A ROMANO-BRITISH VILLA ESTATE AT MANTLES GREEN, AMERSHAM, BUCKINGHAMSHIRE

BY P. A. YEOMAN & I. J. STEWART

The possible site of the Romano-British villa at Shardeloes near Mantles Green, Amersham, Buckinghamshire has been known since 1751. Since the 1950s casual finds of Romano-British material have given an indication of the extent of the associated estate, which lies along the floor of the Misbourne valley. Following geophysical survey, archaeological excavations in 1983–4 in advance of construction of the Amersham by-pass sampled part of the complex. The excavation revealed trackways and a possible ford, evidence for boundaries, traces of timber buildings and of a large rectangular building with flint footings. A substantial cobbled yard was exposed, also a 'corn drier'. Of particular interest was extensive evidence for iron smelting, with the possible base of one furnace. Smithing waste was also common and a considerable number of iron objects were recovered. Accounts of two watching briefs carried out subsequent to the main excavation are included.

An indication is given of the extent of the estate and its economy is discussed. Occupation of the site seems to have begun in the mid-second century and continued until the late-fourth century.

Specialist contributions include reports on the geophysical survey, ironworking, animal bone, seeds, charcoal, glass, samian, brooches, coins, tile, pottery, bone objects, prehistoric flints, etc. Two microfiche are included.

INTRODUCTION

The presence of a Romano-British villa at Mantles Green, Amersham has been suspected since 1751 following the reported discovery of a mosaic pavement near Shardeloes lake (Fig. 3. NGR SU 943 980). Subsequent discoveries of Romano-British material by fieldwalking, metal detecting, and watching briefs indicated the presence of a villa estate in the Shardeloes/Mantles Green area. This report describes two seasons of archaeological investigation carried out in 1983–84 prior to the construction of the Amersham bypass (A413), and two subsequent watching briefs (Fig. 2).

The results are summarised by phase, and discussed along with previous discoveries. A brief synthesis of finds is presented.

The site records and, at present, the finds are stored at Buckinghamshire County Museum: reference CAS 1450/0292/1866 .

Physical Location (Figs. 1–3)

Mantles Green is situated in the valley of the River Misbourne, a tributary of the River Colne which in turn drains into the Thames. The valley is one of a series cutting the dip slope of the Chilterns. The sides of the Misbourne Valley consist of chalk capped by a gravelly clay mantle. The valley floors are also filled by a brown clay with chalk and flints, capped by alluvial gravel with occasional patches of reworked chalk and occasionally tufa in the vicinity of rivers and streams.

The estate occupies the floor of the valley, its approximate centre lying *c.*1.5km north west of Amersham's parish church, at between 90–100m O.D. (295–325'). The estate's agricultural and industrial activities extended down the Misbourne Valley, taking advantage of a natural routeway and the nearby water source.

SUMMARY OF ARCHAEOLOGICAL INVESTIGATIONS AT MANTLES GREEN, AMERSHAM

by I.J. Stewart

Part of a letter from J. Collins to the Revd. Dr. Stukeley, Queen Square, London dated 30 September 1753 reads:

"A great number of that emperor's [Carausius] coins was found near that place [Amersham] about 2 years ago, as Mr Drake was making a large sheet of water which covers 40 acres, but most of 'em are in the hands of the Lord of the Manor. The workmen, as they were digging, laid open a curious burial place, in form of a minced pye, built with flints, several bodies were found therein, some with earrings all dropt to dust soon after they were exposed to the air. Near to that place I discovered and took up several square bricks about an inch square, out of the margin of the pavement, of divers colours. Mr Drake has been acquainted with it, and said he durst not open it till a proper opportunity, for fear the workmen's shovels damage it, and nothing has been since." (Bodleian Library Dept. of Western MSS MS. Eng. Misc. *c.*113, published in *Surtees Society* 76, p. 9).

The discovery of the coins, burial place/?mausoleum, and presumably a mosaic pavement, in 1751 during the excavation of Shardeloes Lake marked the beginning of the known Romano-British discoveries near Mantles Green. There is no evidence of further investigations being carried out at that time.Two hundred years later, *c.* 1955, further Romano-British finds were made as a result of the widening of the A413 trunk road *c.*350m east of Shardeloes Lake, and associated ground works (ditch cutting and pipe laying). The finds included sherds of Belgic pottery, Romano-British pottery (c. late fourth-century AD), samian and a fourth-century coin. Romano-British building material (including flue and roofing tile) discovered in the roadworks immediately outside Shardeloes Lodge gateway (NGR SU 9470 9482) indicated the possibility of a Romano-British building nearby (see Area IX below). Other finds including *tegulae*, box tile, Romano British pottery, samian, glass (one fragment of Saxon bag beaker, two pieces of a late Roman conical beaker); oyster shell and *c.* third to fourth-century coins were recovered from dumped topsoil in Hervines Park (SU 957 987) *c.* 2km from the villa site. The *Bucks Examiner* September 16, 1955, account by Mr C.E. Pike of Chesham Bois, reported that the topsoil had been removed during road widening (A413) immediately east of Coldmoreham House *c.* 400m south east of Shardeloes Lodge (NGR SU 9510 9763).

In November 1965 excavations for electricity poles at Mantles Green Farm revealed the remains of three human skeletons (*Bucks Examiner* 20 January 1966). There were no associated finds. The nearness to the Roman settlement may suggest a late Roman date, but the piece of Saxon glass found to the south of this site in 1955 may indicate a later date for this cemetery.

During February 1974 the County Museum Archaeological Group fieldwalked a field 100m south east of Shardeloes Lodge and a number of artefacts were recovered including Romano-British coarse pottery and two fragments of *tegulae*.

In 1982, metal detector users operating in the area discovered a nest of five bowls and a shallow dish, all of bronze, stacked inside each other along with a bronze sceptre head (?Jupiter), Roman coins and parts of two brooches. Subsequently metal detecting by the South Bucks Metal Detecting Club under archaeological supervision in the vicinity of this find located a second bronze sceptre head almost identical to the first, further Roman coins, also Romano-British pottery and tile (Farley *et al* 1988).

In June 1982 a magnetometer survey was carried out by the Ancient Monuments Laboratory, Inspectorate of Ancient Monuments, Department of the Environment at the request of the Museum, prior to by-pass construction in the Misbourne Valley north west of Amersham between the A413 trunk road and School Lane, 600m south east of the villa site. (Ref. AML Report 3855). The survey is included in the attached fiche (Fiche 2, C4–C14).

The survey results (partially illustrated in fig. 4) indicated, amongst other things, an area of industrial activity possibly related to the villa. Subsequent rescue excavation of the principal anomalies (NGR SU 947 979) in advance of by-pass construction was to confirm that iron ore smelting and smithing had been carried out in the area during the Romano-British period, although no furnaces were found *in situ*.

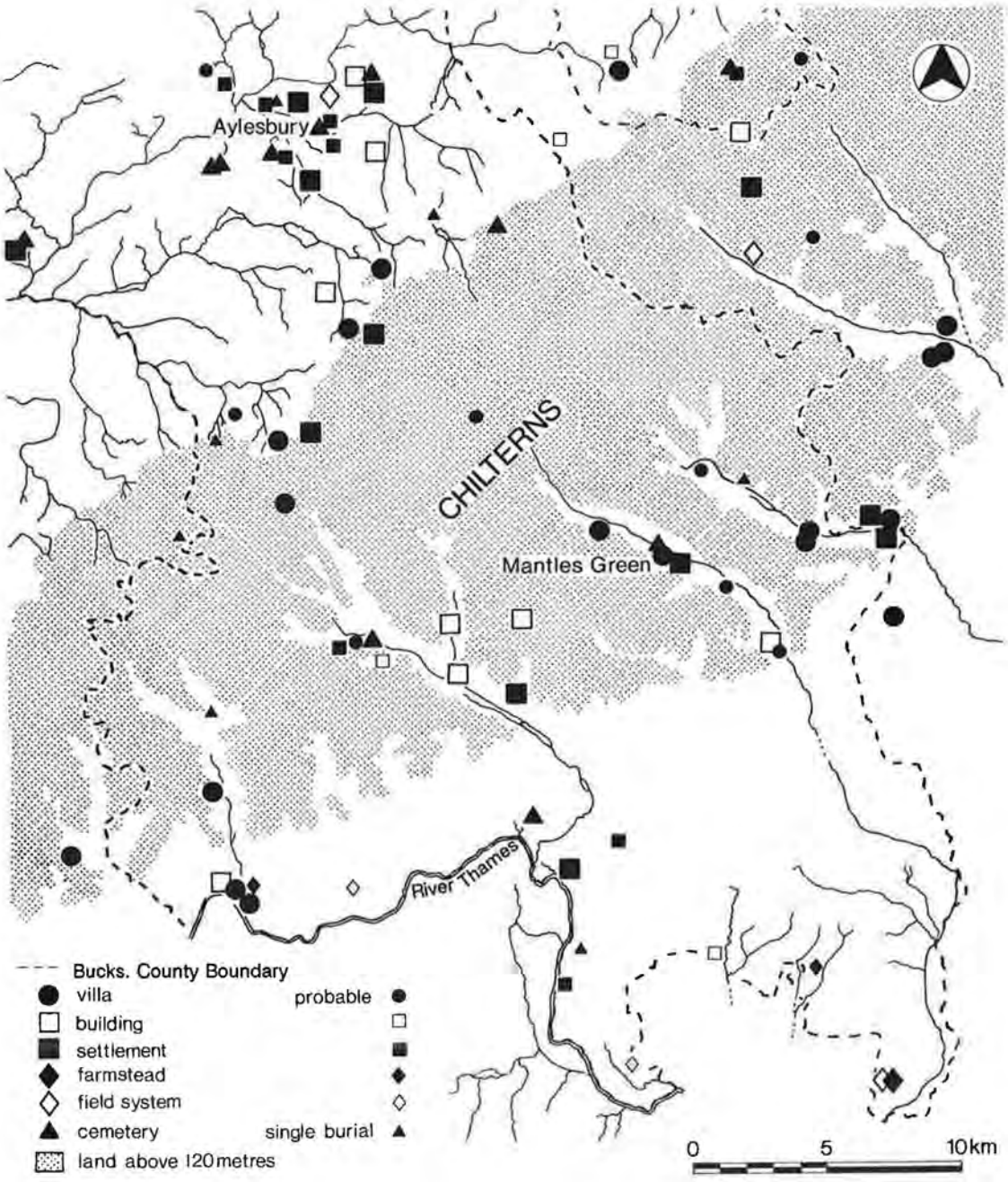

Fig. 1. Romano–British Sites in South Buckinghamshire.

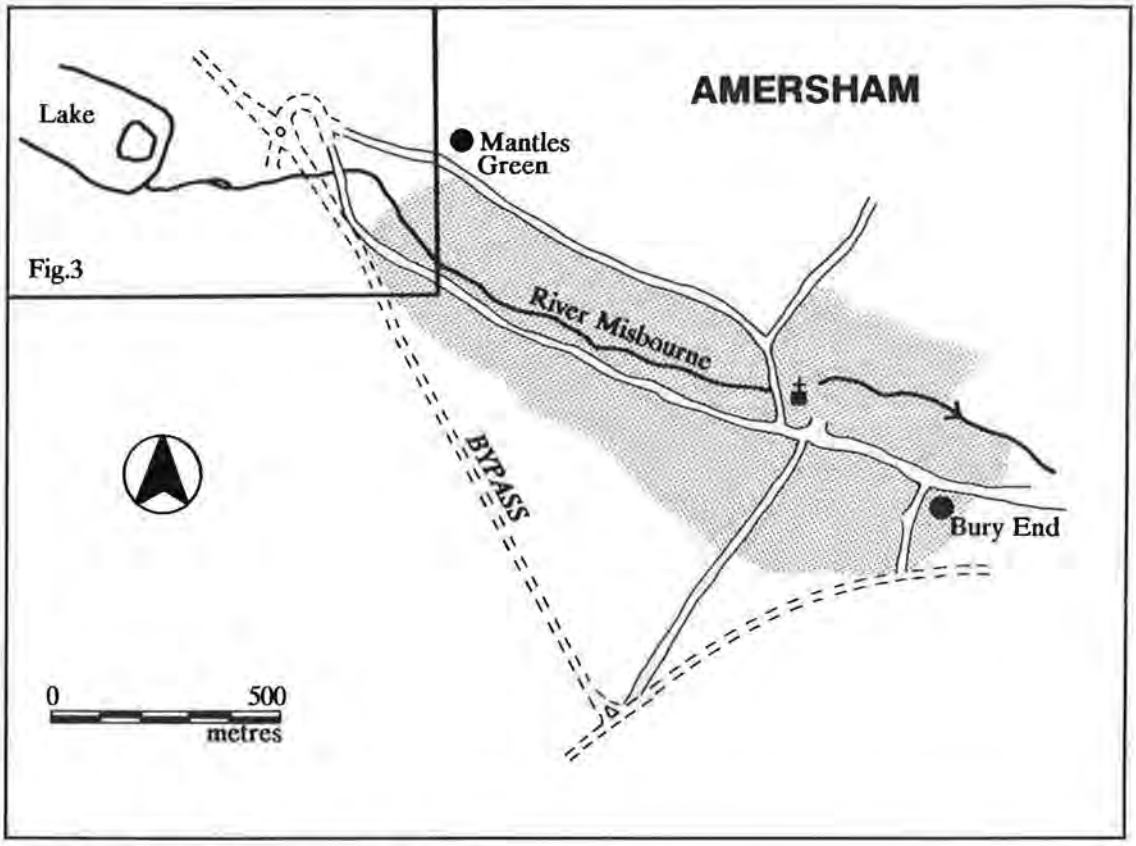

Fig. 2. Mantles Green Farm, Amersham: location.

The excavations reported here were carried out in 1983–84 under the direction of P.A. Yeoman for Buckinghamshire County Museum and the Inspectorate of Ancient Monuments, Department of the Environment, in advance of by-pass (A413) construction.

A long-lived sequence of agricultural/horticultural features and drainage ditches was examined, and cattle enclosures were also found along with a flint trackway (fig. 6–9). A continuation of the flint trackway led to a possible ford, along with refuse dumps on the bank of the River Misbourne. Excavations continued in 1984. The remains of a twin-flued malting oven were found, built over a backfilled ditch. An early phase of iron smelting and smithing was also revealed. Traces of early timber buildings had been covered by sequences of farmyard/courtyard surfaces. A substantial rectangular flint-walled building (mid-third to late-fourth century) was found.

Meanwhile, in 1983, the geophysics section of the Ancient Monuments Laboratory carried out a survey of an area which would be affected by the road, adjacent to the 1982 find of a nest of bowls. The survey results were largely negative (ref. AML Report 4341) and the area was not further investigated.

In 1986, during construction of the road, M.E. Farley recorded the fragmentary remains of another twin-flued malting oven 300m south east of the 1983–84 excavations (Fig. 21). This watching brief also revealed a late third to fourth-century ditch, aligned NW–SE alongside a dirt trackway. Finds from metal detecting during earthmoving in the area included 31 coins, mostly fourth century in date, a bronze finger ring with intaglio (depicting Hercules wrestling with the Nemean lion, see below), and

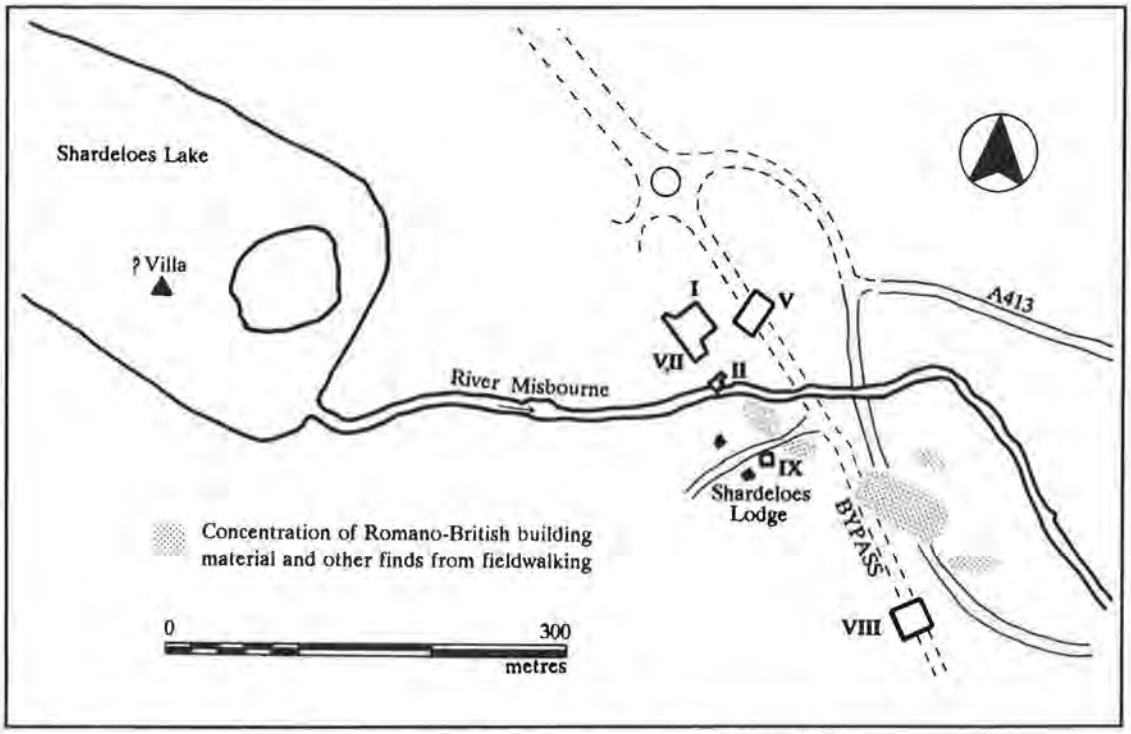

Fig. 3. The principal areas of archaeological investigation at Mantles Green, Amersham.

copper alloy brooches. Other metal detecting along the by–pass route recovered a possible early Romano-British bracelet and an end-looped cosmetic mortar (Jackson 1985, 165–192). A silver celtic coin of the late first century BC was also recovered.

These discoveries were supplemented in 1985 by field walking to the south east of the main excavations by Simon Smithson (fig. 3). Romano-British finds here included building material (*tegulae* and *imbrices*,) large quantities of coarse wares, samian, iron slag etc. In 1989 a watching brief during construction of a driveway for a new garage at Shardeloes Lodge (NGR SU 9475 9782) revealed traces of the flint footings of a wall with associated floors (see Area IX below, Fig. 22). The pottery recovered was predominantly second century. Other finds included a very worn second–century dupondius (Antoninus Pius *c*.138–161), samian, and fragments of *tegulae* and *imbrices*. There had been a likelihood that a building of some kind existed in the vicinity of Shardeloes Lodge entrance, as *tegulae* and flue tiles had previously been recovered during road works immediately outside the gateway (BCM ref. CAS 0292.04).

EXCAVATIONS AT MANTLES GREEN, AMERSHAM 1983–1989

by P. A. Yeoman, with a contribution by M. E. Farley

Introduction

The excavations described below, undertaken in the 1983–84 seasons, were based essentially on the results of the geophysical survey. Originally there were seven separate areas, I–VII. Some of the trenches were subsequently amalgamated leaving only four principal areas, Areas I, II, V and VII. Areas VIII and IX were watching briefs carried out by M.E. Farley on the by-pass (1986, 1989), and at the east lodge of Shardeloes Estate (1989); these have been described separately. The implications of previous discoveries, the 1983–84 excavations, and the watching briefs are considered together at the end of the report.

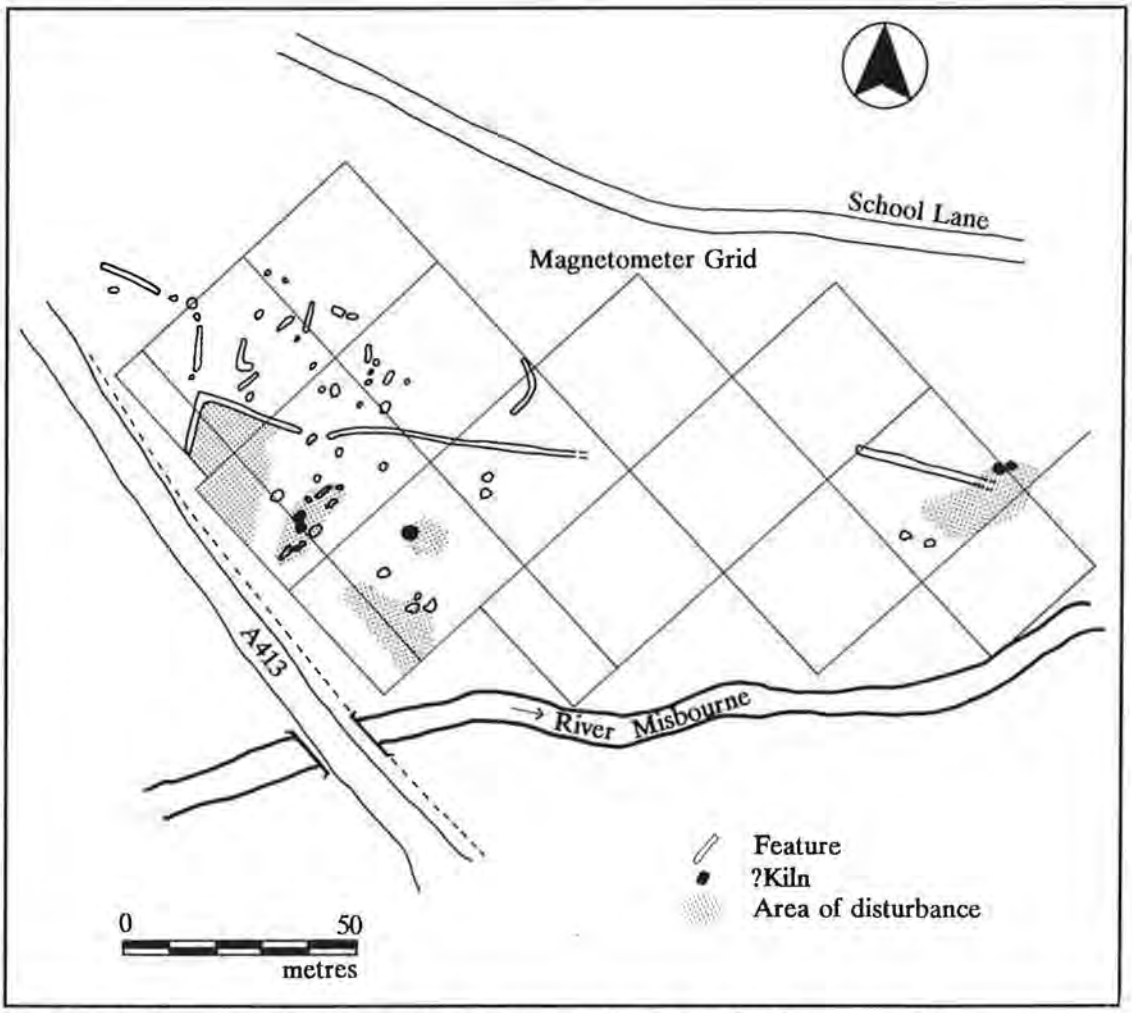

Fig. 4. Mantles Green, part of area surveyed by magnetometer showing principal features recorded.

Area Description
by P. A. Yeoman

AREA 1 (Figs. 6–10) Pre-Roman activity

The man-made deposits overlay a natural surface of chalk-derived, crumbly cream-coloured tufaceous material. This was more than 1m thick in places, and sealed clay-with-flints. The tufa contained patches of iron-panned, pebbly gravel. This surface contained some very early, formless disturbances associated with the primary Romano-British agricultural use of the site. Although no stratified later first-century material was found, it is likely that there was some activity at this time.

Phase 1 c. 160–175.

No identifiable features.

Phase 2 (Fig. 6,10) c. 175–225.

