

BRONZE AGE OCCUPATION AND SAXON FEATURES AT THE WOLVERTON TURN ENCLOSURE, NEAR STONY STRATFORD, MILTON KEYNES:

**INVESTIGATIONS BY TIM SCHADLA-HALL,
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DURDEN, 1972 TO 1994**

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The Wolverton Turn enclosure has been subject to a number of archaeological investigations since the early 1970s. This large sub-rectangular enclosure was identified initially from aerial photographs in 1969, and a part of it was first excavated in advance of construction in 1972 by Tim Schadla-Hall while an adjacent Bronze Age ring-ditch (MK13), and associated burials were excavated by Stephen Green of the Milton Keynes Archaeology Unit. To date, only the ring ditch excavation has been published. Initially it was thought that the enclosure ditches were of Roman date.

In 1991 Buckinghamshire County Museum Archaeology Service evaluated a large area in advance of construction, and excavated a number of trenches across the line of the enclosure ditches. This led to an excavation the following year which indicated a middle Saxon date for the main enclosure ditches, which seem to have been backed by a palisade. Except for one sunken-featured building well to the north, however, there was no evidence for structures which might have represented settlement. A geophysical survey of part of the site in 1992 proved inconclusive. Excavation by Thames Valley Archaeological Services in 1994 extended the 1992 excavation area and exposed the southern corner of the enclosure, and revealed structures of a Bronze Age settlement. The main period of use for the enclosure ditches was Saxon but the possibility of a Roman origin cannot be ruled out. The animal bones include a high proportion of horse, perhaps suggesting a specialist breeding or training centre.

INTRODUCTION

Several phases of investigation have been carried out on a series of archaeological features known to archaeologists as the Wolverton Turn Enclosure, between Stony Stratford and Wolverton in north-west Milton Keynes, Buckinghamshire, SP 8025

4066 (Fig. 1). In 1970, cropmarks of a ring ditch and part of a large enclosure, with adjoining smaller enclosures and linear features were identified on aerial photographs taken the previous summer (Plate 1). A limited programme of excavation in 1972 by the Milton Keynes Archaeological Unit (MKAU) examined the Bronze Age ring ditch

Wolverton Turn, Milton Keynes, 1972-94

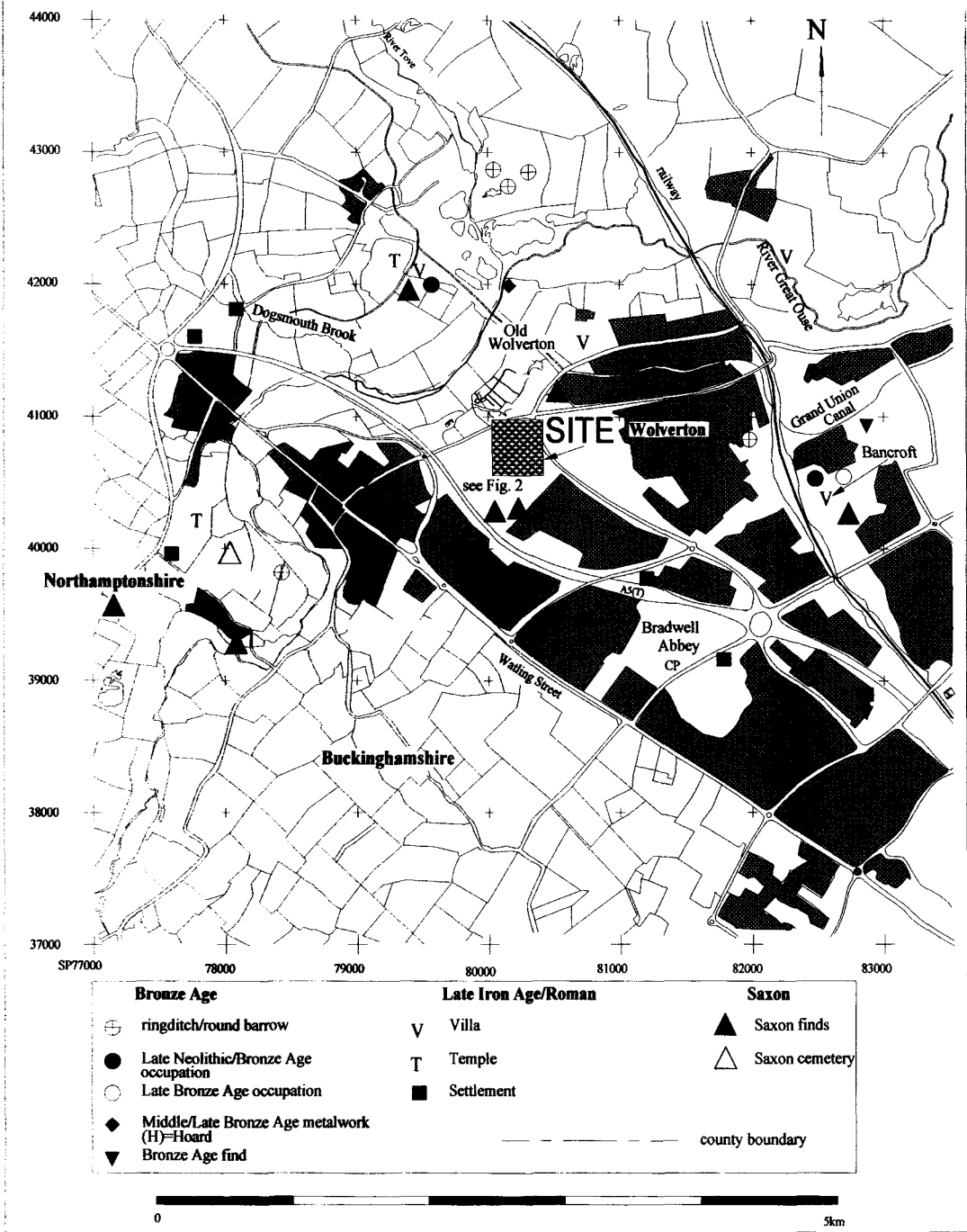


FIGURE 1 General location of site.



PLATE 1 Aerial photograph of the site, north-west to top. Copyright reserved.

(Green 1974), along with an area to its north opened by Tim Schadla-Hall. The extent and importance of the (mainly) Anglo-Saxon site reported here were only realized after much of it had been built over.

Plans to redevelop a 5.4ha part of the grounds of what had been a sixth-form college and had become a Royal Mail training facility resulted in an opportunity to examine more of the site. Investigation began in September 1991 as an evaluation by Buckinghamshire County Museum Archaeological

Service (BCMAS, Lawson *et al.* 1991), followed by excavation of two areas, one by BCMAS in June/July 1992 and one in November/December 1992 by Thames Valley Archaeological Services (TVAS). A geophysical survey carried out in 1992 proved inconclusive (Bartlett 1992) and is not discussed here. This report attempts to synthesize the results of all the excavations from 1972 to 1994, except that of the ring ditch which has already been published (Green 1974).

Site codes for the various projects are MK13 (the

ring ditch), MK206 (the rest of the 1972 investigation), WMC91 (the evaluation), WMC92 (the 1992 excavation) and WMMK94 (the 1994 excavation). The archives have been deposited with Buckinghamshire Museum under two accession codes: CAS 3509 for all the earlier phases and 1996.102 for the 1994 site.

With the demise of both the BCMAS and MKAU there seemed little prospect of the results of their interventions being published until the generosity of this Society and a grant from English Heritage allowed all the results to be brought together. English Heritage also generously agreed to fund radiocarbon dating for material from the earlier excavations, adding precision to the slightly vague ceramic chronology.

The excavated area is situated at a height of 78.5m above OD near the top of a ridge on a gentle slope that falls to the south and south-west to a small tributary feeding the Great Ouse, 1km to the north. The geology of the area is Jurassic limestone (Blisworth Beds) overlain by glacial deposits of sands, gravels and clays. Landscaping for the college playing fields has levelled off the area. The extent of this disturbance was not ascertained until a large area had been stripped prior to excavation in 1992, but it certainly had affected the survival of shallower archaeological features. The south-eastern part of where the college buildings now stand was quarried away to a depth of several metres in 1972, but further north and west, where the ground drops away, the degree of disturbance may have been less. Aerial photographs taken during the construction work suggest that only the footprints of buildings were bulldozed to any depth; areas between them may be more intact.

The three excavations combined opened an area of approximately 1.28ha (Fig. 2).

Stripping prior to the 1972 excavations was carried out by bulldozer except for the ring ditch (MK13) which was stripped by hand. The bulldozing will have removed or obscured archaeological features, and notes on several plans indicate that not all areas of the site were fully examined. In 1991 a tracked excavator with a 0.9m toothed bucket was used to dig trial trenches covering a 2% sample of the area to be developed. Some of the features revealed were then hand excavated, others merely planned. In 1992 the excavation area was stripped by machine under archaeological supervision. Owing to the considerable amount of land-

scaping and soil movement which had already taken place in the area no attempt was made to recover topsoil finds. The area was then cleaned by hand and archaeological features excavated. As almost all the features observed were ditches, the excavation strategy consisted of a series of sections designed to examine relationships and to obtain a representative sample of finds. Environmental sampling was also carried out.

In 1994, initial stripping was by 360⁰ machine fitted with a ditching bucket. Approximately 20% of the features within the area were hand cleaned and excavated and 20% of the features were sampled for palaeobotanical remains and small artefact recovery. The whole of the 1994 site was overlain by made ground, up to 1.4m of rolled, redeposited limestone, with modern construction debris, created during construction of the conference centre and playing fields, directly on top of the limestone bedrock. The undisturbed surface was composed of relatively level glacial deposits of predominantly silty clay with occasional sand patches and outcrops of the underlying limestone. The absence of both the old turf line and subsoil layer and the underlying glacial deposit observed to the east seems to be due to truncation by the 1970s construction, as machine disturbance was observed in the surface of the bedrock and it is likely that the features on this portion of the site have been truncated and shallow features completely removed. Ground conditions made feature recognition difficult on the 1994 site; these conditions must also have obtained over the 1992 excavation area.

The disparate phases of work produced records of varying levels of detail. In 1992, in anticipation of publication, David Fell of the County Museum organized all of the archive from the phases of work to that point (i.e., all but the 1994 TVAS area) into as consistent a whole as was possible, and Philip Carstairs (1992) summarized the evidence (report in archive). The present report would have been well-nigh impossible without this prodigious effort. Some of the present text is drawn *verbatim* from Carstairs' summary, more comes from Ford and Durden's (1995) unpublished interim report on the 1994 work. Many features from the 1972 excavations cannot now be located or identified, and some of the notes taken then may relate to possible features which were investigated and dismissed or found to be modern. It is clear that more was excavated than there are surviving records for. As a

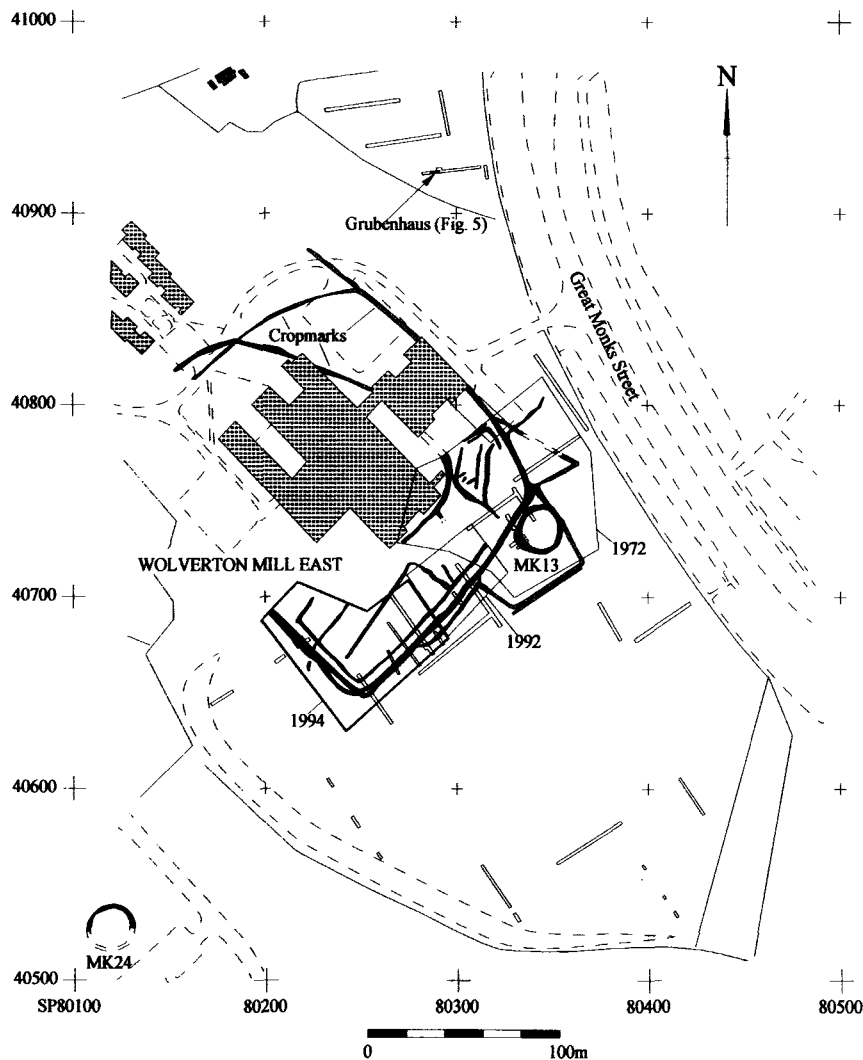


FIGURE 2 Plan of site showing excavated areas, evaluation trenches and cropmark evidence.

result, some of the finds from the site have had to be treated as unstratified although they clearly did come from stratified deposits somewhere. However, the overall picture presents sufficient coherence in broad outline that the loss of some detail has not had a seriously adverse effect on interpretation in most cases.

As this report synthesizes several phases of work, each undertaken with individual recording methods, the opportunity has been taken to impose

a unified numbering system on all the sites' main features, based on the synthetic work of David Fell and Philip Carstairs, with additions. The major ditches are numbered in a sequence from 1 to 26 (Fig. 3); individual excavated segments retain the designations given originally by the excavators, but these are only rarely referred to in this report. In only one case does this system give rise to inconvenience, which is in dealing with Ditch 1. Although recutting of this ditch was noted by all

the excavators, it was only in the 1994 excavation that the recuts were consistently numbered separately, and in this area, the ditches actually part and take different lines for a stretch (Fig. 3). Original numbers 429 and 430 for these separate ditches are retained: 429 and 430 themselves consisted of separately numbered segments. References to Ditch 1 in all the other areas cannot now be matched to 429 or 430 but only to the combination of the two. In some cases, even where cuts were numbered separately, it has not been possible to ascertain which belonged to 429 and which to 430. None of the other ditches, fortunately, poses this problem quite so consistently. All features other than ditches are referred to by the numbers originally assigned; and although a handful of these numbers overlap, by chance none of these instances merits a mention here. A complete feature/context concordance list is held in the archive.

SITE FEATURES BY PHASE (FIG. 3)

Bronze Age (Fig. 4)

The major Bronze Age feature on the site was the MK13 (Warren Farm) ring ditch, already published (Green 1974). Another ring ditch (MK24) 300m to the south-west of MK13 will also have been a significant feature in the landscape at this time (Fig. 2).

