Excavations at Whitehouse Road, Oxford, 1992

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SUMMARY

Excavations on the site of the former Oxford City Football Ground, Grandpont, south Oxford, recorded part of a Middle Iron Age rural settlement of the 3rd to 1st centuries BC. The economy of the settlement appears to have been based upon subsistence mixed farming, with perhaps a more substantial arable component than on other low-lying Middle Iron Age sites in the region. Despite the site's location on a low gravel island within the floodplain of the Thames, there was little indication of flooding and none of alluviation. Traces of 12th- to 14th-century medieval settlement were also uncovered with environmental evidence suggesting wetter conditions.

ACKNOWLEDGEMENTS

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INTRODUCTION

This report describes excavations undertaken by the Oxford Archaeological Unit on the site of the former Oxford City Football Ground, Whitehouse Road, Grandpont, Oxford (NGR SP 51350530) in August and September 1992 (Fig. 1). The excavations were carried out on behalf of Pegasus Retirement Homes plc in association with Brasenose College, and took place in advance of housing development as a condition imposed by Oxford City Council under Planning Policy Guidance Note 16. This was the first instance of this policy being applied within the city.

Iron Age settlement on this site had been suspected since a large penannular enclosure and other features were identified on an aerial photograph taken in 1975 by the Cambridge University Committee for Aerial Photography (Fig. 2). This was confirmed by a trial trench evaluation in September 1991, which also discovered an early medieval component to the site.[1] It was clear

[1] Oxford Archaeological Unit, *Land at Whitehouse Road, Grandpont, Oxford. Former Oxford City Football Ground and Adjoining Land. Archaeological Evaluation Phase 1* (1991), OAU Client Report.

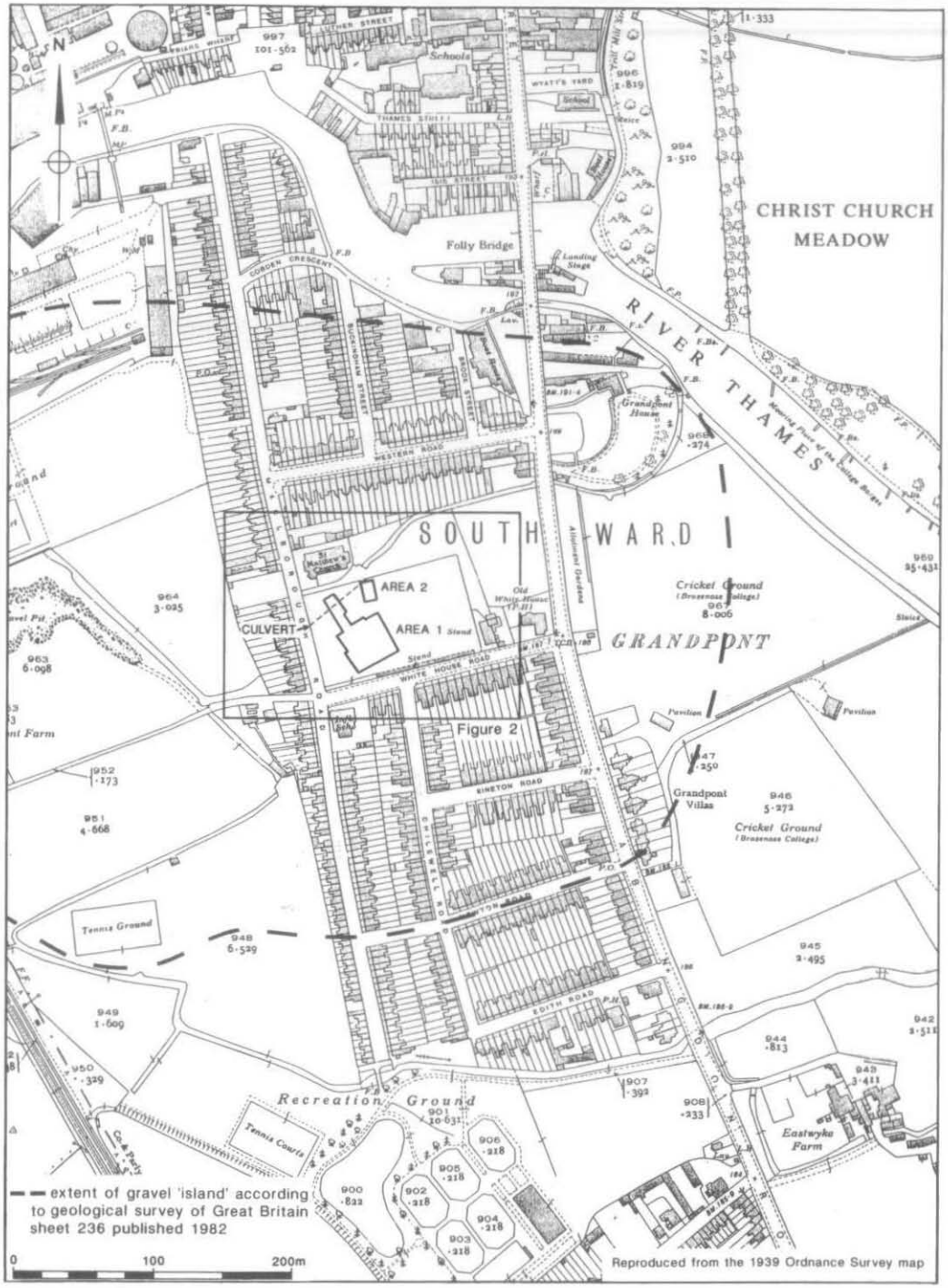

Fig. 1. Location

Fig. 2. The site from the SW in 1975. Cambridge University Collection of Air Photographs: copyright reserved. (Ref. BVU 101)

both from the aerial and field evidence that the Iron Age settlement must have extended beyond the area of the football pitch in a southerly and westerly direction under Whitehouse Road and Marlborough Road. The complete form and extent of the site were not recoverable.

LOCATION AND TOPOGRAPHY

The site lies on a low island of gravel in the floodplain of the River Thames, about 200 m S of the main channel of the present river. In the excavated area (Fig. 1, Area 1) the surface of the gravel terrace slopes gradually from 55.39 m OD at the S end of the site to 54.97 m OD at the N end. The evaluation trenches showed that a similar level was maintained on the E

part of the football pitch. The terrace S of the river is divided into numerous small gravel islands by braided stream channels whose courses have been canalised, and in many cases modified, during the expansion of the suburb in the late 19th and early 20th centuries. The relationship of these stream courses to the prehistoric and early historic settlement on this site is therefore not entirely clear. According to the Geological Survey, the gravel island extends for about 350 m N–S and 700 m E–W, i.e. over an area of about 24.5 ha, the approximate limits of which are shown in Figure 1, but this may amalgamate several smaller islands. Early maps show the island subdivided by pattern of streams which may reflect a fossilization of natural stream courses which would have demarcated areas available for settlement in the prehistoric and early historic periods. A more restricted view of the island would suggest a northern limit coincident with the N edge of the excavated area. This is defined by a stream channel evidently backfilled and put into a culvert in the 1880s or 1890s (Fig. 1). The excavated evidence from Area 2 suggests that this stream was present in the early medieval period, although its contemporaneity with the prehistoric occupation could not be demonstrated. The W, S and SE limits of the gravel island are probably traceable as streams or ditches on the 16th-century Brasenose map,[2] Whittlesey's 1726 map and the first edition of the Ordnance Survey (1875). On this basis, the maximum extent of the island would probably have been in the region of 200 m E–W and 180 m N–S. The overall area of the gravel island was therefore probably around 3.5 ha. This is not to say that the whole site would have been suitable for occupation in the prehistoric or early medieval periods. Historical records show that seasonal flooding took place on the Thames floodplain throughout the medieval and postmedieval periods, while archaeological evidence from several sites indicates flooding and alluviation in the late Iron Age/Roman and late Saxon/early medieval periods.[3]

DOCUMENTARY HISTORY OF LAND USE

The area of Grandpont has been important as a major crossing point of the Thames since at least the late Saxon period and is almost certainly the crossing which gave its name to the town.[4] There is evidence of a 10th-century causeway underlying the Norman 'Grandpont' with possibly earlier antecedents.[5] The Norman stone causeway, probably constructed shortly before 1092, might in its completed form have been over 700 m long.[6] As well as being eloquent testimony of the importance of this route to and from the city, it was probably instrumental in stimulating the accelerated growth of Oxford from the 12th century.

There is yet no evidence that the Grandpont was a significant crossing point in pre-Saxon times, and it is generally held that the Roman crossing of the river was further S at Sandford or perhaps the old site of Langford (Donnington Bridge). Another crossing at North Hinksey is a possibility.[7]

[2] *Brasenose Quatercentenary Monograph*, vi, O.H.S. lii (1909), 28–9.

[3] M.A. Robinson and G.H. Lambrick, 'Holocene Alluviation and Hydrology in the Upper Thames Basin', *Nature*, vol. 308 no. 5962 (1984), 809–14.

[4] *V.C.H. Oxon.* iv, 4.

[5] B. Durham et al., 'The Thames Crossing at Oxford: Archaeological Studies 1979–82', *Oxoniensia* xlix (1984), 57–100.

[6] Ibid.

[7] Gabrielle Lambrick, 'Some Old Roads of North Berkshire', *Oxoniensia*, xxxiv (1969), 82.

Early documentary evidence shows that the land S of Folly Bridge lay outside 'the liberty' of Oxford. The site itself was in an area known variously as Westwyke or Swinsell (Swyneshull) and was held by Abingdon Abbey as part of the Berkshire hundred of Hormer.[8] However, it is clear that from an early period the area was linked economically with Oxford. In the early 12th century the land of 'Wica which is near the bridge at Oxenford' was leased to Ermenold a burgess of Oxford. He had fallen behind in his rent for which the abbot seized his crops and occupied his land.[9] In 1393 or 1394 Walter Daunteseye acquired the lease on Swyneshull from Walter Crook fishmonger of Oxford 'with lands, meadows, pastures, fishing-rights, pools and all other pertinences'.[10] Not only do these documents indicate tenurial ties with the city of Oxford, they also give some indication of the use of the land at this time which seems to have included not only meadowland and pasturage but cropped land as well.

In the 1560s, following the Dissolution, the chapel and the estate in Swinsell passed to Brasenose College. At or before this time the land might have been used exclusively for meadow or pasture as the Brasenose College map seems to indicate. By 1625 Hutten's Survey refers to 'noething, on either side [of the causeway], saveing onely spatious Meadowes, divided by the severall Streames of the River, which runn under the forenamed Arches, and when wee come somewhat neare the Towne, two severall Farmes, the one on the left Hand belonging unto Brasennose, the other on the right belonging unto University Colledge . . . '.[11] Swinsell Farm is located on a map by Whittlesey dated 1726. Although it is clearly in the same location as the Old White House public house of the Ordnance Survey first edition, it does not appear to have been the same building.

In the 1840s the Great Western Railway line and first terminal station for Oxford were constructed immediately to the W of the excavation area. They fell into disuse before the 1870s following the construction of the railway line extension around Oxford. After the construction of the football ground in the early 20th century the site was left undisturbed by development while suburban housing spread over adjacent lands. The Old White House was pulled down around this time and the present public house The Folly constructed closer to the Abingdon Road.

EVALUATION

A trial trench evaluation of the whole area of the football pitch (approximately 0.84 ha.) took place in 1991.[12] The strategy involved the excavation of 15 trenches giving a sample of 2% of the area (Fig. 3). Both Iron Age and medieval features were identified, the latter thought to represent mainly field boundaries and rubbish pits associated with Swinsell Farm. The results suggested that the main concentration of Iron Age occupation was towards the SW area of the football pitch. It appeared to peter out towards the E, but in any case a greater concentration of medieval pits in this area would have disturbed the earlier occupation to a greater degree than elsewhere. Waterlogged material was recovered from Trench 14, but was of uncertain date. The Iron Age remains were considered a higher priority for further investigation than the medieval ones. It was therefore decided to open up

[8] *V.C.H. Oxon.* iv, 260.
[9] H. Hurst, *Oxford Topography: an Essay* (Oxf. Hist. Soc. xxxix, 1899), 15.
[10] Ibid., 17.
[11] Cited in H. Hurst, op. cit. note 9, 16–17.
[12] Oxford Archaeological Unit, op. cit. note 1.

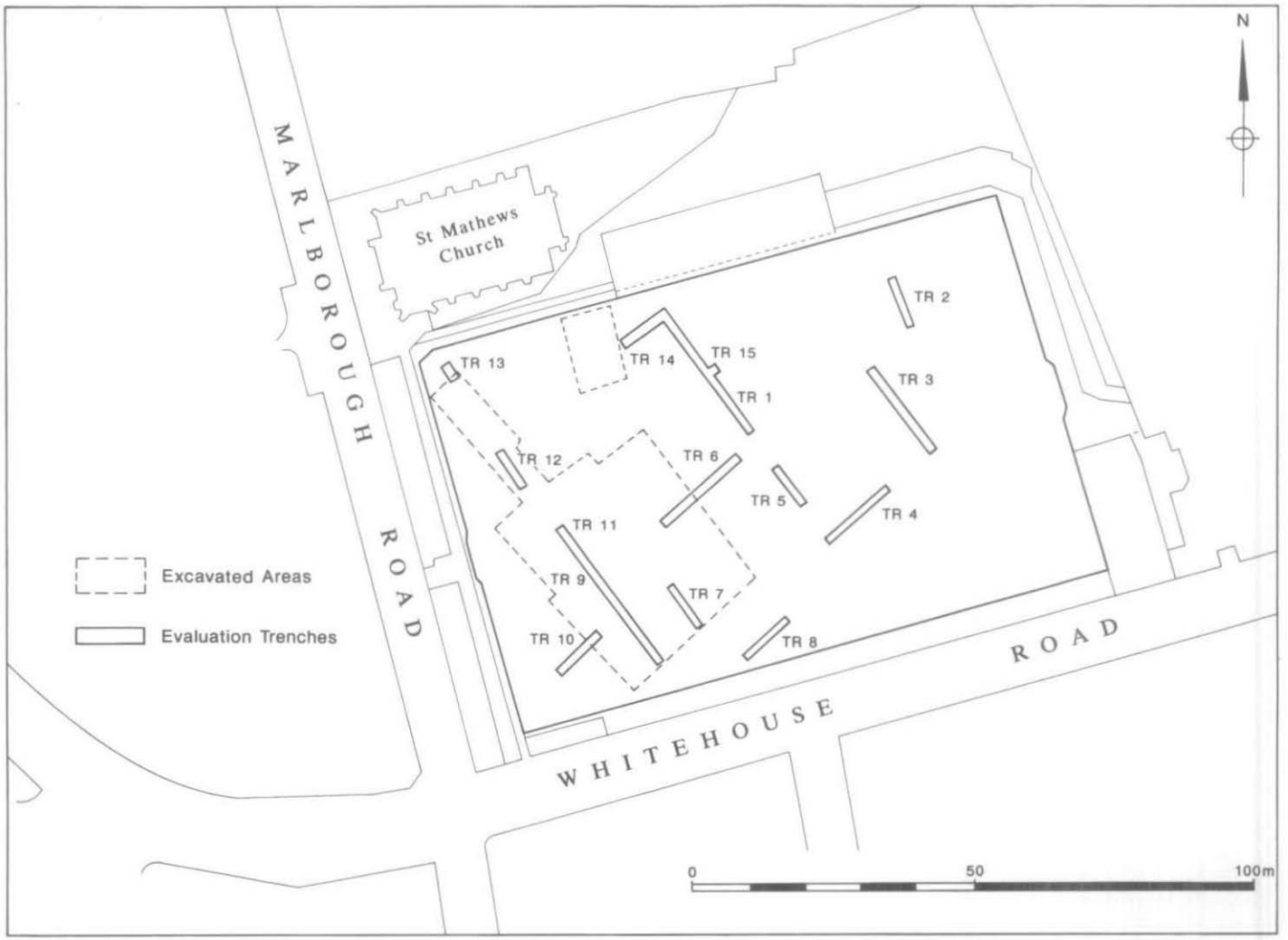

Fig. 3. Areas of excavation and location of evaluation trenches.

an area in the SW of the site (Fig. 1, Area 1) for detailed excavation, with an extension to examine the ditch running across the NW corner of the pitch (probably erroneously referred to as the Hogacre Ditch in the evaluation report). A smaller area (Fig. 1, Area 2) was stripped to examine an area where waterlogged material might survive.

THE EXCAVATIONS

STRATEGY

Features were hand-excavated with the principal objective of unravelling the occupation sequence. Complex features were sectioned to examine relationships and discrete features such as pits, and some ditches, were sampled so as to establish their character and date. One feature was sectioned by machine. This was a ditch located beyond the culvert at the NW extremity of Area 1 (Fig. 11). It proved to be filled with a silty clay containing exclusively modern material.

Sampling for environmental remains took place on an opportunistic rather than systematic basis, with promising deposits principally being selected and a minimal sample being taken from other features (Letts and Robinson, this report).

CONDITIONS

The watertable was invariably encountered within half a metre of the gravel surface. After heavy rain the watertable rose rapidly and sometimes overflowed the excavated sections, particularly at the N end of Area 1. Pumps were employed continuously during the excavation of the N part of Area 1 and also in Area 2, which presented problems of drainage to an extreme degree. Water flow was continuous and, despite the use of pumps, it was never possible to dry out the bottom of any of the deeper features.

The force of water flow coupled with the generally loose nature of the gravel gave instability to the edges and sections of many of the larger features. With gravel from the edges continuously sliding into features it was often impossible to clean them out entirely. The difficulty of excavation, coupled with the probability of deep primary gravel slippage made it likely that the primary fills of some of the enclosure ditches were incompletely excavated.

While only three days were lost due to flooding, excavation was usually slower than expected. It is considered unlikely that a more complete excavation would substantially alter the conclusions of the present report, but in some cases it might have helped to interpret some parts of the site such as the area between Enclosure B and the culvert, which could not be examined satisfactorily due to persistent flooding, and a possible medieval well in the NE corner of Area 1 (Fig. 11, context 415) which could not have been further excavated without considerably more trouble and resources.

Despite the high watertable, waterlogged deposits were almost entirely absent. The single exception was pit 383 in Area 2 (Fig. 11), which unfortunately yielded no dating material. Here waterlogging occurred at about 54.20 m OD, which is a metre below the average gravel surface level in Area 1.

AREA 1

The overburden was stripped down to the surface of the gravel terrace using a mechanical excavator with a toothless bucket. The superficial deposits consisted essentially of three

layers: 1, the modern turf and dark loamy topsoil, about 200 mm deep; 2, a dark grey gravelly sandy loam, between 150 and 200 mm thick, which was probably made ground for the football pitch; and 3, a more compact, rather greenish grey or grey-brown silty loam with moderate amounts of well-mixed gravel. This layer was of variable thickness, averaging about 200 mm but reaching 300 mm in the NW corner of the site. It sealed all features except for relatively recent ones.

Pottery was not rigorously collected from these superficial deposits, but observation and a sample collection of sherds from layer 3 suggested that it had not been greatly disturbed since the medieval period. It was probably a ploughsoil representing late medieval agriculture which had destroyed any stratified deposits above the surface of the terrace. There was no indication of worm-sorting to suggest that the ground had remained pasture for any length of time, but it is possible that the upper soils everywhere had been disturbed when the ground was levelled to create the football pitch.

The natural geology consisted of calcareous gravel over most of the site with a superficial deposit of orange-brown clayey silt in the SE corner. The gravel was quite loose with sandy patches. Generally, archaeological features were clearly visible cutting the gravel.

The feature fills varied from reddish or orange-brown, through to grey-brown or dark grey sandy silt loams. Generally, the Iron Age features had a reddish or orange-brown upper fill and medieval features a greyish or mid-brown fill, but this proved to be a fallible guide to date. An analysis of features which could be dated ceramically indicated that, of 33 medieval features and 37 Iron Age ones, 70% of medieval features had greyish fills and 40% of Iron Age features had orange-brown fills. The latter figure increased to 62% if mixed greyish and orange-brown fills were included. There was some spatial variation in that most of the Iron Age features within and including the main enclosure had rather greyish brown fills, in contrast to Iron Age features elsewhere. This was probably due to the presence of organic and burnt matter in the soil as a result of denser occupation in this area.

AREA 2

Excavation in Area 2 could not be carried out to as rigorous a standard as in Area 1 due to the constant problem of flooding which pumping could not entirely alleviate. However, it was possible to establish that waterlogged deposits were not common and, with one exception (pit 383) occurred only in modern features. There appeared to be no deposits earlier than the medieval period.

PHASING

The excavations indicated two major episodes of occupation, in the late first millennium BC (Middle Iron Age), and the 11th to 14th centuries AD (early medieval period). Some subdivision of these periods is possible on ceramic and stratigraphic grounds, but generally speaking each occupation makes sense as a single coherent and discrete phase of land use.

Both occupations resulted in a similar type and range of features. Pits, ditches and gullies of both periods were of similar shapes, dimensions and alignments, which sometimes made the assignment of features to a particular period hazardous. The chief method of phasing was ceramic, with *terminus post quem* logic applied except in cases where the balance of evidence suggested that small quantities of medieval pottery were intrusive. The problem of residual Iron Age pottery 'dating' medieval features is one which may not have been entirely resolved, although in some instances stratigraphic evidence and the logic of the site layout

indicated the more plausible alternative. For unexcavated features and those from which no dating evidence was recovered a likely period affiliation could sometimes be made based on soil colour and what seemed to be the overall sense of the site layout, but uncertainties remain.

IRON AGE OCCUPATION (Fig. 4)

The Iron Age features comprised a subcircular penannular enclosure of several phases (Enclosure B) in the NW part of the site, with a cluster of ancillary enclosures/structures (A, C & D) on its S side. Enclosure A was formed by a two-phase semi-circular gully attached to a linear gully with an entrance facing SE. Structure C comprises two shorter arcs of gully which might have formed a circular structure. Structure D, partly revealed on the E edge of the site, consists of fragmentary curving gullies which formed either a single oval structure with a SE entrance, or perhaps two overlapping circular enclosures. A further ancillary structure to the N of Enclosure B was suggested by curvilinear gullies and possible postholes. The site was divided by a co-axial arrangement of ditches and gullies, roughly perpendicular to one another, which suggested internal zoning. Pits had a widespread distribution but tended to cluster towards the S edge of the site. Postholes tended to be concentrated inside Enclosure B and within and around enclosures C and D.

Enclosure B (Figs. 5 & 6: Ditches 608–13 and 620)

The enclosure was examined by a total of 10 excavated sections (Fig. 8: sections 128, 115, 107 & 103). Six phases of subcircular enclosure were recognised, the two earliest with an E entrance and the later ones with an SE entrance. The latest phase of activity was represented by a curvilinear section of ditch (620) which did not form an enclosure. The concordance of ditches between the several section cuts could not normally be demonstrated physically, but the following is a description of the most plausible ditch sequence based upon an interpretation of the sections and plans. The later enclosure ditches (608 and 609) were the easiest to trace and the earlier ones progressively more difficult as they tended to have been largely removed.

Phase 1: Earlier Phase of E-Facing Enclosure: Ditch 612 (Figs. 5 & 8: Cuts 300, 357, 449 & 549). Ditch 612 formed a subcircular enclosure with an entrance on the E side (Fig. 5a). It was somewhat extended on the SE side and flattened along its SW arm. Its internal diameter would have been about 16 m, making it the largest of the enclosures. The ditch was perhaps 1.4–2.0 m broad, and between 0.6 and 0.8 m deep with moderately steep sides and a rounded base. It was filled with a reddish brown sandy silt loam in all cuts except 300, which had a greyish cast. The primary fills in Cuts 300 and 449 were more gravelly (Fig. 8, Sections 103 & 115). Its stratigraphic relationship with the phase 2 ditch, 613, was not observed, since no surviving part of 612 was recorded in Section 128, the only one in which the courses of these two ditches coincided (Fig. 8). But if the outermost of the ditches on the W side of the enclosure (Cut 549) was indeed part of 612 it must have been cut by 613, which was traceable from the S terminal of 620 as far as Section 128 (Figs. 5 & 8).