A layer of compacted beige sand (158) was found in the south east corner of the area. This was cut by the most important feature of this phase, a linear slot (194) aligned north-east to south-west, with an average width of 0.35m and depth of 0.3m. Further south-west three post holes were found cut into the base of the slot. The two flanking posts (198, 199) were cut to a depth of 0.1m below the flat base of the slot, while the middle post (197) was much more shallow. Situated 2.4m north east of this was another single circular post hole (208), cut 0.12m below the base of the

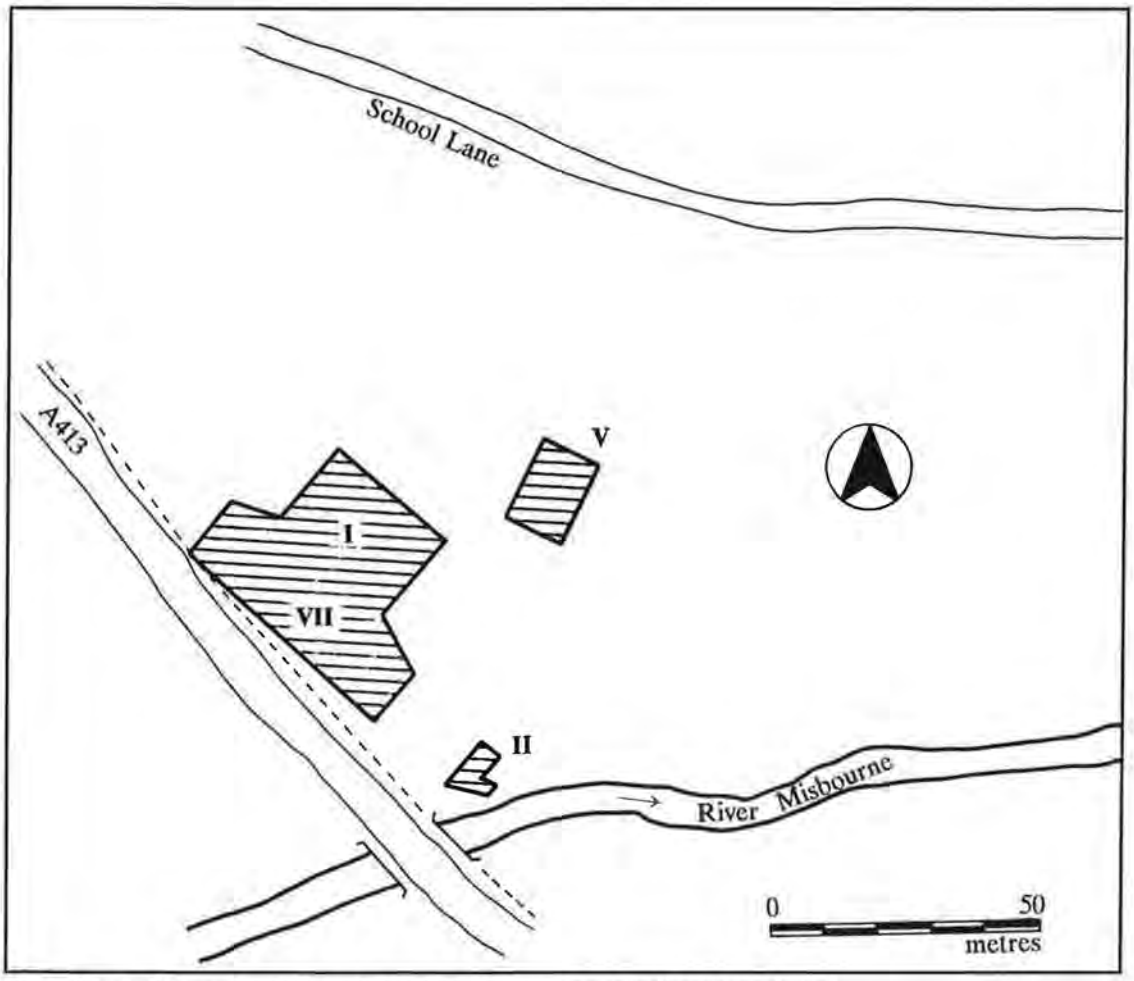

Fig. 5. Mantles Green, principal trench locations (approximate overall areas are shown).

slot. It is possible that these posts represent the remains of a 2m wide gateway, through some form of timber stockade, held within the linear slot. Other uprights may have been located in the slot without the need for earthfast sockets. A further single post-hole was found 3.2m north east of the circular post hole. This measured 0.54m in diameter by 0.16m in depth (138).

A fence-line consisting of nine stake-holes was found running parallel with the slot, 2m to the south. This may represent a temporary barrier required when funnelling stock in or out of the gateway. A small surviving area of cobbling (165), formed from small flints and pebbles, was found just south of the fence-line. This may be all that remains of an early cobbled surface laid on the beige sandy layer (158).

A further extensive surface contemporary with this was found in the north west corner. This was a grey-brown loam (54) which was deposited contemporaneously with the digging of a large shallow ditch (155) running to the north east out of the northern edge of the area. The ditch was 1.6m wide and 0.35m deep with vertical sides and a flat base. It terminated with a pointed butt-end immediately beside a large, circular pit (168) 1.5m in diameter. The dark, organic fill (169) of this pit, which contained red burnt clay lumps, was excavated to a depth of 0.8m. The water

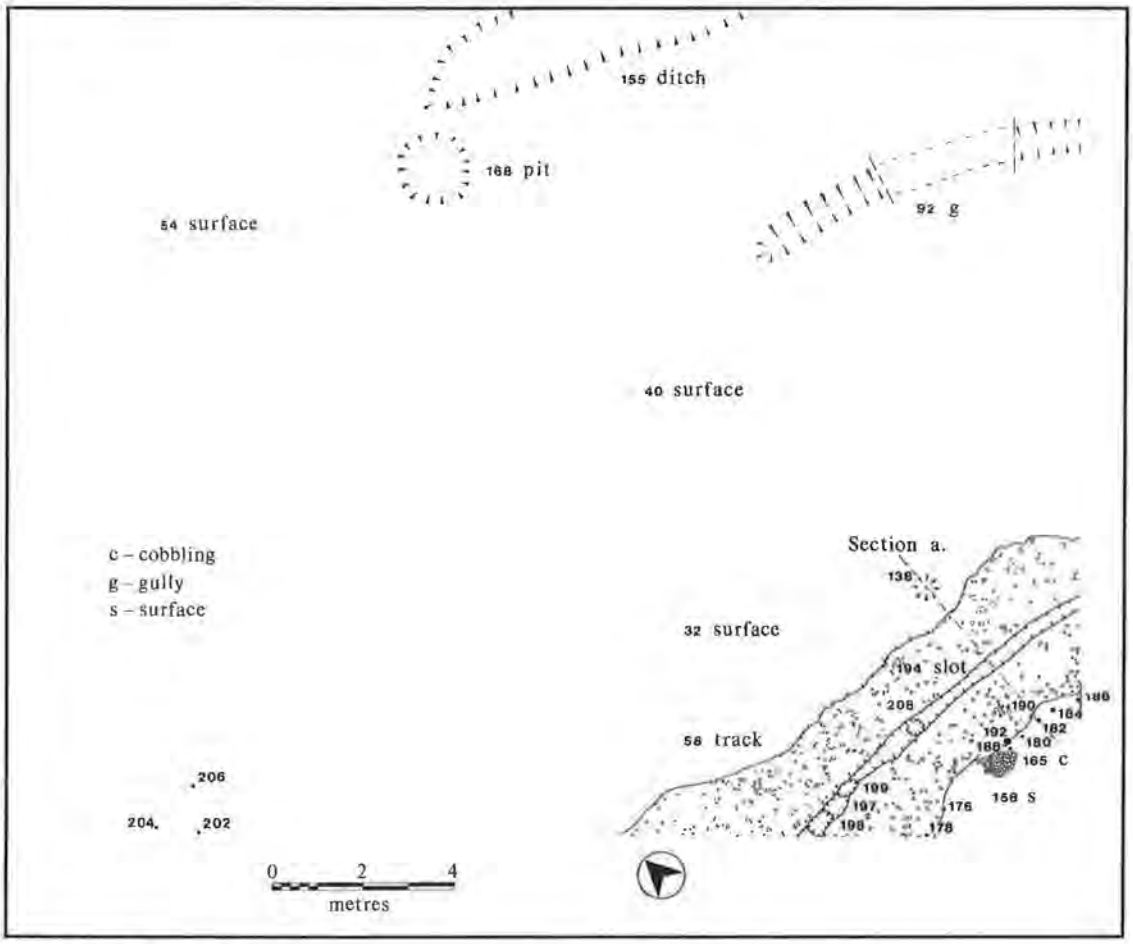

Fig. 6. Area I, phases 1–3.

table (95.40m) prevented total excavation.

The ditch described above (155) is much wider than most of the ditches found in all phases in this area, and may be seen as a more genuine boundary feature, rather than as a drainage or agricultural feature. The function of the pit (168) in unclear.

Phase 3 (Fig. 6,10) c.225–250.

A metalled trackway was built and remained in continuous use into phase 7. The track was on average 3.2m wide aligned NE-SW and consisted of a bedding layer of dark clay mixed with patches of cindery burnt gravel (171/172), which was completely covered by a layer of sand, gravel and flint metalling (58). To the north of this, an extensive surface of brown silt/clay was deposited (40).

A curving, shallow gully (92) was found 10.4m north of the track, measuring 0.78m wide and 0.16m deep with gently sloping sides. This gully terminated with a rounded butt-end 7.2m west of the east side of the trench, in the north east corner of the site. This was the earliest of many such gullies, all of a very similar nature found in the later phases. They may have served as field drains.

Phase 4 (Fig. 7,10) c.250–300.

This phase was characterised by the cutting of a number of gullies aligned E-W, approximately parallel with each other and with the flint track (58). Two of these were located in the south part of the area just north of the track. The northern of the two (136) was 12.8m in length, steep sided, with two rounded terminal ends, and measured 0.75m wide and 0.36m deep.

The west end contained a single oval post hole (98) 0.4m wide, cutting the base of the gully to a depth of 0.08m. This feature may indicate that the function of the gully was to support timber uprights in some form of palisade. A more likely explanation is that some of these gullies are horticultural, related to the spade-cultivation of beds.

A thinner, but longer gully (106) was found 1.4m south of the first, measuring 0.25m wide and 0.15m deep. This ran uninterruptedly through the excavated area.

At the west end of these two gullies was another similar feature which curved to the north-east from the south baulk (82) for a length of 7.2m. This measured 0.66m wide and 0.3m deep. A circular, shallow post hole (166) 1.8m west of the mid part of this gully, had dimensions of 0.4m diameter by 0.1m depth. This was adjacent to a slightly smaller double post hole (200) located 1.2m to the south. These two features may have formed part of a temporary structure the rest of which has left no trace. They may alternatively represent remains of fence posts. A large pit (173) 3.6m west of the double post pit, was found to be part of a possible furnace (790) and is described below.

Two parallel shallow lines in the flint track (58) were identified as ruts, separated by a distance of 1.3m (130, 152), and presumably caused by cart-wheels. Similar ruts were noted here in phase 6, and were also found in Area II. A short line of two stake holes and one post hole was found just south of the southern edge of the flint track (159, 161, 163). These may represent a repair to the existing fence line described above. Remains of a similar fence line were found, cut at a slightly later time during this phase, 1.6m south of the original line (124, 126, 128). These formed part of a much longer line more fully revealed in Area VII. Both these fence lines were cut through a newly deposited sandy layer (56).

Part of a narrow linear feature (122), situated in the south west corner, was cut by a larger gully (48) which bisected the middle part of the area from here to the north east corner. This substantial feature was revealed in an excavated length of 34m here and in Area VII, being on average 1.2m wide and 0.3m deep. The sides were generally sloping, except at one point where the north side was stepped. This feature was probably a land division/drainage ditch, and incorporated an earlier, shorter gully (92) within its north east part. Shortly after this had begun to fill up, a large oval pit was dug near the east end, which clipped the south edge. This pit (142) had sloping sides and measured 1.5m wide and 0.42m deep. It contained a single filling layer of brown silty clay with flints (143).

An extensive surface of dark-brown loam (110) was found on either side of the large gully (48), delimited to the north by another very long cut (26/112). A concentrated area of burning (118) was discovered near the west baulk within this surface. The burnt spread consisted of charcoal and lumps of burnt red clay, representing the remains of a domestic fire rather than an industrial one.

The angle of the north-west corner was cut by a large, shallow, curving ditch (77/153), contemporary with the very long gully (48) 8.4m to the south. These features curved in opposite directions to each other effectively creating a funnel the neck of which was 7m wide. The ditch was 2.8m in width where it disappeared into the west side of the trench, and narrowed to 1.68m at the north end. Here it had steep sides, whereas at the west end the sides had a more gentle slope. The average depth was 0.4m.

Another extensive surface was found on the east side of the north end of the ditch. This was a grey-brown silt/clay (54) which was roughly contemporary with the surface to the south (110).

By the end of this phase both the cut features forming the funnel-shaped enclosure (48, 77/153) were almost completely backfilled. The south west end of the south gully was cut by a short oval slot (145) 0.9m long by 0.07m in deep. The larger ditch to the north was cut by another gully, the complete length of which was just encapsulated within the excavated area (26/112). The western terminal was 1m wide, and the gully ran from here in a sinuous fashion for a total length of 23.6m to terminate near the north-east corner of the area. At this end it had narrowed to 0.4m wide, with an average overall depth of 0.25m.

A number of indefinite inter-cutting small features were discovered in the north-west corner; only three of these could be positively differentiated (79,

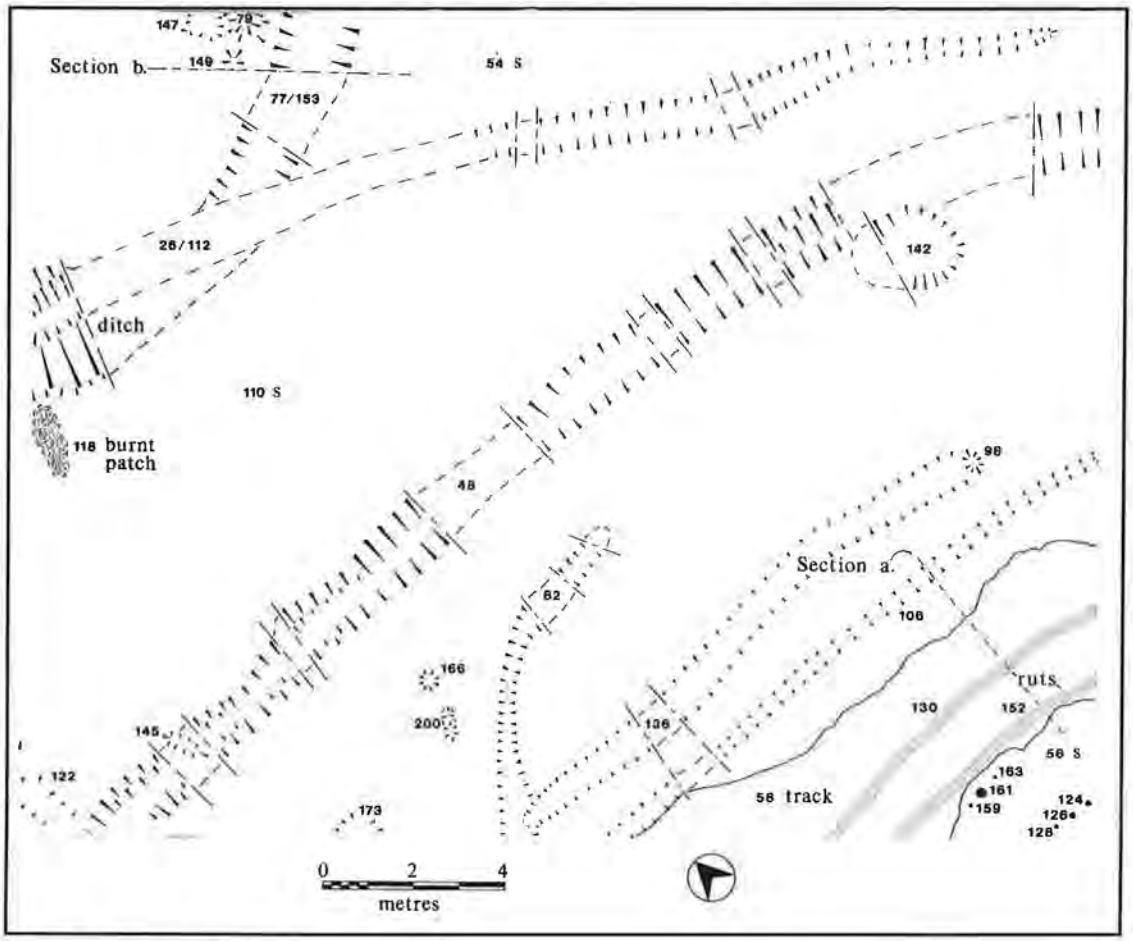

Fig. 7. Area I, phase 4.

147, 149). These may also represent horticultural or agricultural activity.

Phase 5 (Fig. 8,10) c.300–350.

By the commencement of this phase all of the earlier cut features had been backfilled. Two of the gullies belonging to this phase were less distinct than most of the earlier examples. One of these, in the north-east corner, was the earliest to be cut in this phase (93). It projected out from the side of the excavation and curved around for 4.8m to the south where the feature could no longer be traced. The remains of this shallow cut, 1m wide and 0.1m deep at the east end, may have been removed during levelling prior to the laying of the cobbled surface (2) during the subsequent phase.

In the middle of the western part of the area, another burnt spread (120) was found adjacent to the similar spread (118) found in the last phase. Again, this can be interpreted as a dump of raked-out material from a nearby domestic hearth with a clay lining.

A long, continuous gully (37) ran north from the mid part of the south baulk. It is interesting to note that the linear features in this phase are aligned roughly north-south, in marked contrast to the alignment of those in the preceding phases. This gully, 0.8m wide and 0.15m deep, narrowed slightly to the north where it joined a larger, shallow ditch (52). This was 1.8m wide by 0.31m deep and curved away to the south west over a length of 1.4m at which point it too became indistinct. It appeared to be a recut of an

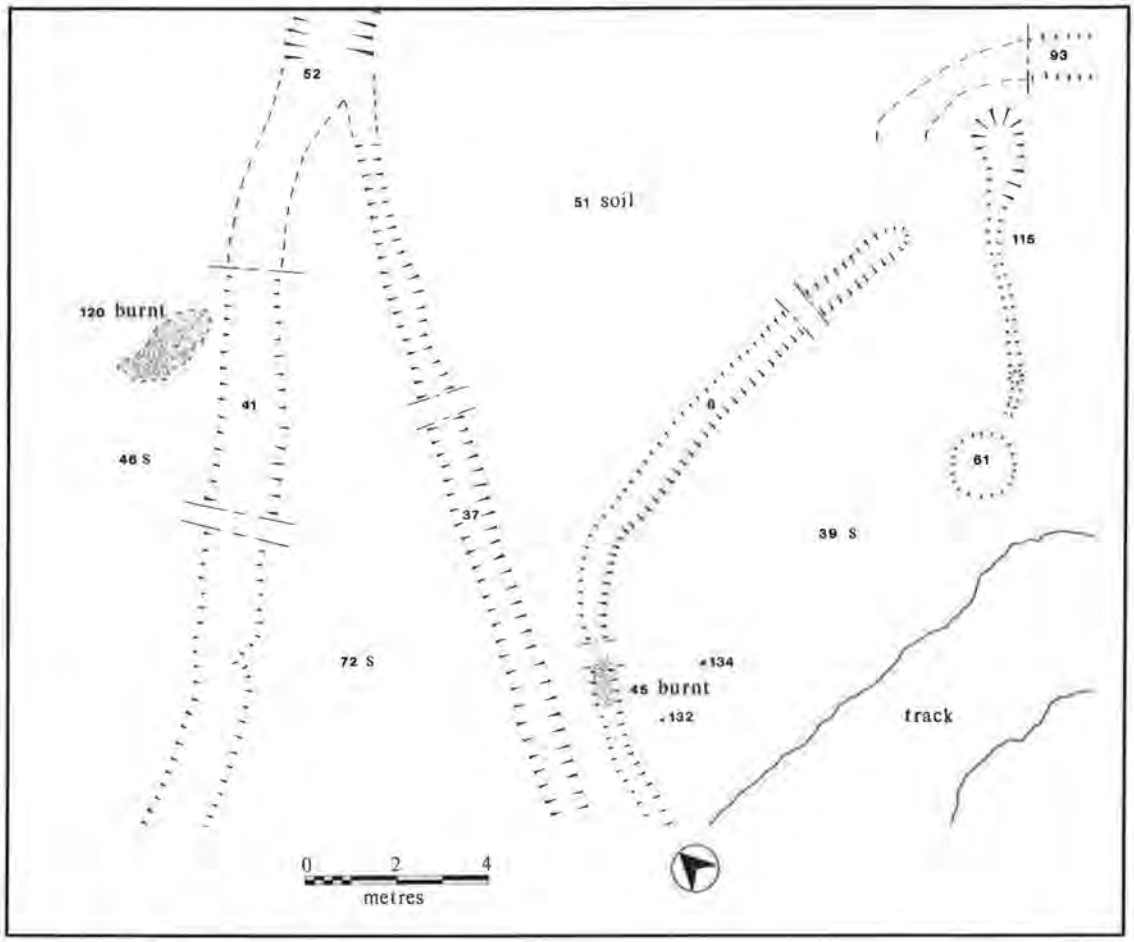

Fig. 8. Area I, phase 5.

earlier ditch in the same position (77/153), but continued on a fresh alignment further south, running uninterruptedly into the south west corner (41), measuring 1.4m wide and 0.28m deep.

West of the gullies were two extensive surfaces composed of grey-brown loams (46 and 72) and containing the expected quantities of rough flint cobbles and domestic refuse. The contemporary deposit on the east side of the gullies consisted of 0.08m thick red-brown silt/clay (51) whose nature, combined with the comparative lack of finds, makes it likely that this was purely agricultural soil rather than a yard surface. Another example of the latter was found in the south east part of the area at approximately the same level (39). This was even stonier than those to the west, and contained some quite heavy concentrations of gravel and flint. These sealed two small stake holes in the south part, which probably represent all that remains of another temporary fence-line, related to the driving of cattle. This line ran parallel with the north side of the flint track (58) which was still in service.

An enigmatic, short linear feature was found in the middle of the eastern part (115). This consisted of a thin slot, with traces of two post-hole bases at the south end, which ran north into a broad, rounded terminal. The south end was 0.28m wide and 0.03m deep, compared to the north end which measured 1.12m wide and 0.2m deep. The purpose of this feature is unknown. Situated near the south end of the slot was a circular cut (61) which measured 1.7m in diameter by 0.13m in depth. Within this were two

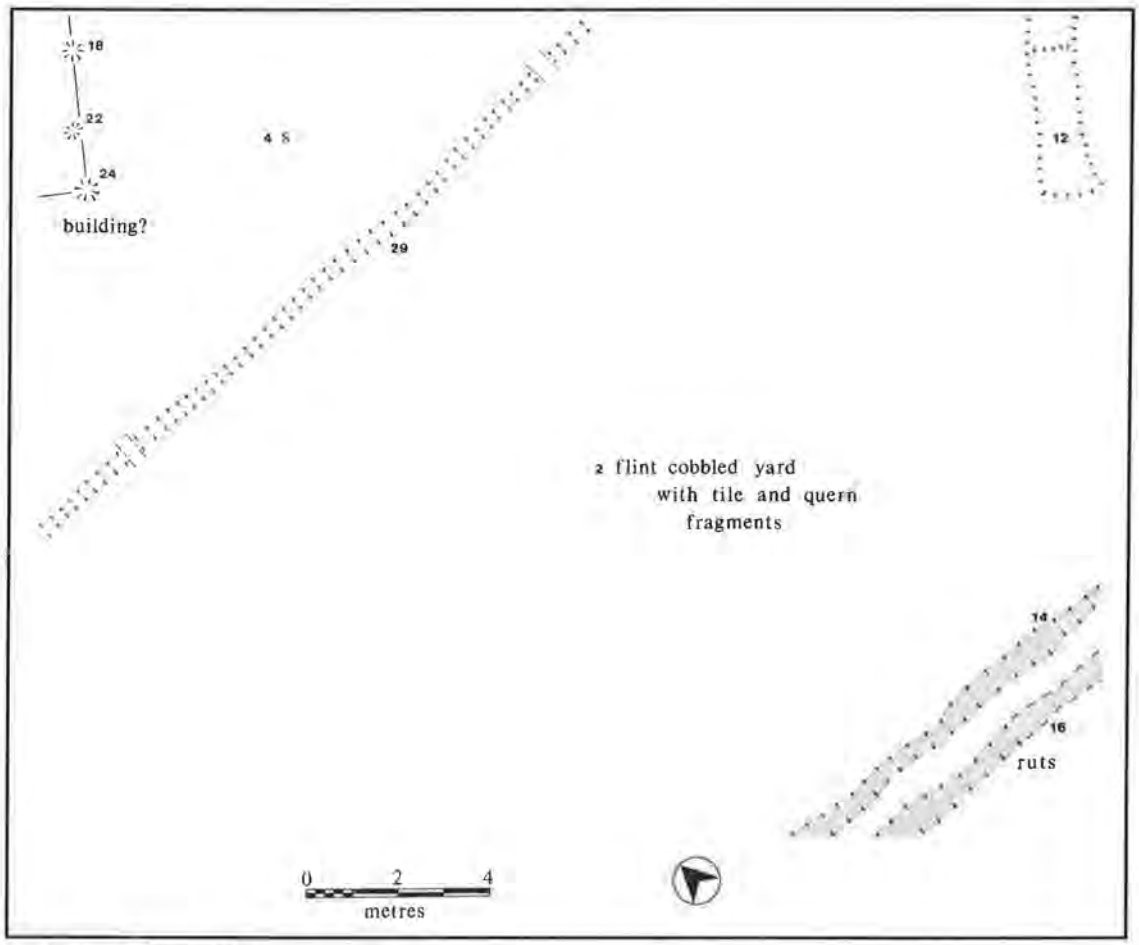

Fig. 9. Area I, phases 6–7.

filling layers (62, 97) which contained quantities of crushed charcoal, with burnt clay and flint, making it likely that this was a hearth, albeit an unlined one. Two metres west of the mid part of the slot was the rounded butt-end of another curving gully (8), 0.7m wide on average, and 0.2m deep. This curved first to the west and then around to the south, in which part the filling was found to contain a compacted area of red-black, burnt clay and charcoal (45). This was similar to the burnt spreads in the west part (118, 120).

