An Archaeological Excavation at Oxford Road, Bicester, Oxfordshire

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SUMMARY

An archaeological evaluation and subsequent excavation of an area designated for commercial development at Oxford Road, Bicester, Oxfordshire, carried out by Birmingham University Field Archaeology Unit, has demonstrated the extensive survival of previously unrecorded late Iron Age and Romano-British settlement remains within the floodplain of the Langford Brook. The archaeological features and deposits, which were well-preserved beneath post-Roman alluvium, can be interpreted as two phases of activity, defined on the basis of stratigraphic relationships and the pottery dating. Phase 1 is dated to c. AD 20/30–60/70 and Phase 2 to c. AD 60/70–100/120. This low-status rural site is typical of the Upper Thames region in the late Iron Age and early Romano-British period, when increasing agricultural intensification required the utilisation of previously marginal land.

INTRODUCTION

An archaeological evaluation of the development site, in November 1993, identified one zone (Zone 3) in which extensive archaeological remains were preserved.[1] Design proposals could not accommodate preservation of the surviving archaeology in Zone 3 and it was therefore recommended that further archaeological excavation should be undertaken in advance of any groundworks. This paper summarises the results of a five-weeks excavation at Oxford Road in May–June 1994 and incorporates the information recovered during the preceding evaluation. The paper and artefactual archive are housed at the Oxford Museums Store, Standlake (Accession Number 1995.76).

THE SITE (Figures 1 and 2)

The site is located on the southern outskirts of Bicester (centred on NGR SP 580219). Prior to development it comprised a pasture field, bounded to the north by the Pringle Stream, to

[1] L. Bevan and P. Leach, *An Archaeological Evaluation at Oxford Road, Bicester, Oxfordshire* (BUFAU Report 277, 1993).

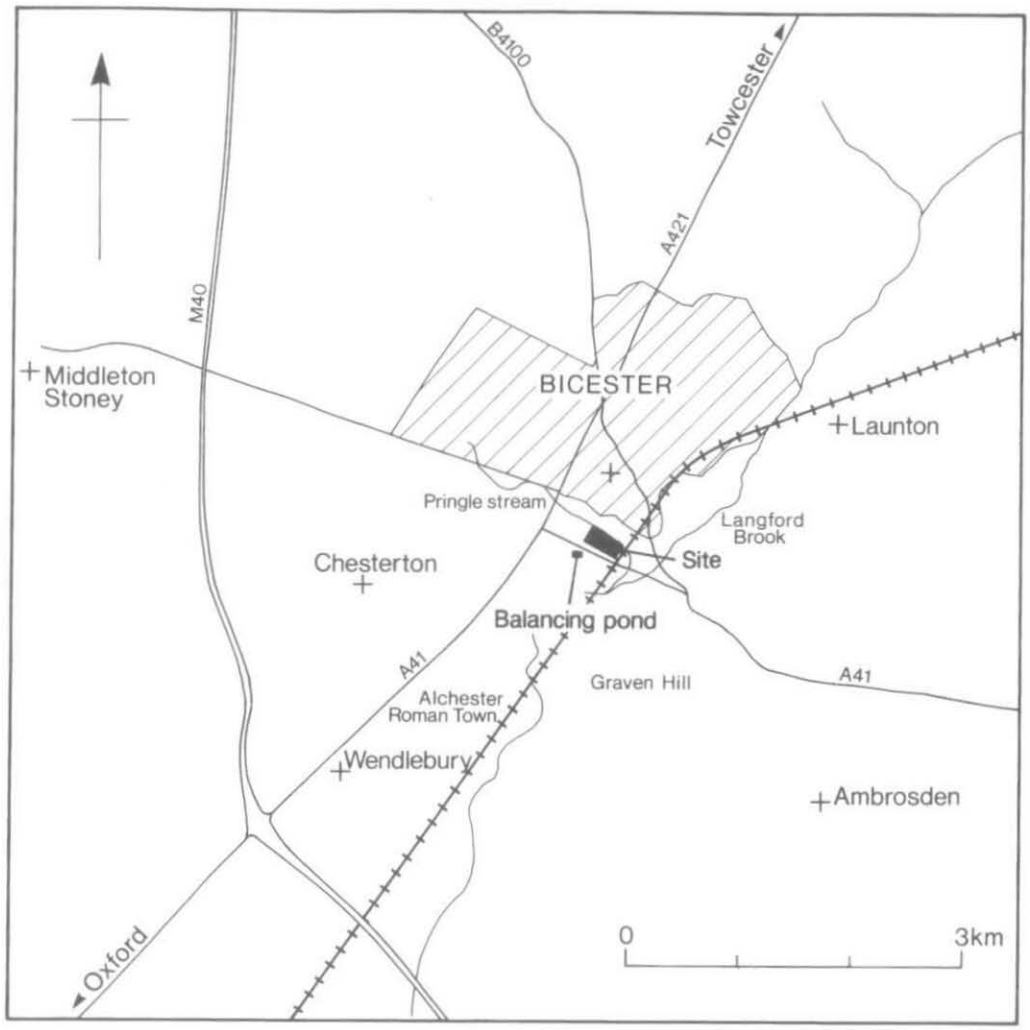

Fig. 1. Location of Bicester and the archaeological site.

the south by the Bicester southern by-pass, to the west by a Tesco foodstore fronting the A421 road, and to the east by a railway line.

The site lies *c.* 200 m. west of the confluence of the Langford Brook and Pringle Stream, within the upper reaches of the Thames Valley gravel terraces. The area is recorded as being Cornbrash Limestone, Oxford Clay and Great Oolite, all of Jurassic age (BGS 1930). Geotechnical investigations prior to development found the geological sequence to be Cornbrash Limestone, overlain by Kellaway Beds, made ground and topsoil (Williams 1993). The results from this excavation suggest that the deposits identified as the Kellaway Beds were more probably alluvium, which was found to overlie the gravel (see Roseff below).

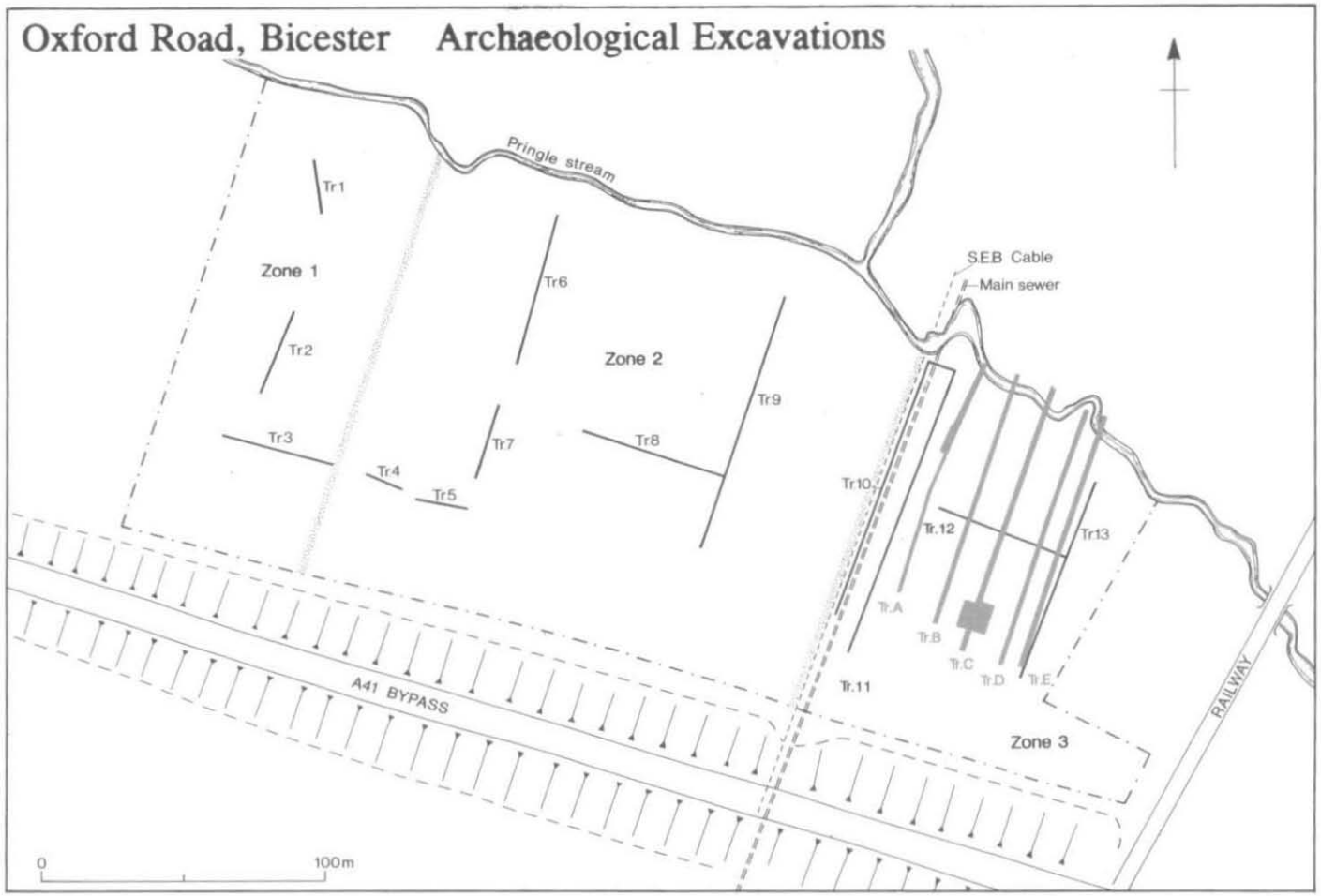

Fig. 2. Location of evaluation and excavation trenches.

ARCHAEOLOGICAL EVALUATION (Figure 2)

Prior to the evaluation there were no recorded sites of archaeological interest within the proposed development area, but sites within the immediate locality include:

(1) A ditched earthwork to the east of the site (SP 586218), destroyed in the 1980s, was interpreted as fishponds belonging to St. Edburgh's Priory (see 5 below).
(2) Cropmarks (SP 577221) suggestive of late prehistoric or Romano-British trackways and field systems lying within 400 m. to the north-west of the site.
(3) The Towcester to Alchester Roman road running under the present A421 to the west.
(4) A group of ring ditches (SP 576221) lying 600 m. to the west.
(5) The precincts of St. Edburgh's Priory in Bicester, located 200 m. to the north.
(6) The Roman town of Alchester lying just over 1 km. to the southwest of Oxford Road.

A preliminary desk-top study provided little evidence for archaeological activity within the development area. A first edition Ordnance Survey 6 inches to the mile map indicated the former presence of a field boundary along the line of a modern sewage pipe and a curvilinear line of trees in the western part of the site. Traces of ridge and furrow ploughing were noted to the west of these trees on aerial photographs taken in 1961 and 1981. No trace of any ridge and furrow could be seen on aerial photographs taken in 1991, although it was still visible on the ground in Zone 1 to the west (see below).

On-site investigation in November 1993 comprised the mechanical excavation and recording of eleven trenches, and the examination of three trenches excavated by Southern Electricity Plc, in order to ascertain the survival, extent, date and character of any archaeological deposits. In the light of archaeological information extracted from these trenches the proposed development area was divided into three zones.

Zone 1 comprised the most westerly part of the site where medieval ridge and furrow earthworks were still visible. No other datable finds or intelligible archaeological remains were recorded.

Zone 2 covered the central part of the site where machine trenches revealed variable depths of land fill. Two post-medieval linear features were noted, but dumping and levelling activity in this zone had destroyed any earlier archaeological features which may have existed.

Zone 3 lay at the eastern end of the development area and within the floodplain of the Langford Brook. A series of man-made features was recorded, containing fragments of prehistoric and Romano-British pottery, animal bone, charcoal and tile or daub fragments. Many of these features were interpreted as ditches, representing the boundaries to enclosures defining areas within a Romano-British rural settlement. A linked semi-circular ditch contained exclusively prehistoric pottery and was thought to belong to an earlier Iron Age phase of settlement.

The archaeological evaluation demonstrated an extensive survival of previously unrecorded late Iron Age and Romano-British settlement remains, which were provisionally dated to the 1st and early 2nd centuries AD. The archaeology was well-preserved beneath post-Roman alluvium in a semi-waterlogged condition and was expected to extend throughout Zone 3.

ARCHAEOLOGICAL EXCAVATION (Figs. 3–5)

Design options for a network of linear drainage channels beneath a proposed carpark in Zone 3 could not facilitate the preservation of archaeological remains. It was therefore necessary to undertake further excavation in advance of development to allow the preservation of archaeological features and deposits by record. The earlier evaluation had encountered severe problems, due to the high water table, in defining surviving archaeological features in plan – the vast majority of features had been identified in section only. An area excavation would, therefore, have been an inappropriate response since not all the surviving archaeology was to be affected by development. Instead, a series of five parallel trenches

(*c.* 70 m. × 0.90 m.) were laid out at intervals of approximately 10 m., conforming approximately to the site of the proposed drains, in between the earlier, and now backfilled, evaluation and service trenches. The five trenches were mechanically stripped of topsoil and an upper layer of alluvium in order to expose a horizon where archaeological features could be defined in plan (Figures 2 and 3). All features were sampled, artefactual remains were recovered and an extensive programme of environmental sampling was conducted throughout the excavation. Despite favourable weather conditions, the high water table again prevented full study of a number of features and deposits.

The objectives of further excavation were to:

(1) obtain an overall plan of the extent of archaeological and related natural features.
(2) recover sufficient structural, artefactual and environmental evidence to:
    (a) date and phase the main features and contexts of the settlement sequence
    (b) define any major functional areas
    (c) obtain information on the immediate environment and economy of the settlement.

The archaeological remains can be interpreted as two phases of activity, defined on the basis of stratigraphic relationships and the ceramic analysis. Phase 1 is defined as *c.* AD 20/30–60/70 and Phase 2 as *c.* AD 60/70–100/120 (see Booth below). The evidence for both phases is outlined briefly as follows, from the 1994 excavation (Trenches A–E) and from the 1993 evaluation (Trenches 10–13).

Trench A (Figure 3)

A tufaceous and sandy loam horizon (2029) was cut by a series of linear ditches, gullies and amorphous natural features (unlabelled on Figure 1). One Phase 1 east-west aligned ditch (F223) was cut by a small Phase 2 gully (F205) at its centre, and by a north-south aligned ditch (F222) which was in use in both Phases 1 and 2. A series of three undated east-west aligned ditches (F212-F214) and one undated northeast-southwest aligned gully (F226) lay directly to the north. To the south lay a further three gullies, (F201 Phase 1, F210 undated, and F225 Phase 2). The Phase 2 gully fed into a contemporary east-west aligned ditch (F224). A further east-west aligned ditch (F221), undated, was recorded at the southern extreme of Trench A.

A high level of water was encountered at the northern end of Trench A, preventing full investigation of a silty deposit (2024) containing fragments of Phase 2 pottery. However, the nature and location of this deposit in relation to the course of a palaeochannel recorded in Trenches B (F308) and C (F430), suggest that the channel originally continued its northwesterly course through Trench A.

Trench B (Figure 3)

The tufaceous horizon (2029) noted in Trench A continued east (3006), here including discrete patches of sandy loam (3007). These deposits sealed the natural limestone bedrock. To the north these deposits and the limestone were cut by a 13m wide palaeochannel (F308), which continued its course southeast into Trench C (F430) and which may have continued northwest into Trench A (2024). Eleven east-west aligned linear ditches, five of which were dated to Phase 1 (F301, F302, F305, F306 and F307) were recorded along the length of Trench B. All of these were cut into the sandy loam and had gradually silted up before being sealed by an alluviation deposit. The remaining six ditches (F310, F311, F314 and F315-F317) and an amorphous natural feature (F312), could not be dated.

Trench C (Figures 3 and 4)

As already detailed above, a large palaeochannel, which may have been an earlier water course of the Pringle Stream, continued its course southeast into Trench C (F430). Although partially filled with silt, ceramic evidence suggests that the palaeochannel was still open during Phase 2 occupation of the site. That this natural resource had been deliberately exploited to assist control of the increasing level of water on-site is evidenced by its accumulated silt fill being cut by a *c.* 7-m. wide ditch (F429) in Phase 2. The fill of F429 was seen in section only, and flooding in this area prevented recording of the feature cut. Immediately to the north of F429 were two parallel northwest-southeast aligned ditches (F421 and F426) and a small east-west aligned gully (F425). Although none of these three features yielded any dating

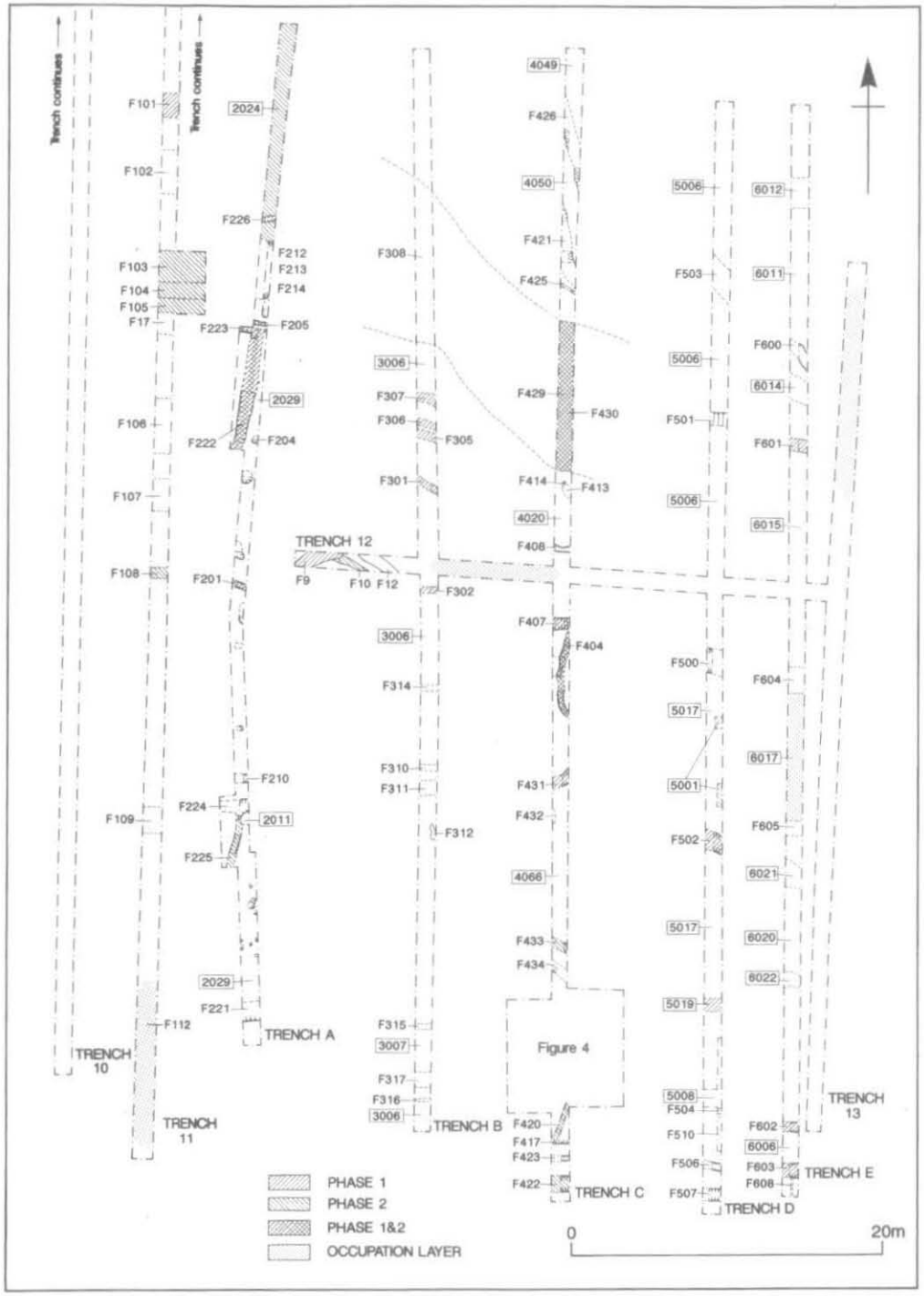

Fig. 3. Location of archaeological features within the excavation trenches.