Phase 2: Later Phase of E-Facing Enclosure: Ditch 613 (Figs. 5 & 8: Cuts 425 & 569). Ditch 613 survived only in an arc on the SE side, passing through the interior of the later enclosure, and another on the SW side appearing in Section 128, both lengths of about 6.5 m. It was interpreted as forming a quasi-circular enclosure with an entrance towards the E, but the S terminal was only vaguely traceable and the N side is entirely conjectural. It might well have been the most circular of all the enclosures, elongated by 0.5–1.0 m from a true circle in an E–W direction, and with an internal diameter of about 13 m. The ditch was 1.1 m wide by 0.5 m deep – slighter than 612 – with moderately steep sides and a flattish base. It contained quite distinctive fills which gave support to the interpretation of Cuts 425 (Section 129) and 569 (Section 128) as belonging to the same ditch. The upper fill was exceptionally stony containing pebbles and burnt limestone within a dark greyish brown soil matrix. This filled the central part of the ditch to a depth of about 0.25 m. The lower fill, which also occupied the sides of the feature, was an orange-brown silt loam. In Cut 425 this overlay a thin band of clean gravel and a primary gravelly loam (Fig. 8, Section 129).

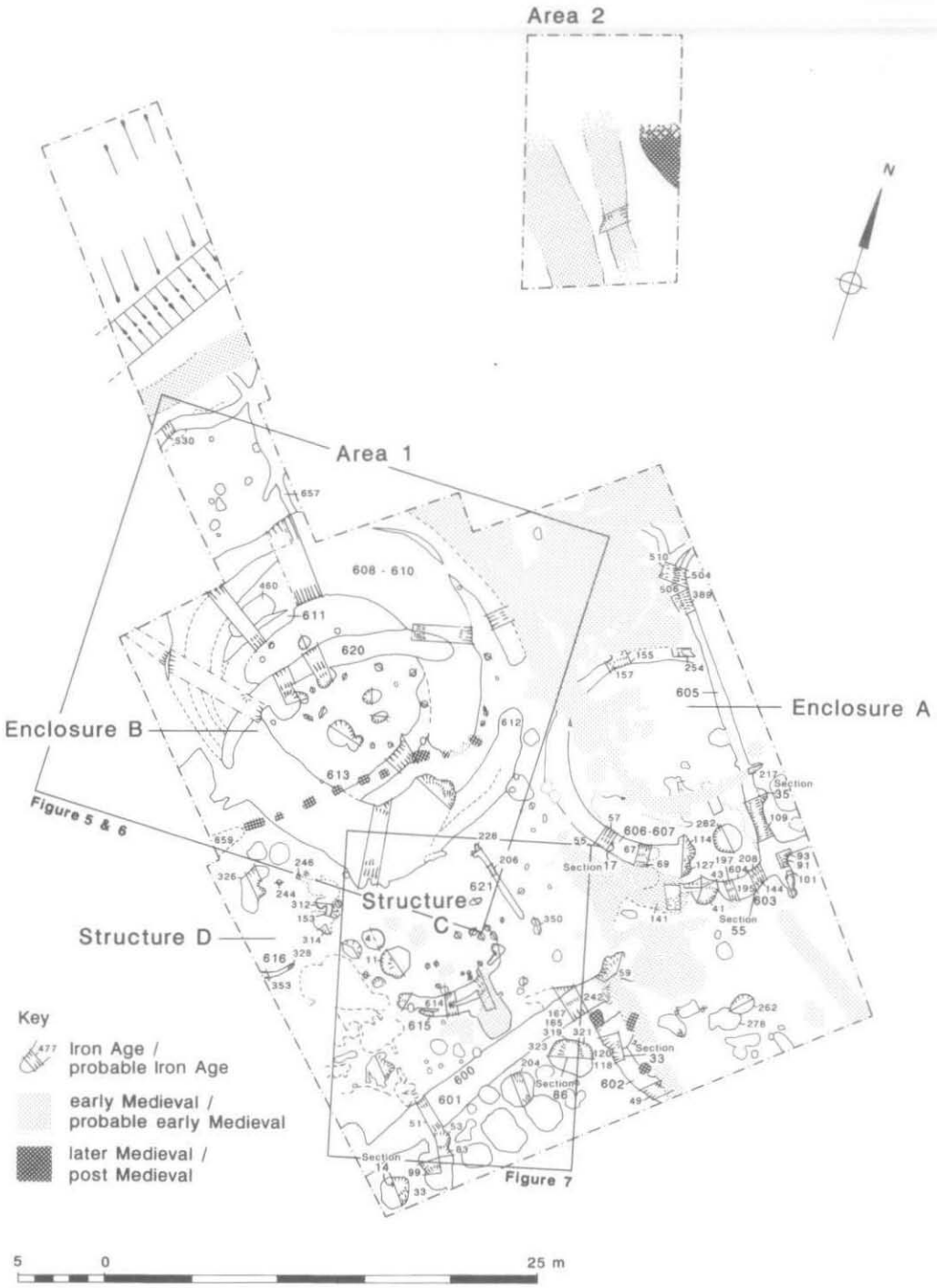

Fig. 4. Iron Age features. See Figs. 5, 6 & 7 for details of Enclosure B and Structure C. Probable Iron Age/unphased features not numbered on any plans.

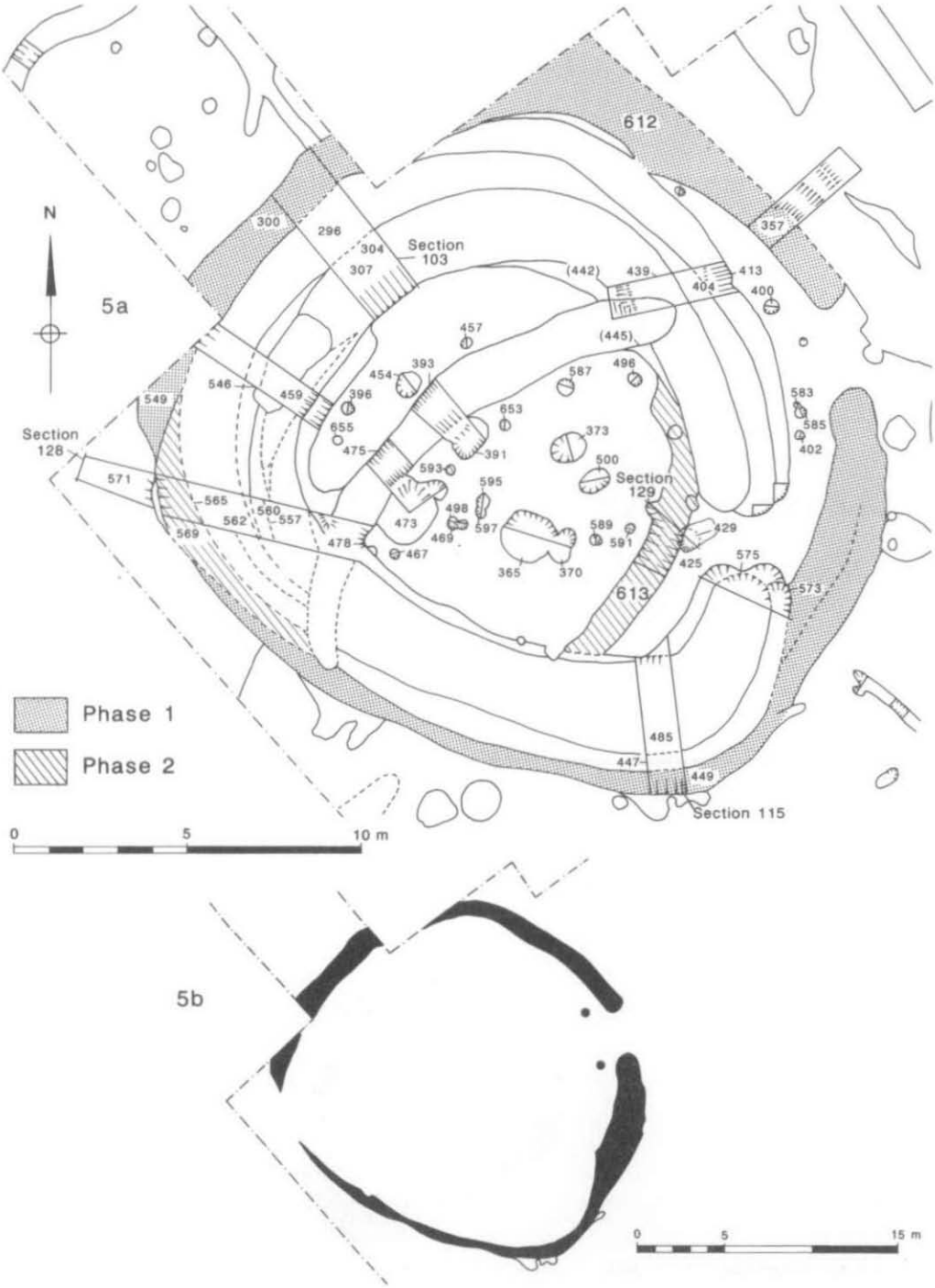

Fig. 5. a) Enclosure B: Phases 1 & 2. b) Phase 1 ditch and probably related postholes.

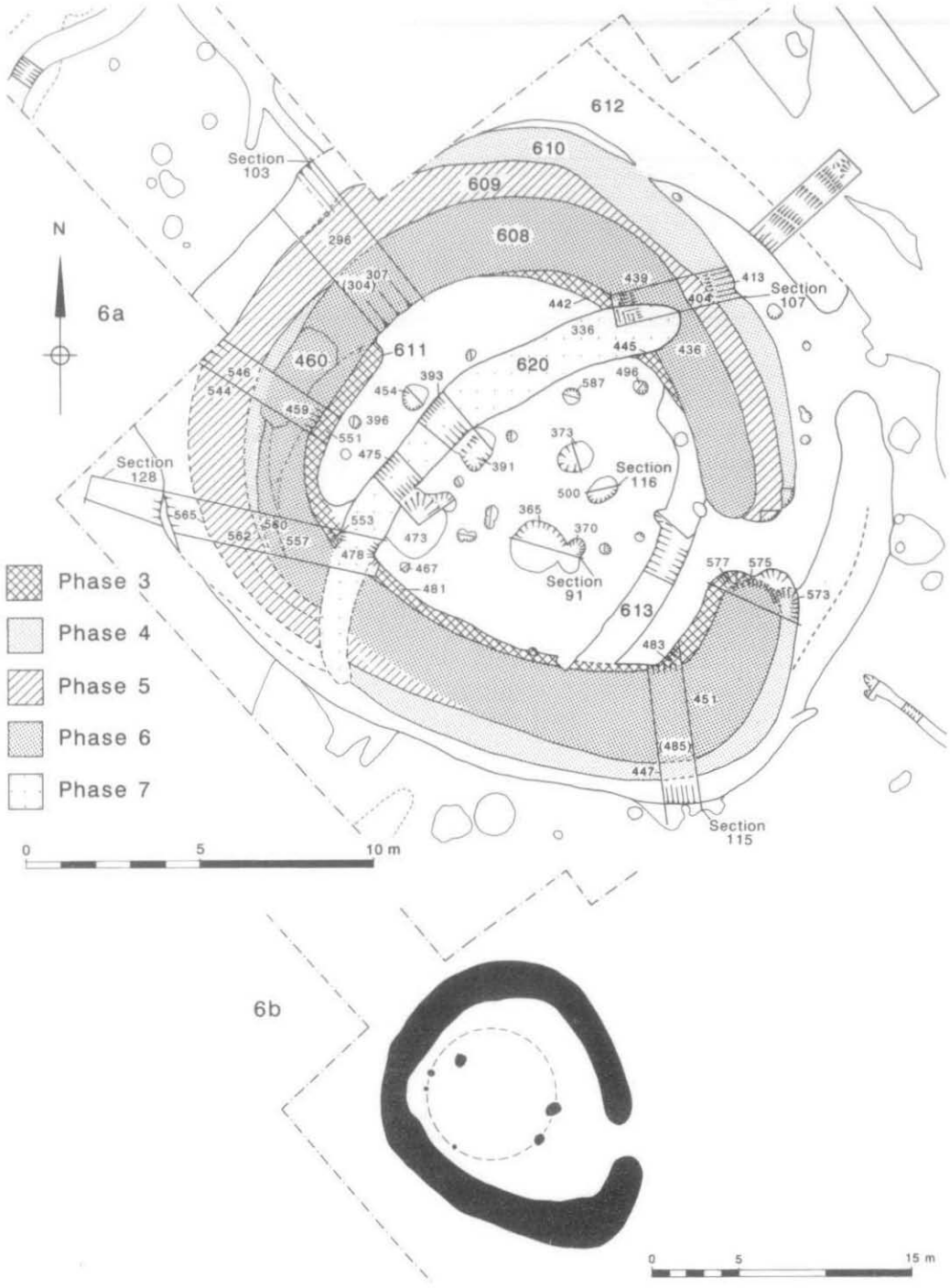

Fig. 6. a) Enclosure B: phases 3–7. b) Phase 6 ditch and possible round house.

Phase 3: Earliest Phase of SE-Facing Enclosure: Ditch 611 (Figs. 6 & 8: Cuts 442, 445, 481, 483, 551, 553 & 577). Ditch 611 formed traces of a subcircular or perhaps subrectangular enclosure with opposed SE and NW entrances. It was largely truncated by later features and was essentially traced by linking the earliest or otherwise unaccounted for phases of each section. While its only stratigraphic relationship within this group of enclosure ditches was with Ditch 608, its double entrance suggests that it should be placed at the beginning, rather than at an intermediate stage, in this sequence. Its form and dimensions were necessarily rather conjectural. It seems to have been a deep feature – Cuts 442 and 445 were 0.95 m deep and the most substantial of all the enclosure ditches – but not consistently so. As far as could be judged from the sections, the terminals (Cuts 551 and 557) were only about 0.25 m deep. The width of the ditch could not be measured. The enclosure which it formed was the smallest of the sequence, with internal dimensions of about 11 m between the NW and SE terminals by 10 m in a NE–SW direction. Only the S terminal of each entranceway seemed to have survived. The upper fill of this feature was, with the exception of that of Cut 573, a reddish brown silt loam with relatively sparse gravel. This overlay a more gravelly lower fill. Ditch 611 had no relationship with 612 and only a tentative one (in plan) with 613.

Phase 4: Middle Phase Enclosure: Ditch 610 (Figs. 6 & 8: Cuts 304, 413, 447, 546, 562 & 573). Ditch 610 formed an ellipsoid enclosure with a SE entrance. Its true shape was difficult to determine due to truncation by later enclosures 608 and 609. On the E side it followed a line on the outside of the later enclosures, with a strongly curving N arm and a S arm which was apparently more flattened. Its internal dimensions would have been about 14 m NW–SE by 12 m NE–SW. The ditch probably about 1.5 m broad, but its profile was not recovered in any of the sections. Its depth was variable, between 0.6 and 0.8 m, with a rounded or flat base. Its upper fills were brown or greyish brown sandy silt loams with 20–40% gravel. The only exception was Cut 546 which showed a very gravelly deposit overlying a very sandy primary fill. Burnt limestone was present only in Cut 447 (Fig. 8, Section 115).

Phase 5: Penultimate Enclosure: Ditch 609 (Figs. 6 & 8: Cuts 296, 404, 485, 544 & 565). Ditch 609 formed an ellipsoid enclosure of approximately the same shape and dimensions as 610. It was 1.4–1.9 m wide where measurable and 0.65–0.8 m deep, generally with a shallow V-shaped cross profile. Cuts 565 and 544 were probably incompletely excavated and their drawn profiles are incomplete (Fig. 8, Section 128). The upper fills of this ditch tended to be a brown sandy or very sandy silt loam with 20–30% evenly mixed gravel. The lower fills were more gravelly, the primary fills of Cuts 485 and 296 being almost pure coarse gravel. In view of the loose nature of the natural gravel it seems likely that all cuts of this phase had a primary fill of clean gravel, but this proved difficult to establish in the prevailing conditions. Along the S arm of the enclosure 609 is was probably largely removed when 608 was dug. In this case Cut 447, lying partly outside the course of 608, would have formed part of the earlier ditch 610, as shown in Figure 6. Alternatively, Cut 447 might have formed part of a slightly larger 609, the digging of which had removed 610 in this area.

Phase 6: Latest Enclosure Phase: Ditch 608 (Figs. 6 & 8: Cuts 307, 436, 439, 459, 451, 557 or 560 & 575). Ditch 608 formed an ellipsoid enclosure with a single entrance facing SE. Internally it was about 13 m long NW–SE by 10 m wide. The ditch was 2.8 m (Cut 451) and 1.4 m (Cut 557) broad and consistently about 0.7 m deep. The profile was a shallow V-shape, usually with a slightly steeper external slope. A small section of terminal was examined on the S side (Cut 575) and this showed a shallow slope. The upper fills tended to be relatively dark greyish brown sandy silt loams with variable amounts (10–40%) of gravel evenly mixed. Lumps of limestone, some burnt, were present but not ubiquitous. Deliberate infilling is indicated, but it was not possible to tell from which side it had come. The lower fills were more gravelly and in some sections a primary fill consisting of 60–80% coarse gravel was visible.

Phase 7: Ultimate Phase: Ditch 620 (Cuts 478, 475, 393 & 336). Ditch 620 was a curving feature passing through the middle of Enclosure B, cutting the enclosure ditches and Pit 473 (Fig. 6a). It was 14 m long, 1.1–1.3 m wide and 0.34–0.5 m deep. In profile it was steep-sided with a rounded base. The terminals (Cuts 478 and 336) were consistently filled with a dark grey-brown sandy silt loam, whereas the central sections had lighter brown primary and edge silting. Burnt limestone was quite frequent in the upper fills, and fired clay was also present. 620 was not part of the sequence of enclosures and does not fall into any pattern of features within the area of excavation.

Enclosure B is typical of contemporary small enclosures, most convincingly interpreted as drainage ditches around structures. The flattened SW arm of the enclosure might suggest that it was constrained on this side, perhaps by contemporary features outside the excavation area, but there are numerous examples from the Upper Thames region and elsewhere of enclosures whose irregularity is not explicable in those terms. Possible forms of internal structure are discussed below.

Enclosure A (Figs. 4 & 10: Ditches 606 and 607)

This enclosure was examined by 5 sections, with further sections through Ditch 605 which it abutted. Two phases of enclosure were represented, both following very similar, almost perfectly semi-circular courses. Their mutual relationship was not entirely clear from any of the sections due to the very similar nature of their fills, neither were their individual courses traceable in plan. However, it seemed likely that the inner, deeper ditch (606) was the earlier, being replaced by a shallower one (Fig. 10, Section 17). Both features respected Ditch 605, their N terminals lying about 1.0 m W of it and their S terminals leaving an 'entrance' gap of 3.5 m.

Earlier Phase: Ditch 606 (Cuts 57, 67, 114, 155 & 252). Ditch 606 formed a semicircle with an internal diameter of about 11 m. It was 1.0 m wide at the S end, narrowing to 0.45 m at the N. Its depth was generally 0.4–0.48 m, shallowing to 0.3 m at the terminals. In cross-profile it generally had steep or moderate sides and a flat base, but the N terminal had vertical sides and a flat base while the S terminal showed a shallow bowl-shaped profile. It had a single fill of friable reddish-brown loam on the S side, turning mid-brown at the N end. Gravel was sparse. Burnt limestone was quite common throughout. In the S terminal were several large pieces of pottery overlying a collection of burnt stones. There was no suggestion that this was a hearth, but both the stones and pottery might have been deposited deliberately.

Later Phase: Ditch 607 (Cuts 55, 69, 127, 157 & ?254). Ditch 607 was shallower than 606 with a maximum depth of 0.3 m. It was shallowest along the N side (0.11 m in Cut 157) and it is not clear whether it was present at all at the N terminal where it was not really visible in the top of 606. It had shallow sides and a rounded base near the S terminal, but rather steeper sides and a flat base towards the N. Its single fill was similar to that of 606.

These ditches were probably dug for drainage, but they were clearly far less substantial than those of Enclosure B. There appeared to be no contemporaneous internal features.

Structure C (Figs. 7 & 10: Gullies 614, 615 & 542; Pits 35, 65 & 77)

Two arcs of gully and possible traces of a third (Gully 542 on the N side) are likely to have defined the site of a structure to the S of Enclosure B. There were numerous small pits and postholes in this area, but only three of them (Pits 35, 65 and 77) appear to have been integral to this structure. The gullies and pits were examined with five sections.

Gully 614 (Cuts 13, 38, 63 & 79). Gully 614 described a quarter circle with a radius of 4 m and ran for 6.5 m. Its width was 0.5–0.74 m and its depth 0.36–0.48 m. Its sides, including the terminals, were generally steep or vertical. The base had a rounded cross-profile. The upper fill was a mixed reddish brown and grey-brown silt loam with frequent burnt limestone lumps. The lower fill was redder.

Pit 35 was an oval feature 0.95 m long, 0.6 m wide and 0.35 m deep with vertical sides and a flat base. It lay on the line of 614 and overlapped its NE terminal, although no relationship was visible. The upper fill was indistinguishable from that of the terminal. Both features are likely to have been backfilled simultaneously. If so, both Pit 35 and Gully 614 may have had structural functions, as an open pit on the end of a drainage gully would appear to serve no useful purpose. There was no evidence that 614 contained posts or other structural elements, but its steep/vertical sides would have been suitable for such a purpose. Pit 35, which was cut to the same depth as 614, could have served as a foundation for perhaps a more substantial upright.

Gully 615 (Cuts 7 & 85) ran for about 6 m, describing 60 degrees of an arc with a radius of 4.5 m. It was 0.35–0.6 m wide and 0.14–0.22 m deep with a bowl-shaped cross-profile. The W terminal had gradually sloping sides, but the E terminal had been removed by a medieval pit (73). It was filled with a mid greyish brown sandy loam. Its course ran outside Gully 614 but not precisely parallel to it. In Section 3 (Fig. 10) where there was a relationship between the two gullies, 615 appeared to be cutting 614, and it might be reasonable to see it as representing a later phase of essentially the same construction. However, 615 has a shallower cross-profile and seems less likely to be a structural feature than a drainage gully. It might, therefore, be contemporary with 614, notwithstanding slight differences in alignment.

Pit 65 lay at the SW terminal of Gully 614 (Cut 63). Its fill was very similar to that of 614 and their relationship was not clear, although it is more likely that the pit cut the gully. It was circular in shape, 0.6 m in diameter, and, at 0.4 m deep, was cut to the same depth as the gully. It is likely to have been contemporary with Gully 615 and a counterpart to Pit 35.

Gully 542 was a small curving feature about 1.2 m long, 0.3 m wide and 0.18 m deep. It was cut into the top of Ditch 612, but respected the later ditches of Enclosure B.