Phase 6 (Fig.9,10) c.350–390.

All the earlier features and surfaces were sealed by a very well-laid flint and gravel cobbled surface (2) which covered the whole area, except the north-west corner. Parts of the area may have been levelled prior to the laying of this cobbled surface. The surface was mainly two flints in thickness except in the south where it was only one flint thick. Flints of all sizes were used including some very large nodules. There were also patches of chalky tufa and spreads of brick and tile which were concentrated particularly in the south west corner. Many quern fragments were found, some of which were actually resting on the cobbling, and it is likely that the area was used for corn threshing and grinding.

The north west area at this level was covered by a grey-brown loam, 0.1m thick, which was similar to the earlier surfaces.

The track in the south-east corner remained in use but now became almost indistinguishable from the

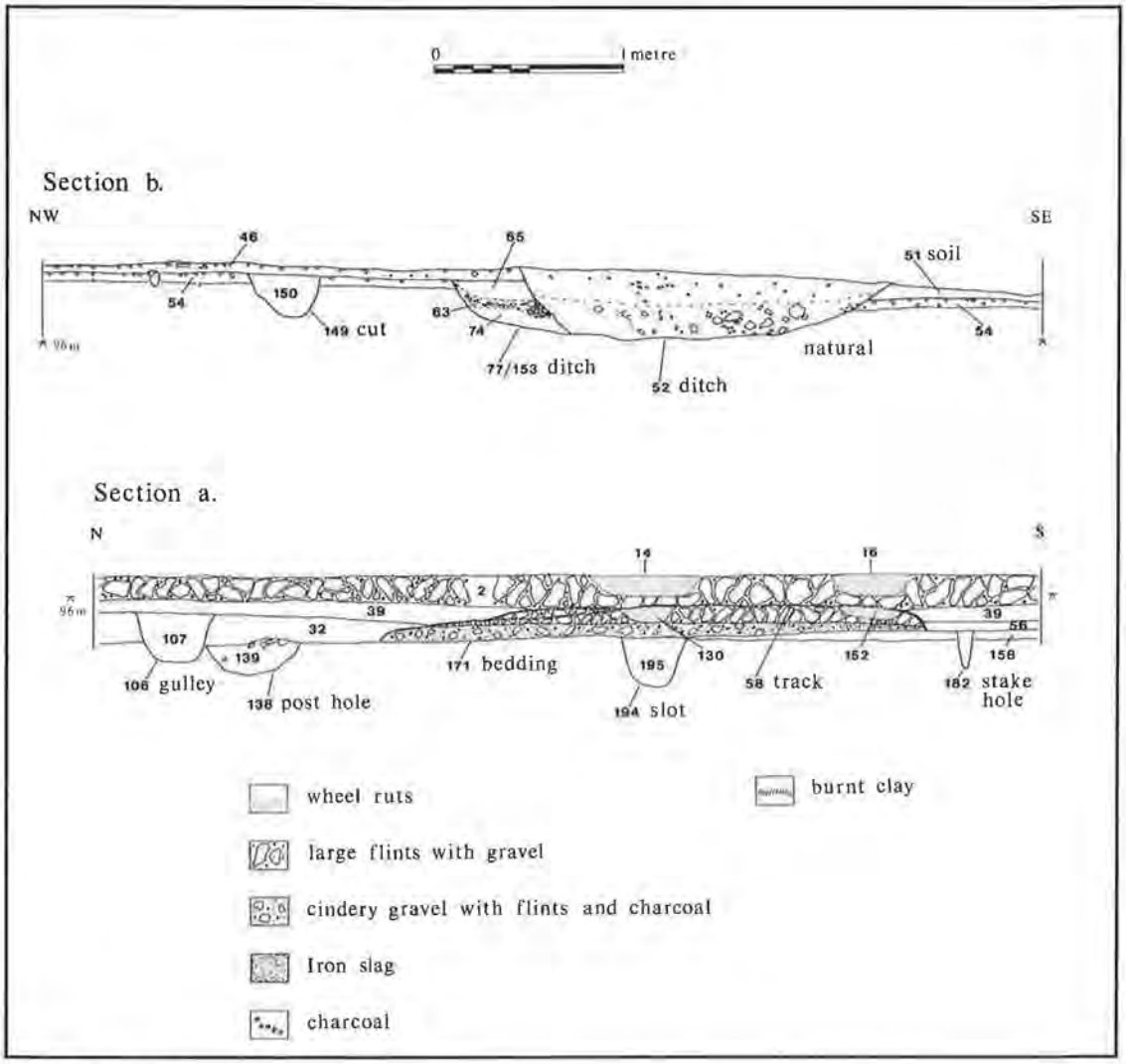

Fig. 10. Sections a and b through Area I.

rest of the cobbled yard. The concentration of brick and tiles in this area may represent repairs to the track. Two well-defined wheel-ruts were found (14, 16), again on an east-west alignment and similar to the earlier pair, 1.2m apart centre to centre. This cobbled surface was found also throughout area VII.

Phase 7 (Fig. 9,10) c.390–410.

A narrow gully (29) cut the area between the cobbled surface (2) and the deposit in the north west corner (4), running roughly east-west. This was 0.35m wide and 0.15m deep and presumably functioned as a drainage feature. The cobbled yard remained in use. Immediately to the north of the drainage gully was a line of three post holes (18, 22, 24), which were 0.13m, 0.25m and 0.27m deep respectively. These contained uprights which formed part of a timber building of unknown size and function which looked onto the cobbled yard. The cobbled surface was cut in the north east corner by a rectangular feature (12) which ran out of the area to the north. It was revealed in an excavated length of 4m, and measured 1m in width by 0.10m in depth. The base was found to be stepped at the north end of the feature.

This marked the end of the Romano-British use of the area and no other features of any date were identified here.

AREA II (Fig. 11)

This trench investigated an area close to the river bank.

Phase 1 c.160–175.

A layer of redeposited natural tufa (373) was laid over natural throughout the area, probably as a result of flooding. Contemporary with this was a burnt spread (394) located in the southern part of the area.

Phase 2 c.175–225.

A shallow linear depression was cut across the southern part, measuring 0.48m wide and 0.06m deep. This was filled with greasy charcoal/clay (393) containing a lot of slag.

Phase 3 c.225–250.

An extensive sandy clay base (374) was laid for a well-made, flat cobbled surface (371), built from flints larger than 0.10m across. This track was on average 2.4m wide, aligned north-south, and ran towards area I and VII, where it probably became trackway 58. Wheel-ruts were also found here. This track appeared to continue into the river, and seems likely to have been a cobbled ford.

Phase 4 c.250–300.

Late in this phase, the worn, and possibly disused, cobbled ford (371) was replaced by a slightly cambered flint trackway (372). This was not in exactly the same position but overlapping and slightly removed to the west, suggesting a period of disuse. The size and nature of the angular and rounded flints used in construction were identical to those of the lower surface. This track was 3.3m wide, and contained no visible ruts. It was unclear whether or not it ran through the river.

Phase 5 c.300–350.

A group of features, only just post-dating the laying of the trackway 372, was found cutting a mixed silt/clay layer (375) in the western corner of the area. The six stake holes, 1 post hole and 1 post pit seem to represent one part of a larger structure, either an agricultural building, or else part of a possible bridge abutment. A matching post pit, which might be expected in the same position on the east side of the track, would have been destroyed by fairly recent alterations to the river bank. The western post pit (376) was 0.8m wide by 0.65m deep. It was filled with an apparently single black/brown, silt-clay (377) the top half of which contained many large flints, which probably represent disturbed post packing.

Shortly after this a patchy layer of silting was deposited over the trackway and in the western part of the area (308, 325/366). This may have been water-borne or else derived from mud deposited on the track. The greatest depth of this silting (about 0.08m) had built-up against the eastern camber of track 372.

Phase 6 c.350–390.

The trackway was replaced by a more obviously cambered flint trackway (306), built on the same lines. The new track was 3.2m wide and survived to a maximum thickness of 0.16m. The maximum rise in the camber from the western contemporary ground surface to the centre, was 0.34m. No ruts were visible. It also presumably ran northward to connect with the lengths of excavated trackways recorded in Areas I and VII, as well as crossing the river by the suggested pre-existing bridge to the south. The substantial thickness may indicate remetalling.

Contemporary with the track was a slot dug 1.8m to the east of its eastern edge, running parallel with it, roughly N-S. The slot (311/369) was quite irregular in plan and varied in width from 0.38m to 0.66m with a fairly even shallow depth of 0.06m. Its total length is unknown as it continued out of the excavated area in both directions, and may even have carried on through the river. It was associated with a group of seven stake holes and post holes located at its northern end on the side nearest the road, and six others also on this side at the southern end. It originally contained two post holes centrally located within the 4.6m length available for investigation. The northern group of stake holes formed a double line starting directly on top of the western edge of the slot and running north-west at approximately 45° (331, 333, 337, 339, 341, 343, 345). It contained only one post hole (333), which was rectangular in plan, 0.12m × 0.18m and 0.28m deep. At the base, it tapered to a width of 35mm. The stake holes were mainly circular measuring on average 76mm in diameter by 50mm in depth. (Not shown in plan). The southern group of stake holes was aligned in a 1.4m row along the western edge of the slot. These were all oval, ranging in length from 0.12m to 0.25m, and in depth from 40mmm to 1.10m (347, 349, 351, 353, 355, 367).

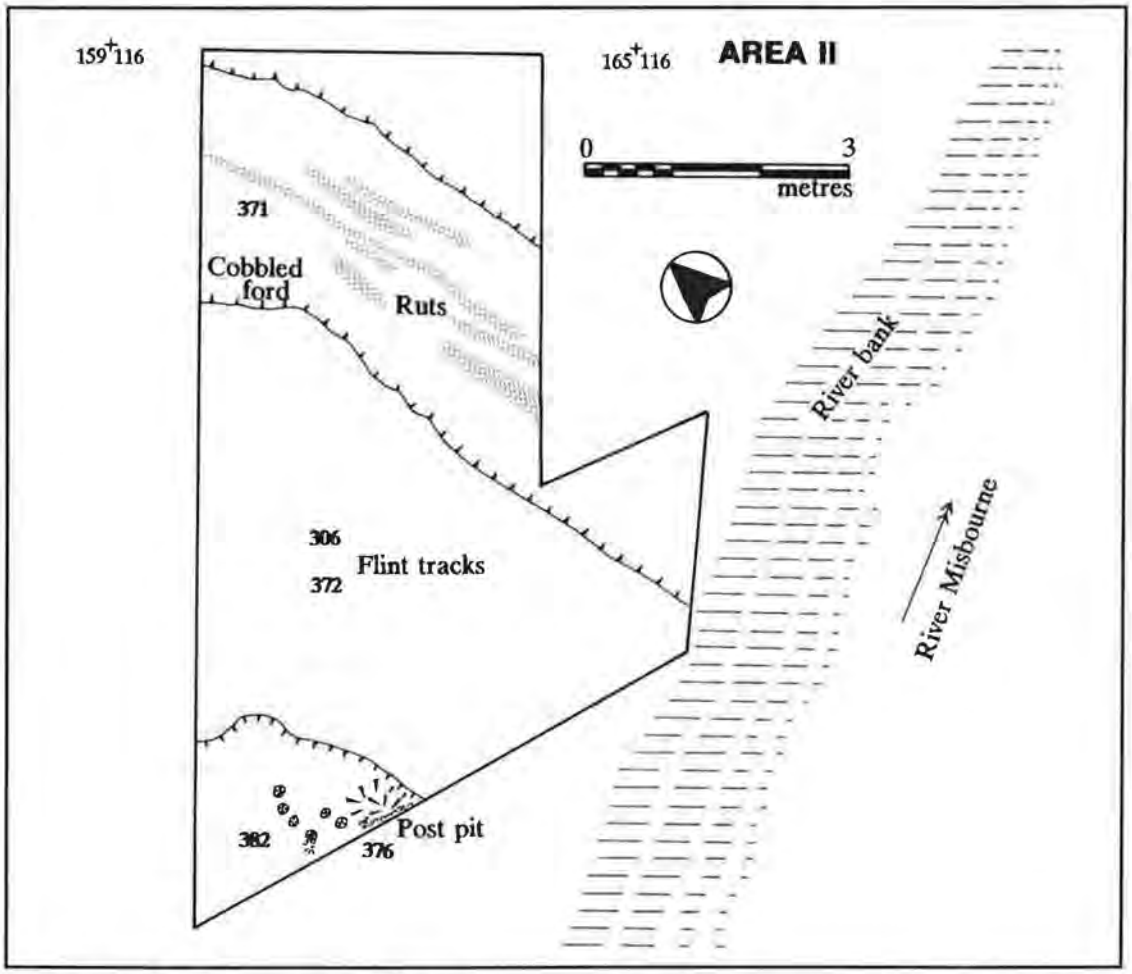

Fig. 11. Plan of Area II (some features omitted).

The two post holes within the slot were recognised not as cuts into the slot but rather as the ghosts left behind when the posts were removed. They were separated by a gap 2.1m in width. The northern (335) had sloping sides, which were steepest on the south side, was sub-circular in plan and measured 0.28m by 0.16m deep. The top filling contained a few large flints which continued in an interrupted line along the upper filling of the slot. The second post hole had gently sloping sides all round, and was sub-circular in plan, measuring 0.22m wide and 0.16m deep.

It seems likely that the slot contained a continuous wall or fence of timber uprights in the form of staves held fast in the backfilled slot, chocked with the aid of fairly large flints. This line was punctuated, possibly at 2m intervals, by larger timber posts approximately 0.2m in width. The northern associated line of stakes probably represent part of a fence, while the southern post group is more likely to have been part of the structure within the slot. Whether or not this was part of a building is open to conjecture. (This feature was very similar to slot 194, area I, phase 2).

Roughly contemporary with the above were two small post holes revealed in the west corner (326, 328), and also another two situated 1.5m west of the south end of the slot (358, 360). Both pairs were located just off the edge of the flint trackway (306) and may represent additions to the presumed bridge abutments.

Phase 7 c.390–410.

At this time, in all the other parts of the site, there is widespread evidence of decay, destruction and demolition. Here the picture is not so clear as the only evidence is a burnt layer (305), full of iron slag and charcoal, abutting the east track camber, and spread over most of the east corner. The wall/fence line, the bridge and the trackway itself do not seem to have been affected. This layer was sealed by a compact gravel and flint surface which covered the whole area, including the track, which must have been out of use by this time. This layer was a yard surface and may indicate agricultural activity on the site, on a reduced scale, after the main period of demolition.

Phase 8

A number of relatively recent deposits were investigated, including river silts, and a modern fence built into recent bank infilling. The latter was required because the flow of the Misbourne has considerable decreased in recent times.

AREA V (Fig. 12,13)

The northern part of this area consisted of a 2m deposit of hillwash, most of which was pre-Roman in date.

Phase 1 c.160–175.

No archaeological features disturbed the natural clay-with-flints in this phase. No tufa or gravel was present, and therefore the edge of the western gravel island, upon which the farm buildings are situated, is located somewhere between here and the east side of area I.

Phase 2 c.175–225.

A broad, shallow ditch aligned northeast-southwest was exposed and excavated over a 12m length (272). This was 2m to 2.3m in width by 0.12m to 0.25m deep.

Phase 3 c.225–250.

The ditch remained open and a flint cobbled surface (275) was laid in a 3m wide band to the north.

Phase 4 c.250–300.

The ditch was gradually backfilled and went out of use during this phase.

Phase 5c .300–350.

The final backfilling of the ditch was completed.

Phase 6 c.350–390.

A second cobbled yard surface was laid (262) contemporary with the cobbling in Areas I and VII. As this was a peripheral area, the cobbling was not so well laid and the surface did not extend into the western arm of the area, where agricultural soils only were found.

Two parallel heated-channel structures, 3.4m in length, which cut this surface and the backfilled ditch, represent the substructure of a twin-flued corn drier. Of the northern flue only one wall survived (252), with a slightly recessed channel (257) and a western stoke pit (273). Both substructures seem to have been built by digging an east-west channel 1.3m wide, 0.2m deep, and then revetting both sides with walls of flint, tile, brick and chalk. The north wall (252) survived, measuring 0.66m in width and 0.33m in height. Its south face contained two courses of mixed brick and tile, divided by a course of flint and chalk. Large amounts of chalky marl were used as a bonding material, and in places the wall consisted only of this compacted light-brown marl. No trace survived of the southern wall or the east-end wall. The heating channel (257), cut through natural gravel, sloped gently down from west to east for 1.8m, then rose up quite sharply from a maximum depth of 0.33m below the cobbled surface (262). The channel was burnt red and black especially around the west end in the stoking area (273), which in both flues was full of wall rubble. There were very few traces of burning at the east end. The channel was filled with a lower layer of yellow-orange burnt clay, sealed by red burnt clay, presumably demolition debris from the superstructure.

The southern flue lay 3m from the first on the same alignment and was better preserved. The wall arrangement was a mirror-image of the northern structure, with the thicker, main wall (254) to the south. In both flues, the walls nearest the heat source were built predominantly of brick and tile. In this case four tile courses survived, 1m in length. The wall measured 0.5m wide and 0.35m in height, and was of identical construction to 252 described above.

A short length of the less substantial revetment wall (255) survived on the other side of the flue at the east end, measuring 1.2m × 0.22m. It was built almost entirely of chalk blocks, standing over 0.2m in height. Only the tile-built part of this wall had been robbed. The east end-wall survived joining the two east-west walls, and was of similar build and dimensions to the north wall (255). This flue possessed a

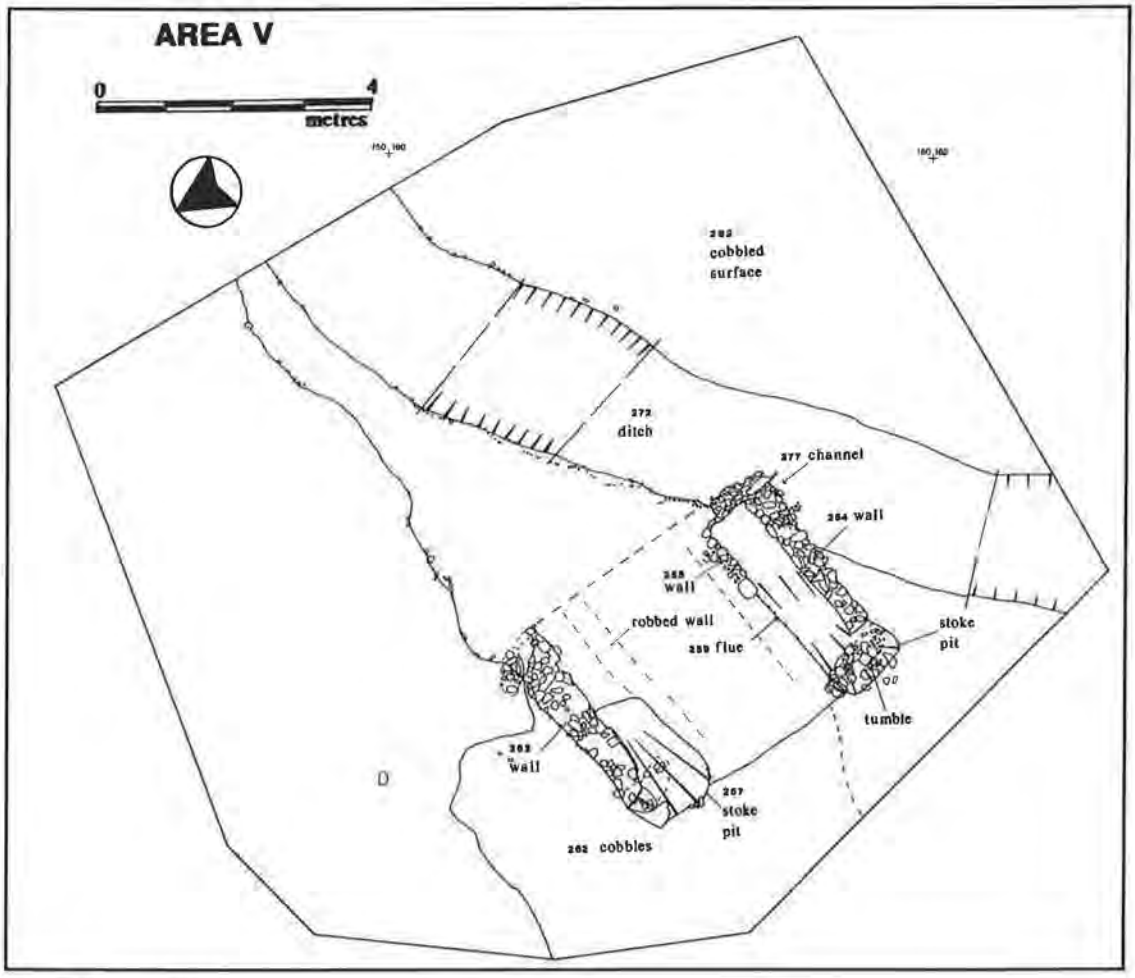

Fig. 12. Plan of Area V.

western stoke pit area and a burnt firing-channel (259) very similar to the northern flue. This sloped down quite sharply from the west and rose gently over a length of 2m to a maximum depth of 0.25m below the level of its contemporary yard surface (262). The channel was filled primarily with quite thin clay spreads (263, 264), although the east end was completely filled by chalk blocks from the demolished walls. The south-east corner of this structure contained an interesting feature, which provided the best clue to the nature of the superstructure. Here, the chalk-built end-wall continued for 0.4m to the south, where the top part contained the northern end of a raised channel (237) about 0.5m wide, and 0.18m above the eastern end of the flue channel. This served either as an exhaust port, which would also have aided the draught, or else would have given access to the raised drying floor. The latter probably consisted of square floor tiles or reused *tegulae*, both of which were found in association, but not *in situ*. It is possible that a clay-built oven chamber of unknown dimensions existed above the two flue channels and raised floor. Access to the floor would have been gained through one or more openings similar to the one described above (277). The floor would probably have been raised some 0.2m above the cobbled surface (262).

Sediment samples ([39] and [41]) taken from the twin flues were found to contain an abundance of spelt wheat grains, and a lesser quantity of oats. These were mainly cleaned grains, which had been

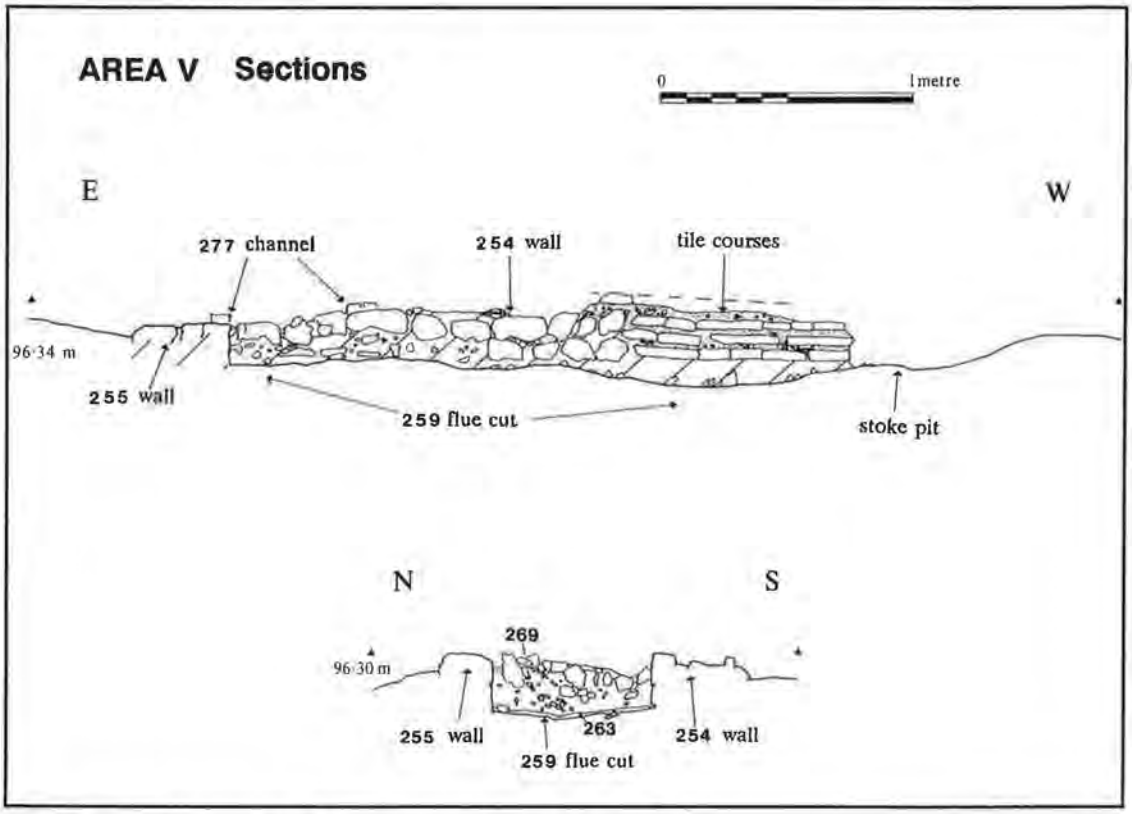

Fig. 13. Section east–west and north–south through corn drier, Area V.

accidentally burnt, having fallen in from the floor above (see report on seeds below).

