The Excavation of Two Bronze Age Barrows, Oxford

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SUMMARY

Development of the Oxford University Science Area off South Parks Road in Oxford, in 1982, 1989 and 1993, uncovered two concentric ring ditches of a Bronze Age barrow. Redeposited pottery indicates an early Bronze Age date, broadly contemporary with the barrow cemetery in the University Parks immediately to the north of the site. The ring ditches were infilled during the early to middle Iron Age and pits and ditches were observed during a watching brief in 1989 cut into this deposit. The Iron Age ditches were not seen in enough detail to establish their layout, but the quantity of well-preserved pottery indicates occupation in the vicinity. Late Iron Age activity is represented by a pit containing 'Belgic' pottery recovered during the 1993 excavation. The excavation of 24A St. Michael's Street in 1985 revealed part of the ditch from a Bronze Age barrow. No evidence for funerary activity was found. Worked flint was recovered from the ditch.

ACKNOWLEDGEMENTS

The 1982 work in the Oxford University Science Area was undertaken by Brian Durham, Simon O'Connor Thompson and George Lambrick of the Oxford Archaeological Unit (OAU). The 1989 excavation was supervised by Andrew Millard of the Oxford University Archaeological Society (OUAS) and members of the Abingdon Area Archaeological and Historical Society assisted with the excavations. The 1993 excavation was supervised by Andrew Parkinson of the Oxford Archaeological Unit. The 1993 project arose from a Town Planning agreement (Planning Application Number NR/0842/93) made between the University and Oxford City Council Planning Authority. It was carried out according to a specification set by Oxford Archaeological Advisory Service (OAAS). The excavation and post-excavation was funded entirely by Oxford University. The excavation of the ring ditch at 24A St. Michael's Street was supervised by Peter McKeague. Evaluation and watching brief work were carried out at the Sir William Dunn School of Pathology prior to, and during redevelopment. This work was carried out between April 1995 and January 1996 according to a specification set by OAAS (Planning Application Number NF/1777/94). It was supervised by Andrew Parkinson and Jonathan Hiller (OAU).

Initial post-excavation work on results of the 1982 excavation of the Oxford University Science Area and the 24A St. Michael's Street site was undertaken by Peter McKeague and

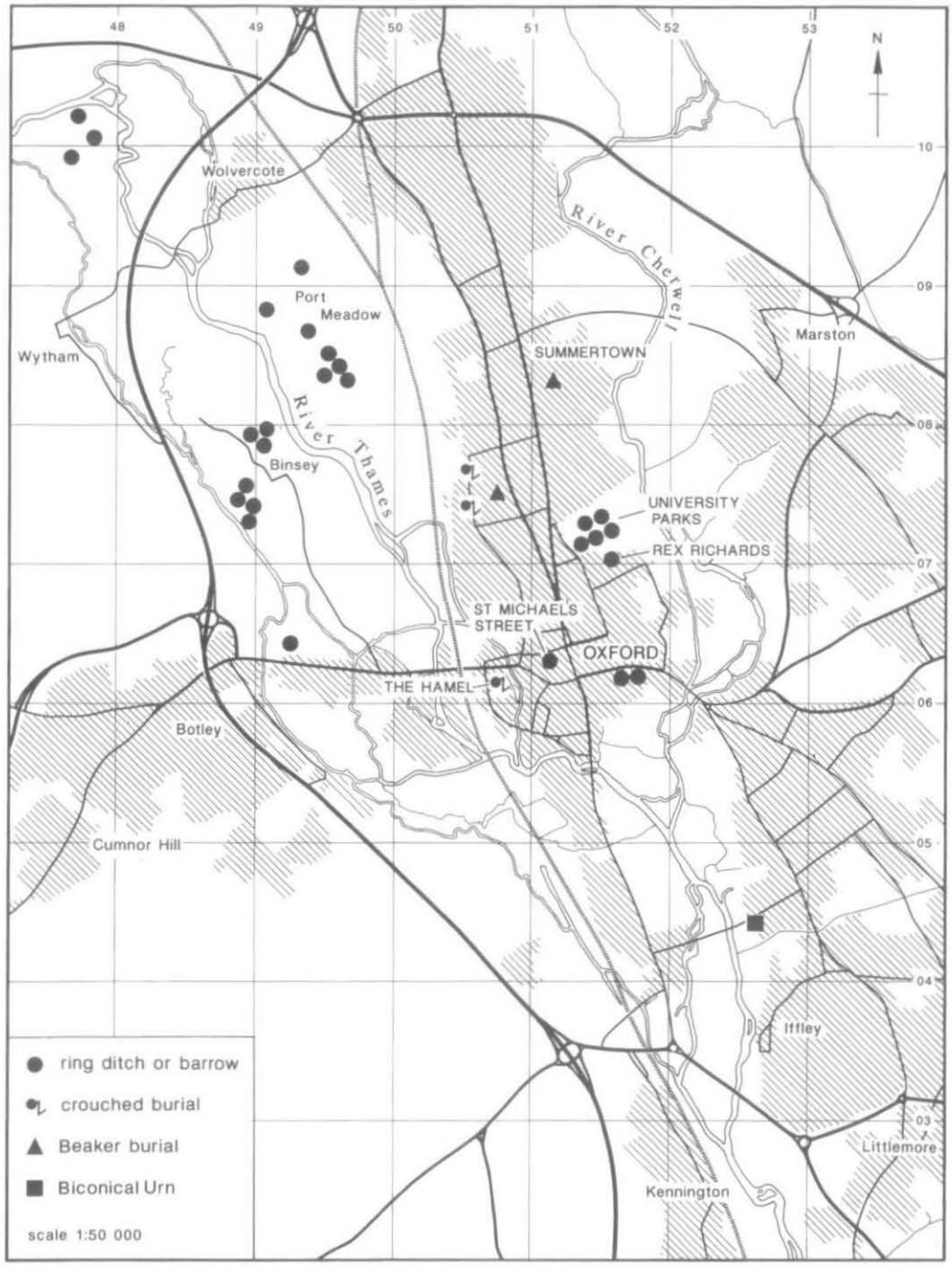

Fig. 1. Location of the Rex Richards and 24A St. Michael's Street barrows, including other earlier prehistoric sites mentioned in the text.

Simon O'Connor Thompson. The archive and finds will be deposited with the Oxfordshire County Museum Service (accession numbers 86.157, 1985.88, 1994.52, 1994.53, 1995.48).

INTRODUCTION (Figs. 1–2, 5)

Excavation and observation during construction of new laboratories in the University Science Area during the 1980s and 1990s has provided an opportunity to investigate a double concentric ring ditch. Iron Age activity in the form of pits and ditches was also identified. Excavations at 24A St. Michael's Street, Oxford in 1985 in advance of redevelopment of Mallam's Sale Rooms uncovered the ditch of another barrow. The excavations of these two sites have been brought together, the evidence for contemporary funerary activity is discussed, and the monuments have been placed in their wider prehistoric setting (Fig. 1).

1. OXFORD UNIVERSITY SCIENCE AREA: REX RICHARDS BUILDING

EXCAVATIONS

The site is situated in the Oxford University Science Area (Fig. 2) on the north side of South Parks Road (SP 51630 07045). The site lies on the Summertown-Radley Gravel Terrace at approximately 62 m. OD. The site was relatively level with a slight rise from east to west. During January and February 1982 a watching brief was undertaken by Brian Durham, during the construction of an Enzymology and Immunochemistry Building for Oxford University, now known as the Rex Richards Building.[1] The area within the building was machine-excavated by the building contractors to *c.* 4.0 m. below ground level to form a basement. Four ditch sections were exposed on the north and south sides of the contractor's excavation. The ditches were steep-sided, flat-bottomed and cut into the natural gravel. The similarity and relative positions of the ditches indicated that they represented the west side of two concentric barrow ditches. The full extent of the ditches was not seen in plan but just beyond the eastern edge of the basement excavation a cremation was located, near to the predicted centre of the barrow, by simple geometry.

Further development took place in 1989 in the area immediately east of the Rex Richards Building where a new Glycobiology and Botany Building, known as the Rodney Porter Building, was constructed.[2] In May 1989 the Oxford University Archaeological Society (OUAS), under the direction of Andrew Millard, excavated a trench across the two concentric ditches. Later features were cut into the top of these ditches. Further observation of the barrow ditches and the investigation of a number of other features was possible during a watching brief which was maintained as construction proceeded (Fig. 2).

In 1993 the area north of the Rex Richards Building was excavated by Oxford Archaeological Unit (OAU) prior to the construction of an underground Magnet House. The work was supervised by Andrew Parkinson. Three sections were hand-excavated through the ring ditches. Later features were also located. The topsoil was dark grey to brown sandy silt up to 0.20 m. thick (4, 8/1, 8/2, 13, 115). Underneath the topsoil a series of ploughsoils and possible garden soils were recorded (14, 100, 101, 140, 138, 139, 152). The combined thickness of these deposits was 0.58 m. These later deposits contained medieval pottery (see Whittingham, this report) and a copper alloy ring (see Allen, this report).

[1] B. Durham, 'Oxford: South Parks Road', *CBA 9 Newsletter*, xiii (1983), 140–1.
[2] B. Durham, 'Oxford: South Parks Road Glycobiology Building', *CBA 9 Newsletter*, xx (1990), 82–3.