Occasional finds of prehistoric (probably Bronze Age) pottery came from various fills of the main enclosure ditches, but are certainly residual and presumably reflect the presence of features of this date intercepted by the line of the ditches. The only ditch which might be dated to the Bronze Age was Ditch 25, and this is very uncertain. It contained only a single sherd of pottery, but its sinuous line and shallowness mark it out as different from the other ditches on the site. However, the area north of the later enclosure ditches contained a number of pits and post holes, some of which contained prehistoric pottery and struck flints. Few of these features contained any later finds, and many of those with no finds may be associated with the prehistoric phase of the site. Three clusters of post- or stake-holes appear to form structures.

Structure 1 (Fig. 4, lower) was a roughly circular group of post holes (121–3, 126, 218–9, 224–5, 243–5), 5m in diameter. The five large post holes

(122, 123, 218, 224, and 245) appeared to form the clearest structural evidence, with 221 as a central post. The outer ring of posts all had similar diameters although depths and profiles did vary. A large shallow hollow (129) on the inside edge of the circle of posts seems to be a worn entrance way, flanked by posts 121 and 126, giving a doorway facing due south. Two sherds of Bronze Age pottery in 218 may indicate this structure was a Bronze Age round house. It is possible that outlying stake holes 120, 128 and 229 may be part of this structure. A further post hole (214) just to the north-east also contained pottery of this date.

Structure 2 (Fig. 4, centre) consisted of post holes 304, 309, 314, 326–9, 332, and 333. Structure 2 may have partly overlapped another structure, represented by post holes 312, 313 and 319, or these could have been an internal subdivision. The largest possible diameter of Structure 2 is 6.5m. Dimensions and profiles of the post holes (and the nature of their fills) varied considerably. Bronze Age pottery was recovered from the fills of 304 and 315.

Further south, *Structure 3* (Fig. 4, upper) was similar to Structures 1 and 2, consisting of a circle of six post holes (335, 338, 341, 342, 344, 345); 334 might also be included, but it contained Saxon pottery. These features contained no pottery, although a small post hole (402) just outside the structure did yield a Bronze Age sherd. Other arrangements of posts in this area could form another circle, but have been interpreted here as forming a Saxon rectangular structure (Structure 4, below).

The area between Structures 1 to 3 contained some 20 further post holes and pits (Fig. 3). Another post- or stake-built structure may have stood in this area, but if so it has been obscured by the cutting of pits. Two of these pits (233, 234) contained Bronze Age pottery, while tree bole 222 yielded worked flints and a small quartzite pebble. Stretching north and east from the cluster of structures, within the 1994 excavation area, was another spread of shallow pits, post holes and tree boles, six of which contained Bronze Age pottery (107, 108, 145, 210, 214, 416) (Fig. 4) while just two sherds of Roman pottery and one of Saxon came from this area. None of these features was substantial, and their fills often closely resembled the sandy clay

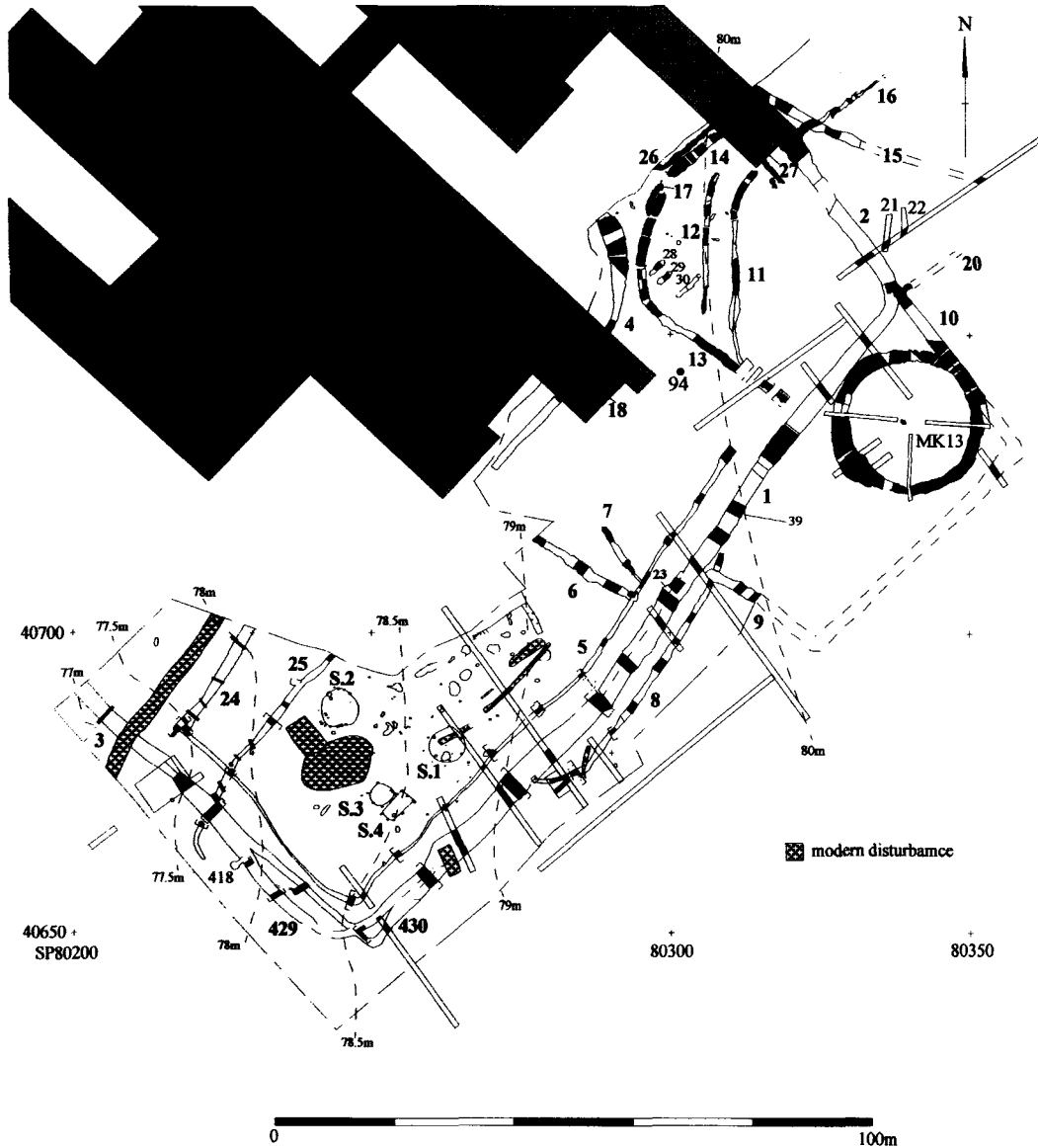


FIGURE 3 Plan of all excavated features. S = Structure. Nos 1-26, 429, 430 = ditches. 94= Bronze Age Cremation

subsoil. The absence of any records of similar features from the areas examined in previous years, under less than ideal conditions, is not surprising. Only two sherds of Bronze Age pottery were recovered from the 1991 and 1992 areas (and one of these was from Saxon Ditch 1) and apparently none from 1972 apart from that already published, so it

is possible that the Bronze Age settlement was entirely confined to the 1994 excavation area.

Two buried soil layers (191 a sandy clay and 152 a sandy clay loam with pebbles) covered the north-east corner of the 1994 area (and the 1991 evaluation trenches in this part of the site, where it was recorded as 103) between the natural and made

ground (not indicated on plans). It was likely that these layers originally existed over most of the site, as they could be traced in many of the baulk sections in 1994. Some features were cut through layer 152 and perhaps 191, but most of the latter was stripped by machine as features were not visible at this level; where recognized, most features were sealed below 191. Neither layer is mentioned in the records from the previous phases of work.

Other than the ring-ditch (MK13), the only Bronze Age feature recorded from the 1972 site was the burial of an infant's cremated ashes in an early Bronze Age urn, set into a small circular cut in the natural, which was then backfilled with a mixture of burnt soil and charcoal (feature 94, some 28m north-west of the ring ditch; Fig. 3; Green 1974, 93). Cremation burials in the vicinity of a barrow are quite common; it is perhaps something of a surprise that only one was found here; even more so that the archive contains four large fragments of Saxon pottery recorded as from the backfill of this feature (Fig. 8: 9).

Given the paucity of dating evidence, it is dangerous to ascribe too positive an interpretation to these features, but the probability must be that most or all of them can be associated as a Bronze Age settlement. Even if some of the features represent no more than tree-clearance, it seems mainly to have been Bronze Age tree-clearance. The consistent patterning of post holes suggesting irregularly circular structures also points towards a Bronze Age date, and the lack of positive dating for such features is (unfortunately) fairly normal. The existence of the buried soil could also indicate agriculture.

Roman

It is not at all clear that there is a Roman phase at Wolverton. During the original excavation in 1972, it was believed that the main enclosure ditches dated from the Roman period. In all phases of work, Roman pottery persistently turned up in ditch fills, albeit in tiny quantities. Due to the difficulty of distinguishing between almost identical fills, separate cuts of ditches were not consistently recorded as different entities unless they were seen as separate in plan, although many were recognized either when the sections came to be drawn, or almost immediately post-excavation work began. As a result, it is often difficult to be certain quite

where the Roman pottery in the ditches was found. However, re-examination of the records shows that there is a consistent pattern suggesting that Ditch 1 (Fig. 3) might originally have been dug in the late Roman period. Where its line diverged into Ditches 429 and 430, Ditch 429 could represent the Roman phase of this boundary. It contained only a tiny amount of pottery: 4 Roman sherds and only a single Saxon sherd came from the elements certainly identified as 429, although five Saxon sherds came from a point where the two ditches (429 and 430) met (section, Fig. 7). Where distinguished, 429 was V-shaped, 2m wide, around 0.75m to 1m deep, while 430 was broader and shallower, up to 3m wide and generally not above 0.50m deep. The primary fill of 429 contained large quantities of limestone rubble; later fills did not. An even earlier cut (440) only intermittently visible, but clearly predating 429, yielded only one sherd of Roman pottery. In one section, however, (section 100 where 325 cut 324), the stratigraphic relationship contradicts this sequence and 429 must be later than 430; evidence from the other sections can also be interpreted to support this, although in all other cases the simpler interpretation sees 429 being the earlier cut. If correctly observed, section 100 rules out the possibility of 429's being Roman, but doubts remain. Interestingly, in section 100, it is 430 which is shown with the concentration of limestone. The consistent appearance of recutting, often at slightly different angles within the overall line of the boundary, all along Ditch 1 and very probably in Ditches 2 and 3 as well, suggests that the entire boundary may have had a long life. Counting against the phasing of the enclosure to the Roman period is the simple lack of finds, under 100 Roman pottery sherds from the entire site (only 45 from the enclosure ditches), one coin, three iron objects and just a couple of fragments of tile from all phases of work combined. However, if the ditch was not originally Roman, it did not seem to cut through any other features that were, so it is just as difficult to explain the sherds as residual as it is to account for why there are not more of them.

No other feature can be phased to the Roman period. Palisade 5 had some segments which contained only Roman pottery, and other sections of this ditch contained only prehistoric pottery; only at one point in the 1994 area was a single Saxon sherd recorded from Palisade 5. However, finds from the 1992 area were much more conclu-

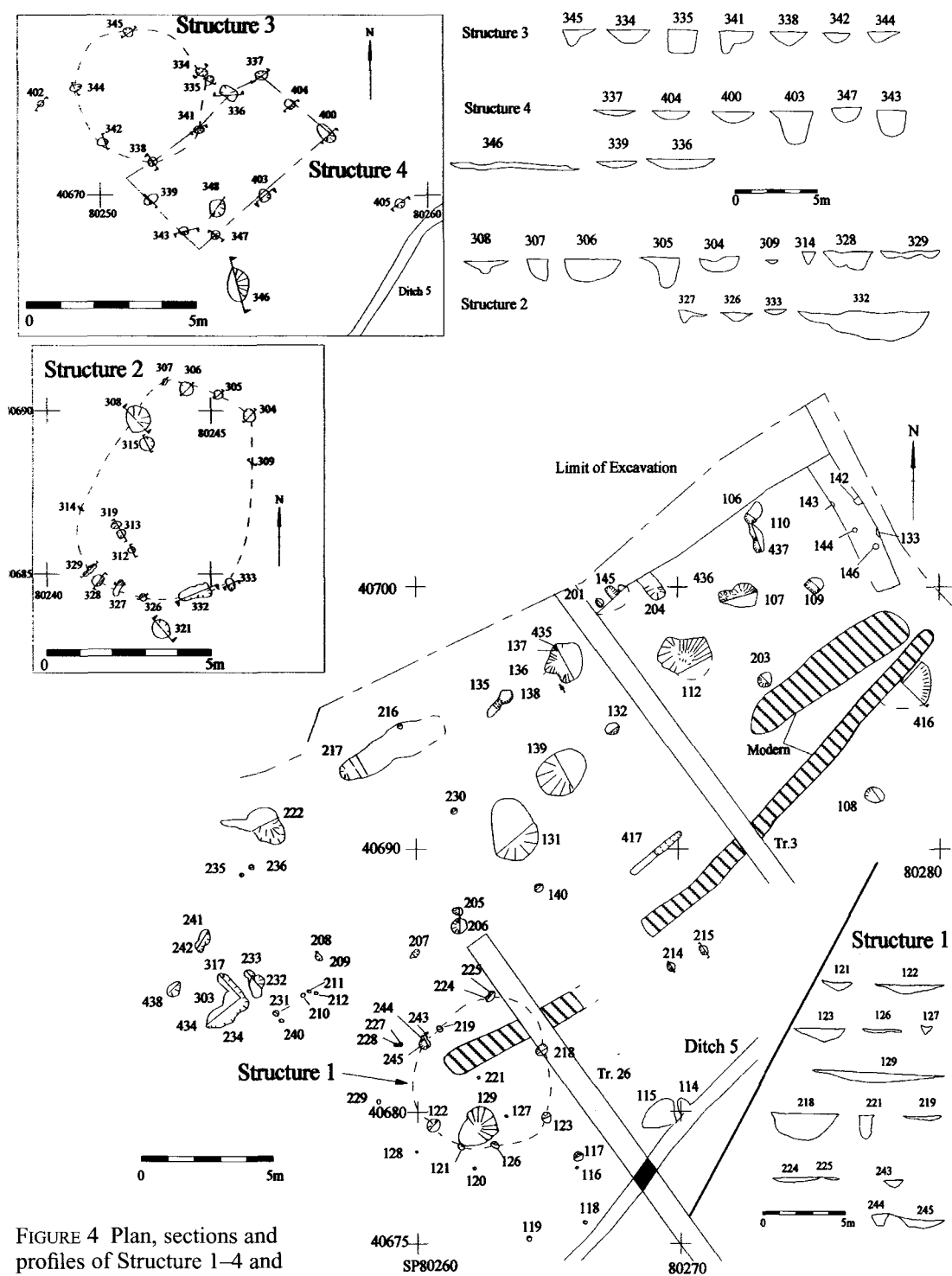


FIGURE 4 Plan, sections and profiles of Structure 1-4 and other features in SW of enclosure.

sive, and clearly show this ditch to have been filled in the middle Saxon period (below).

