

# Excavations at Oxford Science Park, Littlemore, Oxford

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## SUMMARY

*Archaeological investigations undertaken for a large extension to the Oxford Science Park produced evidence for the local environment from the post-glacial period through to the prehistoric. Evidence for Mesolithic activity on the site was obtained from lithics in later features. Similarly Neolithic, early Bronze Age, and mid-late Bronze Age activity is represented by residual sherds and flints. A pit containing Beaker pottery was located along with three pits of the Iron Age including one of the later middle Iron Age. Sherds of early Iron Age pottery were also present. Roman pottery was present on the site both in the form of a general scatter thought to represent manuring of fields and by deliberate selection and importation onto the site by Anglo-Saxons. A settlement of the Anglo-Saxon period was represented by the presence of sunken featured buildings while a medieval ?farmstead had been destroyed by 19th-century quarrying for limestone.*

John Moore Heritage Services, on behalf of the AOC Archaeology Group, carried out archaeological investigations for Magdalen Developments in advance of further development of the Science Park. A three-staged evaluation of the proposed site was undertaken in 1999<sup>1</sup> prior to planning consent being granted. The evaluation consisted of a geophysical survey, with limited trenching of apparent archaeological anomalies. None of these anomalies were found to be of archaeological significance, being mainly geological in nature, and therefore the trenching was extended to give a wider coverage. The result was that two foci of archaeology were identified with other more widely dispersed sporadic activity suspected.<sup>2</sup> As a result a condition was attached to the planning consent for a controlled excavation of the two foci and for a watching brief during earthmoving activities over the rest of the development site.

This report is an edited version of the full report that can be found in the Oxfordshire County Sites and Monuments Record. It is also within the archive that has been deposited at the Oxfordshire Museums Store. The emphasis is on the prehistoric lithics and pottery, and the Anglo-Saxon structures and finds. Of particular interest is the report on the Anglo-Saxon animal bone.

<sup>1</sup> 'A Report for AOC Archaeology Group on a Geophysical Survey carried out at Oxford Science Park, Littlemore, Oxford' (Stratascan unpubl. report, March 1999).

<sup>2</sup> 'Phases 2 and 3 of An Archaeological Evaluation at the Oxford Science Park, Littlemore, Oxford: Proposed Development Phases 2 and 2a' (AOC Archaeol. Group unpubl. report, June 1999).

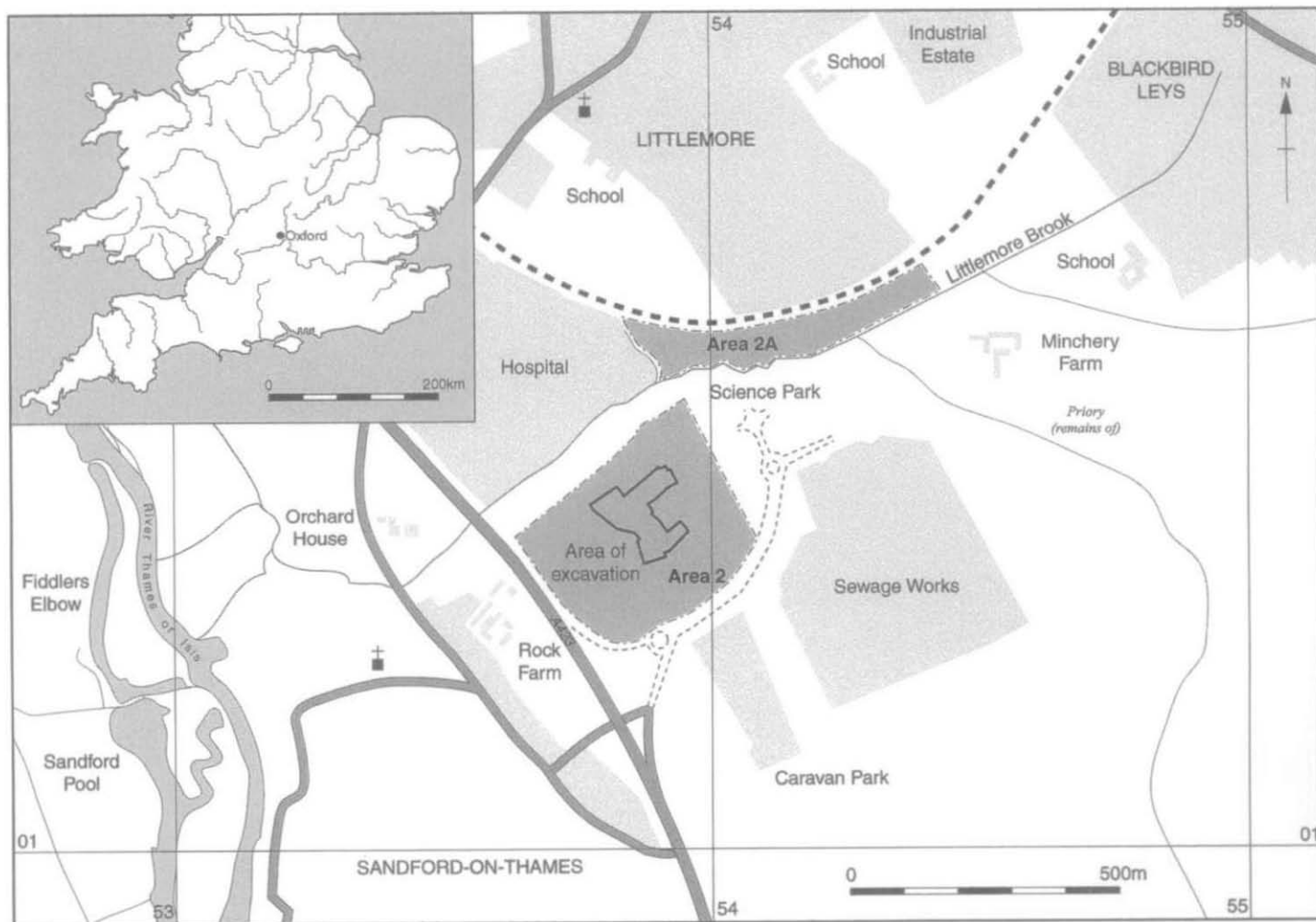


Fig. 1. Site location.

## LOCATION, TOPOLOGY AND GEOLOGY

The site is located on the S. side of the old Oxford to Thame railway line, and is comprised of two distinct areas – Phases 2 and 2a (Fig. 1). The area of Phase 2 (SP 5390 0210 centred) is bounded by the Littlemore Brook to the N., the A4074 to the SW., Grenoble Road to the S. and the previously developed Science Park to the E.

Phase 2a (SP 5415 0240 centred) is a narrow strip of land comprising a section of the N. bank of Littlemore Brook up to the railway, with the grounds of the former Littlemore Hospital to the W., and a track between Minchery Farm and Littlemore to the E.

The total area was c. 20 acres (8 ha.). The site lies on Corallian Formation Beckley Sand Member<sup>3</sup> that S. of Littlemore Brook was a sandy clay or sand capped in the S. half of the site by a thin layer of limestone. The limestone is situated on the crest of land lying to the S. of the valley slope. Traces of alluvium were present along the S. edge of the Brook. This area has been substantially landscaped in the past, involving straightening of the channel and possible removal of alluvium prior to 1876 (compare meandering nature further E. and subsequent straightening),<sup>4</sup> but including dumping of material on the edge of the floodplain. On the lower slope of the valley side was an area of perched alluvium including substantial deposits of peat indicating the clearance of the water course in antiquity enabling a faster flow of water and subsequent cutting down of the valley bottom.<sup>5</sup> North of Littlemore Brook in the Phase 2a development area were deposits of alluvium of varying depth except for the NE. 100 m. which formed the valley slope. The alluvium contained deposits of peat. At c. SP 5415 0248 was evidence for the confluence with a small tributary flowing southwards from Littlemore.

The Phase 2 area was covered by a modern ploughsoil 250–350 mm. thick; the land had been in set-aside for the previous 2–3 years. Below this material was an earlier ploughsoil of probable medieval date that was up to 400 mm. thick over the area of natural sand. Over the limestone areas this ploughsoil was thin on the margins and elsewhere absent. This early ploughsoil was only distinguishable from the underlying natural sand by being slightly darker in colour. The top of the natural sand had suffered from bioturbation as evidenced by lack of clarity of the top of features if under-machined, and the presence of sherds and other finds within the top of the sand.

## ARCHAEOLOGICAL BACKGROUND by IMOGEN GRUNDON

The area around Minchery Farm has been subject to a number of archaeological evaluations and watching briefs since four Roman pottery kilns were found at Sandford Sewage Farm (NGR SP 5499 0227) and excavated in 1879, along with the discovery that about an acre slightly further E. was covered with pottery debris (SP 5540 0228). The pottery manufactured at these kilns was of a wide range suggesting that the kilns here were in use throughout the Roman period. Further Roman discoveries followed: a Roman egg-shaped urn found at Minchery Farm in 1920 (SP 5485 0229) and a succession of discoveries of pottery, kilns and coins within 1 km. of the site forming the subject of this report.

The construction of an extension to Littlemore Hospital in 1954 led to the discovery of another kiln with its stokehole and related pottery scatter (SP 533 024-centred). The pottery included the necks of screw-neck flagons of the 1st to 2nd century AD and fragments of mortaria.

<sup>3</sup> Geological ref.

<sup>4</sup> 1st edition OS map and subsequent edn.

<sup>5</sup> Information from Dr. Mark Robinson.

During the construction of the Blackbird Leys Peripheral Road, now known as Grenoble Road, to the E. of the Oxford Science Park, limited further evidence of Roman activity was found. This took the form of a possible Roman ploughsoil or dump and ditches with late Roman fills.<sup>6</sup> However, there was considerable evidence of Iron Age and some Bronze Age activity. Following excavation, an Iron Age settlement was located, comprising a double ring-ditch feature with a large outer ditch and a less substantial later inner ditch (SP 555 020). Other features associated with this were ditches, pits, postholes and gullies. The whole site had been in use from the Early Bronze Age until the Middle Iron Age.<sup>7</sup> A watching brief carried out during the construction of the Phase 1 buildings of the Oxford Science Park revealed a single small abraded sherd of what appeared to be late Iron Age pottery.<sup>8</sup>

Between 1134 and 1154, Littlemore Priory was founded as a house of Benedictine nuns. The site of this priory, Minchery Farm (SP 5455 0215), lies immediately to the W. of the Oxford Science Park. Few archaeological features have been uncovered relating to the nunnery, with the exception of a fishpond during the construction of Grenoble Road.<sup>9</sup>

There are no surviving tithe or enclosure maps of the parish of West Sandford (within which the site falls), the earliest map to show the area in any detail being Richard Davis's map of the County of Oxford of 1793-4. This shows the banks of Littlemore Brook as fields with no settlement between 'Mincherry' farm and the village of Sandford. The picture had changed little by the time of the Ordnance Surveyors' drawings preparatory to their earliest maps, surveyed in 1811.

The 1st-edition OS map of 1876 showed the advent of the Great Western Railway's Oxford, Thame and Aylesbury line, which line still forms the N. boundary of the area of Phase 2a. A quarry is marked at the SE. edge of the area of Phase 2, for limestone as established during the excavation (see below). These quarries had gone out of use by 1899 and much of the surrounding land had been acquired by the Oxford Corporation for the construction of a sewage farm. Littlemore Brook, which in 1876 was still a small meandering stream, had been straightened by 1899 into a linear channel along the S. edge of the E. half of the Phase 2a area, perhaps for better drainage control. The original curved line of the brook was preserved as the former Borough and County boundary, which had once been delineated down the brook's centre line. However, by 1913 the sewage farm had not been built and the land was once again being quarried (for sand) by Messrs Benfield and Loxley for their brickworks S. of the site of Phase 2. The sand was conveyed by rail from a pit on the E. side of the Phase 2 site sited towards the N. end.

## THE SITE

Two linked areas totalling c. 11,625 sq. m. were stripped using up to three 360° excavators equipped with large toothless buckets within the Phase 2 area (Fig. 2). The excavation was carried out in September and October 1999. The majority of the rest of Phase 2 was the subject of earthworks with the archaeological horizon being exposed except for a narrow strip immediately N. of the excavation area and an area to the SE. of the excavation area adjacent to Grenoble Road. The earthworks were undertaken in several phases from

<sup>6</sup> 'Peripheral Road and Housing Area C2, Blackbird Leys, Oxford: Archaeological Evaluation Report' and 'Blackbird Leys Peripheral Road, Oxford: Archaeological Watching Brief' (Oxf. Archaeol. Unit unpubl. reports, 1995).

<sup>7</sup> 'Peripheral Road and Housing Area C2, Blackbird Leys, Oxford: Archaeological Excavations 1995-6: Post-excavation assessment and publication synopsis' (Oxf. Archaeol. Unit unpubl. report, 1996).

<sup>8</sup> 'Archaeological Watching Brief. Plot 6, Oxford Science Park, Oxfordshire' (Tempus Reparatum unpubl. report TR 31152DFC, November 1996).

<sup>9</sup> OAU, op. cit. note 6.

September to October 1999, and February to June 2000. An archaeologist observed most of the work, which was halted or diverted in order to record recognised remains. The watching brief in the Phase 2a area was undertaken during February to June 2000 by one to four archaeologists depending on the number of excavating machines operating at any time.

### Post glacial

Underlying the peat deposits in Phase 2a area a tree throw pit (context 803, Fig. 2) was sampled. A thoracic vertebra belonging to an immature large bovid (*cf. aurochs*) was dated to  $9945 \pm 50$  BP and  $9896 \pm 50$  BP. The pollen of a sample of peat from this feature is indicative of open conditions dominated by herbs indicative of a cold climate. The flora is dominated with grass and sedge pollen accounting for 60% of the total pollen. Trees and shrubs accounted for *c.* 14% with birch, pine and willow being significant.

### Earlier prehistoric

During the watching brief on an area N. of the excavation area within the Phase 2 area was a dense collection of stakeholes (603, Fig. 3). These totalled 170 over an area of *c.* 9 m. x 7 m. and continued to the E. into an area that was unexamined due to lack of development impact. All were filled with uniform grey/brown silty sand without inclusions. Only ten were excavated and these revealed depths varying from 40 to 200 mm. and diameters of 50 to 90 mm. No patterning was overtly visible. Three flint flakes were recovered from these features that are considered to be of prehistoric date.

An assemblage of flint was recovered from later features. The general character of the struck flint would suggest a mixed assemblage, containing a quantity of late Mesolithic flints alongside Neolithic and Bronze Age material. The flints were recovered right across the Phase 2 area indicating a general use of the southern valley edge of the Littlemore Brook and the crest of land above it.

The pottery recovered from features confirms the conclusions drawn from the flint. The six Neolithic sherds were found within five later features, as was an early Bronze Age sherd and the three mid-late Bronze Age sherds.

### Beaker period

A sub-circular pit (630) was found during the watching brief to the W. of the excavation area within the Phase 2 area (Fig. 3). The pit with dimensions of 1.40 m. x 1.72 m. was 260 mm. deep. The W. side was at an angle of 45° with the E. side at 70° for the upper 10 cm. and at 17° for the lower part. The base was slightly concave. The primary fill was a clayey sand (636) containing *c.* 1% charcoal flecks and *c.* 5% small stone (636). Above this was a layer of scorched fine sand and charcoal (635) thought by the excavator to be *in situ* burning (but see below). The final fill (631) was similar to the primary fill.

A relatively large amount of pottery was recovered from this pit. Sherds from at least seven Beakers were present and included both fine and coarse vessels (see pottery report below). A quantity of bone was present that included sheep/goat. The presence of sherds from the same vessel within more than one layer of the fill, including sherds from vessel 7 within both the primary and tertiary fills seems to indicate that the pit was infilled deliberately within a short time span (Table 1).

### Iron Age (Fig. 3)

Three pits are assigned to this period on the basis of pottery recovered from them. These lie towards the W. part of the N. half of the Phase 2 excavation area and, probably coincidentally, lie in a line. The northern pit (117, fill 118) was oval in plan – 1.06 m. x 1.00 m. – and up to 300 mm. deep with the base sloping down from SSE. to NNW. and sides of 65–80°. Pit 106 was roughly circular with a diameter of 1.80 m., sides at 45° and a slightly concave base with a depth of 600 mm. The southern pit (108, fill 107) was an irregular circular shape with a very irregular profile being deeper in the northern half. One other pit (208) had only Iron Age pottery within, but see below under Saxon pits.

A beaver dam of this period or slightly earlier was found in the Phase 2a area (see below under 'Alluvial deposits' and Fig. 2).

### Roman

A quantity of Roman pottery was recovered from the evaluation and subsequent excavation and watching brief. The material was recovered from ploughsoils and Anglo-Saxon features, particularly sunken featured buildings (SFBs). The main interest lies largely in the contrast between the component of the assemblage that occurred in the SFBs and the rest of the material (see Roman pottery report below).

Pottery of this period was recovered across the site both within Phase 2 and Phase 2a areas. Within Phase 2a area sherds were recovered during the evaluation from the higher ground above the valley in the NE. part of the site and within the peat deposits on the valley bottom. That from the peat comprised two sherds from a former stream course.

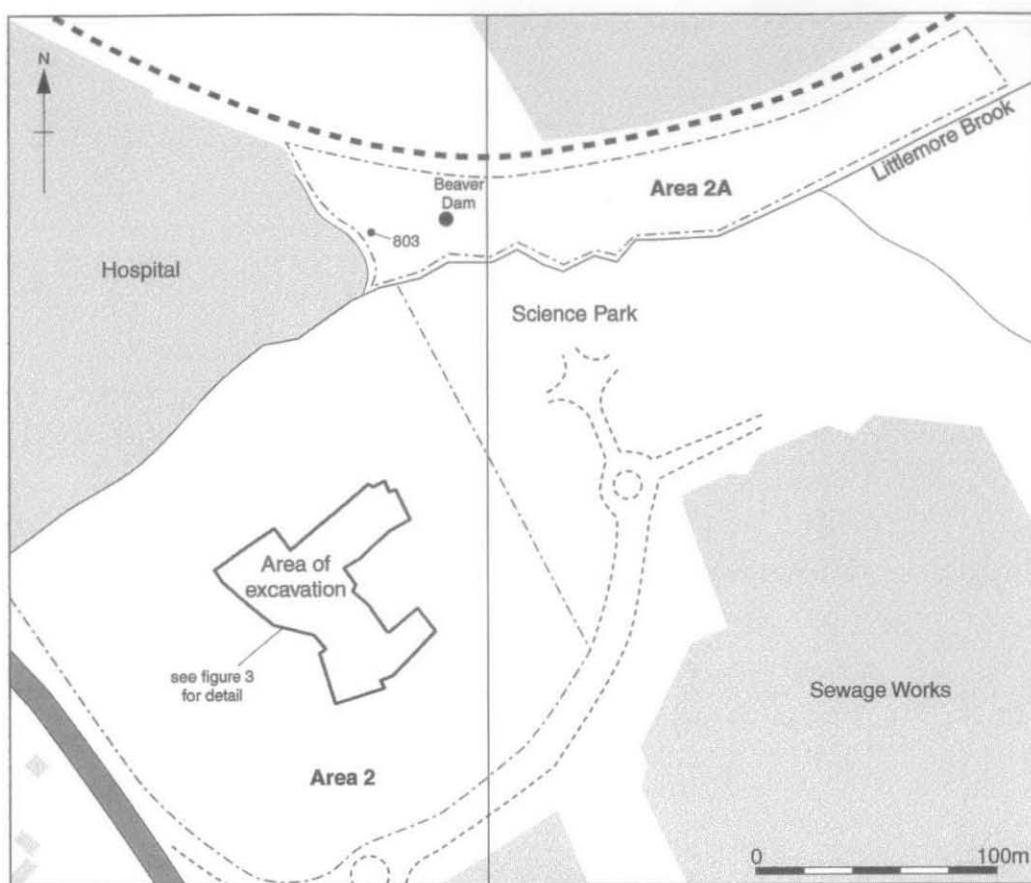


Fig. 2. Investigation areas.

Roman pottery was scattered across the whole of the Phase 2 area being recovered from the ploughsoils over both the linked excavation areas and to the N. and W. of the excavation areas through to the W. edge of the site. No features of the Roman period were identified.

#### *Saxon (Fig. 3)*

##### Sunken featured buildings

Ten sunken featured buildings (SFBs) were excavated (SFB 1-10, numbered S.1 – S.10 on Fig. 3) and a further probable (SFB 11) and a possible one (SFB 12) were identified. Five were within the excavation area, and a further two just to the W. were found under controlled stripping during the watching brief. SFB 5 was seen during excavation for a lake and was hurriedly recorded while the extreme corner of SFB 6 (623) was seen in section after removal of backfill over a pipeline. The lower part of the SW. of SFB 7 (625) was discovered after some excavation work by the contractors. Following removal of a spoil heap the rest was examined in satisfactory circumstances. SFB 10 was only interpreted as such a structure during post-excavation work from the finds recovered and its position in relation to other SFBs. It was not completely excavated.

The structures were found on the north-facing slope of the valley of the Littlemore Brook just below the crest. The crest and land beyond is capped with limestone. The discovered SFBs stretch over a known distance of 265 m. and easily could extend further in both distances. The width of the slope covered by the buildings is c. 40 m, which increases to 80–110 m. if the probable SFBs 11 and 12 are included. While the dating indicates a single phase, two groups are hinted at by the orientation of the longer axis. The eastern five are on an E.-W. or NE.-SW. orientation while the western four are sited NW.-SE. SFB 10 is not attributable.

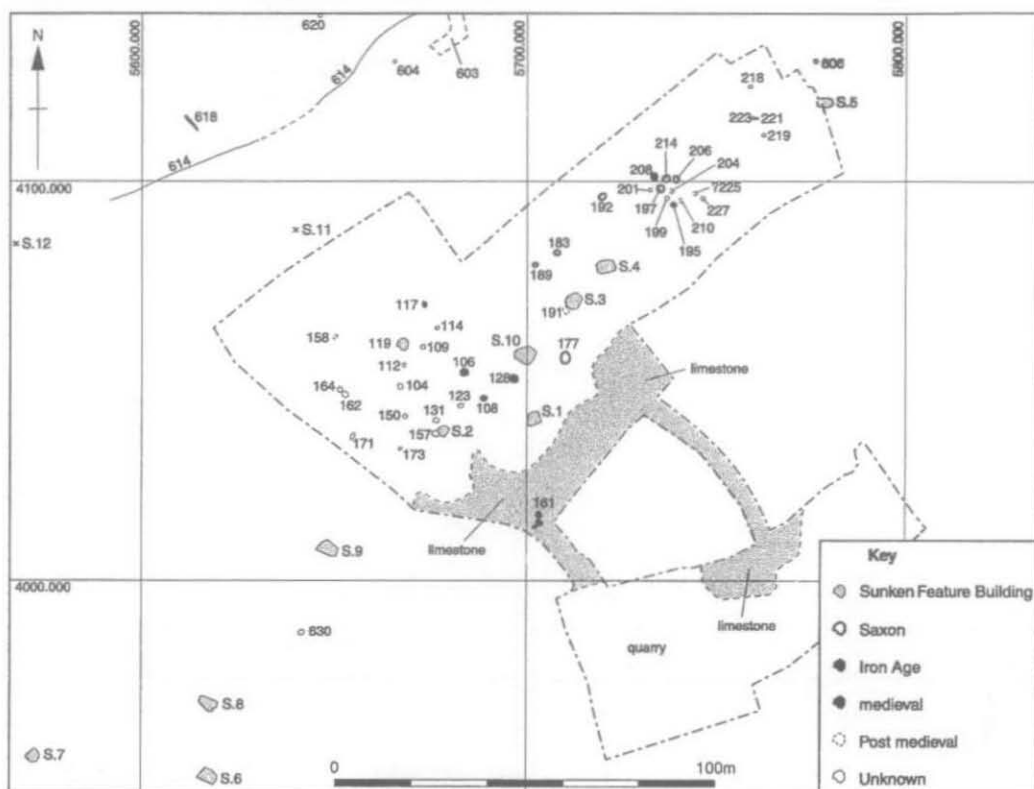


Fig. 3. Phase 2 area.

In several cases the original dimensions of the structures are unknown when only less than the bottom 300 mm. of the feature is present. This is due to the nature of the soft sand that they were cut into, which has caused erosion of the sides and therefore an ill-defined edge to the feature. The largest two were SFB 4 (4.9 m. x 3.1 m.) and SFB 9 (4.8 m. x 3.3 m.); the deepest were SFB 7 at 750 mm. and SFB 3 at 720 mm. Discounting those of less than 300 mm. depth, the smallest were SFB 2 (2.97 m. x 2.72 m.) and SFB 7 (2.90 m. x 2.80 m.). These dimensions are within the size range and towards the lower end of those at Barrow Hills, Radley where lengths are 3 – 6.5 m. and widths 2.1 to 4.45 m.<sup>10</sup> There does not appear to be any difference in size range between the two different orientation groups.