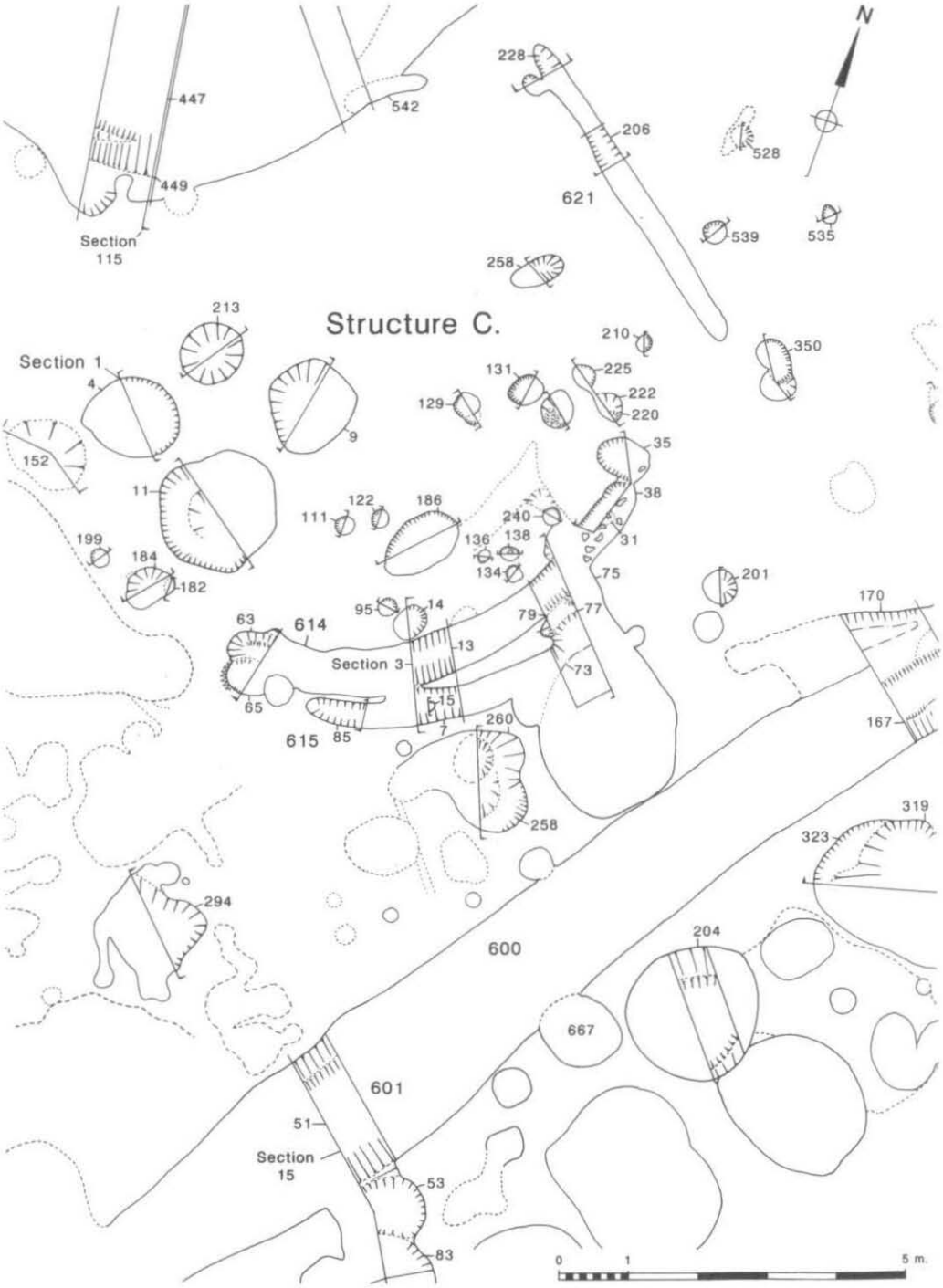

Fig. 7. Structure C: detail of associated features.

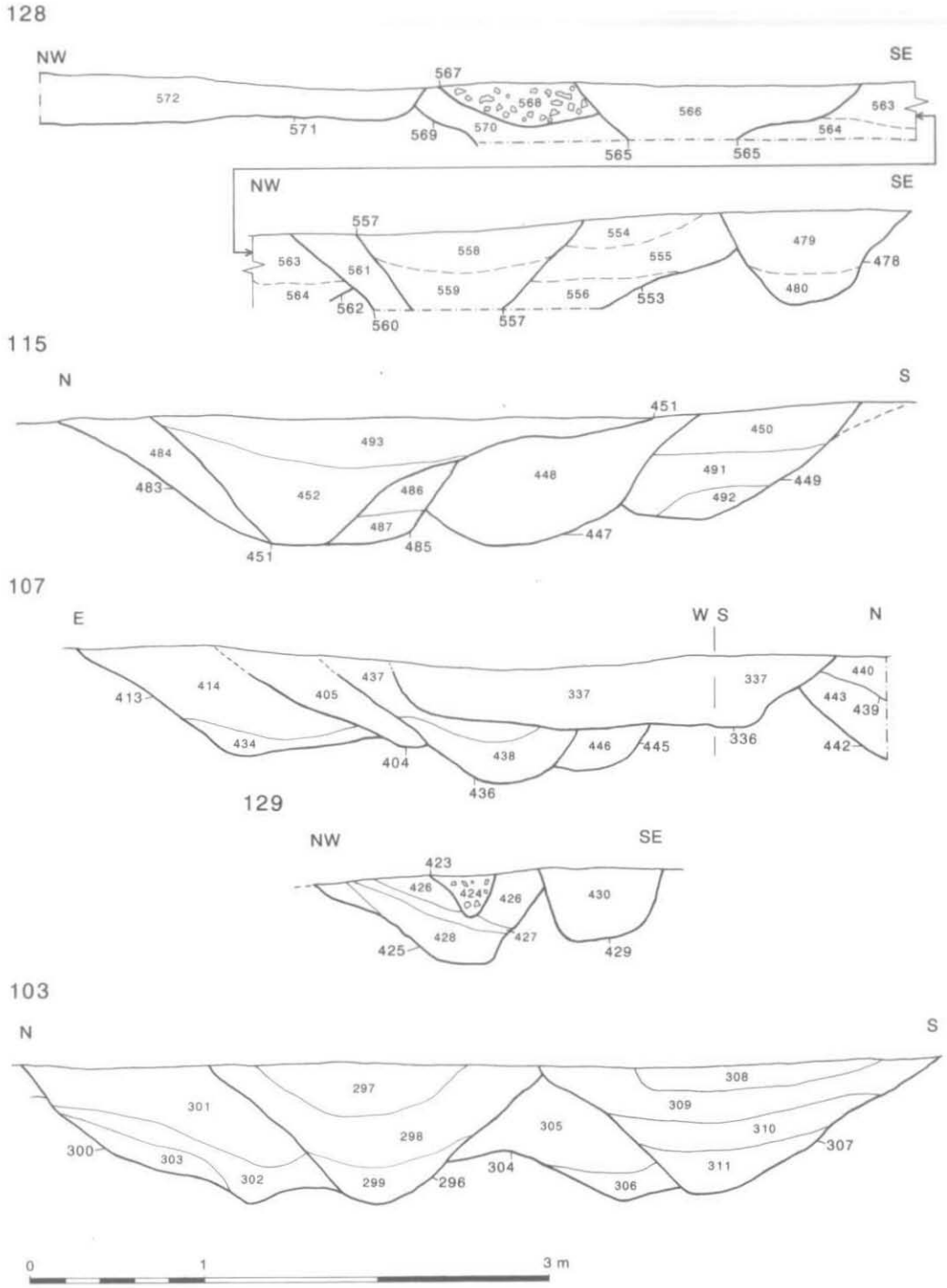

Fig. 8. Sections through Enclosure B ditches.

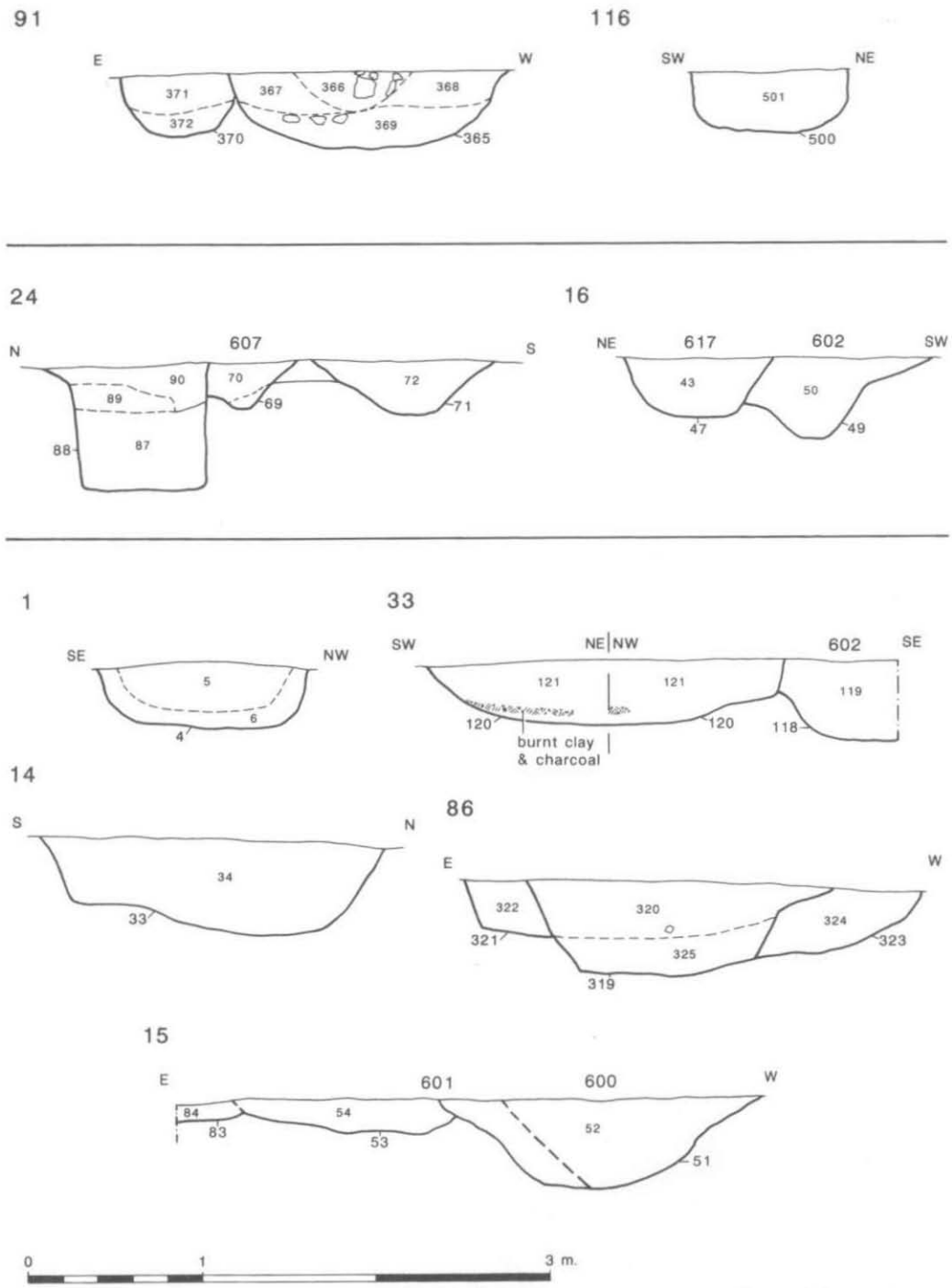

Fig. 9. Sections: 91 & 116, pits within Enclosure B (Fig. 6); 24 & 16, Iron Age ditches and Medieval features (Fig. 11); 1–15, Iron Age pits in southern area (Figs. 4 & 7).

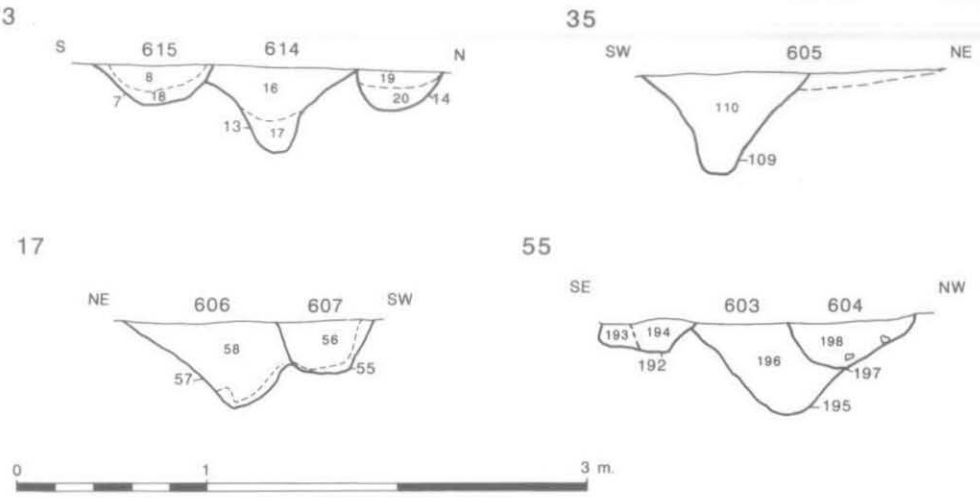

Fig. 10. Sections: 3, Structure C (Fig. 7); 35–55, Enclosure A (Fig. 4).

Pit 77 was truncated both laterally and vertically by medieval features and its character was far from certain. It was filled with an orange-brown loam containing Iron Age pottery. It is estimated to have been approximately circular with a diameter of 0.6 m and a depth of 0.24 m. It had no relationship with Gully 615, although it was on the line of that gully and close to where its NE terminal would have been.

Structure D (Fig. 4: Gully 616, Postholes 244 & 312)

Structure D consisted of a shallow, intermittent gully on the E side of the site running outside the excavation area. It appeared to form an approximately oval enclosure with an entrance on the SE. There were also two quite substantial postholes, a possible gully and a number of other small features in this area. Alternatively, two overlapping circular structures may be represented.

Gully 616 (Cuts 153, 246, 328, 353, 355 [not on plan] & 314; Features 152, 159 [neither on plan] & 659). Gully 616 consisted of one clear length of curving gully and other intermittent shallow traces probably forming an oval enclosure measuring 5.5 m NW–SE by 8.0 m NE–SW with an entrance 2.5 m wide towards the SE. The gully was no more than 0.5 m wide and everywhere very shallow (*c.* 0.1 m). The terminal on the E side of the entranceway was slightly deeper (0.28 m) but this might have been disturbed. Along the NE side the gully was barely visible and could not be traced through Feature 326, an area of probable root disturbance. It appeared, however, in the trench edge (Cut 355). It may have been either a shallow drainage gully or a stake/post-ring slot.

Features in this area can also be interpreted as the remains of two overlapping circular gullies, each 8.0–8.5 m in diameter. The first would be formed by Cuts 353, 328, 314, 153 and 659, the last a slightly curved, unexcavated feature running out of the excavation area from an apparent terminal. The second would be formed by Cuts 355 and 246, perhaps running S into an area of shallow, nebulous features and disturbed terrace silt with root holes.

Postholes 244 and 312, both well-formed and circular, may have been associated with these gullies, but do not fit in with any of the structures suggested above. They were 2.5 m apart and 312 was cut by Gully 153. 244 was 0.4 m in diameter and 0.38 m deep, 312 0.5 m in diameter and 0.58 m deep.

Linear Features (Figs. 2, 4 & 9: Ditches 600, 601, 602, 603, 605, 530; Gullies 604, 621 & 657)

The Iron Age linear features formed a roughly co-axial arrangement of land division, the layout of which is seen most clearly on the air photograph (Fig. 2).

Ditch 601 (Cuts 51, 59, 165, 242) was the earlier phase of a major SW–NE land division. It ran from the SW corner of the site for 19.5 m to a terminal in the central southern part of the site. Its N side had been truncated by Ditch 600 except the terminal. It was probably originally about 1.0 m wide and its depth was a consistent 0.6 m. It had moderately steep sides and, as far as could be judged, a rounded base. Its fill was a uniform reddish brown sandy loam with 10–30% gravel.

Ditch 600 (Cuts 51, 167 & 236 [not on plan]) was essentially a recut of 601 and closely followed its course. It was offset slightly to the N, and did not appear to be quite as long. It was 0.9–1.5 m wide and 0.5–0.6 m deep with moderately steep sides and a rounded base. Its fill generally had a more greyish cast than the earlier cut except in Cut 51 where it was virtually indistinguishable (Fig. 9, Section 15). Burnt limestone was present throughout.

Ditch 602 (Cuts 49 & 118) was a slightly curving feature running SE off the site from a terminal about 2 m distance from that of Ditch 601. It was 1.0 m wide and 0.5 m deep. In Cut 49 (Fig. 9, Section 16) its profile was stepped, with a shallow upper slope, a steeper lower slope and a narrow flat base. It has a single reddish brown gravelly fill. While it yielded no dating evidence, it is stratigraphically early, being cut by Pit 120 which was fairly certainly Iron Age (Fig. 9, Section 33). It seems likely to belong to the same phase as 601.

Ditch 603 (Cuts 93, 144, 195), at right-angles to the S end of Ditch 605, appeared to follow a slightly sinuous course NE from a deep terminal. It ran for about 6 m within the excavation area, becoming slightly narrower (from 1.0 m to 0.9 m) and shallower (from 0.5 m to 0.3 m) towards the E. It was not entirely certain that the ditches on the E and W sides of Ditch 605 were the same feature. In profile the it was bowl-shaped, and was filled with a quite uniform reddish brown silt loam. It was cut by Gully 604 and Ditch 605 and was consequently a relatively early feature. It continues the line of Ditch 600/601 after a gap of 7 m, and seems likely to have been contemporary with the earlier phase of that ditch.

Gully 604 (Cuts 43, 197 & 208) was a shallow curving feature cut into the top of Ditch 603. Its visible length was 5 m, and it was 0.5-0.6 m wide and between 0.15 and 0.25 m deep. In profile it had moderately steep sides with a rounded base where it cut 603 (Fig. 10, Section 55) and a flat base towards the W. It was filled with a reddish brown silt loam which contained frequent lumps of burnt limestone in Cuts 197 and 208. The terminals of this gully were not found. The SW end was very shallow and, after being cut by a very shallow 'pit' (41), it petered out in an area of disturbance. The NE terminal could not be seen clearly in the fill of 603. It seemed to respect Ditch 605, since the concentration of burnt limestone, which was the distinguishing feature of this fill, did not continue beyond Cut 208. The gully seems to have been related to Enclosure A, lying across its entranceway without constituting a physical barrier.

Ditch 605 (Cuts 91, 101, 109, 189, 217 [neither on plan], 389 & 506; Recuts 504 & 510) ran NW along the E edge of the excavation area from a terminal in the SE for a distance of 21 m, petering out in an area of medieval activity. Towards this end of the feature a shallow recut (504) turned NE. The ditch was wider and deeper at its S end, where it was 0.8 m wide and 0.5 m deep, gradually narrowing to 0.6 m and shallowing to 0.3 m. At the extreme N end, Recut 510 deepened the ditch again to 0.4 m. There was some variability in cross-profile. A composite profile at the S end showed a shallower upper slope and an almost vertical lower slope, but there was no evidence of recutting (Fig. 10, Section 35). At the N end the sides of the feature were more uniform and moderately steep. The base was flat throughout. The ditch had a single sandy loam fill throughout. At the S end this was a reddish brown colour, which turned mid brown towards the N end.

Gully 621 (Cuts 206 & 228) Gully 621 was a very insubstantial feature running for 5 m NE–SW between Enclosure A and Structure C. It did not have clearly defined terminals and might originally have been longer. It was about 0.5 m wide and 0.15 m deep with moderately steep sides and a flat base. It was filled with a grey-brown soil the compactness of which, and the animal bone and Iron Age pottery within it, indicated that the feature was archaeological, rather than a plough furrow. It seems to divide Structure C from the entrance to the later-phase Enclosure B.

Gully 657, in the NW of the site, was not examined in any detail. It ran SE–NW for about 8.5 m, but its extent in this direction was not defined. It was 0.5 m wide and 0.25 m deep and filled with a greyish brown sandy silt loam. It appeared to be cut by Ditch 612 of Enclosure B and would therefore be one of the earliest features on the site.

Ditch 530 Ditch 530 was a curvilinear feature in the extreme NW of the site which ran approximately perpendicular to 657. It was 0.9 m wide and 0.4 m deep with a shallow V-shaped cross-profile. Its dark greyish brown fill contained frequent small lumps and flecks of fired clay. Its relationship with 657 was not examined.

Pits and postholes

These are considered in separate spatial groups which appeared to correspond to different zones/uses of the site.

Pits. Of the total of 83 pits on the site, 28 were considered likely to be Iron Age. Of these, 14 were dated ceramically and three stratigraphically; 11 were 'dated' by reason of their location and the nature of their fill. Of the 25 undated pits, a proportion are also likely to have been of Iron Age date.

All the Iron Age pits were subcircular or ovoid in plan. Broadly, they fell into two types on the basis of dimensions; those of between 1 m and 2 m in diameter and the smaller features (0.4–0.9 m in diameter) which possibly represented a range of functions including large postholes. Pits of the larger type tended to have steep or vertical sides and flattish bases. However, while in the diameter range of typical storage pits, all the excavated examples were relatively shallow, being generally 0.3–0.5 m deep and nowhere exceeding 0.6 m.

Postholes. There were a large number of postholes and possible postholes, the vast majority of which contained no dating evidence. Like the pits, they were not ubiquitous and with some exceptions appeared to be assignable to distinct groups. The tentative dating of these groups is based upon the dating of the features with which they appeared to be associated.

Group associated with Enclosure B:	24
Group associated with Structure C:	20
Group associated with Structure D:	3
Group associated with zone of pits:	4
Group at N end of site:	7

The postholes in the last two groups were not excavated but most of the rest were. In addition to these 58 postholes, a further 14 were attributed to the medieval occupation and are described below.

The Iron Age postholes were generally quite shallow (most less than 0.25 m deep) with a tendency to bowl-shaped profiles. It is probable that a number were animal holes or other disturbances, but the shallow forms cannot be discounted out of hand since deep and well-formed postholes are comparatively rare on gravel terrace sites due both to the loose nature of the geology and the extent of vertical truncation.

ZONE OF PITS IN THE S OF THE SITE. A zone of pits in the S part of the site seems to have been delineated by Ditch 600/601. Comparatively few pits were found to the N of it and the aerial photograph (Fig. 2) suggests that they did not spread much further to the S either. Most are concentrated W of Ditch 602 but there were a few to the E as well. The pits were often discrete but some intercutting indicates perhaps two or three phases of pit digging. There were a few small pits/possible postholes in this area too, but these were not examined.

19 pits of probable Iron Age date are represented but only 7 of these (319, 321, 323, 262, 278, 120 & 33) were dated ceramically or stratigraphically. Pit 319 was one of the deepest and also produced the largest ceramic assemblage. It was 1.6 m in diameter and 0.6 m deep and filled with a greyish brown soil (Fig. 9, Section 86). A small quantity of carbonized cereal (Table 5, sample 4) and most of the bones of a piglet were recovered from the upper fill (Hamilton-Dyer this report). The pit cut two slightly shallower pits (321 and 323) which produced no finds. Pit 120 was 1.4–1.5 m in diameter and 0.35 m deep with moderately steep sides and a flat base (Fig. 9, Section 33). It yielded carbonized remains of wheat grains and chaff and brome grass (Table 5, sample 1) from near the base of the feature. A sherd of Iron Age pottery suggests an Iron Age date. Carbonized cereal remains were also recovered from Pit 262 (Table 5, sample 3) in the SE part of the site. This was 1.0 m in diameter and 0.6 m deep with vertical sides and a flat base, and also contained 14 Iron Age sherds. The other pits produced few finds.

FEATURES WITHIN ENCLOSURE B (Figs. 5 & 6). A number of pits and postholes within Enclosure B are likely to have been associated with circular structures within the enclosure. Dating evidence came from 6 features in this area – 365, 473, 370, 391, 496 and 429. All yielded Iron Age pottery except 429 which contained medieval sherds and had a distinctive, loose, dark loamy fill easily distinguished from the fills of the Iron Age features. It formed part of an alignment of similar, probably postmedieval features (Fig. 11). The only other post-Iron Age finds from the area of the enclosure were two stray sherds of medieval pottery, and it seems that medieval activity here was minimal. For this reason it is probable that the undated features belong to one or other phase of the Iron Age occupation.

Pits. 365: a subcircular pit 1.6 m wide and 0.45 m deep containing pottery, large quantities of burnt limestone, and fired clay (Fig. 9, Section 91). There was no trace of *in situ* burning and the material with which the feature was filled is unlikely to relate to its original function. The presence of burnt stone and clay does, however, suggest the presence of a hearth or oven nearby. The pit itself was akin to the typical 'storage' pits on this site. A sample of carbonized remains was taken (Sample 11).

473: a subcircular pit cut by Ditch 620. It was 1.75 m broad but comparatively shallow (0.28 m). It contained pottery and burnt limestone.

391: an oval pit measuring 1.0 m × 0.8 m but only 0.15 m deep. This is probably too shallow to be a storage pit of any sort.

373: a shallow circular pit 0.95 m in diameter and 0.15 m deep.