Saxon

The Wolverton Turn enclosure Ditches (1, 2 and 3) (Fig. 3)

The main features on the site were the so-called Wolverton Turn enclosure ditches. They are described here only in broad outline; more detail is in the archive, but much of this is problematical, and some difficulties have been glossed over here for the sake of coherence; it must be admitted that not all the details recorded are conducive to a simple interpretation.

Ditch 1 formed the south-eastern side of the major enclosure visible on aerial photographs, Ditch 2 was its north-eastern side and Ditch 3 the south-western. The total length of Ditch 1 was 144m. Allowing for the broad sweeps around the corners, the other sides (Ditches 2 and 3) were actually some 155m apart, and the aerial photographic evidence (Pl. 1) shows the enclosure would have been 175m along the other axis, enclosing some 2.6ha if symmetrical. As noted above, it is just possible that this layout derived from a late Roman original, but there is no doubt that it was redefined on several occasions in the Saxon period.

In 1972 only one section seems to have been excavated across Ditch 1, 5m south-west of the ring ditch. The plan suggests there was a recut here. The length of ditch passing by the Bronze Age ring ditch does not appear to have been examined. Thirteen further slots were excavated across it in 1991–2, when it was treated as a single ditch although clearly showing recutting in places. Ditch 1 was 2.2m to 2.9m wide, mainly at the lower end of this scale, suggesting that the upper figure occurs only where recuts diverged from the original line. Most sections were 0.8m to 1m deep, broad V-shaped but recorded as flat bottomed in some slots.

The 1994 excavations exposed the southern corner of the enclosure. Here the broad cut of Ditch 1 headed south-west for 50m from the edge of the 1992 area, before it could clearly be seen as two cuts separated by limestone bedrock. The outer (easterly) cut (430) extended another 5m from the point of separation, before turning a sharp right angle and heading in a straight line north-west for 28m before rejoining the inner ditch; the inner cut (429) extended 9m on its south-westerly alignment,

then made a broader turn north-west, crossing 430 and rejoining the outer ditch after 23m. From this point the two ditches showed again as a single cut in plan (Ditch 3), continuing north-west for 40m, and then out of the excavated area (Fig. 3). No further extension is visible on the aerial photographs (Pl. 1). Two and perhaps three cuts were visible when Ditch 3 was excavated during the 1991 evaluation (Fig. 6). Seven sections were dug through Ditches 1 and 3 in 1994 revealing an even more complex sequence of cuts and recuts. An earlier ditch was noted in some sections (440, which may be Roman; Fig. 7 and see above). A further partial recut (Ditch 23) was recorded in the 1992 excavation, terminating at the point towards the middle of the south side of the enclosure, where Ditches 6, 7, 8 and 9 all (roughly) converge, suggesting perhaps that at one point in its life there could have been an entrance here.

Pottery from Ditches 1, 2 and 3 points strongly to a middle Saxon date. Apart from one place in the 1972 site where Ditch 2 seems to have been disturbed by a medieval feature, middle Saxon pottery is the latest in all three ditches (71 sherds in all), with earlier material also present in most segments (38 sherds of earlier Saxon pottery, 18 Roman and a handful of prehistoric sherds). Carbon dating (see below) from bone in two separate fills towards the bottom of section 39 (Fig. 3) gives a calibrated date of AD 690 to 890 at 95% confidence. This section was one with no apparent recut (or more properly, one where the latest recut had removed all earlier traces). It is very improbable that this date overlaps with that from Structure 5 (below) and thus at least two phases of Saxon use of the area are present, but as Ditch 1 was so frequently recut, it is likely that it was open throughout the occupation period.

Among finds other than pottery attributed to Ditches 1, 2 and 3, a bone needle from the top of Ditch 2 and fragments of an annular loomweight (probably from the surface of Ditch 1), are typical of the Saxon period, although an exact provenance for the loomweight cannot now be established. Certainly from Ditch 1 (430) were two small fragments of Mayen lava quern.

Closely related to the main enclosure were a number of other ditches. Ditch 8 marked a course more-or-less parallel to and south of Ditch 1 for a distance of close to 50m, curving in towards the main enclosure at both ends, stopping just short at

the north but cutting the line of Ditch 1 at the south. The latter relationship was not established beyond doubt; it is not clear whether it was an early or a late cut of Ditch 1 that was cut by Ditch 8; if the outermost cut of Ditch 1 was the earliest along this stretch, then Ditch 8 could have been contemporary with a later version of Ditch 1. Ditch 8's various excavated segments each yielded at most a single sherd of pottery, amounting in total to one ?Iron Age, one Roman, two Saxon and one medieval. It clearly predated Ditch 9, which is confidently dated to the Saxon period; the medieval sherd must be intrusive.

The area around the ring ditch (MK13) was set within a smaller, subsidiary, rectangular enclosure. This was only partially revealed in the excavated areas (Ditches 9 and 10) but its extent is clear on the aerial photographs, creating an area some 50m by 30m with the barrow sandwiched tightly into its

northern corner. Ditch 10 cut through the outside edge of the ring ditch itself; the excavators regarded the ring ditch as being only partially silted up when this occurred. This seems implausible, but it does appear that the barrow mound was still visible to use as a marker. Ditch 10 may have been a southward extension of Ditch 2, but the relationship between Ditches 1, 2 and 10 is unclear. There is a suggestion that Ditch 10 cut into the top of the corner of 1 and 2 and did not extend far north of this junction, but the evidence is not conclusive. The southern return of the small enclosure, Ditch 9, clearly ran up to and stopped just short of Ditch 1, leaving an gap of under 1m which can hardly have been intended as an entrance; equally, it suggests that Ditch 1 had no external bank at this point. Both arguments are weaker, however, when it is remembered that the full width of Ditch 1 actually reflects two or more recuts; if the northern (inner) cut were

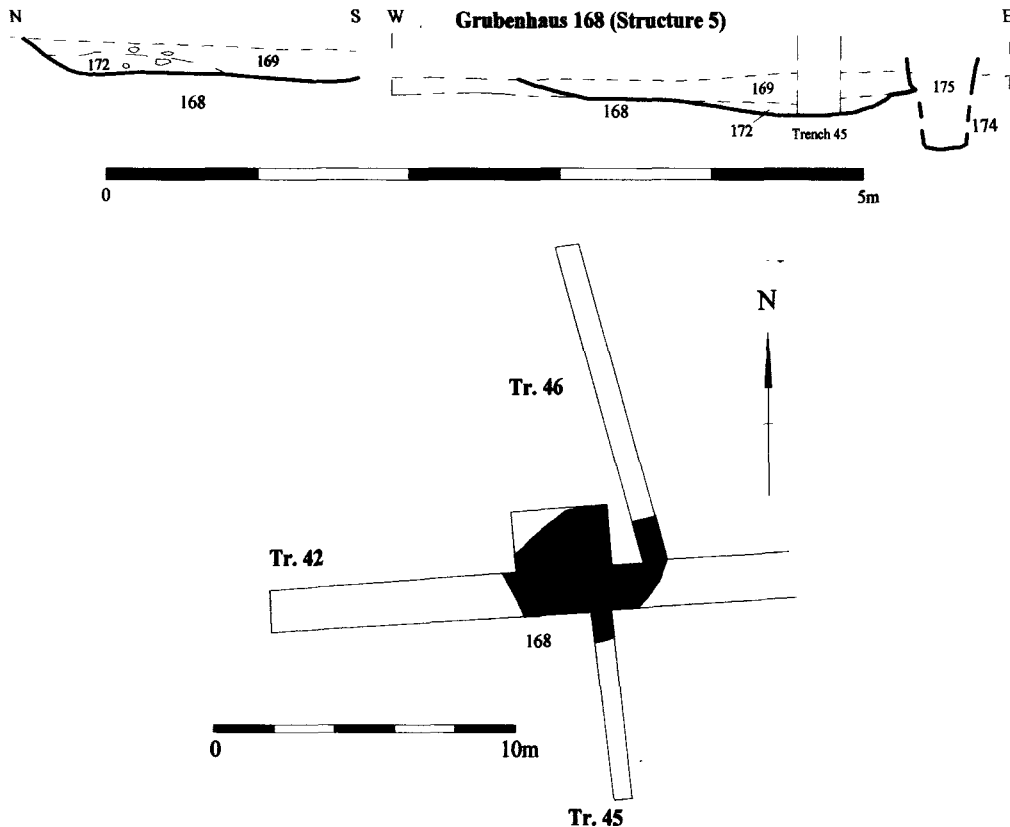


FIGURE 5 Structure 5 (Grubenhäus 168), plan and sections.

the true line at this time, then a gap of around 2 or 2.5m is likely. Ditch 9 definitely cut across the silted-up Ditch 8 and will therefore have been the latest of the Saxon ditches on the site.

Closely associated with the main enclosure Ditch 1 was a smaller ditch or palisade trench 5, parallel to and 4–5m north-west of (inside) the main enclosure ditches. It appears on aerial photographs as an indistinct line. It extended without interruption in the 1994 area northeast-southwest for 54m from the north-east baulk, until it turned through 90° and continued southeast–northwest for 42m, maintaining its separation from Ditch 429 but coming much closer to 430, suggesting it was contemporary with the former rather than the latter (contrarily, the sharp right-angled turn recalls 430 more than 429). Its termination was indicated by a slight hollow, at a point where it ran into Ditch 24. Ten sections were excavated across it in 1991–2, and eight in 1994. These showed it to be between 0.5m to 1.2m wide, 0.1m to 0.4m deep. In the main it was U-shaped, but there was considerable variation in profile. The variation may be a result of the subsoils through which it was cut, or to its having been dug in separate stages. A continuous length of 43.5m was traced in the 1992 excavations. Palisade 5 was not recorded in 1972, either because it did not extend into the area of those excavations or (more likely) because the area through which it would have passed was not examined in great detail. The only evidence for recutting of palisade trench 5 occurred in the north-east of the 1992 excavation, where two cuts were visible in section. The fills of these were indistinguishable. Feature 5 can plausibly be interpreted as a palisade trench supporting enclosure Ditches 1 and 3 and is surely contemporary with these. Nothing suggests a bank occupied the intervening space. In several places, the palisade trench cut other features (in contrast to Ditch 1 which did not cut any other feature). This might indicate the palisade was slightly later than the first cutting of the main enclosure, but it must surely be contemporary with later stages of the enclosure. Finds were few, and mixed, with pottery of prehistoric and Roman dates alongside 17 sherds of early/middle Saxon date, 3 sherds of middle Saxon ware and a single (intrusive) medieval sherd.

Clearly related to Palisade 5 were Ditches 6 and 7, both of which led to it from the north-west. Ditch 7 petered out to the north, while Ditch 6 extended the width of the excavated area, and aerial photo-

graphs appear to show it making a right-angled turn to the south-west. This return was not present in the 1994 area, however, and it is certainly not Ditch 25. It may be that the apparent extension of this ditch showing as a cropmark arises from a modern disturbance but it is also possible that a line of amorphous shallow features interpreted as pits or tree boles could perhaps be the ploughed-out base of this ditch (Fig. 4). Ditch 6 was a two-phase construction, although it is not possible to determine if its entire length had been recut, or if it was two separate ditches. The fact that it extended just beyond palisade 5 suggests that 6 was dug first and 5 laid out to cross it. No stratigraphic relationship was established, however.

Ditch 4, along the north edge of the excavations, is something of an enigma. On the aerial photograph it appears to be a major feature, on a par with the main enclosure ditches, forming a second large enclosure within them. It was only examined in 1972, when more sections appear to have been excavated than there are data available for. Most of it was probably destroyed under the Training College. Only the south-eastern side and corner were defined within the excavated area, where a length of about 50m was traced. Few finds can be assigned to it with any confidence; five sherds of Roman pottery, thirteen Saxon and three medieval, and some animal bone. While the continuation of Ditch 4 to the north is faintly visible on aerial photographs, its line to the south and west is not. Projecting its course south-westward, it aligns with Ditch 25 in the 1994 site. However, Ditch 25 was not only much slighter than 4, it is also the only ditch likely to date to the Bronze Age, and thus it seems unlikely that they are the same ditch. Ditch 24 ran at a right angle from the terminal of Palisade 5 in a north-easterly direction for 20m before reaching the northern baulk of the 1994 excavation area. For this to mark the continuation of Ditch 4 would require a more irregular line for Ditch 4 than seems likely. As with Ditch 1, Ditch 24 was two clearly separate cuts separated by a ridge of natural in places, but merging to the north-east. It is possible that one of these cuts is a return of Palisade 5, forming a rectangular sub-enclosure.

Beyond the main enclosure ditch (2) to the north and east, several more ditches (15, 16, 20–22) were rather vaguely recorded in 1972. It may be that some (21 and 22, in particular) were initially thought to be ditches but determined not to be on

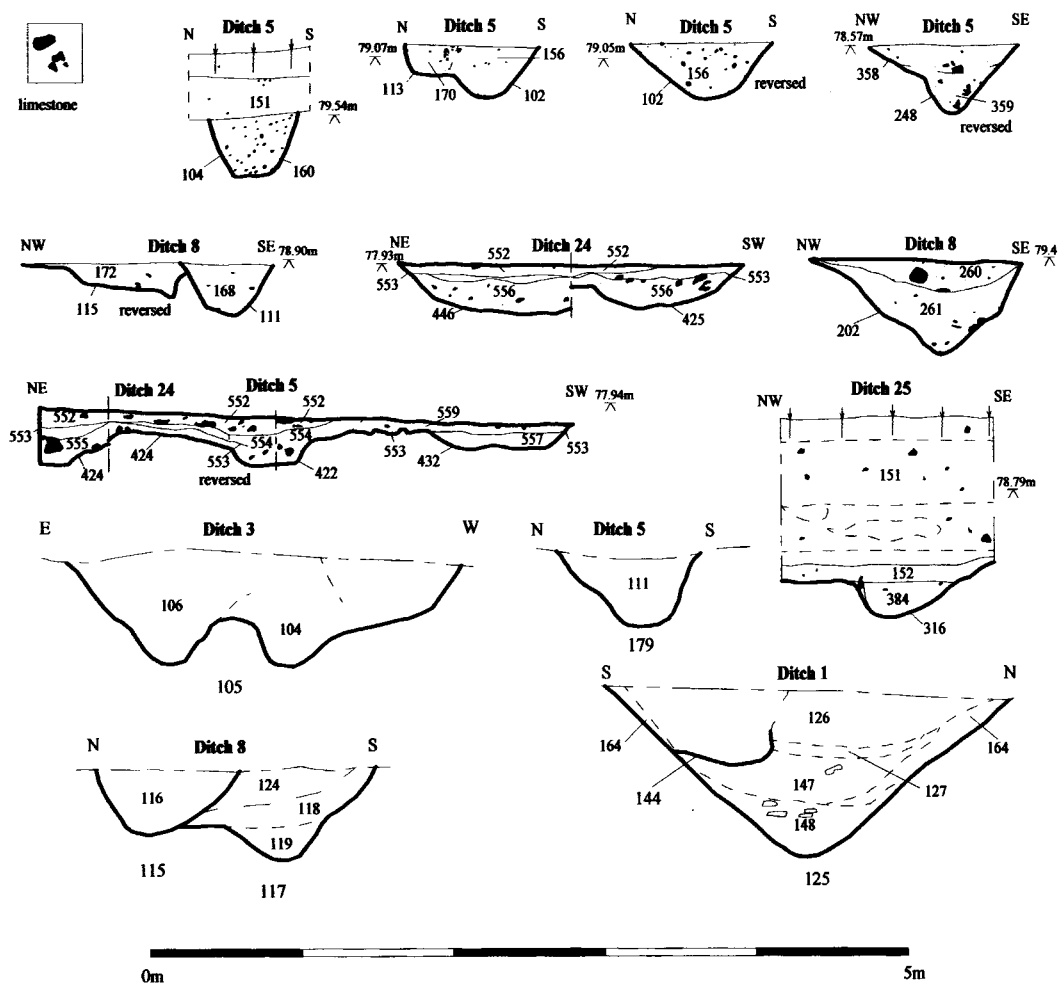


FIGURE 6 Ditch Sections.

investigation, or were modern. Speculation seems somewhat pointless in the circumstances.