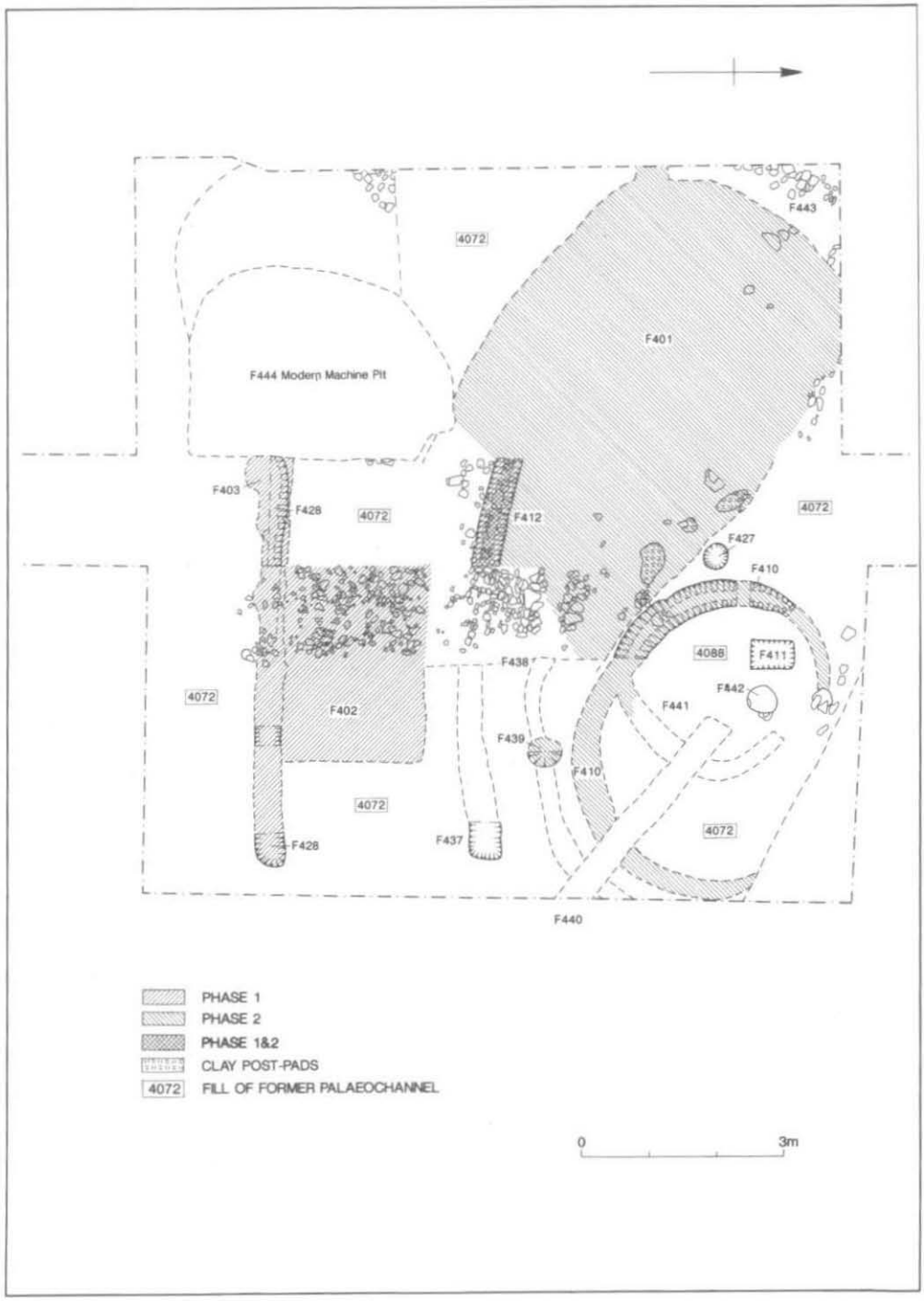

Fig. 4. Archaeological detail in Trench C.

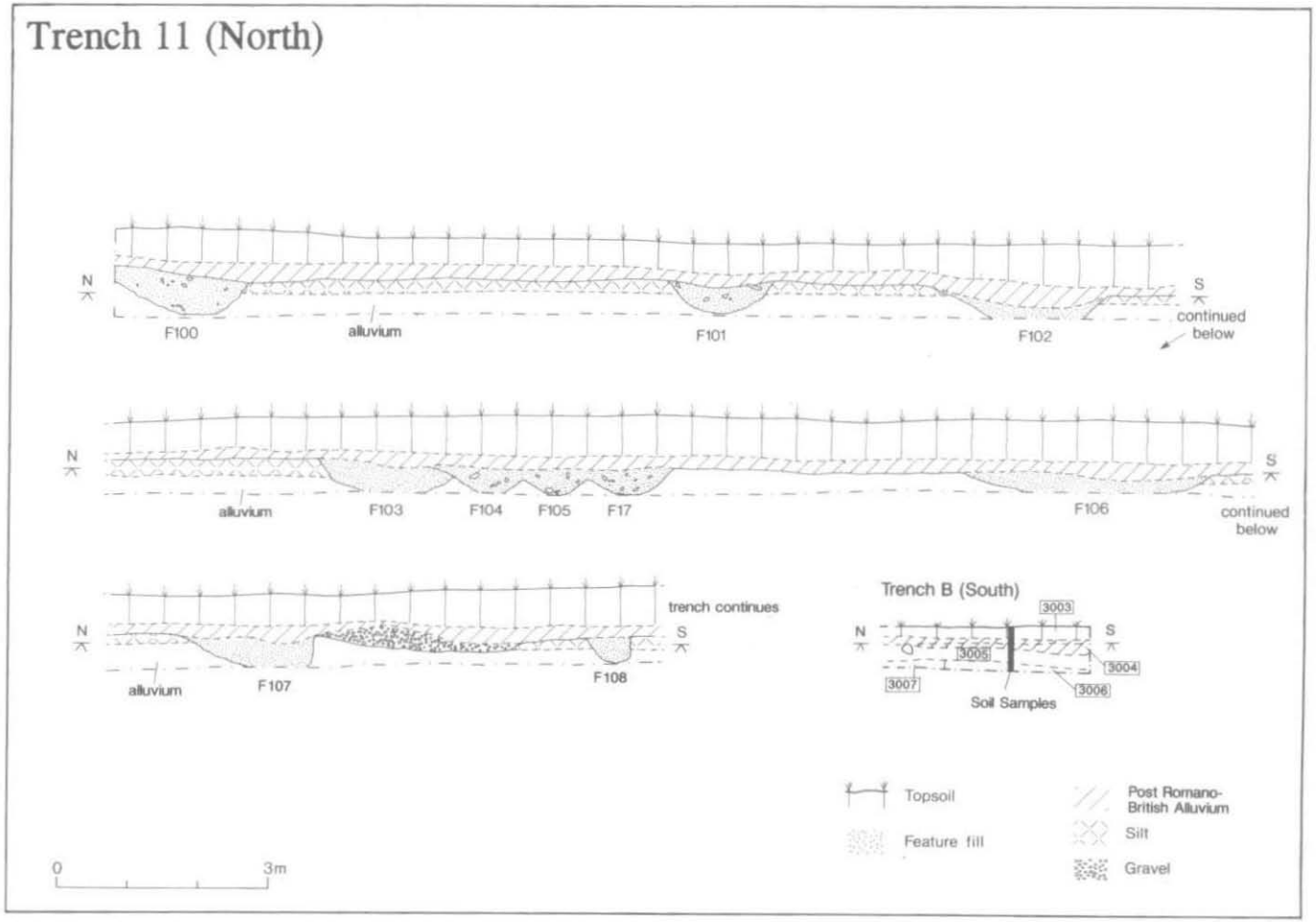

Fig. 5. Section of features in evaluation Trench 11 and section of Trench B.

evidence, it is likely, judging from their alignment, that they were associated with use of the palaeochannel in Phase 2, and that the two larger ditches were designed to feed water into its recut – F429. Three east-west aligned ditches (two undated, F417 and F423, one of Phase 2, F422), similar in cut and fill to those recorded in Trenches A and B, were also found at the southern extreme of Trench C. A further two ditches (F433 and F434) were aligned northwest-southeast (F433 dated to Phase 2), and one was aligned northeast-southwest (F431 Phase 1).

A complex of structural remains was also encountered within this trench, an element seen elsewhere only in Trench 12. A discrete, undated surface of redeposited Oxford clay (F413) was set with a single, also undated, post-hole (F414) immediately to the south of F429 and F430. In Phase 1, a semi-circular trench (F404), with post-holes cut at regular intervals into its base, existed 10m to the south, and 11 m. east of a similar and contemporary circular trench recorded in evaluation Trench 12.[2] The foundation trench (F404), which continued beyond the bounds of Trench C to the east, was truncated by a later east-west aligned ditch (F407), though still of Phase 1.

A more intensive sequence of activity was recorded 28 m. to the south (Figure 4). A natural red clay (4072), represented the upper fill of another former palaeochannel, recognised only in Trench C and to the south in Trench D (F510). This was cut by the foundations for a rectangular structure of Phase 1, whose minimum dimensions were 4 m. × 6 m. The southern wall of the structure was represented by an east-west aligned ?beam-slot (F428) with a series of associated post-holes, and the northern wall by an east-west aligned wall-trench (F412 and F437). This wall-trench was reused in Phase 2. A discrete area representing an interior floor surface survived to the east as a raised stony surface (F402).

Two structures were dated to Phase 2. Their relative chronology remains unclear. However, a stratigraphically early, but ceramically undated, flat-bottomed gully (F438) was seen to roughly encircle the gully F410. The fact that this feature was truncated by the levelling process which preceded F401, a charcoal-silt floor of the second structure, may indicate that F438, together with F410, forms part of the earlier of the Phase 2 structures.

The first Phase 2 structure was seen as a very clean, stoneless, silt-clay surface (4088) bounded by a sub-circular gully containing burnt limestone (F410 and F441). The burnt limestone is thought to represent packing for post-holes, as recorded at similar sites within the Thames Valley region (Booth *pers. comm.*). One post-hole (F442) which did survive, cut the silt-clay floor close to a presumed entrance, and was further defined by burnt limestone packing. Feature 410 was seen to continue east. However, the relationship between F410 and F441 could not be defined before the southern end of Trench C became completely submerged below the water table. Both of the construction trenches were cut by a later, though undated, northwest-southeast aligned linear trench (F440).

The second Phase 2 structure, of rectangular outline, aligned northwest-southeast and measuring a minimum 8 m. × 4.5 m., directly superseded the Phase 1 building. Prior to construction, the red palaeochannel fill (4072) was artificially lowered by *c.* 0.10 m., creating a shallow, sunken floor base (F401), the black floor surface was seen to define three sides of the building. Whilst the northeastern edge was further defined by an irregular line of clay post-pads and one possible post-hole (F427), it proved impossible to establish the southeastern edge, although the southeastern corner may have been marked by the shallow pit (F439) which cut the earlier gully F438. The whole of the sunken interior was covered by a charcoal-silt surface (4001) which extended northwest (4085) up to a hearth, represented by an area of burnt limestone (F443). The presence of the hearth F443 to the northwest suggests that the building extended further in that direction beyond the limits of excavation. A significant number of domestic vessels, including beakers, a dish, bowl and storage jars was recovered from the charcoal-silt floor, along with animal bone and charred plant remains (see below).

Trench D (Figure 3)

Activity here was less intense than in the three trenches further west. The southern palaeochannel, whose fill was noted in Trench C as 4072, continued east to Trench D (F510). Clear identification of the limits of this feature was again prevented by flooding. No dating evidence was recovered. A layer of alluvium (5006 and 5017) extended over the whole trench and was cut by a series of seven ditches, aligned east-west and northwest-southeast (F500–F504, F506 and F507). Only one of the ditches (F502) yielded any dating evidence and was attributed to Phase 1. Activity attributable to Phase 2 was limited to an occupation spread (5001) which extended east to Trench E as 6017.

[2] Op. cit. note 1.

Trench E (Figure 3)

A layer of alluvium (6011, 6012, 6015, 6020) was cut by three Phase 1 ditches (F601–F603) and two undated east-west aligned ditches (F604 and F605), one undated northwest-southeast aligned ditch (F600) and by one undated north-south aligned gully (F608). All seven features had become silted up, and one (F602) had been sealed by a layer of alluvium contemporary with Phase 1 occupation (6006). Activity of Phase 2 was limited to a silty occupation deposit containing pottery and animal bone (6017), also seen in Trench D as 5001.

The alignment of features recorded in Trenches D and E suggests that F503 and F600, F501 and F601, and F500 and F604, each represent a section of one ditch. This continuity was not present in Trenches A, B and C in the western half of the site.

Trench 10 (Figure 3)

This was one of two trenches excavated by Southern Electricity Plc. Although the trench was too narrow and unstable to enter for recording purposes, a small group of suspected archaeological features, aligned east-west, was seen to cut into, and be partly sealed by, a layer of alluvium. The positions of these features corresponded with some of those recorded more fully in Trench 11 and in the later Trench A.

Trench 11 (Figures 3 and 5)

Trench 11 was also cut to lay electricity cables. Despite the high water table and unstable conditions it was possible to identify eleven east-west aligned ditches (F100–F109 and F17) and one occupation layer (F112) Only the converging Features 103, 104, 105 and 17 (attributed to Phase 2) were partly exposed in plan and recorded through an enlargement of the trench on its eastern side, the remaining features being seen in section only. The position and alignment of F103, F104 and F105 suggest that they may represent the western continuation of F212, F213 and F214 in Trench A.

Trench 12 (Figure 3)

Three ditches (F9, F10 and F12) and a possible occupation deposit were recorded in this trench. Feature 9 was attributed to Phase 1 activity, and together with F12 formed a semi-circular trench, very similar to the Phase 1 and 2 domestic structure represented by F404 and to the Phase 2 structure represented by F410 and F441 in Trench C.

Trench 13 (Figure 3)

The water table was encountered within 1m. of the modern field surface and definition of archaeological features was unfortunately limited to visual observations. It was not possible to sample any of the features. Five ditches, four aligned east-west and one aligned north-south, were observed within the northern half of the trench. All five ditches were seen to cut a silty deposit, which yielded a high percentage of animal bone and some sherds of Romano-British pottery, possibly representing an occupation layer.

ARCHAEOLOGICAL MONITORING OF A BALANCING POND (Figure 1)

One element of the retail development was the creation of a balancing pond to the southwest of the Oxford Road site. The potential for archaeological remains at this location indicated the need for archaeological monitoring of any earth-moving operation. The ground level was mechanically lowered by 1 m. and modern deposits comprising metal waste, bricks and some 20th-century pottery were observed. As no archaeological remains were preserved in this area, the monitoring operation was suspended.

FLINT by LYNNE BEVAN

The small collection comprised two artefacts; one broad blade, retaining traces of micro-serration, and one bi-facially worked, partially burnt piece (possibly used to exhaustion as a scraper), and ten struck flakes. With the exception of the possible scraper, which is made from fine dark flint, the remainder of the collection is made from a light grey to beige flint of generally poor quality, with a high incidence of abrasion and iron-staining. None is illustrated.

Whilst only the blade can be assigned a general Neolithic to Bronze Age date, the impression to be gained from such a small, scattered collection is one of episodic usage of the landscape during prehistory rather than sustained settlement in any chronologically distinct period.

POTTERY AND OTHER CERAMIC FINDS by PAUL BOOTH

POTTERY

Introduction

A total of 1,138 sherds of pottery (16.413 kg.) was recovered in the 1993 and 1994 excavations, with about a quarter of the material (*c.* 22% by sherd count and 29% by weight) coming from the 1993 evaluation. Of this total, one sherd (14 gm.) was probably of medieval date (though possibly later) and a further 13 sherds (172 gm.) were post-medieval (mostly 18th–19th century), while the rest were assigned to the late Iron Age and early Roman period, with the closing date of the assemblage at about AD 120. The post-Roman material is not considered further, and in the following report all percentages etc are of the total of late Iron Age and Roman pottery (1,124 sherds, 16.227 kg.). The pottery was in average to poor condition, with many fairly small sherds. The surfaces of the sherds were generally badly eroded (a result of soil conditions in the region). The pottery was recorded using the system established by the Oxford Archaeological Unit for Iron Age and Roman sites in the Oxford region. The use of a consistent system of fabric and vessel type codes allows a ready comparison of assemblages across the region. The pottery from each context was recorded in terms of fabric, form, other typological characteristics, decoration (where this survived) and additional characteristics such as sooting and reuse. The condition of much of the pottery was such that little could be said about aspects such as surface treatment, decoration and sooting, evidence for which rarely survived. Quantification was by sherd count, weight and vessel equivalents (EVEs). A count of vessel rims was also made for comparative purposes, but these data were not used in detail.