454: a shallow, subcircular pit, 0.7–0.8 m in diameter and 0.15 m deep, filled with a blue-grey clay. Clay-lined pits have been found on a number of Iron Age sites, where they are often interpreted as water containers.

370: an ovoid pit, 0.7–0.9 m in diameter and 0.35 m deep, with steep sides and a flattish base. It was cut by Pit 365 (Fig. 9, Section 91) and contained some pottery and burnt limestone. Its function is not clear, but it falls in the same size range as some possible postholes and it is possible that this is one of a pair (with 500) of large door postholes.

500: a subcircular pit 0.9 m in diameter and 0.32 m deep (Fig. 9, Section 116). Its form and dimensions are similar to those of 370, which lies 2 m away, and it is possible that these were a pair of door postholes. They are located opposite the ditch terminals of the later-phase enclosure and about 4 m away.

Postholes. There were 18 possible postholes within the central area of the enclosure. All were rather shallow (0.13–0.4 m) but this might be the result of truncation by later ploughing. Only one (496) contained pottery. They did not show any obvious patterning. Some can be accommodated within a possible structure which is discussed below.

In addition to those mentioned, there were 6 possible postholes between the earlier and later phase enclosures which seem likely to be contemporary with the earlier phase (Ditch 612). Again they are all quite shallow. Postholes 400 and 585 form a possible pair of door postholes about 3 m apart.

FEATURES ASSOCIATED WITH STRUCTURE C (Fig. 7). Two pits and around 20 postholes were located in the area of Structure C. They were concentrated 'inside' the structure rather than scattered more widely, and it seems probable that at least some of them were associated with that structure.

Pits. 4: a circular pit, 1.25 m in diameter and 0.4 m deep with vertical sides and a flat base. It was filled with an orange-brown soil which contained a single sherd of Iron Age pottery (Fig. 9, Section 1).

11: a circular pit, 1.65 m in diameter and 0.45 m deep with steep sides and a rounded base. The fill was greyish brown with orange-brown mottles and contained occasional burnt stones. It yielded 36 sherds of pottery.

Two other small pits or large postholes (35 & 65) have already been described above in relation to Structure C. A further pit/posthole of similar form and dimensions (350) was situated to the E and contained several fragments of loom-weight and quern fragments.

Postholes. Of the 20 or so postholes in the area, 9 were particularly deep and well-formed (210, 240, 134, 136, 138, 95, 111, 122 & 220). They all had vertical sides with a tendency to be as deep or deeper than they were wide. Three (95, 111 & 122) had post-pipes. They did not form a clear pattern. Their depth (0.25–0.5 m) implies some permanence.

FEATURES ASSOCIATED WITH ENCLOSURE A. The interior of Enclosure A appeared to be devoid of contemporaneous features. There were, however, two circular pits (41 and 282) at the entrance (Fig. 4). They do not seem to make sense as being strictly contemporary with the enclosure and might be later.

Pit 41 was 1.6 m in diameter, but its extreme shallowness (0.12 m) made it anomalous as an Iron Age pit. It cut Gully 604. It was filled with an orange-brown soil which yielded a single Iron Age sherd.

Pit 282 was oval in shape, 1.7–1.9 m in diameter, and 0.34 m deep. Its fill was reddish brown and yielded 2 Iron Age sherds.

MEDIEVAL OCCUPATION (Fig. 11)

Medieval occupation was represented by pits, ditches, gullies and possible postholes. The range of features, which was similar to that of the Iron Age occupation, together with the

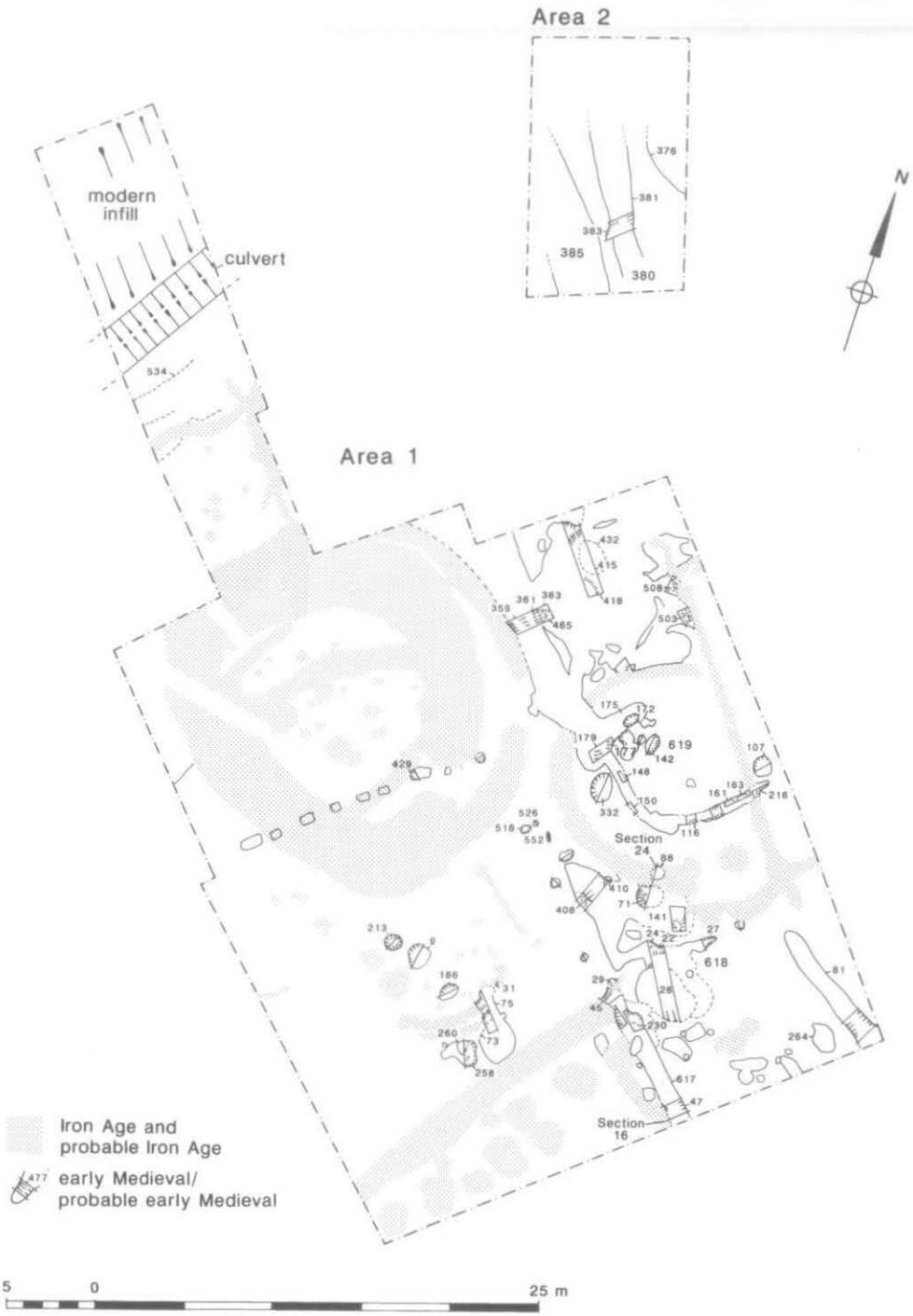

Fig. 11. Medieval features.

quantity of pottery, suggest that the site was one of domestic occupation rather than of fields or paddocks, but it is likely to have been peripheral to the main focus of settlement. Traces of structures could not be deciphered confidently from the complex of features and there was no pattern in the distribution of features. The pottery indicates a date range from the 11th to the 14th century, but no more refined phasing is possible.

Area 1

Ditches 81, 617 (Cuts 47 & 230) & 359. Ditches 81 and 617 formed an approximately parallel pair 10 m apart running off the site in a SE direction. They were of a similar size with moderately steep sides and flat bases. The course of Ditch 359 was less certain but it appeared to have drained from Gully 619 and was the latest feature in a group of intercutting ditches draining NW, which included an undated ditch on the N side (361) and the Iron Age enclosure ditch (612) to the S.

Gully 619 (Cuts 216, 161, 116, 150, 148 & 177). Gully 619 was a linear feature running SW from a terminal on the E edge of the site, and then turning sharply SW. Its terminal was just 0.11 m deep, but it deepened gradually to 0.34 m (Cut 177). It seems probable that it continued NW and became Ditch 359, but this would not exclude the possibility that it was associated with feature 175 and would therefore have partially enclosed a subrectangular area. The gully was irregular in cross- and long-profile. There were a number of small features attached to the gully, but none could be interpreted in structural terms and it seems that at least some of them were caused by animals or roots.

Gully 618 (Cuts 22 & 27). Gully 618 was a shallow, slightly curving feature which proved difficult to define in an area of soil disturbance. Its total length was about 6 m and it had variable, irregular sides and a flat base. Its function is unknown. It is not readily interpretable as a beam-slot, but a relationship to a structure here cannot be ruled out. It might be significant that areas of soil disturbance (Layers 26 and 141) lay on either side of this feature. These might be occupation areas of trampled and compacted soil.

Pits. 27 pits were dated to the medieval period, but the actual total is likely to have been higher. There was a wider range of size, shape and presumably function than among the Iron Age pits. They did not fall into particularly well-defined patterns or zones, but, with the exception of a complex of features in the NE corner, they tended to lie towards the S end of the site. In the NE corner, the features were clustered in the vicinity of an exceptionally large pit (415), which might have been a well or waterhole.

Area of Structure C. Two of these pits (73 & 186) were well-defined and relatively deep, while the others were extremely shallow and rather irregular. Pottery spanned a range from the 11th to the 14th centuries.

Area of Enclosure A. This group included 3 circular pits (107, 71 & 88) of typical Iron Age storage pit dimensions. Others were more irregular. The larger pits 179 and 410 remained ill-defined. Smaller features included a shallow grave (172) containing a calf cut into the top of feature 175 (Hamilton-Dyer, this report). The grave yielded 12th-century pottery but could have been a later insertion.

NE area of site. A complex area of intercutting pits and ditches in the NE corner of the site yielded 12th-century pottery. A section excavated towards the centre of a large more-or-less circular feature indicated that the major component of this area was a deep pit, 415, which had been cut into or recut on several occasions. The excavation reached 1.0 m in depth, but it was clear that the centre of the feature lay E of the section, and that its bottom had not been reached. It probably served as a waterhole or drainage sump. This, together with numerous other pits and gullies could not be further examined in the time available.

Postholes. A scatter of probable postholes lay in the area W and S of Enclosure A. Some of them were datable to between the 11th and 14th centuries, and others were thought to be possibly contemporary. They formed no clear pattern.

Area 2

The sediments in Area 2 consisted of superficial layers of dumped soil and a possible early ploughsoil sealing thick deposits of water-derived gravelly silts (379 and 380). The total depth of this trench to the natural gravel was between 0.8 m and 1.2 m, deepening towards the N.

The main features were a pair of broad, parallel ditches, 381 and 385, running N. These yielded no dating

evidence, but 12th-century sherds recovered from the immediately overlying layer, 380, suggested that they were early medieval drainage features. A large 19th-century pit, 376, contained some waterlogged wood, but elsewhere the only waterlogged material came from a small undated pit, 383, which had an uncertain relationship with Ditch 381 and contained plant and insect remains (Robinson, this report).

ARTEFACTS

STRUCK FLINT by PHILIPPA BRADLEY

The twenty-two pieces of struck flint, all redeposited and many broken, comprise a single-platform flake core, 19 flakes, a utilised flake and an end scraper. The material would not be out of place in a Neolithic context, although there are no chronologically diagnostic pieces. Most of the raw material is fairly good quality and may have come from the Clay with Flints to the E. There are one or two pieces which may have come from local river gravels. The collection may represent a small surface scatter.

IRON AGE

POTTERY by JANE R. TIMBY

Introduction

The evaluation and subsequent excavation produced a moderately small assemblage of 630 sherds of Iron Age pottery, *c.* 10.7 kg in weight. The entire assemblage with three exceptions comprises plain, undecorated domestic-type wares. The material was sorted macroscopically into main fabric types and quantified by weight (in grammes) and count according to each excavated context. This report briefly describes the defined fabrics and forms, then discusses the pottery in relation to the site and its likely chronology. The final section makes a brief comparison of the assemblage with other broadly contemporary groups of material from the Thames gravel region.

Fabrics and Forms

The sherds were sorted macroscopically aided by the use of a ×20 binocular microscope. Eight main categories were defined on the basis of the main inclusions present in the clay: organic, shell, limestone, sand, grog, iron, flint, and sand with shell/limestone. The definitions are quite broad, since the character of such handmade material is generally diverse. Most of the fabrics encountered at Whitehouse Road can be paralleled among material from within a 20 km radius, suggesting fairly localised manufacture. Parallels with other sites are based on published information or, in the case of Gravelly Guy, an unpublished fabric reference collection. After an initial bibliographical reference only the site names are used.

Only 68 rimsherds were recovered, many very fragmentary. The main types present appear to reflect vessel forms identified elsewhere in the Thames Valley dating to the Middle Iron Age. This range is characterised by a moderately small repertoire of types, mainly vessels with slack profiles or globular or barrel-like bodies and generally simple rims. Therefore, rather than attempting a new classification, reference is made with the form categories defined in the Ashville Trading Estate report[13] and used in the subsequent Farmoor report.[14]

Evidence of use, such as sooting, residues, limescale or leaching, was noted. Unfortunately there was an insufficient number of examples to allow any valid statistical analyses.

[13] C.D. De Roche, 'The Iron Age Pottery', in M. Parrington, *The Excavation of an Iron Age Settlement, Bronze Age Ring-Ditches and Roman Features at Ashville Trading Estate, Abingdon (Oxfordshire) 1974–76*, CBA Res. Rep. 28 (1978).

[14] G. Lambrick, 'The Iron Age Pottery', in G. Lambrick and M. Robinson, *Iron Age and Roman Riverside Settlements at Farmoor, Oxfordshire*, CBA Res. Rep. 32 (1979), 35–46.

1. *Organic-tempered* (Fabric O1). No. of sherds 16; Wt. 101 gms
Fabric: A generally thick-walled ware with a red-brown exterior and darker brown-black core and interior surface. The matrix has a fine sandy texture and contains frequent fine mica (muscovite), rare limestone grains and sparse to moderate quantities of burnt organic matter.
Form: The vessels generally have matt surfaces. No featured sherds were present.

2. *Shell-tempered* (Fabrics H1, H2 and H3).
Fabric H1. No. of sherds: 102; Wt. 2304 gms
Fabric: A coarse, shell-tempered fabric, generally orange-red or brown in colour, occasionally grey or black. The slightly friable clay matrix contains a moderate to dense frequency of coarse fossil shell up to 5 mm across accompanied by fragments of limestone. Several sherds show surface voids particularly on the interior surface suggesting leaching during use. Some sherds show organic impressions on the underside of the base and on the lower walls. The fabric equates with Farmoor fabric H1 and Gravelly Guy fabric SH16.
Form: The majority of the sherds are matt with a fairly rough finish. Occasional examples have been burnished although this does not appear to be the norm with this fabric. Vessels include barrel jars with plain slightly inward-curving rims and jars with upright plain rounded rims equating with Ashville form B and vessels with simple everted or slightly beaded rims as Ashville form D. A single example of an applied handle (Fig. 12,7) was recovered from layer 3.

In addition to internal leaching some vessels show exterior sooting suggesting that occasionally, at least, these vessels were used to heat contents.

Fabric H2. No. of sherds: 19; Wt. 446 g
Fabric: Similar to fabric H1 but with a slightly finer grade of fossil shell temper which varies from a high to moderately sparse density. Equates with Gravelly Guy fabric SH/2 and Watkins Farm fabric 9 (Allen 1990).
Forms: Vessels generally show matt surfaces. Only one featured vessel was recovered (Fig. 12,1) comparable with Ashville form D. A sherd from Gully 621 shows traces of burnt internal residue.

Fabric H3. No. of sherds: 17; Wt. 157 g
Fabric: A generally dark brown to black ware containing a moderate to dense frequency of fine fossil shell and limestone, the latter tending to dominate. Sparse rounded quartz grains are also visible (= Watkins Farm fabric 3a).
Forms: Two rimsherds were recovered from a simple upright globular vessel from Ditch 601 and an everted rim jar/bowl from Ditch 608 (Ashville classes B and D). Many of the sherds show a smooth surface finish, some burnished. Traces of residue were noted on two sherds.

3. *Limestone-tempered* (Fabrics L1, L2).
Fabric L1. No. of sherds: 7; Wt. 102 g
Fabric: A smooth, soapy fabric with a brown exterior and black interior and core. The paste contains a moderate frequency of oolitic limestone temper, both as single ooliths and oolitic conglomerates, up to 5 mm in size.
Form: No featured sherds.

Fabric L2. No. of sherds: 20; Wt. 229 g
Fabric: A brown ware containing a temper of fine limestone including ooliths and fossil shell fragments, mainly fine but with occasional fragments up to 2 mm in size. The clay also contains a sparse frequency of fine rounded well-sorted quartz (less than 0.5 mm) and rare iron grains.
Forms: Vessels mainly consist of simple rim barrel-shaped jars from Gully 614, Ditch 605 and Ditch 613, one of which shows possible decoration in the form of crude diagonal finger grooves. A ?lid with a squat flanged rim and internal blackening (Fig. 12,8) was recovered from layer 3. A simple everted rim globular vessel (Ashville form D) was present in Ditch 620.

One sherd showed internal limescale, presumably from heating water.

4. *Iron/Ferruginous clay pellets* (Fabric I1, I2, I3)
Fabric I1. No. of sherds: 23; Wt. 585 g
Fabric: A brownish-black, smooth soapy fabric characterised by the presence of rounded red-brown grains, (?ferruginous compounds/clay pellets) up to 1 mm in diameter, quartz sand and variable amounts of organic matter. Comparable inclusions were noted in material from Farmoor (fabric D) and Watkins Farm (fabric 1a).
Form: No featured sherds were recovered although many of the bodysherds show a burnished exterior finish.

Fabric I2
No. of sherds: 37; Wt. 745 g
Fabric: Pale brown ware with a dark grey core. The paste contains a moderate frequency of red-brown clay pellets, up to 2 mm across, a sparse frequency of shell and/ or limestone and rare rounded quartz sand (= Watkins Farm fabric 1b).

Form: Several of the sherds show external smoothing or burnishing. Featured sherds include necked, rounded, everted rim bowls, a handle (Fig. 13, 15), large globular-bodied vessels with small upright rims from Ditch 600 and the Ditch 608 (Fig. 12, 4), simple inturned-rim barrel-bodied jars from layer 3 (Fig. 12,10) (= Ashville classes B, D, D/L).
A rimsherd from ditch 605 had limescale.

Fabric I3
No. of sherds: 19; Wt. 800 g
Fabric: Similar to fabric I1 but with sparse large fragments of fossil shell up to 7 mm across.
Form: Large thickened rim storage jar (= Ashville class L), simple inturned-rim barrel jar, and beaded rim globular jar/bowl (Fig. 12, 6; Ashville class G), all from the Ditch 610, and a slack-sided vessel with a simple vertical rim (Fig. 13, 16) from the evaluation.

5. *Sandy wares* (Fabric S1, S2, S3, S4 and S5)
Fabric S1. No. of sherds: 8; Wt. 85 g
Fabric: A finely micaceous fabric with a sparse frequency of ill- sorted, rounded, quartz sand, the larger grains measuring 1 mm across.
Forms: Moderately thin-walled vessels with smoothed walls, some burnished. Forms include necked bowls with simple everted rims and a burnished base with a projecting foot (Fig. 12, 11). The burnishing appears on both the interior and exterior surfaces.

Fabric S2. No. of sherds: 71; Wt. 976 g
Fabric: A dense, black sandy ware with a high frequency of moderately well-sorted, fine, rounded quartz sand and rare fragments of rounded limestone occasionally up to 6-7 mm across.
Forms: Globular bowls with small everted or rounded rims (Fig. 12, 12) and smooth, well-burnished exterior surfaces. The interior surfaces are also smoothed and partially burnished. (= Ashville classes B and D). Two of the three decorated vessels fall into this fabric type; a single sherd showing part of an incised line design was recovered from layer 3 (Fig. 12, 9), and a vessel with burnished line decoration came from a recut of Ditch 605 (Fig. 12, 12).

Fabric S3. No. of sherds: 16; Wt. 283 g
Fabric: A mid to dark grey sandy ware with a paler core. The clay matrix contains a dense frequency of dark greenish grey-black rounded grains (?glauconitic sand) and rare limestone.
Forms: Vessels tend to be thick-walled with matt surfaces. Forms include a globular-bodied jar/bowl with a simple rounded rim (Fig. 13, 17).

Fabric S4. No. of sherds: 29; Wt. 559 g
Fabric: A light reddish-brown ware with a grey core and a fine sandy texture. The matrix contains frequent ill-sorted quartz sand ranging in size from very fine up to rare rounded grains up to 6 mm across. Other constituents include sparse fragments of limestone, iron and organic matter.
Forms: Vessels appear to include forms that fall into Ashville Classes B and D.

Fabric S5. No. of sherds: 4; Wt. 77 g
Fabric: A reddish-orange ware with a black core. The fabric has a sandy, gritty texture and contains a moderate frequency of well-sorted, rounded quartz sand less than 0.5 mm in size. Occasional fragments of limestone, organic matter and iron sometimes occur. (= Gravelly Guy fabric SA/35).
Forms: The only featured sherd in this fabric was a small handle from pit 350.

6. *Grog-tempered wares* (Fabric G1)
Fabric G1. No. of sherds 3; Wt. 16 g
Fabric: A dark brown ware with a soapy feel. The paste contains sparse to moderate quantities of sub-angular dark grey or buff fragments of grog/clay pellets. No other visible inclusions.
Forms: No featured sherds.

7. *Flint-tempered* (Fabric F1).
Fabric F1. No.35; Wt: 234 g (= 1 vessel)
Fabric: A mid-light brown ware with a darker inner core. The fine sandy fabric contains sparse large fragments of fossil shell, coarser and finer fragments of flint and ill-sorted quartz sand.
Forms: A single vessel in this fabric was recovered from the Ditch 608 (Fig. 12, 5). The form appears to fall into Ashville class B. The thickening of the wall at one point may suggest that the vessel carried a handle or lug.

8. *Mixed tempered wares* (Fabrics SH1, SH2, SH3)
Fabric SH1. No. of sherds 126; Wt. 1551 g
Fabric: A dark brownish-black ware with a black core and a solid, dense feel. The paste contains sparse fragments of shell, up to 3 mm in size but mainly finer, limestone, sparse to common rounded quartz (less than 0.5 mm) and sparse organic inclusions. The latter appear to be confined to the lower exterior surfaces. The material is described as calcareous gravel elsewhere. (= Watkins Farm fabric 2c; Gravelly Guy fabric CG/22, Farmoor fabric AH).
Forms: Vessels tend to have smoothed exterior and interior surfaces. Forms include types which would fall into Ashville classes B, D and L. An example of the of a large storage jar with a thickened rim from the evaluation is shown in Fig. 13,18. A rimsherd from Ditch 600 has external sooting on the surfaces.

Fabric SH2. No. of sherds 92; Wt. 1404 g
Fabric: As SH1 but with a marked presence of red-brown ferruginous inclusions ranging in size from 0.5–1 mm.
Forms: Vessels again fall in to Ashville classes B and D. One from the first ditch of Enclosure A (Fig. 12, 2) is comparable to Ashville form B2. Several have externally burnished surfaces. One sherd from Gully 614 shows traces of internal residue.

Fabric SH3. No. of sherds 1; Wt. 7
Fabric: A brownish-black ware with a moderate frequency of rounded quartz sand and sparse limestone, including discrete ooliths. The ware includes a higher percentage of rounded quartz compared to SH2.
Forms: No featured sherds.

Discussion

The excavations produced a relatively small assemblage of Middle Iron Age pottery amounting to 630 sherds, of which 38 (6%), were recovered from the initial evaluation. Of the 592 from the excavation at least 11% is redeposited, being recovered from features of medieval date. The remaining material was spread over a large number of features and, with the exception of the two main enclosures, there are no particularly large associated groups.