Phase 7 c.390–410.

The corn drier appeared to have been abandoned and subsequently demolished at the same time as the period of building demolition in area VII. Robbing of reusable material probably occurred at this time. Subsequently, a thin soil (256) built up in and around the oven remains. This was subsequently sealed by a post-Roman turf-line (270), which was itself buried beneath 0.95m of hill wash and topsoil in the northern part of Area V.

The west side of Area V narrowly impinged on the edge of a spread of flint and tile demolition rubble unrelated to the ovens, which lay some 10m east. This deposit (267) may indicate the presence of an uninvestigated building located between Area V and the west side of Area I.

AREA VII (Figs. 14–20)

Phase 1 c.160–175, (Fig. 14, 20 c/d).

The western part of the area was cut by two substantial, converging ditches aligned similarly to ditch 155 in area I. The two were 15m apart at the western end and 3m apart at the east. The smaller of the two (945) was gently curved, and measured 2m wide by 0.7m deep. Its base was cut by a narrow slot, in the limited part that was excavated. The second ditch (652) had a similar sinuous curve, although this was only 2.8m wide and only 0.35m in depth. It was broad and shallow with gently sloping sides. An extensive surface of orange-brown, silt/clay was found between the two ditches (827).

Situated 18m to the south east was a gravelly surface (904) upon which were deposits indicating that this area was near a centre of iron smelting activity. The surface was cut by an oval post pit

(925), measuring 1m by 0.9m and 0.8m in depth with almost vertical sides. This could have been part of a workshop associated with the iron smelting described below. Just to the north of this, another brown silt/clay surface (917) directly sealed the natural gravel.

This surface, and the adjacent one (904), were covered by dense spreads of iron smelting residues. The largest single spread consisted of coarsely shattered flint, some of which was burnt, along with large amounts of smelting slag (see reports below). All these deposits interleaved with each other, some composed solely of finely shattered calcined flint with smelting slag. Slabs of refractory clay, presumed to be furnace lining, were concentrated in the south-west where the deposits filled a sizeable hollow more than 7m across. No remains of any smelting structure were found *in situ*. These contexts produced a total of 204 kilos of iron production residues, approximately half of the total recovered from all phases of the site.

Two satellite spreads or dumps of broken flint and slag were found to the north west (823) and north east (899) of the filled hollow. The latter was dumped around, but not over, post pit 925.

The earliest major structure in Area VII was built upon a platform in the south-east corner of the area (781, building 1). This platform or terrace of natural tufaceous material was probably originally part of a pre-Roman river bank of the nearby River Misbourne, partially scarped prior to being built upon. The full extent of this feature is unknown. The natural tufa sealed a thick layer of alluvial sand which formed the natural surface around the platform. During scarping the northern terrace edge was cut by a trench 3.9m × 0.83m (908). This was found filled with redeposited natural sand (782, 911), and may have been intended as part of a wall trench for a timber building. This form of construction may have been abandoned, due to the soft natural sand, in favour of the post-built structure revealed in Phase 2.

The area around the base of the platform was covered with a layer of sand/gravel (780), which had been cut by a shallow sub-rectangular feature (832) apparently a hearth base, which measured 0.85m × 0.16m. Located 9m north-west of this hearth was a circular area of more pronounced burning (714) which measured 1.3m in diameter. This hollow was filled to a depth of 0.10m with lumps of red burnt clay, sand and some iron smelting slag. It may be that this was an industrial rather than a domestic hearth.

The plan (fig. 14) shows a multiplicity of stoke holes and fence lines immediately north of the platform. It is likely that the first of these barriers originated in this primary phase.

Phase 2 c.175–c.225, (Fig. 14).

Timber building 1, on top of the platform (781) was completed early in this phase. There are two ways in which this structure can be interpreted. The first and least likely explanation is that two structures are represented; a palisade along the north platform base, and a small timber building of unknown size on top of the platform. The more likely interpretation is that one large building existed here, aligned east-west with the northern line of wall posts held by very deep post holes. These now appear to be in the side and base of the platform due to crumbling and erosion of the tufaceous natural (post holes and post pits: 865, 967, 871, 887, 908, 889, 891, 956). Alternatively, the platform may have been made up with redeposited natural sand, necessitating deep-cut post sockets in these unconsolidated deposits. The largest of these sockets (889) measures 0.59m in diameter with a surviving depth of 0.69m, which would originally have been over 1m in depth. Situated 5m east of this was the smallest post hole in the northern wall line (871). This was 0.4m in length and only 0.1m in surviving depth.

The trench-like feature (908) had been backfilled by this time. A second east-west line of sockets was found on top of the platform parallel to the north wall, and situated 4m from it. This appears to be a line of central ridge supports for the roof, along with a short length of what may have been an east-west partition slot (760). Some of these many sockets may have held posts which were later repairs to the original structure. The largest post (754) may have been centrally placed, in which case the reconstructed dimensions of the building would have been 8m × 17m, almost as large as the stone building constructed in phase 4. A further partition formed by two lengths of slots (768, 772) which were separated by an entrance gap, 1.7m in width was found 4m to the west of the central post pit.

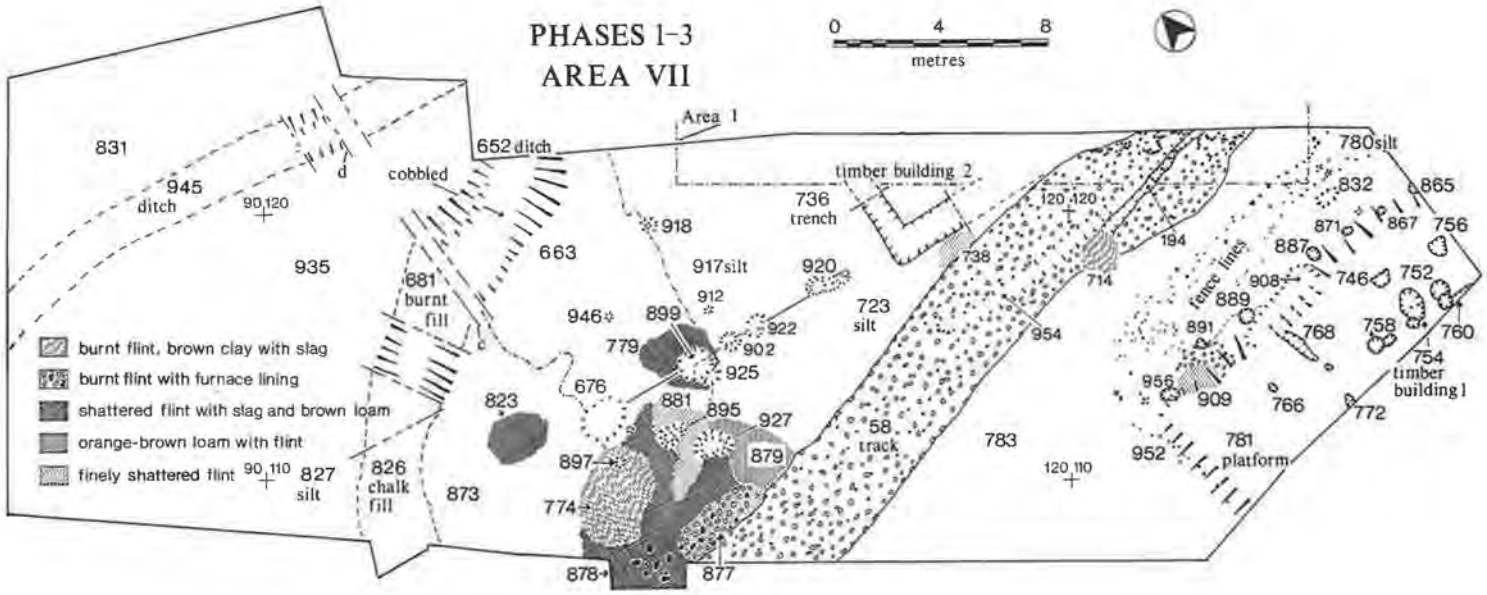

Fig. 14. Area VII, phases 1–3.

Contemporary with this construction phase, an occupation layer (782) was deposited on the side of the platform near the north west corner. This thin, dark silty layer was compacted and contained a large amount of broken pottery. The western part of this layer contained many flints, which were directly sealed by a limited deposit of grey-black, finely shattered flint (909). This spread was very similar to those found in the iron smelting area to the north west. On the northern side, the shattered flint faded into a patchy flint cobbling (910).

Elsewhere in this eastern area a more extensive surface of tufa and flints was found, also contemporary with the construction of the timber building. This was cut into by a further two east-west stake-hole lines with a single north-south line (952) to the west of the platform. These fence lines effectively enclosed the platform, the northern line being replaced at least once in this phase. Situated 4m north of the northern fence lines, running parallel with them, was a slightly curved linear slot (954), which was excavated over a 12m length. This measured 0.78m in width by 0.25m in depth, and may have functioned as either a drainage cut or else as a palisade slot. The latter interpretation is reinforced by the fact that this slot was extended to the east, into Area I, by a similar slot which did contain post sockets (194). The two slots overlapped somewhat in the central part. This feature was probably related to the regulation and segregation of livestock.

Timber building 2 was situated 4m north of slot 954. Only the south-west corner survived (736), and much of this was destroyed by later activity. It was a trench-built structure, which probably mirrored the shape of building 1 on the platform to the south. The trench measured 1m wide and 0.4m in depth, and did not survive in Area I, although the three stake holes (202, 204, 206) found in this location may have formed part of the building. An associated floor layer, of compacted grey clay, was found within the angle of the trench.

A layer of brown silt (723) was found in the area around the outside of the building. To the west of this was found the partial remains of a further timber structure (building 3), the most significant part of which was an east-west line of five post pits. The east end of this line was marked by a sausage-shaped post pit (920) which had contained four post sockets (948, 949, 950, 951), the largest 0.6m in diameter. This feature lay 2.5m west of the corner of timber building 2, and presumably formed the south east corner of building 3. Situated 10m west of this was the largest post pit in the line (676), which may mark another corner. This was 1.55m in length and 0.8m deep with vertical sides. All the features in this line had a common characteristic, namely that the uppermost layers of each post pit consisted solely of hard-packed chalk blocks, to a depth of between 0.15m-0.4m. Only one other post socket in the area followed this pattern. This was situated 5.4m north of the centre post (902) of the 10m long E-W line, and measured 0.6mm in diameter and 0.28mm depth (918). This socket may be all that remains of the northern parallel side of this proposed structure. Two small post holes, which may have been internal supports, were also found (912, 916). The function of two other post pits and two post holes (895, 927; 893, 897), which were cut into the dumps of iron-smelting residue is uncertain. An alternative interpretation of the post sockets in this group is that they represent the remains of one or more palisades or stock enclosures. This is however less likely.

Substantial filling layers were deposited in both of the western ditches during this phase, although neither was completely filled. The southern part of 652 ditch was partially filled with chalk blocks in a layer 0.23m thick. Three separate dark, silt/clay deposits were laid in the smaller ditch to the west (945) to a total thickness of 0.45m.

Phase 3 c.225–250, (Fig. 14).

A major transformation occurred early in this phase, with the laying of a very extensive cobbled surface (783), and the construction of the E-W flint cobbled track (58). The track is described in Area I but the cobbled surface faded out around the line of the division between the two areas. This edge therefore seems to demarcate the northern extent of the farmyard.

At the western end, the track was apparently laid in a cut (882), which clipped the edge of the slag dumps. This could have been a pre-existing holloway.

The cobbled surface (783) was laid on either side of the track, with which it was contemporary. It was composed primarily of flint nodules up to 0.20mm in

width, admixed with considerable quantities of redeposited smelting slag, presumably spread out from the levelling of the slag dumps which must have occurred at this time. This cobbling lapped up against the side of the southern platform (781), upon which timber building 1 was still in use. Similarly the cobbling was spread around the existing fence line to the north of the platform. In the area to the north of where the flint dumps had been, an extensive spread of evenly-burnt smaller flint cobbles was found (663). These were closely packed, an even light-grey in hue, and heat crazed. These cobbles had clearly been subjected to considerable heat whilst *in situ* – and were not derived from the area of iron production. The most likely explanation is that the timber building 3 was destroyed by fire and collapsed onto the area, thereby roasting the flint cobbling.

The cobbled surface was laid over the eastern end of the ditch (652), which was not yet backfilled. Here part of the ditch sides and base were cobbled, mainly with the burnt cobbles (663), merging on the northern side with larger, only partially burnt flints (822) (section fig. 20, c). The western edge of the severely burnt cobbling marked the limit of the cobbled surface.

Backfilling of the narrow ditch (945) in the north western corner of the area was completed at this time with the deposition of three identifiable layers, the lowest of which (937) contained large amounts of charcoal, possibly from the fire suggested above. The uppermost layer was composed of burnt black/red clay (935). In the extreme eastern part of the same level of ditch the fill was very chalky and contained possible wall plaster debris (943) (see Technical Report 8.9.2 below). Further evidence for destruction by fire of building 3, and other buildings outside the area, was found in the form of other major burnt deposits immediately to the west of the burnt cobbling (663). An extensive burnt deposit of red/orange clay (831) was found to the north of the narrow ditch (945), and to the south of the larger ditch (873).

The open areas of this ditch (652) were finally backfilled towards the end of this phase. The cobbling within the eastern part was sealed by two identifiable filling layers (905, 653) to a total depth of 0.35m. In the central area, another deposit of burnt clay (681) was revealed, albeit slightly later than those described above.

An area of blackened, heat-shattered flint (783) was found between timber building 2 and the trackway. This was apparently a hearth and contained a large fragment of quernstone. It is possible that building 2 was demolished around this time.

Phase 4 c.250–c.300, (Fig. 15).

A substantial stone building (654) was constructed early in this phase, aligned north-south; it measured 8.5m by 18.3m overall. The footings were of flint nodules of all sizes, mixed with the occasional piece of conglomerate and sandstone quern. The footings were built in a construction trench, which varied in depth from 0.33m to 0.55m. In places, the walls filled the trench, whilst in others a backfilled gap of between 0.16m and 0.22m was recorded. In a few areas the wall was preserved above the level of the original ground surfaces; here the above-ground wall was bonded with very hard orange/brown, sandy mortar. The walls varied in thickness from 0.75m to 0.95m, and this considerable thickness suggests that the superstructure continued as mass flint walling right up to the eaves. It is possible that the superstructure was built from other materials, but there was no evidence to suggest this. Sufficient tile was found in the demolition rubble associated with this building to be certain that it had a pitched roof covered in *tegulae* and *imbrices* (see report below). Its function is uncertain. Had it been a barn a large doorway would be expected but no entrances at all were discovered at this level. This implies the existence of steps, with at least one entrance on each of the long sides, affording access to what may have been a raised timber floor.

The nature of the roof supports is also problematic, as only one definite central post pit was discovered (824), situated against the inner face of the south wall. This socket measured 0.95m wide and 0.26m in depth. (Fig. 18, Section F). No signs of any other central, earth-fast ridge supports were found, which would have been required for the 8m span. Therefore, it is likely that post pads of which no trace has survived were employed to support the roof.

Evidence of an internal sub-division was found in the northern part of the building, in the form of a 3.7m long, north-south partition slot (829) with vertical sides. This was 0.18m wide at the northern end where it butted with the inner face of the footings, widening to 0.25m at the southern end. The depth also varied

from 0.38m to the north to 0.11m at the southern limit. The slot could have contained plank walling or wattle panels.

The earliest floor layer (934) survived in the northern area only. This was a thick, silt/clay make-up layer which acted as a base for a rammed chalk floor (933) up to 60mm in thickness, and spread throughout the two northern rooms formed by the partition. A similar chalk floor was found outside the north east corner of the building. A surface such as this would not survive unless it was protected, which suggests that a timber-built annexe contemporary with the flint-walled structure existed. This may have been a lean-to with non-earthfast supports, with dimensions of at least 6m × 4m.

An extensive pebbly floor surface had been laid in the southern half of the building towards the end of this phase (661). This north-south difference in flooring suggests that there was an internal partition aligned E-W in the middle section of the building.

The area to the north and west of the stone building was devoid of features, being covered with an apparently uniform layer of flinty clay/silt (691) which contained some domestic rubbish. This ground remained uncobbled, unlike the area to the east of the building, and was probably a neglected, 'backyard' area which could not be seen from the cobbled farmyard and does not appear to have been put to a specific use.

By contrast, the area outside the southern end of the building was covered in a layer of silt mixed with flints (828) which merged with the cobbling to the east. To the north of this was found a further rammed-chalk layer (658), which may indicate the position of a second lean-to structure abutting the building. A band of brick and tile rubble in the southern part of the chalk may have come from the demolition of this workshop or shed (665). The rammed-chalk floor measured 4.5m by 3m, and had a central burnt patch of red clay with charcoal (664), perhaps indicating the position of a hearth. The floor was bounded to the north-east by a silt-clay external surface (674) which gradually merged further south with the edge of the cobbling. The latter surface was cut by a substantial east-west gully (48) which had curved through the complete width of Area I and continued here for a further 7m, terminating near the south eastern corner of the proposed shed with the chalk floor (658). The gully ran along the northern edge of the existing cobbled surface (783). Situated 5m north of the gully was an isolated patch of flint cobbles (820).

A most interesting and enigmatic group of features was located around where the western part of timber building 2 had stood in phase 2 (fig. 14). The first of these was a short oblong, linear feature (733) with rounded ends which was aligned north-south, and measuring 2.4m by 1.05m by 0.30m deep. The south end of the base of this cut was lower than the northern end and it may have held a number of vertical posts or served some other, unknown function. It was short-lived, the northern end being cut by a dumb-bell shaped cut (790), which sloped steeply from south-west to north-east. This was very shallow at the south-western end, deepening to 0.55m at the bottom where it was previously observed in Area I (173). No clue as to the initial purpose of this feature was forthcoming, although alterations in the subsequent phase made the morphology at least slightly clearer. A small oval post hole (797) was found just to the west of the shallow end of the sloping feature. This measured 0.24m × 0.14m, with pebbles lining the base. Situated 5m south east of this was another post hole, sub-rectangular in plan (777) which was 0.4m long and 0.12m deep. This was cut into the northern edge of the trackway (58), which continued in use throughout this and the subsequent phase. The same was also true of the large timber building on the platform at the south eastern end of the area. During this phase, one and possibly two, new fence lines were constructed to the north of this building.

Phase 5 c.300–350, (Figs. 15 & 19).

The shallow end of the sloping trench (790) was altered by the addition of a sub-circular pit (801), which measured 1.22m wide by 0.1m deep. This was filled with charcoal and greasy burnt clay which sealed both a partial lining of brown clay (803) on the sides, and a base of burnt grey flint cobbles (802). This feature had all the appearance of being a hearth, or else a stoke pit which fed into the trench (790). The trench was certainly associated with this pit, as the same burnt cobbled lining was also found on the sloping base. The entire feature was infilled at the end of this phase with a chalky marl. Its function remains a mystery, and as no iron slag was found here it is impossible to connect it with an industrial purpose, although the chalk marl infilling could indicate

that limestone or chalk was being roasted to produce lime for building. The feature was definitely not used in crop processing; it may have been simply a rubbish or manure pit.

At this time the two northern rooms inside the stone building were refloored. The north-west room was given a new chalk floor (787), and the room next door was floored with a good pebbled surface (786), part of which was burnt. A very similar pebbled surface (694) was also found outside on the north-eastern corner where a timber annexe has been postulated, sealing the earlier chalk floor (944). The position of this surface was slightly different from the preceding one, suggesting that the structure had been rebuilt in a slightly different form and location.

Phase 6 c.350–c.390, (Fig. 16).

The pebbled surface (694) mentioned above, which was originally laid flat, was found severely subsided. This was the first indication of the substantial subsidence which started early in this phase, and was eventually to cause the demolition of the stone building. The subsidence was due to the settling and compaction of organic and other deposits in the backfilled phase 1 ditch (945), which the northern part of this large structure was built across (fig. 16). The subsidence was visible to the east of the north-eastern corner of the building as a large hollow, 2.7m × 2.0m long (695) with a pointed eastern butt end. The deepest part of this was 0.5m below the top of the wall footings, and had been eventually backfilled with many large flints in a dark silt/clay matrix (944).

This early feature continued for 5.5m inside the building (799) causing serious damage to this part of the eastern wall and also to the inner partition (829). There was evidence to suggest that the footings had to be rebuilt through the width of the subsidence, presumably because cracks had appeared in the superstructure. This involved digging new construction trenches, and thickening the footings base, which was partially bonded with a chalk and mortar mix. The bonding was also used as a facing on the inside of the repair. A single large block of conglomerate was added, measuring 0.6m in length along the face, to help strengthen the wall. This had probably been part of a large quern-stone.

The 1.5m wide gully (799) formed by the subsidence had to be rapidly infilled, to enable the building to carry on in use. Surprisingly, one of the first things to be dumped in the central part of the gully was a fragmentary panel of painted wall plaster (800, sample [40], fig. 17 – see report below). It seems likely that this plastered panel had come from one of the three adjacent walls including the dismantled partition. To be precise, it is incorrect to describe the backing material as plaster, as this was more like sandy mud or cob walling which had been painted. The most unusual feature of the panel as found was that it was facing *upwards*, as though it had been removed in one or more large, complete pieces and then dumped in the gully. The fragments covered an area 4m by 1m in a east-west direction, and were situated close to the inner face of the repaired east wall. The panel was composed of a simple, geometric design in red, white and grey, which could have come either from an upper frieze or from a lower dado. Immediately after this had been dumped, the rest of the gully was backfilled to a depth of 0.17m with a single dark clay/silt deposit (932) which sealed the plaster, and reinstated a level surface. Once the internal surface had been levelled, a make-up layer (785) was laid over the central and northern parts, which was then sealed by a floor of small pebbles (784).

A second major flint cobbled yard surface was laid over the southern and eastern parts of the site (718; 2 in Area I) beyond the stone building. Very little iron slag was found mixed with the flint, but quern fragments and three horse-shoes were found. This surface sealed the platform which had supported timber building 1 and similarly sealed the fence lines to the north of this. The extent of the cobbled track (58) was no longer so clear, although two patches of well-laid, consistently-sized flints with chalk patches (718, 722) may continue to indicate the line of the track. The same may also be true of a shallow, linear slot which appears to be a solitary surviving cart-rut (739). The only significant variation in this surface was recorded at the south end of the stone building. Here, a well made gravel surface was found (675). Both this side and the east side of the building required recobbling before the end of this phase (763, 764).

The first indication that the stone building was destroyed by fire at the end of this phase was found in the central and eastern parts both inside and outside the structure (682, 683) and consisted of a very extensive patchy spread of red burnt clay and other burnt material.

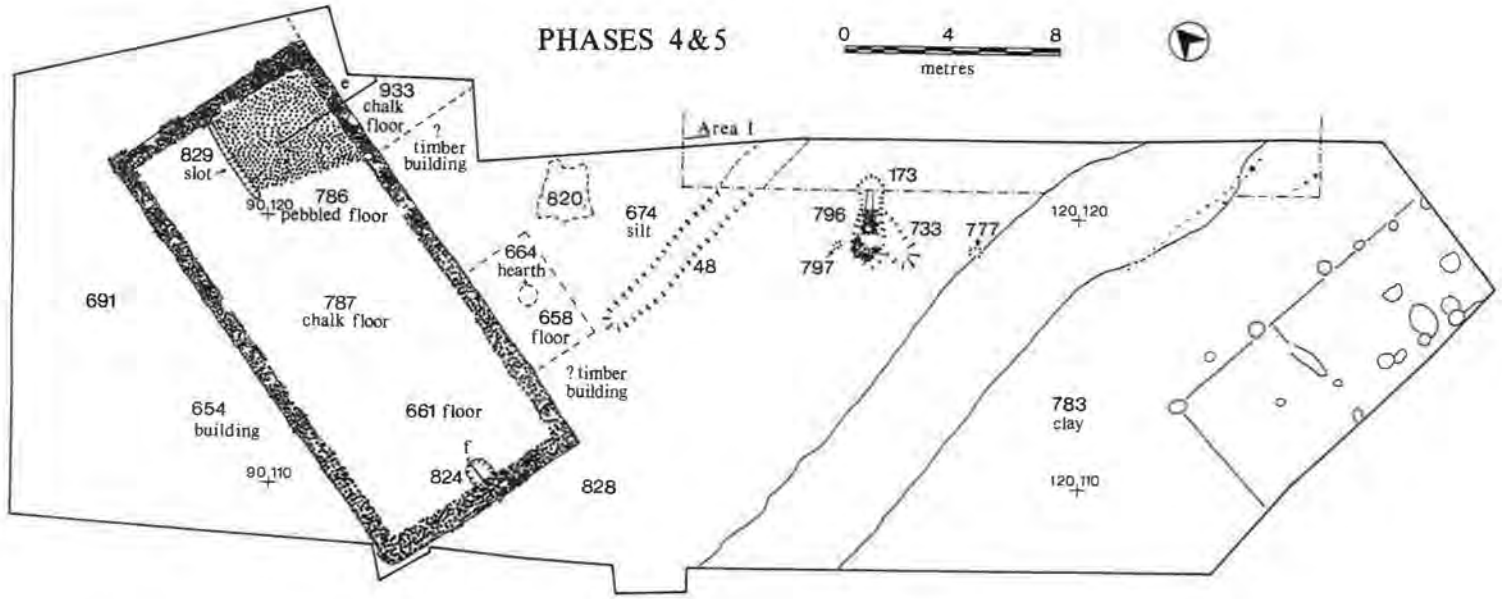

Fig. 15. Area VII, phases 4 & 5.

