (ditch 4) contained some grog-tempered pottery and may not have been finally filled in until the first century AD. However, the latest feature here, ditch 5, yielded a radiocarbon determination of 360–270 and 260–90 cal. BC through a sample of hawthorn charcoal (Wk-22783; Fig. 14), which does not accord well with its stratigraphic position, although may be accounted for by re-deposition of the charcoal.

Late Iron-Age pottery also came from pit group 2 (enclosure 1). Pit 5050 contained cultural material in its lower fill including cereal-processing waste, which was overlaid by neonatal Burial A. The uppermost homogenous stony backfills of the pit contained grog-tempered pottery suggesting that the burial might have been one of the final events associated with this group of features.

The occupation in area 6 appears to have been of a broadly similar date to that in area 5, with a similar pottery profile (Table 1) and ditch 2 was probably not finally in-filled until the first century AD.

[9] R. Hingley, 'Towards Social Analysis in Archaeology: Celtic Society in the Iron Age of the Upper Thames Valley', in B. Cunliffe and D. Miles (eds.), *Aspects of the Iron Age in Central Southern Britain* (Oxford, 1984), pp. 72–88.

[10] T. Moore, *Iron Age Societies in the Severn–Cotswolds: Developing Narratives of Social and Landscape Change,* BAR BS, 421 (Oxford, 2006), p. 34.

[11] Featherstone and Bewley, 'Recent Aerial Reconnaissance', p. 23; J. Hart, D. Kenyon, and A. Mudd, 'Excavation of early Bronze-Age Cremations and a Later Iron-Age Settlement at Finmere Quarry, North-East Oxfordshire', above, this volume.

[12] Featherstone and Bewley, 'Recent Aerial Reconnaissance', p. 21 and plate 2.

[13] J. Fasham, *A Banjo Enclosure in Micheldever Wood, Hampshire*, Hampshire Field Club and Archaeological Society Monograph, 5 (Gloucester, 1987), p. 63.

*Date of Aves Ditch*

The excavated section through Aves Ditch retrieved no substantially new information concerning the date and form of this monument. The monument was examined in 1997–8 and the recent publication of these and previous investigations has resulted in some consolidation and reassessment of the evidence.[14] Trenches 1 and 2 of the 1997–8 excavations were located about 70 m north of the pipeline section (Fig. 5, OUAS trenches) and of interest with regard to the present investigations was the discovery of an Iron-Age curving ditch underlying the bank of Aves Ditch. This seems to relate to the cropmark enclosure to the north of area 6. While the excavated trenches were unable to provide a precise date for the construction of Aves Ditch, two archaeomagnetic dates bracket the construction of the earthwork to between 500–325 BC (the date from the curving ditch pre-dating the bank) and AD 275–550 (the date from the middle fill of Aves Ditch). This is consistent with the recovery of late Iron-Age pottery from the lower ditch fills.[15] A beheaded skeleton also from the middle fill of the ditch was radiocarbon dated to AD 670–870, providing some support for the latter dating.

Overall, the evidence is compatible with a late Iron-Age date for the construction of the monument and a strong case is made for it being part of a Catuvellaunian tribal boundary, similar in size and date to the north and south Oxfordshire Grim's Ditches.[16] It is less convincing as an unfinished Roman road, despite its direct line and orientation at Tackley Ford (the crossing point of Akeman Street) because of the absence of Roman pottery from the lower ditch fills, the excessive depth of the single ditch, and the height of the supposed 'agger'. Its purpose in relation to the Roman road network and related settlements is also unclear.[17] Aves Ditch could therefore have been contemporary with the later phases of the settlements at enclosure 1, enclosure 2, and area 6, although it is also possible that these sites had gone out of use by the time of the monument's construction, or indeed were put out of use as a direct consequence of its construction or presence.

The recorded section through Aves Ditch largely confirms the picture gained elsewhere, although it needs to be borne in mind that the location of the section was not determined by archaeological considerations and the circumstances of the recording were less than ideal, both because it had to be undertaken from the trench edge and because of the constraint of working around the existing water-pipe. The fill sequence showed an initial stony primary fill, followed by an apparently natural silting of loamier sediments. Perhaps surprisingly there is no indication of a 'levelling layer' which may be assumed to be present representing the final destruction of the eastern bank and in-filling to the present ground surface. The presence of the modern water-pipe cut into the upper part of the ditch also indicates that there has been some recent disturbance to the ditch in this location.

While there is no new information to add to the description and interpretation presented by Sauer, there is an asymmetry to the ditch profile which appears more than is accounted for by the cut of the pipe-trench at a slightly oblique angle to the ditch (Fig. 12). It is unclear whether this is characteristic of the ditch as a whole, but Sauer's section to the north also shows the eastern ditch edge to be slightly shallower than the western edge.[18] The reason for this may have been to make it easier for rock from the ditch to be carried up to construct the bank on the eastern side.

*Differences between the Excavated Sites*

The Iron-Age settlements in areas 5 and 6 shared some superficial similarities, particularly in the forms of the enclosures and the range of features present. It is unclear whether the sites with

[14] E.W. Sauer, *Linear Earthwork, Tribal Boundary and Ritual Beheading.*
[15] Ibid. p. 79.
[16] Ibid. pp. 30–6.
[17] Ibid. pp. 58–60.
[18] Ibid. Fig. 16.

such physical proximity and formal similarity had functional or social differences, and the limited areas examined together with the overall paucity of remains make such questions unanswerable at present. In common with most rural settlements at this time they were undoubtedly farmsteads, probably engaged in mixed farming. Pit 5050 south of enclosure 1 contained grain and chaff, evidence of cereal processing, but otherwise little came from the soil samples taken for palaeo-environmental investigation. Most of the circular pits were typical of the type interpreted as grain stores, without there being any indication of their function, although the long pit in area 6 is unusual and without obvious explanation. Animal bones from all the sites show a range of the usual domestic species. The slight variations between sites have been mentioned but cannot be regarded as significant in view of the low numbers. The pottery profiles were similar from all three sites, although of note is the fact that area 6 yielded most of the burnished wares from the excavations. Whether this is a functional/cultural distinction, a chronological one, or simply an accident of sampling, is unclear from such limited investigations.

*Infant and Child Inhumations*

The burials of four infants/young children in pits and a ditch associated with enclosures 1 and 2 and area 6 is of some interest as human burials of any sort were uncommon in the Iron Age. This widespread shortage of burials is thought to reflect the practice of excarnation as the normal mortuary rite in the period.[19] It is considered that this practice also resulted in the occasional presence of disarticulated human remains in settlements and other contexts (through subsequent interment or more fortuitously), of which the only other fragment of human remains from the present sites, the finger bone from pit 5085, would appear to be an example. It is also possible that the bones from burials A and C and the arm bones in pit 5016 were actually deposited as disarticulated groups of bones, rather than being the remaining parts of interred skeletons, or that the process of excarnation took place within the pits, leaving partial and disarticulated remains to be covered over with soil. The factors of poor bone survival and incomplete recovery during excavation also need to be taken into consideration. This combination of taphonomic factors makes a complete understanding of the burial rites even more problematic. This group of inhumations is nonetheless particularly remarkable in view of the limited areas examined by excavation, perhaps suggesting that burials were characteristic of this cluster of settlements. Published information from the fully excavated settlement at Gravelly Guy shows that, although there were seventy-eight finds of human bone, for the middle to late Iron Age only 3–9% of pits in any phase contained human bone.[20]

In three cases (burials A and C, and the arm bones) the inhumations took place in pits which appear to have been dug primarily for other purposes, while the third (burial B) was placed in an enclosure ditch. The practice of burying infants in ditches near or within settlements is one of the most frequent classes of interment,[21] and pit burials are also common on some sites with pits.[22] Comparable published examples include Gussage All Saints, Dorset,[23] where at least nine adults and thirty-one infants were recorded from pits and ditches, Micheldever Wood, Hampshire,[24] where twelve complete burials comprised eleven infants and one adolescent, and Rotherley,

[19] B. Cunliffe, *Iron Age Britain* (London, 1995), pp. 109–11; G. Carr and C. Knüsel, 'The Ritual Framework of Excarnation by Exposure as the Mortuary Practice of the Early and Middle Iron Ages of Central Southern Britain, in A. Gwilt and C. Haselgrove (eds.), *Reconstructing Iron Age Societies,* Oxbow Monograph, 71 (1997), pp. 167–73.

[20] G.A. Wait, F. Healy, and G. Lambrick, 'Human and Animal Burials', in G. Lambrick and T. Allen, *Gravelly Guy, Stanton Harcourt,* (2004), pp. 221–57.

[21] R. Whimster, *Burial Practices in Iron Age Britain: A discussion and gazetteer of the evidence c.700 BC–AD 43,* BAR BS, 90 (1981), pp. 25–8.

[22] B. Cunliffe, *Danebury Hillfort* (Stroud, 2003).

[23] G. Wainwright, *Gussage All Saints: an Iron Age Settlement in Dorset,* Department of the Environment Archaeological Report, 10 (London, 1979).

[24] Fasham, *Banjo Enclosure.*

Wiltshire,[25] where thirteen infant skeletons came from the settlement enclosure ditches. Examples of infant burials in enclosure ditches at Silverstone and Wakerley, Northamptonshire, have been linked to specific symbolic associations.[26] The numbers and mortality profile of the perinatal burials from the settlement at Owslebury, Hampshire, has led to the suggestion that infanticide was practised here,[27] although elsewhere normal mortality is assumed.

The reasons for the choice of the rite of inhumation for a minority of the population is obscure but seems to have been reserved for those in some way debarred from conventional, archaeologically invisible, mortuary practices because of their particular social status.[28] It can be appreciated that infants may have been chosen because of their ambiguous social status, perhaps not being fully regarded as individuals, but in general burial was still an exceptional rather than normal mortuary rite.

Of those individuals selected for interment, burial B, an infant aged between six months and one year, is quite typical for both pit and ditch burials as regards the body position which tends to be on their side with legs flexed. Additionally, the examples studied by Whimster tended to have the head orientated between north and north-east.[29] It is possible that this infant was also chosen for this minority rite because of its affliction by a pathology identified as a possible case of *lupus vulgaris*. The facial disfigurement caused by this form of tuberculosis of the skin would undoubtedly have singled the individual out, although it is far from clear what sort of stigma might have been attached to it.

It has been suggested that individuals selected for inhumation may have possessed illnesses or deformities which marked them out as 'special' and there are several examples from the Iron-Age sites in the Cotswold region where this seems to have been the case (e.g. Bourton and Ashton Keynes).[30] However, the large sample of 300 depositions of human bone from Danebury hillfort, Hampshire, did not appear to display any particular pattern of skeletal abnormalities, although attention has been drawn to several cases of injuries caused by weapons and of cranial scarring which may be deliberate mutilation rather than the result of pathology.[31] A young woman displaying bone lesions indicative of tuberculosis was buried in the late Iron-Age ceremonial enclosure ditch at Folly Lane, Verulamium.[32] The presence of tuberculosis has more recently been identified in human skeletal remains through biomolecular methods, and the DNA of the organism that causes the disease has been extracted from human vertebra dated to the middle Iron Age from Tarrant Hinton, Dorset.[33] Further research using these methods is currently underway.[34]

[25] C.F.C. Hawkes, 'Britons, Romans and Saxons in Cranborne Chase', *Arch. Journal*, 104 (1947), pp. 27–81.

[26] A. Mudd, *Iron Age and Roman Settlement on the Northamptonshire Uplands: Archaeological Work on the A43 Towcester to M40 Road Improvement Scheme in Northamptonshire and Oxfordshire,* Northamptonshire Archaeology Monograph, 1 (2007); A. Gwilt, 'Popular Practices from Material Culture: a Case Study of the Iron Age Settlement at Wakerley', in A. Gwilt and C. Haselgrove (eds.), *Reconstructing Iron Age Societies: New Approaches to the British Iron Age,* Oxbow Monograph, 71 (1997), pp. 153–66.

[27] J. Collis, 'Owslebury (Hants.) and the Problem of Burials on Rural Settlements', in R. Reece (ed.), *Burial in the Roman World*, Council for British Archaeology Research Report, 22 (1977), pp. 26–34.

[28] Whimster, *Burial Practices*, pp. 191–2.

[29] Ibid. p. 191.

[30] Moore, *Iron Age Societies*, p. 70.

[31] B. Hooper, 'Anatomical Considerations', in B. Cunliffe and I. Poole, *Danebury, an Iron Age Hillfort in Hampshire, 5: The Excavations 1979–88,* Council for British Archaeology Research Report, 73 (1991), pp. 425–31.