Four of the SFBs (1,2,5,8) were a 2-post type, with SFB 6 probably of this type, exhibiting a posthole in or near the centre of each short end. SFB 3 had one possible posthole. Three (4, 7, 9) did not show any evidence for postholes while SFB 10 was not completely excavated. SFB 8 in addition to a posthole at each of the short ends had a further posthole near the N. corner. Stakeholes were found in the base and sides of five of the SFBs with 146 counted in SFB 1. There was a variation in posthole depth even within posthole pairs probably reflecting use of uneven lengths of timber uprights. The shallowness of several suggests that a rigid structure was achieved without the necessity of deeply set gable posts.

In addition to the numerous stakeholes in SFB 1, the structure had two other features. Just W. of centre along the long axis was a hearth (130). This was ovoid, 0.70 x 0.42 m. and 0.15 m. deep. A small rectilinear pit (166) 0.32 m. wide with steep sides and a flat base with three shallow stakeholes or indentations in the base in a triangular formation existed in the SE. quadrant. The numerous stakeholes within this SFB could be explained by the need to re-site a piece of equipment that needed stability and which soon lost that stability due to the loose nature of the sand that it was embedded in.

<sup>10</sup> R.A. Chambers and E. McAdam, *Excavations at Barrow Hills, Radley, Oxon, 1983-5. Vol. 2: The Romano-British Cemetery and Anglo-Saxon Settlement* (OAU, Thames Valley Landscapes monograph, forthcoming).



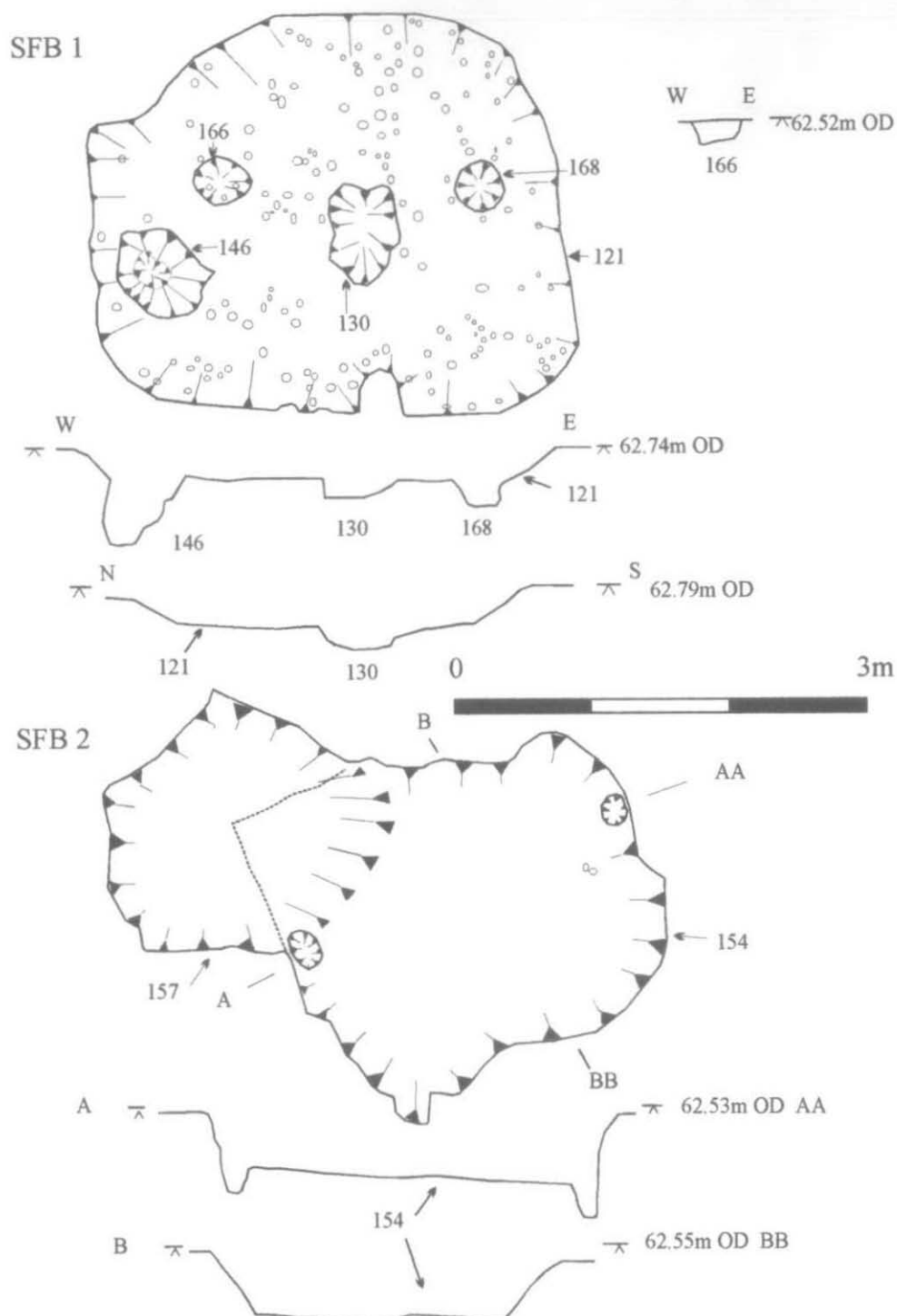


Fig. 4. SFBs 1 and 2.



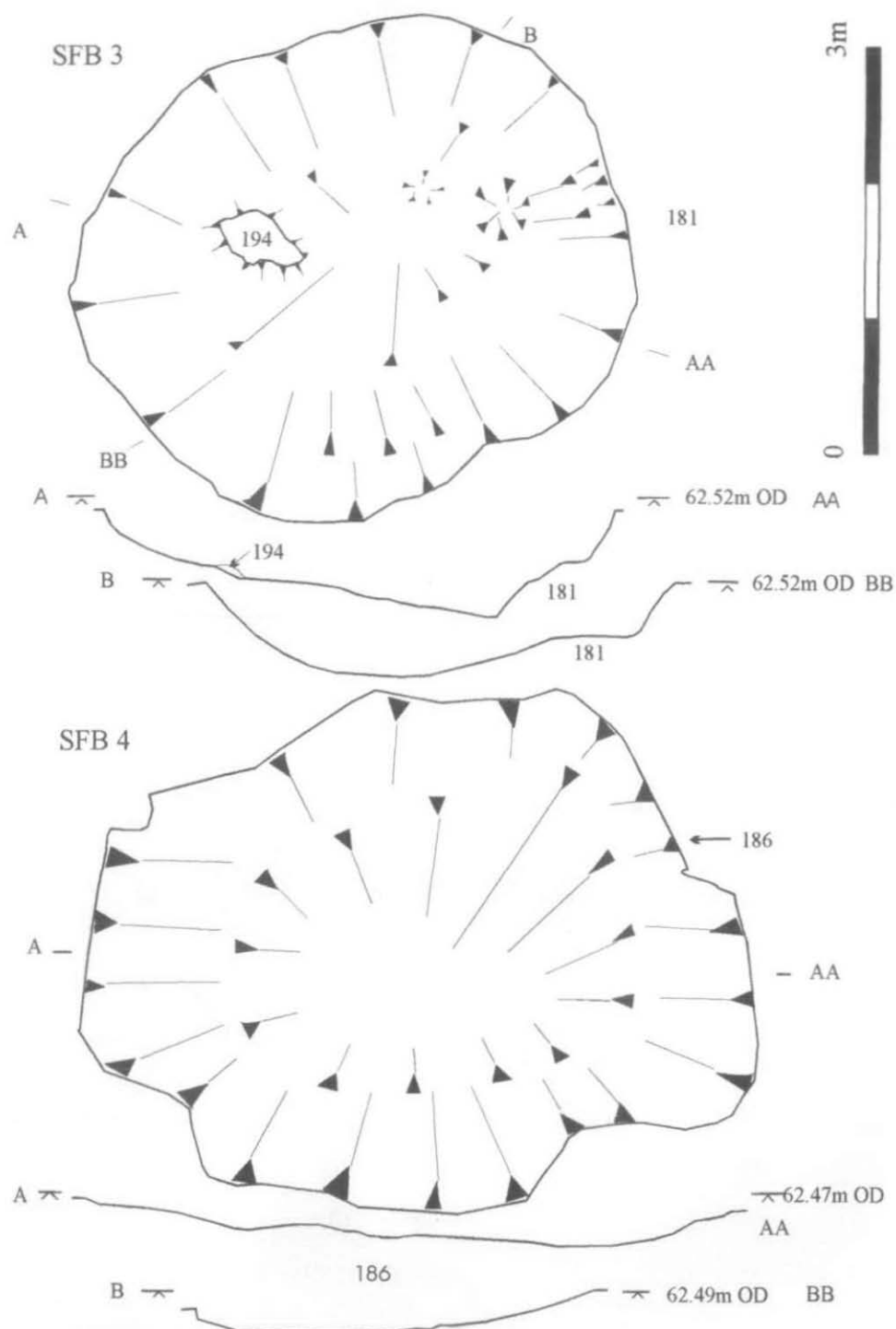


Fig. 5. SFBs 3 and 4.

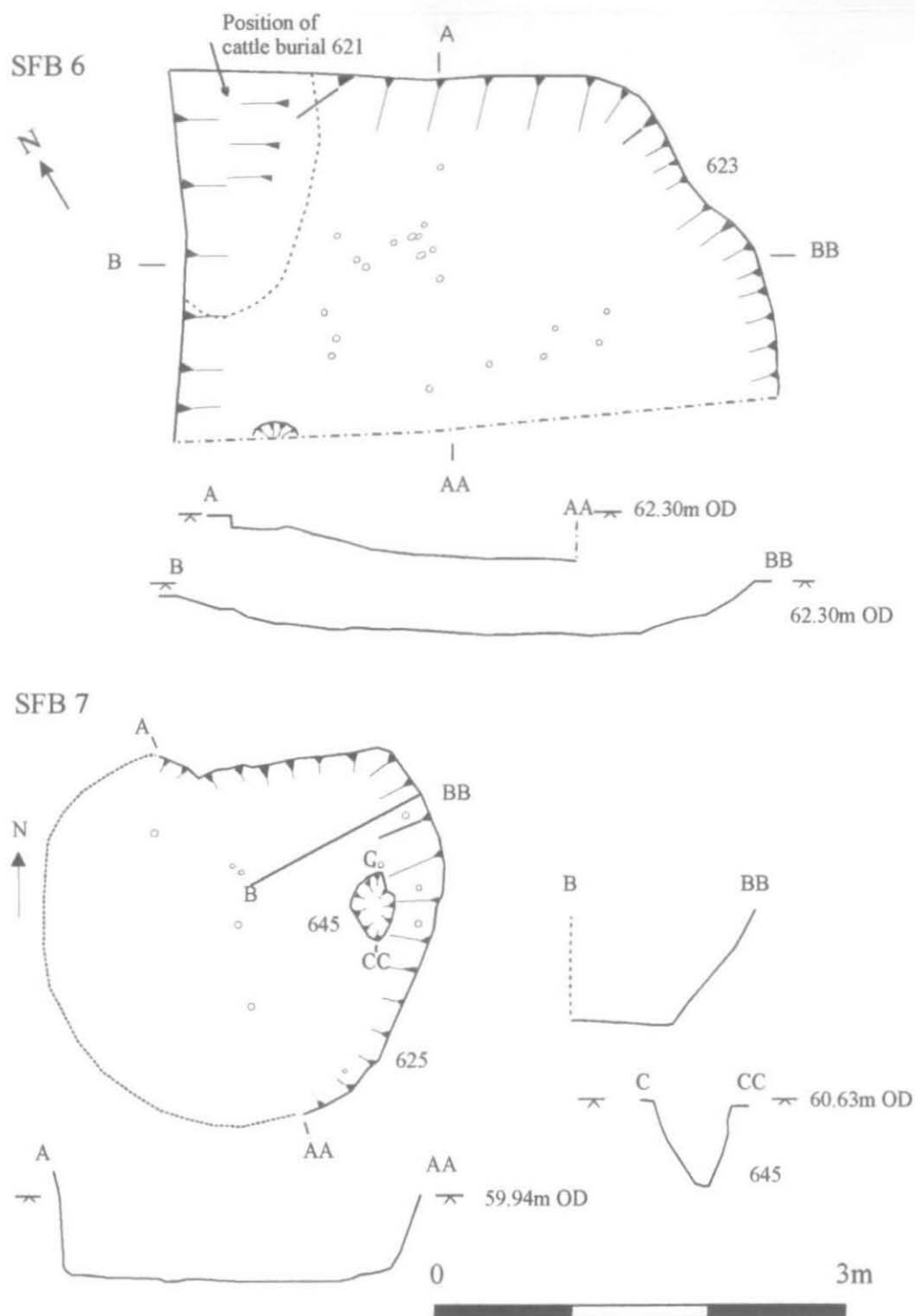


Fig. 6. SFBs 6 and 7.

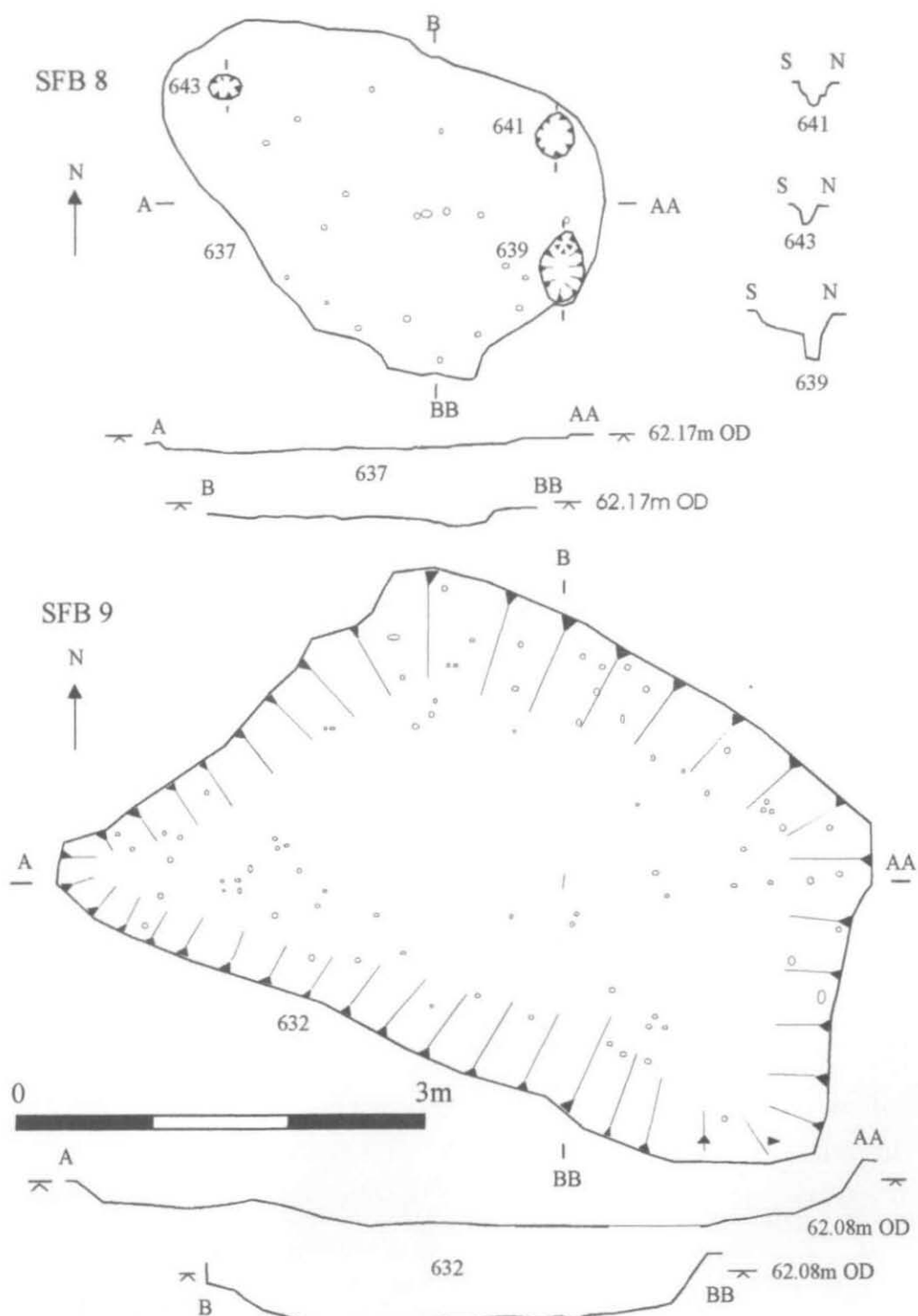


Fig. 7. SFBs 8 and 9.

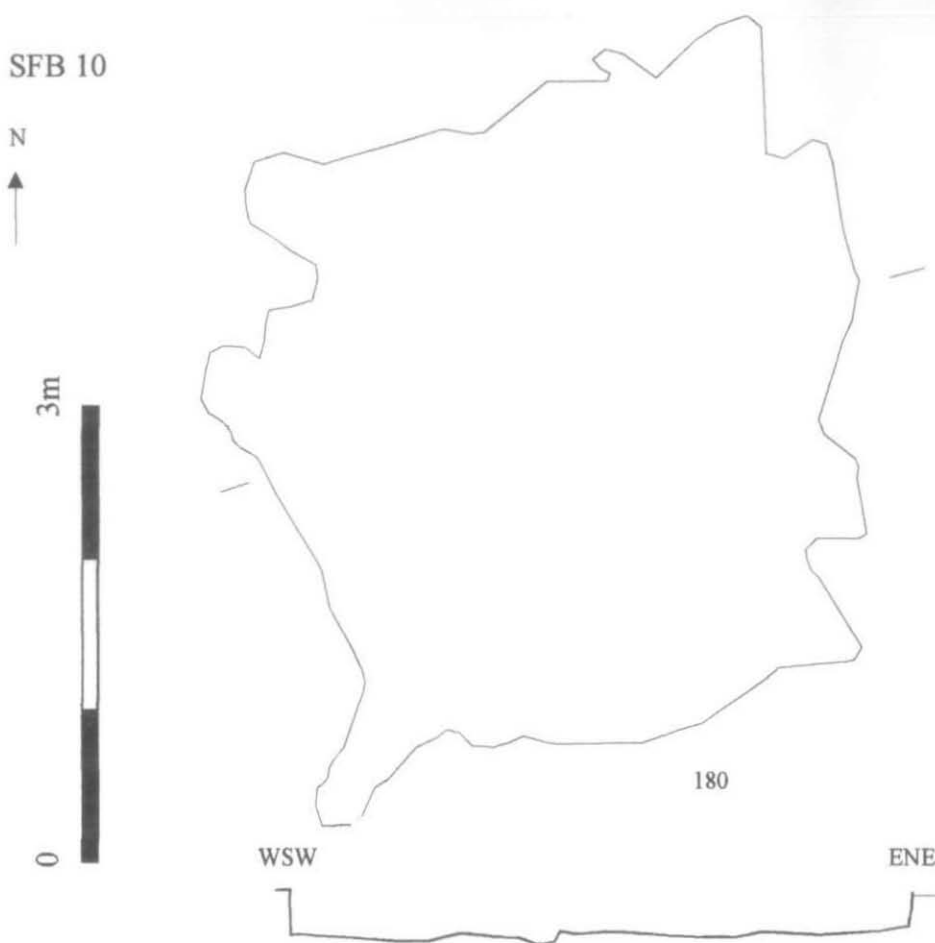


Fig. 8. SFB 10.

No sign of refurbishment or replacement of posts within the structures was apparent and in no case were there indications of extensions or recuts of the pits, unlike at Barrow Hills.<sup>11</sup> Irregularities in the overall shape are thought to be the result of their shallowness, slightly uneven stripping, or erosion of edges due to the soft nature of the sand that they were cut into.

As usual the problem of the position of floors arises. Of the ten SFBs, five had stakeholes and a further one was too damaged to say conclusively whether or not they had been present. It has been argued that these may have originated after the removal of one or more posts, rather than during the lifetime of the structure. In the case of the Oxford Science Park structures no occupation layers were found on the pit bases. However within SFB 9 there was some evidence for a thin layer of clay at the interface of the lower fill (634) and the base of the pit. This may have been a floor surface.

Most of the pits appeared to have a single fill formed from the natural sand mixed with varying degrees of silt. This may be a reflection of the local soil with little possibility of different soil types developing through mixing. SFB 4 perhaps confirms this, where the majority of the numerous finds came from the NW. quadrant suggesting that the fill of this part, while similar in appearance to the rest, had derived from a different

<sup>11</sup> Ibid.

source. Differences in fill were only apparent where there had been substantial amounts of burnt material added i.e. within SFB 7 (tip line 629 within similar material 626 above and below) and SFB 9 where the lower fill contained more charcoal and less limestone pieces than the upper fill. SFB 6 contained a deposit within the NW. quadrant that along with noticeably less charcoal flecks also contained an ox skeleton.

Notable finds include part of a weaving comb from SFB 9 (Fig. 16), three spindle whorls from SFB 3 (Fig. 16, 2), and two from SFB 7 (Fig. 16, 3-4). Two gaming counters made from cut down Roman pottery sherds (Fig. 16, 5-6) along with two possible quartz stone counters (25 x 20 x 10 mm. and 24 x 18 x 10 mm.) came from SFB 3. Part of a glass bead was found in the backfill of one of the end postholes of SFB 1 while a bone pin was found pushed into the side of the same pit wall of the same structure (Fig. 16, 7; Fig. 17, 9). A further bone pin (Fig. 17, 10) came from SFB 4 while a small spearhead-like object was found in SFB 9 (Fig. 17, 11), a knife and part of a horseshoe in SFB 6 (Fig. 17, 12 and 14) and an iron object in SFB 1 (Fig. 17, 13).

#### SFBs Gazetteer

(Dimensions: length at surface, length at base, width at surface, width at base, distance between post-holes (centre to centre), depth.)

**SFB 1.** Contexts 121, 131, 133. Fig. 4. Site Plans L2, 5. Site Sections 14, 21, 22, 23, 27 & 28. Orientation E.-W. Dimensions, 3.36 m., 3.00 m., 2.88 m., 2.10 m., 2.60 m., 0.25 m.

Rectangular although not as wide in SE. corner and possible slumping in centre of N. side and centre of W. end. Base flat, sides at  $c. 45^\circ$ . Post-hole (146) set against centre E. end, ovoid, diameter at base  $c. 0.18$  m., depth 0.52 m. Post hole 168 towards W end, circular, diameter at base  $c. 0.18$  m., depth 0.26 m. Hearth (130), ovoid 0.70 m. x 0.42 m. set across orientation of SFB just W. of centre, depth 0.15 m. with gradual sloping sides and flat base. Pit (166) rectilinear 0.32 m. with steep sides and flat base, 0.18 m. deep, three stakeholes in base set in triangular fashion. 146 stakeholes (contexts 185, and 148, 149, 170, 175, 176). Fills 125, 126, 138, 147, 148, 149, 167, 169, 170, 175, 176, 185.

Finds: Small Find 3 - fe nail, SF5 - bone pin, SF4 - iron object, SF7 - iron nail, all from fill 125; SF8 - glass bead, from fill 147 of post-hole 146.

**SFB 2.** Context 154. Fig. 4. Site plans 8 & L4. Sections 46, 47. Orientation NE.-SW. Dimensions, 2.97 m., 2.72 m., 2.62 m., 1.87 m., 0.38-0.42 m.

Rectangular structure cuts pit (157). Sides of ends steep, other sides  $c. 45^\circ$ . Slightly undulating base. Post-holes set against ends, SW. 212 - 0.18 m. deep, base diameter 0.13 m., NE. 216 - 0.26 m. deep, base diameter  $c. 0.10$  m. Fills 153, 155, 213, 217.

**SFB 3.** Context 181. Fig. 5. Site plans 6 & L8. Sections 30a, 30b. Orientated NE.-SW. Dimensions, 3.94 m.,  $c. 2.90$  m., 3.50 m.,  $c. 2.70$  m., 0.45-0.72 m.