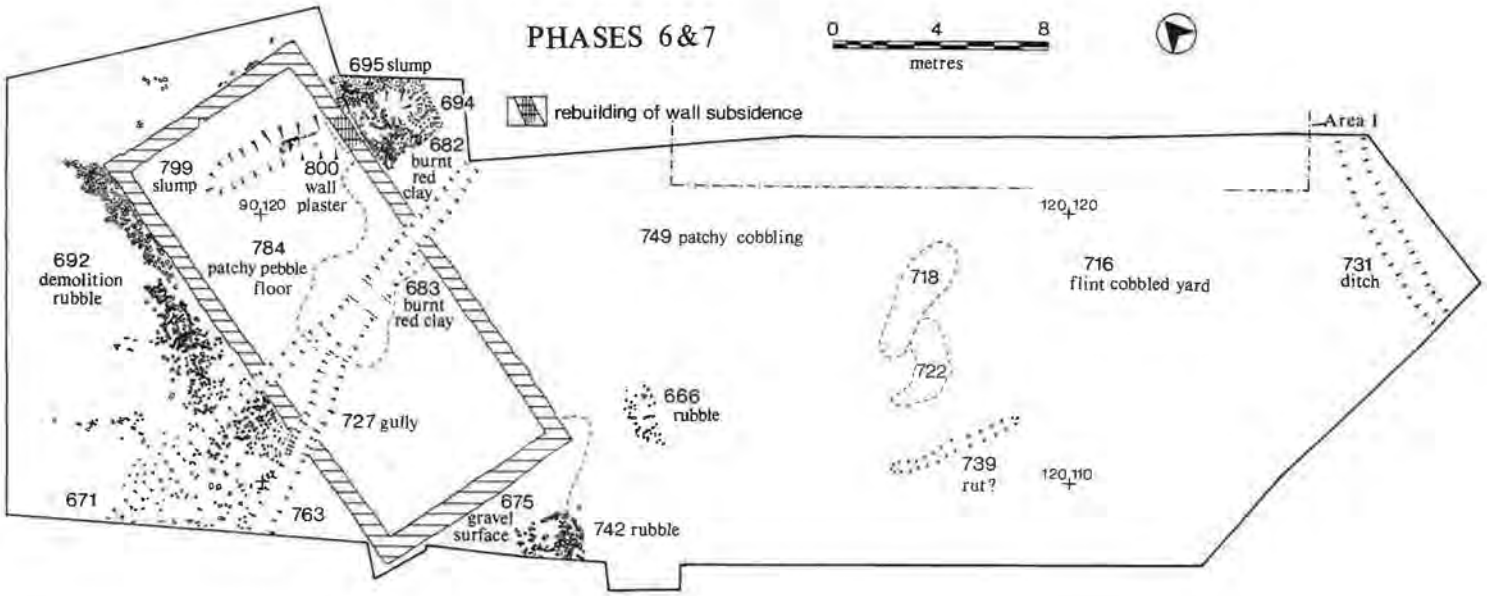

Fig. 16. Area VII, phases 6 & 7.

Phase 7 c.390–410, (Fig. 16).

The fire mentioned above seems to have prompted the demolition of the stone building. No other buildings in this area were in existence during this and the preceding phase. Rubble was found spread around all sides of the building, especially on what had previously been the empty west backyard (692). It consisted of flints of all sizes, some of which were broken and burnt, admixed with brick and tile. A similar deposit was found in the middle and northern parts of the building's interior (690). Smaller rubble spreads were also exposed near the south east corner of the building (666, 742).

After demolition had been completed, and little if anything remained standing, two east-west linear features (671, 727) were cut across what had been the central part of the building. These narrow gullies were both just over 0.2m deep and probably served as drains. They joined into one feature which continued to the east and ran out of the area, emerging in Area 1 (context 29, fig. 9). A similar feature was also found in the south east corner (731).

The only identifiable post-demolition surface was found 7m east of the east wall of the building. This was a patchy flint cobbled layer (749), which sealed the earlier yard surface. Although there were no usable structures left in the area, agricultural activity seems to have continued.

Phase 8 Post Roman.

Evidence for post-Roman flooding, in the form of decayed gravelly chalk overlying the man-made deposits, was found in the south east part of the site.

AREA VIII by M. E. Farley (Fig. 21)

This area was briefly examined in 1986 as part of a 'watching brief' following topsoil stripping during the construction of the 2.5km long Amersham bypass. Because of the nature of the investigation, it was not possible to tie the site closely in with the main phases; however, some dating was possible with the relatively small number of finds.

The man-made deposits in this area overlay undisturbed orange/brown clay-with- flints. Where the watching brief followed the road construction across the river flood plain, granular tufa was fairly extensive.

Phases 1–3 c. 160–250.

No identifiable features.

Phases 4–7 c. 250–410.

Two features can be attributed to these periods; the first was a ditch (201), 2.2m wide and 0.45m deep, aligned northwest-southeast largely filled with a dark loamy soil. Immediately adjacent to the north of this feature was a broad band of dark brown clay loam (229), overlying a dark brown loamy soil (223). This was not excavated owing to constraints of time; however, assuming it to be contemporary with the ditch, the two together can be interpreted as a muddy trackway with associated roadside ditch.

Adjacent to the 'track' on the south, presumably later than it, was a twin-flued corn drier (218). This feature did not survive to any significant height, but it could be seen that its construction involved bedding flints in an apparently random manner into crushed chalk, together with a few tiles laid flat, including *tegulae* and flue tile. Presumably its method of use followed that discussed above for the corn drier in Area V (phase 6). However, it appears much less regular in form. The more westerly of the flues (2m by 1m) was less obvious than the easterly flue (3.6m by 1.1m), in which the central channel was clearly visible, with a tiled bed.

To the south and east of the area examined, a substantial backfilled post-war gravel pit is thought to have destroyed further evidence. Controlled metal detection on the line of the by-pass at Area VII and to the south produced a few Roman coins and a twin to the copper alloy head of Jupiter discovered earlier in association with a group of bronze bowls. Very many metal detector users visited the area as roadworks commenced, some at night, and it is believed that a substantial number of Roman period finds went unrecorded.

AREA IX by M.E. Farley (Fig. 3 & 22)

This watching brief was within the grounds of East Lodge at the entrance to Shardeloes Lodge Estate (NGR SU 945 978). The excavation of the driveway for a new garage allowed a brief examination on 16th May 1989.

The evidence of Romano-British occupation included flint wall footings, 0.6m wide, aligned ap-

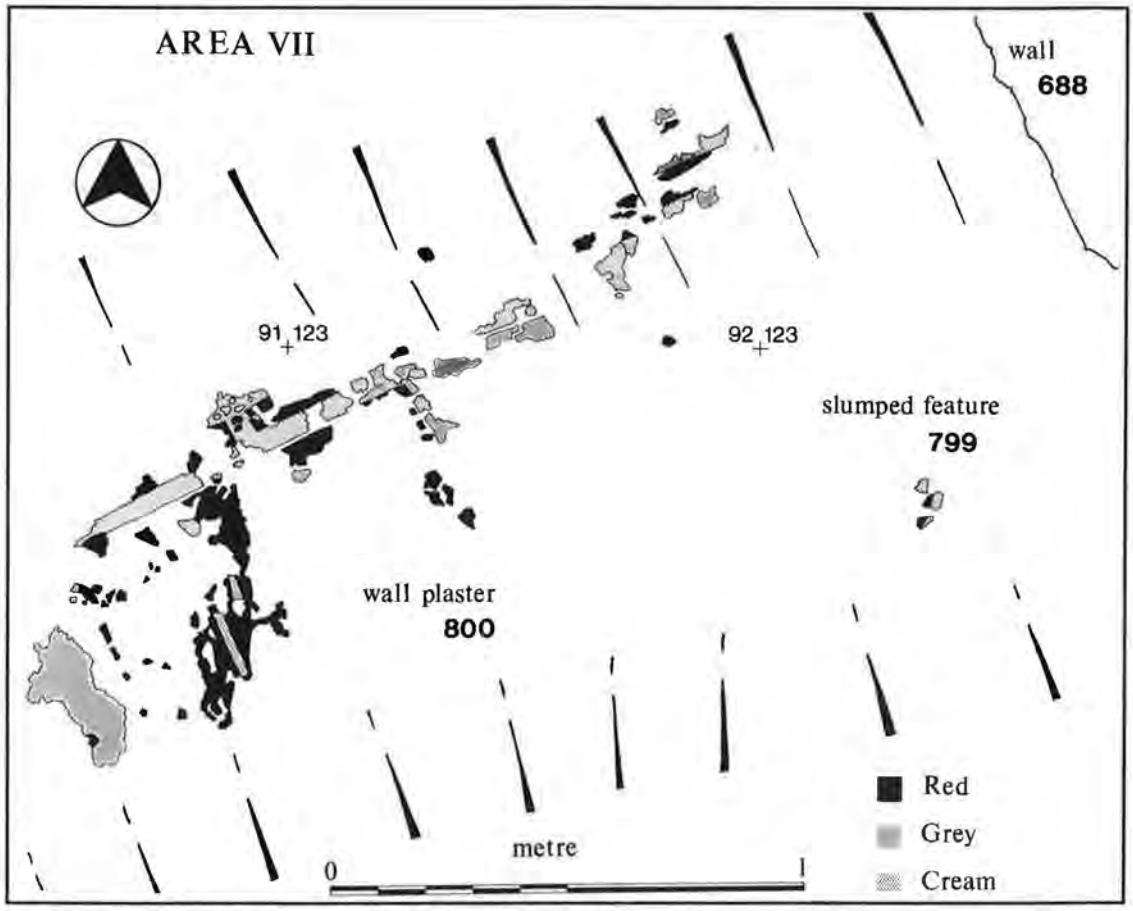

Fig. 17. Area VII, detail of dumped wall plaster within stone building.

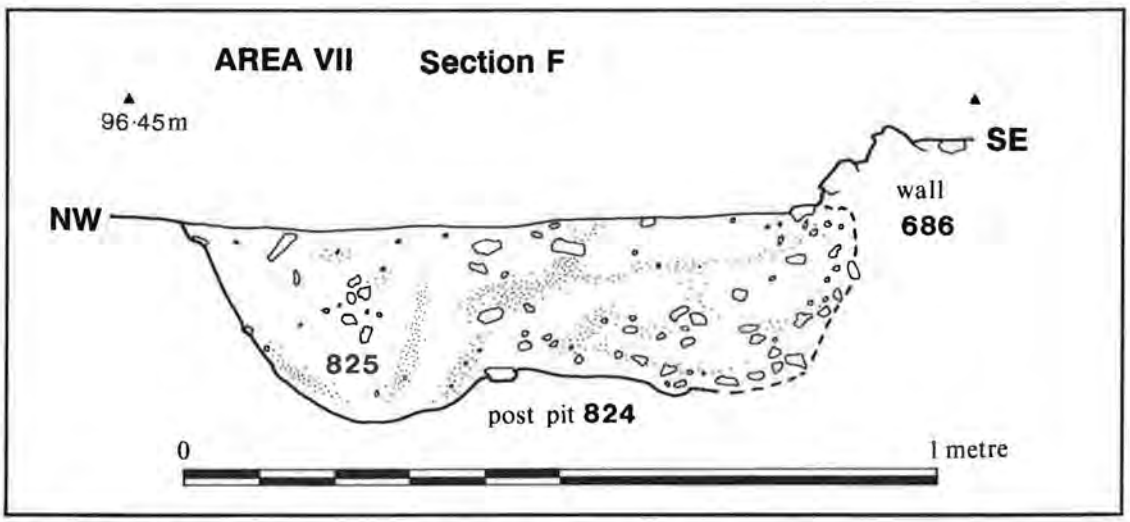

Fig. 18. Area VII, section through post-pit at south end of stone building.

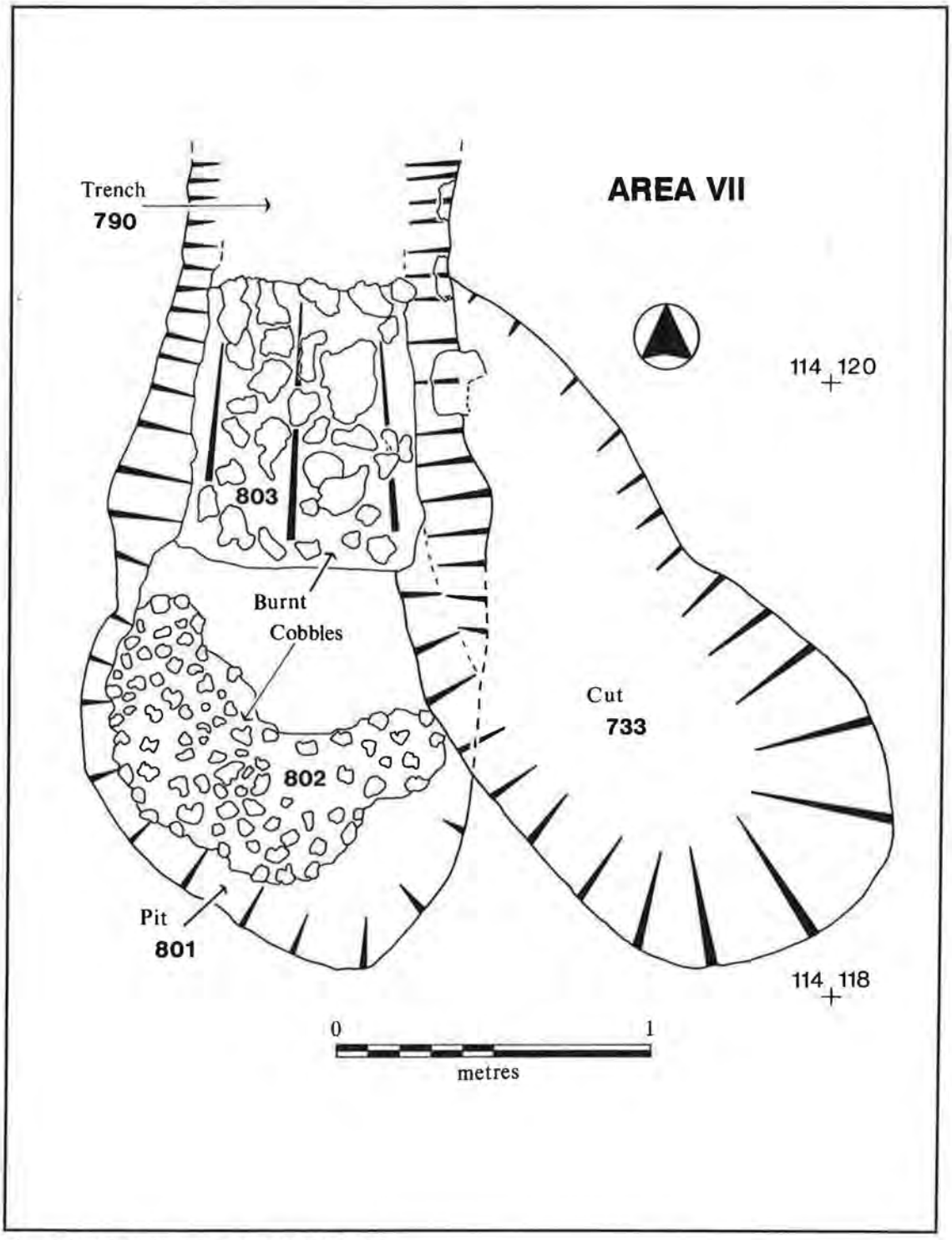

Fig. 19. Detail of ?lime roasting pits in Area VII.

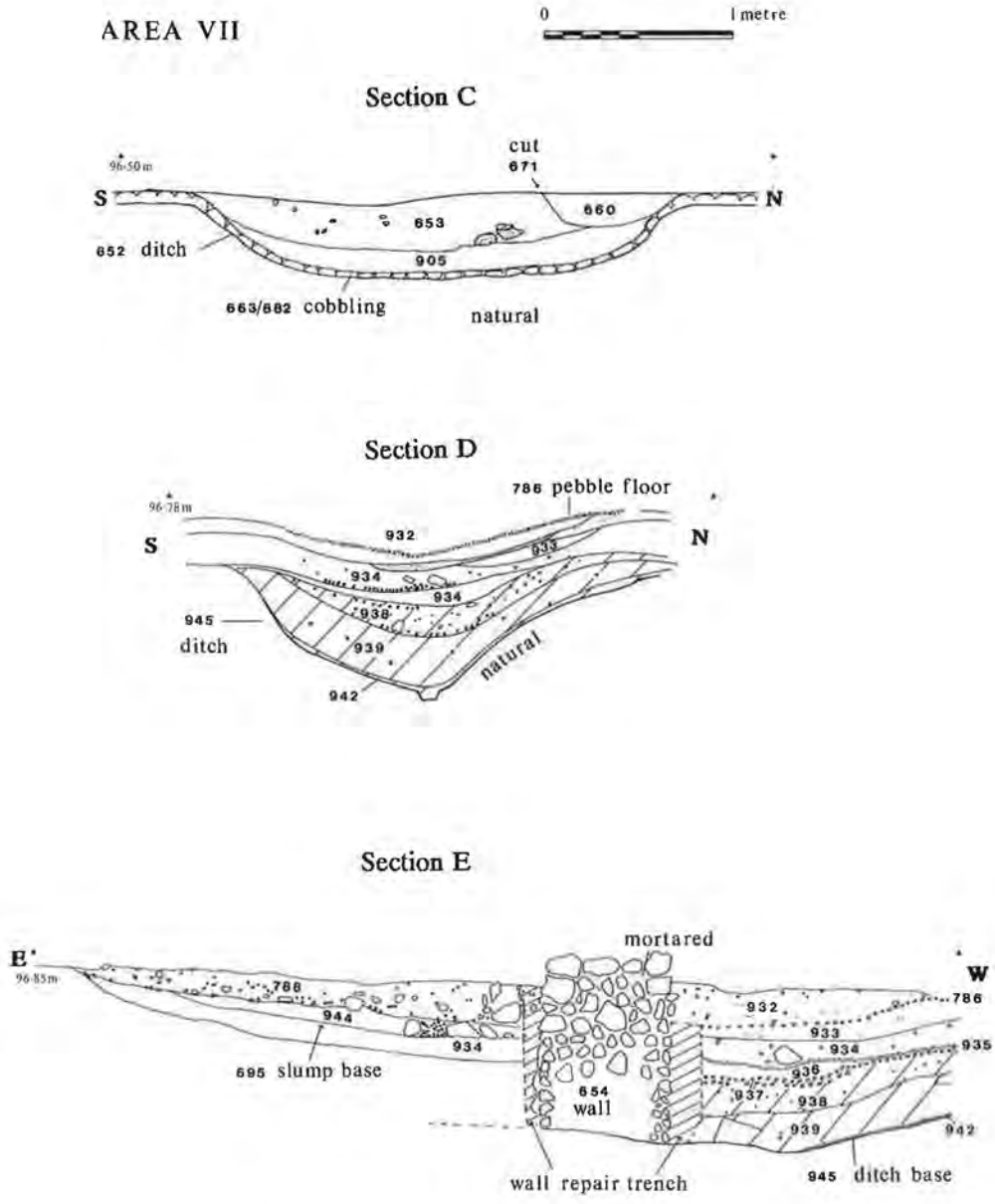

Fig. 20. Area VII, section c, d and e.

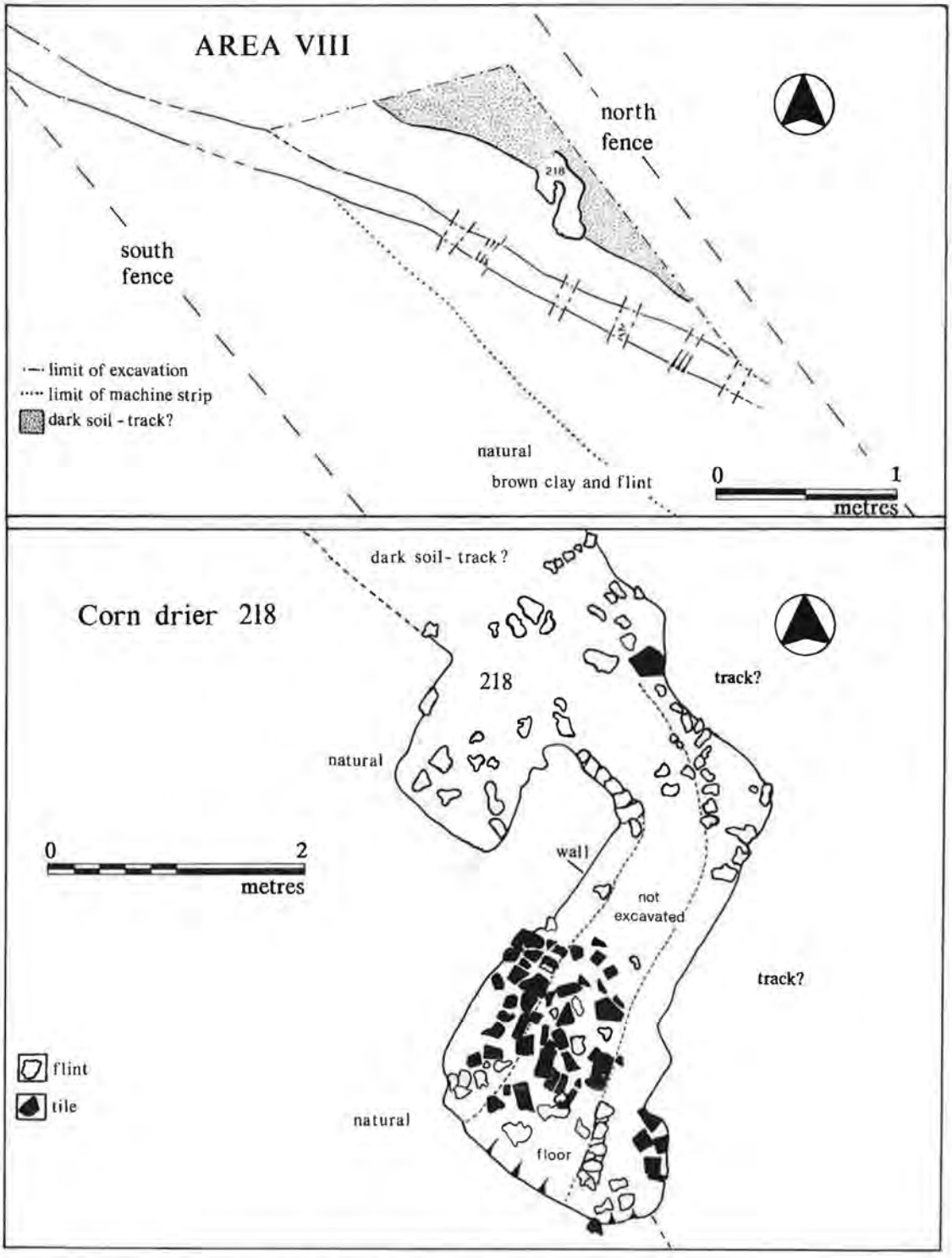

Fig. 21. Area VIII, by-pass watching brief and detail of corn drier.