[32] S. Mays and J. Steele, 'The Human Bone', in R. Niblett, *The Excavation of a Ceremonial Site at Folly Lane, Verulamium*, Britannia Monograph, 14, Soc. Promotion Roman Studies (London, 1999), pp. 307–23.

[33] G.M. Taylor, D.B. Young, and S.A. Mays, 'Genotypic Analysis of the Earliest Known Prehistoric Case of Tuberculoisis in Britain', *Journal of Clinical Microbiology*, 43, 5 (2005), pp. 2236–40.

[34] D. Weston, personal communication regarding the 'Biomolecular Archaeology of Ancient Tuberculosis in Britain and Europe' project, funded by NERC.

## SURVEY AND EXCAVATION RESULTS

### *Areas 1 and 2 (Figs. 2 and 3)*

Areas 1 and 2 did not fall within the final route of the pipeline but preliminary aerial photograph assessment and geophysical survey was undertaken. Area 1 was immediately south of and parallel to the projected course of Akeman Street and to the north of cropmarks thought to represent Iron-Age or Roman settlement (Fig. 2).

Area 2 was immediately north of the projected course of Akeman Street and to the south of a sub-circular cropmark believed to be an Iron-Age enclosure (Fig. 3). Further linear cropmarks extended southwards through area 2. The geophysical surveys in both areas identified possible linear features, along with pit-like anomalies, mostly in area 2. There was no clear correlation between the features visible as cropmarks and those identified during the geophysical survey, and it remains unclear as to whether the features in either area are archaeological in origin. In both areas intermittent linear anomalies were detected running parallel to the projected course of Akeman Street, but since these also lay close to the present field boundaries it was not certain that these were traces of Roman roadside ditches rather than more recent features. Traces of ridge-and-furrow cultivation were identified in both areas.

### *Areas 3 and 4 (Fig. 4)*

Area 3 lay to the west of cropmarks that appeared to comprise an enclosure associated with an external trackway and pits (Fig. 4). The geophysical survey in area 3 identified pit-like anomalies, linear features and ridge-and-furrow cultivation. Area 4 lay to the east of cropmark features interpreted as possible ditches. Similar features were identified in area 4 by the geophysical survey. In the subsequent trial trenching only features of natural origin were exposed and no further work was undertaken.

### *Iron-Age Settlement in Areas 5 and 6 (Figs. 5–10)*

Areas 5 and 6 were located within a complex of probable enclosure cropmarks. The geophysical survey confirmed the presence of two enclosures and a number of pits in area 5, and of ditches and pits in area 6. Area 5 clipped the eastern edge of two enclosures (enclosures 1 and 2) whilst area 6 ran through an area of pits and ditches. The resulting three sites are discussed separately.

Features on all sites comprised pits and ditches which were reasonably well preserved although clearly truncated by ploughing. The narrow width of the pipeline strip meant that establishing spatial relationships between features was problematic, but this was partly offset by the availability of cropmark and geophysical survey information which correlated tolerably well with the results of the excavations. The majority of features were dated to the middle to late Iron Age (also more generally referred to as the later Iron Age) on the basis of recovered pottery, spatial and stratigraphic relationships and on a small number of radiocarbon determinations. Only one feature, a ditch within area 6, was undated. Pottery preservation was generally good, but little bone was recovered and that which was present was poorly preserved.

### *Enclosure 1 (Later Iron Age) (Figs. 5–7, and 10)*

Enclosure 1 is an oval cropmark enclosure approximately 50 m in length and 25 m in width, with a south-west facing entrance and an antenna or boundary ditch to the south. Both the enclosure and adjoining ditch were identified during the geophysical survey, along with a number of pits (Fig. 5). Only the eastern ditch of the enclosure and a section of the ditch were exposed within the excavated area. Four pits were also exposed alongside the ditch. The inside of the enclosure was not exposed and no other internal or external features were identified.

Enclosure 1 was defined by ditch 6, a substantial 'V'-profiled curvilinear ditch, 2.5 m wide and 1.3 m deep (Fig. 6 and Fig. 11, section EE). The earliest fills of this ditch had derived from the natural substrate and appeared to have accumulated naturally. On one of these had been placed burial B, the remains of an infant aged between six months and one year (Fig. 7). This individual had been interred in a crouched position on its left hand side with its head to the north-east facing south-east. The arms were flexed and drawn up towards the face with the hands together. A dog mandible and the femur and scapula of a cow, as well as a few sherds of pottery, were recovered from the same context, but it is unclear as to whether they were intentionally associated with the infant.

Burial B was overlain by a series of homogenous stony fills, derived from a mixture of the natural substrate and the former topsoil or subsoil, which might represent deliberate backfilling. Small amounts of animal bone and hand-made Iron-Age pottery were recovered from these fills. A shallow recut was visible along the length of ditch 6, cutting through the latest fill. This recut was far slighter than the original cut, measuring only 1.1 m in width and 0.4 m in depth (Fig. 11, section EE, ditch 5060).

Ditch 1 was south-west of enclosure 1 and corresponded to the possible boundary or antenna ditch. It had a steep-sided, 'U' to 'V' profile, 1.5 m wide and 0.8 m deep (Fig. 11, section FF). It contained a series of stony deposits, the uppermost of which was poorly sorted may have been a deliberate backfill. A shallow recut along the length of the ditch contained small amounts of animal bone and hand-made Iron-Age pottery (fill 5076).

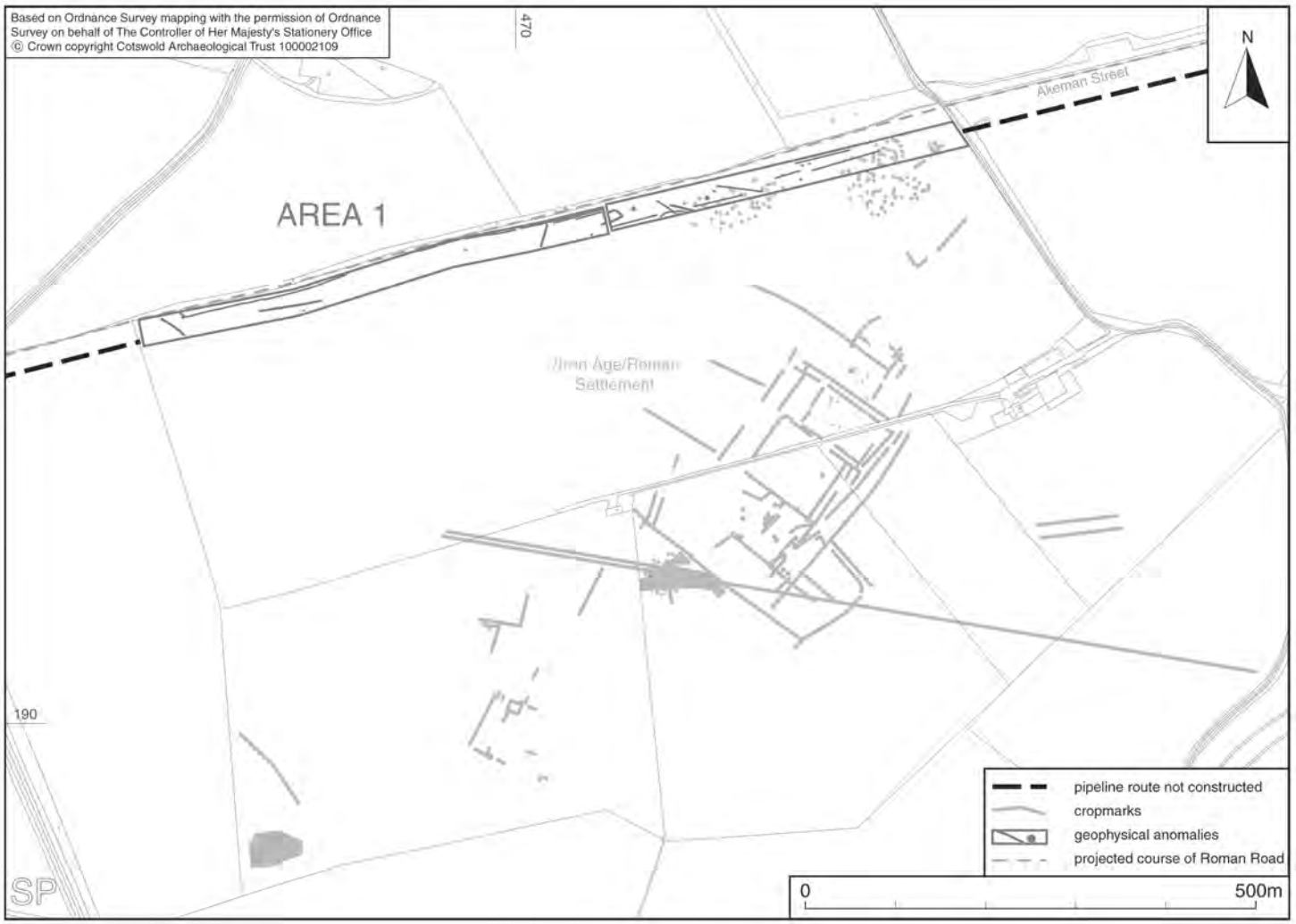


Fig. 2. Area 1, showing cropmarks and geophysical anomalies.

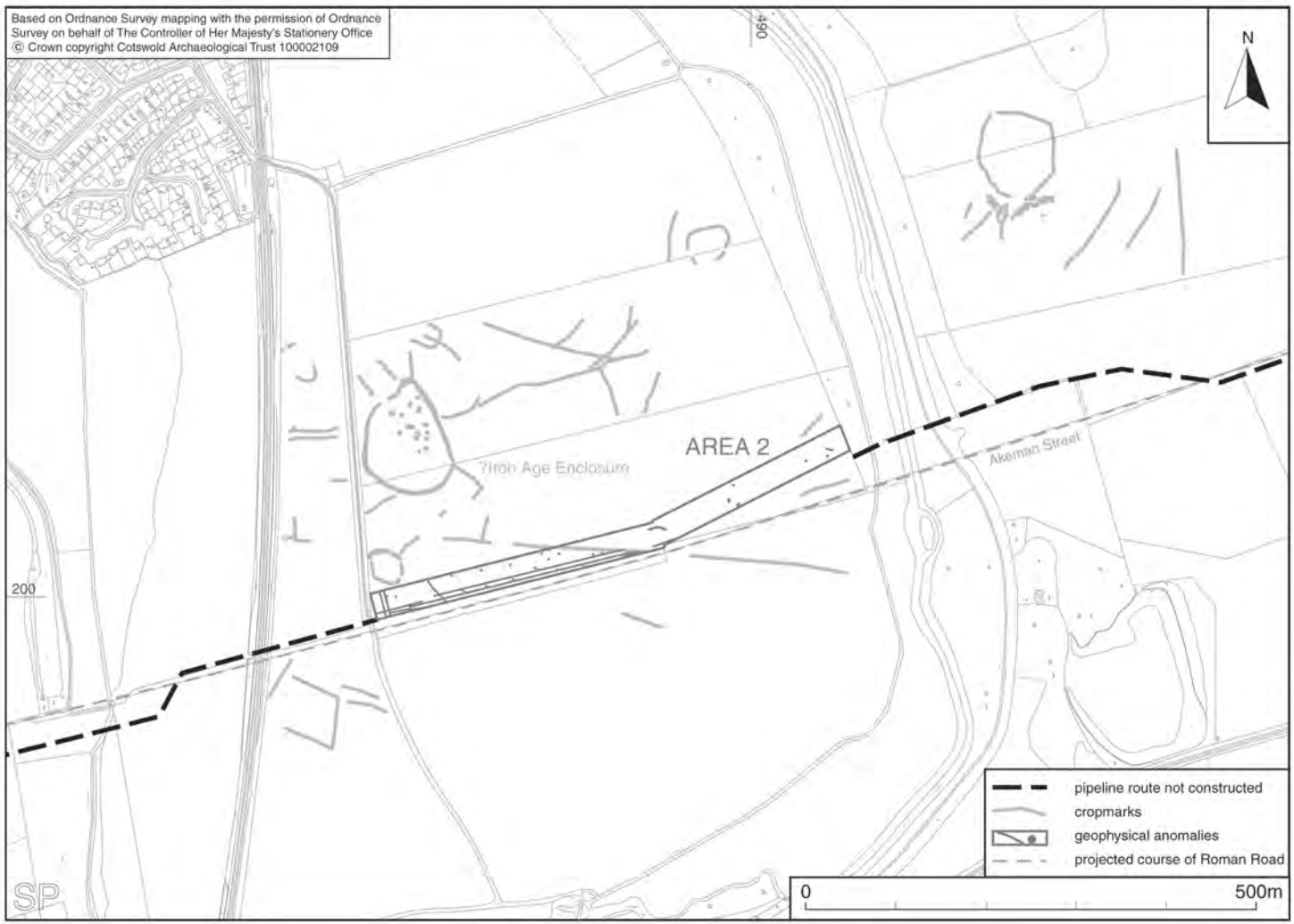


Fig. 3. Area 2, showing cropmarks and geophysical anomalies.