Structure 4 (Fig. 4, upper) was a post-built structure, consisting of post holes 336–9, 341, 343, 347, 400, 403 and 404. This would give a rectangular plan 5.2m by 3.1m, missing the corner posts at the west end. None of these features produced any finds, but post hole 334 just to the north-west had Saxon pottery. Structure 4 is placed in this phase purely based on morphology.

Structure 5 (*Sunken featured building 168*) This feature, located in the 1991 evaluation about 200m

north of the ring ditch MK 13 (Fig. 2), and not re-examined, is interpreted as a *Grubenhäuser* or sunken featured building (SFB). A subrectangular hollow, it measured 3.3m by 4m. The north, south and western sides were steeply sloping, the eastern side more gentle (Fig. 5). An associated post hole (175) at its east end was presumably contemporary. The centres of both short sides (the most likely location for gable posts) lay outside the evaluation trenches. The fills contained significant quantities of Anglo-Saxon pottery and animal bone along with slag, an animal tooth pendant and a couple of nails. A single medieval sherd from the top fill is regarded as intrusive. Carbon dating (below) for

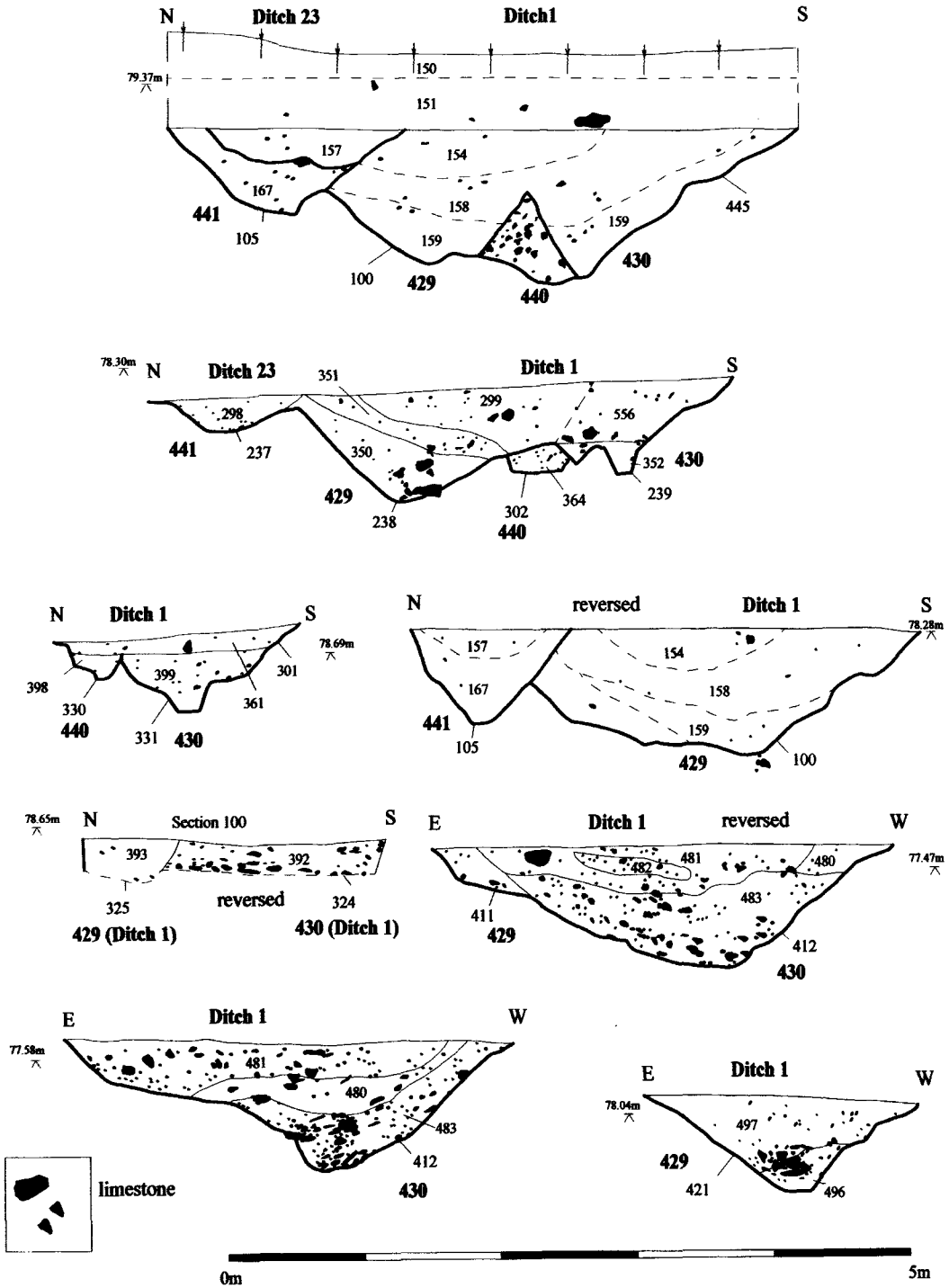


FIGURE 7 Ditch Sections.

bone from the lower fill places it firmly in the early Saxon period (AD 430–600 at 95% confidence). Aerial photographs show a number of indistinct dark patches in the same area, which might be similar structures.

Kiln 418 consisted of two chambers (or a chamber and a rake-out pit) connected by a narrow flue (Fig. 3). The kiln cut the top fill of enclosure Ditch 429 and thus should belong to the Saxon occupation. It was 3.30m long overall; the south-west chamber measured 1.30m x 1.35m, 0.27m deep and the north-east measured 1.20m x 1.50m, 0.40m deep. The flue was 0.80m long, 0.65m wide and 0.12m deep. The primary fills were a burnt reddish clay gravel mix (488) in the south-west chamber, and a brownish yellow sandy clay with gravel in the north-east chamber. The connecting flue contained a black silty clay loam (489), which extended into the two chambers, overlying their primary fills. In the south-western chamber, primary fill 488 was also overlain by a slump of silty loam (487), which was in turn covered by the upper fill, an olive-brown silty clay containing gravel, charcoal and burnt clay (486). This fill contained a Roman nail, the only find from the feature. The upper fill of the north-eastern chamber was a very dark greyish-brown silty clay with charcoal, gravel and limestone chunks (490).

Medieval and later

Towards the north of the area examined in 1972 (the south-eastern corner of the enclosure), a group consisting of Ditches 11–14 and 17 and 26–30, all seem to have been medieval (or later). It is difficult to shake the feeling that these features should all belong to the Saxon phase, the finds evidence notwithstanding, but it is more prudent to call them all later. They are not further discussed; details are in the archive.

THE FINDS

The Pottery from the 1994 excavation by Jane Timby

A small group of 95 sherds of pottery was recovered from the 1994 excavation. The material was generally in poor condition with several very small abraded fragments. The assemblage included sherds of prehistoric, Roman, and Saxon dates, although the number of diagnostic sherds was low.

A single sherd of late Medieval/Post Medieval pottery was recovered from subsoil 152. Few contexts produced more than five sherds, limiting the amount of work that could be done on fabric association. With such a wide chronological range, some difficulty was encountered in assigning dates with high degrees of confidence. I am grateful to Michael Farley formerly of Buckinghamshire County Museum Service for showing me material from other sites in the locality and discussing the Saxon pottery.

Prehistoric

Some 28 sherds, 30% of the assemblage by count, were assigned to the prehistoric period. The sherds were particularly small and abraded with no rimsherds and only three decorated pieces. The material was broadly divided into six fabric types. The range of fabrics and the character of the decorated sherds suggest this material is likely to date to the Bronze Age, possibly the earlier part of that period.

- P1: Orange surfaces with a black core. The fabric is finely vesicular showing very fine limestone fragments in fresh fracture. Handmade, fairly thick-walled.
- P2: Smooth soapy fabrics, orange or dark brown in colour with grog-tempering.
- P3: A brown to black vesicular fabric with coarse fragments of limestone/fossil shell and clay pellets.
- P4: A moderately hard, orange fabric with a black core. The paste contains a moderate temper of ill-sorted quartz, sparse limestone and large fragments of sub-angular grog.
- P5: Orange with a black core. Slightly sandy texture with a grog temper.
- P6: Brown ware with a coarse angular calcined flint temper.

Roman

In total 19 sherds of Roman pottery were present. The majority belongs to the local soft grog-tempered tradition, dating between the later 2nd and 4th centuries (Marney 1989, 64, fabric 2). A single scrap of samian, a cream fineware beaker sherd and various wheelmade grey sandy wares were also present.

Saxon

In total, 47 sherds of probable Saxon date (50% of the assemblage) were present. The material was broadly divided into six fabric groups. Approx-

mately half the sherds belonged to fabric S1, a coarse shelly ware analogous to Maxey ware and dated to the 8th–9th centuries (Addyman 1964). Comparable material, with more distinctive typological features than the material from this group, has already been documented from Wolverton Mill and other sites in Buckinghamshire, for example Newport Pagnell (M. Farley pers. comm.). The 1994 group did not produce any distinctive Saxon organic-tempered ware, or any sherds of grey sandy Ipswich ware identified from previous work at the site. No stamp-decorated wares were present.

- S1: A very coarse fossil-shell tempered fabric, with variable surface colour from pinkish orange to greyish pink. The fabric is generally soft and poorly fired with a smooth soapy texture. Vessels are thick-walled with simple rounded or flat-topped rims. This probably equates with the Maxey material (Addyman 1964) which is characterised by lugs, bar-lips or perforated loop handles. (= Bucks. County Museum fabric 3).
- S2: A hard, black dense sandy ware characterised by a scatter of rounded quartz grains and occasional fragments of fine quartz sandstone. A finer variant was also discriminated, which showed sparse fragments of limestone present in a finely micaceous sandy clay (S2b).
- S3: A dark brown fabric with a black core and a smooth, soapy feel. The paste contains a sparse scatter of fine, rounded to sub-angular quartz and, in fresh fracture, fine calcareous lined voids and fine limestone. These appear on the surface as fine voids. The exterior surface is burnished.
- S4: A very dense, black, sandy ware with hard pimply surfaces. Sparse limestone oolites and flint are also present. (= ?Bucks. County Museum fabric 1).
- S5: A black fabric with a slightly laminar fracture and a dense temper of oolitic limestone and sparse fine quartz sand.
- S6: A hard fabric with pimply surfaces, pinkish in colour with a grey inner core. The paste is characterised by a moderate frequency of rounded, well sorted, quartz grains with a pinkish tinge. Association with fabric S2 suggests this is a Saxon ware.

Pottery from 1972 to 1992 sites by Paul Blinkhorn

The combined pottery assemblage from the pre-1994 work comprised 570 sherds with a total weight of 4,770g. The estimated vessel equivalent (EVE), by summation of surviving rimsherd circumference was 2.94. Six prehistoric sherds (36g) and 80 Roman (426g) are all residual and

add nothing to the results outlined above. The rest of the assemblage was Anglo-Saxon or later (only one sherd was modern). The range of pottery types present indicates that the main phase of activity at the site took part in the early and middle Saxon periods, followed by low-level activity through the late Saxon and medieval eras. The assemblage is generally fragmented and scattered, and appears to be largely a product of secondary deposition.

The terminology used is that defined by the Medieval Pottery Research Group's Guide to the Classification of Medieval Ceramic Forms (MPRG 1998). The archive contains much detail (including methodology) not presented in this report.

Fabrics

Early-middle Saxon hand-built wares

These wares comprised 239 sherds with a total weight of 1,620g. The EVE was 1.04. The following fabric types were noted:

- F1: Granite. Sparse to moderate sub-angular granite up to 2mm, free flakes of biotite mica and quartz grains. MK206: 10 sherds, 305g, EVE =0. WMC 91/92: 2 sherds, 12g, EVE =0.
- F2: Sandstone. Sub-angular lumps of sandstone up to 2mm, some with ferrous cement, free quartz grains up to 1mm, rare to sparse sub-rounded calcareous material up to 2mm. MK206: 39 sherds, 227g, EVE =0.08. WMC 91/92: 55 sherds, 350g, EVE =0.34.
- F3: Chaff. Moderate to dense chaff voids up to 10mm, few other visible inclusions except for rare quartz or sandstone grains up to 1mm. MK206: 9 sherds, 42g, EVE =0. WMC 91/92: 8 sherds, 44g, EVE =0.04.
- F4: Chaff and quartz. Sparse to moderate sub-rounded quartz up to 1mm, sparse to moderate chaff voids up to 5mm. MK206: 5 sherds, 44g, EVE =0. WMC 91/92: 76 sherds, 430g, EVE =0.51.
- F5: Quartz and oolitic limestone. Moderate to dense sub-rounded quartz up to 1mm, sub-angular oolitic limestone fragments of the same size. MK206: 3 sherds, 23g, EVE =0. WMC 91/92: 2 sherds, 6g, EVE =0.
- F6: Quartz. Moderate to dense sub-angular quartz less than 0.5mm. MK206: 8 sherds, 47g, EVE =0. WMC 91/92: 22 sherds, 90g, EVE =0.03.

The range of fabric types is typical of that of early-middle Saxon hand-built pottery in Milton Keynes; for example, at Pennyland (Blinkhorn 1993), all the fabrics noted here were present, and more besides, although the assemblage from Pennyland was considerably larger (see below).