Fabrics

The pottery was divided initially into major ware groups, defined on the basis of significant common characteristics. These ware groups can be combined to constitute two main classes of material, fine and specialist wares on the one hand, and on the other the rest of the coarse wares.[3] The fine and specialist ware groups (identified by the initial letter of the fabric code) are: samian ware (S), fine wares – colour-coated, lead glazed, mica coated etc – (F), amphorae (A), mortaria (M), white wares – other than mortaria – (W), and white slipped wares (Q). Only samian, amphorae and white wares were represented at Bicester. The remaining ware groups are: 'Belgic type',[4] usually grog-tempered, fabrics (E), 'Romanised' oxidised coarse wares (O), 'Romanised' reduced coarse wares (R), black burnished ware (B) and calcareous (particularly shell) tempered wares (C).

[3] cf. P. Booth, 'Inter-site Comparisons Between Pottery Assemblages in Roman Warwickshire: Ceramic Indicators of Social Status', *Jnl. of Roman Pottery Studies*, 4 (1992), 1–10.

[4] In the sense of I. Thompson, *Grog-tempered 'Belgic' Pottery of South-Eastern England* (BAR British Series 108, 1982), 4–5.

Within these classes are hierarchically arranged sub-groups, usually defined on the basis of inclusion type, and individual fabrics/wares are then indicated at a third level of precision, both levels of subdivision being expressed by numeric codes. Thus R20 is a general code for sandy reduced coarse wares, while R21 is a specific sandy reduced Oxfordshire product. For the bulk of the present assemblage fabric identification was at the intermediate level of precision. Most of the material was in fabrics the sources of which are unknown and detailed assignment to specific fabric codes did not seem to be warranted. Fabrics assigned to the E ware group, however, were subdivided further in terms of their principal inclusion types. This procedure was also employed for a relatively small quantity of hand made pottery of middle Iron Age character (but not necessarily of middle Iron Age date), for which the use of ware codes, applicable to Romanised ceramics, is not appropriate. Description of these fabrics is in terms of the two most common inclusion types (for which letter codes are used, e.g. AS for quartz sand and shell) with a numeric indicator of the coarseness of the fabric (on a scale of 1 (very fine) to 5 (very coarse)).

Initial sorting of fabrics was done by eye, with subsequent use of a binocular microscope at ×20 magnification to define the inclusion types of individual sherds.

Only summary fabric descriptions are given here. More complete descriptions are contained within the pottery archive.

Fabric S20. South Gaulish samian ware.
Fabric A11. South Spanish, typical Dressel 20 amphora fabric.
Fabric W10. General fine white ware with few sand inclusions (probably Oxfordshire products).
Fabric W12. Oxford fine white ware.[5]
Fabric W20. General sandy white ware, probably an Oxfordshire product.
Fabric W36. Fine, slightly sandy white fabric.
Fabric E10. 'Belgic type' ware, principally with organic inclusions.
Fabric E20. 'Belgic type' ware, principally fine sand inclusions.
Fabric E30. 'Belgic type' ware, principally common coarse sand inclusions.
Fabric E40. 'Belgic type' ware, principally shell inclusions.
Fabric E50. 'Belgic type' ware, principally limestone inclusions.
Fabric E60. 'Belgic type' ware, principally flint inclusions.
Fabric E80. 'Belgic type' ware, principally grog inclusions.
Fabric O10. General fine oxidised ware, probably Oxfordshire products.
Fabric O11. Fine Oxfordshire oxidised ware.[6]
Fabric O16. Fine, slightly sandy oxidised fabric.
Fabric O18. Fine, slightly sandy oxidised fabric.
Fabric O20. General sandy oxidised wares.
Fabric O61. Moderately fine oxidised fabric with shell inclusions.
Fabric R10. General fine reduced coarse wares, including the fine Oxfordshire fabric.[7]
Fabric R20. General coarse sandy reduced wares.
Fabric R30. General medium sandy reduced wares.
Fabric R37. Reduced fabric with common fine sand inclusions and occasional clay pellet/grog etc.
Fabric R60. General reduced fabrics with organic inclusions.
Fabric C10. General shell-tempered fabrics, usually heavily tempered.
Fabric AM3. 'Middle Iron Age' type. Moderate quartz sand and mica. Unevenly fired.
Fabric GS4. 'Middle Iron Age' type. Fairly coarse grog and shell. Unevenly fired.
Fabric LA5. 'Middle Iron Age' type. Very coarse large rounded ?limestone, calcareous gravel and fossil shell inclusions and sand. Unevenly fired.
Fabric LN5. 'Middle Iron Age' type. Very coarse limestone inclusions as LA5, but no other inclusions apparent. Unevenly fired.
Fabric SA4. 'Middle Iron Age' type. Moderately coarse shell and sand inclusions. Oxidised.

Quantification of the fabrics is presented in Table 1 below.

The assemblage was dominated by the 'Belgic type' fabrics. While a comparison of the different methods of quantification shows that the representation of these fabrics was not exactly the same in all measures there is sufficient

[5] As 93 fabric 1, in C.J. Young, *Oxfordshire Roman Pottery* (BAR British Series 43, 1977).
[6] As 185 fabric 1, ibid.
[7] As 203 fabric 4, ibid.

TABLE 1. POTTERY FABRICS, QUANTIFICATION BY SHERD COUNT, WEIGHT AND EVEs.

Fabric	*No. Sh.*	*% Sh.*	*Weight (gm)*	*% Weight*	*EVEs*	*% EVEs*
S20	13	1.2	52	0.3	0.18	1.2
A11	1	0.1	32	0.2	—	—
W10	19	1.7	41	0.3	0.27	1.8
W12	4	0.4	17	0.1	—	—
W20	1	0.1	37	0.2	—	—
W36	6	0.5	49	0.3	—	—
'Fine and specialist' Subtotal	**44**	**3.9**	**228**	**1.4**	**0.45**	**3.0**
E10	1	0.1	2	+	—	—
E20	21	1.9	162	1.0	0.49	3.2
E30	71	6.3	904	5.6	1.14	7.5
E40	17	1.5	585	3.6	0.58	3.8
E50	4	0.4	25	0.2	—	—
E60	2	0.2	15	0.1	0.05	0.3
E80	613	54.6	9751	60.1	6.79	44.7
E Subtotal	**729**	**64.9**	**11444**	**70.6**	**9.05**	**59.5**
010	38	3.4	146	0.9	0.15	1.0
011	2	0.2	6	+	0.17	1.1
016	2	0.2	8	+	—	—
018	1	0.1	4	+	0.03	0.2
020	46	4.1	900	5.5	0.46	3.0
061	1	0.1	3	+	0.03	0.2
0 Subtotal	**90**	**7.9**	**1067**	**6.5**	**0.84**	**5.5**
R10	53	4.7	549	3.4	1.64	10.8
R20	37	3.3	452	2.8	0.41	2.7
R30	99	8.8	1120	6.9	2.31	15.2
R37	1	0.1	43	0.3	—	—
R60	4	0.4	60	0.4	—	—
R Subtotal	**194**	**17.3**	**2194**	**13.5**	**4.36**	**28.7**
C10	37	3.3	460	2.8	0.13	0.9
AM3	1	0.1	4	+	—	—
GS4	1	0.1	25	0.2	0.08	0.5
LA5	4	0.4	380	2.3	0.04	0.3
LN5	3	0.3	37	0.2	—	—
SA4	21	1.9	388	2.3	0.26	1.7
'Middle Iron Age' Subtotal	**30**	**2.7**	**834**	**5.1**	**0.38**	**2.5**
TOTAL	**1124**		**16227**		**15.21**	

similarity to indicate a good general level of agreement between them. This applies to all the other major ware groups also.

The fine and specialist wares were poorly represented, particularly in terms of weight. The samian ware was all from South Gaul and of 1st-century date (forms represented by rims were 18 and 24/25 and there was a single decorated flake, from form 29). The white wares probably all originated within the region. Most were very similar in character. The fine slightly sandy fabric W36 has been recognised at Abingdon[8] as one of a group of related fine fabrics of very early Roman date used for a range of vessel types including butt beakers and other fine ware forms (see also O16 and O18 below). The source of these fabrics is uncertain but it may have been somewhere in the Abingdon-Dorchester area. It is possible that sherds assigned to fabric W10 included more examples of W36. The generalised category was used where there was some uncertainty. With these sherds in particular, their small size (W10 sherds were on average only just over 2 gm. in weight) and poor surface condition made confident attribution to specific fabrics very difficult. Fabric W12 is the standard Oxfordshire fine white ware, generally thought by Young to date after AD 100,[9] though this has been questioned.[10] This code has only been used here for certainly identified sherds mostly occurring in the later contexts on the site. Other small sherds of this fabric may also have been subsumed under W10.

The dominant 'Belgic type' ware group was composed principally of sand-tempered (E20 and E30) and grog-tempered (E80) subgroups. The distinction between E20 and E30 fabrics was not always clear cut, and indeed there is an extent to which these may overlap with the 'Romanised' reduced fabrics of the R20 and R30 groups, though there are usually differences in firing which allow the distinction to be maintained. The components of the E80 ware subgroup were examined. The principal tempering agents of fabrics in this group were grog (G), organic fragments (V) and quartz sand (A). Grog and organic tempered fabrics were the most common (*c.* 73% of E80 sherds) with grog and sand fabrics accounting for 14% of E80 sherds. Grog and shell tempering was seen in 4% of E80 sherds. In a relatively small number of cases grog appeared to be the only significant inclusion type and in others it was associated with voids whose origin was uncertain. There was no clear significance in these fabric variations beyond the obvious (slight) correlation of some of the most heavily tempered sherds with large vessel forms such as storage jars. Details of manufacture were not recorded systematically, partly because of the fragmented nature and poor surface condition of some of the material. It was noted, however, that most of the E ware subgroups included some hand made vessels, though the majority of these sherds appeared to be wheelthrown. The date range of the E wares is still a matter for debate (see below), but probably fell within a range with outside limits *c.* AD 20–100.

Oxidised and reduced 'Romanised' coarse wares were less important than E wares, but together amounted to about 25% of the total sherds. These fabrics are all likely to have originated in the Oxfordshire industry, in the broad sense of the term. The oxidised fabrics were either fine (the O10 group) or more coarsely sand tempered (O20). Occasionally it was possible to assign fine oxidised sherds to specific early Roman fabrics (e.g. O11, O16 and O18, the first of these being the standard fine Oxfordshire fabric, the other two have been noted particularly at Abingdon – see W36 above), but usually the general code O10 was used for exactly the same reasons as W10 was used for uncertain fine white wares (see above). Sherds in fabric O20 were almost all from a single narrow mouthed jar.

Like the oxidised fabrics, the reduced fabrics were almost all sand-tempered to varying degrees. While R10, the fine reduced fabric group was relatively well defined, the distinction between R30 and R20 (medium and coarse sand) groups was not clear. Many of the sherds assigned to R20 fabrics were only just outside the R30 range in terms of the size and frequency of the quartz grains. These two groups therefore represent a continuum of coarseness, rather than being clearly distinguished. Only a single sherd of a specified fabric, R37, was identified. This fabric has been recognised in recent work (unpublished) at Yarnton, where it was very common from the later 1st–3rd centuries, to the extent that an origin in the Yarnton area seems likely. None of the other reduced sherds can be assigned to a specific source. The development of these wares out of the 'Belgic type' sand tempered E20 and E30 fabrics has already been mentioned. The date at which this started to occur is unclear, but the process was probably under way before the Flavian period, though the Romanised wares any not have completely supplanted their predecessors until the end of the 1st century.

The shell-tempered tradition represented by sherds in fabric C10 was well established in the region. From having been very important in the early Iron Age this tradition was much reduced in significance in the middle Iron Age but reappears again at about the same time as the 'Belgic type' fabrics, though the C10 fabrics are considered to be distinct from the E40 (shell-tempered) subgroup of the Belgic type wares. In fabric they are very similar to the common late Roman shell-tempered fabrics found across the Midlands, though they are often hand made and appear to have

[8] J. Timby, 'Abingdon Vineyard Pottery Report' (unpublished report for Oxford Archaeological Unit, 1993).

[9] Op. cit. note 5, 111–112.

[10] P. Booth, A. Boyle and G.D. Keevill, 'A Romano-British Kiln Site at Lower Farm, Nuneham Courtnay and Other Sites on the Didcot to Oxford and Wootton to Abingdon Water Mains, Oxfordshire', *Oxoniensia*, 58 (1993), 161.

gone out of use probably at some time during the 2nd century AD, well before the appearance of the late shell-tempered wares.[11]

Hand made fabrics in a middle Iron Age tradition formed part of the Bicester assemblage. These showed a range of inclusion types. There was a single sherd of a micaceous sandy fabric of fairly typical middle Iron Age character. Grog and shell, and shell and sand fabrics were both used for simple barrel shaped jars with slightly expanded rims. The sherds in fabric SA4 were all from a single vessel which just possibly had been wheelthrown, but the surface condition of the sherds makes this extremely difficult to judge and it was most probably hand made. The oxidised firing and the vessel form are consistent with late Iron Age traditions, however, although there can be little doubt that this vessel was in contemporary use with the E wares. The occurrence of grog as the major inclusion type in fabric GS4, also used for a simple middle Iron Age form, emphasises the degree of overlap between this small group of fabrics and the E wares. The remaining fabrics in this group, LA5 and LN5, are a little different. These are very thick, coarsely tempered sherds, effectively in the same fabric apart from the apparent absence of sand in LN5. The character of the inclusions, particularly of the 'calcareous gravel', which is a fairly common tempering agent in the Upper Thames, suggests a relatively local origin. One sherd in LA5 was a simple upright rim, perhaps of a large jar or bowl of considerable size. The sherds are insufficiently large for the character of this vessel to be clear, however.

Vessel types

Vessel types were defined in fairly broad terms. Rim sherds were assigned, where possible, to one of a number of major vessel classes, many of which are subdivided hierarchically. These classes are intended to allow characterisation of the functional aspects of the assemblage. The vessel class codes employed in the Oxford Archaeological Unit recording system are: A (amphorae); B (flagons and jugs); C (jars); D (uncertain jars/bowls); E (beakers); F (cups); G (tankards); H (bowls); I (uncertain bowls/dishes); J (dishes); K (mortaria); L (lids); M (miscellaneous); Z (uncertain/unidentifiable types). Amphorae (except as a body sherd), flagons, tankards, mortaria and lids did not occur at Bicester. All the major vessel classes present are subdivided into groups defined on the basis of characteristics of overall body form/proportions or (in some cases) of distinctive rim types. The resulting types are still more broadly defined than the individual ones defined for the Oxfordshire Roman pottery industry by Young.[12] Young's typology is more applicable to the Romanised material than to the earlier material so common at Bicester, though some of the forms are the same. In a very few cases Young's specific types were used for reduced wares of the late 1st-early 2nd century. Where appropriate, correlation tables of Young types with the OAU codes can be found in the pottery archive. It should be noted that in the present report the definition of vessel types such as bowls, jars and dishes in terms of their proportions follows the usage of Webster.[13]

A breakdown of the major vessel classes by fabric is shown in Table 2, and quantification of the subtypes in Table 3.

The vessel type assemblage was dominated by jars, as would be expected. This dominance is emphasised if the figures for class D (uncertain jars/bowls) are combined with those for class C. Class D is used in those instances where insufficient of the profile survives to allow any estimate of the possible vessel height in relation to rim diameter – generally a critical feature in distinguishing jars from bowls (the problem is set out by Thompson[14] but is not resolved in her type series – in practice the 1 : 1 height to rim diameter ratio does not work well in this period as it falls in the middle of a range of vessels rather than serving to define a cutoff point between two fairly distinct groups of jars and bowls). In late Iron Age to early Roman assemblages there is a continuum of shapes from squat high-shouldered jar (here type CE) to necked bowls (OAU type HD but not apparently present at Bicester). In general the designation 'high-shouldered jar' is preferred to 'necked bowl'. Unambiguous examples of the latter do occur in assemblages within the region, however, albeit scarcely. In the present assemblage it is thought likely that most if not all examples of class D are likely to have been jars, but as this cannot be proved they are grouped separately. Together with the combined class C types they constitute 84.2% of the assemblage.

Jars occurred in most fabrics, and were the principal products in ware groups E, O, R, C and the 'middle Iron Age' fabrics. Whereas they were common in all the E ware subgroups, however, (including the fine sandy fabrics E20), oxidised and reduced 'Romanised' ware groups show a slightly different pattern with a tendency for the finer

[11] A.C.C. Brodribb, A.R. Hands and D.R. Walker, *Excavations at Shakenoak Farm, near Wilcote, Oxfordshire, Part IV: Site C* (1973), 54, where a date of *c.* AD 120 is suggested for the latest early Roman shell-tempered wares at Shakenoak.

[12] Young, op. cit. note 5.

[13] G. Webster (ed.), *Romano-British Coarse Pottery: a Student's Guide* (Counc. Brit. Archaeol. Res. Rep. 6, 1976), 17–20.

[14] Op. cit. note 4, 297.