Fig. 4. Areas 3 and 4, showing cropmarks and geophysical anomalies.

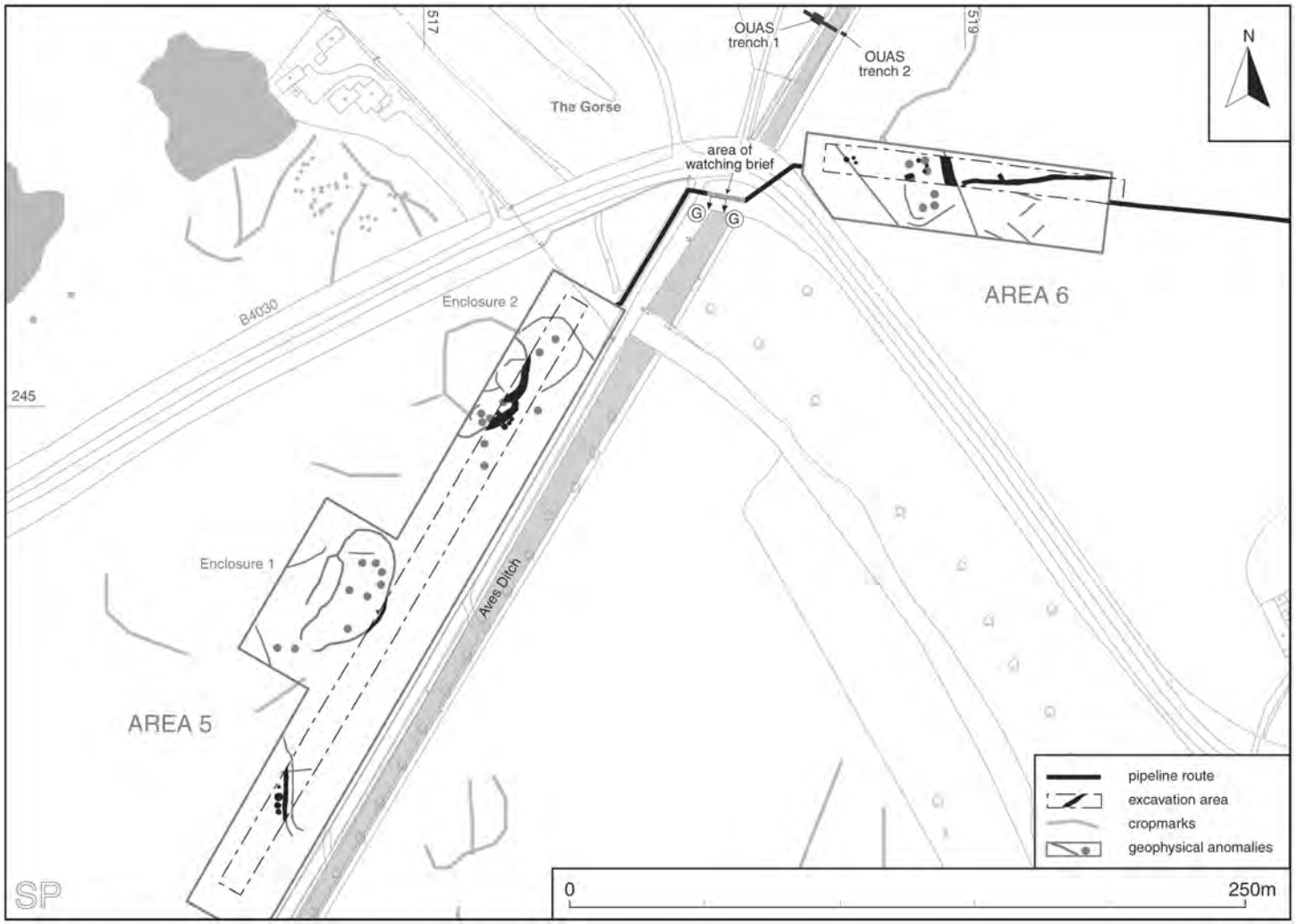


Fig. 5. Areas 5 and 6, showing cropmarks and geophysical anomalies.

Pit group 2 comprised four circular pits in an alignment alongside the western edge of ditch 1. All were steep-sided with flat bases and were 1.0–2.6 m in diameter and 0.24–1.1 m in depth. The two southernmost pits and the northernmost pit appeared to have been deliberately backfilled with deposits derived from the natural substrate and former topsoil/subsoil material and contained moderate quantities of animal bone, burnt stones, charcoal and pottery. The fill sequence of pit 5050, however, was different (Fig. 8 and Fig. 11, section BB). Its earliest fill was derived from natural weathering and contained moderate amounts of charcoal. This was overlain by a dark horizontal fill, probably an anthropogenic deposit, containing frequent charcoal inclusions as well as burnt animal bone and fired clay fragments. Two largely sterile deposits filled most of the remainder of the pit, leaving a central hollow. Burial A, the partial remains of a neonatal child, was recovered from the latest of these (fill 5053) although it was unclear whether the burial had been cut into fill 5053 or placed within it. The burial was sealed by two homogenous stony deposits, possibly deliberate backfills, which filled the remnant hollow of the pit. All of the fills of pit 5050 contained undiagnostic Iron-Age pottery with the exception of the final fill, from which wheel-thrown, late Iron-Age pottery was recovered.

### *Enclosure 2 (Middle to Late Iron Age) (Figs. 6, 9, and 11)*

Enclosure 2 appears as a sub-circular cropmark, *c.*45 m in diameter. This was identified during the geophysical survey, which also indicated that it enclosed a number of possible pits and internal ditched enclosures (Fig. 5). Further possible pits were identified close to its exterior. A possible outer enclosure identified during the geophysical survey proved to be of natural origin.

There appeared to be three separate phases of activity. The earliest ditch of enclosure 2 (ditch 4) truncated two pits within a cluster of five (pit group 1) making it possible that this group predated the layout of the enclosure (Fig. 6). These pits were similar to those in pit group 2 alongside ditch 1, being circular in plan with steep, almost vertical, sides and flat bases. They were also of similar dimensions, being 1.2–1.9 m in diameter and 0.4–0.6 m deep. Four of the pits contained similar fill sequences, with lower silty clay deposits, covering the bases and edges and leaving central hollows which were filled by darker stony deposits that may have been deliberate backfills. Small amounts of charcoal, animal bone and hand-made Iron-Age pottery were recovered from both types of fill. More human bone was found in this area of excavation, with the right humerus and radius or ulna of another infant recovered from pit 5016, and the finger of a human adult from one of the upper fills (fill 5087) of pit 5085. The lowest deposit in pit 5101 (fill 5102) contained oak and blackthorn charcoal which yielded two almost identical radiocarbon dates in the range 380–170 cal BC (Table 5). Fill 5010 of pit 5008 contained an iron strip of uncertain function, but there were few other finds of interest.

Parts of the south-eastern ditches defining enclosure 2 were exposed within the pipeline corridor (Fig. 9). These comprised ditches 4 and 5, both of which were curvilinear. Ditch 4 was the earlier with a steep-sided, narrow-based profile 1.5 m wide and 1 m deep (Fig. 11, section AA). It contained small amounts of hand-made and wheel-thrown pottery. One of the fills also contained moderate quantities of burnt limestone. Some of these fills might represent slumping from the cut edges, most of the in-filling was probably deliberate. The ditch had been re-cut at least twice, although the recuts were mostly much shallower than the original ditch. The fills of these recuts were similar to the fills of the original cut and contained small amounts of animal bone and pottery. Ditch 4 was finally filled with material derived from former topsoil or subsoil deposits from which wheel-thrown Iron-Age pottery was recovered.

Ditch 5 truncated ditch 4 and is therefore the latest phase of activity identified. It had been re-cut and both phases typically had rounded profiles, 1.0–1.8 m wide and 1 m deep. As with ditch 4, they were filled with a series of stony deposits, the lowest of which might represent erosion from the ditch edges but the poorly sorted nature of most suggests deliberate backfills. The lowest fill of one of the re-cut sections (fill 5042) contained charcoal which was radiocarbon dated to quite a wide calibrated range within the middle to late Iron Age (Table 5) whilst small quantities of hand-made Iron-Age pottery were recovered from both phases of this ditch. As was the case with ditch 4, the latest fill was the result of silting in the remnant hollow left by the partially in-filled ditch. Small amounts of animal bone and hand-made Iron-Age pottery were recovered from this final fill.

Ditch 5 extended into the enclosed area as defined by the cropmark and may have formed part of one of the internal enclosures identified by the geophysical survey (Fig. 6). This internal enclosure appears on the geophysical survey plot as a sub-circular enclosure *c.*14 m in diameter with a north-west-facing entrance and appears to be keyed into the perimeter ditch of enclosure 2.

### *Area 6 (Figs. 5, 10, and 11)*

Features within area 6 were first identified as a series of irregular cropmarks on aerial photographs. The geophysical survey confirmed the presence of these ditches and indicated the presence of further ditched features and pits. The pipeline corridor bisected these features and excavation identified a ditch and pits dated to the later Iron Age, and an undated ditch which is also likely to belong to this general date range. The principal ditch (ditch 2) ran north-south and appeared to be respected by the undated ditch (ditch 3). Two loose groups of pits (pit groups 3 and 4) lay to the west of ditch 2.

Ditch 2 was 3.4 m wide and 1.7 m deep with a steep-sided, flat-based profile. It was largely filled by a series of

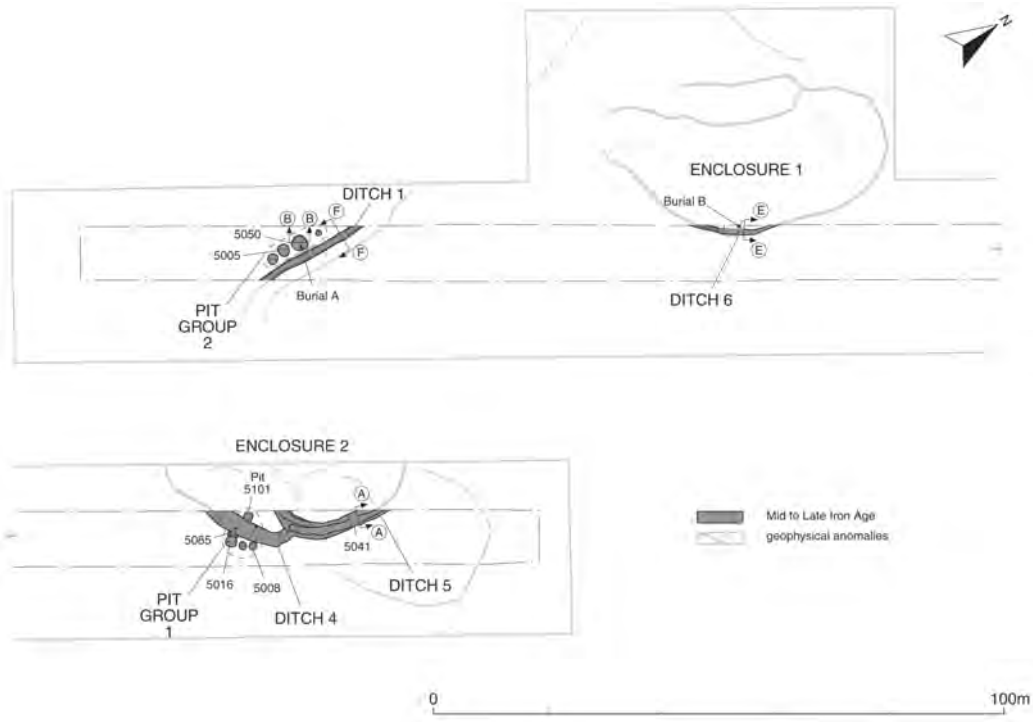


Fig. 6. Area 5: plan of archaeological features and geophysical anomalies.