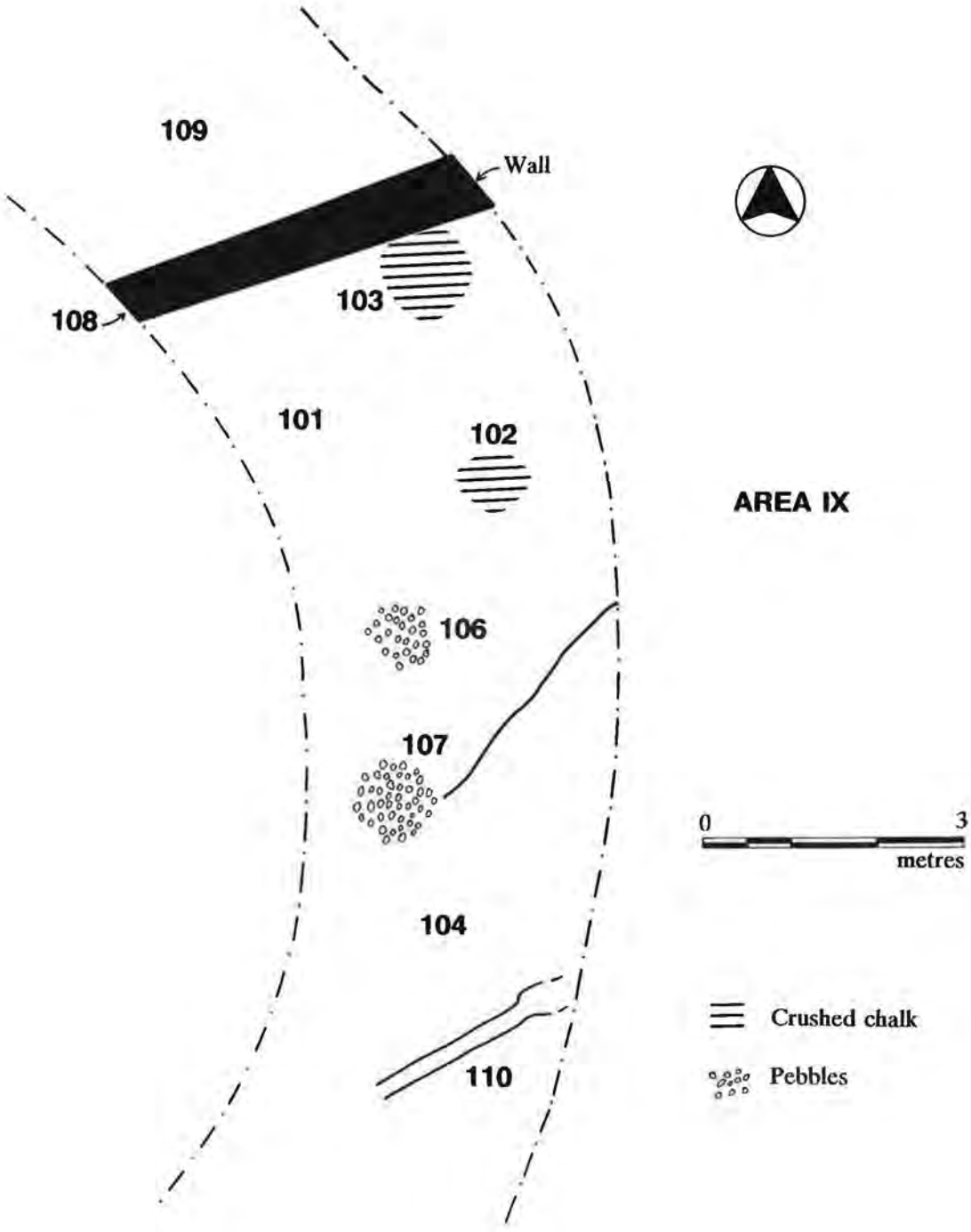

Fig. 22. Area IX, watching brief at East Shardeloes Lodge.

proximately east-west (108), and to the north of this a layer of possible wall tumble (109). South of the wall a layer of clayey silt with frequent charcoal flecking (101), may have formed the base for a pebbled floor which only survives in two small patches, (106) and (107). Also south of the wall were small sub-rectangular patches of crushed chalk (102) and (103), thought to be packings for post holes.

Quantities of tile, second-century pottery, and a second-century coin were recovered. There was insufficient time to examine the site more closely, but sufficient was observed to indicate that the building was probably part of the complex excavated further to the north.

Traces of a Romano-British building in the immediate area of Shardeloes Lodge were first noted in the mid 1950s during widening of the A413 trunk immediately east of Shardeloes Lodge.

SUMMARY OF PHASES by I. J. Stewart

The Romano-British occupation at Mantles Green, Amersham, may be divided into seven phases with a post-Roman phase:

Phase 1	–	c.160–175
Phase 2	–	c.175–225
Phase 3	–	c.225–250
Phase 4	–	c.250–300
Phase 5	–	c.300–350
Phase 6	–	c.350–390
Phase 7	–	c.390–410
Phase 8	–	Post–Roman

There are no 'hard and fast' divisions between phases; the dates are simply a convenience in describing the results of the excavations and watching briefs and may need revision should further work be carried out in the area. The results are summarised below, phase by phase, referring to the trench plans. The Romano-British material from elsewhere in the Mantles Green area is discussed along with the excavation results and appropriate comparanda in the next section.

Phase 1 (c.160–175)

Area I/VII shows evidence of iron ore smelting although apparently no furnaces were found *in situ*. The bulk of the smelting/smithing residues were found in a working hollow 7m across (fig. 14, 714); a large quantity of iron objects, including nails, fittings and blades were found in close proximity to the working hollow, indicating that the smelted iron was smithed into builders' ironwork and possibly tools. There were two 'satellite' spreads immediately to the north (see report below). This working hollow (714) abutted the edge of a dirt track situated in a slight holloway, aligned east-west, which changed alignment to a north-south direction immediately south of this area. Two boundary ditches existed to the north of the track (fig. 14, 945 and 652), and these may slightly pre-date the Romano-British occupation of the area. These ditches had been backfilled, in part at least, with a large amount of iron smelting slag. A single clay tuyère, a vital part of a smithing furnace, was recovered from one ditch (652) (see report below). There was evidence of a post-built structure immediately north of the working hollow – possibly a workshop associated with the iron smelting (Building 3).

Immediately east of the possible workshop, a trench-built sub-rectangular structure was undergoing reconstruction. Most of this structure (building 2) had been destroyed by later activity. South of the trackway a platform-built structure was constructed (building 1) mirroring building 2. Elsewhere in area I/VII deposits of sand/gravel mixed with smelting and some smithing slag had been laid as a crude form of flooring.

The dumping of industrial residues occurred in Area II on the north bank of the Misbourne.

Phase 2 (c.175–225)

In Area I/VII buildings 1,2 and 3 were completed and in use. There was evidence of partitioning in building 1 north-south and east-west, with one gap possibly forming an entrance. Some small industrial hearths were found adjacent to this building (fig. 14, 909). Buildings 1 and 2 were separated by a palisade aligned east-west (194) with a possible gateway. The excavator suggests that this palisade may have been used to facilitate the movement of stock into grazing areas. Smithing activity is more apparent than smelting, although comparatively few iron objects were recovered. Gullies and pits found in the vicinity of the workshop and other buildings may be connected with industrial activity in the area.

Dumping of industrial residues continued in Area II whilst the first evidence of Romano-British activity in Area V is the construction of a large boundary ditch (fig. 12, 272).

Phase 3 (c.225–250)

By this phase the palisade separating buildings 1 and 2 had been removed, and the early dirt track/holloway had been replaced by a track/road of flint cobbles mixed with slag (fig. 14, 58). This followed the earlier alignment and continued south into Area II (fig. 11, 371). Its construction indicates a change from temporary to permanent occupation. Existing smelting/smithing slag dumps were levelled and some industrial residue reused as road hardcore.

The track/road ran west out of Area I/VII in the general direction of the presumed site of the Roman-British villa *c.*350m to the west. There was evidence of resurfacing around the buildings using slag, flint cobbles, sand and quernstone fragments (fig. 14, 716 and 783).

The smithing activity reached a peak during this phase; the iron objects included nails, fittings, knives and other agricultural equipment found mainly in the fill of an earlier ditch (652) and on a cobbled surface (783).

Towards the end of this phase the building and workshop had been destroyed by fire – an industrial accident perhaps? The interface between phase 3 and the next phase was marked by the backfilling of ditches 945 and 652 with demolition debris from the buildings, and a general tidying up around Area I/VII.

Phase 4 (c.250–300) (Fig. 23)

By *c.*250 a prestigious flint walled rectangular building had been built over the site of the earlier workshop and boundary ditches (945 & 652) -an action which was to have later repercussions (fig. 15). This building was roofed with ceramic tiles, *tegulae* and *imbrices*, and was internally sub-divided. It is suggested that it may have had an upper storey.

At ground floor level, the southern half of the building is likely to have had a timber floor based on a bed of crushed chalk (787), whilst at least part of the northern half had a well-made metalled surface (786). There is evidence that at least one room of this building had painted walls at an early stage (fig. 17, 800, see report below). The excavator, Mr. P.A. Yeoman, considers that owing to its relatively high quality, this building may have been accommodation/offices for an official attached to the villa estate – perhaps a farm manager? There were at least two annexes attached to the east wall of the building, one of which may have had an industrial function (fig. 15).

Surrounding the building was a series of yard surfaces formed of silts/clays, cobbles, slag, domestic refuse and quernstone fragments. These were also found south of the track/road (fig. 15, 820, 828 and 783). Further east of the building was a series of gullies, and palisade trenches had been dug more or less parallel to the track (58). This, along with a 'bonfire' patch (118) and loams (110, 54), is taken by the excavator to be evidence for horticultural/ agricultural activity associated with the villa. The evidence of smithing in this area is minimal; the little smithing slag that survives may be associated with the construction of the stone building. Quite large numbers of iron nails, fittings and agricultural equipment continued to be deposited within the building and associated yards.

In Area II owing to heavy use of the cobbled track/road, it was replaced by a second trackway of cobbles etc, slightly offset to the original (fig. 11, 372). The ditch in Area V (fig. 12, 272) was backfilled during this phase.

Remains of another stone building examined during the watching brief at Shardeloes Lodge may be contemporary with the stone building in Area VII.

Phase 5 (c.300–350)

In Area I/VII the horticultural/agricultural trenches, east of the building were backfilled and replaced by a second set (fig. 8, contexts 5, 8, 37, 41 etc), on a more or less different alignment to the first set. The surviving soils (fig. 8, contexts 39, 51, 72, 46), laden with domestic refuse and charcoal indicate that this area still had an horticultural/agricultural function. One enigmatic feature (fig. 19, contexts 790, 801, 803, etc) may be a kiln for roasting lime either for mortar or for use on fields.

In Area II there is evidence of a palisade trench with stake holes in the western half of the trench. (Not illustrated)

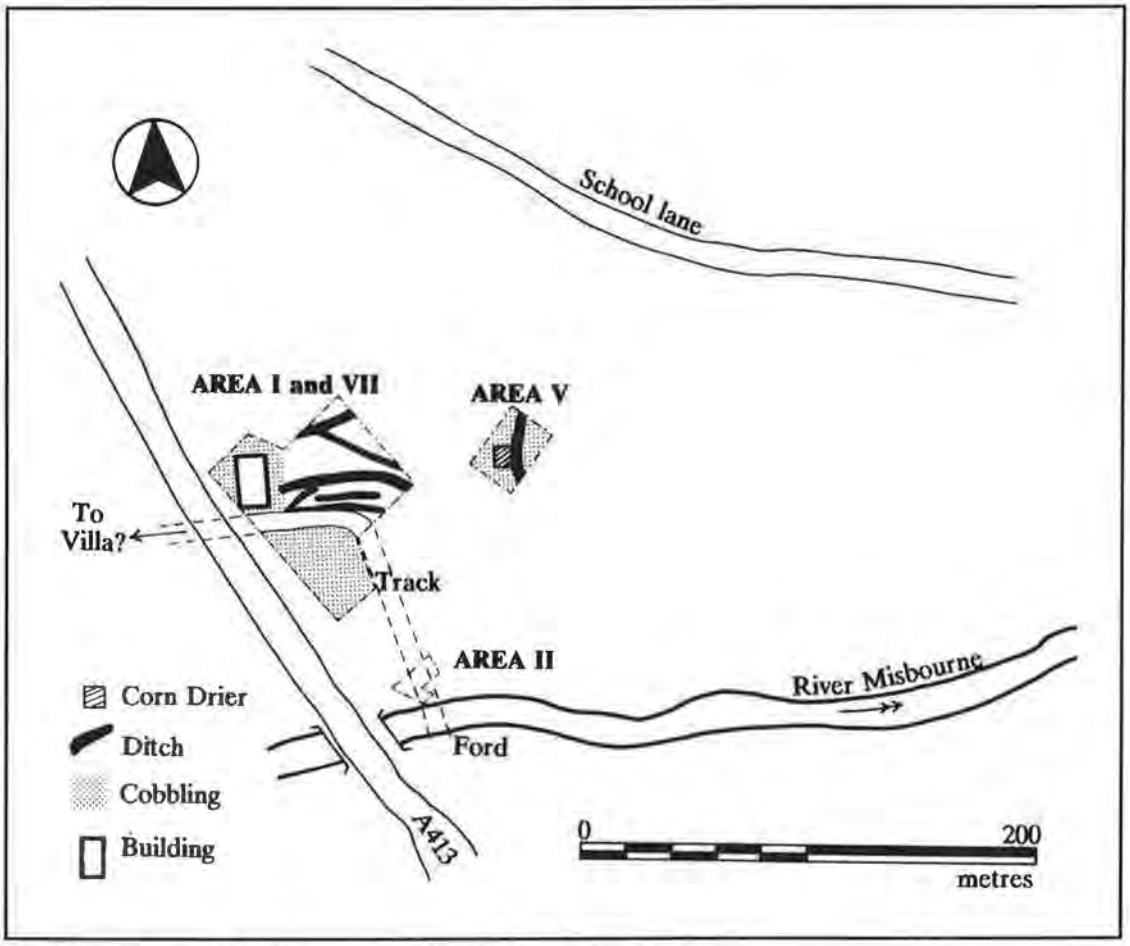

Fig. 23. The Romano–British occupation of Mantles Green, Phases 4–6.

Phase 6 (c. 350–390)

A major repair/rebuild of the stone building in Area I/VII took place on account of subsidence of the north eastern corner into backfilled earlier ditches 948 and 652 (fig. 14). It seems that the building was not kept up to the same standards thereafter. Wall plaster stripped from one wall (fig. 17) was dumped into a hollow left by the subsidence (799). The timber flooring was taken up from inside the building and a rather patchy, pebbly floor was laid down (fig. 16, 784).

Outside the building the entire area, including the cobbled trackway (58) and the agricultural trenches, were covered by an extensive cobbled yard (716, 749) which contained a large quantity of quernstone fragments, nails, iron fittings, locks and slag in its make up (figs. 9, 10a, 16). Some of the nails and fittings may have been from the repair of Building 4. The area continued to retain some agricultural function.

In Area II yet another flint trackway was laid down (fig. 11, 306) over the former trackway 372; this was 3.2m wide. The east edge of the trackway was marked by a fence line parallel to the road (not illustrated).

A rather poor cobbled surface located in Area V (fig. 12, 262), may have been on the periphery of the main settlement. A twin-flued corn drier or malting oven had also been constructed over this surface. Samples from the oven included wheat and, to a lesser extent, oats (see report below). It seems likely

also that this oven was located on the edge of the settlement area to avoid fire risk.

The remains of another corn drier/malting oven were located in Area VIII (fig. 21) during a watching brief and may belong to this phase. It was alongside a dirt trackway with a ditch aligned northwest-southeast along the valley floor. This may be a continuation of the trackway located in Area I/VII.

The interface between this phase and the last phase of Romano-British activity in the areas examined is marked by evidence of a fire and subsequent demolition of the stone building in Area I/VII.

Phase 7 (c.390–410)

The rubble of the demolished stone building was partly removed from the site, the remainder was scattered over the yard surfaces to patch worn surfaces (fig. 16, 671, 666, 718, 722 etc). The presence of wheel ruts over the surfaces indicates that the area was still used for vehicular traffic (fig, 9, 10a contexts 14 and 16, fig. 16 context 739). A drainage gully (fig. 9, contexts 29, fig. 16, contexts 671 and 763) cut across the Area I/VII including the site of the former stone building. The excavator has postulated the presence of a timber structure in the north western corner of Area I/VII based on three post holes (fig. 9, contexts 18,22, 24). There was a scatter of iron nails and fittings around the yard area possibly associated with the demolition of the building. The gully, yard repairs and timber building represent the last phase of Romano-British activity in Area I/VII. In Area II, a quantity of industrial debris had been dumped during this phase, palisade trenches backfilled and the whole area capped by another road surface. The corn drier/malting oven located in Area V (fig. 12) was demolished in this latest phase.

DISCUSSION

by I. J. Stewart and P. A. Yeoman

The Romano-British villa estate of Mantles Green lies in the Misbourne valley, *c.* 1.5km northwest of the present town of Amersham. The presumed site of the villa building is now occupied by Shardeloes Lake (NGR SU 943980) whilst the remainder of the estate extends down the valley side on to the floodplain of the River Misbourne, in a south-easterly direction towards Mantles Green farm. Occupation along the valley floor may have extended over a kilometre.

The estate is one of a series situated within valleys which cut the dip slope of the Chilterns, (Fig.1 and Branigan 1967, p.129, fig.1). These valleys, aligned northwest-southeast, are today mainly dry with small streams.

From the work carried out during 1983–1989 it appears that there was a trackway (cobbled in the later phases), which ran along the valley floor, linking the estate to the London to Silchester road to the southeast of the Chilterns, and the Icknield Way to the northwest. The southern boundary of the estate may have been marked by a cemetery (see survey of previous work, above). A nest of bronze bowls and two bronze sceptre heads found outside the excavated area, may also indicate the presence of a shrine (Farley *et. al.* 1988).

A number of buildings were located during the 1983–84 excavations alongside the trackway noted above. The buildings were probably agricultural or may have provided accommodation for estate workers. One building of stone may have provided accommodation for a villa official – perhaps a farm manager. Traces of another stone building, of uncertain function, were seen at Shardeloes Lodge (NGR SU 9475 9782), *c.* 150m south of the 1983–84 excavations. (Area IX, Fig.22). The presence of this building some distance from the site of the villa gives some idea as to the overall limits of the estate, southeastwards at least.

The presence of drainage ditches, and 'lazy bed' trenches near the villa estate buildings, and of corn driers or malting ovens on the periphery is evidence for arable farming. Fragments of querns recovered from the farmyards indicates that the grain was being threshed and milled, and reinforces this point. Evidence for pastoral farming is suggested by the traces of stockade post holes in Area VII (Fig.14). The evidence of the animal bone record is that cattle were dominant, followed by sheep and to a lesser extent pigs. That diversification on this estate had gone beyond mixed farming is shown by the evidence of iron smelting in the earliest phases of the villa estate, followed by smithing in subsequent phases. Possibly iron and iron objects were being produced to meet the home needs of the estate, and possibly for outside consumption.

From the limited dating evidence available it seems that the estate was established by the mid

second century and continued through until the late fourth. It is not known whether the villa's occupancy was precisely contemporary with that of the estate.

The estate at Mantles Green was one of several first considered as a group by Branigan (1967). The principal villa sites that have been examined in the area so far include; Hambleden (NGR SU 785855) in the Hambleden valley (Cocks 1921); High Wycombe (NGR TQ 873923) in the Wye valley (Hartley 1959); Latimer (NGR SU 998986) in the Chess valley (Branigan 1971); Boxmoor (SP 038056) in the Bulbourne valley (Neal 1970); and Gadebridge (NGR TL 051086) in the Gade valley (Neal 1974). With the possible exceptions of Hambleden and Boxmoor and now Mantles Green, archaeological investigations have for the most part been confined to the main villa and associated courtyard areas.

The villas are all situated in similar positions in the river valleys i.e. around the 300 ft. to 400 ft. contour, on the west side of the valley facing north or northeast and in close proximity to a water source. This enabled the estates to make maximum use of the shelter afforded by the valley and yet also maximise the natural light and drainage, leaving the lower valley sides for pasture and the valley floor for arable and communications (Branigan 1967, 134 –138). Some estates had their origins in the late Iron Age, including perhaps the Mantles Green estate which has produced Belgic pottery (Branigan 1967, 137) and a late Iron Age silver coin (see above), but no direct evidence of this came from the excavation. There seems to be a hiatus between the late Iron Age farming and the mid second century on two of the Chiltern sites, High Wycombe and Mantles Green. Based on the pottery evidence, the other villa estates appear to have been occupied continuously from the late first century onwards.

Professor Branigan's work on the estates, and other finds of Romano-British material, led him to conclude that there was a fairly regular distribution of villas, many of which originated as Iron Age farmsteads, along the valleys. These estates are usually spaced every 2–3km along the valley floors and perhaps cover (including pasture) about 450 – 600 acres, an estimate based on available valley floor and slope space on which crops could be grown and stock raised (Branigan 1967, 139).

Very little is known about the estates, apart from the principal buildings. At Hambleden however, which is at the confluence of the Hambleden Brook and the River Thames, there were at least a dozen or more corn driers/malting ovens and associated structures lying within and without the courtyard area (Cocks 1921,plan 1). It has been suggested that this particular villa estate had a specialist function, possibly supplying grain for the army (Branigan 1967, 142), and a wider production function has been suggested by Farley (1983). Subsidiary estate buildings are also known at Boxmoor, with structures of uncertain function found on the valley floor about 500m from the villa (Neal 1974 – 76, 110–112).

Two of the estates have also produced evidence of industrial activity. Gadebridge has produced iron smelting slag from the construction phase of the villa (Morgan in Neal 1974, 264–266), and Hambleden produced traces of smithing slag (Gowland in Cocks 1921, 158). Investigations at the Cowroast in Hertfordshire (NGR SP 957102) in advance of the A41(M) construction produced traces of Roman army occupation, followed by a major roadside settlement or villa estate astride Akeman Street. Traces of timber buildings were recorded along with fourteen well shafts. Although no iron furnaces were recorded *in situ*, two tons of iron slag was found. There was fairly extensive evidence of husbandry and a possible granary. (Thompson, unpublished personal communication to P. Yeoman).

A further understanding of the complexity of estates has resulted from work at a north Bucks site, the Bancroft villa in Milton Keynes (Zeepvat *et al* in Mynard 1987, 157–170, figs. 50–61). The writer is grateful to Mr. R.J.Zeepvat for further information prior to full publication. The Bancroft villa (NGR SP 82734033) is situated 0.75Km north of Bradwell village in the Milton Keynes development area, within Wolverton parish. It is thought that the present Wolverton parish boundaries match these of the Bancroft estate. The Bancroft estate consisted of a house and adjacent farmyard and buildings alongside a cobbled trackway, running along the west side of Loughton Brook to a ford close to the farmyard. There was also a mausoleum and shrine nearby which probably belonged to the owners of the villa. The exact function of the other associated buildings at Bancroft is uncertain but two may have been barns and byres. Such buildings probably existed at

Shardeloes/Mantles Green, and the two timber buildings (1 and 2) excavated in Areas I and VII here may have been barns/byres or even accommodation for estate workers. A large building constructed close to the Bancroft villa may have belonged to the estate manager perhaps serving as accommodation and offices; a similar function is suggested for the later stone building excavated at Mantles Green.

There are other basic similarities between the two sites. These include the presence of enclosures marking the position of gardens perhaps growing vegetables and herbs for the villa estate. In the Bancroft estate these were walled enclosures whilst at the Mantles Green site the enclosures were marked by ditches. Although there was no direct evidence of smelting or smithing hearths at Bancroft villa, there was indirect evidence in the form of smithing slag from a pit to the north of one of the farm buildings. (Zeepvat 1985, p.37, fig 8). Judging from the large quantities of implements and fittings etc. from the site it seems likely that there would have been blacksmithing here. Many of the tools and fittings are similar to the equipment found at Mantles Green.

In conclusion it seems that an estate was established at Mantles Green in the mid second century, possibly in the vicinity of a former late Iron Age farmstead, and that it probably continued in use until the late fourth century. Nothing is known about the villa building itself, except that it probably had at least one polychrome mosaic floor and that a 'mausoleum' and a shrine may have existed nearby. The estate occupies the same valley floor position as many other villas in the western Chilterns and there is evidence of an agricultural economy similar to that of other estates. Mantles Green is unusual in the area, however, for the substantial evidence of significant iron smelting and smithing. It is indeed quite possible that other nearby villas also performed a similar industrial role, but this is the first time that such a function has been recognised and investigated. Several interesting questions about this particular role remain unanswered, foremost among which must surely be – where was the ore source?

TECHNICAL REPORTS

INDUSTRIAL DEBRIS
Slag Report by J.G. McDonnell

The full slag report, discussing the temporal and spatial distributions, and the chemical and mineral analyses is given in fiche 1, frames A3-C8..

The production of iron artefacts from the ore requires two processes, firstly the smelting process in which the ore was reduced to the metallic state. This was carried out in a furnace, normally built of clay, and produced smelting slag as a by-product. The slag occurs in a number of different forms, typically as tap slag, having a flowed 'lava-like' surface. The second process was the smithing of the iron into artefacts, and their subsequent repair or alteration. Slag was also produced as a by-product of this process, typically the hearth-bottom, a plano-convex accumulation of slag. Ironworking structures, smelting furnaces and smithing hearths rarely survive on archaeological sites. Interpretation of the processes practised on a site therefore relies on the identification and analysis of the ironworking residues.

The residues were divided morphologically into smelting slags, smithing slags (including hearth bottoms), furnace/hearth lining, ore and fuel ash slag/cinder. Both fuel ash slag/cinder and furnace/hearth lining can be considered non-diagnostic residues since they may derive from other pyrotechnological processes, although in this case the majority of these residues were associated with diagnostic slags.

A total of 402 kg of residue were recovered from the site. They were categorised as follows:

Smelting Slag	187.16 kg
Smithing Slag	140.15 kg
Furnace/Hearth Lining	62.77 kg
Fuel Ash Slag/Cinder	6.42 kg
Ore	5.91 kg

The Distribution of the Slag

The slag was examined in both temporal and spatial distribution. Both methods are subject to distortion. The majority of slags occur in deposits contemporary with, rather than directly associated with the ironworking process. They may therefore occur in contexts e.g. ditches, some distance from the focus of the activity.

The Spatial Distribution

The slag was concentrated in Area VII of the excavation (Table 1). Twelve kilogrammes of the smithing slag occurred in Area I, but not in any concentration; only three contexts contained more than one kilogramme of slag (Contexts 4, 35 and 42). The absence of confirmed iron-working structures

places the furnace(s) and hearth(s) outside the areas excavated, but close to Areas I and VII.