Rectilinear. Regular sides sloping at  $c. 45^\circ$ . Base slopes down to NE. Patch of burnt material lying on base in NW. part. Possible post setting towards N. end. Fills 182, 194.

Finds: SF10 & SF11 - ceramic gaming counters, SF13 & SF14 - quartz gaming pieces (possible) oval smooth stones dimensions 25 x 20 x 10 mm. and 24 x 18 x 10 mm., SF22 - ceramic spindle whorl, pieces of slag, fired cracked stones.

**SFB 4.** Context 186. Fig. 5. Site plans L7 & L8. Sections 33-36. Orientation E.-W. Dimensions, 4.90 m., 3.10 m. approx., 3.75 m., 1.75 m. approx., 0.26 m. deep.

Rectilinear. Irregular with gentle sloping sides, flat base. Fill 187.

Finds: SF9 - copper alloy fragment, SF12 - bone pin, 3 fragments of slag, fire cracked stones.

**SFB 5.** Context 607. Site plan L1. Orientated E.-W. Dimensions: at least 3 m. E.-W., at least 2.90 m. N.-S., at least 0.25 m. deep.

Rectilinear. Seen under watching brief conditions during machining. Some stakeholes seen in base. Base flat. Post-hole (607) at E. end, top 0.38 x 0.30 m. for top 0.11 m. then tapering into hole with diameter 0.20 m., 0.44 m. deep. Post-hole (610) at W. end, 0.22 m. diameter, 0.40 m. deep,  $c. 2$  m. between post-holes centre to centre.

**SFB 6.** Contexts 621, 623. Fig. 6. Site plan L1, 13 & 14. Sections 57-59. Orientated NW.-SE. Dimensions: 4.30 m. NW.-SE., at least 2.60 m. NE.-SW., up to 0.37 m. deep.

Sub-rectilinear. Found under watching brief conditions. SW. side cut by pipe trench. At least 22 stakeholes in base. NW. side irregular but approx.  $45^\circ$ . NW. side shallow ledge before  $30^\circ$  angle. Base flat in central part, less so in NE. part. Posthole partly cut by pipe trench at NW. end with diameter 0.40 m. and cut 110 mm. into base of SFB. The remains of an individual cattle was present, see Animal Bone report below. This had been deposited within the NW. corner. Fill 622 & 624.

Finds: SF17 - fe knife blade, toe of horse shoe.

**SFB 7.** Context 625, 627. Fig. 6. Site plan L1, 16 & 20. Sections 63, 64, 76, 77. Orientated NE.-SW. Dimensions: at least 2.90 m. NE.-SW., 2.90 m. NW.-SE., 0.75 m. deep.

Sub-rectilinear. Found under watching brief conditions, excavated in at least two phases. SW. side approximate. NE. side 45°, NW. 80°, SE. side 70°. Flat base. Occasional stakeholes. Post hole at NE. end (context 645), oval 0.52 m. N.-S. x 0.33 m., tapering and 0.62 m. deep below base of SFB. Fills 625, 626, 628, & 629. High levels of charcoal and burnt bone in 629.

Finds: SF23 & 24 – spindle whorls, quartz cube 12 x 11 x 9 mm.

**SFB 8.** Context 637. Fig. 7. Site plan L1, L19. Sections 69-75. Orientated NW.-SE.

Dimensions: 3.40 m. NW.-SE. x 1.60-2.30 m., 0.12 m. deep.

Irregular due to shallowness. Sides very gently sloping, uneven base. Occasional stakeholes including some near edge in SE. corner. Post holes at both ends. NW. (context 643) c. 0.25 m. in diameter, 0.16 m. deep below base of SFB. SE. (639), top oval 0.60 m. N.-S. x 0.42 m. with deeper round 0.18 m. diameter part in N. Total depth 0.35 m. Further post hole (641) near N. corner, c. 0.29 m. diameter at level of SFB base, 0.20 m. diameter at 0.10 m. depth. Total depth 0.18 m. Fills 638, 640, 642, 644.

Finds: SF19 – copper alloy brooch pin, fe nail.

**SFB 9.** Context 632. Fig. 7. Site plan L1, 18. Sections 66-68. Orientated NW.-SE. Dimensions: 4.80 m. NW.-SE., 3.30 m. NE.-SW., depth 0.50 m.

Rectilinear. Sides 25-35°. Flat base. Numerous stakeholes, larger ones concentrated around sides. Fills 633 & 634.

Finds: SF18 – small ?spearhead, SF20 – bone comb.

**SFB 10.** Context 180. Fig. 8. Site plan L3. Section 25. Dimensions: 4.05 m. NE.-SW., 4.20 m. NW.-SE., depth c. 30 m.

On site thought to have been a tree throw pit due to very irregular shape in plan. Only a 0.80 m. wide section excavated NE.-SW. through centre. Fill at SW. end yellow brown sandy silt while rest was discoloured sand. From finds recovered and position in relation to other SFBs this feature is now considered as a SFB. Fill 179.

**SFB 11.** Probable SFB identified by quantity of finds seen in lower part of old ploughsoil. Not investigated as due to remain preserved under road.

**SFB 12** Possible SFB due to amount of Roman finds found during evaluation.

### Pits

Several pits contained only material dated to the Saxon period by pottery. A sub-circular pit (177) 2.8 m. x 3.1 m. lay to the S. of SFBs 3 & 10. This had sides of 45-60° and a flat base. Three pits of this date lay to the N. of SFBs 3 & 4. Two (183 and 192) were ovoid with rounded profiles and measured 1.13 x 1.32 m. and depth 280 mm. and 1.12 x 1.50 m. and depth 300 mm. respectively. The other pit (189) was completely different being circular with a diameter of 960 mm. and depth of 320 mm. and near vertical sides and a flat base.

Lying between SFB 4 and SFB 5 was a collection of 11 pits that are difficult to date. The close grouping and two apparent lines of four and three pits respectively suggest that they are all related. However pit 208 (fill 209) only contained Iron Age material (2 sherds) that is likely to be residual, while four pits (195, fill 196 – 2 Saxon sherds; 197, fill 198 – 2 Iron Age, 3 Saxon sherds; 206, fill 207 – 1 Iron Age, 1 Saxon sherd; 214, fill 215 – 2 sherds both disclaimed by the respective specialists as Iron Age or Saxon and suggested to belong to the other period) contained Saxon or possible Saxon pottery. Three pits (204, fill 205 – 1 Neolithic, 1 Iron Age, and 1 possible Saxon sherd; 210, fill 211 – 1 M-LBA, 1 IA sherd; 225, fill 226) each contained one sherd of medieval pottery. Three pits did not contain any pottery or other dateable material. Pit 195 also contained a possible crouched inhumation (203) with the head to the S. and lying on its right side. The bone was in such poor condition that the body while appearing to lie on its side, may have just been thrown into the pit and not arranged in a crouched position.

The effects of bioturbation have been discussed above and on the balance of evidence it is considered that the medieval sherds are present in the pits due to this action. Given the apparent alignments and close grouping it is suggested that the majority, if not all, of these 11 pits are of Saxon date.

### Medieval

Within the Phase 2 area the S. half of the excavation area was stripped in order to reveal what was thought to be a small medieval settlement on the basis of the evaluation. After failed attempts to define apparent features containing medieval finds both in plan and section two large sections were machine-excavated through apparently less dense areas of archaeology. These revealed the fact that the area had been quarried and backfilled with rejected material (see below under Post-medieval).

The large quantity of medieval pottery and other finds indicates the presence of a settlement almost totally destroyed by the quarrying. The S. edge of the quarrying extent was not observed as the area S. of the excavation limit was landscaped upwards. The settlement had been sited on the crest of the higher land where limestone caps the sand. Some features were found further northwards outside the area of quarrying but these were sporadic. Their distance from the apparent focus of the settlement may be due to either of two factors; one, the need for depth for pits where digging this far to the N. was easier where the limestone was not present, or two, the requirement for sand again where it was easier to win without digging through the 300-440 mm. thick band of limestone.

Immediately to the W. of SFB 3 was a rectangular pit (191) some 2.24 m. x 1.30 m. in area surviving 330 mm. at its deepest. It was formed with steep sides and sloped down towards the N. end. This does not appear to have been used for rubbish disposal as only six sherds of medieval pottery, one animal tooth and nails were found in the fill (190). The mixture of sand and brown sandy silt, as the fill, suggests that this feature may have been the result of quarrying. A shallower very irregular feature with maximum dimensions of 2.62 m. x 2.43 m. and a depth of up to 130 mm. again may have been for sand quarrying although the resultant infilling (120) contained more artefacts and charcoal flecks. What appeared to be an irregular feature or a series of three intercutting pits (161, fill 161) was only partially investigated. This was cut in to the limestone near the N. extremity of this material. A small pit (158) was dug for the disposal of a very young pig (159). Other pits that contained medieval pottery have been discussed above under Saxon pits.

Sherds of medieval pottery were recovered from the ploughsoils on the valley edge in Phase 2a area and similarly across the Phase 2 area indicating ploughing episodes within this period.

#### *Post-medieval*

To the W. of SFB 10 a circular pit (127) of 1.4 m. diameter was cut to a depth of 500 mm. The pit had undercut sides and a flat base and the only post-medieval finds (16th- to 19th-century) were found in a small deposit (129) on the base of the cut. This may have been a cess-pit for the quarrying activities.

The quarry already referred to was partially covered by the S. part of the linked excavation area within the Phase 2 area. The quarrying had been found to follow the better deposits of limestone, leaving *in situ* poorer quality material. In places alternating bands of sand along with small pieces of rejected limestone and topsoil were found indicating that the quarry had been worked as a small face with backfilling taking place immediately after the removal of a small width of limestone. The double bands varied in width from c. 800 mm. to c. 1.5 m. The backfilled material contained some post-medieval material; occasional pottery, glass and clay pipe fragments, along with redeposited medieval material.

#### *Undated*

Within the N. part of the Phase 2 linked excavation area were several undated features: all small pits. These include 104, 109, 112, 114, 123, 131, 150, 157, 162, 164, 171, 173, 199, 201, 218, 219, 221, 223, and 227. The majority lay on the W. side of the excavation area to the N. of the line of SFBs. Pit 157 was cut by SFB 2. The pits could either belong to the prehistoric period or be associated with the Saxon occupation. Three of the pits (199, 201, 227) are in the cluster of pits assigned to the Saxon period, see above. A small group was found on the E. side of the excavation area along with a further undated pit (606) that was found during the watching brief. Another pit (630) lay to the W. between SFBs 9 & 8. SFB 5 appeared to have been dug over an earlier ovoid pit (611). Pit 112 contained a fragment of hazel nutshell.

To the N. of the excavation area was an undated pit 604, which was sited 10 m. to the W. of the cluster of stakeholes (603). Further to the N. another pit (620) and a linear feature (618) were found under a deposit of peat (614 - S. edge shown on Fig. 3). The linear feature had a squared S. end, and straight parallel sides, with the N. end being outside the watching brief area. The maximum width (450 mm.) was at the S. end, which was preserved higher when found. The sides varied from 45-550 with the base being either flat or slightly rounded. There was a slight suggestion at the N. end that the feature could have been constructed from the W. side with the material flicked up and out onto the E. side although no spoil remained. Both this feature and pit 620 had been cut into alluvial clay. The linear feature had been completely filled with peat (619), while the primary fill of 620 was peat and with subsequent alluvial clay and sand. These two features must pre-date the Saxon period; see below under alluvial deposits.

#### *Alluvial deposits*

The 600 mm. thick peat deposits (upper - 613, lower - 614) to the N. of the excavation area, in the Phase 2 area, overlie a deposit of blue grey alluvial clay (615). A sherd of 2nd-century pottery was recovered from 613. This suggests that the peat was present in at least the Roman period but more likely in the Saxon period when it is known that Roman pottery was imported onto the site. Lying above the peat was a 300 mm. thick layer of sand that appears to have been the result of erosion of the valley side. The high rainfall of the



autumn/winter of 1999 demonstrated the ease with which the sand on the valley side could be eroded. The waterlogged alluvial deposits found at this location are perched with subsequent down cutting of the valley floor further to the N. The lowering of the valley floor would be due to clearance of vegetation resulting in a faster flow of water and increased erosion.<sup>12</sup>

North of the Littlemore Brook in the Phase 2a area substantial deposits of alluvium were present lying in the SW. two thirds of the area. Below the 100-400 mm. thick topsoil and rough pasture (800) was a firm light-mid grey alluvial clay 200-650 mm. thick (805). This sealed a deposit of peat with much silt, clay and some sand with frequent wood and plant remains (804, 806). Below the peat, in part, were further alluvial deposits of clayey silty sand with much fine to medium gravel that overlay sand of the Beckley Sand Member.

Sealed by the peat (804) was a tree throw pit seen in section. This was 2.20 m. wide and 500 mm. deep. The fill of the pit comprised a silty peat containing roots and modern root intrusions (803). A band of silty sand 140 mm. thick formed the upper fill on one side. A *cf.* aurochs thoracic vertebra from the fill was dated to 9606 BC to 9263 BC and 9593 BC to 9561 BC plus 9391 BC to 9245 BC (Table 19). A column sample from the peat was taken for pollen analysis (see below).

From the peat few finds were recovered. A horse's skull was found in close association with sherds of a 2nd-century Roman neck of a large flagon (801), while further sherds of a grey ware vessel from a different location but of the same date were recovered (802).

Two beaver dams were found during the bulk excavation of the peat. One of the dams was partially cleaned and examined in some detail. The dam was constructed using both large timbers and smaller pieces (both hazel and alder).<sup>13</sup> The largest timber was 200-290 mm. in diameter and 5.25 m. long (808). It was an alder tree and was probably felled on the edge of the stream (S. bank) and lay diagonally across the streambed. Some small timbers lay on the upstream side while many more were on the downstream side. Those upstream were parallel to the main timber while most of those downstream were parallel to the flow with others arranged haphazardly. The timbers upstream were from small branches while downstream similar material was mixed with larger branches and trunks (809, 810). Between and mostly beneath the timbers was a layer of bark and wood chippings (807). The beavers stripping the bark to get at the nutritious sapwood generated this material. A sample of the wood was dated to the Late Bronze Age/Iron Age.

## BEAKER POTTERY by ALISTAIR BARCLAY

The excavation of a single pit (contexts 631, 635-6) produced a total of 65 sherds (653 g.) of Beaker Pottery. Sherds from at least seven Beakers are present and include both fine and coarse vessels. Forms include both late style Southern Beakers and rusticated Beakers, which are typical of so-called domestic assemblages.

### Methodology

Table 1 gives a quantification of the assemblage by weight and sherd number broken down by vessel and context. The pottery is characterised by fabric, form, surface treatment, decoration and colour. The sherds were analysed using a binocular microscope (x 20) and were divided into fabric groups by principal inclusion type. OAU standard codes are used to denote inclusion types. A = sand (quartz and other mineral matter), G = grog. Size range for inclusions: 1 = <1 mm. fine; 2 = 1-3 mm. fine-medium; 3 = 3 mm. < medium-coarse.

### Fabrics

Typically all of the fabrics are principally tempered with grog, which varies in size from medium (1-3 mm.) to quite coarse (sometimes over 3 mm.). Most of the grogged fabrics also contained varying quantities of coarse (up to 1 mm.) quartz sand (GA2-3).

G3 Soft fabric with common coarse grog inclusions (Ves. 5-6).

GA2 Soft fabric with common medium sized grog inclusions and quartz sand (Ves. 1-4).

GA3 Soft fabric with common medium sized grog inclusions and quartz sand (Ves. 7-9).

### Forms

The assemblage includes both fine and coarse ware vessels that in terms of shape and decoration approximate to Clarke's Final Southern and finger-nail/tip decorated groups.<sup>14</sup> Vessels 3-5 can all be described as finewares and include a rim fragment with round toothed comb impressions (Ves. 4), a rim fragment with incised decoration (Ves. 3) and some body sherds with incised lozenge motifs (Ves. 5). In contrast are the coarseware

<sup>12</sup> M. Robinson pers. comm.

<sup>13</sup> Identification of the beaver dam and wood by Nick Mitchell, OAU.

<sup>14</sup> D.L. Clarke, *Beaker Pottery of Great Britain and Ireland* (1970), 234-8.

vessels. These are decorated either with stab, finger-nail or finger-tipping or with a combination of these techniques as well as with moulded cordons and grooves. In general the latter group of vessels have thick walls and are tempered with coarser grog inclusions. Despite the fragmentary nature of the assemblages enough survives to indicate that vessel forms were generally bipartite (Ves. 1-3, 7) with upright cylindrical or conical necks (Ves. 4, 8).

TABLE 1. A BREAKDOWN OF THE ASSEMBLAGE OF BEAKER POTTERY BY VESSEL AND CONTEXT (NUMBER OF SHERDS AND WEIGHT)

Vessel	631	635	636	Total
1		2, 60 g.	1, 18 g.	3, 78 g.
2			4, 113 g.	4, 113 g.
3	2, 32 g.			2, 32 g.
4	2, 14 g.			2, 14 g.
5		2, 5 g.	1, 12 g.	3, 17 g.
6	4, 20 g.	3, 38 g.		7, 58 g.
7	25,199 g.		8, 51 g.	33, 250 g.
8	9, 66 g.			9, 66 g.
9		2, 25 g.		2, 25 g.
Total	42, 331g	9, 128 g.	14, 194 g	65, 653 g.

#### *Catalogue (Figs. 9-11)*

2. Contexts 635-6. A total of three sherds (78 g.) from the neck and belly of a vessel decorated with all-over impressed finger-nail. Fabric GA2. Colour ext. brown; core and int. black. Condition fair. Burnt residue on interior surface.

3. Context 636. Four sherds (113 g.) from the rim, neck and waist of a coarseware vessel decorated all over with stabbed impressions. Fabric GA2. Colour ext. reddish-brown; core grey; int. black. Condition fair.

4. Context 631. Two refitting rim sherds (32 g.) probably from a long necked vessel. The rim is bevelled, has an applied cordon and is decorated with incised panels, bands and motifs. Fabric GA2. Colour ext. greyish-brown, core grey, int. brown. Condition fair.

5. Context 631. Two refitting rim sherds (14 g.) decorated with round-toothed comb impressions. Fabric GA2. Colour ext. blackish-brown, core black, int. blackish-brown. Condition fair.

6. Contexts 635-6. A total of three sherds (17 g.) from a fineware vessel with incised lozenge decoration. Fabric G2. Colour ext. reddish-brown; core black; int. grey. Condition fair. Burnt residue on interior surface.

7. Contexts 631, 635-6. A total of 8 sherds (58 g.) from a vessel decorated with deep impressed finger-tipping. Fabric G3. Colour ext. reddish-brown, core grey, int. black. Condition fair.

8. Contexts 631 and 636. A total of 33 rim and body sherds (33, 250 g.) from a relatively large rusticated Beaker with moulded cordons and impressed finger-nail and finger-tip decoration. Fabric GA3. Colour ext. reddish-brown, core black, int. brown. Condition fair.

9. Context 631. A total of 9 sherds (66 g.) from a rusticated Beaker which is decorated with deep horizontal grooves and paired finger-nail. Fabric GA3. Colour reddish-brown throughout. Condition fair.

10. Context 631. Two sherds (25 g.) from a Beaker decorated with vertical rows of impressed finger-nail. Fabric GA3. Colour ext. reddish-brown, core black, int. brown. Condition fair.

#### *Discussion*

A number of vessels (1, 2, 5) appear to have black carbonised residues on their interior surfaces, which could indicate that they were used for cooking. Another rim (Ves. 3) appeared to have been chipped during use. The presence of burnt residues on some vessels and not on others along with the range of pot shapes and sizes hints at a variety of uses (perhaps cooking, serving, drinking) and that the assemblage is essentially a domestic one. The presence of a great number of rim sherds and the almost complete absence of base sherds could hint at some form of deliberate selection of material for burial.

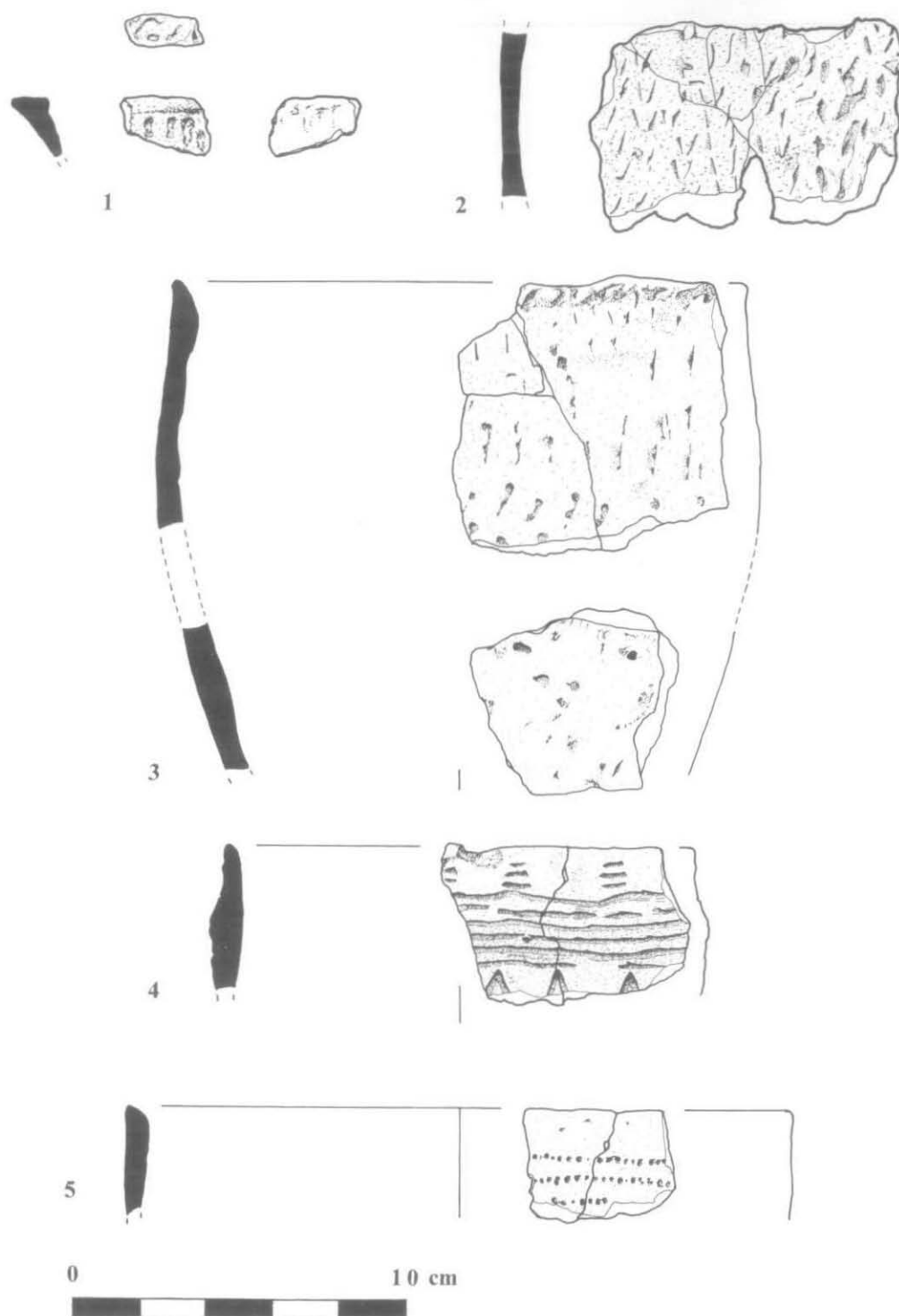


Fig. 9. Prehistoric pottery.