TABLE 2. MAJOR VESSEL CLASSES BY FABRIC, QUANTIFICATION BY EVEs

Fabric	*Jars (C)*	*Jar/ bowls (D)*	*Beakers (E)*	*Cups (F)*	*Bowls (H)*	*Bowl/ dishes (I)*	*Dishes (J)*	*Misc. (M)*	*Unknown (Z)*	*TOTAL*	*%*
S20				0.03		0.06	0.09			0.18	1.2
W10			0.27							0.27	1.8
E20	0.40	0.02				0.07				0.49	3.2
E30	0.79	0.29					0.06			1.14	7.5
E40	0.58									0.58	3.8
E60		0.05								0.05	0.3
E80	4.22	2.26				0.05	0.13	0.13		6.79	44.7
010	0.08	0.07								0.15	1.0
011			0.17							0.17	1.1
018			0.03							0.03	0.2
020	0.46									0.46	3.0
061		0.03								0.03	0.2
R10	0.79		0.32		0.40		0.13			1.64	10.8
R20	0.21	0.09			0.08	0.03				0.41	2.7
R30	1.38	0.59			0.17		0.14		0.03	2.31	15.2
C10	0.08	0.05								0.13	0.9
GS4	0.08									0.08	0.5
LA5		0.04								0.04	0.3
SA4	0.26									0.26	1.7
TOTAL	9.33	3.49	0.79	0.03	0.65	0.21	0.55	0.13	0.03	15.21	
%	61.3	22.9	5.2	0.2	4.3	1.4	3.6	0.9	0.2		100

subgroups to be used for beakers and bowls rather than jars. This trend, which is quite predictable, suggests increasing specialisation in pottery manufacture in the later 1st century with an increased correlation between specific fabric and specific type, as well as a much greater diversity of types.

The most common jar subtypes were the generalised medium mouthed type (CD) and the squat high shouldered type (CE). On the limited available evidence the latter occurred exclusively in E fabrics, as did carinated and bead rimmed jars (CF and CH). Reduced ware jar forms were either the general medium mouthed category or were completely undiagnostic. Simple barrel forms (CB) were confined to the 'middle Iron Age' fabrics. There were only two examples of narrow mouthed jars (CC), one in fabric E80, the other in a Romanised oxidised fabric. Storage jars, all in E80 fabrics, were poorly represented.

Beakers were relatively well represented at the site (in terms of EVEs they were more common than bowls, though the total quantities of all the lesser types are such that conclusions about their relative importance must be treated with great caution). They occurred in white and fine oxidised and reduced fabrics. Butt beakers were confined to white fabrics, though it is possible that some of the fine oxidised body sherds were of butt beakers. For the most part, however, oxidised and reduced beakers seemed to be of later types such as Young [15] R31 and other types with angled everted rims such as Young type O18. A rim in fabric O18, however, may be from a girth beaker, a type which would be consistent with the postulated very early Roman date range of the 'Abingdon type' fine oxidised fabrics.

The only other significant types were bowls and dishes. The former were only certainly identified in R fabrics, whereas dishes also occurred in E wares and in samian ware (Drag 18 etc). The apparent absence of bowls from the E ware repertoire may indicate that in the middle of the 1st century AD these types had not developed clearly from the range of jars and jar/bowl types discussed above. As with the jar/bowl continuum, and for exactly the same reason, it has been necessary to use a category of uncertain bowl or dish types (I). It is likely that most of the vessels assigned to this group were in fact dishes, but this cannot be certain.

Minor types included a single cup (an example of Drag 24/25) and the most unusual vessel from the site, a 'cheese

[15] Op. cit. note 5.

TABLE 3. QUANTIFICATION OF VESSEL SUBTYPES BY EVEs AND RIM COUNT

Type	*Description*	*EVEs*	*%*	*Number of Rims*	*%*
C	JARS				
CB	Barrel shaped	0.34	2.2	2	1.4
CC	Narrow mouthed	0.62	4.1	2	1.4
CD	Medium mouthed (general)	2.09	13.7	9	6.4
CE	Squat, high shouldered	2.99	19.7	9	6.4
CF	Carinated	0.13	0.9	1	0.7
CH	Bead rimmed	0.37	2.4	3	2.1
CI	Angled everted rimmed	0.24	1.6	3	2.1
CN	Large storage	0.19	1.2	3	2.1
C	Subtype uncertain	2.36	15.5	29	20.7
C	*Total*	9.33	61.3	61	43.6
D	JARS/BOWLS				
D	*Total*	3.49	22.9	56	40.0
E	BEAKERS				
EA	Butt beaker	0.27	1.8	1	0.7
EH	'Jar' beaker (Young R31)	0.32	2.1	1	0.7
E	Subtype uncertain	0.20	1.3	2	1.4
E	*Total*	0.79	5.2	4	2.9
F	CUPS				
F	*Total*	0.03	0.2	1	0.7
H	BOWLS				
HA	Carinated	0.48	3.2	2	1.4
HC	Curving sided/hemispherical	0.11	0.7	1	0.7
H	Subtype uncertain	0.06	0.4	1	0.7
H	*Total*	0.65	4.3	4	2.9
I	BOWLS/DISHES				
IA	Straight sided	0.07	0.4	1	0.7
I	Subtype uncertain	0.14	0.9	3	2.1
I	*Total*	0.21	1.4	4	2.9
J	DISHES				
JA	Straight sided	0.40	2.6	5	3.6
JB	Curving sided	0.15	1.0	3	1.7
J	*Total*	0.55	3.6	8	5.7
M	MISCELLANEOUS				
M	*Total* ('cheese press')	0.13	0.9	1	0.7
Z	UNCERTAIN TYPES				
Z	*Total*	0.03	0.2	1	0.7
	TOTAL	15.31		140	

press' in fabric E80. The latter, a well-known Roman type, is not usually found in grog-tempered fabrics (it is absent from Thompson's 1982 corpus).

Chronology

The material falls into two broad ceramic phases. The first of these is characterised by the E wares, accompanied by the 'middle Iron Age type' and C10 fabrics and perhaps by small quantities of fine white and oxidised fabrics. The second phase sees the introduction of the main Romanised coarse wares, but the earlier fabrics occur in such large quantities that they cannot be confidently assumed to be residual in ceramic phase 2, though this is possible. A logical third phase, in which E wares were definitely residual, was not identifiable at Bicester.

The date of the first phase is largely dependent on the date of the various E wares. Recent work in the Upper Thames has tended to support the view that these may have appeared only relatively shortly before the Roman

conquest in this region.[16] Sites such as Bicester, at the eastern margin of the region, may have been exposed to the 'Belgic' tradition for a little longer than sites further west. However, in the absence of absolute dating this question cannot be resolved at present. The use of E ware fabrics continues into the later part of the 1st century AD, but not usually beyond, except as large storage jars, which continued to be manufactured in these fabrics through much of the Roman period.[17]

The few fine wares associated with the first ceramic phase are, as mentioned above, all in fabrics found at The Vineyard, Abingdon, which possibly originated in the Abingdon area. These fabrics occur quite widely (e.g. at Stanton Harcourt (Gravelly Guy), Yarnton, and Hatford,[18] and apparently at the Ashville Trading Estate, Abingdon),[19] usually associated with grog-tempered coarse wares. At Ashville they were considered to be pre-Conquest and (at least some) imported.[20] Work on the Abingdon Vineyard material by Jane Timby has shown that the first appearance of these fabrics is usually associated with Claudio-Neronian samian (generally absent on rural sites, such as Ashville, within the region), and that the character of both fabrics and forms can be quitely closely matched by immediately post-Conquest production at Chichester.[21] It seems likely, therefore, that these fine fabrics, used principally for beakers, were of post-Conquest date. Apart from imports they represented the first Romanised pottery in the region. The Abingdon evidence suggests that they were short lived; their production is likely to have been confined entirely to the pre-Flavian period.

The more widespread introduction of Romanised pottery is likewise difficult to date, but this must have been happening by the early Flavian period at the latest. None of the Romanised forms present on the site are particularly closely dated, however, though all are consistent with a later 1st–early 2nd-century date range. The absence of black burnished ware, Central Gaulish samian and Oxfordshire products such as white ware mortaria suggests that the assemblage did not extend very far into the 2nd century AD.

In the light of this discussion, rough date ranges can be suggested for the two ceramic phases; *c.* AD 20/30–60/70 for phase 1 and *c.* AD 60/70–100/120 for phase 2. It is emphasised that these date ranges are guidelines only and are based entirely on ceramic criteria, since no independent dating evidence is available at this site.

The approximate numbers of sherds in the two ceramic phases are 245 (phase 1) and 838 (phase 2), excluding sherds in contexts probably of post-medieval date. These figures are based on the assumption that sherds assigned to fabric group O10 represented the later 1st-century Romanised fabrics and should therefore be assigned to ceramic phase 2, though this may not always have been the case. Similarly, contexts with samian ware have been assigned to the second phase, even though some sherds may have been pre-Flavian and could have been in contexts of phase 1. While the result of these decisions may have been to slightly underemphasise the quantity of material in ceramic phase 1, only a small proportion of the total pottery is so affected.

This exercise produces some patterning of the data. Despite their relative overall scarcity, contexts assigned to ceramic phase 1 constitute the majority of features in Trenches B, D and E, and the total of sherds of ceramic phase 2 in these trenches are extremely small. Trenches A and C have (on the ceramic evidence) roughly equal numbers of features of both phases, though the sherds of ceramic phase 2 manufacture are still in the minority. The latest group on the site appears to be that from F103 in the 1993 evaluation Trench 13. This group contained the highest proportion of recognisable late 1st–early 2nd-century Oxfordshire reduced ware types and can probably be assigned to the early years of the 2nd century.

Catalogue (Figures 6 and 7)

The illustrated vessels are arranged in ware group order since there are no long stratigraphic sequences which have produced groups of sufficient size to warrant presentation of the material in this way. Within the major ware groups

[16] P. Booth, *Quantifying Status, Some Pottery Data from the Upper Thames Valley* (in preparation).

[17] Op. cit. note 5, 202.

[18] All unpublished, cf. P. Booth, 'The Iron Age and Roman Pottery', in 'Iron Age and Early Romano-British Settlement at Manor House Farm, Hatford', in D. Davison and J. Hunn (eds.), *Excavations and Evaluations 1992–3 by Tempus Reparatum* (BAR forthcoming).

[19] e.g. nos 346 and 373–374, pp. 64–67 in C.D. De Roche, '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* (Counc. Brit. Archaeol. Res. Rep. 28, 1978), 40–74.

[20] Ibid. 73 and 64.

[21] Op. cit. note 8.

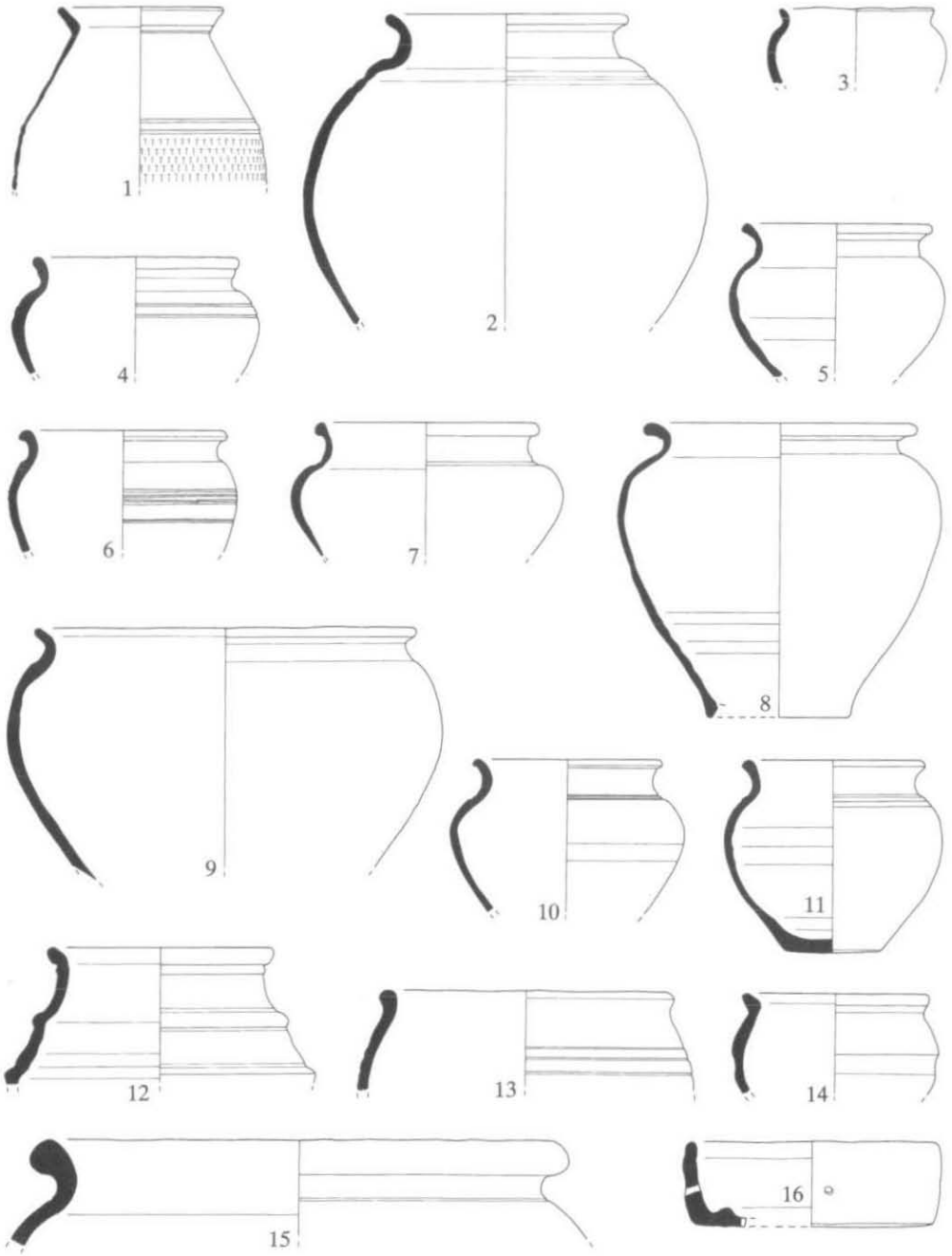

Fig. 6. Pottery Vessels 1–16.

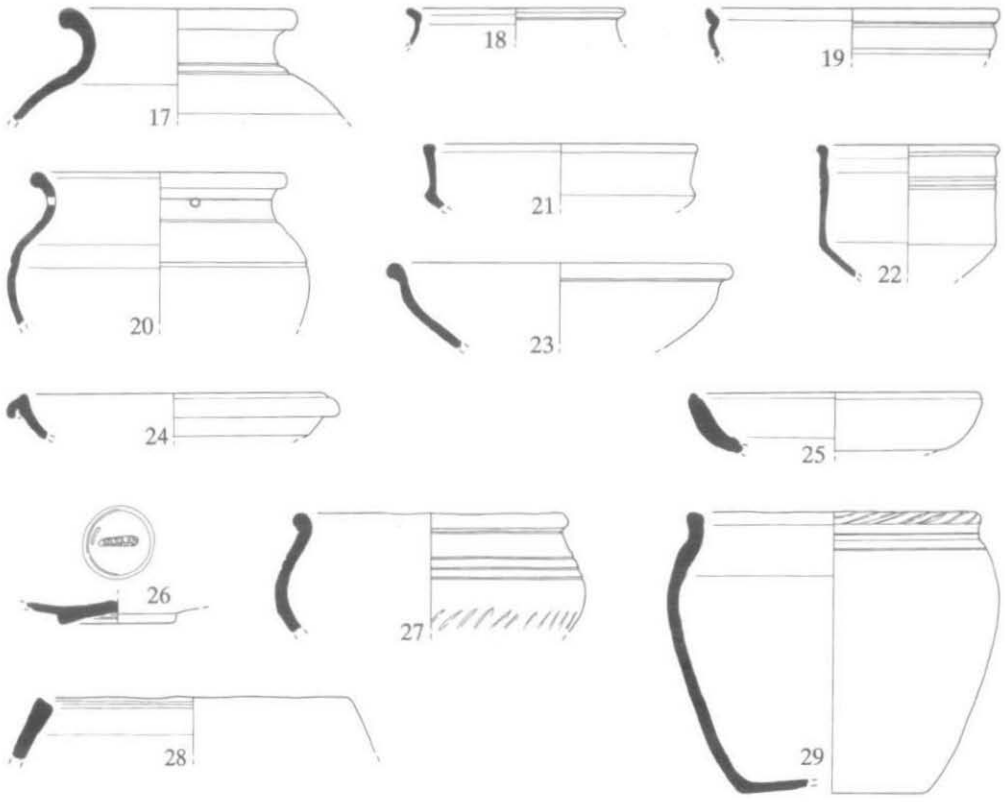

Fig. 7. Pottery Vessels 17–29.

vessels are presented in type order. Fabric and type codes are followed by further comments[22] and the trench and context number and/or feature number.

1. Fabric W10, off white to buff. Wheelthrown. Type EA, butt beaker. Worn and in many small fragments. A typical butt beaker with fine rouletted decoration. Trench C, 4001.

2. Fabric E80 (GV4), reddish brown with dark brown exterior surface almost entirely missing. Wheelthrown. Type CC, narrow mouthed jar, with deep cordon on shoulder. Trench 11, F112.

3. Fabric E80 (GV4), buff to grey brown, irregularly fired. Possibly hand made. Type CE, squat high-shouldered jar with simple upright rim. Trench C, 4010.

4. Fabric E80 (GV4), brown to dark grey. ?Wheelthrown. Type CE, squat high-shouldered jar with girth grooves. Trench E, 6005, F601.

5. Fabric E20 (AG3), dark grey to black. Wheelthrown. Type CE, squat high-shouldered jar. Trench C, 4001.

[22] All mentions of Young in this catalogue refer to his op. cit. note 5. All mentions of Thompson refer to her op. cit. note 4.

6. Fabric E80 (GV3), dark grey brown to black. Wheelthrown. Type CE, squat high-shouldered jar with girth grooves and fragmentary burnish on the shoulder. External sooting. Trench C, 4004, F404.

7. Fabric E80 (GV4), buff brown to grey brown. Wheelthrown. Type CE, squat high-shouldered jar. Trench B, 3018.

8. Fabric E80 (GV4), grey brown. Wheelthrown. Type CE, squat high-shouldered jar. This is the most Romanised vessel of this type, with the rim form and the firing closer to reduced ware examples such as Young type R24.[23] Trench C, 4001.

9. Fabric E40 (SA3), buff brown. Hand made. Type CE, squat high-shouldered jar. In its proportions this vessel is more like a necked bowl, but it cannot really be separated from the preceding jar types. Trench C, 4019.

10. Fabric E80 (GV4), dark grey to black. Wheelthrown. Type CE, squat high-shouldered jar with double groove at base of neck. Trench C, 4010.

11. Fabric E30 (AG3), dark grey to black, unevenly fired. Wheelthrown. Type CE, squat high-shouldered jar with slight cordon at base of neck. Slight sooting. Trench C, 4023.