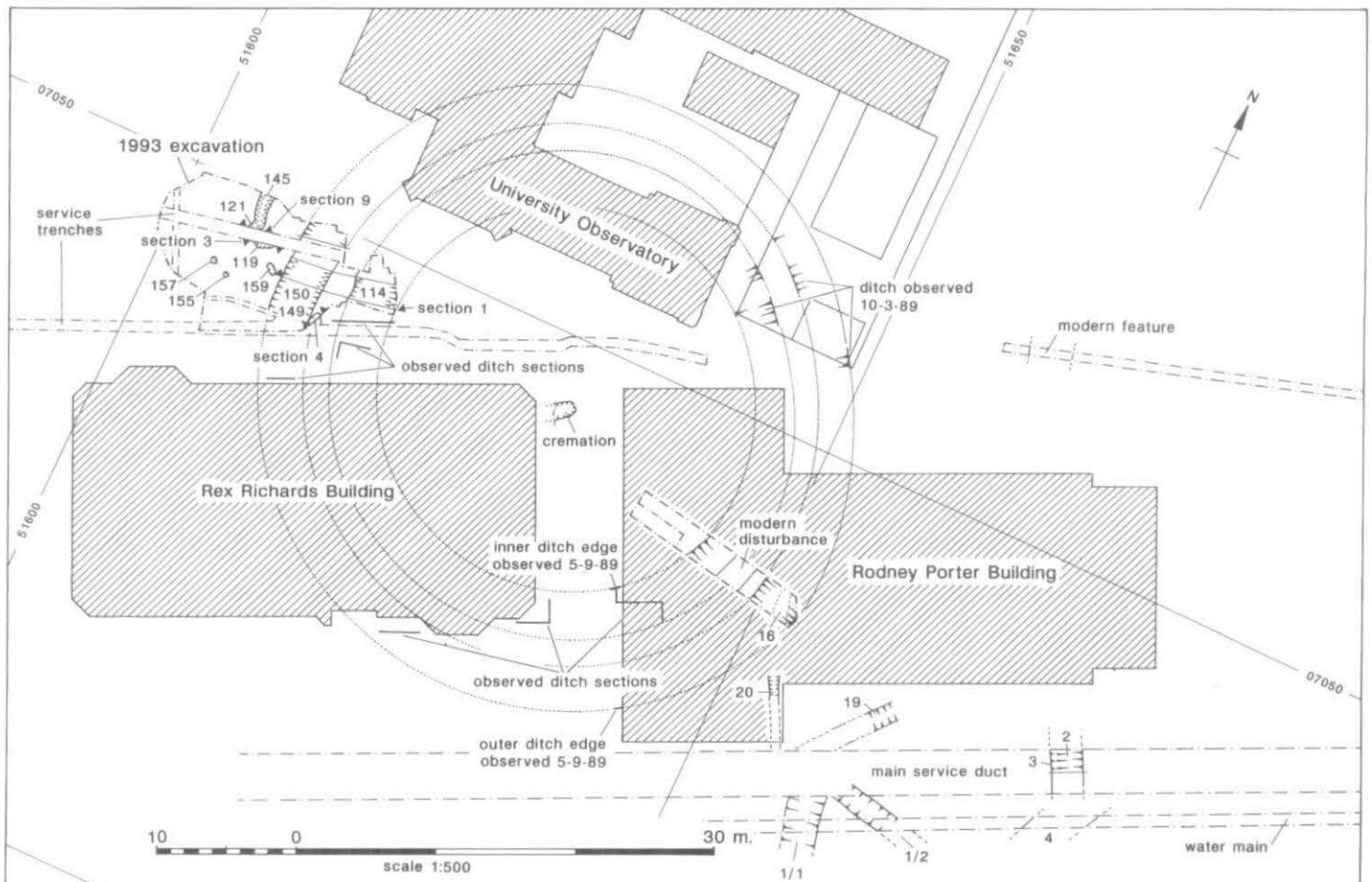

Fig. 2. Detailed plan of the Rex Richards barrow.

THE CONCENTRIC RING DITCHES

The descriptions of the barrow ditches are mainly based on the 1993 sections. The deep contractor's excavations in 1982 precluded detailed excavation and made extensive examination of the ring ditch sections largely impracticable. A section in the north recorded mainly primary fills of the inner ditch. The hand-excavated sections by the OUAS in 1989, although severely truncated by 20th-century disturbance, revealed a similar sequence of fills to that recorded in 1993. A plain body sherd of probable early Bronze Age date was recovered from context 17, the fill of the outer ditch. Further details of the excavations may be found in the site archive.

INNER DITCH 114 (Fig. 3, section 1)

The inner ditch had a broad U-shaped profile with steep sides and a flat bottom. It was up to 3.70 m. wide and was between 0.89 m. and 1.10 m. deep. A clearly defined sequence of fills suggests a gradual infilling of the ditch (Fig. 3, section 1). The upper portion of this ditch section had been disturbed by a service trench (Fig. 3, section 1; for clarity the service trench has been omitted from Fig. 2).

The primary fills (108, 109, 110, 111, 112, 113) consisted of loose gravel with reddish brown sandy silt. Cattle bone was recovered from the earliest fill 110.

The secondary fills (105, 106, and 107) contained an equal mix of gravel and sandy silt. Fill 103 was an almost gravel-free reddish brown sandy silt with occasional charcoal flecks. Fill 104 was similar to 103 but with a small amount of gravel. It extended across most of the ditch profile and could represent a soil horizon and stabilization of the ditch. A single sherd of early/middle Iron Age pottery was recovered from this layer. The latest fill, a reddish brown homogenous gravelly silt (102) up to 0.54 m. in depth, formed with no indication as to which side of the ditch it had originated, may suggest deliberate infilling of the remaining open ditch.

OUTER DITCH 150 (Fig. 3, section 1)

Two hand-excavated sections were placed across the outer ditch 150, one of which provided a continuous section across both barrow ditches (Fig. 3, section 1). In the N. a modern sewer trench cut through the ditch (Fig. 2). The remainder of the outer ditch was excavated by machine under archaeological supervision, to establish the occurrence of any possible secondary burials or related deposits. The outer ditch was less substantial than the inner ditch; this may, in part, be due to the truncation which appears to have occurred. The inner ditch also had a broad U-shaped flat bottomed profile which was 2.90 m. wide and between 0.80–1.02 m. deep.

The loose gravelly primary fills (134, 129, 130, 133 and 135) were similar in character to those recorded within the inner ditch. The secondary fills (126, 127, 131, 132 and 137) were all reddish brown sandy silts with varying amounts of gravel. Dark brown sandy silt (137) had been deposited into the ditch from the west side. This fill was not continuous and petered out to the south and may represent slippage of soil and turf into the W. side of the ditch. Fill 131, a reddish brown very gravelly sandy silt, was more substantial and had been truncated by later ploughing. The 1989 section records a similar substantial although more gravelly fill, which had accumulated from the outer edge of the ditch. The character of this infilling may suggest the presence of an external bank to the monument. However, no other evidence for this possible earthwork was found and given the rather limited excavations it is difficult to interpret this evidence further.

The remaining deposits of sandy silt 124, 126 and 123 filled a substantially reduced ditch profile. It was not clear whether this represented a recutting of the ditch or the final infilling. Cattle bones were recovered from contexts 123, 124 and 126. The thickness of 124 and 123 may suggest deliberate infilling. There were no surviving earthworks associated with the barrow.

A series of environmental samples were taken from both ditches; however, all were found to be highly contaminated with fragments of cokified coal, and the molluscan fauna, where present, included a species which was not introduced until the medieval period.[3]

[3] M. Robinson, pers. comm.

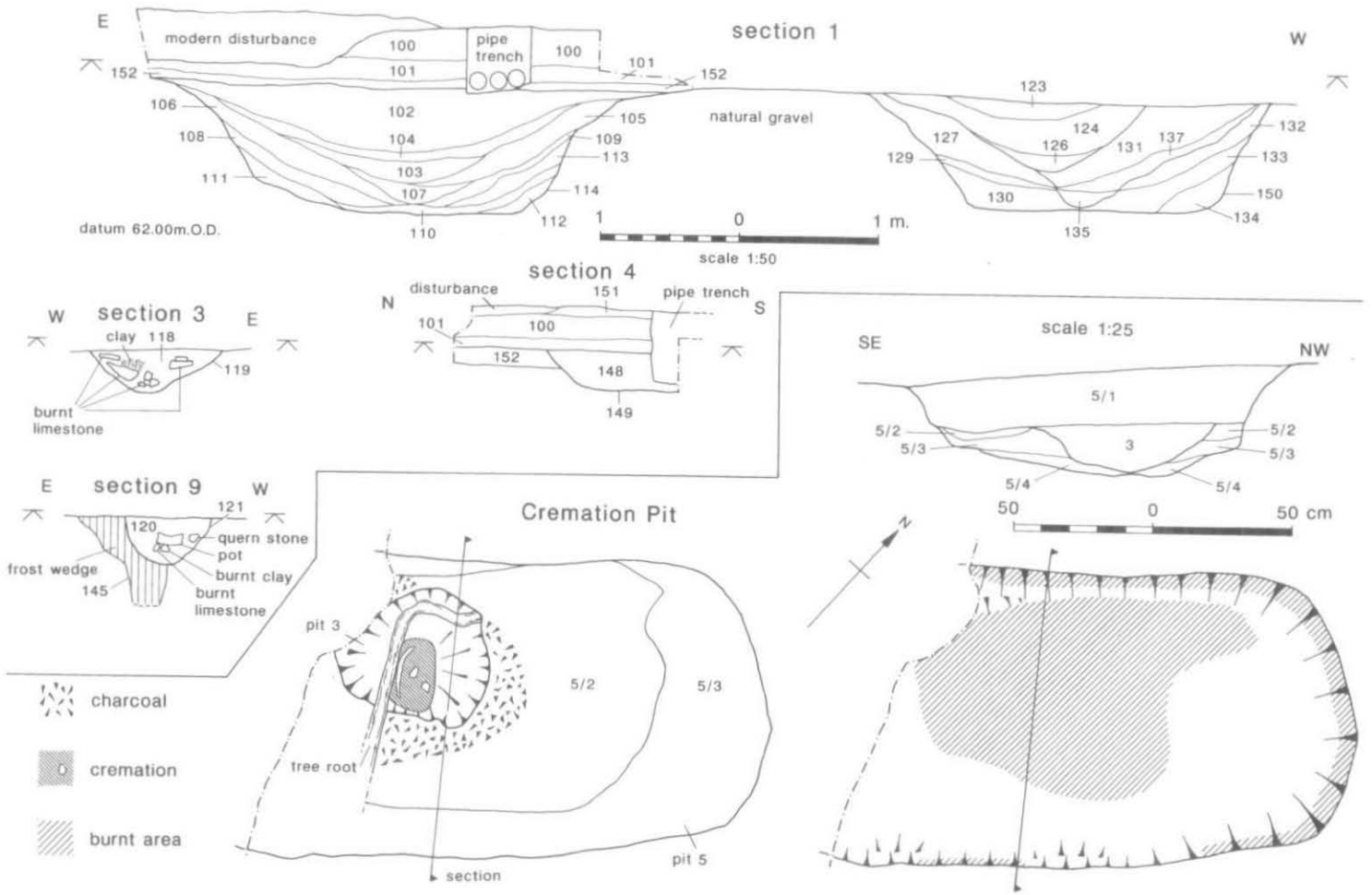

Fig. 3. Plans and sections of the ditches, central cremation and other features.

CENTRAL CREMATION PIT 5 (Figs. 2–3)

The excavation carried out in 1982 by Brian Durham located the central cremation pit. Its position was predicted by finding the intersection of perpendicular bisectors of tangents linking the observed edges of the ring ditches. An area 2 $m.^2$ was then excavated in the centre of the barrow. A sub-rectangular pit (5) was found, which had been partly destroyed by the contactor's trench (Figs. 2–3). The full length of the feature could not be established, but the maximum surviving dimensions were 1.64 m. long and 0.92 m. wide. The pit had a relatively flat bottom and maximum surviving depth of 0.27 m. The pit was cut into the natural sandy silt and a gravel concretion. The bottom and sides were discoloured from an orangey-red to a dull red, suggesting *in situ* burning had taken place. The primary fill was a mixed grey sand and silt with frequent pebbles (5/4) and contained frequent charcoal flecks and was reddened by fire. Fill 5/3 was similar to the primary fill. Fill 5/2 was a mid brown sandy silty clay with some gravel inclusions. The upper fill of the pit (5/1) was more silty with occasional small pebbles and flecks of charcoal. This upper fill had been disturbed by tree roots. A single utilised unburnt flint flake was recovered from context 5 although its precise location within the feature was not recorded.