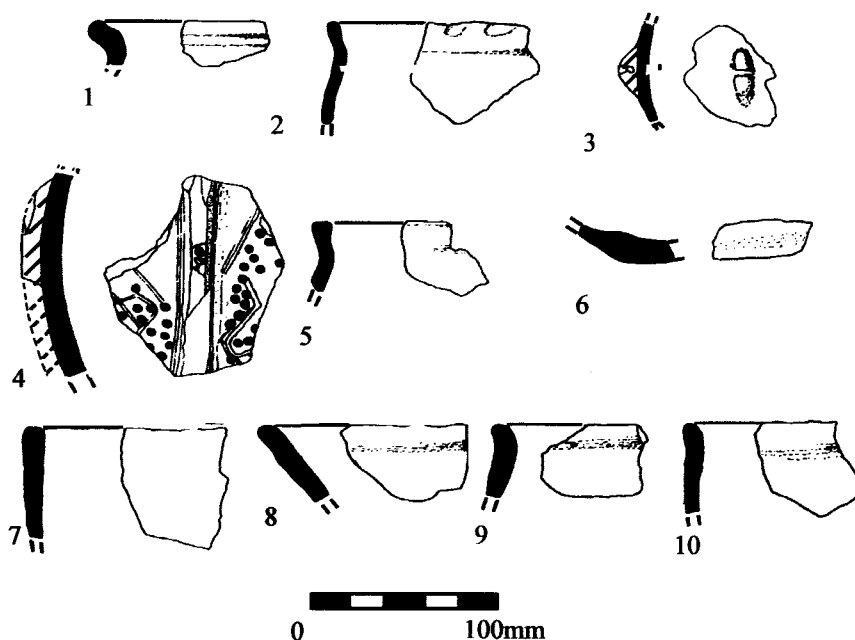


FIGURE 8 Pottery: 1. MK206 (context uncertain), Stamford ware. 2: SFB 168, fill 169, fabric 4. 3: SFB 168, fill 169, fabric 2. 4: MK206, Ditch 4, fabric 95 (Ipswich ware). 5: WMC92, ploughsoil, fabric 95 (Ipswich ware). 6: MK206, Ditch 4, fabric 96 (Ipswich ware). 7: WMC91, Ditch 1, fabric 97 (Maxey ware). 8: WMC92, Ditch 1, fabric 97 (Maxey ware). 9: MK206, ?disturbance in cremation burial 94 (Green 1974, 93), fabric 97 (Maxey ware). 10: WMC92, Ditch 1, fabric 97 (Maxey ware).

Middle Saxon

Ipswich Ware, AD725–850 (Blinkhorn in prep. a). Middle Saxon, slow-wheel made ware, manufactured exclusively in the eponymous Suffolk *wic*. The material probably had a currency from AD 725/40 to the mid 9th century at sites outside East Anglia. There are two main fabric types, although individual vessels which do not conform to these groups also occur:

F95: GROUP 1: Hard and slightly sandy to the touch, with visible small quartz grains and some shreds of mica. Frequent fairly well-sorted angular to sub-angular grains of quartz, generally measuring below 0.3 mm in size but with some larger grains, including a number which are polycrystalline in appearance. MK206: 4 sherds, 256g, EVE =0. WMC 91/92: 1 sherd, 23g, EVE =0.

F96: GROUP 2: Like the sherds in Group 1, they are hard, sandy and mostly dark grey in colour. Their most prominent feature is a scatter of large quartz grains (up to c 2.5mm) which either bulge or protrude

through the surfaces of the vessel, giving rise to the term “pimply” Ipswich ware (Hurst 1959: 14). This characteristic makes them quite rough to the touch. However, some sherds have the same groundmass but lack the larger quartz grains which are characteristic of this group, and chemical analysis suggests that they are made from the same clay. MK206: 3 sherds, 190g, EVE =0.05. WMC 91/92: 1 sherd, 14g, EVE =0.05.

F97: Maxey-type Ware. Exact chronology uncertain, but generally dated c. AD650-850 (eg. Hurst 1976). Wet-hand finished, reddish-orange to black surfaces. Soft to fairly hard, with abundant fossil shell platelets up to 10mm. Vessels usually straight sided bowls with upright, triangular, rim-mounted pierced lugs. MK206: 18 sherds, 307g, EVE =0.50. WMC 91/92: 42 sherds, 772g, EVE =0.92.

Late Saxon and Later

Where appropriate, this pottery was recorded using the coding system of the Milton Keynes Archaeological Unit type-series (e.g. Mynard and Zeepvat 1992; Zeepvat *et al.* 1994).

- SNC1: St. Neots Ware, c AD900–1100. MK206: 4 sherds, 37g, EVE =0. WMC91/92: 1 sherd, 3g, EVE =0.
- SNC1: St. Neots Ware, c AD1000–1200. MK206: 11 sherds, 46g, EVE =0. WMC91/92: None.
- MS19: Stamford Ware. c AD900–1200. MK206: 1 sherd, 16g, EVE =0.07. WMC91/92: None.
- MC3: Medieval Shelly ware, AD1100–1400. MK206: 27 sherds, 223g, EVE =0.08. WMC91/92: 2 sherds, 4g, EVE =0.
- MS3: Medieval Grey Sandy Ware. Mid 11th–late 14th century. MK206: 8 sherds, 37g, EVE =0. WMC91/92: None.
- MC6: Potterspurty Ware, AD1250–1600. MK206: 56 sherds, 365g, EVE =0.17. WMC91/92: 16 sherds, 95g, EVE =0.
- MC9: Brill/Boarstall Ware, AD1200–?1600. MK206: 3 sherds, 20g, EVE =0. WMC 91/92: None.
- MSC1: Sandy and shelly ware, late 11th–mid 13th century. MK206: 3 sherds, 20g, EVE =0.06. WMC91/92: 1 sherd, 2g, EVE =0.
- PM14: Midland Purple ware, AD1450–1600. MK206: 2 sherds, 18g, EVE =0. WMC91/92: None.
- PM15: Cistercian ware, AD1470–1550. MK206: 4 sherds, 10g, EVE =0. WMC91/92: None.
- TLMS12: Red Earthenware. 16th–19th century. MK206: 26 sherds, 204g. WMC91/92: None.
- PM16: Black-glazed coarsewares. Late 17th–19th century. MK206: 2 sherds, 10g, EVE =0. WMC91/92: 1 sherd, 15g, EVE =0.

Chronology

The dating of Anglo-Saxon hand-built pottery is entirely reliant on the presence of decorated sherds. It seems that the Anglo-Saxons generally stopped decorating such wares around the beginning of the 7th century (Myres 1977, 1), but it cannot be said with certainty that an assemblage which consists of only plain sherds is of 7th-century date. Usually, decorated pottery only comprises around 3–4% of domestic early Saxon assemblages, as at sites such as West Stow, Suffolk (West 1985) and Mucking, Essex (Hamerow 1993). The Wolverton assemblage, of 239 sherds, produced just one decorated sherd, a small, abraded fragment with traces of stamps and incised decoration, a style which suggests a date in the 6th century. It was too small and damaged to illustrate.

The presence of just one decorated sherd does suggest strongly that Anglo-Saxon activity at the site only began in the 6th century, and continued into the 7th, but it is impossible to be certain. A summary of the Anglo-Saxon pottery assemblages

in Milton Keynes perhaps highlights the problem. For example, at Pennyland (Blinkhorn 1993), 23 of the 1,966 sherds (1.2% of the total by sherd count) were decorated, as were three of the 447 (0.7%) from Hartigans. All the decorated vessels at Pennyland were of 6th-century date, but the sherds from Hartigans were too small to allow anything other than a broad early Anglo-Saxon date to be given. The site at Bancroft Villa produced 192 sherds (Blinkhorn 1994a), of which nine (4.7%) were decorated, but all were of 5th-century date, and no middle Saxon pottery was noted. A similar date was given to the assemblage of 391 sherds (11 decorated; 2.8%) from Berrystead Close, Caldecotte (Blinkhorn 1994b), although some of the decorated sherds may have been 6th-century in date, but middle Saxon pottery was again absent. At Great Linford (Pearson 1992), just one sherd from an assemblage of 87 hand-built sherds was decorated (1.1%), but seven sherds of middle Saxon Maxey ware were present. Bradwell Bury (Blinkhorn 1994c) produced 156 sherds of Anglo-Saxon hand-built pottery, of which just one (0.6%) was decorated, and of indeterminate date, with no middle Saxon wares.

It can be seen, therefore, that sites with both early and middle Saxon pottery sometimes produce relatively large amounts of decorated hand-built pottery, while at the same time, sites with only hand-built pottery sometimes produce very little decorated material. Thus, a low proportion of decorated pottery and the presence of middle Saxon wares cannot be taken as evidence of continuity.

The presence of Ipswich and Maxey wares shows that there was middle Saxon occupation at the site. The date range of Maxey ware is still uncertain, but it is generally given a range of AD650–850. In the case of Ipswich ware, a range of AD725–850 seems likely (Blinkhorn in prep. a), although any typological traits have yet to be identified. The stamped and lugged sherd from Ditch 4 (Fig. 8; 4) is very similar to a vessel from Lurk Lane in Beverley (Blinkhorn 1991) which, due to being stratified beneath a coin hoard, had a *terminus ante quem* of AD851.

It seems likely that there was also activity at the site in the early part of the late Saxon period. The few sherds of early St. Neots ware, Denham's type T1(1) (Denham 1985), are likely to be no earlier than the first half of the 10th century, but a rimsherd of a Stamford ware jar (Fig. 8; 1) could be of

the 9th century (Kilmurry 1980, 136). Such vessels were the only type present at the mid-9th-century Castle site kiln in Stamford (Kilmurry 1980).

Very little later Saxon activity is evidenced by the pottery other than the small assemblage of late St. Neots ware, Denham's (1985) type T1(2).

The medieval assemblage is typical of sites in Milton Keynes, and indicates that there was low-level activity throughout the period, perhaps continuing into the second half of the 16th century.

Qualitative Analysis

The assemblage is generally scattered and fragmented, and despite the whole assemblage being examined for cross-fitting sherds in different contexts, none were found, indicating that most, if not all the pottery on the site is the by-product of secondary deposition. This may be the result of Anglo-Saxon refuse disposal policy. At the largely middle Saxon site at Staunch Meadow near Brandon in Suffolk (Blinkhorn forthcoming), it was found that pottery and animal bone were deposited in concentrations in what appeared to be regulated areas of the site, possibly for further disposal as manure on fields. At Wolverton, the lack of preserved occupation horizons means that it was impossible to know if this was the case, but it appears likely, especially as there were quantities of Anglo-Saxon pottery in the topsoil.

The mean sherd weights reflect the fragmentary nature of the assemblage. For the hand-built pottery, the mean weight is 6.8g, and this is a little distorted due to four large bodysherds from (Bronze Age) cremation burial 94. If these are removed from calculations, the mean weight for the rest of the hand-built assemblage is 4.7g, which is very low. The rim sherd fragmentation reflects this. Only two hand-built rims were 10% or more complete, with the largest being 12% complete. This is again very low.

The data for the middle Saxon Ipswich and Maxey wares are more what would be expected, but vessels in these fabrics tend to be quite thick-walled. Even so, many of the sherds were abraded to a degree, indicating that they too were probably all the products of secondary deposition.

In the case of the late Saxon and later wares, the mean sherd weight was 6.7g. This is again very low, and suggests that these wares are also the product of secondary deposition.

Pottery from SFB 168

This comprised the largest group of hand-built pottery from a single feature (82 sherds, 429g, EVE =0.43). It was largely made up of the highly fragmented and partial remains of two jars, one of which had a longitudinal pierced lug mounted on the body (Fig. 8; 3), but it was impossible to reconstruct either of them. A large rimsherd from a third vessel was also present (Fig. 8; 2), but none of the bodysherds appear to have been part of that pot. This suggests that the pottery is a secondary deposit, and was brought in with other material as back-fill for the hollow after the feature had been abandoned.

Illustrations

- Fig. 8: 1: MK206 (context uncertain), Stamford ware. Rimsherd from small jar. Pale grey fabric with pale orange-grey surfaces.
- Fig. 8: 2: SFB 168, fill 169, fabric 4. Rimsherd from jar. Uniform black fabric with light brown patches on the outer surface.
- Fig. 8: 3: SFB 168, fill 169, fabric 2. Bodysherd with longitudinal lug. Uniform black fabric.
- Fig. 8: 4: MK206, Ditch 4, fabric 95 (Ipswich ware). Bodysherd from stamped and lugged pitcher. Light grey fabric with reddish-brown margins and dark grey core. Outer surface slightly abraded.
- Fig. 8: 5: WMC92, ploughsoil, fabric 95 (Ipswich ware). Rimsherd from small jar. Light grey fabric with darker surfaces.
- Fig. 8: 6: MK206, Ditch 4, fabric 96 (Ipswich ware). Base sherd from large jar. Reddish-brown fabric with grey core. Dark grey burnished outer surface.
- Fig. 8: 7: WMC91, Ditch 1, fabric 97 (Maxey ware). Rimsherd from bar-lug vessel. Dark grey fabric with reddish-brown surfaces, outer sooted.
- Fig. 8: 8: WMC92, Ditch 1, fabric 97 (Maxey ware). Rimsherd from bar-lug vessel. Dark grey fabric with orange-brown surfaces, outer sooted.
- Fig. 8: 9: MK206, ?disturbance in cremation burial 94 (Green 1974, 93), fabric 97 (Maxey ware). Jar rim. Dark grey fabric with browner surfaces, inner heavily sooted.
- Fig. 8: 10: WMC92, Ditch 1, fabric 97 (Maxey ware). Jar rim. Dark grey fabric with browner surfaces, inner heavily sooted.

OVERVIEW

Anglo-Saxon

Early Anglo-Saxon pottery from domestic sites was extremely rare in Buckinghamshire before the 1970s, with the first major assemblage to be

published being that from Walton near Aylesbury (Farley 1976). The decorated pottery indicated that that site was occupied in the 5th and 6th centuries, and other artefact types suggested that there may have been middle Saxon occupation (Farley 1976, 169), although no pottery of that date was noted. The total amount of early Saxon pottery from the site was not published, but the buildings alone produced 1,993 sherds, making it by far the largest assemblage of early Anglo-Saxon pottery from the county.

The early-middle Saxon hand-built pottery from Wolverton Turn (239 sherds, 1,620g, EVE = 1.04; to which can be added the 47 sherds from the 1994 excavation) is among the larger assemblages excavated in Milton Keynes, with only the groups from Pennyland, Caldecotte and Hartigans (Blinkhorn 1993) being larger. Similarly, the assemblages of middle Saxon Ipswich Ware (9 sherds, 483g, EVE = 0.10) and Maxey Wares (60 sherds, 1,079g, EVE = 1.42) are also amongst the largest. Pennyland produced just six sherds of Ipswich ware and one of Maxey type, and Hartigans did not produce either.

Ipswich Ware has by far the widest distribution of any native pottery type of the period, occurring across eastern England from York to Kent, with the river valleys of the south-east Midlands showing the greatest penetration of the ware inland. The material invariably occurs at high-status sites within its distribution, but cannot alone be taken as an indicator of high status, although the further the location of the find-spot from the production centre, the more likely that the site was once of high status (Blinkhorn in prep. a). Buckinghamshire has produced a small number of small groups of the material. As noted, six sherds occurred at Pennyland, and elsewhere in Milton Keynes, Westbury-by-Shenley produced two sherds of Ipswich ware and one of Maxey-type (Hurman and Ivens 1995), and a single sherd was noted at Wolverton Mill (Blinkhorn unpub). Elsewhere in the county, the Prebendal Manor at Aylesbury produced 12 sherds (M Farley pers. comm.), and five occurred at Wing Church (Blinkhorn in prep. b). The assemblage from Lake End Road, Maidenhead (Blinkhorn 2002) was perhaps the most interesting. It produced only three sherds of Ipswich ware, but 18 sherds of middle Saxon continental imports, including the extremely rare Tating Ware, the only finds of imported continental

pottery from the county. That site is also the only one where Maxey ware was not found alongside Ipswich ware, and the ceramic profile is generally completely different to the other known contemporary sites in the area, but is similar to the range of wares found at many Thames Valley sites in the hinterland of *Lundenwic*, the middle Saxon emporium at London.