12. Fabric E80 (GV4), buff brown with grey core. Wheelthrown. Type CF, carinated jar with pronounced cordons on shoulder and at carination. The cordon below the rim makes this a hybrid form between Thompson's (1982) types E1-1 and E1-2, though the designation 'cup' is not followed here. Trench A, 2025 and 2026.

13. Fabric E80 (GV4), grey brown exterior, orange buff interior. Hand made. Type CH, bead rimmed jar with poorly defined rim and grooves on shoulder. Trench C, 4035, F412.

14. Fabric E80 (GV4), grey black with buff interior, irregularly fired. ?Wheelthrown. Type CI, angled everted rim jar with simple tapered rim and broad girth groove. Trench A, 2027, F223.

15. Fabric E80 (GZ4), buff brown to grey brown, irregularly fired. Hand made. Type CN, storage jar. Trench C, 4001.

16. Fabric E80 (GA4), buff brown to grey black, irregularly fired. Wheelthrown. Type MJ, 'cheese press'. Trench C, 4010.

17. Fabric O20, orange buff. Wheelthrown. Type CC, narrow mouthed jar loosely of Young (1977) type O6. Trench 13, F103.

18. Fabric O10, buff brown. Wheelthrown. Type E, probably a small beaker. Trench D, 5001.

19. Fabric O18, light buff to brown. Wheelthrown. Type E, probable girth beaker. A small fragment, so the rim diameter is not certain. Trench E, unstratified.

20. Fabric R30, dark grey to black. Wheelthrown. Type CD, medium mouthed jar with grooves at base of neck and girth. The fabric is close to E20. There are two small holes made after firing in the neck of the vessel. Their function is uncertain but they do not seem to indicate a riveted repair. Trench 13, F103.

21. Fabric R20, light to mid grey. Wheelthrown. Type HA, small carinated bowl or cup.[24] The form is a 'Belgic' one and does not appear in the Oxfordshire reduced ware repertoire. Both form and fabric suggest manufacture in the earliest phase of Oxfordshire reduced ware production. Trench C, 4001.

22. Fabric R10, light grey with fragmentary traces of a dark grey wash or slip and (possibly) white paint decoration. Wheelthrown. Type HA, vertical sided carinated bowl, not precisely paralleled by Young (1977), but probably subsumed under his type R64. Trench 13, F103.

[23] Op. cit. note 5, 215 .
[24] Op. cit. note 4, cf. type E1-4.

23. Fabric R30, light to mid grey. Wheelthrown. Type HC, curving sided bowl, not closely paralleled by Young. Trench C, 4004.

24. Fabric R10, mid grey. Wheelthrown. Type JA, straight (?) sided dish with hooked rim, combining elements of Young (1977) types R60 and R70. The form is similar to one from the kiln site at Nuneham Courtenay, for which a 2nd-century date is suggested.[25] Trench 13, F103.

25. Fabric R30, light buff grey. Wheelthrown. Type JA, simple straight sided dish (though with curving exterior profile). Trench C, 4010.

26. Fabric R10, medium brownish grey. Wheelthrown. Base of bowl or (more probably) dish with illiterate name stamp surrounded by ring. Such stamps are noted by Young[26] as products of the Oxfordshire industry without further comment. They are not very common, but the use of simple X motifs as here is the most usual form. A similar, but not identical, example is recorded from the production site at Nuneham Courtenay.[27] A different stamp also probably from a production site group comes from Dorchester.[28] Trench 13, F103.

27. Fabric C10, brown to black. Hand made. Type D, rounded jar or bowl with grooves on the shoulder and irregular oblique ?knife trimming marks below the girth. Trench C, 4010.

28. Fabric GS4, brown and black, irregularly fired. Hand made. Type CB, barrel shaped jar with simple slightly expanded rim with slight groove on top of rim, possibly a rudimentary lid seating. This is Thompson's (1982) type C3. Trench C, 4010.

29. Fabric SA4, orange buff to brown buff. Probably hand made. Type CB, barrel shaped jar with some incipient characteristics of the high shouldered jar type CE. The rim is slightly expanded and has quite regular narrow oblique indentations on its outer face. Trench B, 3001.

Discussion

The site lies less than 2 km. NNE of the centre of the Roman town of Alchester and only just over 1 km. from the recent extensive excavations in the northern suburbs of the town (the A421 sites). The latter have produced substantial quantities of comparative material dating principally from the mid-late 1st century onwards, but this material has yet to be studied in detail.

There is relatively little evidence for the middle Iron Age ceramic tradition of the immediate area, though some pottery of this date, mainly in sand-tempered fabrics, was found in A421 sites B and C and at the intervening site excavated by Harden in 1937.[29] 'Belgic type' material corresponding to ceramic phase 1 at Bicester is known from within the walled area of Alchester[30] though the relationship to the town of the contexts producing this material is unclear. Similar material was also present on Harden's site[31] though curiously it was almost entirely absent from the adjacent A421 sites B and C. It did, however, occur only in very small quantities on A421 site D, less than 1 km. SW of the Bicester

[25] Op. cit. note 10, 203, no 341.
[26] Op. cit. note 5, 206.
[27] Op. cit. note 10, 197, stamp SR2.
[28] p.169, no 144, in M.G. Wilson, 'The Pottery', in S.S. Frere, 'Excavations at Dorchester on Thames, 1963', *Archaeol. Jnl.*, 141 (1984), 91–174.
[29] D.B. Harden, *Excavations at Chesterton Lane, Alchester 1937* (Oxfordshire Archaeol. Soc. Rep. 83, 1937), fig 4.
[30] p.125 in J.H. Iliffe, 'Excavations at Alchester, 1927', *Antiq. Jnl.*, 9 (1929), 106–136; and pl. XV in J.H. Iliffe, 'Excavations at Alchester, 1928', *Antiq. Jnl.*, 12 (1932), 35–67. The descriptions are not very precise but a 'soapy feel' probably indicates grog-tempered fabrics.
[31] Op. cit. note 29, fig 5.

site and also at the Faccenda Chicken Farm, immediately east of A421 site B.[32] Comparable material to that in Bicester ceramic phase 1 is thus known from at least four places in the Alchester area, where on present evidence it appears to be relatively localised, and also from Middleton Stoney, some 5 km. distant to the west.[33] At Middleton Stoney, grog-tempered fabrics constituted 24.9% of the sherd total.[34]

The E ware ('Belgic') tradition which accounted for the bulk of the pottery from Bicester is widespread across the Upper Thames region. In no case can the source of this material be certainly identified, though it is likely to have been relatively local in most instances. Such pottery may not yet have been fired in kilns, making the location of production centres very difficult. The chronology of this material has been discussed above. The continuation of its production as well as use past the time of the Roman conquest is suggested both by the overall quantity and also by the occurrence of specifically Roman forms such as the cheese press, which is most unlikely to have been made before the middle of the 1st century AD.

When the E wares were eventually superseded at Bicester they were replaced by material for which a relatively local origin is also likely. Some material, for example some of the Romanised reduced wares in F103, was probably from the developing Oxford area industry. Other coarse wares, while in a general Oxford tradition, were probably more locally produced. There are aspects of the A421 assemblages which are not typical of the mainstream Oxfordshire production discussed by Young,[35] and potential local peculiarities such as an emphasis on oxidised beakers have also been noted at Middleton Stoney.[36]

Trade connections seem therefore to have been very limited. Samian ware (all from Southern Gaul) and a single sherd of South Spanish amphora were the only imported sherds on the site. It is noteworthy that the amphora sherd had been re-used (perhaps for sharpening knives) and it is possible that this sherd was brought to the site as a fragment for this or some other specific purpose. Extra-regional traded wares were completely absent. The absence of fabrics such as black-burnished ware is almost certainly a chronological factor, but the absence of fabrics such as Verulamium region white wares and mortaria in the later 1st century is more surprising. Also noteworthy is the absence (apart from a single sherd of fabric R37) of the most common and distinctive later 1st-century coarse ware fabrics found at Yarnton, 16 km. distant to the SW and at present the closest, large, recently-recorded assemblage which covers the date range of the Bicester material. The sources of the Bicester ceramic phase 2 products are therefore most likely to have been the Oxford kiln sites proper, or were much more local to the Alchester area.

The range of vessel types was as narrow as that of the fabrics. The very high representation of jars is normal for this period,[37] but even so, the total absence of evidence for types such as flagons and mortaria is noteworthy, though it may possibly be a function of the small size of the assemblage. The impression that the assemblage is of a generally unromanised character, even in ceramic phase 2, is contradicted only by the occurrence of samian ware which may have been reaching the site as early as ceramic phase 1, to judge by the presence of Drag 25/25, usually a pre-Flavian form. This contradiction is not easily explained. While there is no doubt that Alchester would have represented an easily accessible source of extra-provincial and extra-regional imports the samian is the only indicator that this source was exploited.

The overall character of the assemblage is in fact entirely consistent with a pattern observable in low status rural sites across the region.[38] A significant number of assemblages come from sites occupied in

[32] p.31 in J. Hughes, 'The pottery', in M. Foreman and S. Rahtz, 'Excavations at Faccenda Chicken Farm, near Alchester, 1983', *Oxoniensia*, 49 (1984), 23–46.

[33] L. Brown and E. Leggatt, 'The Roman Pottery', in S. Rahtz and T. Rowley, *Middleton Stoney, Excavation and Survey in a North Oxfordshire Parish 1970–1982* (1984), 76–90. See p.86 for both grog-tempered vessels (nos. 11–18) and also for examples of the complementary early shell-tempered tradition (nos. 1–10).

[34] Ibid. 76.

[35] Op. cit. note 5.

[36] Op. cit. note 33, 76.

[37] cf. M. Millett pp. 38–9 in, 'An Approach to the Functional Interpretation of Pottery', in M. Millett (ed.), *Pottery and the Archaeologist* (Univ. London Institute of Archaeol. Occ. Pub. No 4, 1979), 35–48.

[38] Op. cit. note 16.

the late Iron Age and early Roman periods, terminating in the first half of the 2nd century AD. These include Gravelly Guy, Hatford and Smithsfield, as well as older sites such as Lynch Hill Corner, Stanton Harcourt,[39] and Hinksey Hill, near Oxford.[40] In those sites for which there is quantified data the representation of fine and specialist wares (see above) is always below 5% of the sherd total, and can be below 1%.[41] The Bicester assemblage, with a fine and specialist ware representation of 3.9% sherds (Table 1) falls comfortably within this range. Fine and specialist ware representation in the 1st–early 2nd century phases of the A421 sites, of suburban character, is 7.5%, and comparative values for other high status sites in this period, some of which also terminate in the early 2nd century, are usually above 10%. With the slight exception of the samian ware discussed above there is no indication that the proximity of a major market had any marked effect on the composition of the Bicester assemblage. In regional terms this is a typical Upper Thames low-status assemblage, and it is noteworthy that the pattern observed widely within the Upper Thames, in which so many sites appear to end in the early 2nd century, should appear to extend beyond the immediate confines of the Thames valley to the Alchester area.

TILE

Some 69 fragments of tile were recovered. Thirteen of these, with a total weight of 176 gm., were considered to be of post-medieval date being, where identifiable, from thin flat tiles in sandy fabrics. The remaining 56 pieces, weighing 2419 gm., were probably or certainly of Roman date. The material was not examined in detail, but the great majority of the Roman fragments were in an orange buff fabric tempered with rounded quartz sand. This was divisible into two groups (1 and 2), less and more sandy. The less sandy variant (1) had sparse to moderate sand inclusions, sub-rounded clay pellets up to *c.* 7 mm. long and occasional rounded iron oxides and elongated ?organic voids. The more sandy variant (2) had moderate to common sand but an otherwise similar range of inclusions, with the addition (possibly significant) of sparse angular flint fragments. In both groupings the matrix of the fabric could be streaky. Both fabrics can be matched provisionally with examples from the A421 excavations (identified at the post excavation stage of that project). Fabric 1 here is tentatively equated with A421 tile fabric 13 and fabric 2 with A421 tile fabric 9, used, like the Bicester example, for a thick flat tile (see below). Fabric 1/A421 fabric 13 has considerable similarities with material from the tilery at Minety (Wiltshire), but it cannot be claimed with confidence that Minety was the source of this fabric. Very little is known about tile production sites in the region and while it is possible that tiles were carried considerable distances from their sources it is also likely that the complete pattern of production sites in the region is not yet understood. Such sites may have accounted for all the Bicester material.

There was a fairly clear distinction in terms of use of the two fabrics; fabric 1 being used for *tegulae* and fabric 2 for thicker flat tiles. Only fairly small fragments of both types survived, but at least two distinct *tegula* flanges were identifiable (though it is conceivable that they derived from opposite sides of the same tile). The *tegula(e)* were quite substantial, being 25 mm. thick. Parts of the 40–45 mm. thick flat tiles occurred in two contexts (4001 and 4010), though it is possible that they derived from the same tile. Insufficient evidence survived for any assessment to be made of the size of this tile and therefore of its specific type.

The majority of the tile (86% of fragments, 83% of weight) was found in Trench C, reflecting also the concentration of pottery in what was presumably the domestic focus of the site. The occurrence of tile fragments was for the most part in contexts which could be assigned to the later part of the occupation sequence on the evidence of the associated pottery. Forty nine fragments (2052 gm.) were from contexts assigned to the later 1st century AD or later, with only five fragments (285 gm.) from contexts containing only mid 1st-century pottery (3002 and 4023). A further two fragments (82 gm.) were from otherwise undated contexts. It is, of course, possible that the pottery from 3002 and 4023 was residual and that no tile was in use on the site before the later 1st century – the Flavian period at least. It is uncertain how the tile was used. The complete absence of *imbrex* fragments might suggest that the material was not

[39] W.F. Grimes, 'Excavations at Stanton Harcourt, Oxon. 1940', *Oxoniensia*, 8–9 (1943), 19–63.

[40] J.N.L. Myres, 'A Prehistoric Settlement on Hinksey Hill, Near Oxford', *Jnl. Brit. Archaeol. Ass.*, 36 (1931), 360–90; and see also p. 82 in G.H. Lambrick, 'The Development of late Prehistoric and Roman Farming on the Thames Gravels', in M. Fulford and E. Nichols (eds.), *The Archaeology of the British Gravels: a Review* (Soc. of Antiqs. Occas. Papers 14, 1992), 78–105.

[41] Op. cit. note 16.

used in the conventional way for roofing. It is possible that the tile was brought to the site already in a fragmentary state, for use in features such as hearths.

FIRED CLAY

There were 69 fragments of fired clay (579 gm.). These were in a variety of fabrics which were not closely examined. For the most part the fragments occurred as completely amorphous lumps. Two fragments were right-angled corners of straight objects of firebar-like character, though the pieces were far too small for it to be claimed that this is what they were. Most of the fragments occurred in contexts associated with Roman pottery, and their date is not in doubt even if their function is unclear. Although they concentrated in Trench C (74% of fragments, 57% of weight) the concentration was less evident than in the case of tile.

THE COINS, SMALL FINDS AND METALWORK by LYNNE BEVAN

THE COINS

One corroded copper alloy coin was present, for which a general 1st–3rd century date has been suggested (Simon Esmonde-Cleary, *pers. comm.*). Trench C, 4020.

SMALL FINDS Text by LYNNE BEVAN, with extracts from a conservation report by MARGARET BROOKES. A full conservation report forms one part of the archive.

This is an unusual collection of small finds for such a small rural site, including a number of decorative, as opposed to simply functional, objects. There is a curious juxtaposition of decorative styles, expressed in the presence of the Celtic-style bull's head mount (Figure 8:1) and the Classical style of the decorated lead fitting (Figure 9:1).

All objects have been analysed and grouped according to material. Miscellaneous fittings, unidentified fragments and obviously modern material has been recorded in archive but does not appear in the catalogue below. Catalogued items are listed according to brief description of object, dimensions, discussion of parallels when appropriate, followed by trench and context number.

COPPER ALLOY

Thirteen items of copper alloy were recovered including a mount, two bracelet fragments, a buckle, two pieces of strip, four washers, and three buttons/studs. With the exception of the buttons/studs, all items are regarded as Roman, five of which have been selected for publication.

1. Mount in the form of a bull's head. Hollow-cast mount with remains of a stem or collar for fixing. White metal found on the sides of the head and underneath may be the remains of solder or else the whole object may have been plated. Length at centre of head: 26 mm., maximum width: 28 mm., thickness: 1–6 mm. The head is a similarly elongated shape to that of a crudely-modelled bull-mount from Chester which also has down-turned horns and possibly dates to the 2nd century A.D.[42] In general appearance, the Bicester bull-mount more closely resembles an undated example from York, in its pronounced eyes, formed as simple raised bosses, its well-formed ears and hairy 'fringe'.[43] The York bull-mount has upturned horns and, like the Chester example, a suspension loop, suggestive of an amuletic function. Despite some damage to the horn area, there is no evidence that the Bicester bull-mount was ever designed for suspension. Instead, its hollowed back bears the

[42] Plate 79 in M. Green, *A Corpus of Small Cult Objects from the Military Areas of Roman Britain* (BAR British Series 52, 1978).

[43] Ibid. Plate 80.

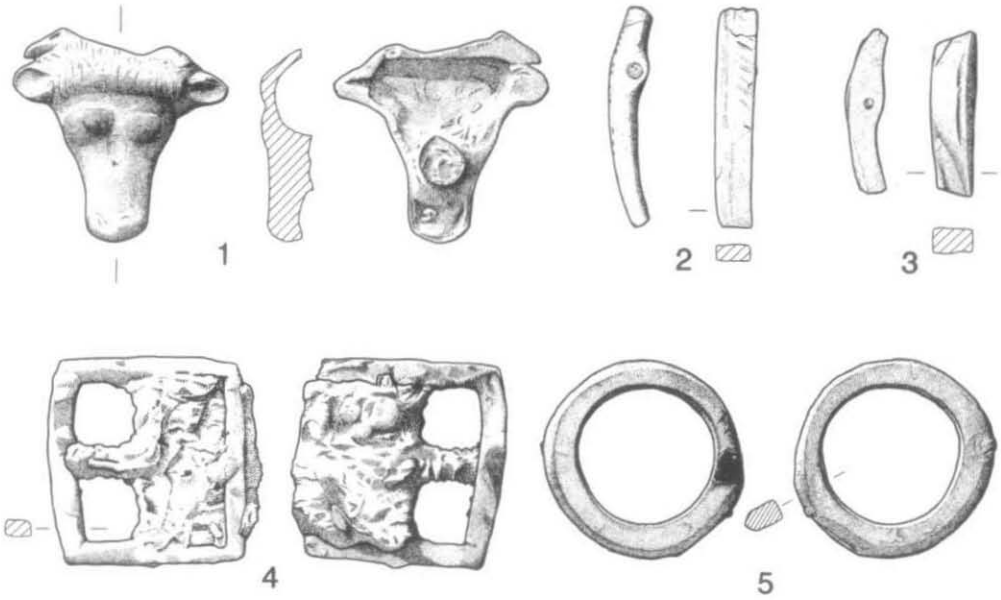

Fig. 8. Metalwork 8:1–8:5.

scar of previous attachment, possibly to a bucket or other vessel, upon which it might have fulfilled an apotropaic role.