Pit 3 was roughly circular in plan and was cut through the fills of the rectangular pit from layer 5/2 or above (Fig. 3). It measured 0.45 m. by 0.48 m. and was up to 0.16 m. deep. Most of this smaller pit survived although it was slightly truncated by the contractor's trench on the W. side and disturbed by tree roots to the N. A deposit of lightly cremated human bone had been placed in this pit. The single cremation deposit from pit 3 consisted of a very compact concentration of bone, suggesting that it may have been deposited within a perishable organic container or bag. The bones rested on the bottom of the pit and were overlaid by a mid brown loam fill. The relationship of the circular pit with the uppermost fill of the rectangular pit was unclear although the exposed section at the west end suggested that the cremation pit was sealed by the latest fill of the rectangular pit (Fig. 3).

HYPOTHETICAL BARROW SEQUENCE

1. The digging of the inner ditch and grave-like pit (5).

2. *In situ* cremation pyre over pit 5. Subsequent burial of pyre debris in pit 5 and construction of barrow earthworks covering the central cremation.

3. The enlargement of the existing barrow with the digging of the outer ditch and the reopening of the existing barrow mound and the deposition of cremation (3). The construction of the possible outer bank may also have occurred at this time. Alternatively pit 3 may have been part of the primary cremation.

OTHER FEATURES OBSERVED DURING CONSTRUCTION WORK (Fig. 2)

A number of other features and portions of the ring ditches were observed during the construction of the Glycobiology and Botany Building in 1989. Due to the nature of the construction work the only linear ditches seen in plan were 19 and 20. The longest length of ditch which could be recorded measured 4 m. The remaining features were observed either during the contractor's excavations or within service trenches. The main area excavated under controlled archaeological conditions was the OUAS trench across the barrow ditches. The results allow general conclusions to be made about the features but not a full understanding of their layout. These features have been summarised in Table 1.

Apart from the excavation of the ring ditches in 1993 a number of other features were excavated (Figs. 2–3, sections 3, 4 and 9). These are summarised below.

Pit 119 had been cut through by a modern sewer pipe (Figs. 2–3, section 3); the remaining portion was fully excavated. It was sub-circular in plan measuring 1.10 m. (maximum) E–W. by 0.43 m. N–S. It had a slightly irregular bowl-shaped profile and was 0.30 m. deep. It was filled with a mid brown sandy loam containing 10% gravel inclusions (118). Patches of green-grey clay were recorded in the fill (Fig. 3, section 3). There was some animal disturbance to the base of the pit. The pit produced approximately 20 pieces of burnt limestone weighing 11.60 kg. Five sherds of middle Iron Age pottery, 21 fragments of fired clay (228 g.), a piece of fuel ash slag and five fragments of unidentifiable animal bone, one with cut marks and two burnt, were recovered from the pit.

Pit 121 had again been cut through by the modern sewer pipe (Figs. 2–3, section 9); the remaining portion was excavated. The surviving part of the pit was sub-circular in plan measuring 0.60 m. E–W. by 0.48 m. N–S. It had

TABLE 1. FEATURES OBSERVED DURING CONSTRUCTION WORK.

Context	Feature type	Dimensions	Orientation	Comments
1/1	Ditch	2.6 m. wide; depth unknown	NNW.–SSE.	Observed in water main
1/2	Ditch	1.7 m. wide; depth unknown	NW.–SE.	Observed in water main
2	Ditch	2.3–2.4 m. wide; 1.2 m. deep	NW.–SE.	Steep-sided with V-shaped profile, badly truncated by modern disturbance, MIA pottery
3	Ditch	0.60 m. wide, 0.30 m. deep	NW.–SE.	Observed on western edge of ditch 2, no recorded relationship
4	Ditch	2.7 m wide; depth unknown	NE.–SW.	
5	?Ditch	3 m. wide; depth unknown	NNW.–SSE.	Exposed in contactor's trench, contained modern rubble
7	Pit	1.4–1.5 m. diameter; depth unknown	—	Circular pit containing one sherd of MIA pottery
11	Pit	0.60 m. long (min.), 0.65 m. wide and 0.32 m. deep	—	Sub-rectangular in plan, patches of buff and grey clay recorded in fill also quantities of limestone, ?EIA pottery, fragment of saddle quern
12	Fill of outer ring ditch	—	—	Same as layer 17
16	?Ditch or gully	1.05 m. wide and 0.73 m. deep	NE.–SW.	Observed as a linear feature cut into the upper fill of the outer barrow ditch, U-shaped profile, mixed group of pottery containing EIA and MIA sherds
17	Fill of outer ring ditch	—	—	Same as layer 12, an early Bronze Age sherd was recovered from this layer
19	Ditch	1.25 m. wide; depth unknown	NE.–SW.	Observed for a length of 4 m.
20	Ditch	0.65 m. wide (max. surviving); depth unknown	NNW.–SSE.	Heavily truncated, originally probably between 1.25 m.–1.50 m. wide, one sherd of MIA pottery

a regular bowl-shaped profile and was 0.35 m. deep. It was partly cut into context 145. It was filled with a slightly gravelly mid brown silty loam (120). Finds from the pit include a fragmentary Belgic vessel (Fig. 4, 7), a fragmentary millstone grit rotary quern, 26 fragments of fired clay (794 g.), five fragments of burnt limestone weighing 1.25 kg., a burnt quartzite pebble and a fragment of unidentified animal bone. There appeared to be some structuring of the finds within this pit: the pot was placed upright with burnt limestone underneath and the quernstone to the W. (Fig. 3, section 9).

It was not possible to determine whether or not pits 119 and 121 were indeed separate features or formed part of a much larger pit. If the latter is correct the pit would have been oval or sub-rectangular in plan, measuring approximately 2.08 m. by 0.75 m. The very similar nature of the fills recorded in 119 and 121 argue for one large pit; however, it would have been quite irregular in plan with a rather uneven base.

Pit/Gully 149 was exposed in the south edge of the site and measured 1.00 m. wide and 0.27 m. deep (Figs. 2–3, section 4). This feature was not fully exposed and to the south was cut by a gas pipe trench. The pit/gully 149 cut a probable ploughsoil 152 which sealed the latest fill of the inner barrow ditch. Late Iron Age pottery was recovered the fill of this feature.

A number of geological and other natural features were excavated (Fig. 2). 145 was linear, measuring 1.0 m. wide, and was excavated to a depth of 0.65 m (Fig. 3, section 9). It had a steep western edge with a slightly sloping eastern side. It was filled with a series of reddish brown or yellow gravelly (up to 70%) silty sands. A single sherd of Brill/Boarstall pottery of late 13th- to early 14th-century date and a small piece of fuel ash slag were recovered from the upper fill of this context (141). This feature has been interpreted as a periglacial frost wedge, the artefacts perhaps being incorporated into the upper fill through tree root disturbance.

155, 157 and 159 were small circular or sub-circular features (maximum dimension 0.75 m.) and between 0.07 m. and 0.21 m. deep (Fig. 2). They were filled with light brown gravelly, silty sand. They have been interpreted as tree root disturbance or other natural features.

THE FINDS

HUMAN BONE, by ANGELA BOYLE and MARY HARMAN, with a note on the possible textile impression by ESTHER CAMERON

The cremation weighed 917 g. and comprised the remains of an ageing adult male. A complete cremated adult weighs in the order of 3000 g.[4] and it is therefore clear that the complete collection of the remains did not occur. The assessment of sex was based on the morphology of the nuchal crest and the supra-orbital ridges.[5] Estimation of age was based on skull vault thickness, ante-mortem dental loss and processes of degenerative change. All of the mandibular molars had been lost during life and the sockets completely resorbed. Areas of eburnation and porosity were present on the femoral head and the acetabulum. Probable Schmorl's nodes were seen on two thoracic vertebral bodies.

All parts of the body were represented. Skull fragments made up 280 g. or 32.3% of the deposit (frontal, occipital, petrous, mandible); lower limb fragments weighed 229 g. or 26.4% (femur, tibia, fibula, patella, talus, navicular, cuboid, cuneiforms, phalanges); upper limb fragments weighed 102 g. or 11.76% (humerus, radius, ulna, metacarpals, carpals); axial remains weighed 58 g. or 6.7% (thoracic and cervical vertebra, pelvis ribs, clavicle, scapula). Unidentifiable fragments comprised 248 g. or 22.84% of the total deposit. The fragments are uniformly large and little distortion has occurred. None of the bone had been particularly well burnt.

The weight of the cremation compares well with central cremations at Barrow Hills, Radley. Those from barrows 1, 2 and 16 weighed 733 g., 829 g. and 545 g., respectively. These deposits were identified as one adult male and two possible adult females.[6] Approximately 209 g. of charcoal and 6 g. of burnt flint were associated with the cremated bone. This may represent pyre debris; evidence for pyre debris has been recovered from a number of sites, for example, barrows 1, 2, 4, 14, and 16 at Barrow Hills, Radley.[7]

A single fragment of either radius or ulna appears to have some textile impressions surviving on its surface (3 g.). This fragment was examined by Esther Cameron and tentatively identified as a loose, plain (tabby) weave 14/14 per $cm.^2$ (measured from 5 $mm.^2$).

EARLIER PREHISTORIC POTTERY, by ALISTAIR BARCLAY

The 1989 excavations produced two sherds of grog-tempered early Bronze Age pottery.

1: (Fig. 4, 1) Unstratified. Finger-tip decorated sherd probably from the neck of a tripartite Collared Urn. The sherd is decorated with rows of horizontal and oblique finger-tip impressions. Colour: ext: buff; core & int: dark grey. Fabric: common angular grog (1–4 mm.) and rare pebbles of limestone and flint.

(Not illustrated) Context 17 (Fill of outer ditch). Plain body sherd. Colour: ext. orange brown; core and int. dark grey. Fabric: common sub-rounded ill-sorted grog (1–8 mm.).

The illustrated sherd is probably from the shoulder and neck of a tripartite Collared Urn of early Bronze Age date. The motif, consisting of an oblique and an horizontal finger-tip impression, is not listed by Longworth, and it

[4] J. McKinley, *Spong Hill Part VII: The Cremations* (EAA 69 Field Archaeology Division, Norfolk Museums Service, 1994), 11.

[5] Workshop of European Anthropologists 'Recommendations for Age and Sex Diagnoses of Skeletons', *J. Hum. Evol.* 9 (1980), 517–49.

[6] A. Boyle (in preparation), 'The human remains', in A. Barclay and C. Halpin, *Barrow Hills Radley, Volume 1: Prehistoric Monument Complex*, Thames Valley Landscape Series.