The assemblage appears to be a relatively homogeneous group of material and this, combined with the slightly complex intercutting of features, and the small size of individual groups, makes it difficult to identify any real chronological sequence. Evidence from other sites in the Thames Valley has suggested that there is a general progression and change of emphasis in the Middle Iron Age from shell-tempered wares to sandy wares. This was demonstrated at Farmoor with a shift in time from pits on the gravel terrace (Phase I) to the enclosures (Phase II).[15] The ferruginous or ochreous wares at Farmoor also tended to be characteristic of Phase I.

Imposing this evidence on the material from Whitehouse Road does not appear to show any very clear cut divisions which make sense against the excavation record. This would suggest either that most of the features belong to one fairly short period of occupation or that material has been redistributed by recuts and other activities giving rise to a marked redeposited component which is masking a chronological progression. Alternatively fabrics may be reflecting functional rather than chronological differences between sites/areas of sites.

The two main pottery groups are those from the ditches forming the two enclosures. Excavation evidence would suggest that the two enclosures should, at least in part, be contemporary. Enclosure A (Ditches 605–607) produced a total of 101 sherds (2092 g), 17% of the total site assemblage by count (20% by weight). Enclosure B (Ditches 608–613) produced 138 sherds (1597 g) accounting for 23% by count (15% by weight).

The material from Enclosure A shows a generally higher average sherd size and a slightly more limited range of fabric types compared to the material from Enclosure B. Little distinction in terms of fabric composition can be made between the earlier ditch (605) belonging to Enclosure A and its later ditches (606, 607) which contained a broadly similar range. The main difference is a marked increase in fabric SH2 (Table 1).

[15] Ibid.

TABLE 1. POTTERY FROM THE TWO MAIN ENCLOSURES

	Enclosure A				*Enclosure B*	
	Ditch 605		Ditches 606, 607		Ditches 608–613	
Fabric	No.	Wt.(g)	No.	Wt.(g)	No.	Wt.(g)
O1	4	20	–	–	2	9
H1	27	644	10	163	11	167
H2	2	94	–	–	3	147
H3	–	–	–	–	6	42
L1	–	–	–	–	4	20
L2	1	20	–	–	11	57
I1	–	–	1	306	11	104
I2	4	110	–	–	8	94
I3	–	–	–	–	4	155
S1	–	–	1	5	1	10
S2	9	71	1	10	7	65
S3	–	–	–	–	7	40
S4	–	–	–	–	8	123
S5	–	–	–	–	1	10
F1	–	–	–	–	15	234
SH1	20	185	3	77	10	46
SH2	–	–	18	387	29	274
Totals	67	1144	34	948	138	1597

Enclosure B appears to show a slightly greater variety of fabric types. A comparison of the two enclosures shows that A has a higher percentage of shell-tempered wares (Fabric H-) (43% by weight) compared to B (22%) and a lower percentage of sandy wares (S-); 4% by weight for Enclosure A compared to 15% for Enclosure B. If the two enclosures were functioning at the same time the pottery evidence would suggest that Enclosure A was either abandoned slightly earlier or was used to deposit primary rubbish accounting for the slightly larger sherd size. The material from Enclosure B may have perhaps derived either from a different contemporary source such as a midden or have silted up over a longer period of time thus accounting for the slight difference in terms of composition. The smaller average sherd size might also suggest redeposition of material from pre-existing deposits and thus a higher degree of redeposition would be expected. A close correlation between other fabric categories such as the ferruginous wares and an overlap of general form types would suggest that the two enclosures were not separated long in time.

The remaining pottery was largely recovered from other negative features: pits, gullies and ditches. The majority of these yielded less than 5 sherds and little can be construed from these. Exceptions of note are Ditch 600 which, with an assemblage containing 30% sandy wares, is likely to belong to the later phase of use on the site. The earlier phase of Ditch 600, Ditch 601, only produced two sherds. This criterion does not appear to be very reliable when applied to other features with 10 or more sherds, since Ditch 620, belonging stratigraphically to the latest phase of the site, contains mainly shelly, ferruginous and mixed temper wares with no sandy examples. The only other features with assemblages of more than 10 sherds are Pit 262, which again appears to have more shelly wares, and Pits 319 and 365 which would appear to be potentially later.

Roman Pottery

Five sherds of Roman pottery were recovered from the site, three coming from the evaluation. A single Roman sherd was present with Iron Age material in Ditch 359 and one sherd was present in Gully 619, both features dated to the medieval period. The material was of poor quality and not suggestive of any intensive Roman activity on the site.

Comparison with other Sites

Many of the Iron Age fabrics recorded from Whitehouse Road find parallel with material encountered elsewhere on the Thames Gravels. In particular, most of the fabrics can be matched with material from Gravelly Guy and,

from written description, with pottery from Farmoor. Some of the fabrics feature amongst wares from Watkins Farm, but there are a number of slightly different wares present from this site. It is uncertain, at present, whether this may be due to functional, chronological or geographical differences. Further overlap of some of the types can also be seen with Appleford.[16] A notable difference with the Appleford assemblage is the marked presence of flint-tempered wares. Such fabrics are rare in the assemblages from Whitehouse Road, Ashville and Farmoor.

Typologically the greatest correspondence of types at Whitehouse Road is with the Phase II material from Farmoor. This is dominated by barrel-shaped jars, globular bowls and vessels with beaded, everted or thickened rims. The angular and shouldered vessels and expanded rims typical of Farmoor Phase I appear to be absent from Whitehouse Road, with one or two possible abraded exceptions (e.g. from Ditch 608 in fabric SH2). As at Farmoor there is an almost complete absence of decorated forms and of a clear stratigraphic sequence to allow attempts at a more refined dating on stylistic grounds.

The pottery from Phase II at Farmoor is compared with that from Cassington, used by Harding to characterise his post-angular phase.[17] A date commencing around the beginning of the 3rd century BC to the end of the 2nd or even into the 1st is tentatively proposed for this material.[18]

Again as at Farmoor, there is an absence of a strong 'Belgic' element in the pottery from Whitehouse Road, suggesting that site was abandoned before the end of the 1st century BC and the widespread use of grog-tempered, wheelmade wares. The beginning of 'Belgic' influence is demonstrated by the very small number of grog-tempered wares and the basesherd with a projecting foot (Fig. 12, 11).

Catalogue of illustrated sherds

Enclosure A

1. Ditch 605 (110). Globular bowl with a simple rounded rim. Reddish-orange matt exterior surfaces, dark grey brown interior and core. Horizontal tooling marks visible on interior surface. Fabric H2.

2. Ditch 606 (58). Rimsherd from moderately large globular-bodied vessel with a simple vertical rim. Reddish-brown to dark grey brown matt surfaces. Fabric SH2.

3. Ditch 606 (58). Rimsherd from globular-bodied bowl with slightly irregular surfaces. Both the interior and exterior surfaces are covered with limescale. Fabric H1.

Enclosure B

4. Ditch 608 (453) Large globular-bodied bowl with a small beaded rim. Dark reddish-brown, well burnished, exterior surface with grey interior and core. Fabric I2.

5. Ditch 608 (559). Fairly crude, thick-walled vessel with an in-turned rim. Part of this shows a slight internal lip which is smoothed over in other parts. The wall thickens towards the fracture possibly suggesting a handle or lug. Fabric F1.

6. Ditch 610 (448). Globular bowl with a beaded rim. Reddish-brown to dark brown matt exterior surface, black interior. Fabric I3.

Layers

7. (3). A handle with an oval cross-section from a large vessel in fabric H1. The handle is attached by plugging through the vessel wall. Pale reddish-orange in colour with a dark grey core.

8. (3). A (?)lid with a squat flanged rim. Brownish-black exterior with a blackened interior. Fabric L2.

9. (3). Bodysherd showing part of an incised line design the exact nature of which is unclear. Worn, dark brown burnished exterior surface. Fabric S2.

[16] C.D. De Roche and G. Lambrick, 'The Iron Age Pottery', in J. Hinchliffe and R. Thomas, 'Archaeological Investigations at Appleford', *Oxoniensia*, xlv (1980), 9–111.

[17] D.W. Harding, *The Iron Age in the Upper Thames Basin* (1972), 97–102.

[18] G. Lambrick, op. cit. note 14, 38.

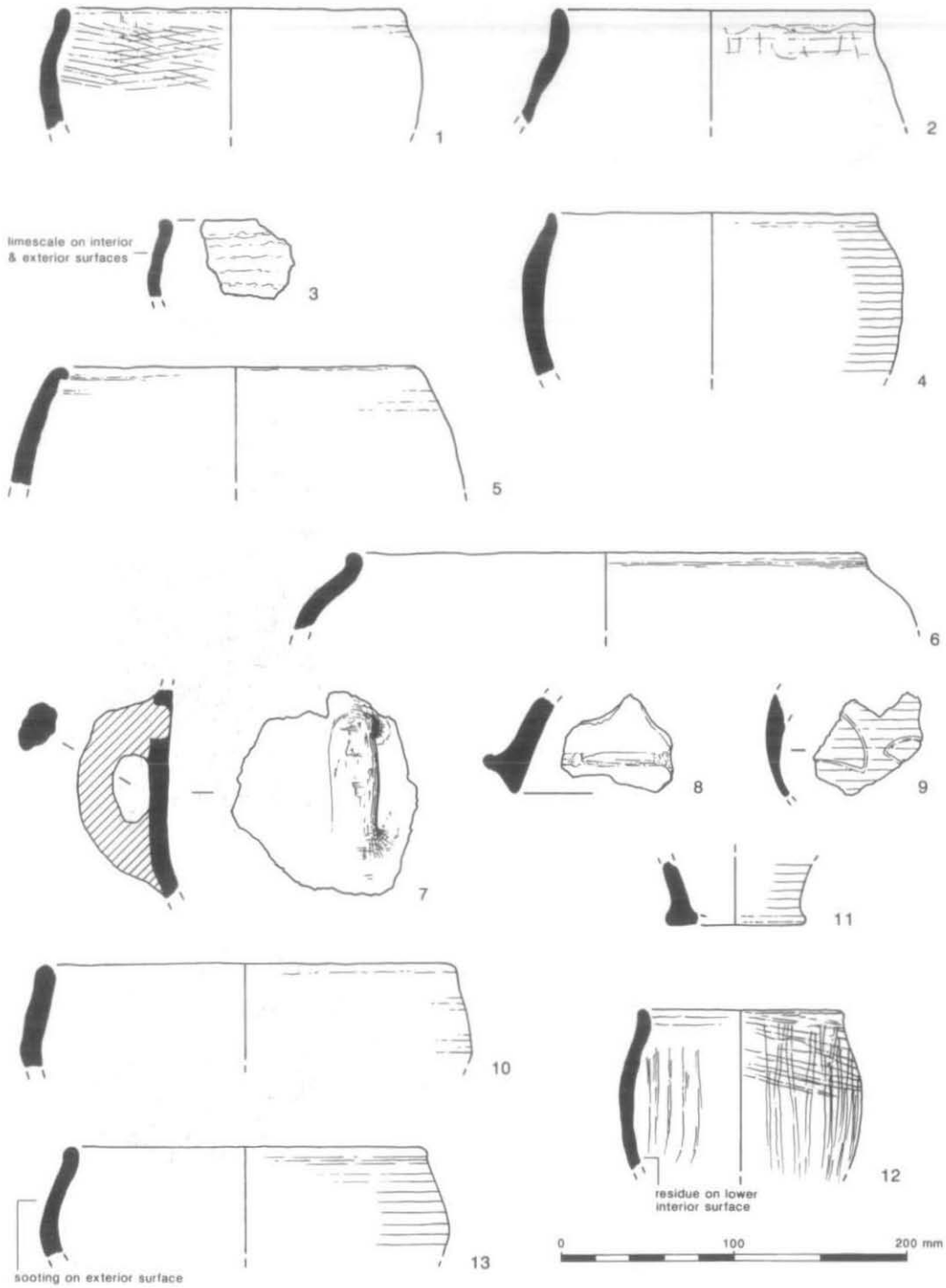

Fig. 12. Iron Age pottery.

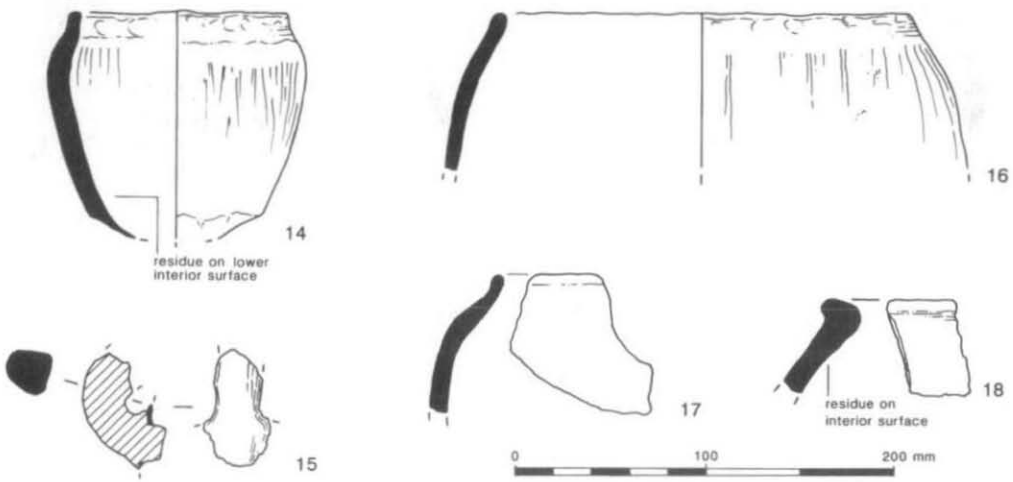

Fig. 13. Iron Age pottery.

10.(3). Simple, slightly beaded rimsherd from a moderately large barrel-like vessel. Reddish-brown surfaces with a dark grey core. Fabric I2.

11. (141). Basesherd with slightly protruding foot. Highly burnished, dark brown-black interior and exterior surfaces. Fabric S1.

Miscellaneous features

Ditch 504

12. (505). Simple barrel-sided vessel with a vertical rounded rim. The exterior blackened surface is decorated with a series of tooled burnished lines placed vertically on the body and horizontally round the rim zone with an area of overlap between the two. The interior surface shows shallow vertical grooving on the walls where the clay was drawn up whilst the vessel was being formed. Some blackened residue is present on the lower interior surface. Fabric S2.

Pit 262

13. (263). Globular bowl with simple rim. The exterior surface appears to have been burnished although this is partially obscured by a deposit of soot. The interior surface is leached. Fabric H1.

Pit 319

14. (320). Approximately half a small jar with a vertical finger- pinched rim. Vertical manufacture grooves on the interior where the vessel walls were drawn upwards. Mid-brown to black, matt exterior surface with some light vertical scoring. The lower zone shows evidence of spalling. The lower interior surface carries residue traces. Fabric SH1.

Posthole 350

15. (351). Small handle with D-shaped cross-section. Reddish-brown in colour with a dark brown core. Fabric I2.

Evaluation

16. Slack-sided vessel with a finger-pressed rim. Diameter 220 mm. The mid-brown to dark grey exterior is smooth but matt, the interior is dark grey. The walls have been vertically drawn up during manufacture. Fabric I3.

17. Globular bowl with a simple upright rim. Smooth dark grey-black exterior, lighter grey core. Fabric S3.

18. Solid storage-jar type vessel with a small projecting rim and an internally thickened collar. Reddish-brown matt surfaces with a dark grey core. Fabric SH2. Residue on interior surface.

METAL SLAG/INDUSTRIAL DEBRIS by CHRIS SALTER

1. Lining slag reaction product. 1 piece weighing 15 grams.
SF 11, 110 (Ditch 605, Cut 109).

2. Hammer scale (lute). An example of a newly recognised class of metalworking debris with iron oxide glaze on one flat surface, sharp angle bend at edge of flat surface and relatively thin vitrification layer and a highly fired clay body. The product of a high temperature iron-working process, probably welding or carburization.[19] 1 piece weighing 2.5 g
448 (Ditch 610, Cut 447).

Other metalworking debris includes fuel ash slag from context 428 (Ditch 613, Cut 425) and vitrified clay fragments from contexts 173 and 531 (Ditch 530). The fragment from 531 may have come from a mould or crucible.

BONE OBJECTS by CATHERINE UNDERWOOD-KEEVILL

3. (Fig. 14, 3). Animal incisor, possibly rodent, with tooth top trimmed away to make a refined point. Probable awl or engraving tool (A. MacGregor pers. comm.). Length: 26 mm, point length: 15 mm, thickness: 4 mm.
SF 21, 320 (Pit 319).

4. (Fig. 14, 4). Sheep metacarpal, broken with polished, rubbing grooves, around two ends of the shaft, with striations visible and indentations from wear present on the shaft circumference. One ring is 8 mm from the proximal end and 21 mm wide, the other is 26 mm from the distal end and 6 mm wide, the two grooves are approximately 50 mm apart. Similar examples have been recorded from other Iron Age sites in Oxfordshire and it is suggested that they might be leaze rods, used in weaving to separate the weft and warp threads on small, narrow looms.
168 (Ditch 600, Cut 167)

FIRED CLAY by CATHERINE UNDERWOOD-KEEVILL

5. Small fragment of probable loomweight, oxidised exterior, with dark reduced patches, fine sandy fabric with occasional iron ore. Rough. Smoothed upper surface and possible suspension hole in one surface.
SF 13, 115 (Ditch 606, Cut 114).

6. Three large conjoining fragments, and 9 small fragments of clay loomweight. Small triangular shaped loomweight. Vertical suspension hole present. Fine sandy fabric, with fine clear mica on surface and organic voids visible particularly on the base. Height: 67 mm, side length: 75 mm, width: 55 mm.
SF 18, 110 (Ditch 605, Cut 109).

7. Fired clay, possible loomweight with circular depressions and a possible part of a suspension hole. Fine, silty fabric with hard texture and variable firing.
SF 20, 320 (Pit 319).

8. (Fig. 14, 8). Four conjoining fragments of loomweight, with twenty one further fragments. Large triangular loomweight with two suspension holes, one horizontal hole through the top corner and a diagonal hole through the other corner. Incomplete. Soft, fine sandy fabric with occasional iron ore and coarse organic voids. Light orange with top corner partially reduced light grey in colour. Height: 126 mm, width: 76 mm, depth: 63 mm.
SF 25, 351 (Pit/posthole 350)

9. Six conjoining fragments of corner of large triangular loomweight, with one partially complete suspension hole. Very hard fired, fine silty fabric with sparse rounded ironstone, laminated structure and variable firing coloration through the section.
SF 26, 320 (Pit 319).

[19] C. Salter in Crew and Crew (eds.), *Early Iron Working in the British Isles* (in prep.).

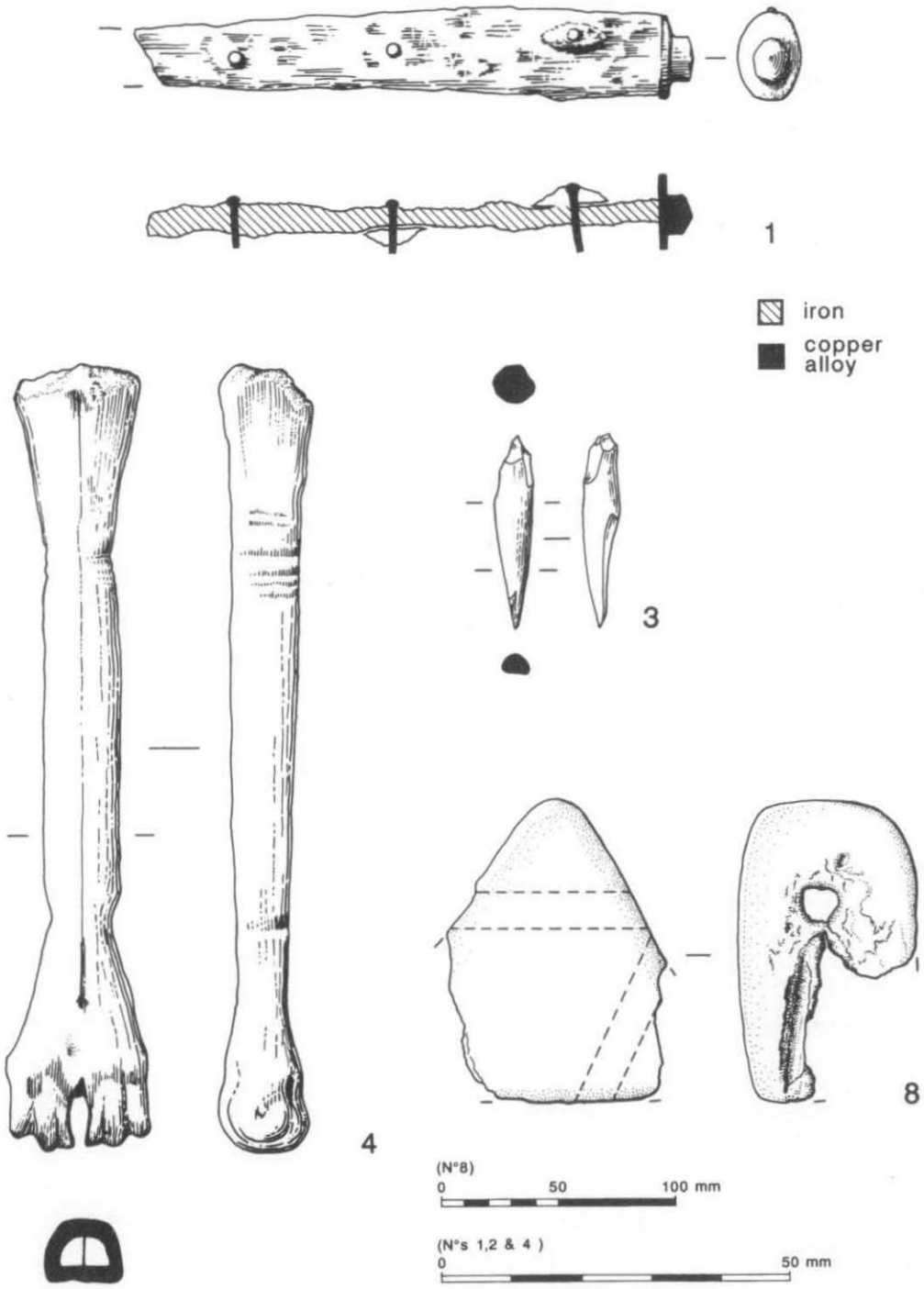

Fig. 14. Other finds: (1) 14th-century knife tang. (3) Iron Age rodent tooth awl(?). (4) Iron Age bone leaze rod. (8) Iron Age triangular loomweight.

WORKED STONE by FIONA ROE

10. Fragment of local greensand. Two worn surfaces both upper and lower. Probable quern fragment.
SF 10, 92 (Ditch 605, Cut 91).

11. Probable quern fragment of Lower Calcareous Grit with one worn surface.
SF 23, 351 (Pit/posthole 350).

12. Probable rotary quern fragment of Lower Calcareous Grit.
SF 24, 351 (Pit/posthole 350).

Two other notable worked stone fragments were recovered from Iron Age ditch contexts, a quern fragment in the local greensand from context 337 (Ditch 620, Cut 336) and a hammerstone fragment in quartzite, probably Drift material, from context 168 (Ditch 600, Cut 167).

MEDIEVAL AND LATER

MEDIEVAL POTTERY by CATHERINE UNDERWOOD-KEEVILL

A total of 217 sherds was recovered from all contexts. The pottery was analysed and assigned to fabric groups by comparison with the Oxford fabric series[20] and counted and weighed by context.

The aim of this analysis was to provide a dated sequence for the later features on the site and to indicate areas of disturbance and reuse in the Iron Age features. In spite of the small size of the assemblage, the distribution of fabric types and forms has been compared with other Oxford sites in order to place the site in the context of developments in the city.

The main fabric types and vessel types from Whitehouse Road are a flint and limestone fabric, fabric type BF, with late 12th-century everted rim cooking pots (35% of the assemblage by sherd number), the local limestone-tempered ware AC (19% of the assemblage by sherd number) and Oxford late medieval ware AM (15% by sherd number). Diagnostic sherds such as rims and bases are under-represented.