The bull was a popular subject in Romano-Celtic art, often represented in the form of mounts and figurines.[44] Emblematic of strength and fertility, the bull 'had a special significance for Romano-Celtic peoples' and probably represented 'a Celtic cult expression which originated deep in the pre-Roman past'.[45] The modelling of the Bicester bull-mount, especially the raised but otherwise featureless eyes, is typical of 'Celtic' art style. Trench C, 4010. Figure 8:1.

2. Bracelet fragment. Average thickness: 2 mm., height: 5 mm. The fragment is rectangular-sectioned with a shallow, irregular, horizontal groove at one edge and a register of diagonal cross-hatching at the other. A thickened area with a circular hole appears to indicate a seating for a fastening. Trench E, 6023. Figure 8:2.

3. Bracelet fragment. Average thickness: 2 mm., height: 5 mm. Rectangular-sectioned and perforated as above, fragment has been decorated with shallow, intermittent curving grooves. Some traces of white metal plating survive. Trench B, 3025. Figure 8:3.

4. Buckle, height: 26 mm. Roughly-square oval-sectioned copper alloy buckle frame with iron buckle plate, axle pin and buckle pin. Trench B, 3025. Figure 8:4.

5. Ring, diameter: 27 mm., thickness: 3–5 mm. Roughly-cast ring with 'D'-shaped section, possibly an element of clothing rather than a finger ring. Trench B, 3000. Figure 8:5.

[44] See examples in M. Green, op. cit. note 42; in M. Henig and J.M. Paddock, 'Metal Figurines in the Corinium Museum, Cirencester', *Trans. Bristol and Gloucester Archaeol. Soc.* (1993), 85–93; and in R. Tret, J.V.S. Megaw and R. Megaw, 'A Cast Bronze Head from Chepstow', *Antiq. Jnl.*, 72 (1992), 54–75.

[45] M. Green (1978), op. cit. note 44, 24–5.

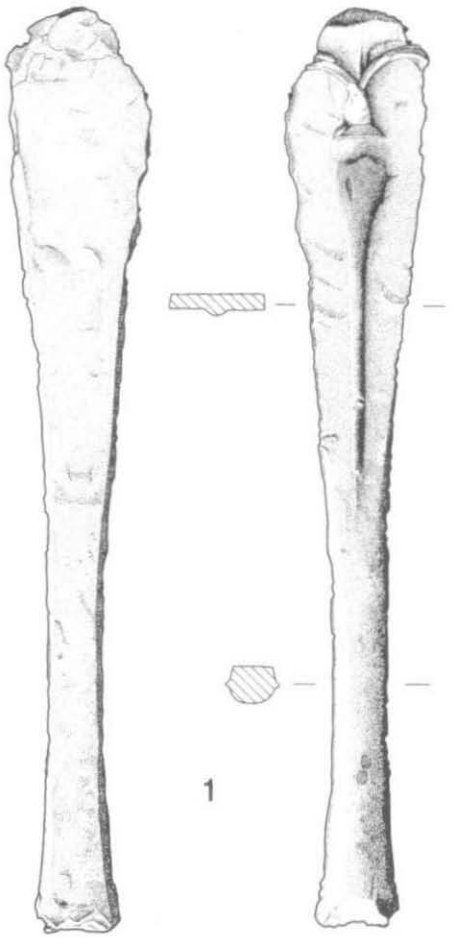

Fig. 9. Metalwork 9:1.

LEAD

Lead objects include a decorative mount/fitting, four pieces of strip and an amorphous lump. All items are probably of Roman origin, but only the mount/fitting is here considered. The remainder have been archived.

1. Mount/fitting, length: 122 mm., maximum width: 18 mm., thickness: 4 mm. This spatulate object, broken at its narrowest end, was decorated at its widest end with a palmette, or possibly architectual motif. No parallels have been found for this object, although it has been suggested that it might have been a fitting for a lead coffin or casket. However, no similar mounts appear in Toller's catalogue of Roman lead Coffins and ossuaria in Britain.[46] Trench A, 2032. Figure 9:1.

[46] H. Toller, *Roman Lead Coffins and Ossuaria in Britain* (BAR British Series No. 38, 1977).

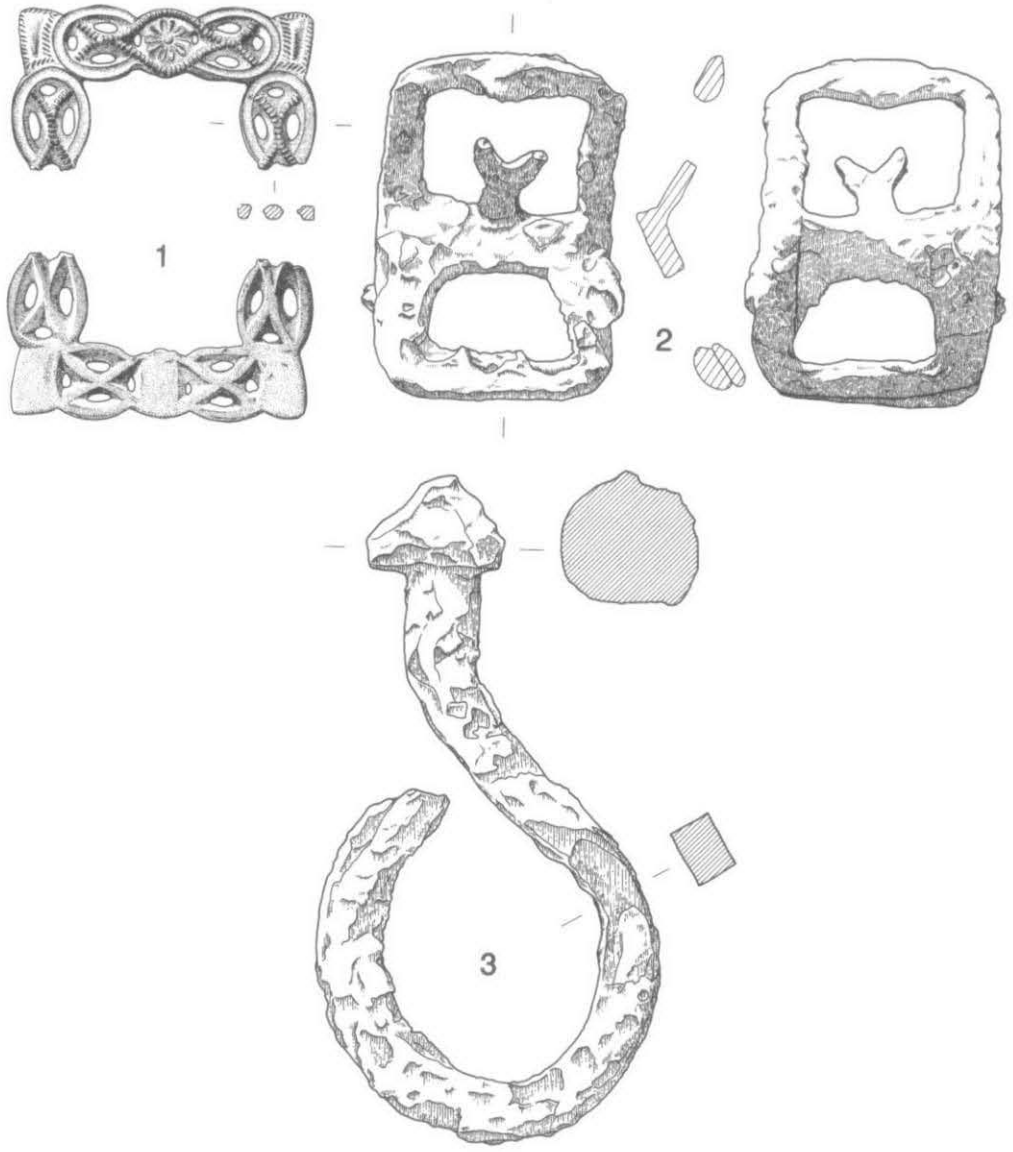

Fig. 10. Metalwork 10:1–10:3.

IRON OBJECTS

Twenty-two iron objects and 66 nails were recovered. Objects comprised: two shoe buckles, one of which was a decorative fragment, a hook, a binding collar, a disc, a horseshoe, a ring, a rod, a vessel fragment, a washer, a stud/button, five pieces of plate (?door furniture), two pieces of riveted strip, and four unidentified fragments. Of this small

and generally badly-corroded collection, only four objects are catalogued below. The remainder have been described in full in the archive catalogue.

1. Buckle fragment, width: 40 mm., thickness: 1 mm. Highly-decorated openwork buckle fragment, possibly from a shoe, circa 18th/19th century. Trench A, 2032. Figure 10:1.

2. Buckle, length: 34 mm., width: 29 mm., thickness: 2 mm. Rectangular, curved shoe buckle, heavily corroded. Trench A 2032. Figure 10:2.

3. Hook, length: 92 mm., average thickness: 7 mm. Suspension hook with domed head. Trench C, 4000. Figure 10:3.

4. Collar, diameter: 20 mm., height: 10 mm., thickness: 3 mm. Strip, folded and closed to form a circular collar. Trench C, unstratified. Not illustrated.

IRON NAILS

Nails were listed and were catalogued according to Manning's nail typology.[47] Occurrence of nails in trenches was as follows: Trench A (7), Trench B (7), Trench C (24), Trench D (17), Trench E (11). Of these, roughly-equal numbers of the commonest Types 1a, 1b and 2 were recorded (17, 15, 14), two examples of the 'T'-shaped Type 3, and 19 miscellaneous unclassifiable nails were also recovered. Any of these nails might have been used for timber, with the Type 2 nails (found in small numbers in all trenches) suggesting a finer finish since this narrow-headed type of nail 'could be driven completely into the wood making it invisible from a distance'.[48] Full contextual details of the nails appear in the archive records.

THE ANIMAL BONES by STEPHANIE PINTER-BELLOWS

The excavation at Bicester produced a total of 451 bones and bone fragments. As the number of bones is quite small, interpreting them should be attempted with caution. The following mammal and bird species were identified: horse (*Equus caballus*), cow (*bos taurus*), pig (*sus srofa*), sheep (*Ovis aries*), red deer (*Cervus elaphus*), dog (*Canis* sp. domestic), fox (*Vulpes vulpes*). Bones which could not be identified were assigned to higher order categories: sheep/goat and large mammal (cow-, red deer-, or horse-size).

A selective detailed record was made for the assemblage, with further work done only where it appeared to add substantially to the results.[49] For a full description of the methods used see Davis (1992). In brief, all mandibular teeth, and a restricted suite of articular ends/epiphyses and metaphyses of the girdle, limb and foot bones were always recorded and used in counts. Other parts of the skeleton were only noted selectively, e.g. when a scarcer species could be identified, or when the bone was of particular interest. In order to be able to calculate the proportion of the bones which were unidentified fragments, a count was kept on the number of unrecorded identifiable skeletal elements.

Tooth eruption and wear data, fusion data and a limited range of measurements were recorded systematically for the selected parts of the skeleton; pathology and butchery data were noted where present, but counts of bones affected and not affected were not made for the non-selected parts of the body. All the material was recorded following the AML Osteometry Data Capture Manual.[50] Dental eruption and attrition data were recorded using the wear stages

[47] W.H. Manning, *Catalogue of the Romano-British Iron Tools, Fittings and Weapons in the British Museum*, British Museum Publications Ltd (1985).

[48] Ibid. 135.

[49] For a full description of the methods used see S. Davis, *A Rapid Method for Recording Information About Mammal Bones from Archaeological Sites* (HBMC AM Laboratory report 19/92, 1992).

[50] R.T. Jones et al., *Ancient Monuments Laboratory Computer Based Osteometry Data Capture Computer User Manual*, Ancient Monuments Laboratory Report No. 3342 (1979).

defined by Grant[51] for cattle and pig, and the stages defined by Payne[52] for sheep/goat. Epiphysial union data follow Silver.[53] Measurements follow von den Driesch[54] with additions as described in Davis.[55] Withers height was calculated following von den Driesch, and A. and J. Boessneck.[56]

Preservation of the bone in most contexts was fair. The bones are typically firm but with the outer layer of bone gone and most shafts missing both ends. The bones have rounded edges instead of retaining sharply angular margins. The condition of the bone suggests that the bones have been water affected. Nine bones (2%) showed signs of charring; these were from contexts 3018, 3019, 4001, 4019, 4023, 6007 and Area A, F104 from the evaluation. The colour of the charred bone, greyish-white and greyish-blue, shows that they were burnt in fires of moderate temperatures. Three bones (<1%) had been gnawed by dogs; these were from contexts 4015, 4017 and Area A, F105 from the evaluation.

TABLE 4. LIST OF ANIMAL SPECIES FOR COMBINED ROMAN PERIODS

Trenches	*Eval.*	*A*	*B*	*C*	*D*	*E*	*Total*
Animal Species							
Horse (*Equus caballus*)	—	3	—	3	—	—	6
Cow (*Bos taurus*)	—	5	—	8	2	1	16
Pig (*Sus scrofa*)	—	1	1	3	—	—	5
Sheep (*Ovis aries*)	1	—	—	4	1	—	6
Sheep/Goat	3	1	3	13	3	1	24
Red Deer (*Cervus elaphus*)	—	1	—	—	—	—	1
Dog (*Canis* sp. domestic)	—	—	—	1	—	—	1
Fox (*Vulpes vulpes*)	—	—	—	1	—	—	1
Large Mammal	—	1	—	—	—	—	1
Identifiable Mammal	22	36	7	97	18	18	198
Unidentified Mammal*	30	41	14	83	7	17	192
Total	56	89	25	213	31	37	451
%	12	20	6	47	7	8	

The species identified are listed in Table 4. The majority of the identified bones are from domesticated species: sheep/goat (only sheep identified at this time) were the most common, followed by cow, with horse and pig following. The one red deer is a tibia from an individual, not fully mature (2012). The one tabulated dog bone is a mandible (4069), though there was an untabulated dog maxilla (2006). The one fox bone is an adult femur (4047).

Aging was not attempted using epiphyseal union because of the number of missing bone ends. Only the sheep/goat included enough teeth to estimate ages using dental wear (see Table 5). It must be noted that because of the small number of teeth being studied, these data can only be used to discuss the contexts which were excavated and cannot be extrapolated to give information about the entire site. Just under half of the sheep/goat appear to have died in early adolescence or before, most probably from natural causes and seasonal culls. Of the other half, the biggest percentage (23%) were killed in late adolescence, the prime meat age; the rest after being used for at least a season for milk or wool. The age profile suggests that the animals were being raised at this location, and while they were probably not part of a specialised herd, there was a selection of animals going on with milk or wool in mind.

Measurements which could be taken are in Table 6. The number of measurements taken are too small to say

[51] 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 Animal Bones from Archaeological Sites* (BAR British Series 109, 1982), 92–108.

[52] S. Payne, 'Kill Patterns in Sheep and Goats: The Mandibles from Asvan Kale', *Anatolian Studies*, 23 (1973), 281–303; and 'Reference Codes for Wear States in the Mandibular Cheek-teeth of Sheep and Goats', *Jnl. of Archaeol. Science*, 14 (1987), 609–14.

[53] I.A. Silver, 'The Aging of Domestic Animals', in D. Brothwell and E. Higgs, *Science in Archaeology* (1969), 283–302.

[54] A. von den Driesch, *A Guide to the Measurement of Animal Bones from Archaeological Sites* (Peabody Museum Bulletin No. 1, 1976). Peabody Museum of Archaeology and Ethnology, Harvard University, Cambridge, MA.

[55] Op. cit. note 49.

[56] A. von den Driesch and J. Boessneck, *Kritische Anmerkungen zur Widerristhohenberechnung aus Langenmassen vor- und fruhgeschichtlicher Tierknocken*, Saugetierkundliche Mitteilungen 22 (1974), 325–48.

anything, except that none of them are unusual for a site from the Romano-British period. Only one complete long bone, a horse metacarpal, survived of the major mammal species to have a withers height calculated. The horse, with a withers height of 1411 mm. or 14 hands, is at the upper end of average for the time period.[57] It was probably used as transport or as a pack animal.

TABLE 5. MANDIBLE AND MANDIBULAR TOOTH APPROXIMATE AGING DATA

Sheep/Goat

Toothwear	*Approx. Age*	*N*	*%*
Deciduous fourth premolar unworn	0–2 months	—	
First or second molars unworn	2–12 months	1	8
Third molar unworn	1–2 years	5	39
Third molar, distal cusp still unworn	2–3 years	3	23
Third molar, outline of enamel not joined, before stage 11[58]	3–4 years	2	15
Second and third molar, outline of enamel joined, stages 9 and 11 respectively[59]	4–6 years	2	15
Second molar post stage 9, third molar still stage 11	6–8 years	—	
Third molar, heavy wear, post stage 11	8+ years	—	

Table 6. MEASUREMENTS

COW		
	ACE	LA – 67.1 mm., MW – 20.2 mm., Bd – 39.1 mm.
	APH	Bd – 24.3 mm.
	APH	GLpe – 54.6 mm., Bp – 28.2 mm., SD – 24.6 mm., Bd – 28.0 mm.
	AST	GLl – 61.3 mm., GLm – 56.0 mm., Dm – 30.0 mm.
	M3	L – 35.1 mm., W1 – 15.9 mm.
HORSE		
	SCA	LP – 50.7 mm.
	APH	GL – 72.8 mm., Pb – 48.5 mm., SD – 31.8 mm., Bd – 42.1 mm.
	MC	GL – 220.1 mm., Bp – 46.0 mm., Bd – 46.9 mm.
PIG		
	M3	L – 28.1 mm., W1 – 14.0 mm.
SHEEP		
	RAD	Bd – 24.2 mm.
FOX		
	FEM	GL – 144.6 mm., Bp – 28.2 mm., Bd – 22.9 mm., Bd – 28.0 mm.