[7] Ibid.

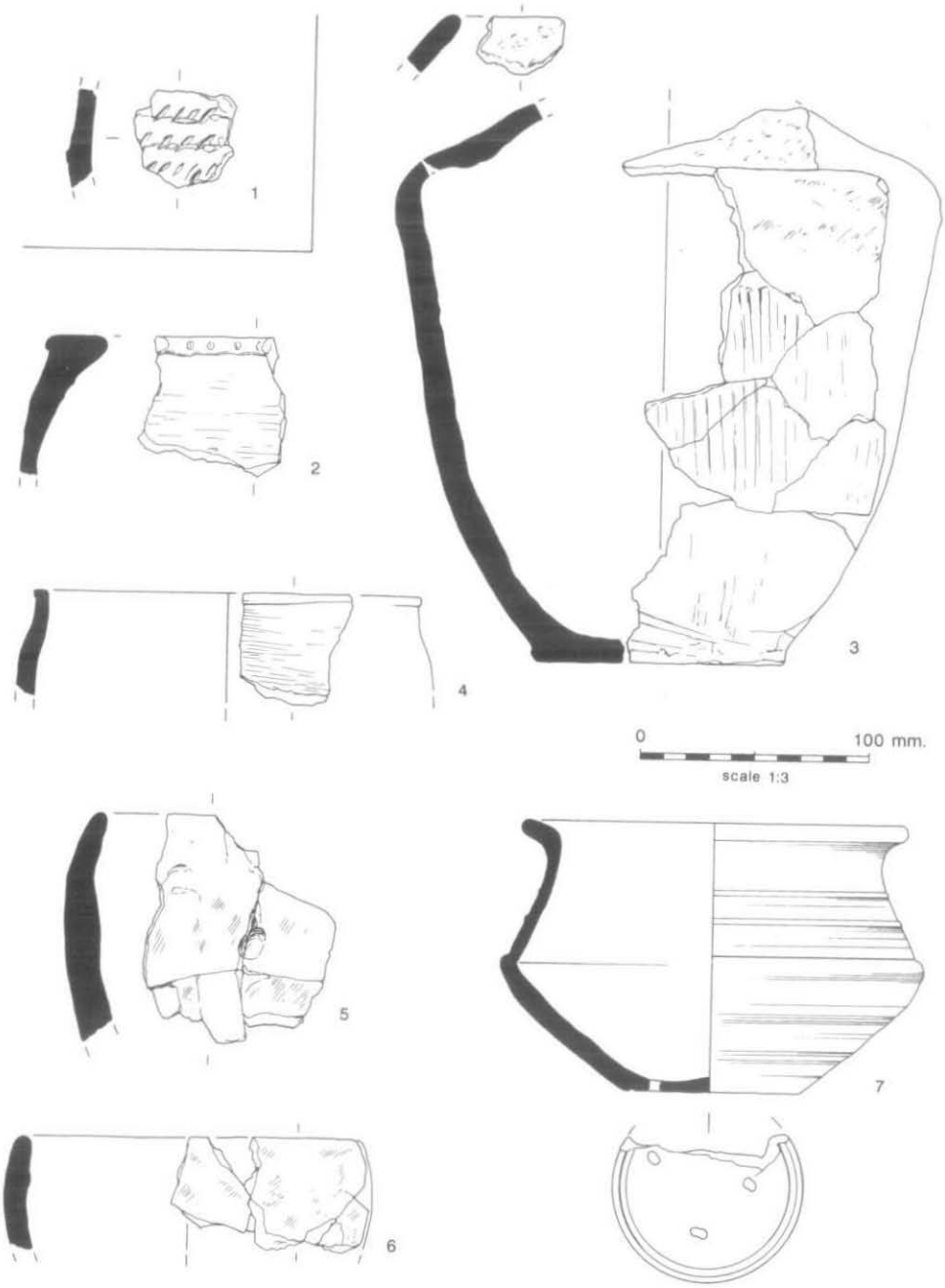

Fig. 4. Pottery from the Rex Richards excavations.

is perhaps a variant of the more common herringbone motif.[8] The simple repetitive decoration on the neck and below the shoulder and the tripartite form are all traits of Longworth's primary series of Collared Urns.[9]

The plain sherd, manufactured from a coarse grog-tempered fabric and low-fired, is also of early Bronze Age date.

Discussion

The two sherds are broadly contemporary with the use of the Bronze Age Barrow cemetery at South Parks, despite the fact that they derive from secondary or unstratified contexts. Very little early Bronze Age pottery has been found beneath the City of Oxford. A sherd classified as Collared Urn, but probably Neolithic Peterborough Ware, was found from a ditch beneath Logic Lane,[10] Beaker pottery has been found at the Hamel and at Summertown,[11] and a Biconical Urn at Iffley.[12]

IRON AGE AND ROMAN POTTERY, by PAUL BOOTH

Some 95 sherds of Iron Age and Roman pottery weighing 2532 g. were recovered from the excavations. The great majority of this material is of early and middle Iron Age date (85 sherds, 1859 g.), with a small quantity of late Iron Age pieces (8 sherds, 650 g., including a large part of a single vessel) and only two Roman sherds (23 g.), both from ploughsoil.

The sherds were recorded using the OAU Iron Age and Roman pottery recording system, which employs standard codes for such characteristics as fabric, vessel form and decoration. The full record of the material can be found in the project archive.

Fabrics

A striking feature of the assemblage is the great variety of fabrics present in the early-middle Iron Age. This is in part a function of the wide date range of the group, but despite this the diversity of fabrics is still remarkable. Many of the Iron Age fabrics could not be assigned with confidence to a particular phase within the period because they are not necessarily chronologically specific; sand-tempered and shell-tempered fabrics occur in both early and middle Iron Age deposits, though the proportion of sand to shell-tempered fabrics appears to increase fairly steadily through time.[13] The fabrics were defined on the basis of their two principal inclusion types (identified by letters) with a numeric indicator of coarseness of inclusions (on a scale of 1 – very fine, to 5 – very coarse). The fabrics thus defined for the early-middle Iron Age are summarised in Table 2.

Early-middle Iron Age fabrics

No single fabric dominated the assemblage. Principally sand-tempered sherds were the most common (45 out of 85 sherds) but only totalled 41% of the weight. Sand occurred in combination with a wide range of other inclusion types, of which shell, limestone and calcareous grit were the most common. In fabrics AI3 and AP3 the iron oxides and clay pellets are likely to have been incidental components of the clay rather than deliberately added to it, but most if not all other inclusion types were probably intentional additions to a basic sandy matrix. Almost all these fabrics were of medium/moderate coarseness.

The majority of the remaining Iron Age pottery was principally shell-tempered, though a small component of

[8] I.H. Longworth, *Collared Urns of the Bronze Age in Great Britain and Ireland* (1984), 9.

[9] Ibid. 20–1.

[10] F. Radcliffe, 'Excavations at Logic Lane, Oxford. The prehistoric and early medieval finds', *Oxoniensia*, xxvi–xxvii (1961–2), 38–69.

[11] H. Case, 'Beaker pottery from the Oxford Region: 1939–1955', *Oxoniensia*, xxi (1956), 1–22.

[12] *V.C.H. Oxon.* i, 246, plate VII(d).

[13] G. Lambrick, 'Pitfalls and possibilities in Iron Age pottery studies – experiences in the Upper Thames Valley', in B. Cunliffe and D. Miles (eds.), *Aspects of the Iron Age in Central Southern Britain* (Oxford Univ. Committee for Archaeol. Monograph 2, 1984), 165–6.

TABLE 2. EARLY-MIDDLE IRON AGE POTTERY FABRICS

Code	Fabric	No. sherds	Weight (g.)
AN2	Sand/no other inclusions	2	6
AN3	Sand/no other inclusions	3	236
AI3	Sand/iron oxides	1	3
AP3	Sand/clay pellets	1	5
AC3	Sand/calcareous grit	6	132
AL3	Sand/limestone	3	130
AL4	Sand/limestone	6	31
AS3	Sand/shell	7	77
AS4	Sand/shell	8	64
AV3	Sand/burnt organic	2	10
AW4	Sand/uncertain white inclusions	5	67
AZ3	Sand/uncertain voids	1	2
CS4	Calcareous grit/shell	1	3
CZ3	Calcareous grit/uncertain voids	1	6
LA4	Limestone/sand	5	184
LA5	Limestone/sand	1	9
SN5	Shell/no other inclusions	2	11
SA4	Shell/sand	20	731
SA5	Shell/sand	2	9
SP4	Shell/?clay pellets	2	26
SP5	Shell/?clay pellets	4	103
SI4	Shell/iron oxides	1	8
PS3	Clay pellets/shell	1	6
TOTAL		85	1859

moderate/very coarse limestone-tempered sherds was also notable. Unlike the sand-tempered sherds, shell was only used in combination with a limited number of other inclusion types, sand and clay pellets, and of these it is possible that the clay pellets were accidental inclusions. It should be noted, however, that many of the sherds of fabric SA4 were from a single vessel (Fig. 4, 3), which has tended to exaggerate the importance of this fabric.

Late Iron Age and Roman Fabrics

Late Iron Age ('Belgic type') fabrics were distinguished from those of earlier periods on the basis of inclusion types and characteristics of manufacture. Five of the eight sherds of this date were grog-tempered ('Roman' ware group E80 in the OAU system), and there were single sherds of fine sand, medium/coarse sand and shell-tempered wares (ware groups E20, E30 and E40 respectively). All sherds in these groups appeared to be wheel-thrown. The Roman fabrics were a coarse sandy reduced ware (fabric R20) of local origin used for a rim of Young type R47[14] and a fragment of Dorset black-burnished ware category 1 (fabric B11).

Vessel forms and decoration

Twelve vessels (including the late Iron Age and Roman ones) were represented by rim sherds. Nine rims were of early-middle Iron Age date. These included two jars with incurving expanded rims in shell-tempered fabrics presumably of early Iron Age date. Other jar forms in shell-tempered fabrics likely to be of early Iron Age date included an upright vessel with a small slightly beaded rim (Fig. 4.4) and a large, shouldered vessel (Fig. 4, 3, see below). A

[14] C.J. Young, *Oxfordshire Roman pottery*, Brit. Archaeol. Rep. (British Series) 43 (1977), 220–1.

further rim with a large indentation on the tip, in fabric SP4, was from a shouldered (possibly tripartite) jar as it was burnished both internally and externally, but the angle of this piece is uncertain.

Rim sherds likely to be of middle Iron Age date were all from simple roughly barrel-shaped vessels. One of these, in fabric LA4, appears to have a single fingertip impression at the girth (Fig. 4, 5), a characteristic which would not normally be associated with this period. However, the form and fabric of this piece appear typically middle Iron Age. The base and lower body of a globular bowl with internal and external burnish were the only pieces clearly not from simple jar forms.