Fabric BF probably derives from the Berkshire/Wiltshire area and has been identified in larger quantities on sites such as 56–60 St Aldates. Flint- and shell-tempered wares are recorded from sites in West Berkshire.[21] The fabric type also occurred at Abingdon as fabric B.[22] Flint- and shell-tempered wares, equivalent to BF and AQ fabric types, may have originated in the Newbury area,[23] and have been found at Reading Abbey.[24]

Fabric AC, the calcareous gravel-tempered fabric, is also well-represented on the site and is seen as a north Oxfordshire type fabric probably originating in Bladon forest.[25] The vessel types comprise cooking bowls with flat, thickened rims and cooking pots with long, everted rims dating to the early 12th century.

Fabric types BF and AC both continue the late Saxon shelly ware tradition and replace earlier shelly wares such as St Neots ware, represented by one sherd on this site, and Oxford Late Saxon ware, fabric type B, which is noticeably absent. Another Late Saxon shelly ware, fabric H, is represented by two sherds. On other sites in the city fabric AC is a dominant tradition from *c.* A.D 1070.

The predominant Oxford medieval fabric type Y, present on most sites in the city, is conspicuously rare at Whitehouse Road where it comprises only 5% of the assemblage, consisting mainly of late 12th to 13th-century cooking pots and pitcher sherds. It has been noted on the tenement of Roger de Comenore that Oxford medieval ware fabric Y production may have flourished between the second half of the 12th and the early 13th century and pottery in fabric AC may also have no longer been produced by the second quarter of the 13th century.[26] The

[20] R. Haldon and M. Mellor, 'The Saxon and Medieval Pottery', in B. Durham, 'Archaeological Investigations at St Aldates, Oxford', *Oxoniensia*, xlii (1977), 110–39.

[21] E.M. Jope, 'Medieval Pottery in Berkshire', *Berkshire Archaeol. Jnl.* 1 (1947), 44–62.

[22] R. Haldon and M. Parrington, 'The Medieval Pottery', in M. Parrington and C. Balkwill, 'Excavations at Broad Street, Abingdon', *Oxoniensia*, xl (1975), 30–44.

[23] M. Mellor, 'Late Saxon Pottery from Oxfordshire: Evidence and Speculation', *Medieval Ceramics*, 4 (1980), 17–27.

[24] C. Underwood, 'The Medieval and Post-medieval Pottery', in P. Fasham and J. Hawkes, *Excavations at Reading Abbey Waterfront Sites*, Wessex Archaeol. Mono. (forthcoming).

[25] Mellor, op. cit. note 23.

[26] M. Mellor, 'The Late Saxon and Medieval Pottery from All Saints', in B. Durham, 'Oxford before the University: Four Saxon Themes' (in prep.), Thames Valley Landscapes Mono.

scarcity of Oxford medieval ware Y and of fabric AG, a Berkshire sandy ware, might suggest that the site saw little or no late 12th/13th-century use or occupation.

Oxford late medieval ware, fabric AM, is, however, present and makes up 15% of the assemblage. It consists of highly decorated jug sherds dated to the 13th and 14th centuries, square-rimmed jugs, and plain and partially glazed jugs dated to the 14th century. The majority of the material came from a limited number of pits and from layer 3. This concentration of later material in pits suggests that they may have been infilled at a later date. In contrast the early 12th-century material was widely distributed over a range of feature types from gullies to ditches and pits.

The predominance of Oxford medieval ware, AC, and the flint-gritted ware BF is paralleled at other early medieval sites in Oxford, such as the pre-Castle Mound contexts at Oxford Castle,[27] phases IIIb and IV at the All Saints site[28] and the Thames River crossing sites. Unlike those from other early sites, the Whitehouse Road assemblage has no imported early wares and little or no late Saxon and Saxo-Norman shelly local wares and St Neots type ware. St Neots type ware may, however, be limited to suburb sites.[29] The emphasis on local handmade limestone- and gravel-tempered wares and flint-gritted wares is paralleled at rural sites to the west and north of Oxford such as Eynsham[30] and Middleton Stoney[31] and smaller sites such as Nether Worton. The Whitehouse Road pottery appears to be local in origin and fits into the pattern of rural and urban early medieval Oxfordshire sites.

IRON OBJECTS by CATHERINE UNDERWOOD-KEEVILL and CHRIS SALTER

1. (Fig. 14, 1). Scale tang to knife, blade missing. Tapering handle, handle fastened with three copper alloy rivets. One rivet still has oval domed head in place. Copper alloy end cap, oval with circular projection in centre. Late fourteenth century.[32] Length: 79 mm, width: 12 mm, thickness: 2 mm.
SF 1, U/S.

Other iron objects include two iron strip fragments and four iron nails from medieval contexts. Fuel ash slag, perhaps metal-working debris, was found in calf burial 172, which contained 12th-century pottery.

BONE OBJECT by CATHERINE UNDERWOOD-KEEVILL

2. Polished bird bone shaft fragment with oval hole perforated through one side. Part of whistle/flute.[33] Length: 32 mm, width: 8 mm, size of hole: 6 mm × 3 mm.
82 (Ditch 81).

WORKED STONE by FIONA ROE

3. Rubber stone of quartzitic sandstone from Drift.
SF 28, 143 (Cut 142).

4. Possible mortar or palette fragment with worn, slightly concave surface. Grey shelly limestone.
SF 29, U/S.

[27] M. Mellor, 'The Pottery', in T.G. Hassall, 'Excavations at Oxford Castle 1965–73', *Oxoniensia*, xli (1976), 255–66.

[28] Mellor, op. cit. note 26.

[29] Mellor, op. cit. note 26.

[30] Underwood-Keevill (in prep.).

[31] S. Woodiwiss, 'Medieval Pottery', in S. Rahtz and T. Rowley, *Middleton Stoney. Excavation and Survey in a North Oxfordshire Parish*, Oxford University Department of External Studies.

[32] J. Cowgill, M. de Neergaard and N. Griffiths, *Knives and Scabbards. Medieval Finds from Excavations in London: 1* (1987), 94, Fig. 64, 122.

[33] A. MacGregor, *Bone, Antler Ivory and Horn. The Technology of Skeletal Materials since the Roman Period* (1985), Fig. 78c.

DIETARY AND ENVIRONMENTAL EVIDENCE

ANIMAL BONE by SHEILA HAMILTON-DYER

Summary

A small assemblage of under a thousand fragments of animal bone was recovered from Iron Age and medieval contexts. The majority of identified bone is of cattle and sheep together with small amounts of horse and pig. Other taxa identified were dog, red deer, fowl, mallard and amphibian. Although the small sample size precludes detailed comparisons, the Iron Age material is broadly similar to that from other contemporary sites in the area, particularly Appleford. The few medieval bones include those from the burial of a calf with unusual bifurcated vertebrae.

Introduction

Most of the bones were recovered from Iron Age features (Table 2). A few fragments from topsoil and from contexts with no dating evidence are excluded from this report. The general condition of the bones, though not outstanding, is sufficiently good for observation of fine details such as knife marks. Recently broken bones were joined where possible and have been counted as single fragments.

Identifications were made using the author's modern comparative collection. Measurements follow von den Driesch[34] in the main, and are in millimetres unless otherwise stated. Withers heights are based on factors recommended by von den Driesch and Boessneck.[35] Archive material includes metrical and other data not in the text and is kept on paper and floppy disk.

General results

822 fragments were examined, 738 from the main excavation and 84 from the evaluation. Most contexts contained a few fragments only and minimum numbers of individuals were not calculated, as they were not expected to differ greatly from the species fragment counts. Two contexts were exceptional, Iron Age pit 319 which included most of a piglet and medieval pit 172 which contained a juvenile cattle skeleton. These individuals have been counted as a single bone when comparing the species proportions in order to offset the bias caused by a large group of associated fragments. A summary of the species distribution is given in Table 2. As cattle and sheep dominate the identified fragments it is likely that those identified only as cattle/horse size and sheep/pig size are probably also mostly of cattle and sheep.

The Iron Age Enclosure Ditches

Enclosure A. Just 50 fragments were recovered. The identified fragments are of cattle and sheep/goat, nine fragments each, five horse fragments, a single pig jaw and a duck (probably mallard) radius. The remainder were cattle/horse-sized and sheep/pig-sized fragments. Gnaw marks were present on seven of the bones and two were charred.

Enclosure B contributed 159 fragments. Cattle were the most numerous of the identified bones at 40 fragments. Horse numbered 12 fragments from six contexts while sheep numbered eight fragments only, from seven contexts. There were also three fragments of pig. Canid gnaw marks were visible on 15 fragments, five of which were horse bones. Only one cattle-sized fragment had been charred. Joining, recently broken fragments of a cattle humerus

[34] A. von den Driesch, *A Guide to the Measurement of Animal Bones from Archaeological Sites*, Peabody Museum Bulletin 1 (Harvard 1976).

[35] A. von den Driesch and J. Boessneck, *Kritische Anmerkungen zur Widerristhöhenberechnung aus Längenmaßen vor- und frühgeschichtlicher Tierknochen*, Säugetierkundliche Mitteilungen 22 (München 1974), 325–48.

TABLE 2. SUMMARY OF SPECIES DISTRIBUTION

LAR = large ungulate (cattle-sized), SAR = small artiodactyl (sheep/goat/pig-sized), Mam = unidentified. Whole and partial skeletons are counted as one bone each. Totals in brackets show the actual numbers of bones.

	Horse	Cattle	Sheep/ Goat	Pig	LAR	SAR	Red Deer	Dog	Bird	Mam.	*Totals*
Iron Age Enclosure B	12	40	8	3	78	18	–	–	–	–	159
Iron Age Enclosure A	5	9	9	1	11	14	–	–	1	–	50
Other Iron Age ditches	5	10	19	6	28	25	–	–	–	–	93
Iron Age pits, postholes, layers	2	24	18	4	28	39	–	–	–	–	115 (184)
Iron Age evaluation contexts	5	3	2	–	6	2	–	1	–	–	19
Totals	29	86	56	14	151	98	0	1	1	0	436
Percentages	6.7	19.7	12.8	3.2	34.6	22.5	0	0.2	0.2	0	
Medieval contexts	1	24	20	6	52	41	–	–	1	–	145 (252)
Medieval evaluation contexts	–	13	7	1	12	4	1	–	–	1	39
Totals	1	37	27	7	64	45	1	0	1	1	184
Percentages	0.5	20.1	14.7	3.8	34.8	24.5	0.5	0	0.5	0.5	
Grand Totals	30	123	83	21	215	143	1	1	2	1	620 (822)
Percentages	4.8	19.8	13.4	3.4	34.7	23.1	0.2	0.2	0.3	0.2	

came from contexts 452 and 453. These two contexts were therefore treated as a single deposit, a conclusion reinforced by the presence in 452 of a horse first phalanx with pathological exostoses surrounding the articular surfaces, which appears to be associated with horse foot bones from context 453. Context 461 contained a further pathological bone, part of a cattle pelvic acetabulum showing eburnation of the articular surface. This is indicative of arthritis.[36]

Other Iron Age ditches

Other ditch and gully contexts contributed a further 93 fragments, with sheep numbering about twice the number of cattle fragments. Horse and pig bones were also identified. A complete sheep metacarpus from ditch 600 had been modified, probably as a leaze rod (Fig. 14.4).

Iron Age Pits, Postholes and Layers

184 fragments were recovered from 22 other contexts, mainly small pits and postholes. Most of these contributed one or two identified bones only, mostly of cattle and sheep. Pit 320 was exceptional in containing most of the bones of a piglet. There was no evidence of carcase dismemberment and it seems likely that the animal died of natural causes and was buried entire, although not all the bones have been recovered. The pit also contained several other bones including a cattle scapula, with filleting marks along the spine, and a fragment of a horned cattle skull. Two sheep and three cattle bones had been gnawed.

A sieved sample from pit 262 contained an amphibian fragment. Bones of frogs and toads are not infrequent in the bottom fills of pits and ditches.

[36] J. Baker and D. Brothwell, *Animal Diseases in Archaeology* (1980).

Discussion of Iron Age material

Ageing information. Fused and unfused epiphyses are present, giving approximate age classifications for individual bones. The probable selective destruction of unfused material, both by canid gnawing and soil formation processes, together with the small amount of material available, renders epiphysial information unreliable for estimating age at death of the group as a whole. Ageing information from the more resistant teeth, though by no means perfect, is likely to provide less biased data, providing that heads and bodies were deposited in equal proportions.[37]

There are 13 sheep jaws which provide ageing data. Examination of tooth wear and eruption sequences indicates two groupings, one of approximately six to twelve months and another of about four years. This kill-off pattern of young as well as older animals is unreliable given the small sample size, but the evidence of larger samples from Winnall Down[38] and Easton Lane[39], both in Hampshire, Ashville Trading Estate[40] and Mingies Ditch[41] also shows a peak of first year animals.

There are five pig jaws with teeth. Three are of adults with fully erupted teeth, one of which was probably female. The remaining two are of much younger animals, one with the first molar in wear and the other (the partial piglet from 320) with the first molar just erupting. Piglet burials found at Mingies Ditch were estimated at about one month old.[42] This animal was probably a few weeks older but still under six months.

Cattle jaws with teeth represent two individuals with full adult dentition with the third molar in wear and two immature individuals with the deciduous fourth premolar still present.

The horse bones and teeth were all from adult animals. The two jaws from ditch 613 were from animals of approximately 7 to 8 and 15 to 16 years old.[43]

Size of animals. A few bones were sufficiently complete for estimation of withers heights. The modified sheep metacarpus from ditch 600 provides an estimated withers height of 0.55 m, a horse metacarpus from ditch 608 1.218 m, and a cattle radius from ditch 613 a height of 1.058 m at the shoulder. These withers heights and other measurements are closely comparable with those published for Iron Age assemblages from Ashville Trading Estate and other Upper Thames valley sites.[44]

Taphonomic effects. Discussion of taphonomy is necessary in order to identify the effects of differential survival, before comparisons can be made of species numbers.

Apart from the chemical effects of long term burial on survival of bone there are physical assaults on bones which may differentially affect their survival through to analysis. Burnt bones were uncommon but those present are often small, highly damaged and difficult to identify. Several pieces under 50 mm were recovered in the few sieved samples available for examination.

Gnawed bones were more frequent with a bias towards horse bones (7 out of 24 = 29% in contrast to 7 out of 54 = 13% for sheep, 14 out of 83 = 17% for cow and 2 out of 14 = 14% for pig). The higher frequency of gnawed horse bones could imply that these were left available to dogs before burial, possibly even fed to dogs. The percentage of gnawed bones may have been higher but some may have been completely destroyed, especially smaller elements such as phalanges, and the softer bones from young animals.[45]

Fragmentation is partly a function of the different animal sizes – less than 10% of sheep fragments are larger than 100 mm, but there are also differences between cow and horse, animals of roughly the same size. 30% of cattle and

[37] J.M. Maltby, 'The Variability of Faunal Samples and their Effects on Ageing Data', in B. Wilson, C. Grigson and S. Payne, *Ageing and Sexing Animal Bones from Archaeological Sites*, BAR (British Series) 109 (1982), 223–50.

[38] J.M. Maltby, 'The Animal Bone', in P.J. Fasham, *The Prehistoric Settlement at Winnall Down, Winchester*, Hampshire Field Club and Archaeol. Soc. Mono. 2 (1985), 97–112.

[39] J.M. Maltby, 'The Animals Bones', in P.J. Fasham, D.E. Farwell and R.J.B. Whinney, *The Archaeological Site at Easton Lane, Winchester*, Hampshire Field Club and Archaeol. Soc. Mono. 6 (1989), 122–31.

[40] B. Wilson, 'The Animal Bones', in M. Parrington, *The Excavation of an Iron Age Settlement, Bronze Age Ring-ditches and Roman Features at Ashville Trading Estate, Abingdon (Oxfordshire) 1974–76*, C.B.A. Research Report 28 (1978), 110–39.

[41] B. Wilson, 'Reports on the Bones and Oyster Shell', in T.G. Allen and M.A. Robinson, *The Prehistoric Landscape and Iron Age Enclosed Settlement at Mingies Ditch, Hardwick-with-Yelford, Oxon.*, Thames Valley Landscapes: the Windrush Valley Mono. 2 (1993), 123–34.

[42] Ibid.

[43] M.A. Levine, 'The Use of Crown Height Measurements and Eruption-wear Sequences to Age Horse Teeth', in B. Wilson, C. Grigson and S. Payne, op. cit. note 37, 223–50.

[44] B. Wilson, op. cit. note 40.

[45] L.R. Binford, *Bones: Ancient Men and Modern Myths* (1981); S. Payne and P.J. Munson, *Ruby and How Many Squirrels? The Destruction of Bones by Dogs*, BAR (1986).

horse bone fragments are over 100 mm, but 28% of cattle are under 50 mm, whereas only 8% of horse are of this size. The smaller size of cattle teeth and the higher number of phalanges partly accounts for this, the remaining difference being due to the chopping of cattle bone into small pieces whereas horse bones seemed to have been disposed of whole. Sieving would probably have given a higher percentage of small fragments, particularly of sheep phalanges, podial bones and loose teeth. The percentage of identified bone, however, at 40% is considerably higher than that of the hand collected material at Mingies Ditch where only 16% could be identified and where between 39% and 54% of these were loose teeth.[46] The condition of the bones from Whitehouse Road is relatively good, whether from ditches or pits, and the fragmentation and representation of elements is similar to that at Ashville Trading Estate[47] and Appleford.[48] There is a slightly higher percentage of larger pieces of bone from the ditches than from other contexts. The sample size precludes statistical testing but general observation indicates that this correlates with the disposal of larger waste, of horse in particular, in ditches. Similar correlations have been reported from several Iron Age sites in southern England, with bones from contexts near houses more fragmented than those in peripheral ditches, and a tendency for cattle and horse to have been disposed of more often in the ditches and pits away from the buildings.

The proportion of sheep to cattle is closer to that at Appleford and Farmoor than Mingies Ditch and Ashville Trading Estate, despite a level of preservation comparable with that at Ashville (Table 3). The samples from these last two sites are much larger, but it seems likely that the differences are related more to differences in location. It has been suggested that sheep liver fluke and other health problems may have prevented high stocking densities on the lower floodplain sites, these being used mainly for cattle and horse pasture, with an increasing amount of sheep on the higher ground, particularly of the second terrace.[49] Despite the small sample size, the frequency of cattle and horse compared with sheep on the floodplain terrace at Whitehouse Road seems to support this hypothesis.

TABLE 3. THE COMPOSITION OF THE WHITEHOUSE ROAD IRON AGE ANIMAL BONE ASSEMBLAGE COMPARED WITH DATA FROM PUBLISHED REPORTS BY WILSON

Fragment counts for the species have been arrived at by similar methods and do not include ribs. Whole and partial skeletons are excluded or counted as one bone each.

	Horse		Cow		Sheep		Pig	
	No.	%	No.	%	No.	%	No.	%
Whitehouse Road	29	15.7	86	46.5	56	30.3	14	7.5
Appleford	53	13.5	198	50.4	99	25.2	43	10.9
Farmoor	11	4.5	134	54.7	90	36.7	10	4.1
Mingies Ditch	203	11.6	521	29.9	914	52.5	103	5.9
Ashville Trading Estate	144	4.2	1072	31.7	1841	54.4	326	9.6

Medieval Features

252 fragments were recovered from medieval features. The majority, 108 fragments, came from pit 172 which contained a calf burial. Of the remainder, 139 were recovered from ditches, gullies and pits and five from possibly trampled occupation layers 26 and 141. Most of these were fragments identified only as large ungulate ribs and limb bone shaft fragments, probably of cattle.

As with the Iron Age material, measurable bones were few and it is not possible to establish whether there are any significant size differences between the two groups. A complete cattle metatarsus from pit 180 was estimated as representing an animal 1.144 m at the shoulder.

Gully 619 contributed the only domestic fowl bone, a complete ulna, from the entire assemblage. Fowl remains are often found in abundance in medieval contexts along with bones of wild birds. The low incidence at this site may be due to a number of factors. Bulk sieving would have contributed small bones if present, but this does not account for the lack of the larger limb bones. Deposits from a high status site might be expected to contain many bird remains, especially of game.

[46] S. Payne, 'Partial Recovery and Sample Bias: the Results of some Sieving Experiments', in E.S. Higgs, *Papers in Economic Prehistory* (1972), 49–64.

[47] B. Wilson, op. cit. note 40.

[48] B. Wilson, 'Bone and Shell Report', in J. Hinchliffe and R. Thomas, 'Archaeological Investigations at Appleford', *Oxoniensia*, xlv (1980).

[49] B. Wilson, op. cit. note 40.

Pit 172. The upper fill of this pit contained a few assorted cattle fragments. The main fill contained a half-grown calf. Although some of the smaller elements such as tarsals, easily missed in a gravel matrix, were under-represented, the skeleton was essentially complete. The body had been placed on its back with the head and hind legs slightly to the left. The hind legs were directed forwards with the forelegs extended backwards over them. This position implies that the carcase was not stiff or bloated. It may have been gutted but there are no knife marks on the bones. Neither is there any indication of cause of death. The animal itself is unusual in having three of the thoracic vertebrae with clearly bifurcated dorsal spines. This condition is normal in Zebu cattle but encountered only rarely in European types.[50] The skull, which carried small horn cores, was also anomalous, with a slight dishing of the frontal area. The calf would have been probably between one year and eighteen months old as the proximal radii and distal scapula are fused, the distal humeri are fusing and the metapodia are unfused. In the jaws the second molar has erupted but is unworn. The animal seems rather small for these growth stages. It is unfortunate that the youth of this interesting animal prevents metrical analysis.

With such small fragment numbers it is difficult to demonstrate differences between the medieval features and those of the Iron Age. Several of the Iron Age deposits contained horse bones, while the jaw of a horse of about ten years old in ditch 381 is the only horse bone from medieval deposits. This difference may, however, reflect a difference in disposal practises between pits and ditches, since many of the medieval contexts are pits. From the Iron Age contexts two horse bones only were recovered from pit contexts, the remaining 22 from ditch and gully contexts.

Evaluation Contexts

A total of 84 fragments was recovered from all periods.

Iron Age. The 19 fragments from Iron Age contexts included five horse bones from four ditch and gully contexts. One of these was a pathological metacarpus with part of the small peripheral metacarpus fused to the shaft. A small knife mark across the front of the shaft probably indicates that the animal had been skinned, it had also been gnawed. No horse bones were recovered from the 12th–15th century contexts but post-medieval contexts contained four fragments. The presence of horse in Iron Age but not medieval contexts reinforces the evidence from the main excavation of horse disposal in the Iron Age ditches.

An Iron Age context, ditch 9/12, contained the only dog bone from both excavations, a jaw with a cheek tooth row measurement of 67.7 mm.

Medieval/Early Modern. The largest group, 39 fragments, came from predominantly medieval contexts, some dated only as 12th to 15th century. Many were of cattle or probable cattle. One of the seven sheep/goat fragments was a pathological sheep metatarsus with a lumpy appearance to the front of the shaft. This may have developed in response to a bruising of the bone. A knife cut close to the proximal surface may indicate skinning, or disarticulation of the foot from the leg. A small offcut of Red deer antler, the only evidence of deer from Whitehouse Road, was recovered from pit 3/6. A single fragment of pig was also recovered.

Post-medieval fragments numbered only 26 and were again composed of the main domestic ungulates; cattle, horse, sheep and pig.

THE MOLLUSCA by MARK ROBINSON

Samples ranging from 10 to 30 litres from Iron Age, medieval and undated contexts at Whitehouse Road were floated onto a 0.5 mm. mesh to recover charred plant remains. It was noticed that the flots also contained many snail shells. While flotation is not a reliable method for the recovery of the full range of molluscan species for quantative analysis, it does serve as a way of characterising the fauna of a deposit. The results are listed in Table 4, species being recorded as present or abundant. Simple habitat information is also given.

[50] J. Clutton-Brock, *A Natural History of Domesticated Mammals* (1987).