Because of the condition of the outer surface of the bone, very few butchery marks or pathologies were observed. Two butchery marks were noted, both knife marks on cows. One was a mandible with knife marks on the lateral ascending ramus (4001); the other a proximal phalange with a knife cut on the peripheral abaxial side, near the proximal end (4064). Only one pathology was noted, a sheep/goat mandible with periodontal disease and abscessing between the second and third molar (2010). This probably originated from a sharp piece of food getting stuck between those teeth. It does not appear to have been a life-threatening injury.

[57] p.192 in M. Maltby, 'Iron Age, Romano-British and Anglo-Saxon Animal Husbandry: A Review of the Faunal Evidence', in M. Jones and G. Dimbleby (eds.), *The Environment of Man: the Iron Age to the Anglo-Saxon period* (BAR British Series 87, 1981), 155–204.

[58] Payne (1987), op. cit. note 52.

[59] Ibid.

THE ENVIRONMENTAL EVIDENCE by REBECCA ROSEFF, with ANDREW MOSS, ELIZABETH PEARSON and ELEANOR RAMSEY

INTRODUCTION AND RESEARCH AIMS

Two main research aims lay behind the rationale of environmental work carried out at Bicester. One was to identify and characterise the complicated alluviation episodes found during the excavation. Another was to throw light on the contemporary environment of the Romano-British period, when the site was occupied, and preceding and subsequent periods, represented by alluviation episodes and buried soils.

A range of environmental samples was taken during the course of the excavation. These were firstly assessed for the evidence they might yield and reliability of dating. Following the assessment a number of samples was selected, processed and analysed. Environmental work consisted of soil sieving for charred plant remains and small artefact and bone retrieval, with a total of 300 litres being processed, molluscan and soil analyses from certain key deposits and a small amount of pollen work. In addition a number of waterlogged samples was collected for beetle, plant, mollusca and pollen analyses and radiocarbon dating. These were not processed, but are held in cold storage for future research.

SITE DESCRIPTION

The Bicester site was situated about 200 m. west of the confluence of the Langford Brook and Pringle Brook at 70 m. OD. These two streams are headwaters of the Thames with catchments of *circa* 16 km.^{2} and 18 km.^{2} respectively. Small catchments rising on comparatively low hills (at *circa* 90 m. OD), but nevertheless flooding does periodically occur on the site, with a return period of 50 years (indicative only).[60]

The area has not been mapped by the geological survey at the 1 : 100,000 scale; on the large scale 4 miles : 1"[61] it is mapped as being Cornbrash limestone, Oxford Clay and Great Oolite (all of Jurassic age). Borehole survey carried out prior to development[62] found the stratigraphy on the site to be topsoil (0.4 m. in depth), made ground (varying in depth, from 0.2 m.) and Kellaway Beds (2.2 m. in depth) over Cornbrash limestone. However, it seems that the Kellaway Beds was in all probability alluvium (context 3007, see below) which on this part of the site overlay gravel of varying depths (below).

SOIL ANALYSIS (Figure 5) by REBECCA ROSEFF

Four general soil samples were collected from the south end of Trench B (Figure 5), in order to examine the sequence of deposits here, which was typical of the site. Contexts representing the sequence are briefly described below while full soil descriptions, with results from laboratory work, are given in Table 7.

The topsoil (3003) was a black humic soil, with the stone-free texture and crumb structure typical of long established pasture. It overlay, with a clear boundary, a dark yellowish brown sandy loam that was 30% gleyed in pores and root channels (3004). These two contexts (3003, 3004) were present across the whole site and overlay the Romano-British (Phase 2) archaeology representing *c.* 0.4 m. of sediment. They were interpreted as a post-Romano-British alluvial deposit. Context 3004 overlay with a clear boundary a dark layer of about 0.2 m. depth (3005) which contained small pieces of Romano-British pottery. This was interpreted as a buried soil broadly contemporary with the Phase 1 and 2 structures recorded in Trench C.

The buried soil overlay a yellowish-brown sandy loam (3007), juxtaposed with a tufaceous deposit (3006), interpreted as alluvium pre-dating the Romano-British period. It was this layer that was cut by the archaeological features described above and marked the base of the trench. Auger cores (of 0.1 m. diameter) taken along Trench A and B, through 3007 and 3006, found that sediments below became more gleyed and stony with depth, until a light brownish grey limestone gravel was reached, about 1 m. below the surface. This was interpreted as river terrace gravels. In some cores, humic matter occurred immediately above the gravels.

[60] G.B. Williams, *Bicester Park Geotechnical Interpretive Report GPD.5267/GBW Final Report November 1993*, 7.
[61] *(BGS) Geological Survey of England and Wales* (1930).
[62] Op. cit. note 60.

TABLE 7. SOIL ANALYSIS RESULTS

	3003 Topsoil	3004 Post-R-B alluvium	3005 'R-B' buried soil	3007 Pre-R-B alluvium
coarse sand %	2	0.025	1.7	2
medium sand	13	28.05	30	24
fine sand	24	26	25	18
coarse silt	8	8	10	9
medium/fine silt	10	9	8	7
clay	13	11	12	9
sand	56	66	66	64
silt	26	21	21	23
clay	19	13	14	13
loss on ignition	32	23	14.5	21
pH	6.5	7.2	7.4	7.5
colour	black 10YR 2/1	dark yellowish brown 10YR 4/4	dark greyish brown 2.5Y 4/2	yellowish brown 10YR 5/6
structure	medium crumb	coarse angular blocky	coarse angular blocky	fine angular blocky
stone content	stone-free	stone-free	2%, very small	2%, very small
comment	humic, clear boundary	gley 30%, clear boundary above and below	colour due to tufaceous inclusions not gleying	gleyed in pores, loose, not compact

This sequence was found in the southwest of the site. In the northwest the stratigraphy was dominated by a palaeochannel (F308 and F430), of Phases 1 and 2, and associated alluvial deposits. In the southeast an earlier palaeochannel (4072 and F510) was found underlying structural activity attributable to Phases 1 and 2. The palaeochannel cut the lowest horizon 3007.

Laboratory Analyses

Methodology

Soil samples were collected in order to test the interpretation given above and to characterise and compare sediments from key contexts. Samples were taken from the topsoil (3003), post-Romano-British alluvium (3004), the buried soil (3005) and the pre-Romano-British alluvium (3007) (Figure 5). They were analysed for pH,[63] and loss-on-ignition for organic matter content.[64] Particle size analysis was also undertaken in order to characterise the sediment and establish the energy of the water that led to deposition.[65]

Results

The results are set out fully in Table 7.

Samples were similar in texture, being sandy loams, though the topsoil contained more clay than lower samples. Contexts 3004 (the post Romano-British alluvium) and 3005 (the Romano-British buried soil) were almost identical in their textures. All soils were very high in organic matter content. The pH increased down the profile, from a slightly acidic topsoil to alkaline subsoil.

Discussion

The soil is calcareous (hence the good preservation of mollusca) due no doubt to the limestone-rich substrata. The lower pH of the topsoil indicates that it has been leached of carbonate and acidified by organic matter to a certain extent, a process that takes tens of years to occur. It suggests that the flooding that led to the deposition of 3003 occurred some time ago. This conclusion agrees with the field observation that the well-structured topsoil had been *in situ* for sometime.

The high organic matter content of all samples is remarkable but it is possible that some of the loss-on-ignition may be due to communited mollusca shell rather than organic matter. Calcium carbonate generally oxidises at a higher temperature than organic matter (950°C rather than 850°C) but molluscan shell, being fine, possibly burns at the lower temperature. The buried soil (3005) had a considerably lower loss-on-ignition percentage than other samples and this is consistent with the theory that it was a soil that had been exposed to the surface, possibly ploughed or trampled, for some time before burial, leading to the destruction of organic matter and mollusca.

The sandy texture of all layers indicates that they were laid down by waters of high energy. This is puzzling, considering the small size of the catchments and streams involved. It can be explained by a consideration of the subsoil which is a sandy gravel, with little clay. This type of sediment leads to river banks with low resistance and to a braided river form. Braided rivers build up their floodplains by frequently cutting through banks, overloading and dumping sediment in bars. What is envisaged is a river of many small interconnected streams, criss crossing the floodplain and periodically flooding, re-working and dumping the sands. The lower alluvium (3007) can possibly be seen therefore as a reworked and sorted river terrace deposit, rather than sediment carried into the floodplain from upstream.

The finer texture of the topsoil (3003), with more silt and clay, indicates that floodwaters leading to its deposition

[63] B.W. Avery, and C.L. Bascomb, *Soil Survey Laboratory Methods* (Soil Survey Technical Monograph No. 6, 1982).

[64] Ibid. (two samples from each context).

[65] By hydrometer method as given in BS 1377, *British Standards Methods of Tests for Soils for Civil Engineering Purposes. Part 2; Classification Tests* (1990) (British Standard Institution, 2 Park Street, London W1A).

had a lower energy in the post Romano-British period. This seems to be an example of a river changing from a braided form (moving and re-depositing sands), to the meandering form (depositing silts and clays) of today.[66] The causes of this change are likely to be complex and involve many factors, but certainly accelerated erosion from clay soils in the catchments upstream is likely to be a factor.

The braided river flooding and aggradation occurred in the pre-Romano-British (3007), Romano-British (3005) and post Romano-British period (3004). The tufa deposit (3006) found in the lower horizon (3007) suggests (tentatively) that these contexts were deposited in the Atlantic period. Tufa is a calcareous deposit that forms in warm, humid and wooded environments from springs emerging from calcareous sediments. It has often been found in floodplain deposits of the Atlantic period (5000BC to 3000BC)[67] when river flow was slow and there were large marshy areas of land.

The organic matter found in auger cores below the tufaceous deposit (3006, 3007) must have derived from small palaeochannels of the braided stream system, dating to an early post-glacial period but when vegetation was established.

The close similarity in texture between the buried Phase 1 and Phase 2 soil (3005) and the post-Romano-British alluvium (3004) strongly suggests that they were laid down by the same type of streams and flooding patterns. There was, however, at least one intervening stable period, when the buried soil (3005) was formed. The soil (3005) was humic, not gleyed, and contained small stones and pottery pieces throughout, i.e., it was not worm-sorted like the topsoil. The stable period without flooding that it represents probably occurred at the same time as Phase 1 and 2 occupation. The soil suggests the land was used for arable at this time or, alternatively, represented a trampled area (perhaps close to the structures).

That the floodplain continued to build up by similar processes, after the stable late Iron Age–early Romano-British period, is shown by the presence of 3004 which is identical in texture to 3005. The change of river form to a meandering type and the deposition of topsoil (3003) occurred later. Ridge and furrow was still present to the west of the site; it was not obscured by a subsequent alluvium layer. It is tentatively suggested therefore that the deposition of the uppermost unit of alluvium (3003) was broadly synchronous with a change of river form from a braided to a meandering type, and occurred in the Saxon or early Medieval period. One further conclusion can be drawn from analysis of the stratigraphy. Context 3004 was gleyed, while the topsoil 3003 was not. This indicates that a rise in the water table had occurred at some period after (or during) the deposition of 3004.

MOLLUSCA by ANDREW MOSS

Four molluscan samples were collected, from alluvium pre-dating (3007) and post-dating the Romano-British archaeology (3004), from a buried soil broadly dated to the Romano-British period (3005) and from a tufaceous deposit from a lower level of a palaeochannel pre-dating the Romano-British period (F510 5015). This report attempts a palaeoenvironmental reconstruction of the deposits based on the contained fauna.

Methodology

Samples were approximately 5 kg. Each sample was immersed in a bowl of warm water to disaggregate the material. Most molluscs floated to the surface and were decanted off into a 300 micrometre mesh sieve. The residue was hand-sorted and broken specimens and single valves of bivalves were removed. Fragmentary material was discarded with the residue. The mollusc sample was then dried and sorted under a low power binocular microscope to remove extraneous material such as vegetation. Identifications were carried out using the same microscope with reference to the keys of Cameron and Redfern[68] and Macan[69] where necessary, and comparing with reference material in the School of Geography, University of Birmingham. Full counts of individuals were not carried out and therefore no statistical data is presented.

[66] G. Petts and I. Foster, *Rivers and Landscape* (1985).

[67] J. Rose, C. Turner, G.R. Coope and M.D. Bryan, 'Channel Changes in a Lowland River Catchment Over the Last 13000 Years', in R.A. Cullingford, D.A. Davidson and J. Lewin (eds.), *Timescales in Geomorphology* (1980), 159–77.

[68] R.A.D. Cameron and M. Redfern, *British Land Snails* (Synopses of the British Fauna no. 6, 1977).

[69] T.T. Macan, *A Key to the British Fresh and Brackish Water Gastropods* (4th edition, 1977).

Results

Sample 5015 and 3007 contained several hundred specimens, 3004 contained a few dozen specimens and 3005 about 20 individuals plus a few bone fragments. Species lists are given in Table 8 with a rough estimate as to the abundance of each. Some contamination from modern material (springtails, mites, spiders and vegetation with chlorophyll) was evident.

Discussion

Samples 5015 and 3007 have a very similar mollusc assemblage. The dominant type is *Carychium minimum*. (Note that *C. minimum* and the similar *Ctridentatum* can only be reliably separated on internal shell features, this being impossible here because of the numbers involved and their fragility. However, a number of specimens was broken naturally and all of these could be identified as *C. minimum*. Also common were *Lymnaea truncatula*, *L. palustris* (the former being found in superior numbers), *Valvata cristata* and *Anisus leucostoma*. *Lymnaea* and *A. leucostome* are amphibious, *Valvata* aquatic. *C. minimum* is found in marshy places. Terrestrial snails are common and the assemblage is dominated by *Vertigo angustior*, *V. antivertigo*, *Vallonia pulchella*, *Oxychilus* sp. and *Trichia hispida* group. All these are characteristic of marshy habitats and found in alluvial assemblages. Rarer species include the wetland species *Succinea putris*, *Cochlicopa lubrica*, *Discus rotundatus* and *Euconulus* sp. The aquatic *Physa fontinalis* and *Pisidium* sp. are very rare. A drier habitat is represented by the very rare specimens of *Vallonia costata* and *Pupilla muscorum*.

The only differences between the two samples is that there are slightly more *Pisidium* valves, less *Valvata cristata* and abundant minute valves of freshwater ostracoda in 5015.

Taken as a whole, the assemblage is dominated by species preferring wetland/marshy habitats. Aquatic and dryland species are equally uncommon with the exception of *V. cristata* which prefers slow-flowing weedy water, is found in ditches and streams but may be found in riverside or wetland places too.

The post-Romano-British alluvium (3004) is dominated by *Trichia hispida* group, common in damp fields etc and also common is the semi-aquatic *Succinea putris*. All other species are uncommon but are dominated by wetland types. A similar assemblage is indicated in the buried soil 3005. No aquatic species were recovered from either sample. *Carychium* is totally absent.

It is evident that although the four samples all represent wetland assemblages, there is a noticeable difference in species composition between samples from 5015, 3007 and 3004, 3005.

Robinson[70] analysed alluvial assemblages in the Upper Thames, not too far from where this work was undertaken, and was able to identify assemblages characteristic of pasture and meadow. A crude comparison with the results found here may suggest that 5015 and 3007 come from a wetter habitat (cf pasture) and 3004, 3005 from a less wet biotope (cf meadow). However, Robinson suggests that a distinction can be made based on the percentage of terrestrial species present. This distinction cannot be made here as both groups of samples contain >5% terrestrial species, placing both in the meadowland category. However, given the close proximity of sampling sites at Bicester, perhaps some overlap is inevitable. Considering the near proximity of Robinson's sites it is interesting to note specific differences in his species lists and those produced here. Finally it is interesting to note that *Vertigo angustior* is very rare today and is usually found only as a subfossil,[71] as is the case here.

Conclusions

A large number of molluscs was recovered, belonging to a number of different species. No statistical analysis was undertaken but a subjective assessment of the assemblages indicated that (a) most species were wetland types and would be expected in alluvial deposits and (b) that there is a difference between assemblages from the upper (3004, 3005) and lower (3007, 3015) alluvium which may be attributable to differing landuses in the sampling sites. Alluvial sites represent a useful source of information on life and death assemblages of mollusca and their value has not been clearly identified. More work should be published so that refinements in the interpretation of such assemblages may

[70] M. Robinson, 'Molluscan Evidence for Pasture and Meadowland on the Floodplain of the Upper Thames Basin', in P. Murphy and C. French, *The Exploitation of Wetlands* (BAR British Series 186, 1988).

[71] Op. cit. note 69, and M.P. Kerney, *Atlas of the Non-Marine Mollusca of the British Isles*, Conchological Society of Great Britain, 1976.

TABLE 8. LIST OF MOLLUSCA IDENTIFIED AT BICESTER

3007
Valvata cristata (Mull.) (C)
Carychium minimum (Mull.) (VC)
Lymnaea truncatula (Mull.) (C)
L. palustris (Mull.) (C)
Physa fontinalis (L.) (VR)
Anisus leucostoma (Millet) (C)
Succinea putris (L.) (VR)
Cochlicopa lubrica (Mull.) (UC)
Vertigo angustior Jeffreys (UC)
V. Antivertigo (Drap.) (UC)
Pupilla muscorum (L.) (VR)
Vallonia costata (Mull.) (VR)
V. pulchella (Mull.) (C)
Acanthinula aculeata (Mull.) (VR)
Clausiliidae indet. (R)
Punctum pygmaeum (Drap.) (R)
Discus rotundatus (Mull.) (UC)
Vitrae cf crystallina (Mull.) (VR)
Oxychilus sp. (C)
Aegopinella nitidula (Drap.) (UC)
Euconulus sp. (R)
Cepaea cf hortensis Mull. (VR)
Trichia hispida group (C)
Pisidium sp. (VR)

5015
As for 3007 but with the following alterations:
Valvata cristata (UC)
The Clausiliid present is *Clausilia bidentata* (Strom.) (R)

3005
Carychium minimum (Mull.) (VR)
Succinea putris (L.) (C)
Vertigo sp. (VR)
Oxychilus sp. (VR)
Trichia hispida group (VC)
Testacella (VR)

3004
Lymnea truncatula (Mull.) (R)
Anisus leucostoma (Millet) (VR)
Succinea putris (L.) (VC)
Cochlicopa sp. (VR)
Columella aspera Walden (VR)
Vertigo antivertigo (Drap.) (R)
Vallonia pulchella (Mull.) (R)
Oxychilus sp. (VR)
Cepaea cf hortensis (Mull.) (VR)
Trichia hispida group (VC)

VR = Very rare; R = Rare; UC = Uncommon; C = Common; VC = Very common

one day be possible. Absolute counting, the ratio of adults to juveniles and basic statistical techniques should be applied.