Burnishing was the most common decorative or finishing technique used. It occurred on 28 out of the 85 Iron Age sherds and was found on both sand-tempered and shell-tempered fabrics. Possible fingertip decoration occurred on the jar in fabric LA4 (above, Fig. 4, 5) and on two shell-tempered rims of early Iron Age date. The only other 'decorative' technique noted was on a sherd of fabric AS4, which had rough vertical lines reminiscent of East Midlands scored ware decoration.

Recognisable late Iron Age vessel forms consisted of a bead rim jar and carinated jars. Decoration again consisted principally of burnishing, now supplemented by the use of cordons on jar forms.

Chronology

While the Iron Age assemblage clearly includes both early and middle elements there are no context groups which are unambiguously of early Iron Age date. The only two context groups of any size (with 23 and 39 sherds), from a pit 11 and a ditch 16, contained mixed groups. That from 11 consisted mainly of the shouldered rimless jar in fabric SA4 and other probable early Iron Age pieces (Fig. 4.4), but it also included four sherds in fabric AS4, one with 'scored' decoration. This technique is consistently of middle Iron Age (4th–1st century BC) date in the central area of its distribution north and east of Oxfordshire[15] and there is no reason to doubt a middle Iron Age date for the present sherd. Context 16 contained a more clearly mixed early and middle Iron Age assemblage, dominated by sand tempered sherds (26 out of 39 sherds) but with a definite early Iron Age component of sherds in fabrics SN5 and SP5, including an expanded insloping rim.

Remaining context groups consisted of one or two sherds, usually of middle Iron Age date, but these do not prove that the features were of this date.

Pit fills 120 and 148 can be assigned confidently to the late Iron Age. The wheel-thrown 'Belgic type' sherds which they contained are at present thought unlikely to date much before the second quarter of the 1st century AD (Fig. 4, 7). Their range extends beyond the Roman conquest, and perhaps as late as the early Flavian period. Thereafter the pottery provides no firm evidence for activity in the immediate area, the only two Roman sherds being from ploughsoil.

Discussion

The character of the sherds is indicative of domestic settlement on or in the very near vicinity of the site. The average weight of the early and middle Iron Age sherds, almost 22 g., compares favourably with that for other quantified domestic assemblages in the region, for example, Gravelly Guy (10 g., unpublished), Yarnton[16] (16 g.), and Whitehouse Road, Oxford[17] (*c.* 18 g.). The high average sherd weight on the present site does, however, mask some internal variation within the assemblage. A number of fabrics are represented only by small (in some cases very small) sherds, and only six out of the 23 early and middle Iron Age fabrics (AN3, AC3, AL3, LA4, SA4 and SP5) have average sherd weights above 13 g. (and most of these average over 25 g. per sherd). The significance of this variation is unclear: it does not relate to chronology, since early and middle Iron Age fabrics appear to be represented in both 'large-sherd' and 'small-sherd' groups.

[15] S.M. Elsdon, 'East Midlands scored ware', *Trans. Leicestershire Archaeol. and Hist. Soc.* 66 (1982), 89.

[16] P. Booth (in preparation), 'The pottery', in G. Hey, *Yarnton: the Origins and Development of a Village in the Upper Thames Valley 600 BC.–AD. 900.*

[17] J.R. Timby, 'Pottery', in A. Mudd, 'Excavations at Whitehouse Road, Oxford, 1992', *Oxoniensia*, lviii (1993), 56.

Catalogue of illustrated vessels

2. Context 19. Fabric SP5 (buff). Large jar with insloping flat-topped expanded rim. The outer face of the rim has very slight indentations. The shoulder and top of the rim are roughly burnished with horizontal lines.[18]

3. Context 11. Fabric SA4 (buff-brown with dark grey core and grey-brown interior). Base, body, shoulder and possible rim of large jar. The three parts of the profile do not join but their relationship seems fairly clear. The body below the shoulder has vertical burnishing, the treatment above the shoulder is less clear but is probably the same. The most problematical aspect of this vessel is the rim sherd, which appears to belong to it. The surviving fragment is only small, but while the insloping angle (as illustrated) appears to be correct, the rim diameter suggested by this sherd is considerably greater than is possible if the rest of the profile has been correctly understood. If the vessel is of early Iron Age date, as seems likely, an upright or everted rim would be expected, but the present fragments do not indicate this. Shouldered jars did continue into the middle Iron Age as, for example, at Watkins Farm,[19] though the shoulder there was much less pronounced than on this vessel.

4. Context 11. Fabric SA4 (dark grey-brown to black). Vertical-sided jar with fine slightly beaded rim. Overall external burnish. Perhaps early Iron Age.

5. Context 16. Fabric LA4 (buff-brown). Barrel-shaped jar with simple insloping tapering rim. Slight burnish on the upper body. There is a possible fingertip impression at the girth, but this may be an accidental feature.[20]

6. Context 16. Fabric AW4 (dark grey-brown to black). Simple barrel-shaped jar with roughly smoothed exterior. Middle Iron Age.

7. Context 120. Fabric AN3/E30 (grey-brown to black). Biconical carinated jar/bowl with slight cordons and burnish above the carination, horizontal burnished lines below. The base, which shows some wear, has been pierced after firing by (probably) four small irregular holes, a feature commonly observed in the Upper Thames in this period. The form is Thompson G2-5.[21] This is not normally found in the Upper Thames, where carinated forms are usually the taller vessels described by Thompson as 'cups'.[22] Such vessels are relatively common at sites such as Stanton Harcourt Gravelly Guy and Yarnton, whereas the biconical form is absent from these sites. The type is more common closer to the margin of 'Belgic' influence, e.g. in Warwickshire, where it occurs at sites such as Tiddington[23] and Wasperton and at Beckford in Worcestershire. It may be entirely post-conquest in date.

MEDIEVAL AND LATER POTTERY, by LUCY WHITTINGHAM

Twenty-four sherds of medieval and post-medieval pottery were recovered from the 1982 and 1993 excavations. The assemblage is comprised primarily of various Brill/Boarstall products and a small number of regional imported wares in both the medieval and post-medieval periods.

The Brill/Boarstall industry is represented by eighteen sherds. Of these, fourteen are medieval sherds in fabric OXAM, from copper-glazed baluster jugs and highly decorated jugs of an early 13th to 14th-century date. A single sherd in fabric OXAW is from a plain lead-glazed jug. A further two sherds in post-medieval fabric OXDG are from shallow flanged dishes of a 16th- to early 18th-century date.

Regional medieval imports, of a 12th- to 14th-century date, are represented by the occasional sherd in shell-

[18] Compare with 52 no. 116, with a more rounded top to the rim, in C.D. DeRoche, 'The Iron Age pottery', in M. Parrington, *The excavation of an Iron Age settlement, Bronze Age ring-ditches and Roman features at Ashville Trading Estate, Abingdon (Oxfordshire) 1974–76* (C.B.A. Res. Rep. 28, 1978), 40–74.

[19] See 37 Fig. 22 no. 6, in a 'shelly alluvium fabric' although the shoulder does not appear quite so pronounced as on the present vessel, in T.G. Allen, *An Iron Age and Romano-British enclosed settlement at Watkins Farm, Northmoor, Oxon.* (Thames Valley Landscapes, The Windrush Valley, Vol. 1, Oxford University Committee for Archaeol, 1990).

[20] This form is a common one: see 40 no.19 in G. Lambrick, 'The Iron Age pottery', in G. Lambrick and M. Robinson, *Iron Age and Roman riverside settlements at Farmoor, Oxfordshire* (C.B.A. Res. Rep. 32, 1979), 35–46.

[21] I. Thompson, *Grog-tempered 'Belgic' pottery of South-eastern England* (Brit. Archaeol. Rep. 108, 1982), 489.

[22] Ibid. 351–73, form E1.

[23] For example, P. Booth, 'Roman pottery in Warwickshire, production and demand', *Journal of Roman Pottery Studies*, 1 (1986), 23, no. 5.

tempered fabric OXBK, quartz- and flint-tempered fabric OXAQ and late medieval 15th-century earthenware, fabric OXAY. One slip-decorated sherd from an 18th-century Staffordshire press-moulded dish is the only example of an imported post-medieval ware on this site. With the exception of one medieval Brill/Boarstall sherd in ditch context 19, all of this material was recovered from recent or natural contexts such as topsoil or dumping, or the upper fill of frost wedge 145 (context 141).

FIRED CLAY, by ALISTAIR BARCLAY

Three contexts produced a total of 48 pieces (1046 g.) of fired clay (17, 118 and 120).

Context 17. Fragment with concave surface (24 g.).

Context 118. Twenty-one fragments some with flat surfaces (228 g.).

Context 120. Twenty-six fragments and many small crumbs, some with surfaces and two with wattle impressions (794 g.).

Discussion

All of the fired clay was manufactured from ill-sorted clay with varying quantities of sand, limestone and clay pellets and had been fired orange-brown throughout. The occurrence of relatively smooth surfaces on some fragments from all of the contexts and wattle impressions on two fragments from context 120 indicates that at least some of the material was structural. The oxidised firing of the clay is more likely to indicate that the material probably derives from oven structures rather than from burnt daub-walls, as one would expect fragments from burnt daub-walls to be less evenly fired and not necessarily oxidised.

WORKED FLINT, by PHILIPPA BRADLEY

A small assemblage of 21 pieces of worked flint and four burnt unworked flints was recovered from the upper fills of the ring ditch, later features and unstratified contexts (further details may be found in the archive). The flint is generally good quality, grey to mid-brown in colour with a buff or brown cortex. Cortication is generally light. A single flake of Bullhead flint[24] was recovered from the burnt spread cut by the central cremation. This material would probably have been brought to the site from sources to the S. or E.

Discussion

The majority of the flint is hard-hammer struck and short, squat flakes predominate. The size and composition of the assemblage preclude firm dating although a Bronze Age date would not be out of place. The single flake from a polished implement may suggest a Neolithic presence but the piece is too small for the type of tool it came from to be identified. The only retouched form is a broken flake with steep retouch along two lateral sides. A utilised flake with gloss on both edges was recovered from context 5, the burnt spread into which the cremation was cut. Its precise location within the feature is not known and it is not certainly a deliberate deposit.

WORKED STONE, by FIONA ROE

Two fragments of quernstones were recovered from pits 11 and 120.

Context 121 (Not illustrated). Rotary quernstone, Millstone grit, incomplete. Fragment of upper stone from a rotary

[24] W. Shepherd, *Flint: Its origin, properties and uses* (1972).

quern, millstone grit is more commonly used for the production of quernstones in the Roman period than in earlier periods. Sf. 1.

Context 11 (Not illustrated). Saddle quernstone, Lower calcareous grit, incomplete. Fragment of a saddle quern, the stone is of local origin.