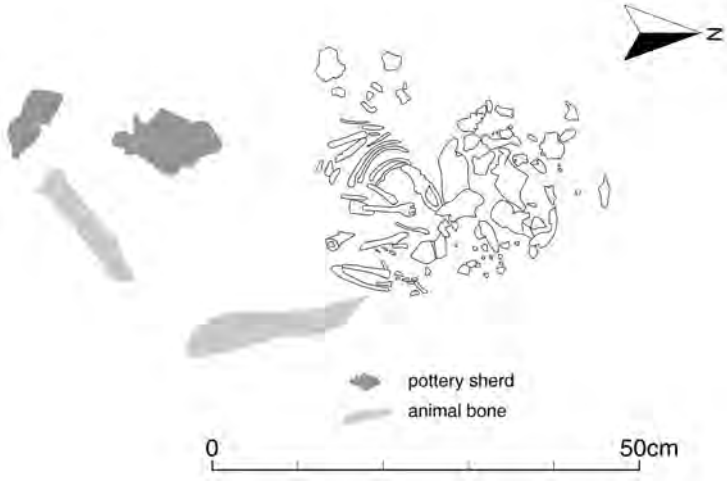


Fig. 7. Plan of burial B (ditch 6). The head is to the north-east; the legs were removed before the skeleton was recognised.

Fig. 8. Pit 5050 (pit group 2), looking south-west.

Fig. 9. Enclosure 2, looking north-east. Aves Ditch is in the trees to the right of the excavation trench.

horizontally laid stony deposits indicative of rapid deposition, which may have been deliberate backfills (Fig. 11, section CC). The lowest of these contained burnt limestone, charcoal flecks, relatively large quantities of animal bone (some of which was burnt) and pottery, whilst small amounts of animal bone and wheel-thrown pottery, possibly dating to the first century AD, were recovered from the second fill. These stony fills were overlain by several deposits which probably represent a final phase of natural accumulation into a remnant hollow. These had been re-cut by a smaller ditch which had itself been finally filled by a thin natural accumulation. Ditch 2 corresponded with the location of a linear feature identified in the geophysical survey.

Pit groups 3 and 4 each comprised three circular pits similar to those of pit groups 1 and 2, and a sub-rectangular pit (Fig. 11, section DD). The circular pits were all between 0.8 m and 1.6 m in diameter and 0.4 m to 1 m deep. Two of the pits contained single fills. The remainder contained thin primary silts overlain by a series of stony backfills containing moderate quantities of ash, burnt limestone fragments, animal bone and hand-made Iron-Age pottery. Fill 6018 (the third fill of pit 6016) also contained burial C, the pelvis and legs of a child aged between three to five years, although it was not determined on site as to whether these were articulated. Two of the pits contained thin final fills derived from the topsoil or subsoil.

Pit 6002 was morphologically different, being sub-rectangular in plan, 3.3 m long, 1.46 m wide and 0.54 m deep. The lower fill almost entirely filled the pit and included animal bone, burnt animal bone, charcoal flecks, ash and a fragment of an iron binding strip as well as moderate amounts of hand-made Iron-Age pottery. The upper fill was a thin deposit derived from the subsoil, and contained animal bone, another iron strip and small amounts of similar pottery.

The undated ditch, ditch 3, was aligned east/west and had moderately sloping edges. At its western end two cuts were visible, the earlier terminating 2 m east of ditch 2. The recut, instead of forming a terminal, turned to run south-west beyond the limit of the excavation area. Both phases were without finds. There were indications that the earliest deposits might have slumped in from a bank along the ditch's northern edge, whilst the later fills might have derived from deliberate slighting of this bank. It is possible that ditch 3 respected ditch 2 and was therefore broadly contemporary with it.

### *Aves Ditch Watching Brief Area (Figs. 5 and 12)*

Ditch 15005 was identified during the watching brief where the pipeline crossed the B4030 (Fig. 5). Although it was only exposed within the narrow width of the pipe trench, it appeared to follow a north-south alignment and

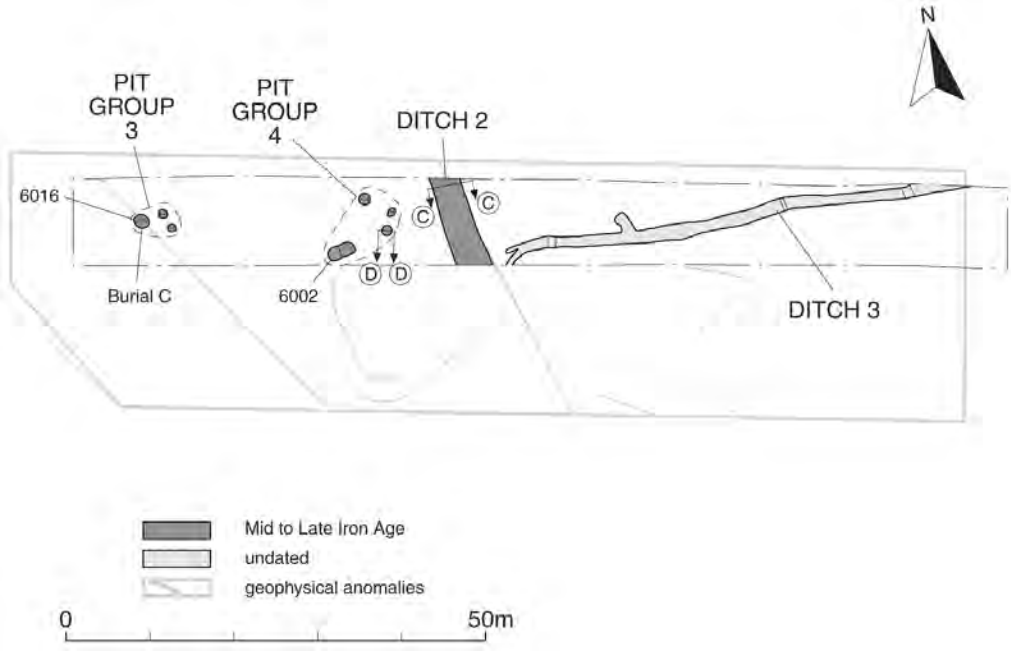


Fig. 10. Area 6: plan of archaeological features and geophysical anomalies.

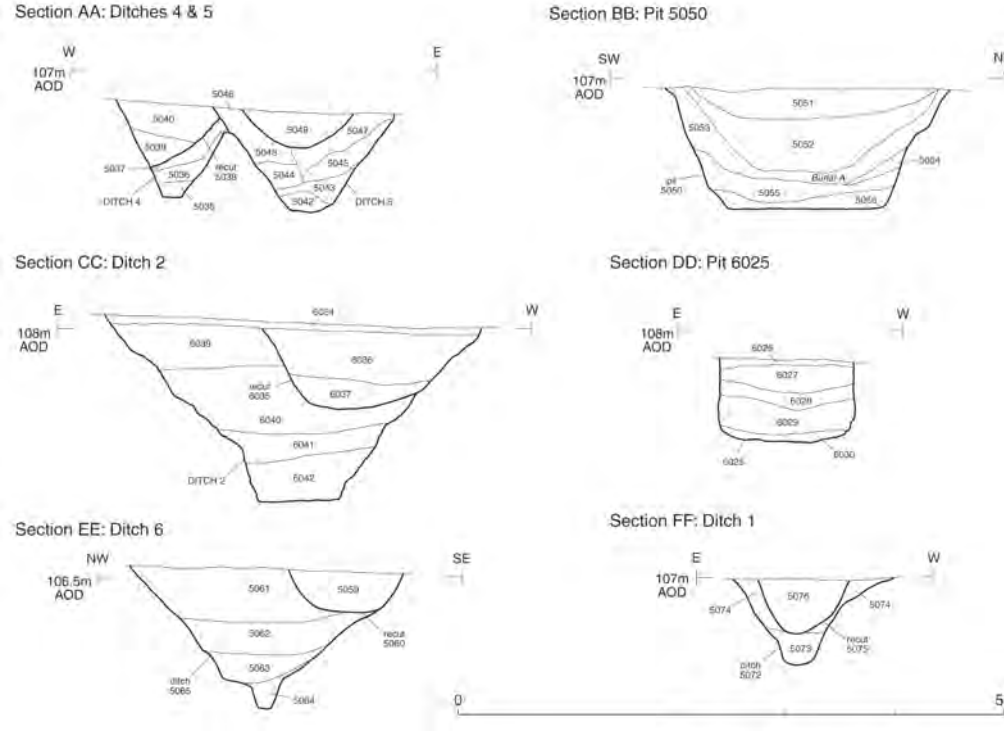


Fig. 11. Areas 5 and 6: sections AA-FF.

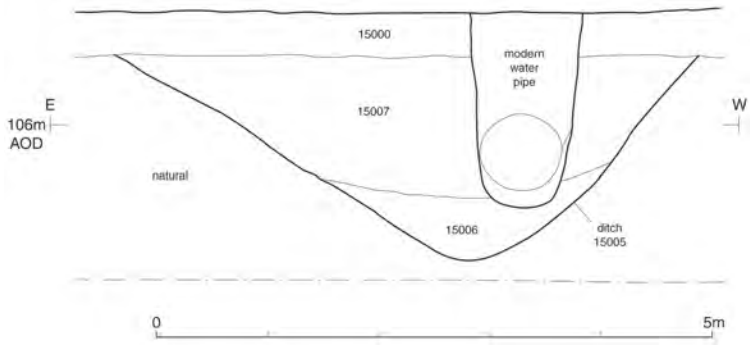


Fig. 12. Section GG: Aves Ditch.

had moderately sloping asymmetrical edges (Fig. 12, section GG). It was 5.4 m wide and 1.8 m deep. The lowest fill (15006) was very stony and may have derived from the weathered edges of the ditch or have slumped in from a former bank. The remainder of the ditch appeared to have filled naturally. Ditch 15005 remained undated and contained no visible anthropogenic material, but its location and projected alignment corresponds with that of Aves Ditch as depicted on Ordnance Survey maps.

## THE POTTERY by E.R. McSLOY

Pottery amounting to 656 sherds (3510 g) was recovered. Unstratified pottery of medieval and later date recovered as part of the pipeline investigations is omitted from this report. The material described here was recovered from areas 5 and 6 and dates to between middle Iron-Age and late Iron-Age or early Roman periods. The dating of the (Iron-Age) pottery stylistically and through comparison with larger and better-dated assemblages, is supported by radiocarbon determinations, which suggest activity between the fourth and second centuries BC and possibly extending into the early first century BC.

The larger part of the assemblage was hand-recovered, with the remainder (92 sherds weighing 112 g) retrieved following processing of bulk soil samples. The pottery from the soil samples includes many very small fragments and has the effect of lowering the average sherd weight. The mean for hand-collected material remains small (6.3 g) and is a reflection of high levels of fragmentation, some of which certainly occurring at the time of or following recovery. Other aspects of condition, including survival of mineral inclusions and surface preservation, were good and permitted survival of carbonised residues relating to pottery use and surface treatments (burnishing).

The pottery was recovered from fifty-seven separate deposits, primarily pits (354 sherds or 54%) and ditches (36%), some of which define structural divisions. A single fill (5082), representing the final natural in-filling of enclosure 2, produced fifty sherds (8%). Sherd count per excavated feature deposit was typically low though markedly higher for pits. One pit (pit group 2, pit 5050) produced 175 sherds (863 g). In an effort to identify any compositional differences across the site, tabulation of data is set out according to the main structural divisions (Table 1).

### *Methodology*

Recording methodology reflects best practice as recommended by the Prehistoric Ceramics Research Group.[35] Some measures such as sherd thickness, rim diameter and rim EVEs (estimated vessel equivalents) have not been used due to the relatively small size of the group, the dominance of hand-made forms and high levels of fragmentation – frequently resulting in the splitting of sherds. The pottery was viewed by context and linked-context, sorted by fabric and quantified according to sherd count and weight in grammes. Sorting of fabrics was undertaken macroscopically or with the assistance of a hand-lens at x3 magnification. Full description of fabrics for the archive (abbreviated fabric descriptions are presented here) utilised a (x 20) microscope. Dual-level recording of vessel form, to include generic form/profile and secondary element (rim or base) morphology, was undertaken. Recording of surface treatment and any use/wear evidence was also undertaken.

[35] Prehistoric Ceramics Research Group, *The Study of Later Prehistoric Pottery: General Policies and Guidelines for Analysis and Publication*, Prehistoric Ceramics Research Group Occasional Papers 1 and 2 (Oxford, 1997).