TABLE 4. MOLLUSCA

	Iron Age					Medieval		Undated				Habitat
Sample	1	3	4	11	10	2	6	7	8	9	5	
Context	121	263	320	366	460	215	380	501	532	533	384	
Valvata piscinalis (Müll.)	–	–	–	–	+	+	+	+	+	+	–	Af
Bithynia tentaculata (L.)	–	–	–	–	+	+	+	+	++	++	–	Af
Carychium sp.	–	–	–	–	–	–	+	–	–	+	–	MT
Lymnaea truncatula (Müll.)	–	–	–	–	+	+	+	–	+	++	–	AM
L. palustris (Müll.)	–	–	–	–	–	–	–	–	+	+	+	AM
L. peregra (Müll.)	–	–	–	–	–	–	+	–	+	–	–	A
Planorbis planorbis (L.)	–	–	–	–	+	+	++	+	++	++	–	A
P. carinatus Müll.	–	–	–	–	–	–	–	–	+	+	–	A
Anisus leucostoma (Milt.)	–	–	–	–	+	+	++	–	++	++	+	AM
A. vortex (L.)	–	–	–	–	–	+	–	+	+	–	–	A
Bathyomphalus contortus (L.)	–	–	–	–	–	–	–	+	–	+	–	A
Gyraulus sp.	–	–	–	–	–	–	–	–	+	–	–	A
Planorbarius corneus (L.)	–	–	–	–	–	–	+	–	+	+	–	A
Succinea or *Oxyloma* sp.	–	–	–	–	+	–	+	+	–	+	–	M
Cochlicopa sp.	+	+	+	+	+	+	+	+	–	+	–	MT
Pupilla muscorum (L.)	++	+	+	+	+	+	–	+	–	–	–	Td
Vallonia costata (Müll.)	–	+	+	–	–	+	–	+	–	–	–	Td
V. pulchella (Müll.)	–	–	+	+	+	–	+	+	+	+	–	MT
V. excentrica Sterki	++	++	++	+	–	++	–	+	–	–	–	Td
Ceciliodes acicula (Müll.)	++	++	++	–	+	+	–	–	+	–	–	T
Trichia hispida gp.	++	++	++	+	+	++	++	++	++	+	–	MT

Habitat: A – aquatic, Af – flowing water, M – marsh, T – terrestrial, Td – dry ground. + present, ++ abundant

The site lies on a high area of the Thames floodplain. The original covering of the limestone gravel of the floodplain was perhaps a stone-free silt loam, but this only survived in the fills of some of the earlier archaeological features. Subsequently, there had been mixing of the soil with some sandy gravel. It is uncertain whether this was the result of ploughing as well as settlement activity. Some alluvium was present on the lowest part of the site, alongside the now-culverted stream course, but over most of the site the superficial deposits had experienced much recent disturbance, probably combined with dumping.

Although the site would now be regarded as low-lying, there was no evidence of waterlogging in the Iron Age pits and ditches. The four Iron Age pits, contexts 121, 263, 320 and 366, all contained dry ground molluscan faunas dominated by *Vallonia excentrica*, with *Pupilla muscorum* also present. They suggest open conditions, probably areas of short vegetation with some bare patches between. Aquatic snails were absent from the pits and there seems no reason why they should not have been used for grain storage.

A sample from Ditch 608, the latest phase of enclosure B (Cut 459, layer 460) contained a few shells of aquatic molluscs as well as the dry ground fauna. They included the flowing water species *Valvata piscinalis* and *Bithynia tentaculata*. However, context 460 was the uppermost layer of the ditch and it is possible that some mixing had occurred with later sediments.

The medieval and undated samples all contained shells of aquatic molluscs, in some cases in very large quantities. *V. piscinalis* and *B. tentaculata* were present in all but one of the samples, suggesting that the site was experiencing flooding from the Thames at some stage following the Iron Age.

There is general evidence for progressive seasonal inundation and alluviation of the floodplain of the upper Thames basin, which began in the Iron Age but did not reach its greatest extent until the early medieval period.[51] There is also evidence from the floodplain at Oxford for a substantial rise in the water table which began in the late Bronze Age with the drowning of the lowest areas of the floodplain and continued into the medieval period.[52] The evidence from Whitehouse Road fits well into this sequence. Although much of the floodplain would have been wet during the life of the Iron Age settlement, the site itself was on well-drained ground above contemporaneous flood levels. To the south of the site, across a minor channel of the Thames, there would have been a suitable area for cultivation on the island of first gravel terrace at Eastwyke.

[51] Robinson and Lambrick, op. cit. note 3, 809–14.

[52] M.A. Robinson, in B. Durham, *Oxford before the University: Four Saxon Themes*, Thames Valley Landscapes Mono. (in prep).

A NOTE ON PLANT AND INSECT REMAINS FROM AN UNDATED WATERLOGGED PIT 383

by MARK ROBINSON

A 100 g subsample of waterlogged organic sediment from sample 5 (context 384) was sieved over a 0.5 mm mesh and sorted for biological remains. The full results are in archive. The waterlogged seeds from it mostly comprised a flora of waste ground while the insects included water beetles of stagnant water. Although not obviously a cess pit, the seeds did include *Brassica nigra* (black mustard). The presence of several waterlogged and a single charred seed of *Anthemis cotula* (stinking mayweed) would suggest a Roman or more recent date. This would be in agreement with the other evidence that the site became increasingly wet after the Iron Age.

CHARRED PLANT REMAINS by JOHN LETTS

Introduction

Six samples containing charred plant remains were examined in the Environmental Archaeology Unit of the University Museum, Oxford.

TABLE 5. CHARRED PLANT REMAINS
Numbers refer to seeds unless otherwise stated

Taxa	Common name	sample	1	2	3	4	10	11
		context	121	215	263	320	460	366
LEGUME								
cf. *Vicia faba* ssp. *minor* L.	broad bean			1				
Vicia/Lathyrus/Pisum sp.	large legume			2			2	1
CEREAL GRAIN								
Hordeum vulgare L. (lateral, hulled)	hulled 6-row barley		1				5	
H. vulgare L. (median, hulled)	hulled barley		3	1			2	2
H. vulgare L.	barley		6	1	6	1	32	2
cf. *H. vulgare*	barley		5	1				3
Triticum spelta L.	spelt wheat		11		1	3	5	
T. aestivum/turgidum L. (short-grained)	free-threshing wheat		6	14	1	4	9	3
Triticum sp.	wheat		16		2	2	11	3
cf. *Secale cereale* L.	rye			1				
cereal indet.			80	47	51	7	110	27
CHAFF								
T. spelta L. (glume base)	spelt wheat		41				13	
T. spelta/dicoccum L. (glume base)	spelt/emmer wheat		406				106	
T. spelta/dicoccum L. (spikelet fort)	spelt/emmer wheat		124	1	6	6		11
T. spelta/dicoccum L. (glume frgs.)	hulled wheat		xx					
Triticum sp. (rachis node)	naked wheat		6		1			
H. vulgare L. (rachis node)	barley		11				6	1
Avena sp. (awn fragment)	oat		xx		x		xx	x
Avena sp. (floret base)	oat		11					
cereal indet. (culm)	cereal			1			1	
WILD TAXA								
Ranunculus sp.	butter-cup							
Stellaria media (L.) Vill. [group]	chick-weed		1					
Stellaria cf. *graminea* L.	lesser chick-weed						1	
Cerastium cf. *arvense* L.	mouse-ear chick-weed						1	
Caryophyllaceae indet.					1		1	
Chenopodium cf. *album* L.	fat hen				4			2
Atriplex sp.	orache				1			1
Chenopodiaceae indet.						2		1
Potentilla cf. *reptans* L.	creeping cinquefoil					1		1

Taxa	Common name	sample	1	2	3	4	10	11
		context	121	215	263	320	460	366
Vicia cf. *hirsuta* (L.) S.F. Gray	hairy tare				1		1	
Vicia/Lathyrus sp./	wild vetch/tare		8	1	3	1	10	4
Medicago sp.	medick		1				7	
Medicago/Trifolium sp.	medick/clover						6	8
Trifolium sp.	clover		1			1		1
Polygo*num aviculare* L.	knotgrass				3			
Rumex sp.	dock		15		4		20	4
Fallopia convolvulus (L.) A. Lowe	black bindweed				2	1		1
Polygonaceae indet.			3		4		3	1
Valerianella dentata (L.) Pollich.	corn salad		2					
Hyoscyamus niger L.	henbane					1		
Euphrasia/Odontites sp.	eyebright/bartsia				2			3
Galium cf. *aparine* L.	goosegrass		2					
Galium sp.	cleavers				8	1	2	7
Tripleurospermum inodorum (L.) Schultz Bip.	scentless mayweed		4		2			
SEDGES & WILDS GRASSES								
Juncus articulatus L. [group] (seeds in capsule)	jointed rush group		50					
Eleocharis palustris (L.) Roemer & Shultes	spike rush				3			
Schoneoplectus lacustris (L.) Palla	bulrush				2			
Carex sp.	sedge				2		1	
Avena fatua/sterilis L. (floret with grain)	wild oat		1					
Avena sp.	oat		1				2	
cf. *Avena* sp.	oat					1	1	
Arrhenatherum elatius (L.) *Beauv. ex.* J. & C. Presl. (bulb)	onion couch grass		1					
Bromus (section *Eubromus*) sp.	brome grass		627		7		22	3
Bromus/Avena sp.	brome grass/oat		86	1		2	6	2
Gramineae indet. (*Bromus* sp. type)	large-seeded grass		388					
Gramineae indet. (*Poa/Phleum* sp. type)	small-seeded grass		71					
Gramineae indet. (*Festuca/Lolium* sp. type)	grass		11		9		8	
OTHER								
thorn (*Rubus/Rosa* sp. type)	bramble				1		1	
leaf bud			1					
fungal sclerotia	fungi		1					
TOTALS								
Sample volume (litres)			10	30	30	30	30	20
Period			IA	MED	IA	IA?	IA	IA
Feature type			pit	pit	pit	pit	layer	pit
Identified specimens/litre			200	2.4	4.2	1.13	13.13	4.6
Cereal/litre			12.8	2.16	2.03	0.57	5.8	2
Barley grain/cereal (%)			11.72	4.62	9.84	5.88	22.41	17.5
Wild legume/cereal (%)			7.81	1.53	6.55	11.76	13.79	32.5
Wild legume/total weed (%)			0.79	–	6.89	18.18	26.09	33.33
grasses/total weed (%)			93.17	–	27.59	27.27	42.39	12.82
Bromus sp./total weed %			56.01	–	12.07	18.18	30.43	12.82
Glume bases/total specimens %			28.55	1.39	4.76	17.65	30.2	11.96
Total chaff/litre			59.9	0.07	0.23	0.2	420	60
Total weed/total grain (%)			994.5	3.08	95.08	64.71	52.87	97.5

Samples 1 (Pit 120, layer 121), 3 (Pit 262, layer 263), 11 (Pit 365, layer 366) and 4 (Pit 319, layer 320) derive from Middle Iron Age pits, and sample 10 from Ditch 608, the latest phase of enclosure B (Cut 459, layer 460; Fig 6). Sample 2 (Pit 213, layer 215) is probably Medieval in date. The samples were processed on site using a standard water flotation procedure, and were sieved into standard size fractions in the laboratory before sorting at 4–10× magnification. Specimens were identified by comparison with reference material held in the Elton-Robinson Seed Collection at the University Museum, and botanical nomenclature follows Clapham, Tutin and Moore (1989).[53]

Results

The specimens identified in the samples are listed in Table 5.

Most of the charred seeds were recovered from samples 1 and 10, and sample 1 is by far the richest in terms of identified items per litre of soil floated.

The Celtic bean (*Vicia faba*) and the pea (*Pisum sativum*) were the only large-seeded legumes cultivated in Britain during the Iron Age. In the absence of well-preserved hila, however, large cotyledon fragments of cultivated legumes cannot always be separated with certainty from the largest wild legumes and must be placed in a general *Vicia/Lathyrus/Pisum* sp. category. At least one probable fragment of celtic bean occurs in sample 2.

All of the samples contain numerous unidentifiable cereal grains. Barley occurs in every sample, usually making up less than 5% of the total number of specimens present, but reaches 7.6% and 9.4% respectively in samples 11 and 10. Twisted lateral grains of 6-row hulled barley occur in samples 1 and 10, but most of the grains are too poorly preserved to be attributed to either the 6-row or the 2-row form. Barley is more common than wheat in samples 3, 10 and 11.

Proportions of wheat grain in the samples range from 1.6% in the brome-dominated sample 1, to 20% and 22% in samples 2 and 4 – but much of the unidentifiable cereal present is also probably wheat. At least two types of wheat are present: spelt (*Triticum aestivum* ssp. *spelta*), and a plump, free-threshing wheat which could be hexaploid (*T. aestivum*) or tetraploid (*T. turgidum*).[54] Spelt was the most common wheat in southern Britain in the Iron Age, and occurs in all of the samples except for 11 and the Medieval sample 2. Substantial finds of free-threshing wheat are rarely encountered prior to the Saxon period – but it occurs in all of the supposedly Iron Age samples from the site. As expected, free-threshing wheat dominates the Medieval sample 2.

Chaff makes up 34% of sample 1 and 30% of sample 10, but is restricted to less than 15% of identified specimens in the remaining samples. Hulled wheat glume bases and spikelet forks are the most common chaff item, and most of these are speltoid in form. Small amounts of barley chaff also occur in samples 1 and 10. Sample 1 also contains a large quantity of silicified fragments of wheat or barley awn.

Weed seeds are plentiful in most of the samples, with the notable exception of the Medieval sample 2. Most of the species represented have a long pedigree as arable weeds, and have been recovered from innumerable historic and prehistoric sites in southern Britain.[55] Amongst the most prominent at Whitehouse Road are nitrogen-demanding members of the Caryophyllaceae and the Chenopodiaceae, wild legumes (Leguminosae), knotgrass and black bindweed (*Polygonum aviculare* and *Fallopia convolvulus*), cleavers (*Galium* sp.) mayweed (*Tripleurospermum inodorum*), eyebright (*Euphrasia/Odontites* sp.), and small and large-seeded grasses (Gramineae). These taxa dominate samples 1 and 4, but are also plentiful in samples 3 and 11. A few, such as scentless mayweed, prefer light soil, and some, such as cleavers, germinate in the autumn and are most common in fields of winter wheat.[56] Many of these species also frequent grassy and disturbed waste ground, scrubland and hedges.

Wild legumes make up 14% of the specimens recovered in sample 11, but are restricted to less than 6% of the specimen counts in the remaining samples. These include two probable seeds of hairy tare (*Vicia hirsuta*) in samples 3 and 10, but most specimens have lost their diagnostic hila and cannot be identified beyond a general small legume category. Many wild legumes thrive as arable weeds, while others are restricted to grassland, hedges and disturbed waste ground. There is some evidence that wild legumes, because of their ability to host the manufacture of atmospheric nitrogen, became increasingly successful arable weeds in the shallow, ard-ploughed fields of the later Iron Age due to gradually decreasing soil fertility.[57]

[53] A. Clapham, T. Tutin and D. Moore, *Flora of the British Isles* (3rd ed., 1989).

[54] D. Zohary and M. Hopf, *Domestication of Plants in the Old World* (1988), 16–52.

[55] M. Jones, 'The Arable Field: a Botanical Battleground', in M. Jones (ed.), *Archaeology and the Flora of the British Isles* (Oxford: University Committee for Archaeology Monograph 14, 1988).

[56] M. Jones, 'The Plant Remains', in M. Parrington, *The Excavation of an Iron Age Settlement, Bronze Age Ring-Ditches and Roman Features at Ashville Trading Estate, Abingdon, Oxon. 1974–1976*, CBA Research Report 28 (1978), 93–110.

[57] M. Jones, 'The Carbonised Plant Remains,' in D. Miles, *Archaeology at Barton Court Farm, Abingdon, Oxon.*, CBA Research Report 50 (1986), fiche 9; Jones, op. cit. notes 55–6.

Grasses are largely restricted to samples 1, 3 and 10. The small-seeded species, which are common only in sample 3, are not easily distinguished and have been classified into two broad categories: *Poa/Phleum*-type with very small seeds, and *Festuca/Lolium*-type with larger, more elongate small seeds. More striking is the preponderance of brome grass (*Bromus* section *Eubromus* sp.) in sample 1. Brome makes up almost 52% of the specimen count in this sample, but does not exceed 6% in any other. The brome grass section *Eubromus* sp. defines a group of closely related annual species whose seeds are indistinguishable in archaeological material. It includes several minor species (e.g. meadow grass *B. commutatus*, smooth brome *B. racemosus* and rye brome *B. secalinus*) as well as lop grass (*B. hordeaceus*), now the most common brome species in Britain. Meadow grass is often abundant in water meadows, but also occurs as an arable weed, along roadsides and in rough grassland. Smooth brome is common in the water meadows of the Thames, and in wasteground and arable fields in S. England. Rye brome was formerly a troublesome weed of crops, particularly of autumn-sown wheat, but has become much less common due to improved seed cleaning and the widespread use of chemical herbicides. Lop grass is a tenacious arable weed, but is also common in grassy meadows, roadsides and waste ground. It will quickly invade newly established pasture, but will not persist for long in areas that are regularly grazed. All brome grasses make secondary quality forage, and are eaten by stock so long as they are not flowering.[58] Brome grass frequently occurs in 'arable' charred plant assemblages from Iron Age, Roman and Saxon period sites in southern Britain. Several authors have suggested that brome may once have been tolerated, if not positively encouraged, as a tasteful and nutritious companion crop in wheat and barley fields.[59] The evidence, however, suggests that it was simply a very common arable weed which became concentrated in crop cleaning waste and was charred, along with chaff, when used for tinder or fuel.[60] Jones[61] has attributed a decrease in brome grass in an early Saxon assemblage from Buckinghamshire to a shift from shallow ard cultivation to deep mouldboard ploughing of heavy clay soils.

A swollen basal internode of an additional grass species, *Arrhenatherum elatius*, occurs in sample 1. Onion couch grass is characteristic of coarse grassland and open scrub, and does not tolerate grazing or persist as an arable weed.

Seeds of three semi-aquatic species occur in sample 3. Bulrush (*Schoenoplectus* sp.), spike rush (*Eleocharis palustris*) and sedge (*Carex* sp.) are rhizomatous, perennial monocots that often make up the bulk of the herbaceous vegetation in shallow waters and on the muddy margins of ponds, rivers and streams. Bulrush is restricted to aquatic habitats. Spike rush, sedges and members of the jointed rush group of rushes (*Juncus articulatus* gp.) which occur in sample 1, are also common constituents of floodplain grassland in the Upper Thames.[62] Spike rush and sedge regularly appear in arable weed-dominated assemblages from prehistoric sites in Britain – presumably having been harvested with cereals from poorly-drained soils or fields abutting rivers and streams.[63]

Discussion

Sample 2 is Medieval in character and content, and differs from the other samples in the absence of hulled wheat grain and weed seeds. The single hulled wheat spikelet fork in sample 2 suggests redeposition from prehistoric deposits. The hulled wheat chaff in the remaining samples confirms their pre-Saxon date, although some of the free-threshing wheat might well be intrusive. Samples 3, 4 and 11 are not rich in specimens, but they do not differ greatly in character from samples 1 and 10, and their results are probably reliable.

In general terms, the samples from Whitehouse Road are typically Iron Age in terms of the cultivated legumes, cereals and weed species represented. Charred legumes are scarce, although the celtic bean, and probably the common pea, undoubtedly provided the site's inhabitants with a storable source of high quality protein. The cereal component is dominated by chaff of Iron Age hulled wheat, and grain of 6-row hulled barley and spelt wheat. Free-threshing wheat is not unknown from Iron Age sites,[64] but it is rarely plentiful, or as ubiquitous as it is at Whitehouse Road. Intrusion from medieval deposits at the site must be considered, but the site would appear to be unusual in the early presence of free-threshing wheat.

[58] J. Percival, *Agricultural Botany: Theoretical and Practical* (8th ed., 1942), 552; C.E. Hubbard, *Grasses* (3rd ed., 1984), 77.

[59] R.N. Hubbard, 'Assessing the Botanical Component of Human Palaeo-economies', *Bull. of the Inst. of Arch. (London)*, xii (1975), 197–205; J.R. Arthur, 'The Plant Remains', in M. Bell (ed.), 'Excavations at Bishopstone, Sussex,' *Sussex Archaeological Collections*, cxv (1977), 273–5; Jones, op. cit. note 56.

[60] F. Green, 'Iron Age, Roman and Saxon Crops: the Archaeological Evidence from Wessex,' in Jones and Dimbleby (eds.), *The Environment of Man: the Iron Age to the Anglo-Saxon Period*, BAR (British Series) 87 (1981), 129–54.

[61] M. Jones, 'Charred Plant Remains from Pennylands' (unpub. MS., Milton Keynes Archaeological Unit, Milton Keynes).

[62] G. Lambrick and M. Robinson, 'The development of Floodplain Grassland in the Upper Thames Valley', in M. Jones (ed.), *Archaeology and the Flora of the British Isles* (1988).

[63] Jones, op. cit. notes 56, 57.

[64] Jones op. cit. note 57; Green op. cit. note 60.

The assemblage is primarily 'arable' in origin, and sheds more light on the agro-ecology of local cereal fields and crop-processing activities than it does on the general environment. There is no evidence for the importation of cereals – the data suggest local production for local consumption. Most of the seeds recovered probably arrived as contaminants of spelt or barley crops. The majority of these were probably separated from the edible grain portion of the harvest when the grain was cleaned, and along with fine and coarse chaff, tail grain and crop debris, was charred when this processing waste was burned. It is because of this 'arable' origin that the common nitrophilous weeds of human settlement such as nettle (*Urtica dioica*) and elder (*Sambucus nigra*) do not appear in the samples – although a single specimen of henbane (*Hyoscyamus niger*) occurs in sample 4.

Iron Age fields supported a rich community of arable weeds species. Some of these might have supplemented the harvest when cereal yields were low, but even a sample as rich in brome grass as sample 1 cannot confirm such an activity when hulled wheat chaff is equally common in it. Most of the weeds in these fields were almost certainly as undesirable as they were persistent.

Two decades of work on the palaeohydrology and environmental archaeology of the settlement in the Upper Thames basin provides a framework for assessing the archaeobotanical data from Whitehouse Road.[65] In general, woodland receded steadily through the Iron Age in the face of an advancing, and increasingly managed, agro-environment. Ard cultivation in the valley bottom was restricted to the light, shallow soils of the gravel terraces and well-drained areas of the floodplain, but low-lying expanses of floodplain and much of the gravel terraces also supported grassland and scrub. Iron Age settlement at Whitehouse Road coincided with a period of increased flooding and a rising water table on the floodplain at Oxford, due to widespread deforestation in the upper reaches of the Thames basin. The site itself was situated on a small gravel island on the floodplain, and some limited cultivation may well have occurred in the immediate vicinity. The low-lying area N of the site would have been extremely wet, with the Thames channels blocking access to the second gravel terrace which now supports the city of Oxford. River channels and wet, low-lying soils also limited arable expansion E and W of the site. The area immediately to the S, crossed by another channel and possibly flooded on a seasonal basis, probably supported pasture or grassland. Beyond this area, *c.* 500 metres S of the site, lies a large gravel island of the first terrace which could have provided the inhabitants of the settlement at Whitehouse Road with most of its cultivable land.

The numerous grasses in the Whitehouse Road assemblage probably reflect the cultivation of the shallow, light soils on the floodplain and first gravel terrace. The preponderance of grasses and of wild legumes in many of the samples suggests some degree of soil infertility. Many of the arable weed species which occur (e.g. knotgrass, scentless mayweed, corn salad *Valerianella dentata* and chickweeds *Stellaria media* and *Cerastium* sp.) may also have grown in disturbed soils on the gravel islands, or in well-drained areas of the floodplain which were flooded in winter but dry in summer.[66] The spike rush and sedge in sample 3 suggest either the cultivation of damp soils on the floodplain, or the accidental incorporation of bankside or shallow-water vegetation with cereals during the harvest.