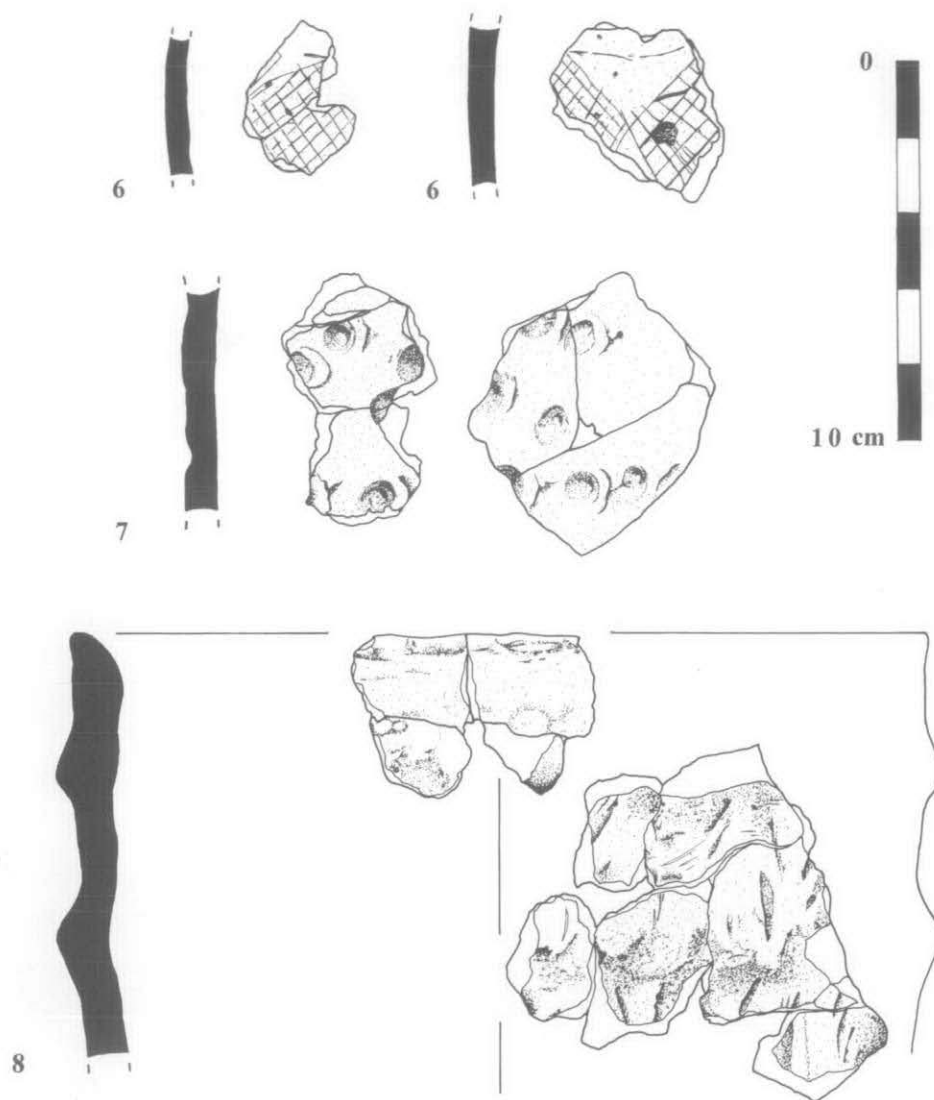


Fig. 10. Prehistoric pottery.

There are now a number of sites with Beaker pottery from the City of Oxford. A similar assemblage was found at the Hamel<sup>15</sup> and a number of Beakers are known from graves.<sup>16</sup> The pit group is very similar in character to other so-called 'domestic' Beaker assemblages from elsewhere in the Upper

<sup>15</sup> N. Palmer, 'A Beaker Burial and Medieval Tenements in the Hamel, Oxford', *Oxoniensia*, xlv (1980), 124-65, Fig. 3.

<sup>16</sup> H. Case, 'Beaker Pottery from the Oxford Region', *Oxoniensia*, xxi (1956), 121, Fig. 6; A. Parkinson, A. Barclay and P. McKeague, 'The Excavation of Two Bronze Age Barrows, Oxford', *Oxoniensia*, lxi (1996), 41-64, Fig. 1.

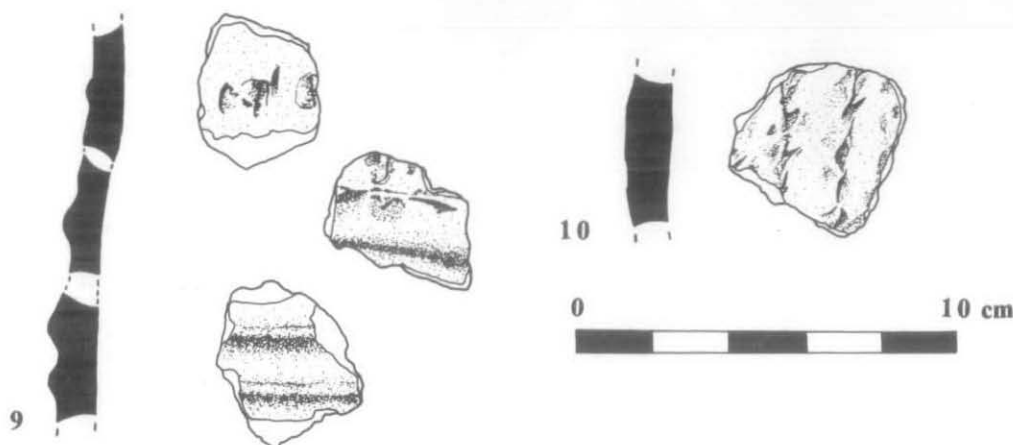


Fig. 11. Prehistoric pottery.

Thames Valley.<sup>17</sup> These assemblages usually contain a range of vessel forms that include both fine and coarse elements, in which the fineware vessels are decorated with incised or comb impressions and the coarser ones with applied mouldings, finger-tipping and finger-nail impressions. Parallels for most of the vessels can be found from pit as well as grave contexts within the region.<sup>18</sup> Similarities in shape and decoration can be found in material recovered from the flat grave cemeteries and barrows from Eynsham and Cassington and from pit deposits at Cassington and Yarnton.<sup>19</sup>

The form of vessel 7 is more unusual and, although only the upper part survives, is likely to be a large pot-beaker.<sup>20</sup> Such vessels are rare in the Upper Thames but include examples from Yarnton.<sup>21</sup> The date of this group is likely to fall towards the end of the Beaker ceramic tradition that has an overall date range of 2400-1700 cal BC.<sup>22</sup> The assemblage from the Hamel, Oxford has an associated radiocarbon date of 2030-1610 cal BC (95.4% HAR-3410 3470±80 bp).<sup>23</sup>

#### THE PREHISTORIC POTTERY by ALISTAIR BARCLAY

The assemblage includes 48 handmade sherds (202 g.) of a wide date range (Neolithic through to Iron Age). Many of the sherds are in a worn condition and there are few featured sherds. The assemblage includes no significant groups of material (except for the Beaker pottery above), although some individual featured sherds are of interest such as a later Neolithic Mortlake Ware rim. A summary of the assemblage by sherd number and weight is given in Table 2. With the exception of one sherd from a disturbance layer (145) all of the material was recovered from pit fills. Most of the sherds were small (average sherd weight 4 g.) and in a worn to very worn condition, indicating that many can be considered as residual or redeposited material. Individual contexts tended to contain only a few sherds and in many cases the pottery was of mixed prehistoric date (see Table 2).

<sup>17</sup> H.J. Case, N. Bayne, S. Steele, M. Avery and H. Sutermeister, 'Excavations at City Farm, Hanborough, Oxon', *Oxoniensia*, xxix-xxx (19645), 198; H.J. Case in Palmer, op. cit. note 15; A. Barclay, 'Prehistoric Pottery', in *Yarnton: Neolithic to Bronze Age Settlement and Landscape* (OAU Thames Valley Landscapes monograph, in prep.).

<sup>18</sup> Case, op. cit. note 16; Clarke, op. cit. note 14.

<sup>19</sup> E.T. Leeds, 'Recent Bronze Age Discoveries in Berkshire and Oxfordshire', *Antiq. Jnl.* xiv (1934), 264-76; E.T. Leeds, 'Beakers of the Upper Thames District', *Oxoniensia*, iii (1938), 730; Case, op. cit. note 16; Barclay, op. cit. note 17.

<sup>20</sup> Clarke, op. cit. note 14, Figs. 906, 911, 915-16, 1049.

<sup>21</sup> Barclay, op. cit. note 17.

<sup>22</sup> S. Needham, 'Chronology and Periodisation in the British Bronze Age', *Acta Archaeologica*, lxxvii (1996), 121-40.

<sup>23</sup> Palmer, op. cit. note 15, p. 128.

TABLE 2. PREHISTORIC POTTERY: A BREAKDOWN OF SHERDS BY PERIOD AND CONTEXT  
(NUMBER OF SHERDS, WEIGHT)

Context	SSNo	Neolithic	EBA	M-LBA	IA	Ind. Preh.	Total
107	116	1, 4 g.		2, 7 g.	1, 2 g.		4, 13 g.
107	115					1, 3 g.	1, 3 g.
118		2, 5 g.	1, 1 g.		7, 30 g.	1, 1 g.	11, 37 g.
124	122	1, 3 g.			1, 1 g.		2, 4 g.
127					3, 2 g.		3, 2 g.
145					1, 1 g.		1, 1 g.
178					14, 55 g.		14, 55 g.
187		1, 17 g.					1, 17 g.
196					1, 3 g.		1, 3 g.
198					2, 5 g.		2, 5 g.
205		1, 1 g.			1, 21 g.		2, 22 g.
207					1, 5 g.		1, 5 g.
209					2, 26 g.		2, 26 g.
211				1, 6 g.	1, 1 g.		2, 7 g.
601					1, 2 g.		1, 2 g.
Total		6, 30 g.	1, 1 g.	3, 13 g.	34, 146 g.	2, 4 g.	46, 194 g.

### Fabrics

A wide range of fabrics was recorded which reflects an equally wide date range. In the absence of featured sherds, fabric analysis was used to date the material. Typically the Neolithic sherds were flint (F1) or quartzite tempered (Q1), the early Bronze Age was grog-tempered (G1) and the later Bronze Age sherds contained calcined flint (F2). The remaining sherds were either principally shell (S1) or sand tempered (A1) and considered to be Iron Age.

#### Quartzite-tempered (Neolithic)

Q1 – Hard fabric with coarse angular quartzite and quartz sand. (1 sherd, 3 g. context 122)

#### Flint-tempered (Neolithic and Bronze Age)

F1 – Hard fabric with medium angular flint (1-3 mm.) and rare quartz sand. Some sherds contain more sand than flint. (5 sherd 27 g., contexts 107, 118, 187, 205)

F2 – Hard fabric with calcined flint. Some fabrics also contain quartz sand. (2 sherds, 8 g., contexts 211).

#### Grog-tempered (Early Bronze Age)

G1 – Soft fabric with medium grog (1-3 mm.) and quartz sand. (1 sherd, 1 g., context 118)

#### Shell-tempered (Iron Age)

S1 – Soft fabric with medium to coarse shell fragments (1-3 mm. or above). Some fabrics also contain quartz sand. In some fabrics the shell is no longer present. (15 sherds, 68 g., contexts 107, 118, 122, 124, 127, 145, 198, 205, 207, 209)

#### Calcareous-tempered (?Iron Age)

Mixed fabric with calcareous, grog and sand inclusions. (1 sherd, 4 g., context 118)

#### Sand-tempered (Iron Age)

A1 – Fine to medium (up to 0.5 mm) quartz sand in various quantities from sparse to common. Some fabrics contain ferruginous pellets and/or ironstone. Others contain voids from burnt out vegetable matter. (20 sherds, 89 g., contexts 107, 118, 178, 196, 209, 211, 601)

Indeterminate prehistoric

In addition two sherds (4 g.) could not be assigned to a fabric (contexts 107, 118)

*Earlier Prehistoric*Neolithic

Five contexts (107, 118, 124, 187 & 205) contained Neolithic sherds, the most diagnostic of which was a cord impressed decorated rim (Fig. 9, 1, context 118). This sherd belongs to a Mortlake style vessel of the Peterborough Ware ceramic tradition of the mid-late Neolithic. One other flint-tempered body sherd (context 187) with a possible finger-nail impression could be from a similar vessel. The remaining sherds can be dated to this period on the basis of fabric.

Early Bronze Age

A single very worn and small (1 g.) grog-tempered sherd from context 118 is likely to be of early Bronze Age date. It could derive from a Beaker or an Urn.

*Later Prehistoric*Mid-late Bronze Age

Three sherds from contexts 107 and 211 are likely to be of mid-late Bronze Age date. Two are in calcined flint tempered fabrics and the third is in a leached shell fabric. The latter is a base with an expanded or splayed foot, which typologically is more likely to be of this date despite the shelly fabric. One of the flint-tempered sherds (context 211) is also from a base. These sherds could either belong to the Deverel-Rimbury tradition of the middle Bronze Age or to the Plain or Decorated Ware traditions of the late Bronze Age.

Iron Age

Most of the remaining sherds are in sand or shell fabrics that are likely to be of Iron Age date (contexts 107, 118, 124, 127, 145, 178, 205, 207, 209, 211 & 601). This includes a simple rim and a squared rim with internal cabling in a leached shell-tempered fabric (context 209 and 207, respectively) and a sand-tempered rim from a shouldered jar (178). Both could be of early Iron Age date on the grounds of fabric and form. The only other featured sherds were a shoulder and base fragments from context 178, both of which are in a sand-tempered fabric.

During the evaluation a trench encountered the pit subsequently recorded as 106 (evaluation context number 12/005). From the part investigated during the evaluation came the profile of a hand-made, shouldered jar with a straight everted rim in a sand and organic fabric and thought to be of later middle Iron Age date. Two other probable Iron Age sherds in a sand-tempered fabric came from the same context (total weight of the three sherds was 210 g.). A further sherd of similar fabric was recovered from an evaluation trench c. 25 m. to the N. of this pit. Identification of the pottery was by Paul Booth. These sherds are not included in the following tables.

*Indeterminate prehistoric*

In addition, two sherds from contexts 107 and 118 are too small to assign a precise date, although they are probably prehistoric.

*Discussion*

The small assemblage of pottery is important as it confirms prehistoric activity of a wide date range (mid-Neolithic to middle Iron Age) on this site and in an area where contemporary sites are rare. The Mortlake Ware rim and the Neolithic sherds are rare finds for this area of Oxfordshire, although Peterborough Ware is a common find from sites on the Thames gravels.<sup>24</sup> A possible Peterborough Ware sherd from a prehistoric ditch at Logic Lane, Oxford was originally described as Bronze Age but could in fact belong to a Peterborough Ware bowl.<sup>25</sup>

<sup>24</sup> J. Thomas, *Understanding the Neolithic* (1999), Fig. 8.2.

<sup>25</sup> A. Barclay, 'Earlier Prehistoric Pottery', in Parkinson et al., op. cit. note 16, p. 51; F. Radcliffe, 'Excavations at Logic Lane, Oxford. The prehistoric and medieval finds', *Oxoniensia*, xxvi-xxvii (1961-2), 38-69.



A small quantity of later Bronze Age pottery has recently been found at Blackbird Leys.<sup>26</sup> The larger number of Iron Age sherds lacks diagnostic pieces and could include vessels of both early and middle date on the basis of the two rims and the fabrics. Small quantities of Iron Age pottery are known and have been published from the east side of Oxford,<sup>27</sup> and larger assemblages have been recovered from settlement sites at Blackbird Leys,<sup>28</sup> from White House Road, Oxford<sup>29</sup> and from the University Science Area.<sup>30</sup> The generally small and abraded assemblage of Iron Age pottery is likely to indicate settlement nearby but not necessarily on this site.

# Catalogue (Fig. 9, 1)

Context 118. Mortlake Ware rim with impressed twisted cord decoration. Fabric F1. Condition worn.

## ROMAN POTTERY by PAUL BOOTH

Some 111 sherds of Roman pottery weighing 1966 g. were recovered from the evaluation and subsequent excavation. The interest of this material lies largely in the contrast between that component of the assemblage that occurred in specific Anglo-Saxon features, particularly sunken featured buildings (SFBs), and the rest of the pottery.

### Fabrics/Wares

The pottery was divided initially into major ware groups, defined on the basis of significant common characteristics.<sup>31</sup> Sherds were then assigned either to the principal subdivisions of the ware groups or to individual fabrics/wares. Identification of coarse wares to the level of individual fabrics was not generally considered appropriate. The wares present are quantified in Table 3 in terms of their context, a distinction being made between those sherds which derive from the fills of SFBs (or, in a very few cases, other associated or integral features) and other context types. The wares are defined as follows:

- F51. Oxford red brown colour-coated ware<sup>32</sup>
- M22. Oxford white ware mortarium<sup>33</sup>
- M31. Oxford white-slipped mortarium fabric<sup>34</sup>
- M41. Oxford red brown colour-coated mortarium fabric (fabric as F51)
- W10. Oxford fine white fabrics<sup>35</sup>
- W20. Oxford sandy white fabrics<sup>36</sup>
- Q21. Oxford oxidised white-slipped fabric (fabric as M31)
- E80. Grog-tempered 'Belgic type' fabrics<sup>37</sup>
- O10. Fine sandy oxidised 'coarse' wares<sup>38</sup>
- O20. Sandy oxidised coarse wares<sup>39</sup>

<sup>26</sup> Paul Booth pers. comm.

<sup>27</sup> G. Keevill and T. Durden, 'Archaeological Work at the Rover Plant Site, Cowley, Oxford', *Oxoniensia*, lxii (1997), 87-99.

<sup>28</sup> Paul Booth pers. comm.

<sup>29</sup> A. Mudd, 'Excavations at Whitehouse Road, Oxford, 1992', *Oxoniensia*, lviii (1993), 33-86.

<sup>30</sup> Parkinson et al., op. cit. note 16.

<sup>31</sup> For a more detailed account of this aspect of the recording system see P. Booth, A. Boyle and G.D. Keevill, 'A Romano-British Kiln Site at Lower Farm, Nuneham Courtenay, and other Sites on the Didcot to Oxford and Wootton to Abingdon Water Mains, Oxfordshire', *Oxoniensia*, lviii (1993), 135-6.

<sup>32</sup> C.J. Young, *Oxfordshire Roman Pottery* (BAR xliii, 1977).

<sup>33</sup> Ibid. 56.

<sup>34</sup> Ibid. 117.

<sup>35</sup> Ibid. 93, fabric 1.

<sup>36</sup> Ibid. fabric 2.

<sup>37</sup> I. Thompson, *Grog-tempered 'Belgic' Pottery of South-eastern England* (BAR cviii, 1982).

<sup>38</sup> Young, op. cit. note 32, p. 185, fabric 1.

<sup>39</sup> Ibid. fabric 2.

- O81. Pink grogged ware<sup>40</sup>  
 R10. Fine sandy reduced 'coarse' wares<sup>41</sup>  
 R11. Very fine reduced ware<sup>42</sup>  
 R19. Fine sandy reduced ware, 'Abingdon type'<sup>43</sup>  
 R20. Sandy reduced wares coarse wares<sup>44</sup>  
 R30. Medium sandy reduced coarse wares<sup>45</sup>  
 R90. Very coarse (usually grog-) tempered reduced fabrics<sup>46</sup>  
 R95. Savernake ware<sup>47</sup>

The wares are grouped in the sequence of 'fine and specialist (F, M, W and Q) wares' followed by the principal coarse wares (here E, O and R ware groups). The range of fabrics is unremarkable and consists almost entirely of certain or probable local products. The great majority of the pottery is consistent with production in the Oxford industry and may have derived largely from the adjacent production site of Fry's Hill, though this cannot be regarded as absolutely certain, for all the reduced coarse wares in particular. The most unusual sherd is a tiny fragment from a distinctively-decorated butt beaker in fabric R19. This is a characteristic product of an industry whose precise location is unknown but lay somewhere in the Abingdon-Dorchester area and probably dates to the period AD 45-70.<sup>48</sup> The only definite non-local products are fabrics O81 and R95, from Buckinghamshire and Wiltshire respectively; both are commonly represented in Oxfordshire assemblages.

#### *Vessel types and decoration*

Nineteen vessels were represented by rim sherds. Most of these were Oxford fine and specialist ware products, particularly in colour-coated ware (fabric F51). The Young<sup>49</sup> forms in this and the related fabric M41 were C2, C45 (5), C50 and C85 and the mortarium types C97 and C100. White ware mortarium (fabric M22) forms M2, M3, M18 and M22 were identified and there was a single example of mortarium type WC7 (fabric M31). There was a small rim fragment of a spouted jug in the white-slipped oxidised fabric Q21. This form is not recorded by Young, but a similar vessel comes from the nearby production site at Lower Farm, Nuneham Courtenay.<sup>50</sup>

The remaining vessel types were all in fine oxidised (O10) fabrics. These were two probable bowls of uncertain form and a single example of Young type O41, the most common dish type in these fabrics. The absence of rim sherds in reduced coarse ware fabrics is notable.

Overall, therefore, the composition of the assemblage is very unusual in consisting entirely of bowls and dishes (10), mortaria (7) and flagons/jugs (2), that is, as far as vessels represented by rim sherds are concerned. While this breakdown may in part simply reflect the peculiarities that can arise in a small assemblage (and also to an extent the specialisms of the nearby pottery industry) the total absence of jars, normally the most common vessel class in Roman assemblages in the region, is striking and correlates with the lack of reduced ware rims noted above.

<sup>40</sup> P. Booth and S. Green, 'The Nature and Distribution of Certain Pink, Grog-tempered Vessels', *Jnl. Roman Pottery Stud.* 2 (1989), 77-84.

<sup>41</sup> Young, op. cit. note 32, pp. 202-3, fabric 3.

<sup>42</sup> Ibid. fabric 4.

<sup>43</sup> J.R. Timby, P. Booth and T.G. Allen, 'A New Early Roman Fineware Industry in the Upper Thames Valley' (OAU unpubl. report, 1997).

<sup>44</sup> Young, op. cit. note 32, p. 202, fabric 2.

<sup>45</sup> Ibid. fabric 3.

<sup>46</sup> Ibid. fabric 1.

<sup>47</sup> V.G. Swan, 'Oare Reconsidered and the Origins of Savernake Ware in Wiltshire', *Britannia*, vi (1975), 36-61.

<sup>48</sup> Timby et al., op. cit. note 43.

<sup>49</sup> Young, op. cit. note 32.

<sup>50</sup> Booth et al., op. cit. note 31, no. 214.

TABLE 3. QUANTIFICATION OF ROMAN POTTERY

Ware	SFB Contexts				Other Excavation Contexts				Evaluation Contexts				TOTAL			
	No. sh.	% sh.	Wt. g.	% wt.	No. sh.	% sh.	Wt. g.	% wt.	No. sh.	% sh.	Wt. g.	% wt.	No. sh.	% sh.	Wt.g.	% wt.
F51	26	41.3	600	37.5	1	2.9	24	9.3	4	30.8	24	21.8	31	27.9	648	33.0
M22	2	3.2	24	1.5	4	11.4	76	29.5	1	7.7	46	41.8	7	6.3	146	7.4
M31	1	1.6	18	1.1	1	2.9	4	1.6	1	7.7	12	10.9	3	2.7	34	1.7
M41	2	3.2	121	7.6	1	2.9	6	2.3					3	2.7	127	6.5
W10					2	5.7	10	3.9	2	15.4	10	9.1	4	3.1	20	1.0
W20	1	1.6	42	2.6	1	2.9	1	0.4					2	1.8	43	2.2
Q21	1	1.6	9	0.6									1	0.9	9	0.5
E80					1	2.9	2	0.8					1	0.9	2	0.1
O10	7	11.1	70	4.3	5	14.3	43	16.7	3	23.1	12	10.9	15	13.5	125	6.4
O20	1	1.6	2	0.1	1	2.9	2	0.8					2	1.8	4	0.2
O81	1	1.6	26	1.6									1	0.9	26	1.3
R10	8	12.7	193	12.1	8	22.9	58	22.5	2	15.4	6	5.5	18	16.2	257	13.1
R11					1	2.9	4	1.6					1	0.9	4	0.2
R19					1	2.9	1	0.4					1	0.9	1	0.1
R20					1	2.9	2	0.8					1	0.9	2	0.1
R30	12	19.0	477	29.8	6	17.1	24	9.3					18	16.2	501	25.5
R90					1	2.9	1	0.4					1	0.9	1	0.1
R95	1	1.6	16	1.0									1	0.9	16	0.8
TOTAL	63		1598		35		258		13		110		111		1966	
Average Wt.			25.4				7.4				8.5				17.7	

Decoration was generally unremarkable, but two stamped sherds, both in fabric F51, were of note. These were a base fragment, almost certainly of Young type C45, with part of a semi-literate potter's name stamp as Young 1977, 176 and 178 no. 4, ending in SEO. Young<sup>51</sup> records three examples of this stamp, none from production sites. A fragmentary stamp ending EO is recorded from Lower Farm, Nuneham Courtenay,<sup>52</sup> but this does not appear to have the preceding S. A rim of Young type C85 has a fragmentary rosette stamp. The only other significant decoration recorded was white paint on a rim of Young type C50.1.