## *Description of the Assemblage*

Pottery comprising hand-made forms in a variety of shelly or calcareous fabrics constitutes the largest element within the assemblage, equivalent to 85% by count (Table 1). The remainder of the assemblage consists of wheel-thrown pottery of late Iron-Age to early Roman type which occurs in a differing range of fabrics and forms (below).

The range of fabrics compares in most respects to the major middle Iron-Age groups from the immediate region, including Bicester Fields,[36] and Slade Farm, Bicester.[37] There are affinities also with central-Oxfordshire assemblages, including Gravelly Guy,[38] which similarly contain proportionally large 'calcareous gravel'-tempered fabric components. A difference is the scarcity of sandy fabrics at these sites – a type which at Gravelly Guy was considered a regional import and which becomes increasing dominant through the Iron Age.[39]

Common to sites in the area is the dominance of fossil-shell and calcareous types, with the expectation that the majority of material was made locally using resources close at hand. Grogged and grogged/sandy fabrics are mainly confined to wheel-thrown forms. The inclusion of calcareous material in most fabrics suggests local manufacture.

## *Fabrics*

Hand-made (middle to late Iron Age)

***C1**: Calcareous*

Grey-brown throughout or with light brown exterior surface. Medium-hard with irregular fracture and slightly-sandy feel. Common or abundant moderately sorted sub-angular limestone 0.5–1.5 mm. May contain sparse fossil-shell, 2–3 mm.

***C2**: Sparsely Calcareous with quartz sand*

Grey-brown throughout or with light brown exterior surface. Medium-hard with finely irregular fracture and slightly sandy feel. Sparse well-sorted sub-angular limestone 0.3–0.5 mm and sparse clear quartz-sand, 0.3 mm.

***S1**: Medium fossil shell-tempered*

Grey-brown exterior surfaces with dark grey-brown core. Medium-hard with irregular fracture and soapy feel. Common, poorly sorted fossil shell, typically 1–3 mm and sparse sub-angular limestone, 2–3 mm. Can be micaceous.

***S2**: Coarse fossil shell-tempered*

Light-brown exterior surface with dark grey-brown core and inner surface. Medium-hard with irregular fracture and soapy feel. Common, poorly sorted fossil shell, typically 2–5 mm or up to 8 mm; rare sub-angular limestone, 2–3 mm.

***S3**: Common, fine shell-tempered*

Dark grey-brown throughout. Medium-hard with irregular fracture and soapy feel. Common, well-sorted (?pounded) shell, typically 1–2 mm.

***L1**: Common fine limestone*

Dark grey throughout. Medium-hard with irregular fracture and smooth feel. Abundant, well-sorted sub-rounded limestone, including oolitic limestone 0.5–1 mm. Sparse sub-rounded red-brown iron oxide 0.5–1 mm.

***A1**: Quartz sand*

Dark grey with reddish brown margins. Hard, with finely-irregular fracture and sandy feel. Common, well-sorted clear or milky-white quartz sand, 0.2–0.3 mm; sparse, sub-rounded red iron oxide, 0.5 mm

***AC1**: Quartz sand with calcareous inclusions*

Dark grey throughout. Hard, with finely irregular fracture and slightly sandy feel. Common, well-sorted clear or milky-white quartz sand, 0.2–0.3 mm; common calcareous inclusions including angular limestone, 1–2 mm; sparse fossil shell, up to 4 mm; sparse, sub-rounded red iron oxide, 0.5 mm

***E1:** Grog*

Dark grey throughout. Soft with irregular fracture and smooth feel. Common, well-sorted sub-rounded self-coloured grog, 0.5–1 mm. Sparse sub-rounded red-brown iron oxide 0.5–1 mm.

***E2**: Pale grog/argillaceous inclusions*Light-brown exterior surface with dark grey-brown core and inner surface. Hard, dense fabric with irregular fracture and soapy feel. Common, moderately sorted sub-rounded, buff-brown argillaceous (?clay pellet?), 2–3 mm. Inclusions have leached from surfaces, resulting in vesicular appearance.

[36] K. Brown, 'The Pottery', in A.M. Cromarty, S. Foreman, and P. Murray, 'The Excavation of a Late Iron Age Enclosed Settlement at Bicester Fields Farm, Bicester, Oxon', *Oxoniensia,* 64 (2000), pp. 192–95.

[37] A. Woodward and J. Marley, 'The Iron Age Pottery', in P. Ellis, G. Hughes, and L. Jones, 'An Iron Age Boundary and Settlement Features at Slade farm, Bicester, Oxfordshire: a Report on Excavations, 1996', *Oxoniensia,* 65 (2001), pp. 233–54.

[38] D. Duncan, G.H. Lambrick, and A. Barclay, 'Final Bronze Age to Middle Iron Age Pottery', in G.H. Lambrick and T. G. Allen, *Gravelly Guy Stanton Harcourt Oxfordshire: The Development of a Prehistoric and Romano-British Community* Oxford, Thames Valley Landscapes Monograph, 21 (2004), pp. 259–303.

[39] D. Duncan et al., 'Final Bronze Age to Middle Iron Age Pottery', ibid. p. 285.

TABLE 1. POTTERY FABRICS: QUANTIFICATION AND PROVENANCE. SHOWN AS SHERD COUNT/WEIGHT IN GRAMMES

| | Enclosure 1 | | Enclosure 2 | | Area 6 | | | | Other | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Fabric** | **Ditches** | **Pit Gr. 2** | **Ditches** | **Pit Gr. 1** | **Ditch 1** | **Ditch 2** | **Pit Gr. 3** | **Pit Gr. 4** | **<>** | **Total** |
| C1 | 32/123 | 90/333 | 27/94 | 1/7 | 3/11 | 2/11 | 2/14 | 8/70 | 57/75 | **222/738** |
| C2 | 6/26 | 42/132 | 8/58 | 2/12 | 13/14 | 1/1 | 9/84 | 7/121 | 2/7 | **90/455** |
| S1 | 1/1 | 68/188 | 26/192 | 7/26 | | | 8/60 | | 2/5 | **112/472** |
| S2 | | 23/278 | 2/15 | 3/13 | | | | | 4/23 | **32/329** |
| S3 | | | | | | | | | 1/3 | **1/3** |
| L1 | | | 2/5 | | | 59/121 | 1/17 | 4/27 | 3/40 | **69/210** |
| A1 | 1/7 | | | 5/21 | | | | 5/21 | 2/11 | **13/60** |
| A2* | | | 21/97 | | | | | | | **21/97** |
| AC1 | | | 9/81 | | | | | | | **9/81** |
| E1 | | 1/3 | 1/33 | | | | | | | **2/36** |
| E2 | | | 1/4 | | | | | | | **1/4** |
| E3* | 1/2 | | 56/530 | | | 4/109 | | | 8/100 | **69/741** |
| EC1 | | 7/109 | 1/18 | | | | 2/31 | | | **10/158** |
| EC2* | 5/126 | | | | | | | | | **5/126** |
| **Total** | **46/285** | **230/1043** | **154/1127** | **18/79** | **16/25** | **66/242** | **22/19/206** | **24/17/239** | **79/252** | **656/3510** |

* wheelthrown fabrics

***EC1**: Grog with calcareous inclusions*
Dark grey with mid brown outer surface. Medium-hard with irregular fracture and soapy feel. Common, well-sorted sub-rounded dark-grey grog (0.5–1.5 mm); common to sparse calcareous inclusions including well-sorted sub-rounded limestone, 0.2–0.5 mm and sparse fossil shell (1 mm).

*Wheel-thrown (Late Iron Age to early Roman)*
***A2**: Belgic-type sandy wheel-thrown*
Dark grey surfaces and core with orange margins. Hard with finely-irregular fracture and sandy feel. Common and well-sorted clear quartz-sand, 0.3 mm; sparse self-coloured, sub-angular clay pellet/grog; sparse sub-rounded red-brown iron oxide, 1–2 mm.
***E3**: Belgic-type wheel-thrown grog-tempered*
Dark grey-brown throughout or with paler grey core. Medium-hard with finely irregular fracture and slightly sandy feel. Common and well-sorted sub-rounded dark grey grog. 1–1.5 mm and sparse clear quartz-sand, 0.3 mm.
***EC2**: Belgic-type wheel-thrown grog-tempered with quartz sand*
Dark grey-brown throughout. Hard with irregular fracture and sandy feel. Common and well-sorted sub-rounded dark grey grog. 1–1.5 mm; common clear quartz-sand, 0.3 mm and sparse sub-angular limestone, 0.5–1 mm.

*Forms (Table 2)*
Due to the high levels of fragmentation it was rarely possible to be fully confident of vessel form although most vessels are likely to have been of jar proportions. A single probable lid or cover was also noted (Fig. 13.9). Most common among the hand-made group are vessels with rounded, (ovoid or globular) profile (Fig. 13. 1–2, 5, 7–8), with fewer barrel-shaped forms (Fig. 13.4, 6) or slack-shouldered (Fig. 13.3) forms. Among the rounded and slack-shouldered forms there is some variation in rim morphology (Table 2), although simpler, upright or everted forms predominate.
Among the small wheel-thrown group, vessel forms are restricted to large, shouldered or necked jars and a smaller, high-shouldered bowl, with cordon at junction of neck and shoulder (Fig. 13.10). All feature out-curved rims.

TABLE 2: SUMMARY OF POTTERY FORMS

| Code | Description | Rim | Fabrics |
|---|---|---|---|
| JB | Jar/bowl indeterminate profile | bead (2); short-everted (2); upright (3) | E1 (1); C1 (2); AC1 (2); S1 (1); S2 (1) |
| J1 | Jar, rounded (globular or ovoid) | bead (2); short-everted (5); upright (1); triangular (1) | C1 (2); L1 (2); S1 (2); EC1 (2); A1 (1) |
| J2 | Jar, barrel-shaped | Simple (1); squared (2) | C1 (1); S1 (1); S2 (1) |
| J3 | Jar, slack-shouldered | Upright , externally-expanded (1) | S2 (1) |
| J4 | Jar, necked (wheelthrown) | Everted/curved (5) | E3 (5) |
| L? | Lid/cover? | Simple (1) | S1 (1) |
| B1 | Bowl, necked (wheelthrown) | Everted/curved (1) | EC2 (1) |

## *Surface Treatment*

Impressed or tooled decoration of any kind was absent. Seven (hand-made) vessels featured burnish, this sometimes resulting in a high surface polish. Although the quantity is small, there is correlation between fabric and use of burnish, with five of seven examples occurring in finer limestone-tempered and dark grey firing fabric L1.

## *Evidence for Use*

Indications of use were revealed in the form of carbonised residues relating to cooking and a single instance of leaching of (interior) surface inclusions, which might relate to storage of corrosive substances. Seventeen instances of use/wear evidence were recorded, all but one (of sooting), occurring with the hand-made (middle Iron Age) fabrics. Evidence for use as cooking vessels occurred across fabric types. An imbalance of internal 'burnt-food type' residues (eleven) over external sooting (four) hints that cooking using indirect heat, perhaps using an oven, was favoured.

## *Discussion*

*Dating.* Iron-Age dating, broadly between the fourth and first centuries BC, is suggested on stylistic grounds for the majority part of the assemblage which comprises a narrow range of hand-made vessels in shelly or other calcareous fabrics conventionally termed 'middle' Iron Age. Radiocarbon determinations obtained for pit group 1 (pit 5101) help refine dating for this portion of the assemblage, prompting dating between the fourth and early

second centuries BC. The single radiocarbon date from the primary fill of enclosure 1 ditch 6 (5041) does not exclude contemporaneity with pit group 1, though it extends a date for construction as late as the early first century BC (Table 5).

Pottery of late Iron Age or early Roman type occurs in small quantities as wheel-thrown necked jar or bowl forms in fabrics E2–4, primarily from enclosures 1 and 2 and area 6/ditch 2. The precise date for the introduction of wheel-made pottery into this area cannot be known. The evidence both from the region to the north-east, encompassing Northamptonshire and the Ouse Valley,[40] and from large assemblages from the Oxfordshire Thames valley,[41] indicates that the bulk of early wheel-made pottery falls within a time bracket from the late first century BC and the mid first century AD. Given the absence of fully Romanised sandy reduced ware fabrics, a date in the first half of the first century AD would be most likely for material described here. Also considered as of this date are bead or triangular-rim vessels (Fig. 13.5 and 8) which occur in (hand-made) fabrics C1, A1 and L1. Comparable forms of this date were noted at Gravelly Guy (form JR12)[42] where the comparison was made with first century BC/AD limestone-tempered forms from the Malverns and Savernake forest.