COPPER ALLOY, by LEIGH ALLEN

Context 4 (Not illustrated). Ring, copper alloy, incomplete. Two fragments of hollow tube forming two thirds of a sub-circular ring. The cross-section measures 5 mm., the tube has been constructed from copper alloy sheet which has been rolled up, the edges abut in places and overlap in others. Diameter *c.* 37 mm., Sf. 1.

SLAG, by CHRIS SALTER

Two examples of slag-like material were examined, one from context 118, the fill of pit 119, and one from 141, the upper fill of the frost wedge, 145. On the basis of their external and internal morphology and colour these samples would be classified as fuel ash slag (FAS).[25] This is a non-diagnostic class of pyro-ceramic which can be produced by almost any high temperature process, such a pottery-making, iron-production and working, copper-alloy working, cremation, burning of buildings or even a simple fire given a strong wind. Fuel ash slag is usually the result of the high temperature reaction of the ash from the fuel (wood, charcoal or coal) with silica-rich material such as the underlying soil, or hearth lining, being accidentally included with the fuel. The temperatures involved seem to be quite high, often in excess of 1100°C. These samples were of a slightly lighter colour than is normal for fuel ash slag produced during iron-working, which tends to be iron-rich and as a result dark green to black in the centre. Therefore, these samples were sectioned and prepared for optical and scanning electron microscope (SEM) examination to check this possibility. In addition, small amounts of both 'slags'[26] were crushed and their X-ray diffraction patterns determined. These patterns showed the presence of quartz and apatite. The optical and electron-optical examination proved the slag to have a morphology of partially dissolved silica grains in a complex fused calcium-alumino-silicate matrix. Regions of the matrix showed morphologies with high concentrations of apatite crystals and of crystals with a calcium-silicon-phosphate composition separating out from the glass. There were also occasional spherical particles of iron phosphides (Fe_3P) and iron sulphides (FeS) or both, and one possible example of a relic calcium sulphide inclusion. Further details of the analyses may be found in the archive.

Discussion

The two samples were so similar in morphology and chemistry that it is probable that they formed at the same time, probably some time during the Iron Age. The most important characteristic of these slag-like samples was the very high localised phosphorus content (and to a lesser extent, the high calcium content). In a study of 'clinker' associated with cremations in the Anglo-Saxon cemeteries at Elsham and Illington[27] average compositions with up to 7.1% P_2O_5 and 13.7% CaO were reported. As bone is composed mainly of the calcium and phosphorus-containing mineral, apatite, it was concluded that these samples were the result of burning bone at temperatures in excess of 900°C, above which temperature the bone ash and soil fused to give the viscous slag-like material. This hypothesis is supported, in the present case, by the presence of burnt bones in context 118 (pit fill). Bone also occurred in context 141 but was not burnt. The pit fill was also recorded as having contained at least 11.60 kg. of burnt limestone, but unfortunately this was not kept for comparison. Thus, it is possible that the vitrification of phosphoritic limestone nodules occurring naturally in a sandy soil could have generated this slag-like material, but this is considered unlikely in view of the amount of phosphorus present and the nature of the limestone in the local soil (unfortunately the soil samples were no longer available for comparison by the time work started on the slag samples). However, the limestone in soil adhering to sample OX320 was a clean oolite, with the occasional small grain or an iron-rich rock, but nothing obviously strongly phosphoritic.

[25] L. Biek and J. Bayley, 'Glass and other vitreous materials', *World Archaeology*, xi (1979), 1–25.
[26] Slag – strictly the term should only be applied to oxide-melts formed during metalworking processes.
[27] J. Henderson, R. Janaway, and J. Richards, 'A curious clinker', *Journal of Archaeological Science*, xiv (1987), 353–65.

The presence of FeS and Fe_3P has not been reported previously in fuel ash slag. However, this is not surprising as the material has not been subjected to extensive mineralogical and microstructural studies. In the case of the study by Henderson et al,[28] it is possible that these types of particles were present but not identified, as fractured rather than polished surfaces were examined. Fractures are most likely to occur along lines of weakness. These lines of weakness are likely to be cracks widened by weathering, and both these phases would be highly susceptible to weathering and thus lost. These particles would suggest that the temperatures involved may have been much higher than the 900°C suggested by Henderson et al.[29] More work, beyond the scope of this report, is required to determine the full set of mineral phases present and the range of possible conditions of formation. However, given that a similar mineralogy was seen in a fuel ash slag sample from Beedon Manor which still had a small fragment of partially reacted bone attached,[30] it would seem likely that these samples formed by the burning of bone at high temperatures and under, at least, partially reducing conditions.

ANIMAL BONE, by NICOLA SCOTT

A small assemblage (143 fragments) of animal bone was recovered from various fills of the barrow ditch, Iron Age pits and gullies. The identifiable bone from the barrow ditch is cattle whilst the assemblages from the other features are more mixed and include some sheep/goat as well as cattle. Further details may be found in the archive.

Discussion

Bone from the 1982 excavation of the barrow ditch was in an excellent state of preservation. The cattle tibia and one of the femurs may have been articulated although the precise location of these bones was not recorded. Bone from the other excavations was reasonably well preserved but more fragmentary. Only bone recovered from the late Iron Age features showed any butchery marks, those being fine knife cuts.

2. SIR WILLIAM DUNN SCHOOL OF PATHOLOGY

An evaluation and watching brief was carried out prior to, and during, the construction of an extension to the Sir William Dunn School of Pathology Laboratory (centred on SP 5169 0706; Fig. 8).[31] Three machine-excavated trenches revealed no archaeological features. Earlier ploughsoils were identified in two of the trenches; these layers produced medieval pottery. A single sherd of Iron Age pottery was recovered from trench 3.

3. A BRONZE AGE BARROW AT 24A ST. MICHAEL'S STREET, by ALISTAIR BARCLAY and PETER McKEAGUE

INTRODUCTION (Figs. 5–7)

During the excavation of 24A St. Michael's Street in 1985 a substantial curving ditch was found.[32] Figure 5 shows that approximately one eighth of the ditch circuit was contained by

[28] Ibid. 353–65.
[29] Ibid. 362.
[30] Research Laboratory for Archaeology, Oxford, internal report.
[31] A. Parkinson, 'Sir William Dunn School of Pathology, Oxford, Archaeological Evaluation', OAU unpublished client report, May 1995.
[32] B. Durham (in preparation), *Oxford before the University* (Thames Valley Landscape Series).

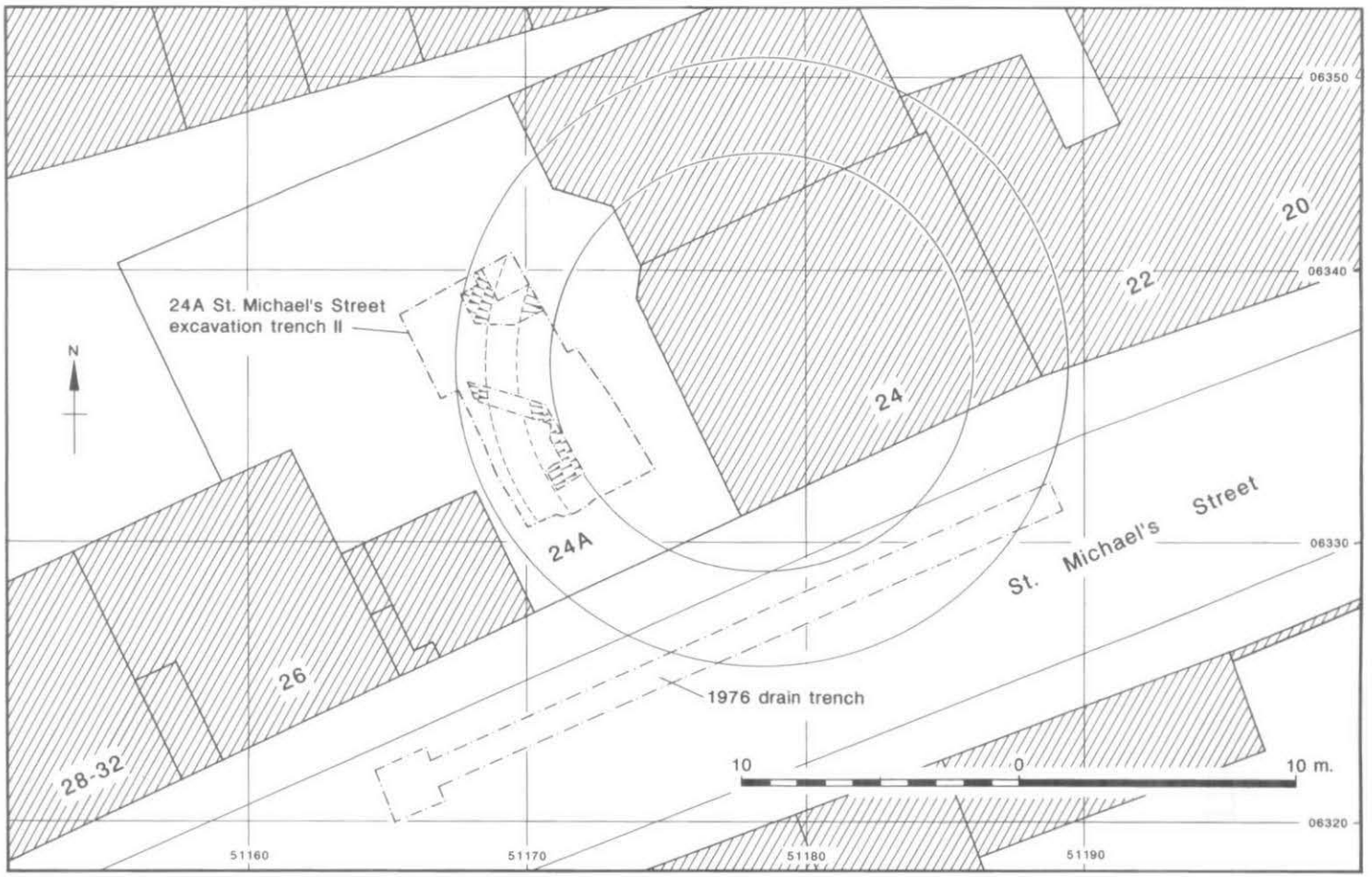

Fig. 5. Location of 24A St. Michael's Street barrow.

the total area of excavation. The ring ditch was found at the base of a complex sequence of medieval and later archaeology; the excavation was somewhat constrained by this. Two sections were dug across the ditch (Figs. 6, 7). No evidence for an *in situ* mound or burials was found.

THE DITCH

The ditch was cut 1.3 m. into natural gravel and in both sections was revealed to have a U-shaped profile (Fig. 7). In both sections the primary fill consisted of yellow sandy gravel (58/5, 58/8) which was overlain by fills of brownish yellow sand and gravel (58/3, 58/7). Silting was almost symmetrical with material being deposited from each side of the ditch (Fig. 7). In section A the ditch appears to have been recut after the deposition of the secondary fill though in section B the recut was less apparent, and the appearance of a cut in section A could therefore be fortuitous. In both sections this 'recut' was filled with gravel-free silty loam (58/4). Such a deposit is likely to represent slow, natural accumulation. The upper ditch was filled with successive layers of gravelly silt loam (58/6, 48/1). It is likely that some of this material, in particular deposit 48, represents an accumulation of ploughsoil. A sample from layer 48 was taken for molluscan analysis but no useful results were obtained.[33] Five worked flints were recovered from the ring ditch, although their precise locations were not recorded.