#### *Sunken featured buildings*

A significant proportion of the pottery derived from fills of Anglo-Saxon sunken featured buildings (SFBs) and a small number of directly associated features - specifically the fill (191) of pit 190 and fill 147 of posthole 146, a component feature of SFB 121/131. All this material is quantified separately from the remainder in Table 3. The most immediately notable characteristics are that the average sherd weight of this material is substantially higher than that of the remaining pottery and that the SFB sherds contain a higher proportion of Oxford fine and specialist ware products than non SFB contexts (the numbers of sherds from evaluation contexts are too small for their relative proportions to be meaningful, though the fact that 8 of the 13 sherds are 'fine and specialist' wares reflects the pattern in the SFBs rather than other contexts).

Reduced coarse wares are also relatively well represented, though the apparently high average weight of these sherds is accounted for by two large base fragments, one each in fabrics R10 and R30, and the remaining R10 and R30 sherds are generally below the overall average weight. While the SFB fills also contain some small fragments of fabric F51, however, there is a more consistent representation of sizeable sherds in that fabric in these contexts. The F51 sherds from these contexts included a number of pieces of intrinsic interest, including the name and rosette-stamped sherds (see above) and a substantial part of a waster of Young form C45. This distorted sherd, which will have derived from the nearby production site, may have been picked up as a curiosity.

The limited evidence for reuse of pottery on the site was confined entirely to SFB contexts. Two sherds, a small fragment of Oxford colour-coated ware and a base in fabric W20, were both worn, the former on one edge and the latter across the broken edges, suggesting that the base itself had been held inverted in the hand and the broken body walls used for abrasion. A footring base sherd of fabric F51 appeared to have been trimmed along the edge just outside the footring. In addition, the two large reduced ware base sherds mentioned above might both have been trimmed to provide flat discs, but this is less certain as the edges, while quite neat, had not been smoothed off, so it is possible (although unlikely) that they represent 'normal' breakage.

#### *Discussion*

The great majority of the pottery was locally made and much of it probably derived from the nearby production site at Fry's Hill, part of the Sandford/Blackbird Leys production complex. Two small fragments, in fabrics E80 and R19, represent 1st-century activity, but the remainder of the material dates at least from the 2nd century, and most of the diagnostic fabrics and forms are assignable to the late 3rd and 4th centuries. The abnormally high representation of Oxford fine and specialist wares may largely reflect the proximity of production sites, some of which were specialising in these wares, but the different breakdown of the material from SFB and other contexts suggests that a selection process was carried out. While the small overall size of the assemblage means that this suggestion has to be treated with caution, there is good evidence from elsewhere in the Oxford region that Roman pottery was selectively acquired and curated in early Saxon settlement sites. Characteristic features of such assemblages are an unusually high representation of oxidised fabrics, in particular of Oxford colour-coated ware, and instances of trimmed and worn sherds, often bases. The total absence of jar rims in reduced fabrics can also be taken as negative evidence supporting the suggestion that the pottery in the SFBs was selected, since such sherds are particularly characteristic of 'normal' assemblages.

The presence of reworked Roman sherds on Saxon settlement sites is a widely known phenomenon, both within the region and beyond. Locally, at Sutton Courtenay, 'several bottoms of Roman vases pared down to form pot-lids' were noted<sup>53</sup> and worn and trimmed fragments (of Oxfordshire colour-

<sup>51</sup> Young, *op. cit.* note 32, p. 337.

<sup>52</sup> Booth et al., *op. cit.* note 31, p. 173 no. 9.

<sup>53</sup> E.T. Leeds, 'A Saxon Village at Sutton Courtenay, Berkshire: third report', *Archaeologia*, xcii (1947), 85.

coated wares) occurred in SFBs at Audlett Drive, Abingdon.<sup>54</sup> At the Saxon settlement site at Barrow Hills, Radley, the great majority (64%) of the 75 Roman sherds identified as being reused were of Oxfordshire colour-coated ware.<sup>55</sup> With the colour-coated sherds in particular the bases of bowls (including mortaria) were clearly preferred at Barrow Hills, Sutton Courtenay and Audlett Drive, Abingdon. Similarly, 11 of the 26 sherds of fabrics F51 and M41 from the SFBs at the Science Park were from footings of bowls or mortaria (and a further pedestal base from a beaker was also present), a very high proportion. Such sherds lent themselves to conversion into discs, but there may have been other possible uses for them.

The Barrow Hills data suggested not only considerable secondary use of pottery but also, on the basis of the evidence of average sherd weight from the SFBs, more widespread selective collection of Roman sherds. Some of the apparently unmodified pieces found there may have been destined for such treatment, and it is possible that such an argument could be applied to the present assemblage though it is unlikely to be relevant to all the material. The purpose behind the collection of many of the unmodified sherds remains unknown, therefore.

Outside the region evidence for comparable sherd collection is found at sites such as West Stow<sup>56</sup> that produced an assemblage with similar biases to that at Barrow Hills, with an abnormally high proportion of base to body sherds and of fine wares to coarse wares. This was not a universal phenomenon, however, either outside or within the region. Locally there is a positive absence of evidence for collection and reuse of Roman material at Barton Court Farm, for example,<sup>57</sup> while at Yarnton, NW. of Oxford, there is slight evidence to suggest that Oxford colour-coated ware sherds occurred preferentially in SFB fills, but no specific indication of their reuse.<sup>58</sup> There are no clear indications why these practices were observed at some sites and not at others. While the present assemblage is small it is an important addition to the list of sites with evidence of this widespread phenomenon.

# ANGLO-SAXON POTTERY by PAUL BLINKHORN

The pottery assemblage comprised 953 sherds with a total weight of 18,979 g. The minimum number of vessels, by measurement of rimsherd length, was 9.15, of which 7.63 were jars and 1.52 bowls. 28 sherds (423 g.) were of R-B and 25 sherds (382 g.) of Iron Age date, with the rest being Anglo-Saxon. The only dateable Anglo-Saxon vessels from the assemblage appear to be of 6th-century type, although some of the groups which lack decorated wares could be of 7th-century date. The range of fabric types and the styles of decoration are typical of early Anglo-Saxon sites in the area, and it appears likely that the Anglo-Saxon features from this site are part of the larger settlement that was excavated at Barrow Hills, Radley and Barton Court Farm.

## Fabrics

The following fabric types were noted:

F1: *Fine quartz*. Moderate to dense sub-angular quartz up to 0.5 mm. Rare calcareous material of the same size and shape. 416 sherds, 5,832 g., MNV = 4.13.

F2: *Quartz and chaff*. Sparse to moderate subrounded quartz up to 2 mm., sparse to moderate chaff voids, occasional sub-rounded quartz gravel up to 10 mm. 332 sherds, 9,511 g., MNV = 3.36.

<sup>54</sup> C. Underwood-Keevill, 'The pottery', in G.D. Keevill, 'An Anglo-Saxon Site at Audlett Drive, Abingdon, Oxfordshire', *Oxoniensia*, lvii (1992), 71-2.

<sup>55</sup> P. Booth, 'The Roman Pottery', in Chambers and McAdam, *op. cit.* note 10.

<sup>56</sup> J. Plouviez, 'The Late Romano-British Pottery', in S. West, *West Stow the Anglo-Saxon Village* (East Anglian Archaeol. Rep. 24, 1985), 82-5.

<sup>57</sup> D. Miles, D. Hofdahl and J. Moore, 'The Pottery', in D. Miles (ed.), *Archaeology at Barton Court Farm, Abingdon, Oxon: an investigation of late Neolithic, Iron Age, Romano-British and Saxon settlements* (CBA Research Rep. 50, 1986), fiche 7, 13.

<sup>58</sup> P. Booth, 'Roman Pottery from Anglo-Saxon Features', in G. Hey, *Yarnton: Saxon and Medieval Settlement and Landscape* (OAU Thames Valley Landscapes monograph, forthcoming).



207											1	10					E/MS
209	6	22															IA
215	2	18															IA
312	1	1									1	6					E/MS
316											1	10					E/MS
316 310/160											1	11					E/MS
601	1	3			1	4											E/MS
605							1	9									E/MS?
608	3	11			12	107	5	77	1	68			1	9			E/MS
609							1	1	1	5	1	5	1	1			E/MS
610					2	4											E/MS
622			2	6	1	22							1	2			E/MS
624			2	31	23	323	33	469	12	610							6thC?
626			2	31	44	769	32	541	7	98	7	90			5	58	E/MS?
628							2	13									E/MS
629			4	80	30	651	7	293	2	47							E/MS?
632			1	9	1	4					5	57					E/MS
633			7	158	3	25					13	309					E/MS?
634			1	6	1	6			1	15	2	41					E/MS
638			3	26	6	59	1	10	2	51			1	3			E/MS
640					1	19			1	13							E/MS
646					3	25											E/MS
806			3	64													RB
Total	25	382	28	423	416	5832	332	9511	42	1350	86	1140	10	85	9	202	



F3: *Coarse quartz*. Moderate to dense subrounded quartz up to 3 mm. Rare calcareous material of the same size. 42 sherds, 1,350 g., MNV = 0.41.

F4: *Chaff*. Moderate to dense chaff voids up to 10 mm., no other visible inclusions. 86 sherds, 1,140 g., MNV = 0.53.

F5: *Calcareous quartz*. Sparse to moderate sub-rounded calcareous material up to 1 mm. Sparse subrounded quartz up to 0.5 mm. Sparse chaff voids and fine silver mica. 10 sherds, 85 g., MNV = 0.22.

F6: *Oolitic limestone*. Moderate to dense subangular oolitic limestone up to 2 mm., rare subrounded quartz and red ironstone up to 0.5 mm. 9 sherds, 202 g., MNV = 0.50.

In addition, 28 sherds (423 g.) of R-B and 25 sherds (382 g.) of Iron Age pottery were noted. The pottery occurrence by number and weight of sherds per context by fabric type is shown in Table 4. The fabrics are typical of Anglo-Saxon sites in the area, and are similar to those from Radley Barrow Hills and Barton Court Farm.

### Chronology

The dating of early Anglo-Saxon pottery is entirely dependant upon the presence of decorated pottery. Fabric and vessel forms do show change over time, but there appears to be little consistency when such parameters are considered on a regional basis. For example, while the Anglo-Saxon settlement at Mucking, Essex<sup>59</sup> demonstrated an increasing use of chaff-tempered wares through time, the situation was quite the reverse at Pennyland in Buckinghamshire<sup>60</sup> and North Raunds in Northamptonshire,<sup>61</sup> suggesting that the selection of fabric type by potters may have been cultural rather than functional.<sup>62</sup> In the case of vessel forms, Myres<sup>63</sup> noted that apparently early forms can be found in late contexts, and vice-versa. This is perhaps demonstrated by the carinated vessel from context 626 (Fig. 13, 14). Myres suggested that such forms are generally 5th-century in date, but as no other pottery from this site can be dated to that period, it seems more likely that it is later in date, presumably 6th- or perhaps 7th-century.

The chronology of decorated early Anglo-Saxon pottery is still dependant on the dating postulated by Myres,<sup>64</sup> and so that framework is used here. The majority of the decorated pottery from this site had stamped, pendant triangle decoration (e.g. Fig. 12, 1 and 5), which is said by Myres to be typical of the 6th century. Three sherds, from contexts 125, 179 and 187 (NW. quadrant) are each decorated with an internally pressed, incised 'long boss', with the sherd from 125 (Fig. 12, 8) also bearing stamp impressions. This style is also dated by Myres to the 6th century. A sherd from a stamped vessel with a raised slashed collar was noted from context 182 (Fig. 12, 6). Such a style is again dated by Myres to the 6th century.<sup>65</sup>

Some of the context specific assemblages did not produce any decorated pottery. In some cases, this may be due to the size of the group. Decorated pottery rarely comprises more than 5% of the material from domestic sites, and so small groups of plain pottery may date to the early Anglo-Saxon period, but lack the defining decorated wares. In the case of the larger groups, these may date to the 7th century, as stamped pottery was generally no longer made at that time. However, it is equally possible that they may, like the smaller groups, simply lack decorated wares due to the vagaries of deposition. Consequently, such groups have been dated here to the early or middle Saxon period (E/MS). At the same time, some of the decorated pottery that has been used to date context-specific assemblages may in fact be residual, and the group may therefore be later than the incised/stamped wares would suggest. In some cases, the date can be ascribed with confidence. The largely complete stamped vessel from context 187 (Fig. 12, 1) is almost certainly the result of primary deposition, and the date secure. In other groups (Table 5), the decorated sherds are smaller, and the confidence level lower.

<sup>59</sup> H.F. Hamerow, *Excavations at Mucking Vol. 2: The Anglo-Saxon Settlement* (Eng. Heritage Archaeol. Rep. 22, 1994).

<sup>60</sup> P.W. Blinkhorn, 'Early and Middle Saxon Pottery from Pennyland and Hartigans', in R.J. Williams, *Pennyland and Hartigans. Two Iron Age and Saxon Sites in Milton Keynes, Bucks.* (Archaeol. Soc. Mono. Ser. 4, 1993).

<sup>61</sup> P.W. Blinkhorn, 'The Post-Roman Pottery', in M. Audouy, *Excavations at North Raunds, Northants* (Eng. Heritage Monog. Ser.).

<sup>62</sup> P.W. Blinkhorn, 'Habitat, Social Identity and Anglo-Saxon Pottery', in C.G. Cumberbatch and P.W. Blinkhorn (eds.), *Not So Much a Pot, More a Way of Life* (Oxbow Monog. 83, 1997), 113-24.

<sup>63</sup> J.N.L. Myres, *A Corpus of Anglo-Saxon Pottery of the Pagan Period* (2 vols. 1977).

<sup>64</sup> *Ibid.*

<sup>65</sup> *Ibid.* 27

TABLE 5. ANGLO-SAXON POTTERY: DECORATED SHERDS

Context	Cut	No	Wt	MNV	Date	
125		1	18	0	6thC?	stamped incised boss
125		1	5	0	6thC?	stamped pendant triangles
126		1	2	0	6thC?	stamp + incised
179		1	7	0	6thC?	incised boss
182		1	13	0	6thC?	stamped pendant triangles
182		1	7	0	6thC?	Incised
182		1	80	0.25	6thC	near-complete incised miniature-pot
182	A	1	9	0	6thC?	stamped pendant triangle
182	A	1	23	0	6thC?	incised, raised collar, stamp
182	B	1	1	0	6thC?	Incised
182	C	1	5	0	6thC?	stamped and incised
182	C	1	4	0	6thC?	same as collared vessel?
182	D	1	8	0	6thC?	Incised
182	D	1	6	0	6thC?	incised & stamped
182	D	1	5	0	6thC?	Rusticated
183		1	2	0	6thC?	Incised
187		1	3439	0.78	6thC	incised triangles & multiple stamps
187		1	11	0	6thC	incised triangles & stamps
187	NW	1	6	0	6thC	incised boss
624		3	78	0.12	6thC	stamped pendant triangles
624		1	56	0	6thC?	incised boss
624		1	24	0	6thC	Stamped

# *Illustrations (Figs. 12 – 14)*

Fig. 12, 1 and Fig. 14, 1: Context 187, F2: Large stamped vessel. Black fabric with brown patches on both surfaces.

Fig. 12, 2: Context 182 & 182D, F2: Lugged vessel. Black fabric with a smooth and lightly burnished outer surface with brown patches. Wear marks around the lug-holes.

Fig. 12, 3: Context 182, F1: Miniature pot, uniform dark grey fabric.

Fig. 12, 4: Context 182 & 182C, F1. Jar, uniform black fabric with lighter patches on outer lower body.

Fig. 12, 5: Context 182 & 182A, F1. Two non-joining sherds from the same vessel, incised pendant triangles with plain punched circular stamp impression. Both have a uniform black fabric, one sherd has a brown outer surface.

Fig. 12, 6: Context 182A & 182D, F1. Stamped vessel with slashed collar. Fine grey fabric with darker surfaces.

Fig. 12, 7: Context 125, F1. Closed bowl. Black fabric with brown, lightly burnished outer surface.

Fig. 12, 8: Context 125, F3. Bossed and stamped sherd. Grey fabric with smooth, black outer surface.

Fig. 13, 9: Context 126, F2. Jar rim. Grey fabric with variegated reddish-brown and grey surfaces. Lightly burnished outer surface.

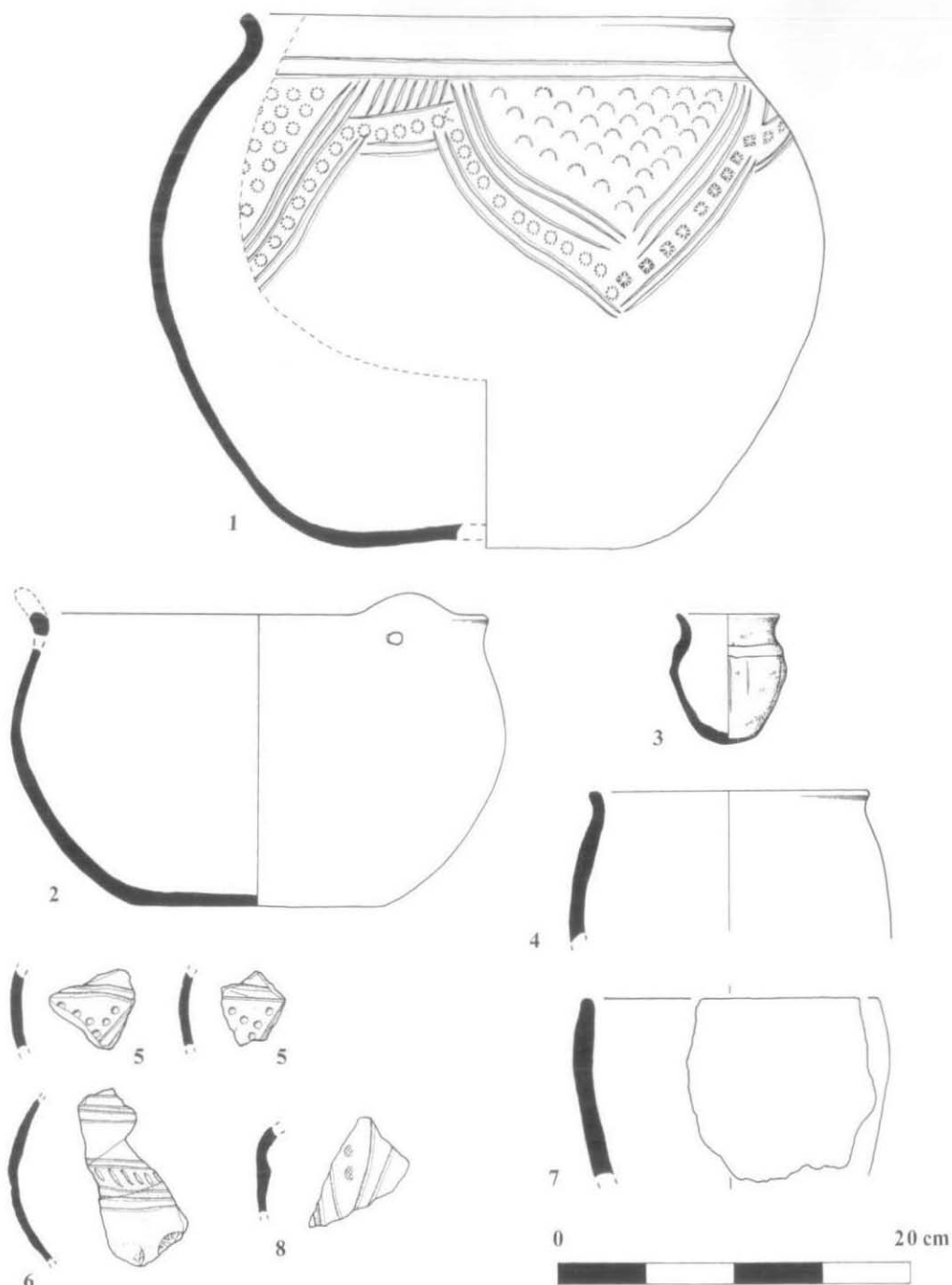


Fig. 12. Anglo-Saxon pottery.

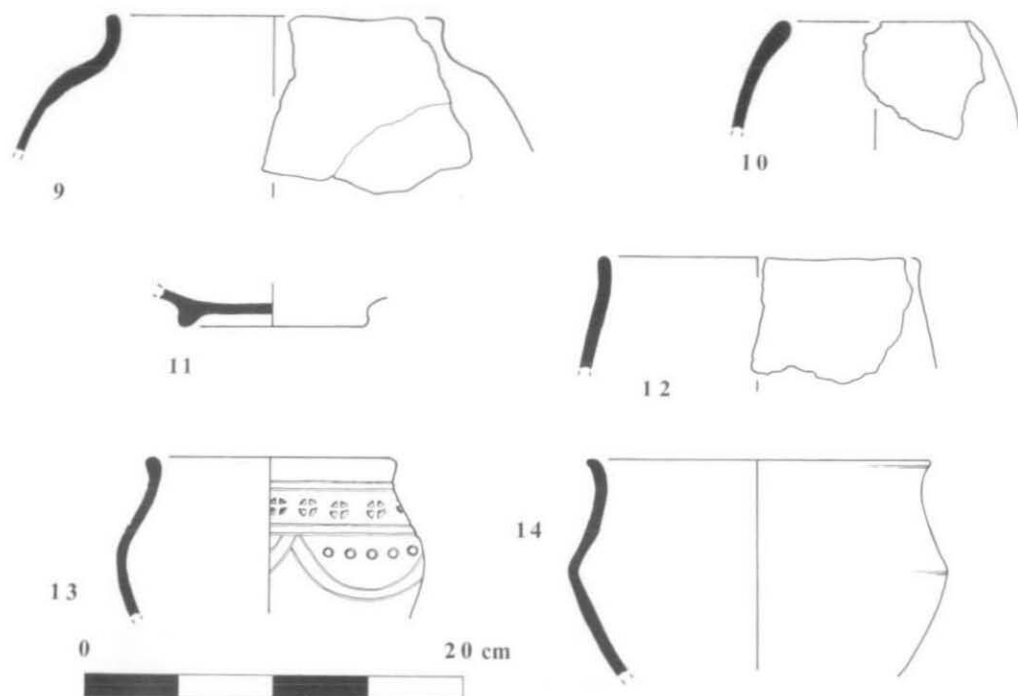


Fig. 13. Anglo-Saxon pottery.

Fig. 13, 10: Context 126, F1. Closed bowl. Uniform black fabric, lightly burnished outer surface.

Fig. 13, 11: Context 126, F1. Footring base. Uniform black fabric with very smooth surfaces.

Fig. 13, 12: Context 608, F1. Jar rim. Grey fabric with dark orange-brown surfaces.

Fig. 13, 13: Context 624, F1. Rim from jar with stamped pendant triangles. Uniform black fabric.

Fig. 13, 14: Context 626, F1. Carinated jar, thick internal black residue below the carination. Uniform black fabric with brown patches on the outer surface.

#### *Vessel Fragmentation*

The mean sherd weight (Anglo-Saxon sherds only) was 20.3 g., which is quite high for assemblages of this date. However, the data is slightly distorted by the near complete, large vessel from context 187. The rim fragmentation is more typical, the mean being 9.8% complete. The parameter is quantified as follows:

> 5% complete: 38.7% of the rimsherd assemblage

5.1-10% complete: 34.4%

10.1-15% complete: 16.1%

15.1-20% complete: 3.2%

20.1-25% complete: 2.2%

25.1-30% complete: 1.1%

35.1-40% complete: 2.2%

40.1-45% complete: 1.1%

75.1-80% complete: 1.1%

Total no. rimsherds = 93

This fragmentation spread is not untypical of early Saxon assemblages, comprising mainly small fragments, probably the result of secondary deposition, and a few more complete vessels that are likely to be the result of primary deposition.