It may be significant that the quantity of the stylistically later material from enclosures 1 and 2 is small and appears largely confined to the upper feature fills. Given the radiocarbon date obtained for enclosure 1 and the overall composition of the pottery, a construction date in the second or first century BC is likely, with ditch features remaining open and accepting material into the first century AD.

*Stylistic/Cultural Associations.* The composition of the pottery assemblage was compared between the three 'sites', with attention particularly focused on the possibility that Aves Ditch represented a significant cultural division at this time. It is accepted that potential for meaningful comparison is limited by the small size of the assemblage and that any apparent differences might also relate to chronology. With the possible exception of limestone-tempered fabric L1, which is most abundant in area 6, the range and frequency of fabrics appears to be broadly consistent across the 'sites', suggesting similar access to clay and other materials (Table 1). A more obvious difference, although it remains unclear still whether this might relate more to 'culture' or chronology (or neither), is the higher incidence (six out of the seven vessels) in area 6 of burnish.

Considered together, the hand-made assemblage compares in terms of range of fabric and forms with groups from the area, including larger middle Iron-Age groups from the region of Bicester, approximately 6 km to the east. There are also comparisons to be made, more so with form than fabric, with the large and well-published assemblages from the Thames basin. Influence from ceramic styles of the Northamptonshire/East Midlands which might occur as vertical scoring, fingernail decoration or common use of loop-handles, were not apparent although it is unclear the extent to which the small size of the assemblage is a factor here.

The small wheel-thrown component similarly compares in terms of the fabrics and forms represented with late Iron-Age or early Roman assemblages in the region. The absence of butt-beaker copies or elaborate bowl forms which can characterise post-conquest assemblages, might be significant, although the size of the assemblage makes firm conclusions impossible.

### *Catalogue of Illustrated Sherds:*

1. Area 5, period 1: enclosure 2, ditch 5017 (fill 5018). Rounded jar (J1) with upright rim, externally expanded rim. Fabric S1.
2. Area 5, period 1: pit group 2, pit 5050 (fill 5051). Rounded jar (J1) with short, everted-rim. Fabric EC1.
3. Area 5, period 1: pit group 2, pit 5050 (fill 5055). Slack-shouldered jar (J3) with upright rim. Fabric S2.
4. Area 5, period 1: pit group 2, pit 5050 (fill 5055). Barrel jar (J2), squared rim. Fabric S2.
5. Area 5, period 1: enclosure 1, ditch 5070 (fill 5070). Rounded jar (J1) with bead-rim Fabric C1.
6. Area 6, period 1: pit group 4, pit 6031 (fill 6032). Barrel-shapped or straight-sided jar (J2), simple rim. Fabric C1.
7. Area 6, period 1: pit group 4, pit 6031 (fill 6032). Rounded jar (J1) with short, everted-rim. Fabric L1. Burnished.
8. Area 6, period 1: pit group 4, pit 6031 (fill 6032). Rounded jar (J1) with triangular rim. Fabric A1.
9. Area 6, period 1: pit group 3, pit 6016 (fill 6018). ?Lid/cover. Fabric S2.
10. Area 5, period 1: enclosure 1, ditch 5065 (fill 5061). Wheel-thrown necked bowl (B1) with curved rim. Fabric EC2.

[40] R.M. Friendship-Taylor, *Late La Tène Pottery of the Nene and Welland Valleys of Northamptonshire: with Particular Reference to Channel-rim Jars*, BAR BS, 280 (1999, Oxford), pp. 25–9; D. Knight, '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* (Oxford, 2002), pp. 136–7.

[41] S. Green, 'Late Iron Age and Roman Pottery', in Lambrick and Allen, *Gravelly Guy*.

[42] Ibid, p. 313.

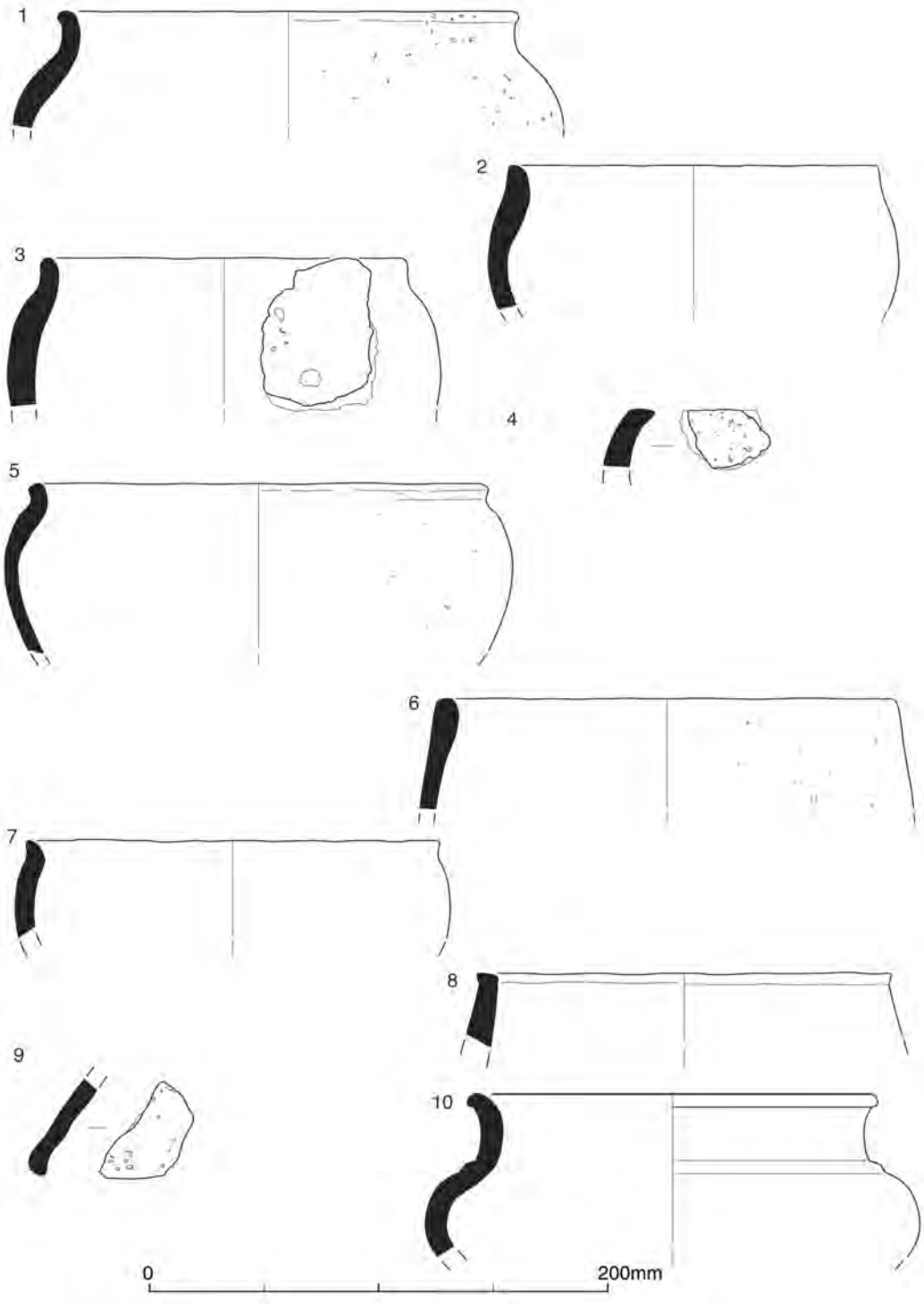


Fig. 13. Iron-Age pottery.

## IRON-AGE METALWORK AND OTHER FINDS by E.R. McSLOY

A single small and irregular fragment of copper-alloy sheet was recovered from enclosure 1, ditch 6 (fill 5047). A further three objects, each of iron, are described below. None of these items can be ascribed a specific function; however, the rounded form of the iron strip from Pit 5008 and its shallow 'V'-shaped section, suggest use as edge-binding for a rounded object.

### *Catalogue Descriptions:*

RA. 1. Enclosure 2, Pit group 1, pit 5008, fill 5010. Iron strip. Curving with shallow 'V'-shaped section. Two joining fragments. Total length 59 mm; width 11 mm; thickness 2 mm.
RA. 100. Area 6, Pit group 4, pit 6002, fill 6004. Iron strip. Total length 63 mm; width 9 mm; thickness 2 mm.
RA. 101. Area 6, Pit group 4, pit 6002, fill 6003. Iron binding strip fragment. 1 rivet *in situ*. Total length 63 mm; width 21 mm; thickness 2 mm.

Other finds from the excavations comprised an assortment of 11 pieces of earlier Prehistoric worked flint recovered as residual items, and a small collection of amorphous fired clay (46 g) from Iron-Age contexts.

## THE HUMAN REMAINS by HARRIET JACKLIN

The following report details the results of the analysis of three skeletons excavated from area 5 and area 6. Additionally, two infant arm bones came from pit 5016 (fill 5015, pit group 1) and an adult hand phalanx was recovered from pit 5085 (fill 5087, pit group 1) as disarticulated material. All the burials are of Iron-Age date.

The analysis of the human remains included age, sex, dentition, dental health, cranial and post-cranial metrics, non-metric traits, and stature of all skeletal material whenever possible. Pathological analysis was also undertaken. The results were recorded using a standardised recording form created by the author, in line with Brickley and McKinley 2004.[43]

### *Results*

*Burial A (context 5053, pit 5050).* The bone preservation was poor and the skeleton was less than 25% complete. Parts of the skull and mandible were present as well as ribs and most of the right arm. The skeleton is of an infant aged between birth and two months based on dental eruption, epiphyseal fusion, and estimated long bone length.[44] Due to the young age of the individual an estimation of sex was not attempted. No pathology was found.

*Burial B (context 5071, ditch 6).* Ditch 6 had been re-cut several times and burial B was found towards the base of the primary cut in a crouched position with his/her head to the north-east, facing south-east. The arms were flexed and drawn up towards the face with the hands together whilst the legs were flexed at the knee (Fig. 7). Although 75–100% complete, the skeleton was poorly preserved. Most parts of the body were represented with the exception of the feet. Finds associated included animal bone and Iron-Age pottery sherds. The skeleton is an infant aged between six months and one year based on dental morphology, epiphyseal fusion, and long bone length. Analysis of dental morphology aged the individual at three to nine months. Age had to be estimated on the morphological size of the individual teeth as they were found loose and not within the alveolar bone. The mental symphysis was found to be fully fused (the mental symphysis fuses within the first year of life), whilst long bone lengths (although damaged) indicate an age of two to three months. The discrepancy in long bone length, dental and fusion age is likely to be explained by the severe ill-health (possible tuberculosis) of the individual at the time of death.

[43] M. Brickley and J.I. McKinley (eds.), *Guidelines to the Standards for Recording Human Remains*, BABAO/IFA Paper, 7 (Southampton, 2004). Other references used include W. Bass, *Human Osteology: A Laboratory and Field Manual*, Special Publication, 2 (Columbia, 1995); J.E. Buikstra and D.H. Ubelaker (eds.), *Standards for Data Collection from Human Skeletal Remains*. Arkansas Archaeological Survey Research Series, 44 (Fayetteville, 1994); D.R. Brothwell, *Digging up Bones,* British Museum (London, 1981); J.L. McKinley and C.A. Roberts, *Excavation and Post-Excavation Treatment of Cremated and Inhumed Human Remains*, IFA Technical Paper, 13 (Reading, 1993). Bone fusion data is based on L. Scheuer and S. Black, *Developmental Juvenile Osteology* (London, 2000). Pathological literature consulted includes A.C. Aufderheide and C. Rodriguez-Martin, *The Cambridge Encyclopaedia of Human Paleopathology* (Cambridge, 2003); M.E. Lewis, *The Bioarchaeology of Children. Perspectives from Biological and Forensic Anthropology* (Cambridge, 2007); R.W. Mann and D.R. Hunt, *Photographic Regional Atlas of Bone Disease* (Chicago, 2005); D.J. Ortner, *Identification of Pathological Conditions in Human Skeletal Remains*, 2nd edn (Washington, 2003); C. Roberts and K. Manchester, *The Archaeology of Disease*, 2nd edn (Stroud, 1995); C. Roberts and M. Cox, *Health and Disease in Britain: From Prehistory to the Present Day* (Stroud, 2003).

[44] Scheuer and Black, *Developmental Juvenile Osteology,* tables adapted from I.Gy. Fazekas and F. Kosa, *Forensic Fetal Osteology* (Budapest, 1978), and M.M. Marsh, 'Measurements from Roentgenograms', in R.W. McCammon, *Human Growth and Development* (Springfield, 1970), pp. 157–200.