The profile of this ditch and its sequence of infilling are typical of Bronze Age barrows found on the gravel terraces in the Upper Thames.[34] If circular, the barrow may have had an internal diameter of 16 m. (Fig. 5). The excavation of a drain trench in 1976 (Fig. 5) was not unfortunately deep enough to observe the ring ditch. The possible recut of the ditch suggests secondary activity and refurbishment of the primary barrow. No cremation or burial deposits were found. The centre of the ring ditch is estimated as lying underneath 24 St. Michael's Street.

THE FINDS

WORKED FLINT, by PHILIPPA BRADLEY

A small assemblage of 11 pieces of worked flint was recovered from the excavation of which five flakes came from the ring ditch. The assemblage consists of eight flakes, one piece of irregular waste, a tested nodule and a miscellaneous retouched piece. The flint is grey to mid-brown in colour with a smooth buff cortex and cortication is generally light. A derived source for this material seems likely. The single tested nodule is black with a white chalky cortex, perhaps indicating a source on or near the Chalk.

Discussion

The material is really too scrappy to date although the predominance of squat, hard-hammer struck flakes may indicate a Bronze Age date. The miscellaneous retouched piece has flat, slightly inverse retouch on the dorsal face only at the distal end of the flake. Five flakes were recovered from the ring ditch (context 58) although their precise location was not recorded. The piece of irregular waste was recovered from the ploughsoil above the ring ditch, and other finds came from later contexts: a pit, a ditch and rampart material. The material indicates prehistoric activity within the area of the ring ditch although the flintwork is not necessarily directly associated with it.

ANIMAL BONE, by NICOLA SCOTT

A total of 15 bones were recovered from the barrow ditch, three of which were identifiable (cattle phalanx, astragalus and a loose tooth).

[33] M. Robinson (in preparation), 'Environmental evidence from 24A St Michael's Street', in B. Durham, *Oxford before the University* (Thames Valley Landscape Series).

[34] Cf. A. Barclay and C. Halpin (in preparation), *Barrow Hills Radley, Volume 1: Prehistoric Monument Complex* (Thames Valley Landscape Series).

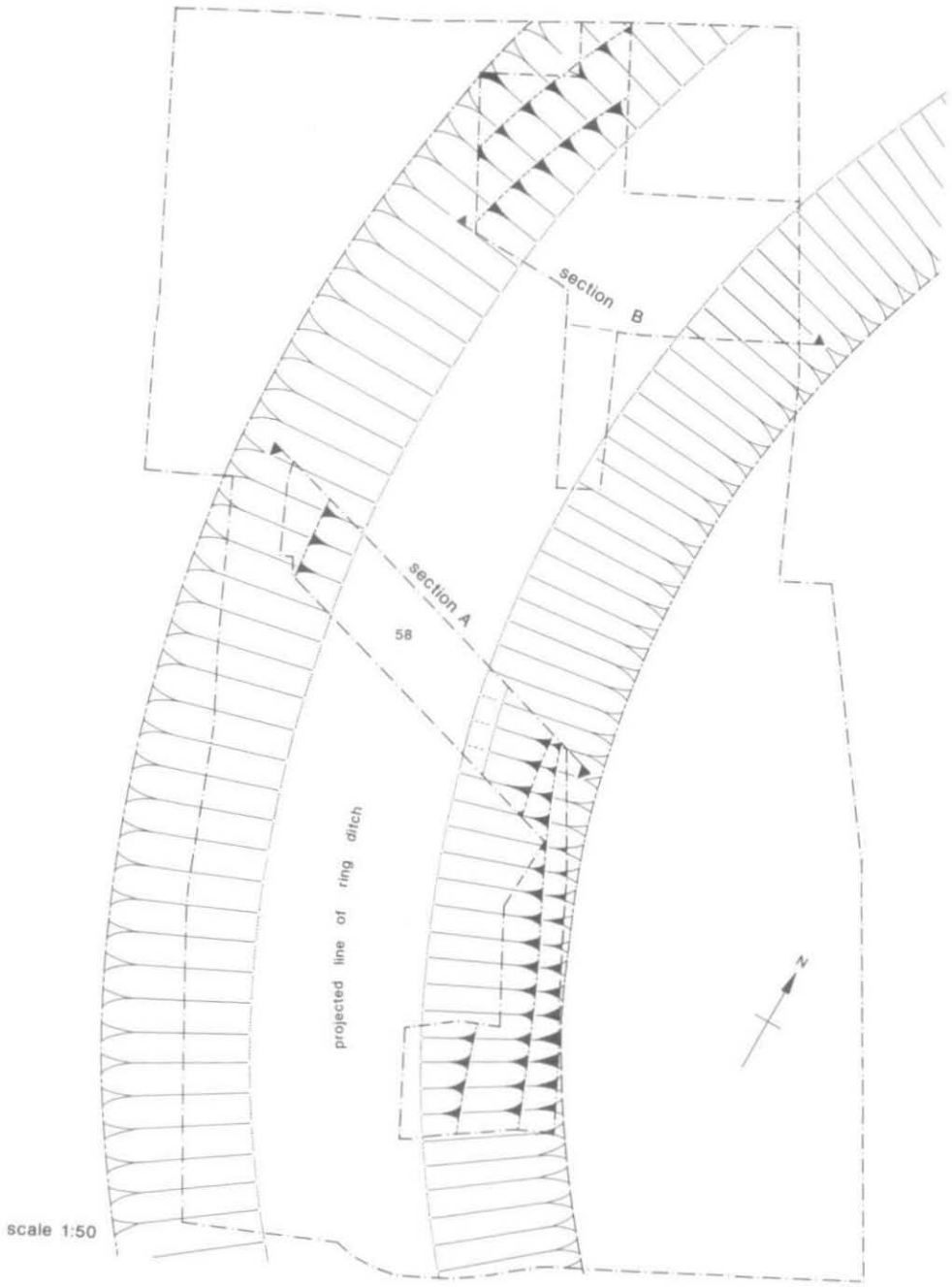

Fig. 6. Detail of the area excavated.

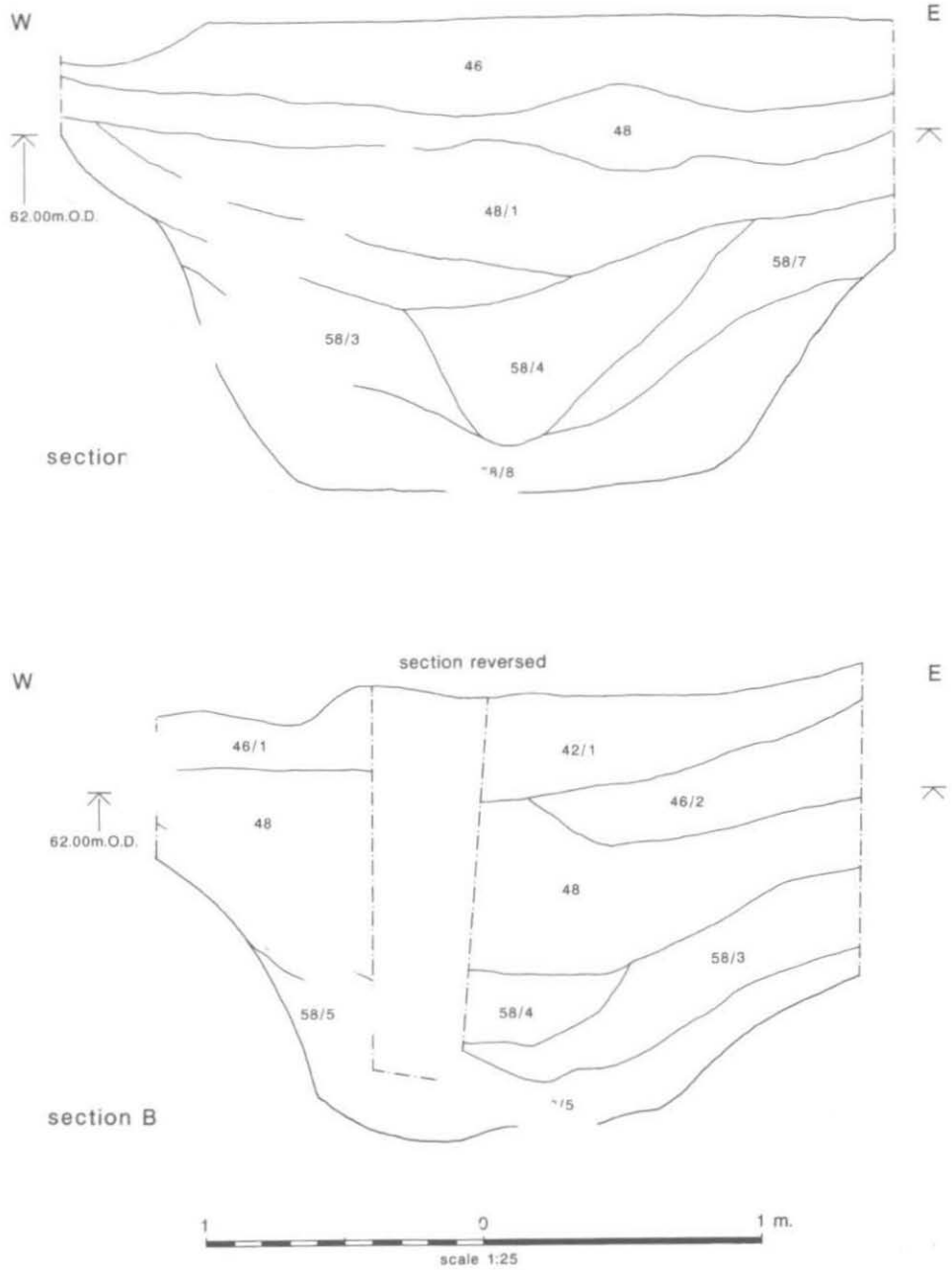

Fig. 7. Sections through the barrow ditch.