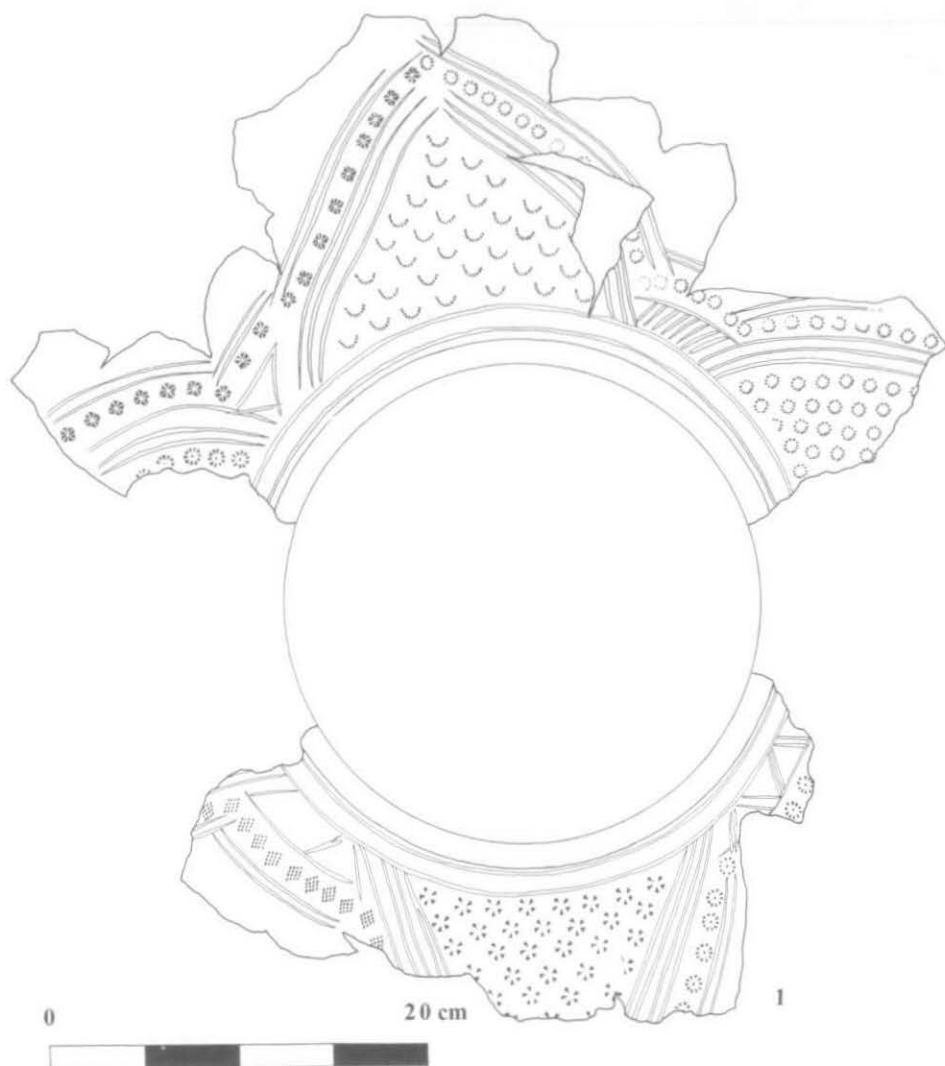


Fig. 14. Anglo-Saxon pottery.

### Cross-fits

Rigorous cross-fit analysis was carried out for all contexts. The only ones that were made were all from the fills of pit 181, as follows:

- 182A=182C: Basesherds
- 182=182D: Lugged vessel
- 182=182C: Plain burnished vessel x2
- 182=182C: Unfinished sandy vessel
- 182B=182D: Large sandy chaff-tempered vessel
- 182A=182D: Collared stamped vessel

The chaff-tempered sherds from contexts 633 and 634 appear to be from the same vessel, although no cross-fits could be made.

# *The Assemblage in its Regional Context*

This assemblage is a useful addition to the growing number of pottery groups from early Anglo-Saxon sites in Oxfordshire that have been analysed and published in recent years. The range of fabric types noted here are very similar to those from other sites, such as Eynsham Abbey<sup>66</sup> and Radley Barrow Hills.<sup>67</sup>

The chronology of this site does appear more limited than those of Radley Barrow Hills and Eynsham, both of which produced evidence of mid 5th-century occupation, and probably continued into the 7th century. The Anglo-Saxon settlement site at Barton Court Farm,<sup>68</sup> some 300 m. SW. of Barrow Hills, is dated to slightly earlier in the 5th century, but also appears to continue until the 7th century. The dating of the decorated wares indicates that this site is contemporary with the features from Barton Court Farm and Radley Barrow Hills.

The amount of pottery from this site (c. 18.9 kg.) is quite large when the number of features is taken into account. Barton Court Farm produced c. 33.5 kg. of pottery, and Radley, which comprised 45 SFBs and 22 post-built structures, produced c. 125 kg. This would suggest therefore that the structures and features at the Science Park site are by no means peripheral, although the amount of pottery deposited in features after abandonment may not be a reflection of their usage.

The range of decorated vessels from this site also appears fairly typical of the pottery of the region. Bossed, incised sherds are not uncommon in comparison to other decorated types, despite being regarded as more typical of 'Anglian' areas.<sup>69</sup> Such vessels are known from Eynsham, Barton Court Farm and Radley.

It appears that the site did not carry on much beyond the early 7th century at the latest. As noted above, it is very difficult to date Anglo-Saxon pottery assemblages to the 7th century. A few 8th-century sites have been identified in the Thames Valley by the presence of Ipswich ware pottery, such as at Eynsham Abbey or the Sackler Library site in Oxford, or of other dateable artefact types, such as coins. Ipswich ware was not present at the Science Park site, suggesting an end-date similar to Radley or Barton Court Farm, i.e. during the early years of the 7th century.

## MEDIEVAL AND POST-MEDIEVAL POTTERY by MAUREEN MELLOR

Some 242 handmade and wheel thrown sherds (2250 g.) were recovered from the evaluation and subsequent excavation and watching brief. These date to the second half of the 12th century AD through to the 19th century. The range of medieval fabrics reflects production centres that are well known in the urban sequences in Oxford.<sup>70</sup>

Pottery vessels are a commodity and all the pottery could have been bought from Oxford market; there is very little evidence of the sandy ceramic tradition (OXAG – Ashampstead type<sup>71</sup>) popular in Abingdon, some 6 km. to the SW. of the site. This follows the pattern of ceramic distribution at nearby Kennington Manor<sup>72</sup> but not the pattern at Dean Court Farm, Cumnor, a medieval grange of Abingdon Abbey some 3 km. W. of Oxford.<sup>73</sup>

<sup>66</sup> P.W. Blinkhorn, 'The Post-Roman Pottery', in *Excavations at Eynsham Abbey* (OAU Thames Valley Landscapes Monog., in prep.).

<sup>67</sup> P.W. Blinkhorn, 'The Anglo-Saxon Pottery', in Chambers and McAdam, op. cit. note 10.

<sup>68</sup> D. Miles (ed.), *Archaeology at Barton Court Farm, Abingdon, Oxfordshire* (CBA Research Rep. 50, 1986).

<sup>69</sup> J.N.L. Myres, *The English Settlements* (1986), Fig. 3.

<sup>70</sup> M. Mellor, 'Pottery', in N. Palmer, 'A Beaker Burial and Medieval Tenements in The Hamel, Oxford', *Oxoniensia*, xl (1980), 160-82.

<sup>71</sup> M. Heaton and L. Mepharm, 'A Medieval Pottery Kiln at Ashampstead, Berkshire', *Medieval Ceramics*, 19 (1995).

<sup>72</sup> M. Mellor, 'A Synthesis of Middle and Late Saxon, Medieval and Early Post-medieval Pottery in the Oxford Region', *Oxoniensia*, lix (1994), 79.

<sup>73</sup> Ibid.; T.G. Allen, 'A Medieval Grange of Abingdon Abbey at Dean Court Farm, Cumnor, Oxon', *Oxoniensia*, lix (1994), 219-447.

The coarsewares from the distant east Wiltshire production sites in the vicinity of the Savernake Forest follow a distribution highlighted in recent studies.<sup>74</sup> The majority of the evidence suggests some settlement nearby in the second half of the 12th century but more certainly in the 13th and possibly 14th centuries. The 13th-century finewares suggest that the inhabitants enjoyed a similar range of decorated and colourful jugs as urban dwellers in Oxford.

The presence of Rhenish stonewares, imported into this country in bulk from the 16th century, may be related to manuring practices, or suggest that farm labourers brought their daily liquid to the fields in these robust vessels, which broke less readily than locally produced earthenware vessels.

## FLINT by HUGO LAMDIN-WHYMARK

A total of 105 pieces of flint were recovered from the site, including two pieces (6 g.) of burnt unworked flint. The flint was collected from the fills of a number of features, the majority of which were Iron Age or Saxon. The general character of the struck flint would suggest a mixed assemblage, containing a number of late Mesolithic flints alongside Neolithic and Bronze Age material.

### *Methodology*

The artefacts were catalogued according to broad artefact/debitage type, general condition noted and dating attempted where possible. Unworked burnt flint was quantified by piece and weight.

### *Raw material and condition*

The flint used appears to be mostly gravel-derived and of reasonably good quality, the closest source being to the W. at Sandford on Thames. A few blades were noted as being manufactured from a very fine quality grey flint, which may be chalk flint. The flint was generally in an uncorticated condition, although 26 pieces exhibited a heavy white cortication. The heavy cortication correlates with those pieces deemed to be Mesolithic (i.e. the microliths and fine soft hammer blades), although the degree of cortication does not reliably indicate antiquity. The majority of the flint was in a relatively fresh condition, although a quarter of the assemblage exhibited some degree of post depositional damage.

### *The assemblage*

The assemblage consists of both broad flakes and narrow blades, indicating a mixed date. The majority of the blades appear to have been struck with a soft hammer, whilst the flake material shows a mixture of both hard and soft hammer techniques. A single face/edge rejuvenation, struck from a fine blade core with platform edge abrasion, was present in the assemblage.

Six retouched pieces were found, including two microliths, two scrapers, a retouched flake and a serrated flake. The microliths were both broken and one was burnt. They are narrow blade microliths of a late Mesolithic date, one resembling Jacobi's 7a2.<sup>75</sup> A finely retouched thumbnail scraper, of Early Bronze age date, was recovered from context 159, the fill of a medieval pit. The other scraper is manufactured on a thick flake with minimal distal retouch, and broadly dates to the Neolithic or Bronze Age. The serrated flake was made on a blade-like flake, exhibiting slight backing retouch along one side and well worn serrated teeth along the opposing side. Silica gloss was present on the ventral surface of the teeth. This deposit accumulates from the cutting of silica rich plants.<sup>76</sup> Serrated flakes are found in assemblages from the Mesolithic through to the Early Bronze Age.

### *Discussion*

The large proportion of the assemblage was recovered from Iron Age and Saxon contexts and has traces of post-depositional damage, and is therefore residual. Despite its residual nature, the small late Mesolithic assemblage is of considerable interest due to the scant evidence for activity of this date around Oxford. The closest Mesolithic activity identified was approximately 3 km. to the NW.,

<sup>74</sup> Mellor, op. cit. note 72, pp. 100-6.

<sup>75</sup> R. Jacobi, 'The Mesolithic of Sussex', in P.L. Drewett (ed.), *Archaeology in Sussex to AD 1500* (CBA Research Rep. 29, 1978), 16.

<sup>76</sup> H. Jeul Jensen, *Flint Tools and Plant Working. Hidden traces of stone age technology* (Aarhus Univ. Press 1994), 62-3.



alongside the Thames at Iffley (SP 527 048).<sup>77</sup> The assemblage itself appears to represent a general spread of background activity rather than a distinct occupation or working area. This site, as with many Mesolithic sites, is in close proximity to a river, and reflects the probable exploitation of resources in such areas.<sup>78</sup>

### Catalogue

A selection of the Mesolithic material is illustrated (Fig. 15).

1. Context 635 - A face and edge rejuvenation from a blade core with platform abrasion.
2. 636 - This serrated flake has well worn serrated teeth along the right hand side and left distal. The proximal left hand side exhibits slight abrupt backing retouch. Silica gloss is visible along the distal right hand side. The distal point has also been used as an awl and exhibits soft use-wear.
3. 103 - A corticated blade, with dorsal blade removals.
4. 336 - A corticated blade.
5. 626 - A burnt and broken microlith.
6. 205 - A broken narrow blade microlith, similar to Jacobi's 7a2.

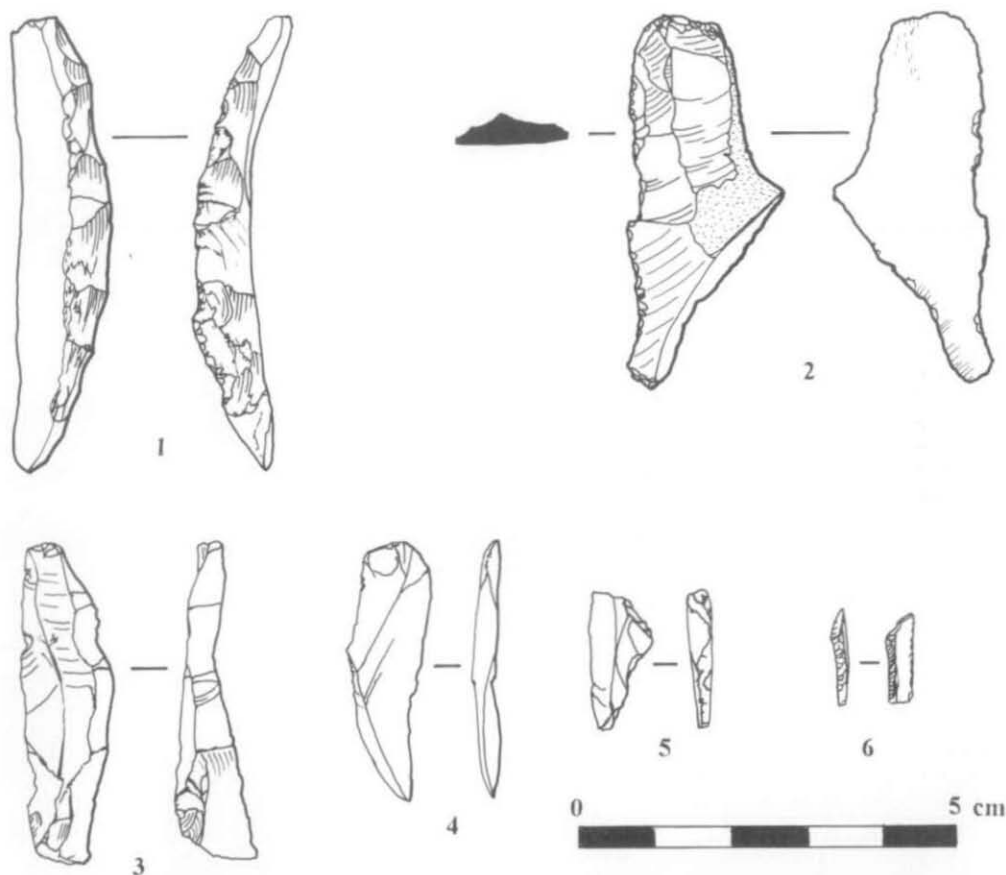


Fig. 15. Lithics.

<sup>77</sup> R. Holgate, 'Mesolithic, Neolithic and Earlier Bronze Age Settlement Patterns South-West of Oxford', *Oxoniensia*, li (1986), 14.

<sup>78</sup> *Ibid.* 10.

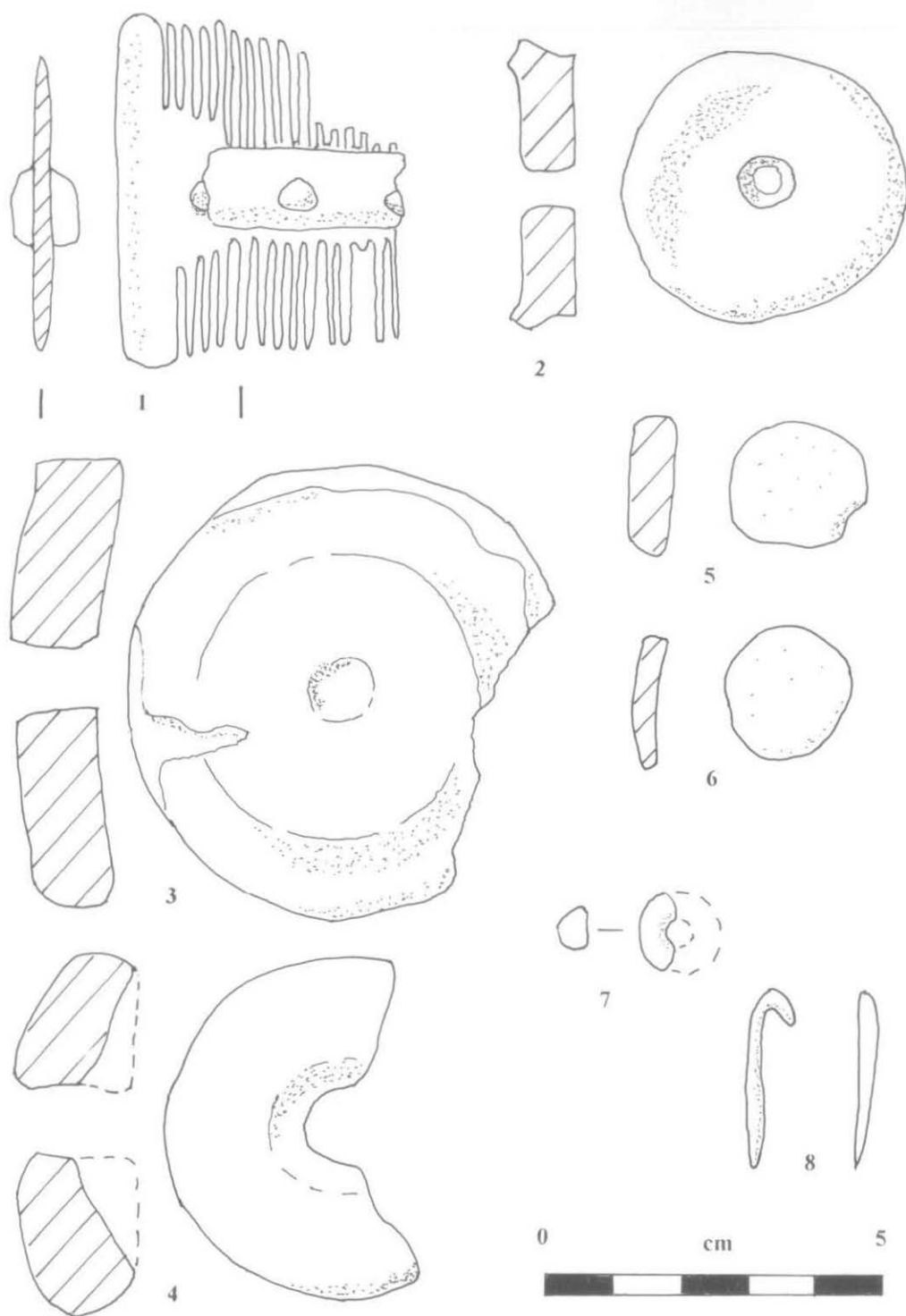


Fig. 16. Anglo-Saxon objects.

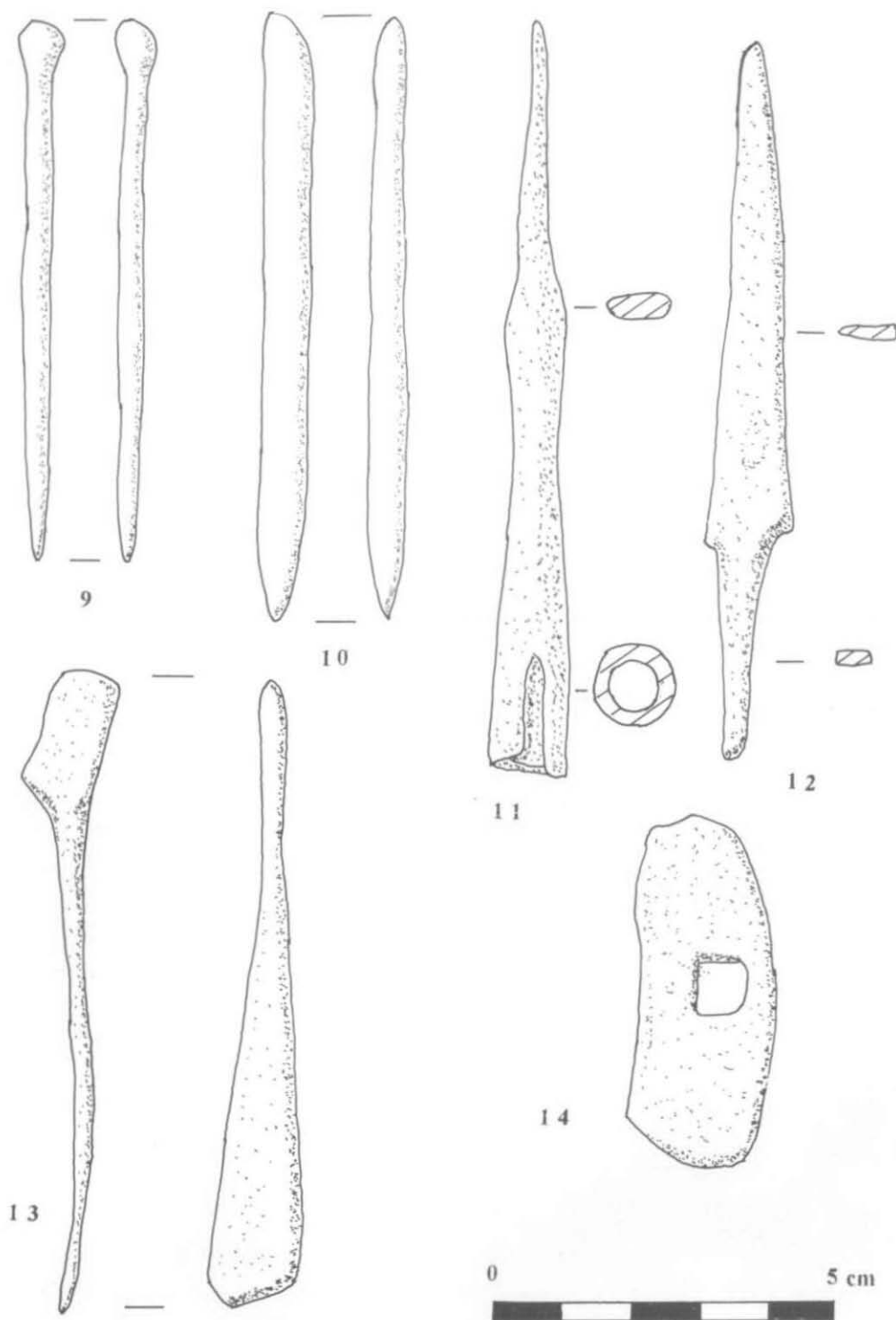


Fig. 17. Anglo-Saxon objects.

## ANGLO-SAXON FINDS

The significant finds are illustrated on Figs. 16 and 17.

1. Context 634, incomplete bone weaving comb. Teeth worn. Maximum height at end 52 mm., teeth 45 mm., end thickness 2.5 mm., thickness including braces 9.5 mm., braces 12 mm. high.
2. 182, ceramic spindle whorl made from cut down Roman white ware base. Diameter 35-38 mm., 10 mm. thick, hole diameter 6 mm.
3. 626, ceramic spindle whorl made from Roman shelly ware base. Diameter 66 mm., 14 mm. thick, hole diameter 9 mm. Irregular.
4. 626, broken fired clay spindle whorl. Diameter 53 mm., 22 mm. thick, hole diameter 11 mm.
5. 182, ceramic gaming piece made from cut down pottery body colour coat sherd. Sub-circular, 18-20 mm. in diameter, 5 mm. thick.
6. 182, ceramic gaming piece made from cut down pottery body colour coat sherd. Sub-circular, 18-19 mm. in diameter, 5 mm. thick.
7. 147, blue glass bead, diameter 10 mm., 5 mm. thick, hole c. 4 mm. in diameter.
8. 638, copper alloy brooch pin, 26 mm. long.
9. 125, bone pin 77 mm. high, top - rounded knob 5.5 mm. in diameter, tapered end, shaft 4 mm. diameter at thickness.
10. 187, bone, pin or spatula, top end slightly broken, bottom end tapered but flattened. Oval cross-section 5 mm. x 4 mm., 88 mm. long.
11. 634, small iron spearhead, 110 mm. long. Top pointed 38 mm. long, 4 mm. in diameter, before widening out to 11 mm. Shaft 13 mm. in diameter, internal 8 mm. in diameter.
12. 624, iron knife 119 mm. long, extreme tip broken. Blade surviving 85 mm., tang 34 mm. long. Blade 12 mm. wide at heel.
12. 125, iron object, 93 mm. long. Shaft splays out to broad end, 15 mm. wide. Other end at right angle to shaft end, flat end 24 mm. long, 14 mm. wide at heel.
- 623, toe of horse shoe. Width 18 mm., thickness 4 mm. Square nail hole 8 mm. x 8 mm.

## HUMAN BONE by T.A. JACKMAN

The condition of the skeleton (203) is very poor; the bone is soft and friable. Very little of the post-cranial skeleton remains. The skull is fragmented but well represented with parts of the maxilla and mandible present.