Active periostitis (indicated by plaque like new bone growth, colour change, and porosity) was found affecting the left and right tibia (lateral diaphysis affected), the left and right illium (posterior surfaces affected), and the cranial bone fragments (external/ectocranial). All bones were very damaged by taphonomic change. Great care was taken to distinguish between natural development changes (which can look similar to periosteal reaction in the young), taphonomic damage, and periostitis. Where there was any doubt about the reason for bone changes exhibited, a diagnosis of periostitis was not given. This means that more bones may have been affected by periostitis, but due to taphonomic change, it was not possible to substantiate this. Slight possible periosteal changes were found to affect the external surfaces of the individual's ribs, but this is unable to be confirmed due to the factors noted above. Periostitis is a condition affecting the periosteum (outer layer of bone) which causes abnormal/new bone growth and can be multifocal (affecting a number of different bones) or localised (often secondary to trauma or localised infection). In burial B's case the periostitis was multi-focal. Multi-focal periostitis is symptomatic of a number of different diseases and the location of periostitis can (depending on how advanced) be used to indicate the disease present. All the metaphyses (the ends of long bone to which the epiphyses fuse) were examined for pathological change as certain diseases can affect these areas, but they were too damaged to assess. No swelling of any metaphysis was found.

Other pathological changes found to affect burial B were a semi-circular destructive lesion (5.82 x 5.11 mm, <1 mm depth), located at the mental eminence (chin). The left orbit (eye socket) was affected by a similar lesion (3.78 x 2.14 mm, <1 mm depth) but it was not possible to confirm diagnosis due to taphonomic damage. Both lesions bear a striking similarity to the lesions formed by *lupus vulgaris*.[45] *Lupus vulgaris* is the most common and severe form of tuberculosis of the skin.[46] It develops as reddish brown nodules affecting the inner layers of the skin, with ulcers present on the surface, with the face being most commonly affected.[47] The incubation period and spread of tuberculosis is quite long and some individuals can live for years with the varying forms of the condition (as in *lupus vulgaris* which heals leaving scarring and then reoccurs elsewhere). If indeed burial B suffered from a form of tuberculosis, indicated by the presence of *lupus vulgaris* type lesions and active periostitis (which may or not be related) then it is likely that he/she contracted it near their time of birth as the condition can take up to three or four months before the lesions develop.

*Burial C (context 1608, pit 6016*). The skeleton was less than 25% complete. The bones were in good condition, but only the legs and one toe were present. The skeleton fell into the infant-child category, aged between three and five years based on epiphyseal fusion, and approximate long bone lengths. No pathology was present. From the same deposit sheep/goat fore-limb bones were recovered which may have been partially articulated at the time of deposition.

*Infant Arm Bones (context 5015, pit 5016).* From area 5 (pit group 1) were found part of the right humerus and a fragment of radius or ulna from an infant less than one year old. They were not recorded *in situ* and it is not clear whether they were articulated in the ground.

## *Conclusion*

The skeletal remains from areas 5 and 6 represent four very young individuals and a single bone from an adult. The remains comprise three infants, one aged between birth and two months (burial A), one between sixth months and one year (burial B), and one more generally less than one year (bones from pit 5016); and a young child aged between three and four years (burial C). Burials A and C, and probably (but not certainly) the unassociated arm bones, were deliberately deposited within pits, while burial B was found in ditch 6. In all cases the features do not seem to have been primarily dug as graves.

Iron-Age burials before first century BC have usually been found in pits on settlement sites or are represented by deposits of disarticulated human bone. The nature of these burials within pits and ditches is consistent with others of a similar date in the region. It has been suggested that such deposits are the result of infants being buried within convenient open features which would not have been cut to the exact size requirements of the corpse.[48] Other Iron-Age sites yielding human remains within in the region include Gravelly Guy near Stanton Harcourt, and Yarnton, both in the Upper Thames Valley. At Gravelly Guy (approximately 17 km south-west of Kirtlington) around seventy-eight human bone deposits were recovered from pits, ditches, shallow scoops, and postholes,

[45] C. Roberts and J.E. Buikstra, *The Bioarchaeology of Tuberculosis. A Global View on a Re-emerging Disease* (University Press of Florida, 2007), p. 148.

[46] N.W. Dorland, *Dorland's Pocket Medical Dictionary* (London, 1995).

[47] E.R. Smith, *The Retreat of Tuberculosis, 1850–1950* (London, 1988).

[48] V.M. Hope, 'The Iron And Roman Ages', in P.C. Jupp and C. Gittings, *Death in England: An Illustrated History* (Manchester, 1999), pp. 40–64.

twenty-eight of which were infants.[49] At Yarnton (approximately 7 km south-west of Kirtlington) burials were, unusually, found in a cemetery set apart from the settlement.[50]

Of most interest is burial B, an individual who may have suffered from facial tuberculosis (*lupus vulgaris*). *Lupus* is the Latin word for 'wolf' and Roberts and Buikstra suggest that it was perhaps used to denote the wolf-like appearance of somebody with characteristic changes to the face.[51] Consideration should be given to any possible stigma attached to this condition due to facial disfiguration. Whether burial B was specifically buried in a different manner to the other skeletons discussed in the report remains unanswered.

## THE ANIMAL BONES by SYLVIA WARMAN

Following the assessment recommendations,[52] the animal bones from phase 1 (Iron-Age deposits) were selected for further study in order to gain insight into animal husbandry practices at the three identified sites. The animal bone identifiable to species comprised mostly hand-collected material with some sieved material. A total of 133 hand-collected bones, comprising 264 fragments weighing 3.6 kg, were identified to species. The identified animal bone from the sieved samples amounted to 18 bones made up of nineteen fragments weighing 50 g.

Specimens were identified to element and species. Other data recorded included; side, sex, weight, parts present, fusion, tooth wear, pathology, burning, butchery, and weathering. Numbers of animals represented by the assemblages were estimated using the MNI (minimum number of individuals) method. In addition the NISP (number of identified specimens) values are also quoted to aid comparison with other published assemblages. Further information on the methodology employed and the data collected are provided in the site archive.

TABLE 3. SUMMARY OF ANIMAL BONE ASSEMBLAGES

| Species | No. of fragments | NISP | % by NISP | MNI | % by MNI |
|---|---|---|---|---|---|
| **Horse** | 19 | 12 | 9 | 4 | 10 |
| **Cattle** | 136 | 56 | 40 | 11 | 28 |
| **Sheep/goat** | 91 | 58 | 41 | 15 | 38 |
| **Pig** | 19 | 14 | 10 | 8 | 21 |
| **Dog** | 8 | 1 | <1 | 1 | 3 |
| **Subtotal domestic sp.** | **273** | **141** | **100** | **39** | **100** |
| **Vole** | 1 | 1 | | 1 | |
| **Frog** | 3 | 3 | | 3 | |
| **Toad** | 1 | 1 | | 1 | |
| **Frog/toad** | 5 | 5 | | 2 | |
| **Subtotal other** | **10** | **10** | | **7** | |

**Key** NISP = number of identified specimens, MNI = minimum number of individuals

### *Results*

Animal bone included in the analysis was recovered from thirty-seven deposits in excavation areas 5 and 6. Area 5 comprises the groups of features shown on Figure 6: enclosure 1, enclosure 2 with pit group 1, and ditch 1 with pit group 2. Area 6 comprised ditches 2 and 3 and pit groups 3 and 4 (Fig. 10).

The domestic species identified were (in descending order of frequency); sheep/goat, cattle, horse, pig and dog. The only wild mammal identified was vole (species indeterminate); amphibian bones were also present, with both frog and toad identified (Tables 3 and 4). The presence of vole, frog and toad are probably the result of the larger pits acting as pit-fall traps for unwary smaller vertebrates.

[49] Lambrick and Allen, *Gravelly Guy*, pp. 223–36.

[50] G. Hey, A. Bayliss, and A. Boyle, 'Iron Age Inhumation Burials at Yarnton, Oxfordshire', *Antiquity,* 73 (1999), pp. 551–62.

[51] Roberts and Buikstra, *The Bioarchaeology of Tuberculosis.*

[52] Cotswold Archaeology, 'Post-Excavation Assessment and Updated Project Design', unpublished report, no. 06058 (2007).

TABLE 4. ANIMAL BONE BY FEATURE GROUP AND SPECIES

| Generic feature name | Species | number of fragments | NISP | MNI | weight in grams |
|---|---|---|---|---|---|
| **Area 5** | | | | | |
| Ditch 1 | horse | 3 | 1 | 1 | 62 |
| Pit Group 2 | horse | 2 | 2 | 1 | 28 |
| Pit Group 2 | cattle | 35 | 16 | 3 | 754 |
| Pit Group 2 | sheep/goat | 22 (3) | 13 | 3 | 84 |
| Pit Group 2 | pig | 5 | 5 | 2 | 31 |
| Pit Group 2 | frog | (1) | 1 | 1 | 0.05 |
| Pit Group 2 | frog/toad | (5) | 5 | 2 | 0.25 |
| Enclosure 1 | dog | 8 | 1 | 1 | 39 |
| Enclosure 1 | cattle | 14 | 3 | 1 | 196 |
| Enclosure 1 | sheep/goat | 5 | 5 | 1 | 24.6 |
| Enclosure 1 | pig | 3 | 3 | 1 | 13.6 |
| Enclosure 2 | horse | 12 | 7 | 1 | 804 |
| Enclosure 2 | cattle | 75 | 26 | 3 | 1091 |
| Enclosure 2 | sheep/goat | 22 | 9 | 3 | 79 |
| Enclosure 2 | pig | 8 | 3 | 2 | 33 |
| Pit Group 1 | sheep/goat | 6 | 2 | 1 | 20 |
| **Area 6** | | | | | |
| Ditch 2 | horse | 2 | 2 | 1 | 120 |
| Ditch 2 | cattle | 1 | 1 | 1 | 14 |
| Ditch 2 | sheep/goat | 6 | 6 | 1 | 12.2 |
| Ditch 2 | frog | (2) | 2 | 2 | 0.1 |
| Pit Group 3 | cattle | 2 | 2 | 1 | 46 |
| Pit Group 3 | sheep/goat | 4 | 4 | 1 | 27 |
| Pit Group 3 | pig | 1 | 1 | 1 | 0.7 |
| Pit Group 4 | cattle | 6 (3) | 8 | 2 | 90 |
| Pit Group 4 | sheep/goat | 20 (3) | 19 | 5 | 61.15 |
| Pit Group 4 | pig | 2 | 2 | 2 | 2 |
| Pit Group 4 | vole sp. | (1) | 1 | 1 | 0.05 |
| Pit Group 4 | toad | (1) | 1 | 1 | 0.05 |

**Key** NISP = number of identified specimens; MNI = minimum number of individuals.
Fragment numbers in brackets indicate those recovered from processed samples.

A summary table for each species is provided for the whole assemblage (Table 3). For purposes of comparison, data on the assemblage is presented by excavation area and feature group in Table 4, with the sieved component in brackets. The latter, not surprisingly, contains a greater proportion of smaller species. The assemblage is in a moderate to poor state of preservation, due to damage from plant roots (root etching) to the surfaces of the bone which made identification of butchery, gnawing, and pathological changes difficult. The indications of butchery on five bones – four with chop marks and one case of cut marks – are not likely to be representative of the assemblages as a whole. The animal bone from Slade Farm, Bicester, was in a similarly poor condition.[53] No attempt has been made to differentiate sheep from goat and all ovicaprid specimens are simply recorded as sheep/goat.

[53] Hammon, 'The Animal Bones', pp. 252–4.

*Area 5, ditch 1, and pit group 2.* The assemblage from ditch 1 and pit group 2 comprises mostly cattle and sheep/goat with some pig and horse (see Table 4 for MNI and NISP values). The bulk of the animal bone from this site came from pit group 2. The cattle and sheep bones include limb bones, but mandibles and teeth are the most common items. The pig remains are also biased towards the head. A cattle skull and horncore fragment was identified from deposit 5053 (pit 5055) which also contained burial A, but there was no indication that the deposits were related. Gnawing by dogs was noted on just one specimen: a cattle metatarsal which also shows signs of butchery (chop marks). Three specimens show evidence of burning. These are quite small and consistent with food scraps being thrown into a fire rather than being indicative of a particular cooking method.

*Area 5, enclosure 1.* Only domestic species were identified: cattle, sheep/goat, pig, and the only dog specimen from the entire assemblage (a mandible from an adult animal). The pig remains were limb bones from an infant or young juvenile animal, which would have been of suckling age at the time of death and suggests on-site breeding. Some of sheep/goat bones showed signs of gnawing by dogs.