DISCUSSION: OXFORD UNIVERSITY SCIENCE AREA AND 24A ST. MICHAEL'S STREET, by ALISTAIR BARCLAY

The excavations at the Rex Richards Building and 24A St. Michael's Street provide important evidence for the early Bronze Age barrow cemetery known to exist under the City of Oxford. Cremation became the dominant burial rite in the early Bronze Age. The possible complexity of the cremation deposit within the barrow at the Rex Richards Building has affinities with the Wessex Grave Series of the 2nd millennium cal BC.[35] The grave-like pit and cremation deposit can be paralleled amongst the burial deposits from Barrow Hills, Radley, and to a lesser extent Stanton Harcourt.[36] The excavation of barrow XVII, at Stanton Harcourt, revealed evidence for the practice of *in situ* burning and for the sorting and burial of pyre debris.[37] At Barrow Hills large grave-like pits associated with Wessex 2 type grave deposits were found at the centres of both barrows 1 and 2.[38] The absence of grave goods from the Rex Richards Building cremation is not unusual as the majority of barrow burials are unaccompanied.[39]

Double-ditched or rather multi-phased enlarged barrows are not common within the Upper Thames, where the majority of barrows tend not to have been elaborated.[40] To some extent they are more common downstream in the cemeteries of Barrow Hills and, especially, North Stoke. Upstream from Oxford the cemeteries at Cassington, Foxley Farm, Eynsham, Stanton Harcourt and Standlake contain very few multi-phased barrows.[41]

The ring ditches of at least six round barrows are known from parchmarks in the University Parks (Fig. 8) which may represent only part of a larger linear barrow cemetery (Figs. 1, 8).[42] Five of them lie just to the north of the barrow at the Rex Richards Building (Fig. 8). Three of the ring ditches are of approximately equal size, all with internal diameter of *c.* 35 m. These are aligned almost east-west, and two smaller ring ditches are situated 100 m. further north (Fig. 8).

These cropmarks were first described by Dr Robert Plot, the first Keeper of the Ashmolean Museum, in 1686.[43] He concluded that they were caused by lightning during thunderstorms. He even carried out some trial excavations to investigate these rings further.[44]

Notable groups of ring ditches, the majority known from aerial photographs, are located on Port Meadow and Binsey.[45] The St. Michael's Street barrow, the University Parks cemetery,

[35] Cf. J. Barrett, *Fragments from Antiquity. An archaeology of social life in Britain, 2900–1200 BC* (1994), 119–20.

[36] A. Barclay and C. Halpin (in preparation), *Barrow Hills Radley, Volume 1: Prehistoric Monument Complex* (Thames Valley Landscape Series); D.B. Harden and R.C. Treweeks, 'Excavations at Stanton Harcourt, Oxon, 1940, II', *Oxoniensia*, x (1945), 16–41.

[37] D.B. Harden and R.C. Treweeks, op. cit. note 36, 16–41.

[38] A. Barclay and C. Halpin, op. cit. note 34.

[39] C. Burgess, *The Age of Stonehenge* (1980), 99.

[40] H.J. Case, 'Cassington 1950–2: late Neolithic pits and the Big Enclosure', in *Settlement patterns in the Oxford Region*, ed H.J. Case and A.W.R. Whittle (C.B.A. Res. Rep. 44, 1982), 118–51.

[41] D. Benson and D. Miles, *The Upper Thames Valley. An Archaeological Survey of the river gravels* (Oxford Archaeological Unit Survey 2, 1974), maps 20–1, 27, 31 and 43.

[42] Similar linear barrow cemeteries have been excavated in the Upper Thames, for example at Radley and Lambourn: A. Barclay and C. Halpin, op. cit. note 34; H. Case, 'The Lambourn Seven Barrows', *Berkshire Archaeological Journal*, 55 (1956-7), 15–31.

[43] S. Piggott, 'Dr Plot, ring ditches and the fairies', *Antiquity*, lix (1984), 206–9.

[44] Ibid. 207.

[45] D.R. Wilson, *Air Photo Interpretation for Archaeologists* (1982), 62–3; R.J.C. Atkinson, 'Archaeological sites on Port Meadow', *Oxoniensia*, vii (1942), 24–35; G. Lambrick, 'Thames Floodplain Survey', *CBA 9 Newsletter*, 13 (1983), 148; G. Lambrick and A. McDonald, 'The archaeology and ecology of Port Meadow and Wolvercote Common, Oxford', in G. Lambrick (ed.), *Archaeology and Nature Conservation* (Oxford University Department for External Studies, 1985), 95–109; P.P. Rhodes, 'New archaeological sites at Binsey and Port Meadow', *Oxoniensia*, xvi (1949), 81–4.

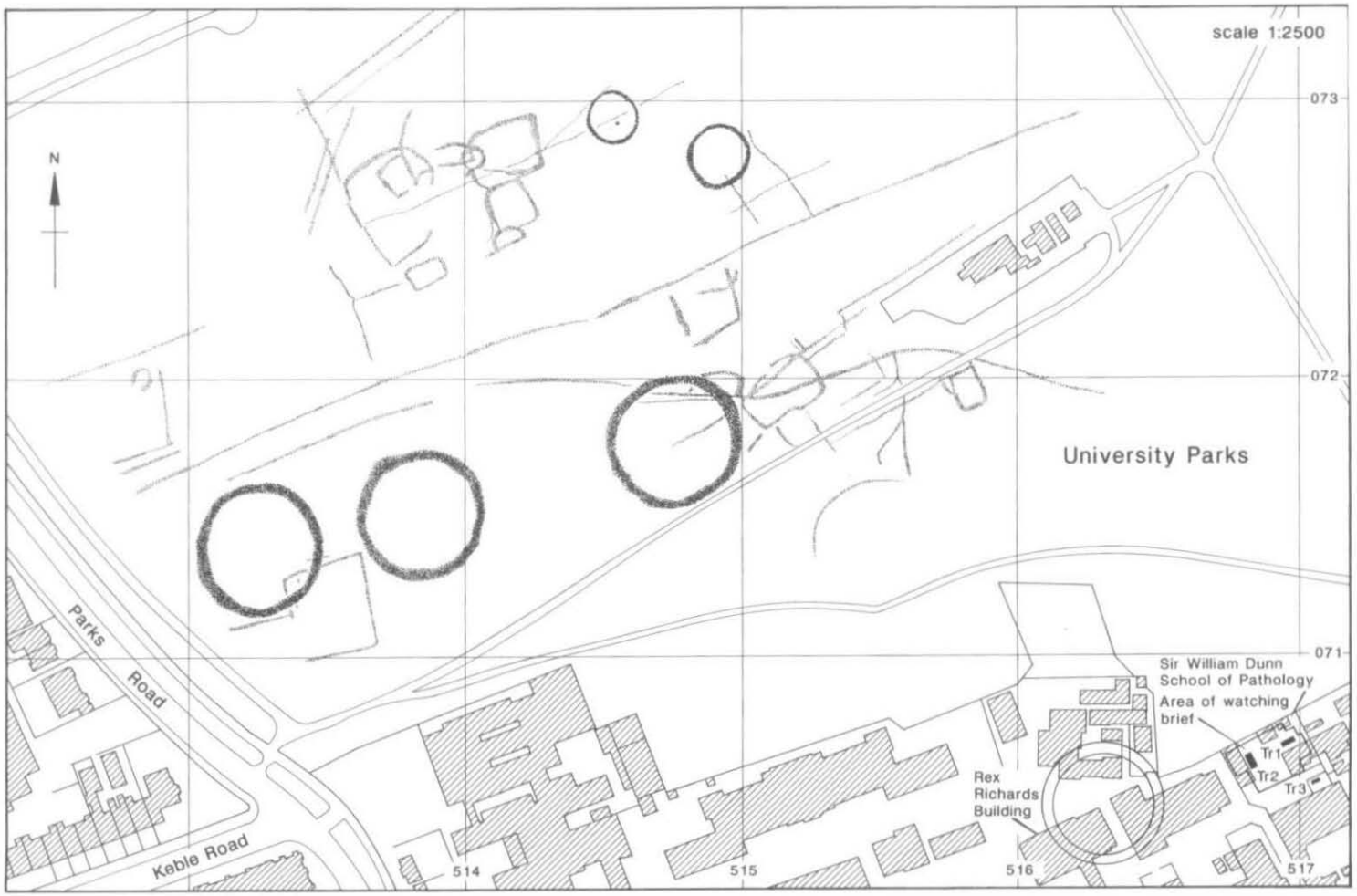

Fig. 8. Cropmarks of ring ditches and enclosures in University Parks.

ditches at Logic Lane and a number of artefact finds from the city[46] indicate the possible extent of earlier prehistoric activity on the Second Gravel Terrace beneath the City of Oxford (Fig. 1). It is not surprising that Oxford may be built on top of a complex of prehistoric barrows and other monuments, perhaps of Neolithic date, since such complexes occur in many similar topographical locations near to river confluences.[47]

The Rex Richards Building excavations provide albeit slight evidence for early, middle and late Iron Age domestic activity. There is no indication of the scale of this activity and the extent of contemporary settlement within the later City of Oxford is not clear although there are numerous finds of Iron Age and Roman date.[48] Undated cropmarks in the University Parks and at Binsey may be of Iron Age or Roman date and Iron Age activity has also been identified on Port Meadow.[49] Early and middle Iron Age activity has been found at Blackbird Leys, Oxford.[50] Development of the former Oxford City Football ground in Grandpont precipitated the excavation of a substantial middle Iron Age rural settlement of the 3rd to the 1st century BC.[51] Enclosures, post-built structures and pits were found.[52] A few sherds of Roman pottery were also recovered from the site.[53]

[46] H.J. Case, 'The Finds: utilised flint', in D. Sturdy, 'Excavations in Christ Church', *Oxoniensia*, xxvi/xxvii (1961/2), 33; B. Durham (in preparation), *Oxford before the University* (Thames Valley Landscape Series); T. Hassall, 'Archaeology of Oxford City', in G. Briggs, J. Cook and T. Rowley (eds.), *The Archaeology of the Oxford Region* (1986), 116; P. Manning and E.T. Leeds, 'An archaeological survey of Oxfordshire', *Archaeologia*, lxxi (1921), 227–65; F. Radcliffe, op. cit. note 10, 38–69.

[47] D.N. Riley, 'Archaeology from the air in the Upper Thames Valley', *Oxoniensia*, viii–ix (1943/44), fig. 26.

[48] Cf. T. Hassall, op. cit. note 46, 117; B. Durham, op. cit. note 32; T. Hassall, 'Roman finds from the Radcliffe Science Library Extension, Oxford, 1970–71', *Oxoniensia*, xxxvii (1972), 38–50.

[49] T. Hassall, op. cit. note 46, 117; D.R. Wilson, op. cit. note 45, 62–3; R.J.C. Atkinson, op. cit. note 45, 24–35; G. Lambrick, op. cit. note 45, 148; G. Lambrick and A. MacDonald, op. cit. note 45, 95–109; P. P. Rhodes, op. cit. note 45, 81–4.

[50] OAU unpublished client reports May 1995, August 1995 and October 1995.

[51] A. Mudd, 'Excavations at Whitehouse Road, Oxford, 1992', *Oxoniensia*, lviii (1993), 33–85.

[52] Ibid. 41.

[53] J.R. Timby, 'Pottery', in A. Mudd, op. cit. note 51, 60.