INTERPRETATION AND DISCUSSION

IRON AGE

Date and length of occupation

In broad terms the settlement at Whitehouse Road conforms to a pattern of Iron Age settlement in the Upper Thames region which shows new or intensified occupation on the gravel terraces around the early 3rd century BC, followed by shift or abandonment in the 1st century BC.[67] Examples of such sites include Farmoor,[68] Claydon Pike,[69] Watkins Farm,[70]

[65] M. Robinson, 'The Iron Age to Early Saxon Environment of the Upper Thames Terraces', in M. Jones and G. Dimbleby (eds.), *The Environment of Man: the Iron Age to Anglo-Saxon Period* (1981); G. Lambrick and M. Robinson, *Iron Age and Roman Riverside Settlements at Farmoor, Oxfordshire*, C.B.A. Res. Rep. 32 (1979); Lambrick and Robinson op. cit. note 62; Robinson and Lambrick op. cit. note 3, 809–14.

[66] Lambrick and Robinson op. cit. notes 62, 65; Robinson and Lambrick op. cit. note 3.

[67] R. Hingley and D. Miles, 'Aspects of Iron Age Settlement in the Upper Thames', in B. Cunliffe and D. Miles (eds.), *Aspects of the Iron Age in Central Southern Britain* (1984), 52–71. G. Lambrick, 'The Development of Late Prehistoric and Roman Farming on the Gravels', in M. Fulford and E. Nicholas (eds.), *Developing Landscapes of Lowland Britain. The Archaeology of the British Gravels: A Review* (1992), 78–136.

[68] G. Lambrick and M. Robinson, op. cit. note 65.

[69] D. Miles and S. Palmer, 'Claydon Pike', *Current Archaeology* 86 (1983), 88–92.

[70] T.G. Allen, *An Iron Age and Romano-British Enclosed Settlement at Watkins Farm, Northmoor, Oxon* (1990).

Mingies Ditch,[71] Port Meadow,[72] and Appleford.[73] These particular sites, which lie on the floodplain and first terrace, offer several points of comparison with Whitehouse Road.

Stratigraphically the site shows the maintenance of a more or less coherent layout throughout its occupation. The longest stratigraphic sequence, that of Enclosure B, records six episodes of recutting. This can be reduced to 2 or 3 major changes involving the re-positioning of the enclosure ditch. Enclosure A shows 2 or 3 phases of design, while elsewhere only 2 phases need be envisaged. For Watkins Farm, Allen[74] estimates that ditch recutting would have been needed every 10 years or less. Even halving this rate of ditch recutting at Whitehouse Road would indicate an occupation of no more than 150 years. The ceramic evidence can be accommodated within a relatively short span, although it is possible that mixing and redeposition have conflated a slightly longer ceramic sequence which might have included the dominance of pottery of a comparatively shelly fabric like that of Farmoor Phase I (Timby, this report). The earlier features at Whitehouse Road (e.g. Ditches 601, 602, 603, 612 and 613) yielded fewer finds than the later ones, partly because of subsequent truncation. The date of the beginning of the occupation is therefore not clear, but it was probably not before the late 4th/early 3rd century BC.

Site Layout

The layout of the site indicates that most of the enclosures and structures could have been contemporaneous. In exception to this, Enclosure A and the early phase of Enclosure B (Ditch 612) might have been in use at different times, since the former seems to block the entrance to the latter. Enclosure A may thus belong with a middle or later phase of Enclosure B. Although there is a suggestion from the pottery fabrics that Enclosure A was slightly earlier than Enclosure B, it is possible that it simply went out of use before the later phases of Enclosure B.

The position of Gully 542 (if it can be considered a part of Structure C) indicates that this structure ought to be contemporary with the later phases of Enclosure B, since the gully cuts Ditch 612.

Enclosure B. The various phases of Enclosure B probably encircled a series of round houses with E- and later SE-facing entrances. Commonly on Iron Age sites the details of house structures do not survive, and even on well preserved sites with floor surfaces intact, constructional features can be difficult to trace (e.g. at Mingies Ditch[75] and Danebury[76]). At Whitehouse Road a few internal features were present, but their pattern is not straightforwardly interpreted, particularly as they are likely to represent a kaleidoscope of different structural phases, and generally cannot be linked to particular phases of the surrounding enclosure.

[71] T.G. Allen and M.A. Robinson, *The Prehistoric Landscape and Iron Age Enclosed Settlement at Mingies Ditch, Hardwick-with-Yelford, Oxon.*, Thames Valley Landscapes: the Windrush Valley 2 (1993).

[72] G.H. Lambrick and A. MacDonald, 'The Archaeology and Ecology of Port Meadow and Wolvercote Common, Oxford', in G.H. Lambrick (ed.), *Archaeology and Nature Conservation* (1985), 95–109.

[73] J. Hinchliffe and R. Thomas, 'Archaeological Investigations at Appleford', *Oxoniensia*, xlv (1980), 9–111.

[74] Allen, op. cit. note 70, 73.

[75] Allen and Robinson, op. cit. note 71.

[76] B. Cunliffe and C. Poole, *Danebury: an Iron Age Hillfort in Hampshire. Vol. 4. the Excavations 1979–88: the Site* (1991).

Ditch 612. The earliest phase of enclosure was also the largest and was probably associated with postholes 400 and 585, located with some precision just inside its entrance and showing no spatial relation to any of the subsequent phases of the enclosure (Fig. 5b). They may have formed a gate or, less probably, a doorway about 3 m wide. The main arguments against their forming the door of a structure are (1) that other postholes on this approximate diameter are infrequent and rather irregularly spaced, and are not convincing as the positions of wall-posts (Fig. 5) and (2) that, if they were, the diameter of the roundhouse would be only slightly smaller than the internal diameter of the enclosure (i.e. about 15 m), which is exceptionally large for a house of this period. It would even have exceeded the larger well-known roundhouses such as Little Woodbury (11 m), Pimperne (12.8 m) and Balksbury Camp (13 m).[77] A possibly comparable example at Langford Downs, Lechlade, of 15 m diameter was not considered convincing as a roofed structure.[78] The average diameter of roundhouses in the Upper Thames region is about 9 m.[79]

Houses defined by a ring of wall-posts were probably uncommon, and many post-ring structures are best interpreted as comprising a ring of internal roof supports, with door posts and a relatively slight external wall offset outwards by about 2 m. In some cases, additional 2-post structures outside the doorway can be interpreted as porches.[80] Postholes 400 and 585 might be seen as representing an entrance porch fronting a rather smaller structure. The door posts would have been set 2 m or so inside them (and removed by later cuts) on a wall line of 10–12 m in diameter. Concentric to this, a fragmentary ring of 4 postholes (457, 496, 589 & 469) lie on a circle with a diameter of 7 m, quite a common dimension for an internal ring of roof supports.[81] Even allowing for the eradication of postholes by later features this seems a sparse arrangement of roof supports, although internal supports consisting of four posts are known (e.g. Groundwell Farm, House 2).[82]

Ditch 613. This was interpreted as the second phase of the E-facing enclosure and in many ways is the most enigmatic of the group. It probably described a circle of about 13 m and was comparatively slight (1.1 m wide by 0.5 m deep). Elsewhere, features of this form have been interpreted as wall trenches, despite the absence of post-settings within the feature. Examples include Houses 1 and 4 from Groundwell Farm.[83] House 1 is actually of very similar form and dimensions to Ditch 613, and had an apparent absence of internal features. However, neither seems convincing as a wall trench. In particular, the entrance gap of nearly 4 m for House 1 at Groundwell Farm seems excessive for a doorway and the ditch, like Ditch 613, is probably best interpreted as a drainage feature.

Later Enclosures 608–610. It is difficult to construct a convincing pattern of postholes for the later phase structure(s) where features might be expected to be better preserved. It is possible that the construction was a stake wall type, a technique probably common in the area which normally leaves little trace. A pair of door-post holes and a penannular gully are frequently

[77] P.J. Reynolds, *Iron Age Farm. The Butzer Experiment* (1979), Fig. 1.

[78] A. Williams, 'Excavations at Langford Downs, Oxon (Near Lechlade) in 1943', *Oxoniensia*, xi (1946), 44–64.

[79] Hingley and Miles, op. cit. note 67, 63.

[80] G. Guilbert, 'Double Ring Roundhouses, Probable and Possible, in prehistoric Britain', *Proc. Prehist. Soc.* xlvii (1981), 299–317; idem, 'Post-ring Symmetry in Roundhouses at Moel y Gaer and some other Sites in Prehistoric Britain', in P.J. Drury (ed.), *Structural Reconstruction*, BAR 110 (1982), 67–86.

[81] Ibid., Figs. 3.2 and 3.3.

[82] C. Gingell, 'Excavation of an Iron Age enclosure at Groundwell Farm, Blunsdon St. Andrew, 1976–7', *Wilts. Arch. and Nat. Hist. Mag.* lxxvi (1981), 33–75.

[83] Ibid. Figs. 6 and 8.

the only elements surviving on ploughed sites.[84] This was the most common type of house at Danebury.[85] Examples with traces of stake walls have been found in the Upper Thames at Mingies Ditch[86] and, probably, Claydon Pike (House XV).[87]

A pair of possible door-postholes (Pits 370 & 500) lie 2 m apart opposite the later-phase entrance, set back 3–4 m from it. At 0.7 m–0.9 m in diameter and 360 mm deep these features are large (Fig. 9, Sections 116 & 91), but this might have resulted from double postholes or successive replacements. Postholes 396, 655 and 467 also lie on the arc of this circle which would have formed a small structure with a diameter of about 7.5 m (Fig. 6b). This is approximately the same size as the stake-built house at Mingies Ditch,[88] and there are possibly analogous examples from Claydon Pike, Houses VI and XV.[89] The average diameter of stake-built roundhouses at Danebury was 7.0 m.[90]

The other features internal to these enclosures show a range which is fairly typical of Iron Age roundhouse furnishings and are not readily interpretable. It can be mentioned, however, that clay-filled pits, such as Pit 454, are common on Iron Age settlements in the region. They were particularly prevalent at Claydon Pike where they were interpreted as possible water-holes.[91] The illustrated examples show that each of these features occupied an identical position to that from Whitehouse Road, that is, towards the edge of the floor area the right hand (N) side.

The walls of the stake-built house(s) might have been daubed or thatched. While some fired clay was found in features of all phases it is possible that this derived from the superstructure of ovens rather than walls.

Subsidiary enclosures and structures. There are no precise analogies from the Upper Thames region for the arrangement of the various enclosures and structures found at Whitehouse Road. Paired enclosures have been found at Farmoor,[92] Ashville,[93] Claydon Pike,[94] and Appleford.[95] Unlike Enclosures A and B at Whitehouse Road, these were all physically attached, rather than merely closely associated. There is little to suggest their precise functions, and animal pens, storage areas and working annexes have been suggested. A possible domestic annexe is suggested for Whitehouse Road Enclosure A, judging by the amount of domestic rubbish in the ditches. However, contemporaneous internal features were lacking and little can be said about the form any structure within it might have taken.

Structure C, represented by a short arc of gully, is unusual but not unique in the Upper Thames region. Closely similar forms, orientations and dimensions of gullies have been recorded from Claydon Pike.[96] There was no clear indication that it formed a complete circle, or even semicircle. Semicircular structures have been claimed for a number of sites

[84] T. Allen, D. Miles and S. Palmer, 'Iron Age Buildings in the Upper Thames Region', in B. Cunliffe and D. Miles (eds.), *Aspects of the Iron Age in Central Southern Britain* (1984), 98, Fig. 6.7.

[85] Cunliffe and Poole, op. cit. note 76, 43.

[86] Allen and Robinson, op. cit. note 71.

[87] Allen, Miles and Palmer, op. cit. note 84, 98, Fig. 6.7.

[88] Ibid. 99, Fig. 6.8.

[89] Ibid. Figs. 6.6 & 6.7.

[90] Cunliffe and Poole, op. cit. note 76, 45.

[91] Allen, Miles and Palmer, op. cit. note 84, 94.

[92] Lambrick and Robinson, op. cit. note 65.

[93] M. Parrington, *The Excavation of an Iron Age Settlement, Bronze Age Ring-Ditches and Roman Features at Ashville Trading Estate, Abingdon (Oxfordshire) 1974–76*, C.B.A. Research Report 28 (1978).

[94] Allen, Miles and Palmer, op. cit. note 84, Fig. 6.6, House III.

[95] J. Hinchliffe and R. Thomas, op. cit. note 73, Fig. 15, Area 4, Enclosures A and B.

[96] Allen, Miles and Palmer, op. cit. note 84, Fig. 6.6, Structure I.

(e.g. Farmoor[97] and Gun Hill, Essex[98]) and are sometimes interpreted as workshops (e.g. smithies) where light, and perhaps air, was important. This is a less convincing interpretation for Structure C since the open side was towards the NW. However, it is possible that its orientation in relation to the principal dwelling was the overriding factor. At Gun Hill the gullies were interpreted as wall trenches for semicircles of contiguous upright logs.[99] A similar structural arrangement might be envisaged for Structure C.

Pits. The group of larger pits (1–2 m in diameter) probably functioned as storage pits for grain and other foodstuffs. It is possible that they were used mainly or exclusively for seed grain.[100] Their relative shallowness was probably due to a high water table, which was likely to have fluctuated seasonally since there was no waterlogging in any of the features. A similar explanation was advanced for the shallowness of storage pits at Appleford.[101] The stability of the pit sides might also have been a consideration, particularly on gravel sites. Their shallowness actually makes them very inefficient as grain storage pits, where the ratio of volume to wall area should be high to minimize the proportion of grain lost.[102] However, it is evident that, even on prolific grain production and storage sites such as Ashville, there was a high proportion of relatively shallow pits. There more than half of the 53 pits positively dated to the Iron Age were less than 0.6 m deep.[103] It is also evident that the size and shape of pits does not affect the principle of grain storage,[104] and experiments have shown that smaller pits function well.[105] It is possible, therefore, that efficiency of storage *per se* was not a primary consideration and that social and economic factors, such as the amount of seed grain available or required, might have been of greater importance. The size of storage pits might therefore have been related to the extent of arable land and its distribution among farming units as well as to the height of the watertable.

Environment and Economy

Despite the site's location on the present floodplain of the Thames, the pedological and molluscan evidence indicate that the ground was largely dry throughout the Iron Age occupation (Robinson, this report). Aquatic molluscs were present in samples from two probably Iron Age features (contexts 501 & 460), but these might have been intrusive from later flood-related sediments. The absence of waterlogging in any of the deeper features suggests that the watertable was not persistently high, although the shallowness of the pits might indicate that it rose seasonally. In these respects Whitehouse Road contrasts with other floodplain sites such as Mingies Ditch, Port Meadow and Farmoor, where pits suitable for storage were uncommon or absent and waterlogging was encountered in the bottoms of the deeper features.

As far as the artefactual and environmental evidence indicates, the site's location does not seem to have been chosen with regard to riverine resources or opportunities for trade or

[97] Lambrick and Robinson, op. cit. note 65, 67.
[98] P.J. Drury and W. Rodwell, 'Excavations at Gun Hill, West Tilbury, Essex', *Trans. Essex Arch. Soc.* v (1973), 97.
[99] Ibid.
[100] P.J. Reynolds, 'Experimental Iron Age Storage Pits: an Interim Report', *Proc. Prehist. Soc.* xl (1974), 118–31.
[101] J. Hinchliffe and R. Thomas, op. cit note 73, 44.
[102] P.J. Reynolds, op. cit. note 100, 127.
[103] M. Parrington, op. cit. note 93, 13 Table I.
[104] P.J. Reynolds, op. cit. note 100, 127.
[105] P.J. Reynolds, op. cit. note 100; H.C. Bowen and P.D. Wood, 'Experimental Storage of Corn Underground and its Implications for Iron Age Settlements', *Bulletin of the Inst. of Arch. Univ. of London*, vii (1967), 1–14.

contact. Neither does the form of the site in itself suggest economic specialization. While the overall plan of the settlement is not known, the cropmarks suggest that it was open rather than enclosed, and rather similar to Farmoor or Claydon Pike.

It differs from these sites, however, in its relatively large numbers of 'storage' pits; and the presence of charred crops (Letts, this report) indicates that the economy was at least partly arable. The plant remains include abundant chaff and weeds of arable cultivation, indicating a grain-producing rather than merely a grain-consuming site. This contrasts with the interpretation of other floodplain sites in the Upper Thames.[106] The location of the arable fields is somewhat conjectural, but they could have been adjacent to the settlement itself, or perhaps on the more extensive 1st terrace some 500 m to the S. The abundance of arable weeds from Whitehouse Road might suggest that the land was actually rather marginal for cultivation, even at this time, and a degree of soil infertility is indicated (Letts, this report).

The animal bone assemblage, while small, suggests some reliance on stock-rearing. Cattle and sheep predominated, as they did on all local sites of this period. Loom weights and iron working debris give some indication of domestic crafts practised. The relatively high proportion of horse bones is mirrored at other low-lying sites (e.g. Mingies Ditch and Watkins Farm), although in all cases the samples are small. However, rather than suggesting any form of pastoral specialization, the botanical and faunal evidence from Whitehouse Road gives a clear indication of mixed subsistence farming.

Discussion

The type of mixed farming indicated does not fit well with a model for the development of settlement which sees the establishment of specialized pastoral farms on the lower terrace and floodplain during the Middle Iron Age.[107] While the evidence is insufficient to indicate which element of the economy (if either) dominated, it would seem perverse to interpret the Whitehouse Road site in terms of agricultural specialisms, still less see it as a pastoral counterpart to an arable settlement elsewhere, as has tended to be the interpretation of other floodplain sites.

What the evidence does support, however, is the notion of an increasingly utilized landscape during the Middle Iron Age. Lambrick[108] has recently summarized the widespread evidence for this in the Upper Thames and has argued that this was due to agricultural expansion supporting and reflecting an increasing population. Whitehouse Road can perhaps be seen as a response to these pressures, in the form not of specialised landuse but of the establishment of a mixed farming settlement on land which, while not perhaps ill-suited to cultivation, must have been marginal in terms of local resources. It would have been particularly constrained by a rising water table.[109]

This is likely to have implications for local settlement and land use, for it seems unlikely that a settlement such as that at Whitehouse Road, which appeared to have enjoyed no natural advantage by virtue of its location, would have been sited on the floodplain in preference to higher ground nearby if such had been available to the occupants. In

[106] e.g. M.K. Jones, 'Regional Patterns in Crop Production', in B. Cunliffe and D. Miles (eds.), *Aspects of the Iron Age in Central Southern Britain* (1984).

[107] Allen, op. cit. note 70, 79; Lambrick, op. cit. note 67, 94.

[108] Lambrick, op. cit. note 67.

[109] Lambrick, op. cit. note 67, 86.

particular, the extensive second terrace N of the river under the present city would seem to offer a more favourable location for a mixed farming settlement. The location of the site would be more explicable if the second terrace was already in use by the Middle Iron Age. This need not imply a likely Middle Iron Age settlement under the present city, and there is yet no evidence for one. However, there is a growing body of evidence for more intensive management and the demarcation of land uses in the Upper Thames from the Late Bronze Age onwards, and it is possible that this had already circumscribed areas available for settlement in the later period. Such an interpretation has been put upon settlement patterns in the Stanton Harcourt area where land use from the Neolithic period onwards appears to have determined the form of Iron Age settlement.[110] While such an hypothesis for the Oxford area is necessarily extremely speculative, it at least seems worthy of consideration.

The abandonment of the site around the first century BC is typical of settlement in the region. It has been suggested that increasing wetness might have been a factor behind the demise of settlement on the floodplain.[111] However, it is not clear that flooding immediately followed the abandonment of Whitehouse Road and, in any case, most of the site probably remained dry. It is noteworthy that there was no sign of later alluviation either, despite the fact that the site lies at about the same elevation (*c.* 55 m OD) as the Hamel in St. Thomas N of the river, where 0.17 m of alluvium was deposited between the Bronze Age and medieval occupations.[112] Lambrick has furthermore pointed out that the first century BC marks a discontinuity of settlement on the flood-free 1st and 2nd terraces as well as on the floodplain. It seems necessary to invoke political or social factors as an explanation.[113]

MEDIEVAL

Nature and Duration of Occupation

Aerial photographs, coupled with the evidence from the evaluation, suggested a series of properties extending back from a frontage on Whitehouse Road, with activity generally petering out towards the W. The excavation therefore seems to have revealed activity peripheral to the main focus of settlement, probably related to ancillary structures and back yards which, nevertheless, seems to have been quite tightly defined on its W side.

A low-status occupation spanning the 11th to 14th centuries was indicated but little evidence was gained concerning the site's nature or economy. The occupation was possibly initiated, and undoubtedly stimulated by the construction of the Grandpont causeway and bridge around 1092, leading to ribbon development along this gravel island. It is interesting to note that, despite the site's proximity to the city of Oxford and its tenurial ties with the city at that time, the pottery recovered shows much stronger links with sites S of the river (Underwood-Keevill, this report). It seems likely that this economic orientation was due to tolls levied upon goods crossing the bridge. An identical situation has been reported from Bedford, where Lyveden Wares have been found to concentrate N of the Ouse with Oxfordshire Wares to the S.[114]

Occupation in this particular area of the site seems to have ceased before the 15th century and the evidence from Trenches 3–5 of the evaluation suggest that this abandonment was

[110] Lambrick, op. cit. note 67, 90.
[111] e.g. at Mingies Ditch, Allen and Robinson, op. cit. note 71, 150.
[112] N. Palmer, 'A Beaker Burial and Medieval Tenements in the Hamel, Oxford', *Oxoniensia*, xlv (1980), 128.
[113] Lambrick, op. cit. note 67, 84 & Fig. 27.
[114] D. Baker et al., 'Excavations in Bedford 1967–77', *Bedfordshire Archaeological Journal*, xiii (1979), 294.

general. Certainly, if the Brasenose College Map[115] can be taken at face value, all settlement here seems to have ceased by the 16th century. This probably reflects the decline in the economy of Oxford as a whole from the 14th century.[116] Periodic flooding, indicated by the molluscan evidence, suggests that the site was rather marginal for settlement in any case, and an increase in flooding might have been a more immediate factor.

Possible structures

It is difficult to be sure whether any structures were present in the excavated area since there was no evidence of alignments of postholes or beam-slots. However, timber buildings from this period are notoriously difficult to define, even when floor levels are actually present,[117] and sometimes can only be traced through spreads of occupation material, wear on floor surfaces, or as voids in areas of features.[118] At Whitehouse Road the medieval ground surface had been lost and it is unlikely that any internal or structural features would have survived. There was no evidence of the use of stone, but such a possibility cannot be discounted since stone walls were normally laid straight on the ground, without foundation trenches,[119] and might in any case have been removed for re-use.

The locations of possible structures have been conjectured upon. Either side of Gully 618, areas of disturbed soil were noted, possibly relating to occupation in this area, and it is possible that a building existed between Ditches 81 and 617. In this instance the distance between the ditches (about 10 m) appears too great for them to have been eaves trenches. It has been suggested that 6 m was the maximum which could be spanned without a central row of posts or aisles.[120] A width of between 3.5 m and 5 m was apparently usual for peasant buildings.[121] Further to the N, a rectangular structure, about 6 m square, might have been defined by Gully 619. The location of this gully suggests that it might have been influenced by the former presence of Enclosure A of the Iron Age occupation. Indeed, given also the similar ditch alignments in both phases, it can be speculated that the medieval layout owed something to the earlier Iron age arrangements, and perhaps that earthwork traces of the earlier settlement were still present in the 11th–12th centuries. However, it is difficult to know to what extent this pattern was due rather to a similar response to the topography and the problems of land drainage.

[115] op. cit. note 2.
[116] *V.C.H. Oxon.* iv, 15–16.
[117] M. Beresford and J. Hurst (eds.), *Deserted Medieval Villages: Studies* (1971), 93.
[118] e.g. Goltho and Barton Blount Period 2 in G. Beresford, *The Medieval Clay Land Village: Excavations at Goltho and Barton Blount*, Soc. for Med. Arch. Monograph Series 6 (1975), 23–4.
[119] M. Beresford and J. Hurst, op. cit. note 117, 94.
[120] Ibid., 114–5.
[121] Ibid.