*Area 5, enclosure 2, and pit group 1.* Cattle bones were the most frequent, but using the MNI value, cattle (3) and sheep/goat (3) were equally numerous, followed by pig (2) and horse (1). Cattle and sheep/goat were represented largely by skull and mandible fragments, although meat-bearing long bones such as upper limbs were also present. The pig bones were exclusively from the head. Horse bones included mandible teeth and limb bones, and part of a pelvis had a cut-mark visible close to the socket for the femur (hip-joint). Pit group 1 produced a sheep/goat metatarsal and, from the same deposit as the infant human humerus and radius or ulna, a sheep/goat mandible. Three bones showed evidence of dog gnawing, two had butchery marks.

*Area 6, ditch 2, pit group 3, and pit group 4.* From ditch 2 horse, cattle and sheep/goat were identified; most of the elements were mandibles or teeth. Pit group 3, located around 40 m east of ditch 2, contained cattle, sheep/goat, and pig. Pig was represented by a single skull fragment, cattle by a tooth and tarsal bone, but sheep/goat included a range of limb bones. The sheep/goat limb bones, comprising a pelvis, a radius, and metacarpal, were from the same deposit as burial C. The latter two bones may have been articulated at the time of deposition, but the loss of the small carpal bones means that this cannot be confirmed. From pit group 4, including a large pit 6002, sheep/goat was most numerous followed by cattle and pig. The sheep/goat material from pit group 4 includes a humerus from an infant lamb, and pit 6002 is dominated by loose teeth of sheep/goat including a shed deciduous tooth. A sheep/goat mandible from pit 6002 has signs of periodontal disease ('broken mouth'), which occurs when severe gum disease leads to infection of the bone around the tooth roots and may result in loss of teeth.[54] This specimen constitutes the only example of pathology from the whole assemblage.

*Age at death.* Bones were assigned to age classes based on the degree of fusion of the long bones. Most specimens were from adult animals (78%), 13% were sub-adults (of adult size but bones not fully fused), 6% were juvenile, and 3% were from infant animals. The state of wear of the mandible teeth of ungulates was also recorded.[55] Two cattle mandibles and four sheep/goat mandibles were sufficiently complete for mandible wear stages to be calculated. The dataset is too small for constructing age profiles but indicates that most of the specimens are adult or sub-adult, which is consistent with the bone fusion data. There is not enough information to suggest how the size of domestic stock compares with published data.

## *Discussion*

Taking the group of sites as a whole, sheep/goat and cattle appear to be the most important domesticates based on MNI and NISP calculations, with a smaller contribution from pig and horse. Dogs are present as indicated by a single mandible and the observation of gnawing by dogs on some bone surfaces. The proportions of the different domestic mammals are broadly consistent with the Iron-Age pattern described by Maltby.[56] Similar proportions of the main domesticates are seen in other assemblages of Iron-Age date from the local area at Bicester Fields Farm,[57] and Bicester Slade Farm.[58] The domestic herds appear to be predominately adult and sub-adult in composition, suggesting sheep and cattle were slaughtered once they reached adult weight and not kept alive into older adulthood for secondary products such as milk and wool.

There are slight variations in the assemblages between the sites, although with such small samples these may not be significant. From enclosure 1, ditch 1, and pit group 2 the assemblages mostly comprise cattle and sheep/

[54] S. Hillson, *Teeth* (Cambridge, 1986).

[55] A. Grant, 'The Use of Tooth Wear as a Guide to the Age of Domestic Ungulates', in B. Wilson, C. Grigson, and S. Payne (eds.), *Ageing and Sexing Animals from Archaeological Sites,* BAR BS, 109 (1982), pp. 7–23.

[56] M. Maltby, 'The Exploitation of Animals in the Iron Age: the Archaeozoological Evidence', in T.C. Champion and J.R. Collis (eds.), *The Iron Age in Britain and Ireland. Recent Trends* (Sheffield, 1996), pp. 17–27.

[57] Charles, 'The Animal Bone', pp. 201–22.

[58] Hammon, 'The Animal Bones'.

goat, with smaller quantities of pig and horse bones, and a dog bone. The age at death of the specimens is largely adult and sub-adult and typical of the raising of domestic stock in a subsistence rather than specialist husbandry system, but the pig limb bones from enclosure 1 are from an infant or very young juvenile animal. This suggests that pigs were being bred and raised on site.

There was a similar balance of species from enclosure 2 and pit group 1, but the cattle material in particular was dominated by teeth, skull, and mandible parts. This may relate to differential preservation, but the presence of the first and second vertebrae suggests that whole heads may have been deposited. Some meat-bearing bones are present but in very small numbers, perhaps indicating a bias toward butchery waste. Sheep/goat and pig bones also show a bias towards the head. The horse bones include a hip socket with a cut mark consistent with disarticulation of the carcass. What contribution this species made to the diet is difficult to assess in such a small assemblage. Wider studies indicate that the contribution of horse to the Iron-Age diet was minimal.[59]

The proportions of the species present at area 6 are slightly different to those at the other sites in that sheep/goat outnumber cattle. The presence of bones from an infant lamb and a shed deciduous tooth from a sheep/goat are consistent with the breeding and rearing of this species on site. The excavated bone sample is too small to determine whether this represents a real distinction in the pastoral component of the economy. The sheep/goat mandible with periodontal disease may reflect poor husbandry but the causes of this condition are not fully understood.[60]

Animal bones were recovered from deposits associated with the human infant burials A and C (pits 5055 and 6016), but the bones were not obviously deliberately placed and, in view of the generally wide distribution of animal bones among the excavated features, they are perhaps more likely to have been associated by coincidence.

## SUMMARY OF CHARRED PLANT MATERIAL AND MOLLUSCS by SYLVIA WARMAN

A total of nine soil samples from Iron-Age features were processed using standard methods and assessed. They yielded small amounts of palaeo-environmental material and no further detailed analysis was recommended or undertaken. Sample 501 from context 5055, the second fill of pit 5050, produced cereal grains. The material was examined under a light microscope and identifications were confirmed by Liz Pearson of the Worcestershire Historic Environment and Archaeology Service.

The charred plant material from the residue comprised two grains of *Triticum dicoccum* (emmer wheat) and one of wheat *Triticum sp*, four grains of *Triticum spelta* (spelt wheat), and one grain of *Hordeum vulgare* (barley). More poorly-preserved material included one emmer/spelt and cereal grains unidentified to species. From the floats came a wheat grain *Triticum* sp, some chaff including one spelt glume base, two emmer/spelt glume bases, and one glume base from a grass Gramineae sp. (possibly brome grass). Material such as this is often seen in Iron-Age assemblages: emmer and spelt wheat along with the barley represent cultivated crops, whilst the wild grass (brome) may have been encouraged to grow amongst the crop to provide fodder for livestock.

The samples from pits 5050, 5007, and 5101 in area 5, and from 6003 and ditch 2 in area 6, yielded small quantities of wood charcoal, presumably representing fuel debris. The material was examined by Rowena Gale (then of the Royal Botanical Gardens, Kew) who identified a range of taxa including oak (*Quercus* sp.), blackthorn (*Prunus spinosa*), the hawthorn/*Sorbus* group (Pomoideae), field maple (*Acer campestre*), and purging buckthorn (*Rhamnus cathartica*). The taxa suggest an environment supporting oak/maple woodland and possibly scrub or hedgerows, but it was not possible to determine whether any of the wood sources were managed.

The sample from the primary fill of ditch 2 in area 6 yielded a relatively large number of molluscs which were examined under a light microscope and identifications were confirmed by Keith Wilkinson of ARCA (University of Winchester). The assemblage was dominated by shade-loving fauna which is likely to reflect the micro-environment of the ditch.

## RADIOCARBON DATING by SYLVIA WARMAN

Three samples were selected from deposits assigned to period 1, in order to refine the date of these features; which from associated pottery could only be judged as later Iron Age.

Well-preserved charcoal from short-lived species or sapwood from longer lived species was selected. From fill 5102 (pit 5101), part of pit group 1, a paired sample of *Prunus* charcoal and *Quercus* (Oak) sapwood charcoal were taken. A third single sample of hand-collected Pomoideae (hawthorn family) charcoal was selected from deposit 5042, the fill of ditch 5041, part of enclosure 2. The samples were all of a small size suited to the AMS technique.

59 Maltby, 'The Exploitation of Animals in the Iron Age'.
60 Hillson, *Teeth*.

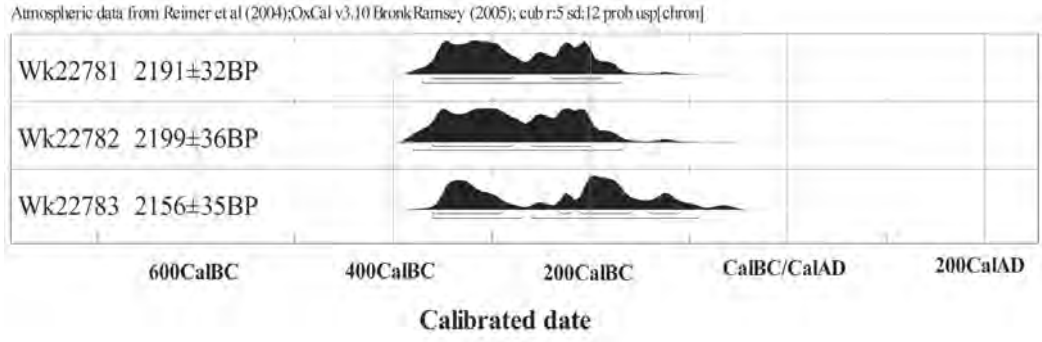


Fig. 14. Radiocarbon dating diagram for pit 5101 (upper two) and ditch 5041 (lower one).

TABLE 5. AMS RADIOCARBON DATING RESULTS

| Laboratory Number | Context | Feature | Period | Generic | Material | Radiocarbon Age (BP) | Calibrated date range (at 2∞ 95.4% confidence unless otherwise stated) |
|---|---|---|---|---|---|---|---|
| Wk-22781 | 5102 | 5101 | 1 | Pit Group 1 | *Prunus* charcoal | 2199+/-32 | 370 BC–170 BC |
| Wk-22782 | 5102 | 5101 | 1 | Pit Group 1 | *Quercus* sapwood charcoal | 2199+/-36 | 380 BC–170 BC |
| Wk-22783 | 5042 | 5041 | 1 | Enclosure 2 | Pomoideae charcoal | 2156+/-35 | 360 BC–270 BC (35.7% probability) 260 BC–90 BC (59.7% probability) |

The samples were processed in 2008 at the University of Waikato Radiocarbon Dating Laboratory, Hamilton, New Zealand.[61]

All three samples were successfully dated. The results are conventional radiocarbon ages and are given in Table 5.[62]

Simple calibrations of the results are given in Table 5 and Figure 14. All have been calculated using the calibration curve of Reimer et al.[63] and the computer programme OXCal 3.10.[64] Date ranges cited in the text are those at 95% confidence level unless otherwise specified. Ranges are derived from the probability method of Stuiver and Reimer.[65]

The radiocarbon dates confirm that these deposits are of later Iron-Age date (fourth to first centuries BC/AD). The dates obtained for pit group 1 (pit 5101) help refine dating for part of the pottery assemblage, narrowing the range to between the fourth and early second centuries BC. The date from the primary fill of ditch 6 (5041) does not exclude contemporaneity with pit group 1, but extends a date for construction potentially as late as the early first century BC. The results tend to suggest that occupation around enclosure 2 was focused in the earlier part of this range.

[61] Details of the methods and equipment used can be found at http://www.radiocarbondating.com (accessed 1 July 2010).

[62] M. Stuiver and H.A. Polach, 'Discussion: Reporting of 14C Data', *Radiocarbon,* 19 (1977), pp. 355–63.

[63] P.J. Reimer, M.G.L. Baillie, E. Bard, et al., 'IntCal04 Terrestrial Radiocarbon Age Calibration, 0–26 cal kyr BP', *Radiocarbon,* 46, 3 (2004), pp. 1029–58.

[64] C. Bronk Ramsey, *OxCal Version 3.10 Radiocarbon Calibration Programme* (Oxford, 2005).

[65] M. Stuiver and P.J. Reimer, 'Extended 14C Database and Revised CALIB 3.0 14C Age Calibration Program', *Radiocarbon,* 35, 1 (1993), pp. 215–30.

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