TABLE 1 Area Slag Distribution by Weight (kg)

	Smelting Slag	*Smithing Slag**	*Furnace Lining*	*Fuel Ash Slag Hearth/Cinder*	*Ore*
AREA					
I	6.6	12.0	5.0	0.2	0.6
II	0.0	3.1	2.9	0.2	0.0
IV	1.3	0.0	0.8	0.0	0.0
V	0.0	0.0	0.8	0.0	0.0
VII	179.2	125.1	54.8	4.2	5.3

* = smithing slag + hearth bottoms

Archaeological Phase Distribution

The archaeological phase distribution is shown in Table 2. A small quantity of slag was unphased (1.32 kg). The distribution is discussed by individual phase.

TABLE 2 Archaeological Phase Distribution (Weight in Kg)

PHASE	*Smelting Slag*	*Smithing Slag*	*Hearth/ Furnace Lining*	*Fuel Ash Cinder*	*Ore*
I	151.76	19.37	31.69	0.81	0.68
II	4.73	2.62	2.63	0.55	0.04
III	14.91	49.21	12.08	1.39	1.73
IV	3.24	19.20	4.85	0.11	0.21
V	3.24	15.09	5.67	0.19	0.24
VI	4.11	28.38	2.62	1.27	1.87
VII	3.94	3.23	1.20	1.99	1.01

Phase 1 (c.160–175)

Phase 1 was the major period of iron-smelting activity with over eighty per cent of the smelting slag present. The majority of the tap slag occurred in Contexts 878 (67.30 kg), 714 (43.00 kg), and 774 (13.89 kg). Closely associated with Context 774 was Context 779 which contained 7.95 kg of tap slag. Context 714 was a roughly circular area of burnt clay and flint that produced 13.21 kg of furnace lining as well as the tap slag. It filled a shallow hollow in the natural ground surface, and therefore may have been the base of a destroyed smelting furnace. Associated with context 714 was context 819 containing 9.1 kg of tap slag, and context 780 which contained 2.8 kg of the (?) smelting slag. Contexts 714 and 819 contained smithing slag in excess of 1.5 kg. A boundary ditch (Context 652) produced 9.03 kg of smithing slag, 2.66 kg of hearth bottoms and 3.1 kg of hearth or furnace lining.

The Phase 1 ironworking residues indicate a (short) period of intense smelting activity with associated smithing to manufacture the required artifacts.

Phase 2 (c.175–225)

Phase 2 is characterised by a very low (background level) occurrence of slag. The contexts were predominantly postholes of the timber buildings, and therefore preclude deposition of slag. The slags recovered were residual from Phase 1.

Phase 3 (c.225–250)

Phase 3 produced the largest quantity of smithing slag. The greatest amount (28.30 kg) was utilised as cobbling (Context 783). Context 653 contained 14.75 kg of smithing slag and 3.40 kg of hearth bottoms. Both contexts contained large quantities of hearth/furnace lining (4.76 and 3.62 kg respectively). The amount of smithing slag was too great to have been residual from Phase 1, and therefore must represent a period of smithing activity.

This phase also produced 14.91 kg of tap slag of which 11.74 kg was incorporated in the cobbling (Context 653 and 783). A smaller quantity (1.35 kg) occurs in context 653. The slag was analysed to determine whether it was residual Phase 1 material or represented a second period of smelting. It was considered probable that a second period of smelting would have utilised the same ore source and would thus make distinction between the two periods of activity impossible. The results were not conclusive, but the slag was considered to be residual.

Phase 4 (c.250–300)

Phase 4 contained a background level of smelting slag. There was a large quantity of smithing slag. Contexts 658, 673 and 674 were closely associated and contained more than 1.5 kg of smithing slag plus hearth bottoms. Contexts 670 and 931 were a secondary feature (filling) containing 3.75 kg of slag.

There was a significant quantity of hearth/furnace lining; the largest amount was from a floor level (Context 661, 1.88 kg). This material was probably

derived from the smithing activity indicated by the slag. The smithing residues could have been residual Phase 3 material, or come from a period of smithing activity associated with the construction of the stone building during this phase.

Phase 5 (c.300–350)

The smithing slag and furnace/hearth lining recovered from this phase were concentrated in Area I in a group of associated contexts, (35,42,50,53,61(a hearth),63,64,72 and 74). The slag probably derived from a short period of agricultural smithing. There was residual smithing debris in Area VII (the main area of ironworking activity), e.g. Contexts 694 and 786 which were pebbling/cobbling.

Phase 6 (c.350–390)

A background level of smelting slag was recovered from this phase. The furnace/hearth lining showed a significant decrease from Phase 5 to just above background level. The smithing slag increased sharply (28.3 kg), indicating a third period of activity. Most of the slag occurred in Contexts 716 (23.50 kg) and 675 (3.24 kg), both of which were cobbling. The secondary nature of these contexts suggests that the slag was residual from an earlier phase, but there was a significant time lag between the previous major phase of smithing activity (Phase 3, Mid Second Century A.D.) and the Phase 6 cobbling (Mid to Late Fourth Century). It is probable that the slag was generated either in Phase 6 or 5 on an unexcavated part of the site.

Phases 7 and 8 (c.390+)

Both Phases contained only background levels of all slags.

Slag Analyses

The analyses of the tap slag showed it to be a typical tapped fayalite slag. The slag contained up to 10% manganese oxide indicating that a manganese-bearing ore was smelted. Buckinghamshire was listed by Tylecote (1963, 175) as one of the English Counties without a major ore source. Amersham is one of several sites in the region that have recently produced evidence of smelting (P.A. Yeoman pers. comm.). Two possible ore types were recovered from the site and analyses showed one of them to be the probable ore used.

The analyses showed the smithing slag to be a typical fayalitic smithing slag.

Summary

The analysis of the ironworking residues indicated an initial period of iron smelting and smithing associated with the establishment of the site. Iron smithing probably continued throughout the life of the settlement, with periods of more intense activity associated with the various building and destruction phases of the site.

Examination of the Hearth and Furnace Lining by Paul Wilthew

Introduction

The total weight of hearth and furnace lining examined was about 32.5kg, about half of the total found on the site. This material was associated with large quantities of iron smithing slag and iron smelting slag, including tap slag, which has been reported on by J.G. McDonnell (see above), and the present report should read in conjunction with his. All comments below on the iron slags are taken from that report.

Hearth and furnace lining consists of the vitrified clay lining of hearths and furnaces which have been raised to high temperatures, and is usually associated with metalworking activity. It is not usually possible to determine from the lining alone for what process the original hearth or furnace was used, but the presence of other waste material such as slag may, as here, give a good indication. In some cases parts of tuyères (the clay ends of the tubes between the furnace and bellows) are present, but very few were found in the material from Mantles Green. Where tuyères were present they are described in the text below.

Two types of hearth or furnace lining were identified:

1) A good quality, fairly refractory lining which included a substantial proportion of sand in the clay. The vitrified samples examined were quite dense and strong. It was probably used exclusively in iron smelting furnaces (see below) and is referred to below as furnace lining.

2) A clay lining containing little refractory material, which produced a low density, vesicular structure after vitrification. Much of the material (but not necessarily all of it) was probably from

blacksmithing hearths. It is referred to as hearth lining below.

The weights of hearth and furnace lining found in each context are listed in fiche together with the weights of iron smithing slag (including hearth bottom) and iron smelting slag found (Fiche 1, C9-C11). The dimensions of hearth bottoms are also included in fiche. The figures for the hearth and furnace lining are discussed by phase below.

Discussion

Phase 1 (c.160–175)

Much the greatest part (about 90%) of the furnace lining occurs in this phase, which was also the major period of ironworking activity (see slag report). The furnace lining was concentrated in 3 contexts, 714, 819 and 878, but smaller quantities (less than 500g in each case) were found in contexts 774, 779, 833 and 954. Apart from 833, which only contained 20g of furnace lining, every context which contained furnace lining also contained at least 5kg of smelting slag (mainly tap slag). Conversely, contexts which did not contain furnace lining contained at most 245g of smelting slag, and the furnace lining strongly suggests that the latter was from furnaces constructed specifically for smelting iron. The deliberate use of a fairly refractory lining was probably intended to prolong the useful life of the furnace. Unfortunately, few of the larger pieces of furnace gave any indication of the size or shape of the furnace, as they were generally slabs which showed little curvature. A few pieces, however, appeared to have come from parts of furnaces roughly in diameter from about 15–25cm. No evidence for features such as tuyères was found.

There was some correlation between the distributions of hearth lining and of smithing slag, and it is therefore probable that most of the hearth lining was from iron smithing hearths. One example of a tuyère of about 3cm internal diameter was found in context 652.

Phase 2 (c.175–225)

A total of only 315g of hearth and furnace lining was found in this phase. Such a small quantity of material is not significant, and may all have been residual from Phase 1.

Phase 3 (c.225–250)

This phase produced larger quantities of hearth lining than any other phase, and also contained substantial amounts of iron smelting slag. Both were concentrated in contexts 653 and 783. Some blacksmithing took place during this phase (see slag report above) and the hearth lining was almost certainly associated with it.

Some furnace lining was also found in two contexts, 783 and 937, both of which also contained tap slag. It was almost certainly either residual from Phase 1 or material from Phase 1 reused as cobbling.

Phases 4 – 8 (c.250–390+)

A similar pattern of hearth lining distribution was observed throughout Phases 4 – 8. Small quantities (at most 700g in any one context) were found in Area VII during each phase, in Area I in Phase 4 – 7 and in Area II in Phases 5 and 7. Possible examples of tuyères ranging from 20mm to 40mm in internal diameter were found in the material from Phase 8, context 307 and phase 8, context 650.

Furnace lining was found in only one context which represented an area of cobbling. The furnace lining was almost certainly re-used material from Phase 1.

Conclusions

Two types of hearth/furnace lining were present: a good quality, refractory, sand rich, clay lining used only in iron smelting furnaces during Phase 1; and a much less refractory clay lining found throughout Phases 1 – 8 which was generally associated with iron smithing slag.

The distribution of the hearth and furnace lining supports the conclusions about the nature of ironworking activity on the site drawn by J.G. McDonnell in his slag report. In particular, it suggests that iron smelting was only carried out during Phase 1, but that a low level of blacksmithing activity was probably taking place on or near the site during much of the period covered by Phases 1 – 8.

(*Ancient Monuments Laboratory Report* No. 4763, January 1986). (See also list, by context, in microfiche 1, C9-C11).

IRON OBJECTS

Iron Objects and Phasing
by I. J. Stewart and Valerie Kempster.

There were 2634 iron objects present at Mantles Green. Of these 1342, representing a little over 50% of the total objects, were unidentifiable. A total of 399 objects were recovered from post-Roman deposits and, apart from being listed along with other objects in Table 3 below, are not discussed further. The remaining, stratified objects (2235 objects) are discussed below, phase by phase, followed by a brief summary.

This iron-object report should be looked at in conjunction with the slag and furnace/hearth reports above. For specific quantities of objects present refer to Table 3 below.

The phasing is based on initial phasing of the site and may need revision when the coarse pottery is studied in more detail.

Phase 1 c.160–175

A total of 183 iron objects were recovered from what is considered to be the earliest Romano-British phase at Mantles Green. This represents a little over 8% of all stratified iron objects recovered; 110 iron objects were unidentifiable, representing approximately 60% of the objects from this phase. The majority of objects recovered were nails, followed by blades/knives, miscellaneous fittings, tools and pins etc.

The largest concentration, which included nails, fittings, staples, hooks and blades came from context 819, Area VII, a layer of gravel/sand – a possible floor associated with smelting/smithing. This 'cluster' was found in close proximity to a hearth (fig. 14, 714) which may have been used for smithing. Another group of 13 unidentifiable objects and six nails which came from the hearth itself suggest smithing was taking place in the vicinity of Area VII. The remainder of the objects were found lying scattered on floor surfaces and in and around the early ditches (fig. 14, 945, 652).

Over 80% of the smelting slag recovered was from this phase. Generally the low proportion of iron objects from this phase suggests that smelting rather than smithing of iron was predominant.

Phase 2 c.175–225

Only 50 iron objects were found, representing less than 2% of the total objects recovered from the site. Eighteen of these were unidentifiable, the remainder consisting mainly of nails, along with a few blades/knives, tools and horseshoes.

One 'cluster' of iron objects was found which included a blade, nail studs and staples. This group was recovered from the backfill of one of the earlier hearths (fig. 14, 94). There was a scattering of objects throughout the areas examined, mainly nails. There is evidence of a significant lull in smelting/smithing activity in the areas examined, and this was reflected in the small amount of slag and hearth/furnace lining recovered from this phase, which is considered to be residual from Phase 1 (see above).

Phase 3 c.225–250

A total of 611 iron objects were recovered from this phase representing about 25% of the total examined, a marked increase on the preceding phase. Of the total number of objects examined, 273 were unidentified (44% of the total).

The bulk of the identifiable objects consisted of nails followed by blades/knives, miscellaneous fittings, studs, a bucket handle complex (fig. 24, 3), pins, keys and a possible ?arrow head (fig. 27, 4).

The majority came from the main contexts in Area I, namely the backfilling (653) of an early ditch (652), and an extensive cobbled surface (783) (fig. 14, 20c). The remaining objects were scattered throughout the areas examined. The comparatively large quantity of hearth lining, along with large quantities of smelting/smithing slag, again suggests that smithing had reached a peak during this phase, perhaps with some smelting. It appears to be no coincidence therefore that this phase produced a high proportion of the iron objects.

Phase 4 c.250–300

From this phase a total of 381 iron objects were recovered, representing above 14.5% of the iron objects from the site. Of these 219 were unidentifiable (57.5% total). Again, the bulk of the identifiable items were nails, followed by blades/knives, miscellaneous fittings, and tacks.

Iron objects were concentrated in contexts 659, 661, 673, and 674, Area VII. The first of these

contexts was a construction rubble layer for a stone building, 654, whilst the remainder came from a pebbled surface within the building (661), which also produced a significant quantity of hearth/furnace lining, and from yard make-up layers (673, 674),surrounding the building. Many of the nails, fittings etc could possibly have been left over from its construction. The hearth (fig. 15, 664) adjacent to the east side of this structure may have been associated with smithing.

Phase 5 c.300–350

Only 132 iron objects were recovered from this phase representing 5% of the total; of these 99 were unidentified (c.75%) of the total from this phase. The bulk of the remaining objects consisted of nails, blades/knives, locks, two anvils, the occasional fitting, horseshoes, pins, studs etc.

The objects were concentrated in four places in Area I/VII, contexts 72, an agricultural soil, and also 42, 44, 53 and 64 which consist of a series of agricultural ditch fills. A spear head was recovered from context 42 (fig. 27, 6). There was a 'cluster' of iron objects recovered from inside the stone building (context 786 and 789), mainly nails. Elsewhere there was a general scatter of objects throughout the excavation areas.

The comparatively small group of iron objects retrieved from this phase may indicate a lull in smithing activity in this part of the Mantles Green settlement, perhaps after the construction of the stone building. It is possible that small-scale smithing was being carried on during this phase for the fabrication of horseshoes and cart fittings, and repair of implements etc.

Phase 6 c.350–390

From this phase a total of 549 iron objects were recovered, representing just under 21% of the objects examined. Only 50% of the objects were identifiable. Nails, blades/knives, miscellaneous fittings and tools (including two anvils) etc. were present.

There were large groups of iron objects from context 784 (fig. 16), a patchy pebbly floor within the stone building in Area VII, and in context 788, the backfill from a depression within the stone building, which marked the slumping of an earlier ditch (fig. 14, 16, 652). Large quantities of iron objects were also found incorporated into yards surrounding the stone building (fig. 16, 749) and hence residual from an earlier phase. The bulk of the iron objects, especially nails and fittings, were from Area VII in the vicinity of the stone building; this building had undergone a series of major repairs especially in the NE corner, owing to the slumping; nails etc found in this area would be left over from the partial demolition and repair of the building. A quantity of smithing slag was recovered from the yard surface surrounding the building (contexts 675, 716) representing, a third possible phase of smithing. This may be associated with the substantial repair to the building; left-over slag would have formed a suitable hardcore for the resurfacing of yards belonging to this phase.

Phase 7 c.390–410

The last phase of Romano-British activity on the Mantles Green site produced 379 iron objects representing about 12.5% of the total objects examined; about one third of the objects remained unidentified. The usual range of nails, agricultural implements, e.g. knives, miscellaneous fittings and tools (including another two anvils) and horseshoes etc. were present. Again the majority of iron objects were confined to Area VII, scattered amongst spreads of demolition rubble (fig. 16, 692, 666 etc) and on top of the cobbled yard surfaces (fig. 9 2, fig. 16, 749). A very late gully (fig. 9, 29) contained a large quantity of nails, fittings etc.

There is only a 'background' level of iron smithing slag, probably residual from this phase. It is likely that smithing had ceased by this time, and the bulk of the objects recovered, being nails and fittings were left over from the demolition of the stone building in Area VII, whereas the few agricultural implements etc suggest that farming was still being carried out in the area during this late phase of Romano-British activity.

Discussion of Iron Objects by I. J. Stewart

The problems with phasing the site have previously been discussed; nevertheless certain trends are apparent. The bulk of the iron objects from the Mantles Green site, including the unstratified objects, were concentrated in Area I/VII which was also the most extensive area examined; this area also produced the buildings. Very few iron objects apart from the occasional iron nails, fittings and implements

TABLE 3
Iron Objects from the Mantles Green Excavations

TYPES OF OBJECT	PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	PHASE 7	PHASE 8	TOTALS
Unidentified	110	18	273	219	99	279	107	237	1342
Nails	50	24	262	119	16	196	147	69	883
Blades/Knives	12	3	41	16	6	49	12	26	165
Misc. Fittings	6	2	18	7	1	6	26	7	73
Tools	1	1	1	6	3[1]	6[2]	20	8	46
Horseshoes	–	–	–	–	1	2	3	27	33
Studs	1	1	4	4	1	1	4	–	16
Pins	3	–	1	2	–	3	1	2	12
Brooches	–	–	3	3	1	1	2	1	11
Latches	–	–	1	1	1	–	–	3	6
Handles	–	–	3[3]	1[4]	–	–	1	–	5
Wires	–	–	–	1	–	–	–	4	5
Discs	–	–	–	–	2	1	1	–	4
Knobs	–	–	–	–	–	2	–	2	4
Rings	–	–	–	–	–	–	–	3	3
Keys	–	–	1	–	–	1	–	–	2
Needles	–	–	–	1	–	–	1	–	2
Buttons	–	–	–	–	–	–	–	2	2
Rivets	–	–	–	–	–	–	–	2	2
Arrowheads	–	–	1	–	–	–	–	1	2
Horseshoe Nails	–	–	–	–	–	–	1	–	1
Buckles	–	–	–	–	–	–	–	1	1
Hob Nails	–	–	–	–	–	1	–	–	1
Razors	–	–	–	–	–	–	1	–	1
Lock	–	–	–	–	–	–	–	1	1
Rim	–	–	–	–	–	–	–	1	1
Bell	–	–	–	–	–	–	–	1	1
Sheath	–	–	1	–	–	–	–	1	1
Container	–	–	–	–	–	–	1	–	1
Spearhead	–	–	–	–	1	–	–	–	1
Spindle	–	–	–	–	–	1	–	–	1
Spade	–	–	–	–	–	–	1	–	1
Plough Share	–	–	–	–	–	–	–	1	1
								TOTAL	**2631**

[1] inc. 2 anvils
[2] inc. 2 anvils
[3] inc. 1 escutcheon/1 spoon
[4] spoon handle

were found in Areas II and V. The discussion below is limited to Areas I and VII.

Iron nails dominated the entire assemblage. Nearly 900 were recovered from Area I/VII, representing nearly a third of the total identifiable objects found. They were particularly common in phase 3 (262), Phase 4 (119), Phase 6 (196) and Phase 7 (147). The nails recovered from phase 3 may be associated with the fire and subsequent demolition of early timber buildings, dating to *c.*160–250. The large number of nails from Phase 4 may be residual from the previous phase, or possibly connected with the construction of the stone building at the beginning of Phase 4. The large quantity of nails recovered from Phase 6 may be associated with the partial demolition and subsequent rebuilding of the stone building in Area VII, whilst Phase 7 produced a large quantity of nails left over from the demolition of the building.

No smithing hearths were seen *in situ*, but the smithing slag present suggests the manufacture of nails, and fittings for buildings and carts etc, and agricultural equipment and tools.

Interestingly, after the initial smelting phase, *c.*160–175, smithing appears to have continued through to *c.*390 with particular peaks during the building construction/repair programme in Area I/VII. It is possible that nails and fittings were being manufactured during this phase for use in the buildings.

A relatively high proportion of knives/blades were recovered. This area of settlement may be associated with the manufacture and repair of agricultural implements. The miscellaneous fittings recovered from the site include rods, ties, bucket handles, chains, etc and may be scrap left over from blacksmithing processes carried out nearby – perhaps connected with the manufacture of fittings for buildings or wheeled farm vehicles, which would have had a significant component of iron fittings, such a loops, axle pins etc. Tools include possible hammers (fig. 27, 1,2), chisels (fig. 27, 3), rasps, and possibly four anvils.

To summarise: after a brief period of iron ore smelting, smithing took over until the end of the estate in about *c.*390. It was particularly evident in the vicinity of Area I/VII. Increases in smithing activity may coincide with repair and re-building programmes.

Illustrated Objects (Figs. 24–7)

Area numbers, followed by context and small find numbers are given in brackets.

Fig. 24: Buckles, styli, fittings, and handles

1. Brooch pin (VII, 684 SF3672).
2. Buckle (I, 1).
3. Stylus (I, 1, SF1099).
4. Stylus (I, 1, SF1048).
5. ?Stylus (VII, 655, SF2444).
6. ?Stylus (VII, 656, SF3617).
7. ?Stylus (VII, 661).
8. ?Stylus (VII, 693, SF3762).
9. Fitting/binding (I, 1).
10. Fitting/binding (I, 4, SF1310).
11. Perforated fitting/binding (VII, 694, SF3781).
12. Fitting binding (VII, 694).
13. Ring handle and attachment for bucket? (VII, 783, SF3437).

Fig. 25: Fittings, keys, and locks

1. Double wire loop and back for balance? (VII, 783).
2. Stud/nail with cylindrical ?washer (VII, 690).
3. T-clamp (VII, 656).
4. Strap hinge (see Manning 1976, R13) (I, 30, SF1251).
5. Lynch pin – spatulated head with a loop (see Manning 724) (VII, 819).
6. L-shaped lift key (Manning 026) (VII, 821).
7. Barb from spring lock (see no. 8) (VII, 655).
8. Barb from spring lock (see Manning 068 and 070 for simple form) (I, 1).
9. ?Building fitting (I, 1).

Fig. 26: Agricultural implements, knives

1. Knife (I, 1, SF1046).
2. Knife (VII, 716).
3. Knife (I, 1).
4. Knife with looped handle (Manning Q40) (VII, 655).
5. Knife (VII, 650, SF2426).
6. Socketed knife (VII, 785).
7. Socketed cleaver/knife (VII, 695, SF2964).
8. Looped fitting, part of tool? (VII, 652).
9. Looped fitting, tool handle? (VII, 673).
10. Looped fitting, part of tool? (VII, U/S, SF2411).

Fig. 27: Tools and weapons

1. Tool head – pick? (VII, 673).
2. Tool head – hammer? (I, 1, SF1013).
3. Chisel/punch (I, 1, SF1085).
4. ?Arrowhead (VII, 650).
5. Tanged chisel (I, 1, SF1198).
6. Spearhead (Manning V26 – a long Romano-British form) (I, 42, SF1193).
7. Conical ferrule (Manning R5783, p.140).