The rest of the Ipswich ware sites in the county, Wing Church and the Aylesbury Prebendal Manor aside, seem typical of many rural sites which have produced such pottery in the south and east Midlands. They appear to have been farming communities of unexceptional status or wealth, but which were still rich enough to have indulged in limited trade. For example, it is suggested that the middle Saxon site at Pennyland was specializing in stock production. This has been dealt with at length elsewhere (Blinkhorn 1999), with the suggestion that there was a change in the middle Saxon period in the midlands from broad-based subsistence economy to a more specialized production of a limited range of commodities, a surplus of which was traded. It seems likely that the settlement excavated here is of that type.

The Ipswich ware assemblage comprises mainly fragments of large jars and pitchers, with just a single rimsherd from a small vessel. This is typical of sites outside East Anglia; in East Anglia, small jars usually comprise around 95% of an assemblage. At sites outside that kingdom, small jars have a much lower representation. It seems likely therefore that the pots found outside East Anglia were either containers for traded goods, in the case of the large jars, or pots which could not be provided by local potters, in the case of the pitchers. The Ipswich potters were the only ones in England at that time who included pitchers amongst their repertoire.

Finds of Maxey ware without Ipswich ware are more widespread in the county, for example at Chicheley (Farley 1980), and seem a reliable indicator of middle Saxon activity. They appear to have functioned as the 'local' domestic ware over much of the more northerly part of the county, and are also often found in Northamptonshire, Cambridgeshire, Bedfordshire and Lincolnshire, although there appear to have been a number of regional sources for them, with the Lincolnshire vessels quite different from those found in the other counties.

Hand-built pottery of the early Saxon tradition may have continued in use in the middle Saxon period. Certainly, at the Wolverton Mill sites, the mean sherd weight of such pottery from middle Saxon features (6.9g) is greater than that from the early–middle Saxon features (5.1g), suggesting that it may have continued to be used alongside Maxey ware.

The late Saxon and later material is worthy of little further comment. The assemblage is scattered and fragmentary, and is otherwise typical of the contemporary pottery of the region.

Struck flint by Steve Ford and Tess Durden

A total of 124 pieces of flint were collected during the various excavations (Table 1). All were of good quality flint. Few of the struck flints recovered are in themselves diagnostic of any particular period. A blade core and nine blades/narrow flakes can be dated to the Mesolithic/Early Neolithic, blade technology being typical of this period. These finds add to the small but persistent occurrence of Mesolithic material from the environs of the site (Green 1974, 108). Two other flakes with narrow flake scars on their dorsal surfaces and a flake with a prepared platform also suggest earlier rather than later technology. The remaining flakes and cores in the collection are not closely datable but are probably of later Neolithic or Bronze Age date.

TABLE 1 Flint assemblage

Flakes	74
Blade?	9
Blade core	1
Cores (incl. struck lumps and fragments)	6
Core fragments	6
Spalls	15
Scrapers	5
Awl	1
Fabricator	1
Plano-convex knife with polished edge	1
Retouched flake	1

The collection contained nine implements: five scrapers, an awl, a retouched flake, a fabricator and a plano-convex knife with polished edge. The fabricator (Fig. 9.1) is broken and exhibits a D-shaped cross-section. Characteristically, the working tip is heavily bruised suggesting use as, say, a strike-a-

light. Such tools are not particularly chronologically diagnostic and can occur in Mesolithic, Neolithic and early Bronze Age contexts (Saville 1977, 7). The broken plano-convex knife (Fig. 9.2) is made from a large flattish flake with edge retouch along one edge, whereas the other edge is well polished. These types of knife are typical, if not an especially common, component of Neolithic or early Bronze Age assemblages, though the presence of polishing is a much rarer elaboration. The size of this knife, which has been manufactured from a carefully selected or specifically produced larger, flatter flake, along with the effort which must have gone into the polishing process, identifies this as a more prestigious object than a simple utilitarian object.

The flintwork was recovered from a wide range of contexts across the site and is most often demonstrably residual in later features. However, several flakes were found in the same contexts as Bronze Age sherds (Ditch 25, pit 234, post holes 304, 315, tree hole 145, hollow 107) in the 1994 excavations and may well be contemporary with this phase of occupation.

Objects of iron, copper and slag, by the late David Richards

Three iron artefacts and a piece of slag were recovered from the 1994 excavation. The two nails and small implement (an awl) are reasonably secure as Roman types. The single copper alloy item is a pin from Ditch 1, typical of the middle Saxon period. The small piece of heavy slag is unfortunately less definitive as an indicator of the type of iron working present. This small piece is dense enough but there is no evidence for a free surface; crystalline inclusions suggest it is a piece of hearth or furnace bottom.

Catalogue

Ditch 429 [100 (150)] An awl, length 93mm. This is a leatherworker's awl. Manning (1985) has published an almost identical example of his type 4b, from the bed of the Walbrook in London. The long tapering stem is square-sectioned at the top, but becomes rounder towards the conical tip. The well-preserved tang is of flat rectangular section and is separated from the stem by the remains of an oval or round stop-ridge. cf. Manning (1985: 40, and Pl. 16, no. E11).

Ditch 429 or 430 [412 (483)] Nail or holdfast, length c. 65mm. A stout T-head nail, Manning (1985) type 3. The nail has a blunt stem which is only slightly short-

ened by corrosion damage. Holdfasts of this type could be used to hold thin panels of decorative or inscribed stone to walls, etc.

Oven 418 (486) Nail, incomplete. A standard flat-headed Roman nail, Manning (1985) type 1B. The original length was c. 55–65mm.

Ditch 1 [121 (122)] Copper alloy pin with diamond head. Circular shaft 65mm long, 2mm diameter, now bent. Head 7mm maximum diameter. Similar to an example from Flixborough. (Fig. 9: 4)

SFB 168 (169) Iron peg or awl? Square section shaft 69mm long, 7mm thick tapering to a more rounded point (not unlike the example from 100 above but less complete).

Stone by David Williams

Ditch 429 (100, 158) Fragment of roofing slate of shelly limestone with distinctive fragments of oyster shells. Not from the famous Collyweston quarries in Northamptonshire, but perhaps from a closer source. (150g).

Ditch 429 (412, 483) A roughly oblong pebble of rhyolite that has been used as a ?honestone, (107mm x 25mm x 29mm, 177g). Possibly obtained from the local drift.

Ditch 430 (239, 556) Two small fragments of dark grey, fairly coarse vesicular lava. The stone is likely to be Mayen-Niedermendig lava from the Eifel Hills of

Germany, a region well-known for quernstone production in the Roman and Medieval periods. This piece almost certainly comes from a quernstone. (102g).

Pit 222 (280) Broken quartzite pebble. Probably from a local river or stream, or perhaps the drift. (283g).

Worked bone

Fragments of bone comb handle from Ditch 1, 125 (126). Hollow conical shaft of bone decorated with bands of vertical grooves, then a zone of zig-zags within horizontal grooves, then a zone of circular holes of 35mm diameter. (Fig. 9: 5–7.) Comparable to one from Haithabu, which however, lacks the zig-zag pattern (Ulbricht 1978, tafel 34, no 6). A canine tooth of a dog or badger, pierced for suspension, came from SFB 168 (169) (Fig. 9: 3.) It is 30mm long, 7mm broad at the base of the enamel, and 5mm thick. It seems to have been polished (or smoothed through use/wear). The 1972 site records the presence of at least two more worked bone items (pin beaters) but these are no longer with the archive.

Other finds

The site produced a single unstratified coin, an Ae follis, Constantine I. Rev: SOLI INVICTO

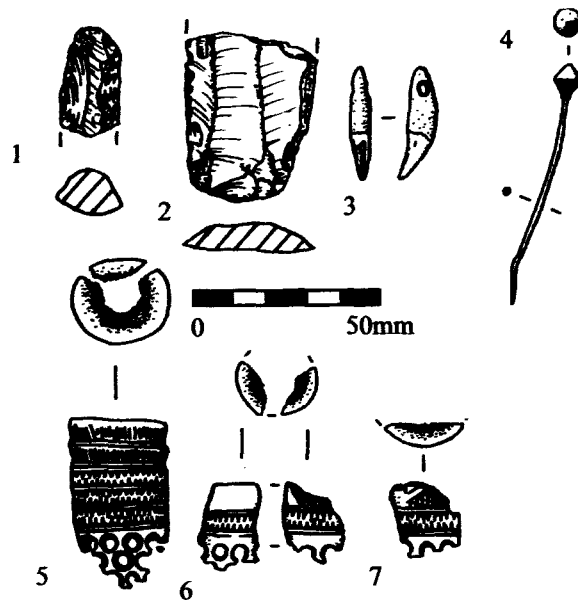


FIGURE 9 Other finds: 1: fabricator; 2: plano-convex knife with polished edge; 3: tooth pendant; 4: diamond-headed pin; 5–7 bone comb handle fragments.

COMITI, mm = A|S above [PTR], date: *c.* AD 315. Other classes of find from all periods of work are remarkably few: tiny quantities of undiagnostic iron slag (under 10g per deposit in just four contexts), even smaller amounts of copper slag (two contexts), a single small piece of flat lead sheet (from Ditch 1), half a dozen ceramic tile fragments (mainly Roman roof tile, mainly unstratified), three oyster shells, and the occasional small lump of burnt daub.

The animal bone by Naomi Sykes

All four excavation campaigns yielded animal remains. Most of the material was recovered by hand (although soil samples were taken) and came from the various enclosure ditches, with smaller quantities deriving from pits and the SFB. Only a few animal bone fragments were recovered from Bronze Age and Roman/Saxon features (Tables 2 and 3) but this report discusses the more significant Saxon material.

Much of the material from Wolverton Turn had previously been examined or recorded to some extent: the 1972 animal bones described by Betty Westley and the 1994 assemblage catalogued digitally by Kevin Rielly. In order to consider the assemblage holistically, the better-dated material from the 1972, 1991 and 1992 excavations was selected for re-analysis and combined with Rielly's existing database. Methods are described in detail at [Http://www.arch.soton.ac.uk/Research/CAAA/](http://www.arch.soton.ac.uk/Research/CAAA/)

Facilities/Methodology.htm. The raw data for this assemblage will also be made available on this website.

Taphonomy

The Wolverton Turn material, although in a good state of preservation, is highly fragmented and the surface condition of specimens is often poor due to carnivore activity, hence the low frequency of observed butchery marks (Table 2). The incidence of dog gnawing is particularly high in the material from Ditches 2 and 4 but overall is greater still when only the identifiable specimens are considered: 11% of all caprine remains exhibit carnivore gnawing, as do 17% belonging to horse, 19% of cattle, 20% of pig and (interestingly) 25% of dog remains. Carnivore activity is indicated not only by the presence of gnaw marks but also by the fact that several specimens exhibit acid-etching consistent with having been digested. This suggests that dogs had considerable access to the bone, either through scavenging or their having been deliberately fed. The severe impact of carnivores on bone assemblages has been demonstrated on numerous occasions (for instance Brain 1967; Payne and Munson, 1985) and this must be taken into consideration, particularly when the body part data are examined.

Small quantities of burnt, charred and calcined bone were recovered from features across the site (Table 2). Animal bones may become burnt for a variety reasons: as part of the cooking process, for

TABLE 2 Animal bone Taphonomy

	Total NISP	black	% Burnt white	grey	% Gnawed dog	% digested	% Butchered Chop	Cut
Bronze Age	6	17	33					
Roman	8							
Roman/Saxon ditch 23	30							
Saxon ditch 1	993	0.3			0.5		0.2	0.2
Saxon ditch 2	469	4.2	0.8	0.4	9.8	0.8	1.5	
Saxon ditch 3	26	3.8						
Saxon ditch 4	175			0.6	10.9		1.1	1.7
Saxon ditch 5	180	0.5				0.5	1	
Saxon ditch 6	44	2.2			2.2			
Saxon ditch 8	116				0.8			
Saxon ditch 9	35							
Saxon ditch 14	29				31	3.4	3.4	
Sunken Feature Building	99	4		3				
Other Saxon deposits	179				4.4	0.5	0.5	

TABLE 3 Animal Bone: composition of the hand-collected assemblage.

Feature	Bronze Age		Roman		Roman/ Saxon		Principal Saxon features								Total	Total	
	1	2	Ditch		Ditch		Ditches								SFB	Saxon	NISP
			440	23	1	2	3	4	5	6	8	9	14	168			
Cattle	1	1	6	2	98	58	2	20	7	3	10	1	5	1	211 (5)	221	
Caprine		1	9	5	131	82	1	50	20	5	5		5	7	315 (18)	330	
Sheep					4	7	1	3			1		1		20	20	
Pig		1	4	2	56	34		6	6	5	2		2	2	117 (11)	124	
Horse			2		24	48		2	1	2	1	1	1		83 (4)	85	
Dog					11	4	3	1	1						20	20	
Cat				1	1										1	2	
Red deer					1										1	1	
Deer					1										1	1	
Wild boar?								1									
Polecat								1							1	1	
Vole					1										1	1	
Small mammal				1												1	
Cattle-size	2		1	3	56	19		19	6	2	20	1	1	10	135	141	
Sheep-size	2	4	4	2	91	22		11	16	1	1	5	2	18	171	183	
Unidentified Mammal			6	10	428	193	18	31	101	22	35	21	10	61	1034	1050	
Domestic Fowl		1	2		10	2	1	20*							33	36	
Goose					1	1				1	1	1	1		6	6	
Corvid					2										2	2	
Goose-Size					1										1	1	
Chicken-size						3									3	3	
Unidentified Bird					5	1		1	2	3			1		13	13	
Toad					1										1	1	
Unidentified Amphibian						4									5	2	
Total	5	8		25	923	469	26	175	160	44	76	30	29	99	2210	2248	

* denotes specimens all from the same individual

use as fuel or simply as a strategy for refuse disposal (Lyman 1996). It is interesting to note that most of the identifiable burnt specimens were metapodia, hinting that the application of fire may have been deliberate; however, the sample size is too small to conclude this with confidence.

Taxa Representation

Composition of the assemblage is shown, by period and feature, in Table 3 where it can be seen that there is little variation in species representation between ditches, domestic mammals dominating throughout. Regardless of quantification technique, caprines are the most abundant taxon: none were identified as goat (*Capra hircus*) although several definite sheep (*Ovis aries*) were noted. According to NISP counts (number of individual specimens), cattle are the second best represented, followed by pig, but this ranking is reversed when the minimum number of individuals (MNI) is calculated. Disparity between these two counting methods can be explained by the assemblage's high level of fragmentation; which generally inflates the representation of cattle, whose large bones are more susceptible to breakage than those from smaller taxa.

Horse remains are well represented in the assemblage, in particular that from Ditch 2 which produced a collection of semi-articulated remains belonging to at least two individuals – one adult and one foal. Dog remains are present in low frequencies, and individual cat bones were recovered from Ditches 1 and 23. The presence of at least one wild boar (*Sus scrofa*) is indicated from dental measurements. A single left tibia from a red

deer (*Cervus elaphus*) and the complete skull of a polecat (*Mustela putorius*) confirm that hunting and trapping took place, albeit infrequently. Two other wild mammals – water vole (*Arvicola terrestris*) and mole (*Talpa europaea*) – and several amphibians were also identified but they are likely to have been incidental inclusions and reveal little about human activity on site.