The skeleton is possibly that of a female. The only surviving indicator of the sex of the skeleton is the mastoid process that is small and the zygomatic process that does not extend beyond the mastoid. The individual was a young adult; the 3rd molars are erupting and there is very little wear to the other molars.

The teeth have a small amount of calculus present on the lingual surfaces of the molars and there are four very small carious lesions also involving the molars.

## ANIMAL BONE by CLAIRE INGREM

A significant quantity of animal bone was recovered during the watching brief and excavation. Due to the problems of residual material being found in the prehistoric pits and few medieval features being present, this report concentrates on the important Anglo-Saxon assemblage.

*Methodology*

The animal bone was identified and recorded at the Centre for Human Ecology and Environment, Department of Archaeology, University of Southampton. All of the anatomical elements were identified to species where possible with the exception of ribs and vertebrae that were assigned to size categories. Mandibles and limb bones were recorded using the zonal method developed by Serjeantson<sup>79</sup> to produce a basic fragments count (NISP). The presence of gnawing, butchery and burning together with the agent

<sup>79</sup> D. Serjeantson, 'The Animal Bones', in S. Needham and T. Spence (eds.), *Runnymede Bridge Research Excavations, Volume 2. Refuse and Disposal at Area 16 East Runnymede* (1996), 194-233.

responsible was recorded. Measurements were taken according to von den Driesch<sup>80</sup> and Payne and Bull.<sup>81</sup> The wear stages of the lower cheek teeth were recorded using the method proposed by Grant<sup>82</sup> and age attributed according to the method devised by Payne<sup>83</sup> for sheep/goat and Legge<sup>84</sup> for cattle. Horse age was estimated using the method of Levine.<sup>85</sup> The fusion stage of post-cranial bones was recorded and age ranges estimated according to Getty.<sup>86</sup>

TABLE 6. SPECIES REPRESENTATION ACCORDING TO PHASE (NISP)

	IA	Saxon	Medieval	Post-medieval	Total
Cattle	1	305	1	6	313
Sheep/goat		106		6	112
Sheep		13			13
Goat		2			2
Pig	1	89	347	5	442
Horse		11	1		12
Dog		0		4	4
Roe deer		4			4
Red deer		3			3
Hare		30			31
Stoat		1			1
Goose		3			3
Domestic fowl		3		1	4
?Starling		1			1
Bird indet.		6			6
Frog		10			10
Toad		1			1
Amphibian indet.		190		2	192
Cattle-sized	6	1082	6	13	1107
Sheep-sized		180	14	3	197
Unidentified	26	1174	11	25	1237
Total	34	3214	380	65	3695

<sup>80</sup> A. von den Driesch, *A Guide to the Measurement of Animal Bones from Archaeological Sites* (Peabody Mus. Bull. 1, 1976).

<sup>81</sup> S. Payne and G. Bull, 'Components of Variation in Measurements of Pig Bones and Teeth and the Use of Measurements to Distinguish Wild from Domestic Pig Remains', *Archaeozoologia*, 2 (1988), 27-65.

<sup>82</sup> A. Grant, 'The Use of Toothwear as a Guide to the Age of Domestic Ungulates', in R. Wilson, C. Grigson and S. Payne (eds.), *Ageing and Sexing Animal Bones from Archaeological Sites* (BAR 109, 1982), 91-108.

<sup>83</sup> S. Payne, 'Kill-off patterns in Sheep and Goats: the mandibles from Asvan Kale', *Anatolian Studies*, xxiii (1973), 281-303.

<sup>84</sup> A.J. Legge, *Animals, Environment and the Bronze Age Economy* (1992).

<sup>85</sup> M. Levine, 'The Use of Crown Height Measurements and Eruption-wear Sequences to Age Horse Teeth', in Wilson, Grigson and Payne, op. cit. note 82, pp. 223-51.

<sup>86</sup> R. Getty (ed.), *Sisson and Grossman's The Anatomy of the Domestic Animals* (5th edn. 1975).



Unciform	1										
Scaphoid	2										
Metacarpal	5	8	1								
Metatarsal	7	9		1							
Metapodial	6	1	4				9			1	
Lateral metapodial			5								
1st Phalanx	14	2	1								
2nd Phalanx	12		1								
3rd Phalanx	4		1								
Cervical vert.										1	1
Caudal vert.	3									2	
Thoracic vert.	1									6	
Lumbar vert.										1	6
Sacrum										1	
Rib										52	19
Skull frag.	2		5							27	
Tooth frag.	7	2	3								
Long bone frag.										85	32
Vertebra frag.	3									76	4
Rib frag.										279	117
Total	*304	121	89	11	4	3	**30	3	3	541	180
%	24	9	7	1	<1	<1	2	<1	<1	42	14
MNI	10	5	4	1	1	1	2				

All fragments under 50% of a zone and over 1 mm. were counted and where possible these were ascribed to the relevant size categories and noted as either long bone, vertebral or skull fragments. Those fragments categorised as large mammal are probably derived mainly from cattle and horse, similarly medium sized mammal fragments will be derived predominantly from sheep/goat and pig. The minimum number of elements (MNE) was calculated by adding together the most numerous left and right sided zones for each element. The minimum number of individuals (MNI) was estimated as the highest MNE score obtained from an element derived from one side of the body.

A selected suite of elements was used to differentiate between sheep and goat during recording according to the methods of Boessneck,<sup>87</sup> Payne<sup>88</sup> and Rowley-Conwy.<sup>89</sup> These were the distal humerus, proximal radius, distal tibia, metapodials, astragalus, calcaneus and deciduous fourth premolar. A small number of elements were positively identified as goat and therefore for the purposes of this report the remains of ovicaprids are referred to as sheep/goat. Frog and toad were differentiated using the ilium. Goose and duck have been assigned to species on the basis of size in comparison to reference specimens.

<sup>87</sup> J.A. Boessneck, 'Osteological Differences between Sheep (*Ovis aries* Linné) and Goat (*Capra hircus* Linné)', in D.R. Brothwell and E.S. Higgs (eds.), *Science in Archaeology* (1969), 331-58.

<sup>88</sup> S. Payne, 'Morphological Distinctions between the Mandibular Teeth of Young Sheep, *Ovis*, and goats, *Capra*', *Jnl. Archaeol. Sci.* 12 (1985), 139-47.

<sup>89</sup> P. Rowley-Conwy, 'The Animal Bones from Arene Candide', in *Arene Candide: a Functional and Environmental Assessment of the Holocene Sequence* (Memorie dell'Istituto Italiano di Paleontologia Umana, vol. V, 1997), 153-277.

### Data

A total of 3,695 fragments of animal bone was recovered from securely dated contexts with the majority (86%) derived from Anglo-Saxon deposits (Table 6). Thirty-four fragments were recovered from Iron Age features and 97 (excluding skeletons) from medieval and post-medieval deposits. These quantities are too small to warrant further analysis particularly as the later material is insecurely dated. However, it was noted that a pit (159) dated to the 12th to 15th century contained a very young pig skeleton, and the post-medieval quarrying area (Context 322) produced the proximal femur of a large terrier-sized dog. A considerable amount of animal bone remains insecurely dated ( $n=1328$ ) including a horse skull recovered during the watching brief from peat deposits (Context 801). This report and Tables 7-13 therefore address only the material recovered from Anglo-Saxon deposits.

Fourteen species were present; these are cattle (*Bos taurus*), sheep (*Ovis aries*), goat (*Capra hircus*), pig (*Sus scrofa*), horse (*Equus caballus*), roe deer (*Capreolus capreolus*), red deer (*Cervus elaphus*), hare (*Lepus europaeus*), stoat (*Mustela erminea*), goose (*Anser anser*), domestic fowl (*Gallus gallus*), pheasant (*Phasianus*), frog (*Ranidae*), toad (*Bufo*) and probably starling (*Sturnus vulgaris*). In addition a few fragments of human bone were present.

### Cattle

Cattle are the most numerous species according to both NISP and MNI with the latter suggesting that at least 10 individuals are represented (Table 7). The mandible is the most numerous cattle element, other dense elements such as loose teeth and major limb bones are also fairly well represented suggesting that the assemblage has been biased by density related preservation. The scarcity of fragile skull elements is also probably related to survival bias whilst the under-representation of small bones such as tarsals and carpals is likely to reflect recovery bias. The presence of elements from all parts of the body in addition to cattle sized ribs and vertebral fragments suggests that at least some animals were originally present as whole carcasses.

Epiphyseal fusion data is shown in Table 8 and suggests that a high proportion (43%) of cattle died in their first year, and about 33% survived into adulthood. Although toothwear is generally more reliable only a small sample was available and this contrasts with the fusion data. It indicates that the majority of cattle were over 15 months of age at the time of slaughter and most of these were adult (Table 10).

A significant proportion (10%) of the cattle bones had been gnawed by canids (Table 12). This attests to the presence of dogs at the site and implies that bone waste was available to them rather than being rapidly buried. A significant amount (6%) also possessed evidence of butchery with chop and cut marks observed in almost equal amounts. A very small proportion had been burnt.

TABLE 8. CATTLE AGE ACCORDING TO EPIPHYSEAL FUSION

		Fused	Unfused	% unfused
7-10 months	Scapula	2	2	
	Pelvis	2	1	
<b>Subtotal &lt;1yr</b>		<b>4</b>	<b>3</b>	<b>43</b>
12-15 months	Radius,p	4	1	
15-18 months	Phalanx II	7	3	
18-20 months	Humerus,d	6	1	
20-24 months	Phalanx I	11	1	
<b>Subtotal &lt;2yrs</b>		<b>28</b>	<b>6</b>	<b>18</b>
24-30 months	Tibia,d	2	2	
"	Metacarpal	2	1	
"	Metatarsal	2		
<b>Subtotal &lt;3yrs</b>		<b>6</b>	<b>3</b>	<b>33</b>
36 months	Calcaneus	1	4	
36-42 months	Femur,p		3	
42-48 months	Humerus,p			
"	Radius,d	2	1	
"	Ulna,p	1		
"	Femur,d	1	1	
"	Tibia,p		1	
<b>Subtotal &lt;4yrs</b>		<b>5</b>	<b>10</b>	<b>66</b>



TABLE 9. SHEEP AGE ACCORDING TO EPIPHYSEAL FUSION

		Fused	Unfused	% unfused
3-4 months	Humerus,d			
"	Radius,p	3		
5 months	Scapula	3	1	
"	Pelvis	2		
5-7 months	Phalanx II			
7-10 months	Phalanx I		2	
<b>Subtotal &lt;1yr</b>		<b>8</b>	<b>3</b>	<b>27</b>
15-20 months	Tibia,d		1	
20-24 months	Metacarpal	1		
"	Metatarsal	2		
<b>Subtotal &lt;2yrs</b>		<b>3</b>	<b>1</b>	<b>25</b>
36 months	Calcaneus			
<b>Subtotal &lt;3yrs</b>				
36-42 months	Femur,p			
42 months	Humerus,p			
"	Radius,d		2	
"	Ulna,p	1		
"	Femur,d	2	2	
"	Tibia,p		1	
<b>Subtotal &lt;3.5yrs</b>		<b>3</b>	<b>5</b>	<b>63</b>

### Sheep/goat

Sheep and goat were both present and of the 15 bones which allowed identification 13 belonged to sheep; however for the purposes of this report they have been grouped together as sheep/goat (Table 7). Sheep/goat are also best represented by the mandible and major limb bones including metapodials. There is a notable scarcity of fragile and small bones including loose teeth, which again suggests that the assemblage has been affected by density related preservation and recovery. The presence of a few skull and foot bones along with sheep-sized ribs suggests that at least some whole carcasses were originally present.

The sheep/goat sample is too small to provide reliable ageing data but the epiphyseal fusion data suggests that a quarter died in their first year, a third in their third year and a considerable proportion survived into adulthood (Table 9). Tooth eruption and wear data although based on a small sample, supports the cull of first and third year animals (Table 11).

A significant proportion (7%) of sheep/goat bones had been gnawed by canids, and as the comparatively fragile bones of sheep can be easily destroyed by dogs this suggests that sheep may be under-represented (Table 12). A smaller proportion (2%) displayed evidence of butchery and all of these had been chopped. There was no evidence for burning.

### Pig

Pig are present in only slightly smaller numbers than sheep/goat with a minimum of four individuals represented. Limb bones are better represented than mandibles but elements from all parts of the body are present including several fragile skull bones. Carpals, tarsals and phalanges are again poorly represented (Table 7).

No teeth were able to provide ageing information and the epiphyseal fusion data is too small to provide a reliable estimate of age, however it does indicate that almost all the pig bones belonged to immature animals. Three canine teeth were able to provide an indication of sex, two were male, the other female.

A slightly smaller proportion of pig bones showed evidence of canid gnawing (6%) and a small proportion had been burnt (Table 12).

TABLE 10. ESTIMATED AGE OF CATTLE  
ACCORDING TO TOOTHWEAR

P4	M1	M2	M3	Estimated Age
(f)				1-3 months
(k)	g			15-26 months
(k)	g			15-26 months
(k)	j	g	b	26-36 months
(k)				26-36 months
f	k	j	g	3-6 years
	k	j		3-6 years
f	k	k	j	6-8 years
	k	k		6-8 years
g	l	k	j	6-8 years
j	m	l		6-8 years
			j	6-8 years

TABLE 11. ESTIMATED AGE OF SHEEP/GOAT  
ACCORDING TO TOOTHWEAR

P4	M1	M2	M3	Estimated Age
(g)		E		6-12 months
(g)				6-12 months
(h)	f			6-12 months
(j)				6-12 months
E	g	e		2-3 years
F	g	f	b	2-3 years
(l)	j			2-3 years
			b	2-3 year*s
			b	2-3 years
			b	2-3 years
			c	2-3 years
			e	3-4 years

*Horse*

A few fragments of horse, representing a minimum of one individual were recovered.

Fragments from the mandible were the most numerous and with the exception of a lower incisor and a metatarsal, the remaining fragments are from the major forelimb bones (Table 7).

There was no evidence of immature horse and the crown height of a mandibular third molar (27.1 mm.) provide an estimated age of  $13\frac{3}{4}$ -20 years of age at the time of death.<sup>90</sup> One bone displayed gnaw marks, another had been burnt (Table 12), and a fragment of mandible had been worked.

TABLE 12. INCIDENCE OF TAPHONOMY (% UNLESS OTHERWISE INDICATED)

	Gnawed		Butchered			Burnt
	Canid	Rodent	Cut	Chopped	Both	
Cattle	10		3	3	<1	<1
Sheep/goat	7	<1		2		
Pig	6					1
Horse	9					9
Red deer					n=1	
Goose	n=1					
Cattle-sized	<1		2	<1	<1	1
Sheep-sized	3		1	4		
Unidentified						7

<sup>90</sup> Levine, op. cit. note 85.

### *Wild animals*

A few fragments of red and roe deer were recovered with roe deer being represented by a scapula, radius and tibia, red deer by antler, scapula and tibia. The remains of at least two hares including a partial skeleton were recovered from a sunken featured building (Table 7). In addition, the mandible of a juvenile stoat and several amphibian bones, which included both frog and toad, were recovered but are unlikely to have an anthropogenic origin (Table 6).

The proximal radius, distal scapula and tibia belonging to roe deer all possessed fused epiphyses indicating that they were not from very young animals. No evidence for the age of red deer was available. All the hare remains belonged to adult animals.

With the exception of the fragment of red deer antler which had been sawn through, no evidence of taphonomy was visible on any of the wild animal remains (Table 12).

### *Birds*

At least one goose, domestic fowl and pheasant were present. Goose was represented by a coracoid, pelvis and tibia whilst domestic fowl bones belonged to just the fore limb. Pheasant was represented by a coracoid (Table 7).

There was nothing to suggest that any of the birds were immature. The only evidence of taphonomy was seen on the pelvis belonging to goose which had been gnawed probably by a canid (Table 12).

### *Contexts*

The majority (88%) of the identifiable bone fragments came from eight contexts (125, 126, 155, 182, 187, 622, 634 & 638), all fills of the sunken featured buildings (SFBs). Sunken featured building 3 (Context 182) produced the largest single concentration. The group is fairly representative of the assemblage as a whole with regard to the major domesticates. However, 19 bones belonged to the partial skeleton of a hare and the remaining 11 hare bones were all found here. Horse, roe deer, red deer, goose and the probable starling also came from this context.

The fill (622) of SFB 6 also produced a large quantity of animal bone including many cattle-sized fragments which could not be identified further due to their fragmentary condition caused during excavation (Table 13). However, the remainder comprised a considerable number of complete cattle bones with matching toothrows, radii, humeri, femora and metacarpals indicating that this represents one individual. No butchery or gnawing was observed on this animal suggesting that it was not utilised for food and was buried soon after deposition. Two fragment of sheep/goat and one of pig were the only other animal bone recovered from this context.

A significant concentration of animal bone was also recovered from SFB 2 (Context 155). Apart from the three domesticates, which are present in proportions similar to those seen in the assemblage as a whole, no other species was identified. Two contexts in SFB 1 (Context 125, 126) also produced significant quantities, pig was slightly more numerous than sheep/goat and two bones of horse were found in both contexts. Two bones of domestic fowl were also recovered from Context 126. In addition to the major domesticates, SFB 4 (187) contained two fragments of red deer and SFB 8 a fragment of roe deer.

The majority of the amphibian bones were found in the fill (Context 634) of SFB 9 and represent the remains of at least two individuals although it was not possible to determine whether they belonged to frog or toad. Several amphibian bones were also recovered from two postholes (147, 169) belonging to SFB 1; the latter context also produced an ilium positively identified to toad and it is therefore probable that the other remains belong to this species.

### *Metrical data*

Measurement obtained from one horse and numerous cattle and sheep/goat bones are given in the archive. Where possible comparisons have been made with those held on the Animal Bone Metrical Archive Project at the Centre for Human Ecology and Environment. In general the bones from Oxford Science Park are of a similar size to those recovered from other early medieval sites. Only one falls outside the range, a cattle humerus, which is larger than those previously found on contemporary sites, and may represent an exceptionally large bull.

### *Pathology*

Two cattle 1st phalanges with periarticular exostosis around the proximal articular joint anteriorly were recovered from the fill of a sunken featured building (SFB 1, Context 125, 126). This is probably a result of repeated stress and an early stage of degenerative osteoarthritis.

TABLE 13. CONTEXTS CONTAINING SIGNIFICANT CONCENTRATIONS OF ANIMAL BONE

Feature	SFB1		SFB 2	SFB 3	SFB 4	SFB 6	SFB 9	SFB 8
Context	125	126	155	182	187	622	634	638
Cattle	14	31	41	67	22	65	16	20
Sheep/goat	2	14	22	46	7	2	10	10
Pig	6	17	15	31	1	1	1	11
Horse	2	2		2				
Roe deer				3				1
Red deer				1	2			
Hare				30				
Goose				2			1	
Domestic fowl		2						
?Starling				1				
Bird indet.				3			1	
Frog	1						9	
Amphibian indet.	5	1					164	
Cattle-sized	26	41	55	145	38	680	24	40
Sheep-sized	11	17	32	80	6		13	5
Unidentified	65	157	103	363	114		31	91
Total	132	282	268	774	190	748	270	178

### Discussion

The predominance of cattle indicates that beef was the meat most often eaten, body part representation indicates that some animals were brought to the site on the hoof with the presence of immature animals suggesting that the inhabitants may have husbanded their own animals. A high proportion of very young and adult cattle is often believed to reflect a dairy economy in which calves are slaughtered in order to restrict competition for milk.<sup>91</sup> At Oxford Science Park there is little evidence for the slaughter of very young cattle, however the considerable proportion of adults suggests that most of the beef eaten came from cattle which were kept primarily for their secondary products. Either calves were disposed of off-site, or adult cattle at the end of their working life were imported to the site. In addition to milk, adults would have been kept for breeding stock, traction and manure. Some animals were slaughtered between 2 and 3 years of age, when they would have provided prime beef.

Of the ovicaprids, sheep were present in larger numbers than goats and again it is likely that these were brought in on the hoof. Toothwear data suggest that most were slaughtered in their first and third years which implies that prime lamb and mutton was being eaten. There is no evidence to suggest that wool was produced in sufficient quantities to produce a surplus for trade.

Pigs were slaughtered when immature which is to be expected for an animal which reaches its prime meat weight before physical maturity. As with the ovicaprids the bones of these animals are more prone to destruction than those of larger animals, especially as juvenile bone is porous and the greasy nature of pig bone renders them attractive to dogs.<sup>92</sup>

<sup>91</sup> A.J. Legge, 'The Agricultural Economy', in R. Mercer, *Grimes Graves, Norfolk: Excavations 1971-72* (1981), 79-103.

<sup>92</sup> J. Clutton-Brock, 'The Animal Resources', in D.M. Wilson (ed.), *The Archaeology of Anglo-Saxon England* (1976), 373-92.

At least one adult horse was present and this is likely to have been kept for transport and traction. There is no evidence to suggest that horsemeat was eaten although the presence of a worked mandible and a burnt fragment suggests that horses may have been utilised as a resource after they had reached the end of their working life. The presence of dogs is attested by gnaw marks visible on a significant proportion of the assemblage although their remains are absent.

Wild animals did not make a significant contribution to the diet although the presence of hare, roe deer, red deer and pheasant indicates that the inhabitants may have taken advantage of locally available game. Antler would have been valued as a raw material.

Domestic fowl were probably kept on the site and would have provided meat, eggs and feathers. Geese may have been kept for the same reasons or alternatively the inhabitants could have been exploiting wild geese.

The presence of butchery marks attests to the domestic nature of the animal bone assemblage. The deposition of large quantities of animal bone within domestic structures suggests that after abandonment these sunken featured buildings were used to dump a variety of animal bone waste including that generated by primary butchery, food preparation, and natural death. There is nothing to indicate that the partial cow skeleton represents anything other than a natural casualty, the absence of butchery marks on an animal aged between 6-8 years suggests that it was not considered suitable as a food resource, probably due to disease.

### *Contemporary sites*

The sites of Melbourne Street and Chapel Road in Hamwic (Saxon Southampton) have been excavated and have produced large assemblages of animal bone that formed the subject of an urban study by Bourdillon.<sup>93</sup> At both Melbourne Street and Chapel Road the majority of bone was recovered from pits which varied little in their composition. A similar pattern was seen to Oxford Science Park, with cattle the most frequent species, sheep plentiful and pig present in smaller numbers. Horse was present but again, there is nothing to suggest that horsemeat was eaten. A single pit from Chapel Road was statistically analysed and the absence of activity related patterning led Bourdillon<sup>94</sup> to conclude that the bulk of the sample points to repetitive behaviour and uniformity in the animal economy. A second pit, this time from Melbourne Street, was intensively sampled and produced a particularly rich assemblage, its location in an area of industrial activity suggesting that the pit was unrelated to its immediate environment. Refitting of bone fragments between layers, the large MNI and evidence of rapid burial suggested that a 'free pit' would be open to contributions from a wide community. This has parallels with the sunken featured buildings at Oxford which appear to have provided a depository for relatively large quantities of mixed waste. The assemblages recovered from other sites in Hamwic have also generally confirmed the homogenous nature of the deposits with scant evidence of differential disposal or social stratification.

This pattern is also seen at West Stow, Suffolk<sup>95</sup> where a large assemblage of animal bone came from sunken featured buildings dated to the 6th century with little evidence for differential disposal. In contrast to Oxford Science Park and Hamwic, sheep/goat were numerically superior and many were kept into adulthood implying the importance of wool. With regard to cattle, the majority were slaughtered at about 18 months of age, some between 3 and 4 years and a proportion as adults suggesting a mixed economy. This also appears to be the case at Oxford although here the emphasis appears to be on adult animals.

<sup>93</sup> J.E.C. Bourdillon, 'Animals in an Urban Environment, with special reference to the faunal remains from Saxon Southampton' (Univ. of Southampton unpubl. MPhil thesis, 1993).

<sup>94</sup> J. Bourdillon, 'Animal Bone from Saxon Southampton: the Six Dials variability study' (unpubl. AML Rep. 4580/1984); 'Animal Bone from Further Contexts on Site SOU 169: Saxon Southampton' (AML Rep. 4581/1984).

<sup>95</sup> P. Crabtree, *West Stow: Early Anglo-Saxon Animal Husbandry* (E. Angl. Archaeol. Rep. 47, 1990).

A mixture of immature and adult cattle was also recovered from the middle to late Saxon rural site of Wraysbury, Berkshire<sup>96</sup> where cattle were again kept in larger numbers than sheep/goat despite the evidence for wool production. Cattle were numerically superior in the assemblage recovered from sunken featured buildings at Abbots Worthy, Hampshire<sup>97</sup> although ovicaprids are slightly more numerous in the pit assemblage.