MOLLUSCA by ELEANOR RAMSEY

In addition to the mollusca analysed above, mollusca were also identified from the samples processed for charred plant remains. These all derived from archaeological features. A full list is contained within the archive. The findings were broadly in agreement with those above, species present being species of damp and marshy environments. Sample 6003 (F600) was indicative of a wetter environment.

POLLEN by ANDREW MOSS

Three pollen samples were collected from waterlogged deposits. Samples were from F430, F510 and (by auger) from deposits underlying the gravels below 3007. The auger sample was assessed. This auger sample derived from a layer underlying the palaeochannel (F308, 3022 Figure 3) about 1.2 m. below the surface, tentatively interpreted as the Oxford Clay (3008). It was a very dark grey (2.5Y 3/0) massive, compact clay, with some pyrite inclusions and some small fragments of wood or root.

The sample was prepared according to standard methods.[72] It contained a small amount of poorly preserved pollen and abundant charcoal. The dominant pollen type was pine, with some trilete spores resembling *Pteridium* (bracken). There was no hazel or alder.

The presence of pine and lack of hazel or alder, suggests this sample derives from the early Post-glacial period. Pine has been found in the Hereford area up to (probably) the Neolithic or later, but this was accompanied with hazel and alder.[73] It was considered that 3008 might represent the underlying geology (the Oxford clay), that had been briefly exposed to surface conditions and mixed with small amounts of wood, charcoal and pollen.

No further work was done on the samples as the pollen preservation was poor, and the dating uncertain.

CHARRED PLANT REMAINS by ELIZABETH PEARSON (Table 9)

Thirty samples were collected from a range of features across the site. Of these, 21 were analysed for charred plant remains, small bones and artefact retrieval. Samples were 10–15 litres in size. They were thoroughly mixed with water, and the floating part containing the charred plant remains was poured through a 300 micron sieve. The mineral non-floating part of the sample was sieved in a 2 mm. sieve, and sorted by eye for small bone and artefact retrieval.

The flots were separated into 2 mm., 1 mm. and 500 um fractions which were scanned using a low-power EMT light microscope. This enabled the abundance of each category of the remains to be estimated. Where flots were large, only a portion of each size fraction was scanned. A representative sample of each taxon was extracted and their abundance in the entire flot estimated. Identifications were made using modern reference specimens housed at the County Archaeological Service. Results of the analysis are summarised below.

Trench A

The one sample taken (2010) was rich in molluscs and organic plant remains, including occasional buttercup (*Ranunculus acris/reprens/bulbosus*) and sedge (*Carex* sp) seeds. The only indication of occupational debris consisted of fragmented large mammal bone and one charred cereal grain.

[72] P.D. Moore, J.A. Webb and M.E. Collinson, *Pollen Analysis* (1991).
[73] A.G. Moss (unpublished report on 'Hereford area').

Trench B

These four samples, like Trench A, were rich in molluscs and organic plant remains, but showed little evidence of occupational debris. Only occasional charred cereal grains (including barley) and associated weed seeds were found.

Trench C

In contrast to the above samples, these eight samples were rich in charred plant remains. Several samples contained abundant small legume seeds (*Vicia/Lathyrus* sp) and grass grains. The latter, which included oat (*Avena* sp), meadow-grass (*Poa* sp), and fescue/rye-grass (*Lolium/Festuca* sp), were presumably weeds associated with the moderate levels of cereal grains recovered. The cereal grains readily recognizable during scanning were barley (*Hordeum vulgare*) and emmer or spelt wheat (*Triticum dicoccum/spelta*). Other weed seeds present in small numbers were cleavers (*Galium aparine*) and sheep's sorrel (*Rumex acetosella*). Only low levels of cereal chaff, consisting of glume bases of spelt wheat (*Triticum spelta*) and unidentified cereal culm nodes, were present.

Organic plant remains preserved by waterlogging, consisting of rootlets and stem fragments, were abundant in all samples. Remains of cultivated fruits indicate disposal of household waste. Grape (*Vitis vinifera*), fig (*Ficus carica*) and cherry (*Prunus avium*) were found in contexts 4022 and 4064. Context 4022 contained, in addition, numerous other waterlogged seeds, predominantly buttercup (*Ranunculus/acris/repens*), which would have grown in grassy or woody places. Elderberry (*Sambucus nigra*) and blackberry (*Rubus fruticosus*) may have been collected for food, considering their presence with other fruit cultivars, but are also common on neglected scrubby ground. Other species are common on disturbed or cultivated ground, such as poppy (*Papaver somniferum*) and thistle (*Carduus/Cirsium* sp).

Trench D

The four samples from this trench contained abundant molluscs and organic plant material but only low levels of charred plant remains. The exception is context 5000, which, in common with samples from Trench C, contained abundant legume seeds and grass grains in association with moderate numbers of cereal grains.

Trench E

Only context 6003 contained significant quantities of charred plant remains. It was the only sample to be dominated by cereal chaff and grains, both barley and emmer/spelt wheat being represented. As the chaff consists of spelt wheat glume bases, it is likely that the wheat grains are mostly of spelt wheat.

Discussion

Occupational debris, represented by charred cereal crop waste and occasional fruit cultivars is concentrated in Trench C, and also in two samples from Trenches D and E respectively. Many samples are dominated by weed legumes and grasses. This may represent the by-product of coarse sieving a cereal crop, which in most cases appears to be predominantly emmer or spelt wheat. This kind of waste is likely to have been preserved by charring as a result of its use as fuel for fires. Many legume and grass species are grown for animal fodder[74] or as rotational crops. However, the possibility that crops grown specifically for these purposes is less likely, as in these circumstances, the whole of the crop is used and there is little chance of waste being exposed to fire.

The predominance of charred cereal remains indicative of coarse-sieving waste, and only an isolated concentration of chaff remains of emmer/spelt wheat, may reflect waste disposal patterns. On a Romano-British settlement where many of the cereal remains are emmer/spelt wheat (a glume wheat), chaff remains are commonly abundant and widespread. This is a result of the production of large quantities of chaff waste in the form of glume bases during 'fine-sieving' in the later stages of processing. As the charred remains are concentrated mostly in Trench C (the area

[74] A.R. Clapham, T.G. Tutin and D.M. Moore, *Flora of the British Isles* (3rd edition, 1987).

TABLE 9. THE PLANT REMAINS FROM SELECTED SAMPLES

Botanical name	*Common name*	*Habitat*	*4001*	*4015*	*4017*	*4022*	*4053*	*4064*	*4076*	*5000*	*6003*
CHARRED PLANT REMAINS											
Triticum dicoccum/spelta grain	emmer/spelt wheat	F	++	+			++	+	++		+++
Triticum spelta glume base	spelt wheat	F	+	+	++		+	+			+++
Triticum sp. grain	wheat	F	+	+	++		++		+		
Hordeum vulgare grain	barley	F			+			+			+++
rachis	barley rachis							+			+++
Cereal sp. indet. grain	cereal	F	++	+++			+++	+	++	++	++
culm node	cereal culm node			+							
Vicia/Lathyrus sp.	tare/vetch	ABD	++++	+++	++		+++	+++	+++	+++	
Rumex acetosella agg	sheep's sorrel	AB	+		+						+/++
Graminae sp. indet. grain	grasses	AF	+++	+	++		+++	+++	++	+++	+++
Galium aparine	cleavers	ABCD	+		+						
Anthemis cotula	stinking mayweed	AB									+/++
Tripleurospermum sp	mayweed										
Carex sp	sedge	ACDE							+		
unidentified									+		
WATERLOGGED PLANT REMAINS											
Ranunculus acris/repens/bulbosus	buttercup	ABCD			+	++					
Papaver somniferum	opium poppy	AB				+					
Vitis vinifera	grape vine	F				+		+			
Rabus fruticosus agg	bramble etc.	CD				+					
Prunus avium	cherry	CF			+						
Rumex sp	sorrel/dock	ABCDE									
Urtica dioica	common nettle	CDE									
Ficus carica	fig	F				+					
Sambucus nigra	elderberry	BD					+				
Carduus/Cirsium sp	thistle	ABCD				+					
Carex spp.	sedge	D				+					
Graminae sp indet	grasses	ABCD				+					
unidentified						++					

Habitat key
A = cultivated ground
B = disturbed ground
C = woodlands, hedgerows and scrub etc.
D = grasslands, meadows, and heathland
E = aquatic/wet habitats: ditches, streambanks etc.
F = cultivar

Abundance key
+ = 1–10
++ = 1–50
+++ = 1–100
++++ = 100+

of the Phase 1 and 2 structures) it may be that much coarse-sieving waste was disposed of in this location and fine-sieving waste elsewhere on the site, for example, slightly to the east in the area of Trench E.

There is some evidence that the settlement may have been a cereal producer, rather than merely a consumer. Remains such as the possible coarse-sieving waste and occasional straw nodes found on this site are commonly by-products of earlier processing stages normally carried out at the site of production. These remains would be uncommon on consumer sites particularly in the case of free-threshing cereals such as barley, where the crop would be exported as virtually clean grain, most of the processing having been carried out on the producer site. However, glume wheat crops which would normally have been exported in the form of spikelets would require further processing on the consumer site. Some coarse-sieving would be necessary, but the majority of the waste would result from later stages such as fine-sieving.[75]

The presence of sheep's sorrel in several samples suggests cultivation on light, sandy soils. This may indicate cultivation on local sandy floodplain deposits illustrated by the soil analysis (see above).

Evidence of fruit cultivars was also found. Grape and fig are most likely to have been imported. Although figs can be grown in Britain in sheltered conditions and produce fruit, they tend to have vestigial seeds. The fig tree is documented in the 16th century as a well known cultivar, but there is no evidence that it was planted in Britain during the Roman occupation.[76] Cherry may have grown in scrub and hedgerows but may also have been cultivated.

CONCLUSIONS by REBECCA ROSEFF

Analysis of the sedimentary sequence at Bicester suggests that for much of prehistory the floodplain was a marshy area crossed by many small streams, interlaced with small drier islands. It is suggested that this is basically how it appeared during the period of late Iron Age and early Romano-British occupation, though in the south of the site, this coincided with a period without flooding. Some change in the vegetation from the earlier period, perhaps towards pasture rather than marsh, is suggested from molluscan species. At this time the watertable would have been high, but the coarse texture of the soil and its calcareous and highly organic nature meant that it would have been well drained and fertile. Sometime after the Phase 2 occupation, after the deposition of a sandy alluvium layer (3004), a change in flooding patterns and river form (from braided to meandering type), occurred. It is suggested that this took place in the early medieval period, and may have been in part a response to intensified land clearance or change in farming practice upstream. Subsequent to the change and deposition of the topsoil (3003) there was a rise in the water table.

DISCUSSION AND INTERPRETATION OF THE OXFORD ROAD SITE

It is not possible to give any absolute dates for occupation of the site at Oxford Road. Study of the flint assemblage indicates that this area did witness some form of activity, albeit limited and doubtless transitory, in the Neolithic and Bronze Ages. Stratigraphic evidence suggested that subsequent, more prolonged and cohesive activity, recorded on site as a complex of ditches, gullies and fragmentary structural features, could be divided into two distinct phases. Dating of these two phases rests solely with analysis of the ceramic assemblage and Booth has put forward a date range of *c.* AD 20/30–60/70 for Phase 1 and *c.* AD 60/70–100/120 for Phase 2, which in historical terms corresponds with the final Iron Age and early Romano-British period.

Prior to human occupation the site, which lay within a floodplain, would have resembled a marshy area, crossed by several small streams, containing only islands of dry land (Roseff above). Molluscan analysis suggests that the site underwent a change from marsh towards pasture (Moss above), and soil analysis indicates that although the watertable remained high,

[75] G.C. Hillman, 'Reconstructing Crop Processing from Charred Remains of Crops', in R. Mercer (ed.), *Farming Practice in British Prehistory* (1981).

[76] F.A. Roach, *Cultivated Fruits of Britain: their origin and history* (1985).

the site was then well-drained and fertile (Roseff above). These increasingly favourable conditions coincided with a floodless period, at least in the southern half of the site, when a surface soil was able to form. It is without doubt that initial occupation of the site coincided with this relatively 'dry' period.

Initially in Phase 1, a significant degree of energy was expended in the reclamation of this marginal piece of land and in the creation of an extensive network of ditches and gullies. These are likely to have acted as enclosure boundaries, but will also have served as essential drainage channels in an area which had only recently evolved from marsh to pasture. The network appeared more concentrated south of the palaeochannel (F303/F430) in Trenches B, C, D and 12, an area which was also the focus for structural activity. Two hut-circles, located immediately to the south of the large palaeochannel, are thought to have been used for domestic habitation. The recovery of a sooted vessel from the foundation trenches of one (F404) suggested the preparation of food on-site, although not necessarily within these two structures. A third, more substantial, rectangular structure, represented by a raised stony floor surface bounded to the north and south by wall foundation trenches, was recorded at the extreme south of Trench C. Although built on the site of an infilled palaeochannel, this area had become one of the driest within the Phase 1 occupation site.

The eastern side of the site suffered an episode of flooding in Phase 1 which coincided with an accelerated silting up of ditches and gullies elsewhere, a problem which appears to become more widespread during Phase 2 occupation. By this time the cutting of ditches had become more selective and the network now incorporated a natural stream which ran northwest-southeast across Trenches B and C. Whilst the Phase 1 circular structures at the centre of Trench C, and in Trench 12, continued to be used in Phase 2, the Phase 1 rectangular structure at the southern end of Trench C was superceded by two Phase 2 structures, one rectangular and one circular. Thus, although the focus of domestic structural activity did not shift from Phase 1 to Phase 2, ceramic evidence and occupation spreads were distributed more widely.

On-site occupation was never more than small-scale, although it was apparently continuous rather than seasonal. Activity was two-fold, one element being cereal production. That the site was not merely a cereal consumer is evidenced by the quantities of coarse sieving waste recorded in Trench C close to the domestic structures and by the fine sieving waste recovered from Trench E. A second element was the raising of sheep and, to a lesser degree, cattle. This was no specialised herd, but a study of the sheep age profile does suggest that the animals were being selected for milk and wool production as well as meat consumption (Pinter Bellows above).

The presence of portable commodities such as wool, milk and cereal may indicate trading potential, but the evidence favours relatively localised activity and very limited trade connections. There are no regionally traded wares within the ceramic assemblage; the majority are from within the Oxfordshire industry, some perhaps originating in the Abingdon–Dorchester area, and all are unromanised in character. The only imports are samian from south Gaul and one possibly re-used sherd of south Spanish amphora. The presence of decorative metalwork is unusual within such an assemblage, but this is, above all, a low-status rural site, and one which is typical of the Upper Thames region in the late Iron Age and early Romano-British period (Booth above).

It is not only the character of the assemblage which is typical of a low-status rural site, it is also the period of occupation (late Iron Age to the first half of the 2nd century AD) and the type of site chosen. A population explosion initiated in the late prehistoric period placed intense pressure on existing land resources and demanded an intensification of agriculture to

sustain it. Lambrick[77] states that a fully utilised landscape had been created by the middle Iron Age with marginal land already becoming fully integrated within the landscape. Farming was becoming increasingly specialised and Lambrick argues that an increase in arable production placed pressure on grazing resources. This surely is the principal factor which lay behind the utilisation of a previously marginal piece of land for settlement as here, within the valley of the Langford Brook at Bicester.

Increasing agricultural intensification, the utilisation of marginal land in the Iron Age and subsequent abandonment in the early Romano-British period has been recorded elsewhere within the Thames Valley region. At Farmoor, a site located within a floodplain and on the first Thames gravel terrace, and at Claydon Pike in Gloucestershire, middle Iron Age ditches were cut to control flooding and to enclose paddocks of wet grassland. Round houses, similar in construction to those at Oxford Road, Bicester, were recorded at both sites. Barton Court Farm, Abingdon, first occupied in the Iron Age, was subject to increased flooding, to the extent that by the Romano-British period the community was forced to relocate to a drier site. Here, the settlement continued to thrive, evolving into a villa site.[78] If the parallels between this site and that at Oxford Road are extended in time, it may be the case that a villa site, on drier ground, may lie within the vicinity of Oxford Road.

The longterm consequences of Iron Age intensification of landuse and increased land clearance may also explain the abandonment of the Oxford Road site in the early Romano-British period. The environmental sequence, as mapped by Robinson and Lambrick,[79] indicates a rise in the water table in the Iron Age with increased flooding. This was followed by a 'very significant increase in alluvial deposition in the Roman period'. Lambrick[80] attributes the increase to the later 1st century BC or the early 1st century AD – a date range which would fit the Oxford Road model, where Phase 2 occupational evidence was sealed by 0.40 m. of alluvium after AD 100/120. It is within this context of changing settlement patterns, increased pressure on land, and utilisation of previously marginal land that the occupation and the abandonment of Oxford Road should be considered.

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[77] G.H. Lambrick (1992) op. cit. note 40.

[78] D. Miles (ed.), *Archaeology at Barton Court Farm* (Council Brit. Archaeol. Res. Rep. 1, 1986).

[79] M.A. Robinson and G.H. Lambrick, 'Holocene Alluviation and Hydrology in the Upper Thames Basin', *Nature*, 308 (1984), 809–14, and G.H. Lambrick (1992) op. cit. note 40.

[80] G.H. Lambrick (1992) op. cit. note 40.

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