The only wild birds identified are corvids (crow/rook), which are represented by an ulna and a carpometacarpus. Several goose bones were identified but most of the avian bones were domestic fowl, the majority of which came from two articulated wings. One eel bone was recovered from a sample from Ditch 23, suggesting that the overall dearth of fish bones could be due to a lack of sieving rather than actual absence.

Ageing

Considering the small size of the assemblage, ageing data – in particular that derived from dentition – are fairly abundant. Eight cattle mandibles were ageable (Table 4) and reflect the whole age spectrum, a pattern also suggested by the epiphyseal fusion data (in archive). One foetal/neonatal calf femur was identified. Caprines were similarly represented by all age groups, including foetal and neonatal animals. The epiphyseal fusion and dental ageing data correlate very well, both indicating a peak in slaughter at about 1–2 years and suggesting that few individuals survived past 3 years of age. The two ageing techniques provide slightly disparate results for pigs, epiphyseal fusion suggesting a more rapid kill-off than is indicated by

TABLE 4 Animal bone: dental ageing data

Cattle		Caprines		Pigs				
Stage and estimated age	N	Stage and estimated age	N	Stage and estimated age	N			
1	0–1 month	A	0–2 months	1	0–3 months			
2	1–3 months	B	2–6 months	2	0–7 months	4		
3	3–6 months	1	C	6–12 months	4	3	7–14 months	3
4	6–15 months	2	D	12–24 months	15	4/5	14–21 months	5
5	15–26 months	1	E	2–3 years	10	6	21–27 months	1
6	26–36 months	1	F	3–4 years	5	7	27 months +	3
7	3–6 years	2	G	4–6 years	7			
8	6–8 years	1	H	6–8 years				
9	8–10 years		I	8–10 years	1			

the dental evidence. Both concur, however, that few animals (just 20%) survived past 2½ years.

Most of the horses were adult and some very old – one mandible had excessively worn teeth, suggesting that the individual survived beyond 20 years of age. Sub-adults were also represented: Ditch 1 produced the skull of a young foal, several loose deciduous teeth and a distally-unfused metatarsal, and unfused metatarsals were also recovered from Ditches 2 and 4.

Sexing

Twelve pig canines (loose and in mandibles) could be sexed and of these eight were male and four female, suggesting a boar to sow ratio of 2:1. Due to the larger size of male canines, boars are often over-represented in hand-collected assemblages of loose teeth and it is wise to base sex ratios on only those canines that remain within the mandible. In this case, the consideration of sexed mandibles produced an even more male-dominated ratio: five of the six mandibles being male.

Anatomical Representation

The anatomical representation data for cattle, caprines, pigs and horse are presented in Table 5. Most parts of the cattle skeleton are represented in roughly equal frequencies but the other taxa show greater variation in their anatomical patterning. In the case of the caprines, mandibles, tibiae and radii are by far the best represented elements. The pig assemblage also shows an over-representation of jaw bones and an abundance of elements from the upper forelimb. It is probable that the high frequency of mandibles reflects the deposition of primary butchery waste; however, the body-part patterns are strikingly similar to those produced by carnivore activity. For instance, the most abundant elements are those which have highest bone density and are least palatable to dogs, whereas elements susceptible to destruction are under-represented.

Several sets of articulating bones were found. Most of these belonged to dog and horse: a group of canine cervical vertebrae were recovered from Ditch 1, whereas Ditch 2 produced a number of articulating horse bones as well as a dog radius and ulna. All of the domestic fowl bones from Ditch 4 came from a single individual that was represented only by its wings.

Carcass processing

Few butchery marks were noted and it is not possible to draw any conclusions about the methods by which carcasses were broken down. Three cattle long bones had been split down the length of the shaft, presumably to facilitate extraction of the marrow. Nearly all of the heavily butchered remains belong to horse but their bones tended to be complete, suggesting that they were not processed for marrow. One distal metatarsal, from a juvenile individual, exhibited cut marks consistent with skinning.

Animal size

Metrical data are insufficient to allow any detailed analysis of livestock size or conformation. Three horse bones produced greatest length measurements: a tibia (325mm), a metatarsal (253mm) and a calcaneum (51.5mm). Two cattle metatarsals also provided greatest length measurements (200mm and 217mm), as did two caprine specimens – a radius (164mm) and a metacarpal (127.7mm). All the domestic fowl bones were the size of modern bantams. On the basis of this information the only statement that can be made with confidence is that the size of the Wolverton domesticates is within the range of animals from Saxon sites.

Discussion

When considered as a whole, the animal remains indicate a settlement whose character and function did not alter significantly through time. There is little inter-ditch variation in the composition of the assemblage, pointing to a consistency in both animal management regimes and rubbish disposal practices.

One of the most notable features of the Wolverton Turn assemblage is its abundance of horse remains: they account for over 11% of the main domesticate NISP. This frequency is considerable when compared to other contemporary sites in the region. At Pennyland (Holmes 1993), Walton (Noddle 1976) and Eynsham Abbey (Mulville 2003), for instance, horse remains make up just 3% of the main domesticate assemblage, and elsewhere they account for less than 7%, for example West Stow (Crabtree 1990), Eynesbury (Sykes 2004) and Yarrnton (Mulville and Ayres 2004). Not only are the Wolverton Turn horse remains abundant, they also derive from animals of all ages, with both juvenile and senile individuals being represented. It

TABLE 5 Animal Bone: anatomical representation data

	Cattle			Caprine			Pig			Horse		
	MNE	MNI	%MNI	MNE	MNI	%MNI	MNE	MNI	%MNI	MNE	MNI	%MNI
Horncore	1	1	20	2	2	11						
Atlas												
Axis	2	2	40	1	1	6						
Mandible	6	3	60	32	18	100	15	11	100	3	3	75
Scapula	5	3	60	4	3	17	14	8	73	1	1	25
Humerus	6	3	60	7	5	28	13	9	82	2	1	25
Radius	6	4	80	13	8	44	2	1	9	2	1	25
Ulna	6	4	80	3	2	11	6	4	36			
Metacarpal	6	4	80	7	4	22	6	4	36	1	1	25
Pelvis	2	2	40	4	2	11	6	4	36	3	2	50
Femur	7	4	80	3	2	11	2	2	18			
Tibia	7	4	80	23	12	67	5	3	27	2	1	25
Astragalus				1	1	6				1	1	25
Calcaneum	4	2	40	3	1	6				1	1	25
Metatarsal	10	5	100	10	6	33	1	1	9	5	4	100
Phalanx 1	5	1	20	7	1	6				2	1	25
Phalanx 2	1	1	20	2	1	6				1	1	25
Phalanx 3	2	1	20	1	1	6				3	1	25

seems clear that horses were raised on site and it is not beyond the realms of possibility that the settlement functioned as a specialist equine breeding-centre. Caution should be exercised however, since the context of the assemblage – predominantly from enclosure ditches – may explain the frequency of horse remains. On Saxon sites, horses are often far better represented at the settlement peripheries, in particular within ditches, than they are in central zones of activity: at Yarnton, for instance, horse remains comprised 12% of the ditch assemblage but just 5% of the material from pits (Mulville and Ayres 2004). This spatial and contextual patterning can be linked to inter-taxa variation in butchery and disposal practices. In particular it seems that prime butchery waste and the remains of large animals were frequently dumped at the settlement outskirts, whereas less offensive rubbish (secondary butchery and table waste) was discarded in central pits (Wilson 1996). The possibility that this kind of disposal strategy was in operation at Wolverton Turn has implications for the interpretation of the material: the assemblage may not be representative of the site as a whole. This potential problem is mitigated by the fact that the Wolverton Turn mate-

rial seems to reflect a range of activities, not just the deposition of noxious waste: secondary butchery and dining refuse is indicated by the bird, fish and meat-bearing bones; with the gnawed and digested specimens representing periodic clearance of rubbish left strewn around the settlement. However, without evidence from a range of contexts, the best approach is to determine whether the Wolverton Turn material conforms to what would be expected for an early/mid Saxon ditch assemblage.

When considered from a contextual perspective, the abundance of horse remains is less unexpected but the low frequency of cattle (32% relative to caprines and pigs) is more surprising. Cattle are usually over-represented in ditch assemblages, such as those from Pennyland (Holmes 1993) and Yarnton (Mulville and Ayres 2004) where cattle were found in frequencies of between 58% and 59%. At Wolverton Turn, sheep/goat remains predominate and it might be hypothesized that, had the whole site been excavated, the overall frequency of cattle would have been lower still. This is interesting because early/mid-Saxon assemblages are usually cattle-dominated (Sykes forth-

coming a). Several sites in Buckinghamshire and Oxfordshire – Chicheley (Jones 1980), Barton Court Farm (Wilson 1986) and Eynsham (Mulville 2003) – also show high levels of sheep/goat representation. Combined with these, the Wolverton Turn assemblage may indicate that the region was precocious in its move towards specialist sheep husbandry, a trend that elsewhere developed later in the medieval period.

The level of pig representation deserves brief comment. According to the NISP counts, pigs are the least well represented of the main domesticates. Their frequency (18% relative to cattle and caprine) is, however, still quite high compared to national averages (Sykes forthcoming b). Indeed, in terms of the MNI count, pigs are almost as numerous as caprines. Abundance of pigs is often stated to be a characteristic of high-status sites but it may equally be explained in terms of environmental conditions, wooded landscapes supporting large pig herds at little cost (Grant 1988).

Husbandry regimes can be reconstructed with some confidence for the Wolverton Turn assemblage, particularly from the dental evidence. This is because the practice of discarding primary butchery waste (in particular heads) in enclosure ditches means that the sample of ageable mandibles is likely to be representative of the animals maintained on site. Age profiles for cattle, caprine and pig conform to the patterns seen for early/mid-Saxon farmsteads, the presence of all age-groups demonstrating that animals were bred, maintained and slaughtered on site (Sykes forthcoming a). There is no evidence that animals of particular ages were exported, and the settlement appears to have been self-sufficient in beef, mutton and pork. Cattle, caprines and horses were presumably managed for their secondary products (milk, manure, wool or traction) but cull-patterns for pig and sheep/goat suggest a concentration on prime meat, the majority of animals slaughtered on achieving their optimum carcass weight. This slaughter strategy is often deemed to be a trait of high-status settlement (e.g. Crabtree 1991) but for the early and middle Saxon period it more commonly reflects a non-intensive mixed farming regime.

Beyond economics, the Wolverton Turn assemblage provides an insight into human-animal relationships, in particular Saxon attitudes to horses and dogs. Although several specimens belonging

to these two species demonstrate cut and chop marks, their completeness suggests that, in life and death, these animals were perceived and treated differently from other domesticates. The question of whether horse and dog flesh was eaten during this period has long been debated (see Hagen 2002). Unfortunately, the Wolverton Turn assemblage does not provide definitive evidence either way. Clearly their carcasses were often skinned and butchered but the superior condition of their bones, together with the fact that their remains were frequently articulated, suggests that the flesh was not always removed. The high incidence of gnawing of the horse and dog remains indicates that their carcasses were not buried immediately, being either fed deliberately to dogs or left accessible to scavengers. We should not assume that this functional treatment betrays an indifference to these two animals. The fact that one horse was maintained for over 20 years, when there was ample opportunity to harness another individual, suggests some level of human-animal rapport.

Information concerning the social life of Wolverton Turn's inhabitants can be gleaned from the wild component of the assemblage. Although wild boar and red deer are poorly represented, this does not mean they lacked social importance; the reverse was probably the case. Within any farming society, where the exploitation of wild resources is unnecessary for survival, hunting is a social action, typically employed to negotiate social identity. For instance, wild boar hunting has been undertaken, across cultures, as a metaphor for masculinity, often being linked to warfare (Kent 1989; Hamilakis 2003). Similarly, the hunting of red deer has usually carried a social cachet (Cartmill 1993). In the early/mid-Saxon period, both these animals are found in higher frequencies on elite settlements (Sykes forthcoming c) and it seems likely that Wolverton Turn's occupants occasionally sought to enhance their social standing by participating in hunting forays and the consumption of game. The presence of polecat could also be seen as an indicator of social pretension, for although the individual was probably obtained through trapping (a comparatively low-status activity) its pelt would have had some value: it is notable that the elite settlement at Ramsbury, in Wiltshire, yielded evidence for the use of beaver, badger and fox fur (Coy 1980). The exploitation of riverine resources,

as is indicated by the presence of the eel bone, may also suggest an attempt to add variety to the diet – another tactic designed to signify economic strength. Site status and character are difficult to ascertain from such a small dataset but, on the basis of the excavated assemblage, the animal bones suggest that the Wolverton Turn Enclosure housed a reasonably prosperous farmstead.

Charred plant remains from the 1992 excavation by Mark Robinson

Fifteen samples were analysed in detail (Table 6). Charred seeds are relatively abundant, but all samples are dominated by badly preserved cereal grains which appear to have been charred at high temperature. Weed seeds are few and chaff is absent. In all of the richer samples except that from Ditch 8 (113), grains of a free-threshing variety of *Triticum* sp. predominate. These are mostly the short grains that would formerly have been recorded as *T. aestivo-compactum*; in the absence of chaff, it is impossible to determine whether they are from a tetraploid or a hexaploid variety. The samples contain a slight presence of *Hordeum* sp (hulled barley) and *Avena* sp (oats) and just a single grain of *Secale cereale* (rye) from Ditch 8 (12). The only weeds to produce more than a single seed across the whole site are *Anthemis cotula* (stinking mayweed) and *Bromus* sp. (chess or brome grass). It is possible that all these assemblages resulted from a single crop-processing accident or had been derived from the same refuse deposit and had been incorporated into the various features through re-working. Only the sample from Ditch 8 (fill 113) differed from the others in that here barley grains outnumber wheat. Apart from the cereal crop and what are probably arable weeds, a sample from Ditch 1 (109) contains hazel (*Corylus avellana*) nut shell fragments.

The sample from Ditch 1 (107) also produced two fish scales and a calcium-phosphate-replaced seed of *Brassica* or *Sinapis* sp. (mustard).

Identifiable charcoal is mainly of *Quercus* sp. (oak) but Pomoideae (apple, hawthorn, etc) and *Prunus* cf *spinosa* (sloe) are also present.

These results are entirely appropriate to a middle Saxon settlement in the region. By this period it would be expected that hulled wheats would have been entirely replaced by free-threshing varieties, as here. The three other cereals, barley, oats and rye, are present in smaller quantities, again as is

usual. The presence of no more than a single grain of rye is perhaps a reflection of the lack of dry sandy soils in the area. The weed *Anthemis cotula* is also favoured by the heavy calcareous soils which prevail over much of the Milton Keynes area. The charcoal fits a familiar pattern of the use of both oak and hedgerow/scrub species for fuel.

The fish scales and mineralized seed from Ditch 1 (107) are of particular interest. Calcium phosphate mineralization is particularly characteristic of cess pits and conditions in the ditch would not seem to have been suitable for calcium phosphate to have been deposited *in situ*. The fish scales and mineralized seed may therefore be food remains from a latrine that were subsequently deposited in the ditch. Whether the seed was a *Brassica* species or *Sinapis*, it could have been used as mustard. There is at present little other evidence for the use of spices, condiments or herbs on rural middle Saxon sites.