The proportion of other mammals is similarly small at most sites of this period although horse and wild species are usually present. An exception is Ramsbury, an iron smelting site in Wiltshire<sup>98</sup> where wild species form 5-15% of the total.

### Conclusions

The animal bone assemblage suggests that similar practices of animal exploitation and disposal were taking place in Oxford and other areas of southern England, with the notable absence of wool production. This is unusual as the evidence from most sites of this period indicates that wool production was of primary importance and suggests that this small rural settlement was not influenced by the growing demand for wool, although some would have been available for domestic use. It is possible that these Anglo-Saxon peasants were able to meet their subsistence requirements from the trade of surplus calves, dairy produce and meat.

### CHARRED PLANT REMAINS by RUTH PELLING

During the excavation of prehistoric and Saxon features a series of samples were taken for the extraction of charred plant remains. Sub-samples of 10 to 14 litres were processed by Thames Valley Archaeological Services using bulk water flotation. Flots were collected onto a 500µm mesh and submitted for assessment. A total of 97 flots have been examined.

### Method

Each flot was scanned under a binocular microscope and any charred plant remains noted were provisionally identified and examined and an approximation of abundance was made. Charcoal fragments were fractured and examined in transverse section. While this is an appropriate method for the identification of the ring porous taxa (*Quercus* sp.) the identification of the diffuse porous Pomoideae is more tentative.

TABLE 14. CHARRED PLANT REMAINS NOTED IN THE ASSESSMENT

		Sample	100	115	131	157	158	123	170	171	185
		Context	111	107	125	155	155	138	182	182	187
		Date	?	AS	AS	AS	AS	AS	AS	AS	AS
		Volume (litres)	10	10	12	10	10	7	10	10	10
<i>Hordeum vulgare</i>	Barley, hulled grain		—	—	2	1	—	1	2	1	—
<i>Triticum sp.</i>	Wheat grain		—	—	—	—	—	—	1	—	—
<i>Cerealia</i> indet.	grain		—	1	—	—	2	—	1	1	1
<i>Corylus avellana</i>	Hazel nut shell frag.		1	—	—	—	—	—	—	—	—

<sup>96</sup> J.P. Coy, 'The Animal Bones from Wraysbury, Berkshire' (unpubl. AML Rep. 20/87).

<sup>97</sup> J.P. Coy, 'The Animal Bones from the Abbots Worthy Anglo-Saxon Settlement', in P. Fasham and R. Whinney (eds.), *Archaeology and the M3* (Hants Field Club Monograph 7, 1991), 60-7.

<sup>98</sup> J.P. Coy, 'The Animal Bones', in J. Haslam, 'A Middle Saxon Iron Smelting Site at Ramsbury, Wiltshire', *Medieval Archaeol.* 24 (1980), 41-51.

### Results

The majority of flots were small and produced sand, modern roots, occasional worm capsules and only occasional indeterminate fragments of charcoal. Charred grain was present in 8 samples, shown above in Table 14. Grain identified included hulled *Hordeum vulgare* (barley), with one possible free-threshing *Triticum* sp. (wheat) grain in sample 170 (context 182). No flot produced more than five grains. In addition a fragment of *Corylus avellana* (hazel) nut shell was seen in sample 100 from undated pit 112. Occasional samples produced limited amounts of charcoal. *Quercus* sp. (oak) was most abundant while occasional Pomoideae (apple/pear/hawthorn etc.) was also noted.

While the cereal species noted are all appropriate for Anglo-Saxon period deposits, the paucity of charred remains recovered was disappointing. No further work was undertaken as flotation of the remainder of the samples was unlikely to produce any more useful material given that the density of remains was so low.

### POLLEN by ADRIAN G. PARKER

A sediment monolith column OXSP 99 804, 800 and sample OXSP 99 803, 801 from the bottom of a tree throw hole were submitted for pollen analysis. The sediments comprised well-preserved organic remains rich in pollen microfossils.

### Methods

Subsamples of 1 cm<sup>3</sup> of sediment were taken at selected intervals and prepared volumetrically by the displacement method of Bonny.<sup>99</sup> Owing to the calcareous and siliceous nature of the sediments the pre-treatment for palynological analysis included HCl and HF digestions as well as the standard KOH and acetolysis techniques. In clay rich sediments 'fine-sieving' (aperture 5µm) was introduced into the sample preparation procedures.<sup>100</sup> The residues were suspended in glycerol jelly.

Pollen was counted using a magnification of x400 with x1000 oil immersion and phase contrast being used for critical determinations. Pollen was counted until a minimum of 300-500 grains total land pollen (TLP) attained. This resulted in counts frequently exceeding 1000 grains per sample. Gramineae pollen grains were counted as Cereal-type if the length exceeded 44µm and the annulus width was greater than 10µm.<sup>101</sup> The taxonomic nomenclature for vascular plants follows Clapham et al.<sup>102</sup> A pollen diagram is available in the archive.

### Results

The results from the pollen analysis of sample OXSP 99 803, 801 (tree-throw hole) are presented here in Table 15. The results from the monolith (OXSP 99 804, 800) are shown in the pollen diagram with the archive.

The pollen from the tree-throw hole is indicative of open conditions dominated by herbs indicative of a cold climate, with Gramineae (grass) and Cyperaceae (sedge) pollen accounting for over 60% of the total pollen sum. In addition, high counts were noted for *Filipendula* (meadowsweet) (c. 14%) and lower amounts of Umbelliferae (Umbellifers) (3%) and *Artemisia* (mugwort) (2%). Trees and shrubs accounted for c. 14% of the total pollen sum with *Betula* (birch) (c. 7%), *Pinus* (pine) (3%) and *Salix* (willow) (2%) occurring in frequencies above 1%. Spore accounted for only 1.5% of the total sum.

The sediment monolith measured 93 cm. in depth from which a total of eight samples were sampled and analysed. The diagram has been divided into 3 pollen assemblage zones. Zone OSP 1: 93-58 cm. shows a generally wooded landscape dominated by *Alnus* (alder) (up to 40%), *Corylus* (hazel) (10-15%) and *Tilia* (lime) (up to 10%). *Tilia* disappears towards the top of the zone. Other arboreal taxa occur throughout but at low frequencies, e.g. *Pinus* (pine), *Betula* (birch) and *Quercus* (oak). Towards the top of the zone there is a small increase in herb pollen e.g. Gramineae (grasses) and Cyperaceae (sedges). Spores represent c. 20% of the total sum. It should be noted that the basal two samples were very rich in microscopic charcoal particles.

<sup>99</sup> A.P. Bonny, 'A Method of Determining Absolute Pollen Frequencies in Lake Sediments', *New Phytologist*, 71 (1972), 393-405.

<sup>100</sup> L.C. Cwynar, E. Burden and J.H. McAndrews, 'An Inexpensive Sieving Method for Concentrating Pollen and Spores from Fine-grained Sediments', *Canadian Jnl. of Earth Sciences*, 16 (1979), 1115-20.

<sup>101</sup> S.Th. Andersen, 'The Identification of Wild Grasses and Cereal Pollen', *Danmarks Geologiske Undersøgelse Arbog* (1978), 69-72.

<sup>102</sup> A.R. Clapham, T.G. Tutin and D.M. Moore, *Flora of the British Isles* (3rd edn. 1987).

Zone OSP 2: 58-35 cm. represents a relatively open landscape, though there is woodland present. There is a small peak in *Alnus* pollen level along with the spores of Filicales at 43 cm.

Zone OSP 3: 35-0 cm. shows a large increase in herb pollen types with high frequencies of Gramineae (40%) and Cyperaceae (40%) and reductions in both tree, shrub and spore types.

TABLE 15. OXSP 99 803, 801 POLLEN RESULTS

	Number	%
<b>Trees and shrubs</b>		
<i>Betula</i> including <i>B.nana</i>	28	6.9
<i>Pinus</i>	12	3.0
<i>Quercus</i>	2	0.5
<i>Ulmus</i>	3	0.7
<i>Alnus</i>	2	0.5
<i>Salix</i>	8	2.0
<i>Corylus</i>	1	0.2
<i>Juniperus</i>	2	0.5
<b>Herbs</b>		
Gramineae	128	31.7
Cyperaceae	119	29.5
Chenopodiaceae	4	1.0
Caryophyllaceae	2	0.5
Umbelliferae	12	3.0
<i>Filipendula</i>	56	13.9
<i>Potentilla</i>	3	0.7
Compositae Liguliflorae	5	1.2
<i>Artemisia</i>	8	2.0
<i>Teucrium</i>	2	0.5
<i>Helianthemum</i>	1	0.2
<b>Spores</b>		
Filicales	2	0.5
<i>Selaginella</i>	4	1.0
<b>Total</b>	404	
<b>Trees and Shrubs</b>	58	14.36
<b>Herbs</b>	340	84.16
<b>Spores</b>	6	1.49



# Discussion

The tree-throw sample OXSP 99 803, 801 contained a flora characterised by tundra with open vegetation and possibly scattered birch trees in sheltered places. Pollen of *Betula* including *B. nana* and *Salix* were encountered. *Betula nana* is a circum-polar arctic-alpine plant, and apart from a relict population in Upper Teesdale, is now restricted in the British Isles to northern Scotland.<sup>103</sup> Pollen of *Armeria* was also identified. This genus is at present restricted to coastal and mountainous localities but during the Devensian was common inland.<sup>104</sup> In this harsh, cold environment, low ground scrub of *B. nana* and *Salix* may have been present in the more stable areas of the surrounding region. Grassland with a sparse flora of arctic-alpine plants is suggested. This corresponds with the late glacial radiocarbon age derived from this feature.

The sediment monolith column OXSP 99 804, 800 shows a progressive change or reduction in the tree and shrub numbers encountered during the pollen counts, reflecting clearance of woodland. The basal samples are dominated by a strong woodland element comprising *Tilia*, *Quercus* and *Corylus* with some *Ulmus*. *Alnus* would have dominated wetter areas along river and stream corridors. These lowest samples all contained large quantities of microscopic charcoal indicating burning in the immediate surrounding. This is followed by the reduction of woodland and the disappearance of *Tilia* altogether. Generally the widespread removal of woodland in the upper Thames valley occurred from the mid Bronze Age onwards with maximum clearance in the late Iron Age and Roman periods.<sup>105</sup>

When factors of differential pollen dispersal and productivity are taken into account,<sup>106</sup> the results from the Oxford Science Park suggest the vegetation of the surrounding area to have been *Tilia* (lime) woodland with some *Quercus*, *Ulmus* and *Corylus*. Lime is regarded as having been a major component of the woodland throughout the region prior to clearance.<sup>107</sup>

It is suggested that this clearance brought about hydrological changes, which resulted in the small valley at the Oxford Science Park site becoming drowned, leading to the formation of the organic sediments in which the pollen survived. Increasing clearance of the regional woodland would have led to reduced evapotranspiration and increased infiltration and erosion within the catchment, leading to a rise in the water table and conditions suitable for fen formation. Similar mechanisms have been proposed for the initiation of some English valley mires.<sup>108</sup>

During this progressive phase of woodland clearance the expansion of grassland occurs. Other herbs that appear include Ranunculaceae, Cruciferae, Umbelliferae, Polygonaceae, *Rumex*, *Plantago lanceolata*, *Plantago major/media*, Compositae Liguliflorae and Caryophyllaceae along with Cereal-type pollen. The range of taxa shown would indicate grassland with some pastoral activity and to a much lesser degree the occurrence of minor arable activity. The expansion of Cyperaceae and *Typha* would be due to the development of fen conditions on the peat surface and generally wetter conditions on the site.

<sup>103</sup> H. Godwin, *History of the British Flora: a Factual Basis for Phytogeography* (1975).

<sup>104</sup> Ibid.

<sup>105</sup> A.G. Parker, 'Late Quaternary Environmental Change in the Upper Thames Basin, Central Southern England' (Univ. of Oxford unpubl. D.Phil. thesis, 1995).

<sup>106</sup> S.Th. Andersen, 'The Relative Pollen Productivity and Pollen Representation of North European Trees, and correction factors for tree pollen spectra', *Danmarks Geologiske Undersøgelse II* 96 (1970), 1-99.

<sup>107</sup> J.R.A. Greig, 'Past and Present Lime Woods of Europe', in M. Bell and S. Limbrey (eds.), *Archaeological Aspects of Woodland Ecology* (BAR Int. Ser. 146, 1982), 23-55.

<sup>108</sup> P.D. Moore and A. Willmot, 'Prehistoric Forest Clearance and the Development of Peatlands in the Uplands and Lowlands of Britain', *Proc. of 5th Internat. Peat Congress, Poznan, Poland* (1976), 1-15; P.D. Moore, 'Hydrological Changes in Mires', in B.E. Berglund (ed.), *Handbook of Holocene Palaeoecology and Palaeohydrology* (1986), 91-107; Parker, op. cit. note 107, p. 127.

<sup>109</sup> A.G. Parker and D.E. Anderson, 'A Note on the Peat Deposits at Minchery Farm, Littlemore, Oxford, and their implications for palaeoenvironmental reconstruction', *Proc. of Cotteswold Naturalists' Field Club*, xli (1996), 129-38.

The Oxford Science Park diagram would appear to correlate with zone MF 4 from nearby Minchery Farm which represented the major phase of woodland clearance,<sup>109</sup> however, that sequence does not have any radiocarbon dates to tie down the timing of this event. At Sidlings Copse some 5 km. distant the decline of *Tilia* has been dated to around 3500 <sup>14</sup>C yr BP.<sup>110</sup>

## DISCUSSION

The site lies on both sides of the Littlemore Brook. The vegetation during the Devensian at c. 8000 BC here was characterised by tundra with open vegetation (grassland with a sparse flora of arctic-alpine plants is suggested) and possibly scattered birch trees in sheltered places. This gave way to a strong woodland element dominated by lime with some oak, hazel and elm as the climate warmed. Birch would have dominated wetter areas along river and stream corridors. Tree clearance in the immediate surrounding is shown by charcoal in the peat samples with a decrease in tree pollen showing the reduction in woodland with the disappearance of lime altogether. This removal of woodland would have occurred from the mid Bronze Age onwards with maximum clearance in the late Iron Age and Roman periods.<sup>111</sup>

Little of the north valley side was examined but the presence of Roman, medieval and post-medieval sherds within the ploughsoil suggests exploitation of the light soils for arable cultivation during these periods.

Evidence for use of the valley and south valley edge is longer lived. The small late Mesolithic assemblage of flint is of considerable interest due to the scant evidence for activity of this date around Oxford, the closest Mesolithic activity identified being approximately 3 km. to the north-west, beside the Thames at Iffley (SP 527 048).<sup>112</sup> The assemblage itself appears to represent a general spread of background activity rather than a distinct occupation or working area. This site, as with many Mesolithic sites, is in close proximity to a river, and reflects the probable exploitation of resources in such areas.

The quantity of Neolithic, early and mid-late Bronze Age finds is not insignificant and it is quite possible that there was temporary, or longer term, exploitation or occupation of the site and that any associated features were relatively shallow and have been ploughed away. The only feature of the earlier prehistoric period to have survived was the Beaker pit containing parts of at least seven vessels, a considerable number of items for a one-off visit. Some of the undated pits may belong to the earlier prehistoric with their use for the storage of hazel nuts – one fragment was found in pit 112. As stated above the Mortlake Ware rim and the Neolithic sherds are rare finds for this area of Oxfordshire, although Peterborough Ware is a common find from sites on the Thames gravels. The only other possible Peterborough Ware sherd from the City of Oxford comes from a prehistoric ditch at Logic Lane. A small quantity of early and later Bronze Age pottery has recently been found during the construction of the Blackbird Leys Peripheral Road further to the east.<sup>113</sup>

The increase in the number of Iron Age sherds found compared with the amount of earlier prehistoric material does suggest a more intensive use of the valley side. In addition, three pits are dated to this period and other undated pits again may well belong to this phase of use of the area. During this period hazel and alder were growing alongside the Littlemore Brook and beavers were active as shown by the presence of two beaver dams.

<sup>110</sup> S.P. Day, 'Post-glacial Vegetational History of the Oxford Region', *New Phytologist*, 119 (1991), 445-70.

<sup>111</sup> Parker, op. cit. note 107.

<sup>112</sup> Holgate, op. cit. note 77.

<sup>113</sup> OAU report, op. cit. note 6.

Small quantities of Iron Age pottery indicating activity of some form are known and have been published from the east side of Oxford at the Rover Plant site<sup>114</sup> and the Oxford United New Stadium *c.* 800 m. to the east of the Oxford Science Park.<sup>115</sup> Larger settlement sites in the area are known at Blackbird Leys some 1.75 km. to the east,<sup>116</sup> from White House Road, Oxford<sup>117</sup> and from the University Science Area.<sup>118</sup>

Whether the south side of the valley was used for Roman agriculture is not known. While sherds of this date were found in the ploughsoils they may have originated from the Anglo-Saxon 'collection policy'. The pottery may have been brought onto the site from the nearby production sites at the Oxford United New Stadium (800 m. away) or from Fry's Hill (1.5 km. to the east), both part of the Sandford/Blackbird Leys production complex. One possible use for cut down pot bases within a sunken featured building could be as supports for furniture in order to stop them from sinking into the floor (something that would have been necessary on this site with the sand bases of the features). No evidence for this type of use was forthcoming from this site although the idea did not occur until after excavation had ceased.

The Saxon settlement was sited on the less steep south side of the valley just below the crest. Here the geology is sand that allowed the easier excavation of the sunken featured buildings and the presumed post-built buildings. The top of the valley side and land beyond was formed by limestone. The settlement stretches over a distance of 265 m. and could extend further in both directions. No archaeological work was undertaken during development of the land of the Science Park immediately to the east of the excavation area. The width of valley side covered by the buildings is at least 45 m. increasing to 80-110 m. if the possible SFBs 11 and 12 are included. The dating of the perched peat to at least the Roman period and more likely to the Saxon period suggests that the settlement was sited right by the stream edge which was likely to have been wide and slow flowing as indicated by the depth of peat build-up. The edge of the peat was only 20 m. from the probable SFB 11. The area likely to have been covered by the settlement over the known 265 m. distance along the valley, and between the edge of the stream and the limestone area amounts to *c.* 2.25 ha.

The area occupied by buildings at the Saxon settlement of Barrow Hills is a similar size although 45 SFBs and 22 post-built structures were found there.<sup>121</sup> While only 12 probable SFBs were found at the Science Park others may have existed and have subsequently been ploughed out. The relatively large number of Roman sherds found in part of evaluation Trench 3 (probable SFB 12) towards the western side of the site and near to where the edge of the stream would have been suggests this possibility. Five of the SFBs excavated were only 300 mm. or less deep indicating that considerable truncation has occurred. In addition no evidence for timber framed buildings survived. Undoubtedly these would have been present but again later ploughing has removed all evidence for the post-holes.

<sup>114</sup> Keevill and Durden, *op.cit.* note 27.

<sup>115</sup> R.P.S. Clouston, 'An Archaeological Evaluation at the Oxford United Football Club Stadium, Minchery Farm' (unpubl. report 1996).

<sup>116</sup> OAU report, *op. cit.* note 6.

<sup>117</sup> Mudd, *op. cit.* note 29.

<sup>118</sup> Parkinson et al., *op. cit.* note 16.

<sup>119</sup> Clouston, *op. cit.* note 117.

<sup>120</sup> 'Windale First School and Nursery, Blackbird Leys, Oxford: Archaeological Watching Brief' (OAU unpubl. report, 1995).

What was this settlement? Was it a village or a farmstead? The occupation appears to be during the 6th century and perhaps into the early 7th century. The length of duration of a SFB has been estimated at 20-25 years or slightly longer on well-drained soils such as at the Science Park.<sup>122</sup> On this basis then over a 75-100 year occupation on average only 3-5 SFBs would have been standing at any time given the 10 excavated SFBs and the other probable two. Even if others had been ploughed out the total at any one time would have been low.

The first Anglo-Saxon settlement to be recognised as such and excavated under relatively controlled circumstances was at Sutton Courtenay by Leeds<sup>123</sup> where there were both SFBs and post built structures, the latter interpreted as sheds. Since then excavations of many other settlements have shown that in most cases SFBs are accompanied by more substantial timber post built 'halls'. The most extensively excavated settlement is that at Mucking (Essex) which appears to have been typical of the majority of 5th-7th century settlements, at least in southern and eastern England. This has a loosely structural layout and shifting occupation.<sup>124</sup> Broadly comparable Oxfordshire settlements have been excavated at Barrow Hills, Radley,<sup>125</sup> New Wintles Farm near Eynsham<sup>126</sup> and at Sutton Courtenay<sup>127</sup> where probably more post built structures were present than were recognised during the excavation within a working quarry. These settlements were loosely structured without clear focal points or edges, with relatively little variation in size of buildings and no obvious 'central' or main building.<sup>128</sup>

The majority of cemetery and settlement sites in Oxfordshire in the early Saxon period have been found on the lighter soils. Blair argues that this is due to the lower population than the preceding centuries and that life was similar to that in the Bronze Age where arable may have been a minor, shifting element in a primarily pastoral landscape.<sup>129</sup> The landscape here probably would have been scrub and woodland along the edge of the Littlemore Brook that would appear to be wide and slow flowing; more marsh-like than a stream. Pasture may have been present on the crest of the valley slope and beyond with further areas of woodland. The woodland and scrub would have been ideal for cattle. The main livestock kept at this settlement was cattle mostly slaughtered as adults, suggesting that most of the beef eaten came from cattle that were kept primarily for their secondary products; milk, breeding stock, traction, manure, leather. Some were slaughtered at the age of two and three years when they would have provided prime beef. There is no evidence for the slaughter of calves so it is probable that they were used for trade in order that cows could produce milk for consumption. Ingrem above argues that they may have been exchanged for sheep that were slaughtered at the age of one and three years. There is no evidence for a wool surplus being generated for trade. However wool was being used on the site as the weaving comb and spindle whorls show. Pigs were kept on the site; again the scrub and woodland would have been ideal for them.

<sup>121</sup> Chambers and McAdam, op. cit. note 10.

<sup>122</sup> M. Welch, *Anglo-Saxon England* (1992), 30.

<sup>123</sup> E.T. Leeds, 'A Saxon Village near Sutton Courtenay, Berks.', *Archaeologia*, lxxiii (1923), 146-92; E.T. Leeds, 'A Saxon Village near Sutton Courtenay, Berks. (2nd Report)', *Archaeologia*, lxxvi (1927), 59-80; E.T. Leeds, 'A Saxon Village near Sutton Courtenay, Berks. (3rd Report)', *Archaeologia*, xcii (1947), 79-93.

<sup>124</sup> H. Hamerow, 'Anglo-Saxon Oxfordshire, 400-700', *Oxoniensia*, lxiv (1999), 29.

<sup>125</sup> Chambers and McAdam, op. cit. note 10.

<sup>126</sup> S.C. Hawkes, 'The Early Saxon Period', in G. Briggs, J. Cook and T. Rowley (eds.), *The Archaeology of the Oxford Region* (1986), 83-4.

<sup>127</sup> Leeds, op. cit. 125.

<sup>128</sup> Hamerow, op. cit. note 126.

<sup>129</sup> J. Blair, *Anglo-Saxon Oxfordshire* (1994), 25.

The inhabitants kept domestic fowl, and geese were eaten. It is more likely that they exploited wild geese for their meat, eggs and feathers. Again they made use of the local wildlife as the bones of hare, red and roe deer, and pheasant show. Possibly the dogs kept were used for hunting. Horses were present on the site and presumably used for transport and perhaps traction, only being used as food at the end of their lifetime.

Cereals were being consumed on the site. There is no evidence as to whether they were grown or brought in. However, given the light soils, it is more likely that they were being grown here.

Where the Anglo-Saxon inhabitants buried their dead is unknown. If the cemetery were ever found this would help in determining the size of the settlement. The presence of a young adult buried in a pit dated by Saxon pottery within a settlement is unusual and one wonders whether this happened towards the end of the life of the settlement. The pit had partially silted up before burial and although the condition of the body was very poor it appeared to be in a crouched position. This again is an unusual arrangement for the period but would have been necessitated by the size of the pit.

During the medieval period it was likely that a farmstead existed here. This was sited on the higher ground with underlying limestone geology away from the brook with some features extending on to the sand geology on the valley side. The farmstead appears to have originated in the later 12th century and continued into the 14th century. It was within the hinterland of Oxford.

The presence of 17th- and 18th-century pottery on the site would be from manuring practices on agricultural fields.

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