Charred plant remains from the 1994 excavation by John Letts

Twenty-five flotation samples were submitted for analysis. The results are held in archive. Those which contained seeds are presented in Table 6. The samples contained very few identifiable plant remains. Only one sample (from a fill of Ditch 429) had more than 10 items, and that contained only 32 items. The identifiable grain in all samples is derived from free-threshing 'bread wheat' (*T. aestivum*) and hulled barley (*Hordeum vulgare*). Most of the grain, however, is too poorly preserved to be identified to species. Only one wheat grain might be derived from a hulled wheat. Two grains of oat (*Avena* sp.) also occur in Ditch 429, but in the absence of chaff it is not possible to say whether the oat was wild or cultivated. No cereal chaff was recovered, and the samples contain very few crop weeds. Charcoal was fragmented and beyond easy recognition. The dominance of free-threshing bread wheat is typical of Saxon sites.

Mollusca

Numerous samples were taken for the recovery of environmental remains from all phases of work on the site, and many produced quite substantial numbers of mollusc shells (although flotation is not the ideal method for their recovery). However, without exception, those from 1972 are dominated by the deep-burrowing *cecilioides acicula*,

TABLE 6 Charred plant remains

Site	WMC92															
Ditch		1	1	1	1	1	5	5	23	8	8	9	6	7	7	
Cut		57	57	57	106	106	33	35	60	13	112	89	54	62	67	
Deposit		151	152	153	107	109	34	36	61	12	113	90	55	63	68	
Date		Sax	Sax	Sax	Sax	Sax	Sax	Sax	Sax	Sax	Sax	Sax	Sax	Sax	Sax	
Charred Seeds																
<i>Brassica</i> or <i>Sinapis</i> sp.	Mustard etc					1										
<i>Cheopodium album</i>	Fat hen			1		1										
<i>Vicia</i> or <i>Lathyrus</i> sp.	Vetch, tare															
<i>Corylus avellana</i> (frags)	Hazel nut					2										
<i>Anthemis cotula</i>	Stinking mayweed					2	8				1		1		1	
<i>Bromus</i> sp.	Chess etc		1			3						2				
<i>Triticum</i> sp-free threshing	Wheat	2			5	21	5	5	1		8	1	15			7
<i>Triticum</i> sp.	Wheat				1	8	5		1	1	2	1	3	1	1	4
<i>Secale cereale</i>	Rye					1										
<i>Hordeum</i> sp- hulled	Barley											1				
<i>Hordeum</i> sp.	Barley				1	2	2				1	10				1
<i>Avena</i> sp.	Oats					3	1				1	1			1	
Cereal indet.		1			23	69	33	4	10	6	15	29	22	4	4	26
Gramineae indet.	Grass					1										
<i>Ignota</i>						1	2									
Total		3	1	31	113	59	9	12	7	28	43	44	6	5	39	

Site	WMMK94									
Feature	1 (429)	1 (429)	1 (429)	1 (430)	1 (430)	p-h	p-h	gully	oven	
Cut	238	238	238	239	239	315	343	414	418	
Deposit	299	351	350	352	556	385	461	493	489	
Date	Sax	Sax/Rom	Sax/Rom	Sax	Sax	BA	?BA	?BA	Sax	
Charred Seeds										
<i>Brassica</i> or <i>Sinapis</i> sp.	Mustard etc									
<i>Chenopodium album</i>	Fat hen						1			
<i>Vicia</i> or <i>Lathyrus</i> sp.	Vetch, tare							1		
<i>Rumex</i> sp.	dock							1		
<i>Corylus avellana</i> (frags)	Hazel nut									
<i>Anthemis cotula</i>	Stinking mayweed									
<i>Bromus</i> sp.	Chess etc									
<i>Triticum aestivum</i>	Bread wheat		8		3			2		
<i>Triticum cf aestivum</i>	Bread Wheat			1		1				
<i>Triticum cf spelta</i>	Hulled wheat							1		
<i>Triticum</i> sp.	Wheat		12							
<i>Secale cereale</i>	Rye									
<i>Hordeum vulgare</i>	hulled Barley		2					1		
<i>Hordeum</i> sp.	Barley									
<i>Avena</i> sp.	Oats		2							
Cereal indet.	3	5	4	2	4			4	2	
Gramineae indet.	Grass		3							
Umbelliferae indet.			1							
<i>Ignota</i>										
Total	6	32	5	5	4	1	1	10	2	

TABLE 7 Radiocarbon dates

LabNo	Context	Material	Radiocarbon Age (BP)	Calibrated date (AD) at 95% confidence
GrA-27203	WMC92 Ditch 1 cut 39 fill 88	Horse metacarpal	1245±35	680–890
OxA-14200	WMC92 Ditch 1 cut 39 fill 37	Pig skull	1223±28	690–890
GrA-27202	WMC91 SFB 168 fill 169	Cattle carpal	1540±28	420–620
OxA-14199	WMC91 SFB 168 fill 169	Sheep/goat metacarpal	1541±28	430–610

commonly regarded a fairly modern species, which introduces the very real possibility that they do not derive from the Saxon environment at all. Those from 1992 also include *Pupilla muscorum*, *Vallonia costata* and *Helicella itala*, all suggestive of open conditions. A detailed catalogue has been produced and can be found in the archive, but it is not considered useful to discuss the snails here.

Radiocarbon dating

Four samples of animal bone were selected for dating, two from separate fills of Ditch 1 (in a segment where no recut was apparent) and two from the fills of SFB Structure 5. Two were processed at the Oxford Radiocarbon Accelerator Unit and two at the Centre for Isotope Research at the University of Groningen. Details of methodology are in the archive. In summary, the results can be treated as reliable. Calibrations used INTCAL98 (Stuiver *et al.* 1998) and OxCal3.5 (Bronk-Ramsey 1995).

DISCUSSION

Bronze Age

In the immediate vicinity of the site are two ring ditches, MK13 and MK24, excavated in 1972 (Green 1974, 87–118). These proved to be the remains of barrows containing early Bronze Age burials and cremations and associated pottery. Flintwork, bones of domesticated animals, and pottery found in the ditch fills and the environs of the barrows suggested the area was a focus for settlement contemporary with or soon after the construction of the barrows (Green 1974, 100), although no further features found in 1972 were dated to this period. Flint recovered from subsequent work in the vicinity dates broadly from the Mesolithic to the Bronze Age, representing a

palimpsest of prehistoric activity in the area.

Scant evidence for Bronze Age activity was recovered during the course of the 1991 evaluation across the whole site or the 1992 excavation, though a number of sherds of prehistoric pottery were found. Apart from a tree-throw hole which contained prehistoric pottery and flintwork, no Bronze Age features were identified. Nor were any settlement features reported from 1972 to set alongside the burial monument. Evidence for a phase of Bronze Age activity apart from the barrows comes almost entirely from the 1994 excavations, mostly in the form of post holes, some forming circular structures. Evidence for dating these is slender (typically single sherds of pottery) but consistent. Bronze Age pottery also turned up with some regularity in later features. In addition, struck flints were recovered from a variety of contexts, including the ditches themselves. The majority of pieces were undiagnostic but some may be datable to the Bronze Age. The spread of evidence strongly suggests there is more to the Bronze Age component here than just a migration of material away from the site of the ring ditch. The findings published here do finally confirm Green's (1974) suggestion of occupation here, around 100m from the barrow (MK13).

It is just possible that Ditch 25 belongs to the Bronze Age occupation, and as all the structures were to the south of this line, this ditch could have been enclosing the settlement. The three structures phased to the Bronze Age here are all rather flimsily dated, but such is the nature of Bronze Age settlement evidence elsewhere. It is notable that only four pits or post holes contained Roman pottery, and only 6 or 7 had Saxon pottery, whereas 12 such features, and a couple more tree-boles and ill-defined hollows, contained Bronze Age pottery.

The importance of the barrow mound in shaping the use of the landscape extended beyond the

Bronze Age, and it is clear that it was still visible to influence the layout of the Saxon enclosures (Fig. 2). It is possible that the barrow ditch also survived as a visible part of the landscape for several centuries, as its filling sequence was extended over a lengthy period (charcoal from a middle fill gave a radiocarbon date that calibrates to 1980–1520BC at 2sigma; bone from an upper fill to 1430–990BC).

Within the Milton Keynes area, evidence for Bronze Age activity is patchy, consisting mostly of ring ditches and surface flint scatters in the Ouse and Ouzel valleys, and a large number of stray bronze finds, which have a similar pattern of distribution (Zeepevat 1991, 53–4; and Fig. 2). Settlements, as across most of the country, have been more difficult to locate, the notable exceptions being the large late Bronze Age round house below the Iron Age settlement at Bancroft (Zeepevat 1991), to the east of Wolverton with further open settlement of late Bronze Age date at Fenny Lock (Ford and Taylor 2001) and a middle Bronze cremation cemetery at Loughton (Pine 2003). Bronze Age activity of an undetermined scale was also noted at the quarry site at Hartigans (MK 23 and MK 223) and consisted of a number of post holes and a large pit containing pottery similar to that found at Bancroft (Blinkhorn 1994a). The evidence from Wolverton Turn adds to the pattern of Bronze Age settlement in the area.

Roman

There is (slight) evidence that the main ditches might originally have been excavated in the Roman period, but no convincing evidence to phase any individual feature to this period. As it is almost invariably the case that Roman occupation left behind far greater quantities of material than Saxon sites, the absence of solid evidence has led to the omission of a true Roman phase from the site chronology; however, some activity in this period in the vicinity must be supposed. The idea that the enclosure was Roman may be suggested by its shape in plan, which resembles the classic playing-card Roman fort. A few of the ditch sections show the classic ankle-breaker slot in the base, characteristic of a military-style ditch. At around 2.6ha enclosed, it is also a good size for a small (auxiliary) fort. However, the little dating provided by the Roman pottery suggests late rather than early Roman, and nothing in the interior looks remotely Roman, much less military, allowing that little of

the interior was systematically explored. If the main enclosure was originally laid out in the late Roman period, it persisted for an implausibly long life through Saxon times, even allowing for serial recutting. Evidence of such continuity is slim, and although (often) eagerly sought, it is important to stress the ambiguities of the evidence here.

Saxon

The Saxon phase at Wolverton Turn provided the most substantial remains. Stratigraphically, there was clearly some time depth to the use of the enclosure ditches, which had several episodes of recutting, although the ceramic chronology is not sufficiently refined to say how far apart these phases were. Roughly half of the pottery sherds are datable to the 8th–9th centuries, the remainder are not closely dated within the Saxon period. The radiocarbon dating has clarified the chronology to some extent, inasmuch as Structure 5 clearly predates the filling of the enclosure ditches; but leaves open the possibility that the enclosure may have had a long life prior to its final filling.

The 1991 evaluation located a *Grubenhäus* on the northern side of the college buildings, outside the large enclosure. The 1994 excavation located a possible rectangular Saxon post-built structure (Structure 4), c. 3m x 5m, without corner posts. This is considerably smaller than the Saxon post-built structures found at Pennyland, which measured 7.9m x 5m, 10.1m x 4.3m and 10.9m x 4.1m (Williams 1993, 72–6). The absence of corner posts is a recurrent feature of Saxon structures (eg Bishopstone, Sussex; Bell 1977) although the wide post spacing is not. The existence of this structure is therefore debatable. More certain is the sunken-featured building Structure 5. It can be firmly dated to the early Saxon period, from the 5th or 6th century, and is likely to pre-date the infill of Ditch 1.

Animal bones from the site were almost all of domesticated species and within the size range for the period. The prevalence of horse remains may indicate a specialist horse-breeding centre, and the assemblage as a whole may also tentatively suggest an earlier move towards sheep-dominated farming than is usual. The tiny sample of plant remains was dominated by free threshing bread wheat, consistent with a Saxon date.

Ditch 430 was stratigraphically the first enclosure ditch datable to the Saxon period. It had

clearly cut the possible Roman Ditches 429 and 440 and contained Saxon pottery more or less throughout its fills. The entire large enclosure (Ditches 1, 2 and 3) appears to have been laid out (or redefined) in the early to middle Saxon period. Ditch 5 probably represents a palisade trench backing the main ditch, or just possibly held a revetment for the rear face of a bank in the gap between the two. Ditch 8, external to the main ditch, may have belonged with the earliest Saxon enclosure. Although its relationship to Ditch 1 is ambiguous (it cut Ditch 1, but possibly only the earlier, ?Roman part), it was cut by Ditch 9.

Ditches 1 and 3 were recut, in the case of Ditch 1, several times. At least one of the recuts (23) was only partial; it is unclear whether at this stage an entrance was created, at the point where Ditch 9 approached the main enclosure, or it was simply the case that a full recutting was not required. An entrance may well have been required, for at this point a secondary enclosure (Ditches 9 and 10) was added, surrounding the area of the Bronze Age ring ditch; this suggests the barrow was still visible, and was being protected or at least separated from the rest of the landscape.

It remains possible that the intensely ditched area in the eastern corner of the main enclosure should be dated to the Saxon period, but the weight of evidence suggests all of this is later.

The possible kiln 418 cut into the top of Ditch 429, but this leaves its date uncertain, dating depending, of course, on whether it is believed that 429 is Roman. It may be contemporary with the Saxon occupation.

There are considerably fewer Saxon sites recorded in the area than for the Roman period, as evident on Figure 1, and most of the those which are marked are only stray finds of pottery or metalwork. Higham (1992, 113) has suggested a shrinkage in the area of intensive land use in the 5th century, for climatic, social and economic reasons. The lack of archaeological evidence for settlements may also be partly due to the fact that late Saxon sites may have developed into villages that survive today (Zeepvat 1991). Many early to middle Saxon sites appear to have been situated in slightly different locations: a mid-Saxon settlement relocation is a well-recognized though unexplained phenomenon (Taylor 1982). Examples of this settlement shift have been noted at Milton Keynes village, the earlier settlement having been at Hartigans, and

now such a shift may be recognized at Wolverton village, the earlier settlement being represented by the Wolverton Turn enclosure (Zeepvat 1991, 58). A number of sites in the area witness continuity in settlement from the Roman to mid-Saxon periods, notably Bancroft Roman villa; Saxon finds were also recovered from the vicinity of the Cosgrove villa (Fig. 1). However, many Roman occupation sites were abandoned in favour of new sites (Higham 1992, 109). In the area covered by Milton Keynes, Saxon settlement appears to have favoured the valleys of the Ouse and Ouzel and their tributaries (Williams 1993, 215). In the Milton Keynes area, few Saxon sites have been fully excavated, though the sites at Pennyland and Hartigans in north-east Milton Keynes have been investigated in detail (Williams 1993). At Pennyland a number of possible Roman ditches remained in use, as well as four Saxon rectilinear enclosures, droveways, *Grubenhäuser* and rectangular post-built structures. Although the evidence at Pennyland is far more substantial and varied, the presence of Roman ditches on a site with Saxon enclosures with likely contemporary post structures of early-mid Saxon date there may be tentatively compared with the evidence from Wolverton Turn, where a probable Saxon structure existed within the enclosure ditches.

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