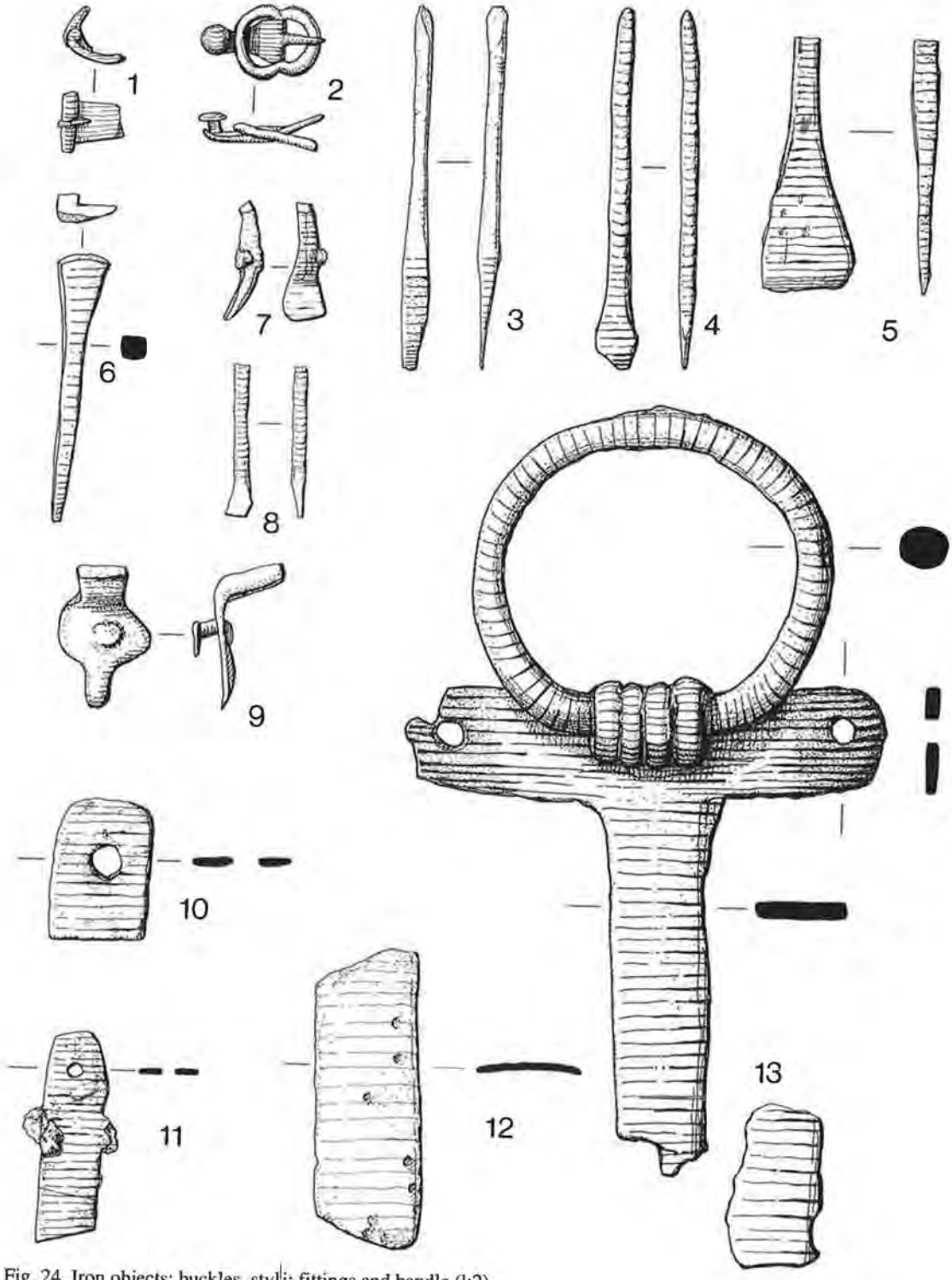

Fig. 24. Iron objects: buckles, styli: fittings and handle (1:2).

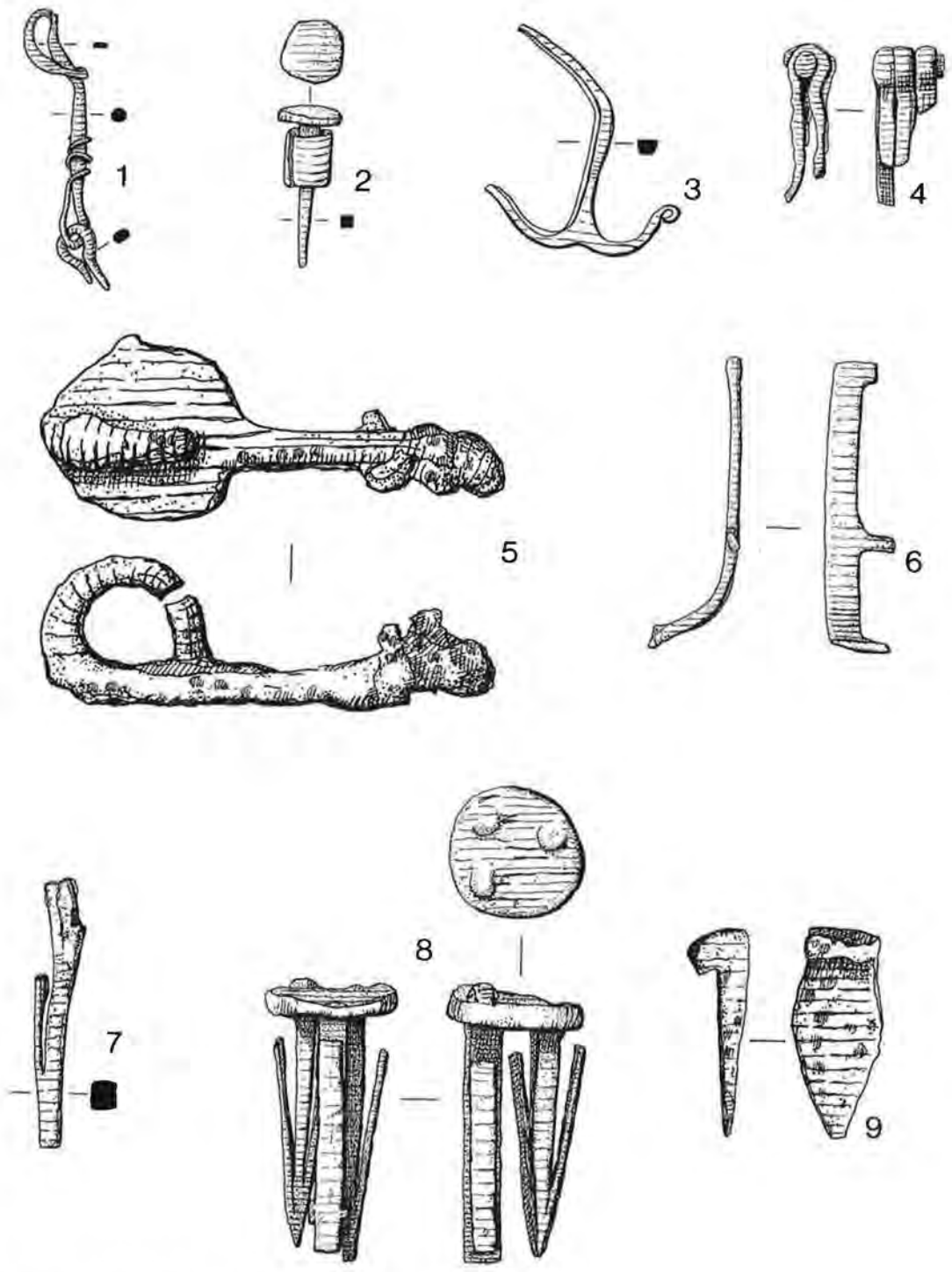

Fig. 25. Iron objects: fittings, keys and locks (1:2).

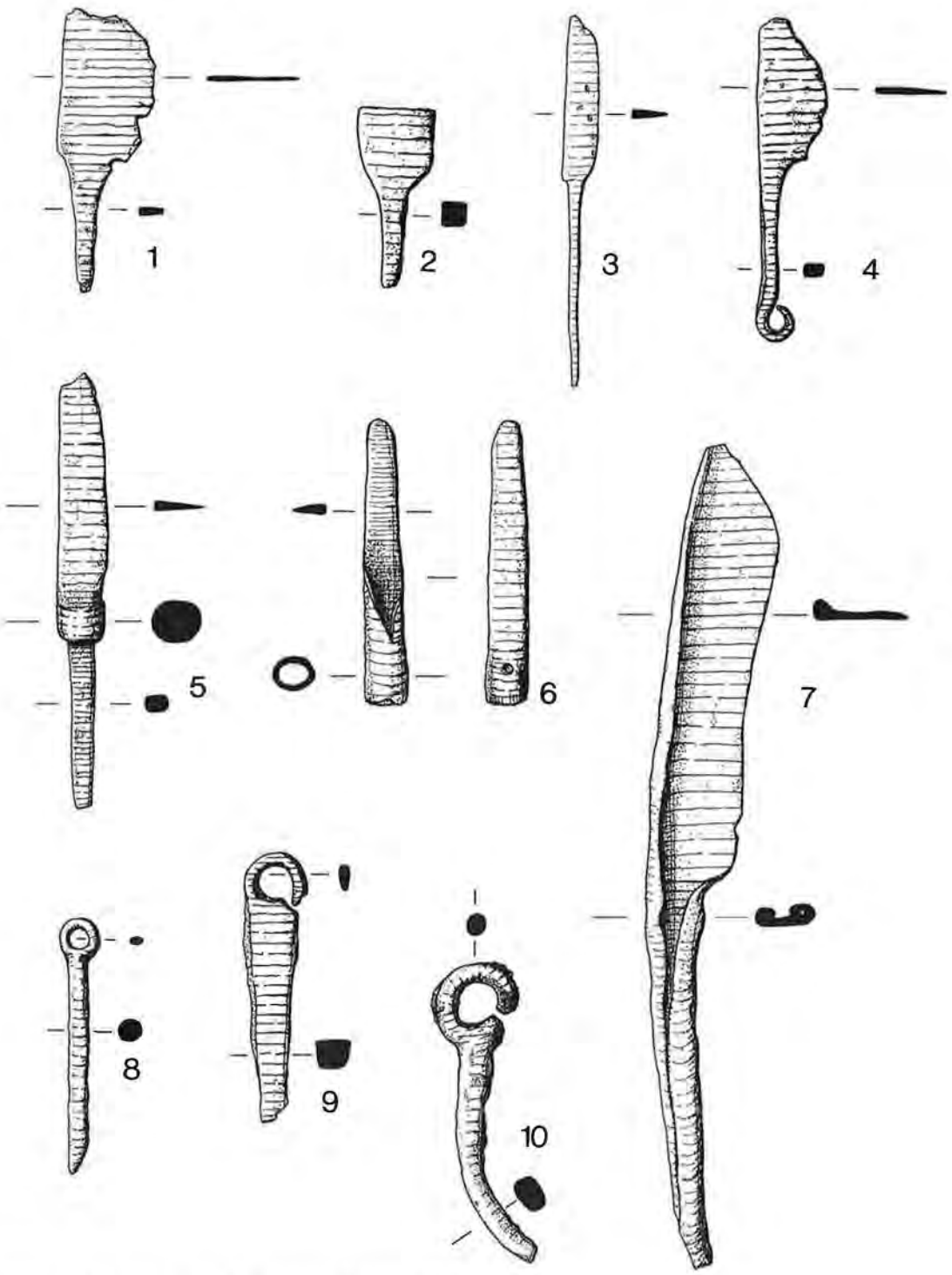

Fig. 26. Iron objects: knives and agricultural fittings (1:2)

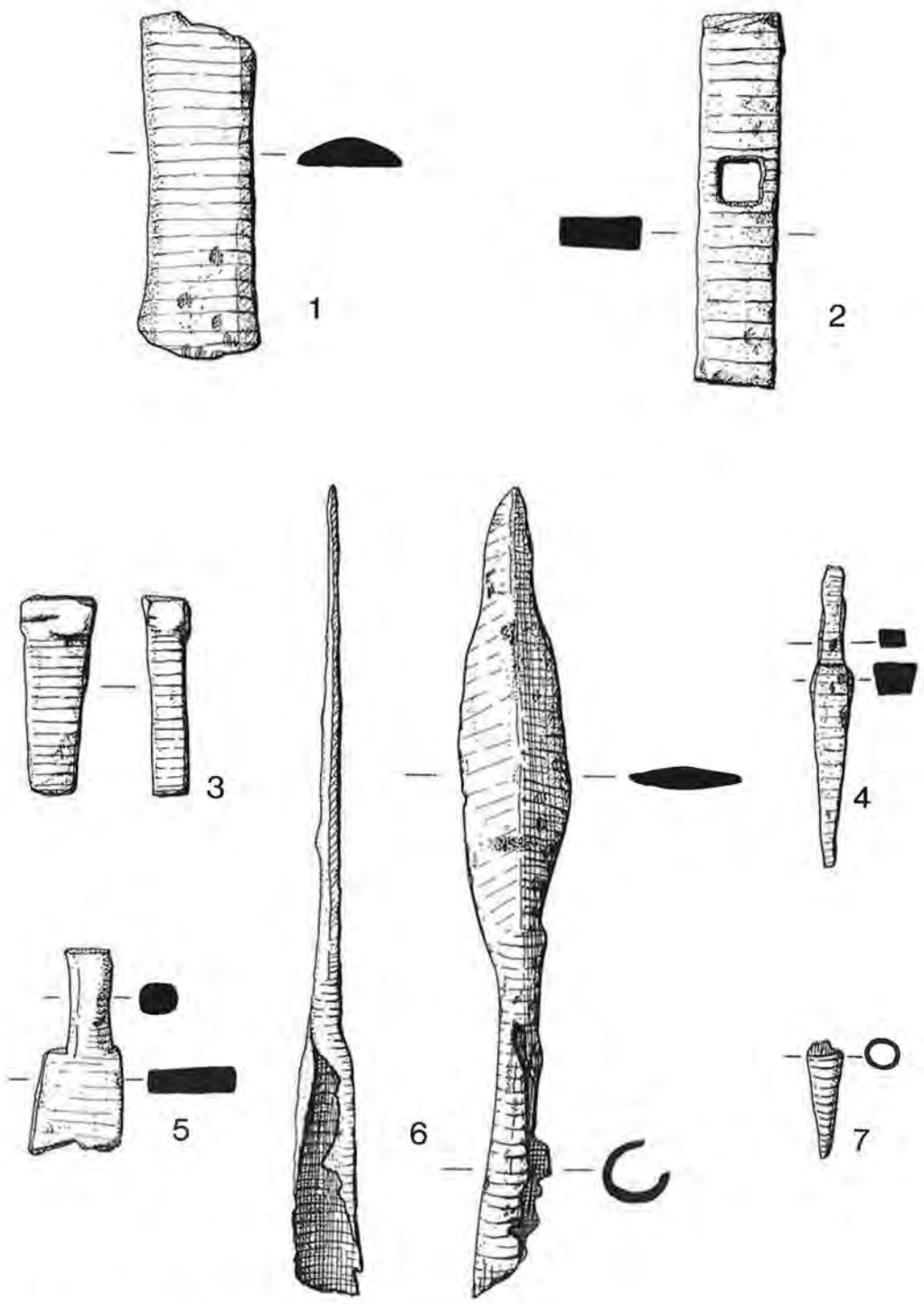

Fig. 27. Iron objects: tools and weapons (1:2).

THE COPPER ALLOY OBJECTS

The Roman Brooches
by D.F. Mackreth (Fig. 28)

Late La Tène

1. The spring has an internal chord and had three coils. The bow is a thin triangle with a groove down each border. The brooch is recognisably a Nauheim Derivative and the possible sequence of these running from the parent type, datable to *c.*75–25 B.C., to those commonly found after the Conquest has recently been discussed (Mackreth in Burleigh, forthcoming, Baldock report). The conclusion was that those whose decoration closely imitates the parent probably date from the latter part of the first century B.C. to the middle of the first century A.D. The present brooch has what is almost the simplest version of Nauheim ornament which may have run on for longer than other designs. (83, I, (50), sf.1393)

Trumpet type

2. The head is lost. The knob has a prominent central moulding with a thin one on each side, then a flute ending in a pair of lips. The lower bow has a central ridge defined by grooves, and there is another groove along each border. The foot-knob is simple. The full form of the brooch has a narrow trumpet head, with a ridge or arris down it, often with a head plate with an unpierced tab (e.g., Dudley 1967, 42, fig.17,168). The distribution is almost exclusively in southern England, and appears to concentrate broadly in the region of the lower Severn Valley with none being recorded so far by the writer in Wales or East Anglia. The group is virtually undated and only the general date-range, recently discussed (Mackreth in Garrod and Atkin, forthcoming, Gloucester, Kingsholm), can be offered: from before 75 to 150/175. Some varieties continue later, but it seems unlikely that this is one of them, or that it should necessarily be earlier than *c.*100. (83, I, (75), sf.1396)

Aucissa-Hod Hill

3. The axis bar of the hinged pin was housed in the rolled-over head of the bow. Although badly corroded, the brooch is obviously an ordinary uninscribed Aucissa. The head-plate has a sunken bead-row on each side of a flute which has a small cut-out at each end. The upper bow has a bordering ridge and a swelled front, probably with a bead-row down it. The lower bow is chamfered. The foot-knob was made separately and then brazed or sweated on. It has a thin cross-moulding round the top. (VI, (783), sf.3438)

4. A diminutive brooch whose upper bow has three beaded ridges down the middle separated on each side by a narrow flute from the bordering ridge. The lower bow is plain below a cross-moulding. The foot-knob is missing. (83, sf.1033)

The standard Aucissa is not yet known to have arrived before the conquest when it came in some numbers along with its progeny, the Hod Hill type. This should indicate that the Aucissa was passing out of use. Its distribution in England suggests that it had ceased to be used by *c.*55/60. Similarly, no Hod Hill has been convincingly published as having come from a pre-Conquest context. One from Baldock was assigned to the first quarter of the first century A.D. (Stead and Rigby 1986, 120, fig.47,112), but this must be a mistake as it would then predate its parent. Another was found at Skeleton Green in a context assigned to the pre-flood deposits, but which was not itself sealed by them (Mackreth 1981, 141–142, fig 72,55). Although one strand appears to have continued to be made on the continent, and ultimately became decorated with enamel, none of the Hod Hills here belongs to it. The dating of Hod Hills is best shown by their distribution: they are confined to the lands belonging to the early Province up to about 60, hardly any come from the lands taken into the Province in the early 70s and almost all must have passed out of use in the decade 60–70.

Colchester Derivatives

5. The spring had been held like that on No. 6. Each wing has a pair of ridges, each with a flute between. There is a skeuomorph hook. The bow below this is missing. (84, VII, (783), sf.3429)

6. The spring is secured by an axis bar passing through its coils and the lower of two holes in a plate behind the head of the bow, the chord being housed by the upper hole. The spring is shorter than the wings and may be an ancient replacement. The wings are plain. The plate behind the head is run down the upper part of the bow as a skeuomorph of the hook on the Colchester. The

bow tapers to a small foot-knob. The catch-plate has an irregular piercing. (84, VII, (782), sf.3439)

Neither brooch belongs to a well defined group. The pierced catch-plate of Brooch 6 should mean that the brooch is first-century. The moulded wings of Brooch 5, again, are relatively common on first-century brooches and the writer has not recorded them on definitely second-century ones, The spring-fixing arrangement is found in south-eastern England and the site lies within the basic distribution.

Penannular

7. The ring has a circular section. Each terminal is bent back along the surface of the ring and has a concave top face. A simple brooch, the technique of manufacture probably means that little reliance can be placed on the precise form of the terminal: some forged brooches have differences between the terminals and the number of flutes may have no chronological significance. Nevertheless, the indications are that the present brooch is first or second century: Hod Hill, before A.D. 50 (Brailsford 1962, 12, fig.11, E11: Richmond 1968, 117–119); North Cerney, Glos., Claudian-Neronian (Trow 1988, 51, fig.24, 36); Camerton, two examples, not before 150 and 150–200 (Wedlake 1958, 234, fig. 54,63,64). (83, I, (1), sf.1092)

Plate Type

8. The pin was hinged, its axis bar being housed in the rolled-over head of the bow under which is a head-plate made up of a large cross-moulding between two smaller ones. The bow is a pendant triangle with a beaded bottom edge and a sunken beaded ridge along each side. In the middle are six rows of triangular cells filled with enamel. This is now discoloured, but the tones show that there had been two colours. The narrow foot has two beaded mouldings at the top, divided from a thin plain one by a flute. Beneath that is a crude zoomorphic head with a small beak or snout divided by two grooves forming a saltire. In the upper segment C-shaped stamps form either scales or feathers. In the segments on each side is an eye made by using an annular stamp. (84, VIII, (693), sf.2919)

9. Only a sketch of this brooch has been seen. The body is a voided lozenge with a continuous cell on its surface for enamel. There had been at least two colours or blocks of enamel alternating with millefiore. At top and bottom is a small projection between two circular projections, each recessed for enamel. The drawing suggests that there had been a small central dot made from glass. On each side corner was a projection, the better preserved suggested that it had been an open circle. (84, m/d find)

10. The main plate is tear-shaped with a circular hole. The whole of the surface is recessed for enamel which is of two alternating colours, a red and a near ultramarine. Arranged regularly round the circular part are three open circles each with three projections. At the bottom of the plate is a thin cross-moulding, projecting on either side, above a crescent recessed for an enamel, now discoloured. (84, VII, (783), sf.3448)

All three were made on the continent, none is well dated and useful British dating is almost non existent. The relationship of Brooch 8 with the Hod Hill shows in the top of the bow and the mounting of the axis bar of the pin as well as in the two-part bow. However, there is great variety in these continental brooches: there were workshops combining many motifs in various ways to produce this variety. As detailed dating on the continent is uncommon, it is hard to separate early from late designs, let alone the products of specific centres.

The layout of brooch 8 suggests that it could be as early as the later first century and this is more or less confirmed by a brooch from Augst with the zoomorphic terminal dated to the second half of the first century (Riha 1979, 193, *Taf.* 63, 1654). However, the terminal was popular and should be expected to have carried on into the second century and the enamelled version on Brooch 9 should probably be so dated. Brooch 10 poses different problems. Two features stand out: the crescent and the circular projections. Augst, the only site which has a large collection with reasonable dating, only has one brooch with the latter and that was dated to 150–200 (*ibid.*, 197, *Taf.* 65, 1699). However, there are four brooches with crescents and two are dated first century and late first to 150 (*ibid.*, 196, *Taf.* 65, 1684–1687). These should carry the circular projections with them and the probability is that Brooch 10 is earlier than 150.

Intaglio (not illustrated)

by Dr. Martin Henig

Bronze finger ring with extended shoulders and raised ovoid bezel. External diam. 21mm (internal 19mm). The bezel is 10mm in length and 8mm in breadth and contains a glass setting imitative of nicolo onyx, 8 × 6mm with bevelled sides standing *c.* 1mm proud of the bezel, and an upper face 7 × 5mm containing the moulded intaglio device of Hercules wrestling with the Nemean Lion; behind the hero is his club.

The ring belongs to Henig type XIII (Henig 1978, 39 fig) dated to the third century A.D; and we may note that two examples from Verulamium and Springhead contain nicolo glass intaglios showing Hercules and the lion (ibid., 240 nos. 432, 433)

Other glass intaglio showing Hercules and the Nemean Lion set in rings of different form, one made of iron and the other of silver, come from Barnsley Park (Webster and Smith, 1982, 109 no. 78 fig) and Thorpe Salvin in Yorkshire (inf. Pauline Beswick).

The popularity of the theme in the art of the Empire is not surprising, for Hercules was the hero *par excellence* who in legend battled against evil forces assailing mankind and overcame them.

1. Hercules to right on impression.
2. Intaglio examined by writer; it is certainly Hercules and the lion.

(Found during metal detecting at the site, this ring is in the possession of Mr. T. Clark, Aylesbury).

Illustrated Objects of Copper Alloy (Figs. 29–31)

A complete list appears in fiche 1, frames C1-D2. Area numbers followed by context and small find numbers are given in brackets.

Fig. 29: Toilet equipment, fittings etc

1. Nail cleaner (VII, U/S SF2849).
2. Nail cleaner (II, 305, SF3029).
3. Nail cleaner (VII, 674, SF3417).
4. Nail cleaner (I, 55, SF1224).
5. Tweezers (VII, 674, SF3379).
6. Tweezers (I, 195, SF1498).
7. Tweezers (VII, 716, SF3275).
8. Toilet spoon ?ligula (VII, 780, SF3445).
9. Ligula (VII, 716, SF3182).
10. Cosmetic Mortar (I, U/S. SF1197).
11. Part of perforated toilet instrument? (VII, U/S, SF3317).
12. ?Tweezer blade (I, 3, SF1121).
13. ?Stylus (VII, 748, SF3359).
14. ?Key (VII, 684, SF3357).
15. Nail (I, 1, SF1093).
16. Stud (I, 33, SF1390).
17. ?Chain-link (VII, 693, SF2973).
18. Ring – uncertain purpose (VII, 661, SF3353).

Fig. 30: Pins, needles, and jewellery

1. Round headed pin (VII, 783, SF3454).
2. Pin (I, 1, SF1060).
3. Round headed pin (VII, U/S, SF2781).
4. Round headed pin (II, 370, SF3030).
5. Pin (VII, 783, SF3450).
6. Pin (VII, U/S, SF2848).
7. Needle (VII, 783, SF3449).
8. Needle (VII, 763, SF3452).
9. Needle (VII, 762, SF3257).
10. Needle (VII, U/S. SF2763).
11. Finger ring (VII, 753, SF3430).
12. Finger ring (I, 53, SF1391).
13. Amulet (VII, 690, SF3238).
14. Earring (VII, U/S, SF2765).

Fig. 31: Miscellaneous fragments of copper alloy

1. Strap fitting (VII, U/S. SF3324).
2. Strap fitting and rivets (VII, 784, SF3358).

3/4. Strap fitting (VII, 693, SF2974).

5. Half disc (two circular perforations bisected by break line (I, 1, SF1219).
6. Perforated disc – ?stud head (I, 1, SF1071).
7. Decorated perforated fitting, (metal detector find) possibly belt plate/strap end.

ROMAN COINS

by Dr. C.E. King

During the course of the Mantle's Green excavations 147 Roman coins were recovered and an additional 59 stray finds from the area have been listed and included in this analysis. The chronological distribution of the excavated coins and the stray finds is similar but not identical. Superficially the picture appears to be somewhat different from the usual chronological pattern on British sites but this is primarily the result of the large number of illegible third and fourth-century coins which could not be assigned to a specific period. Consequently the coins from

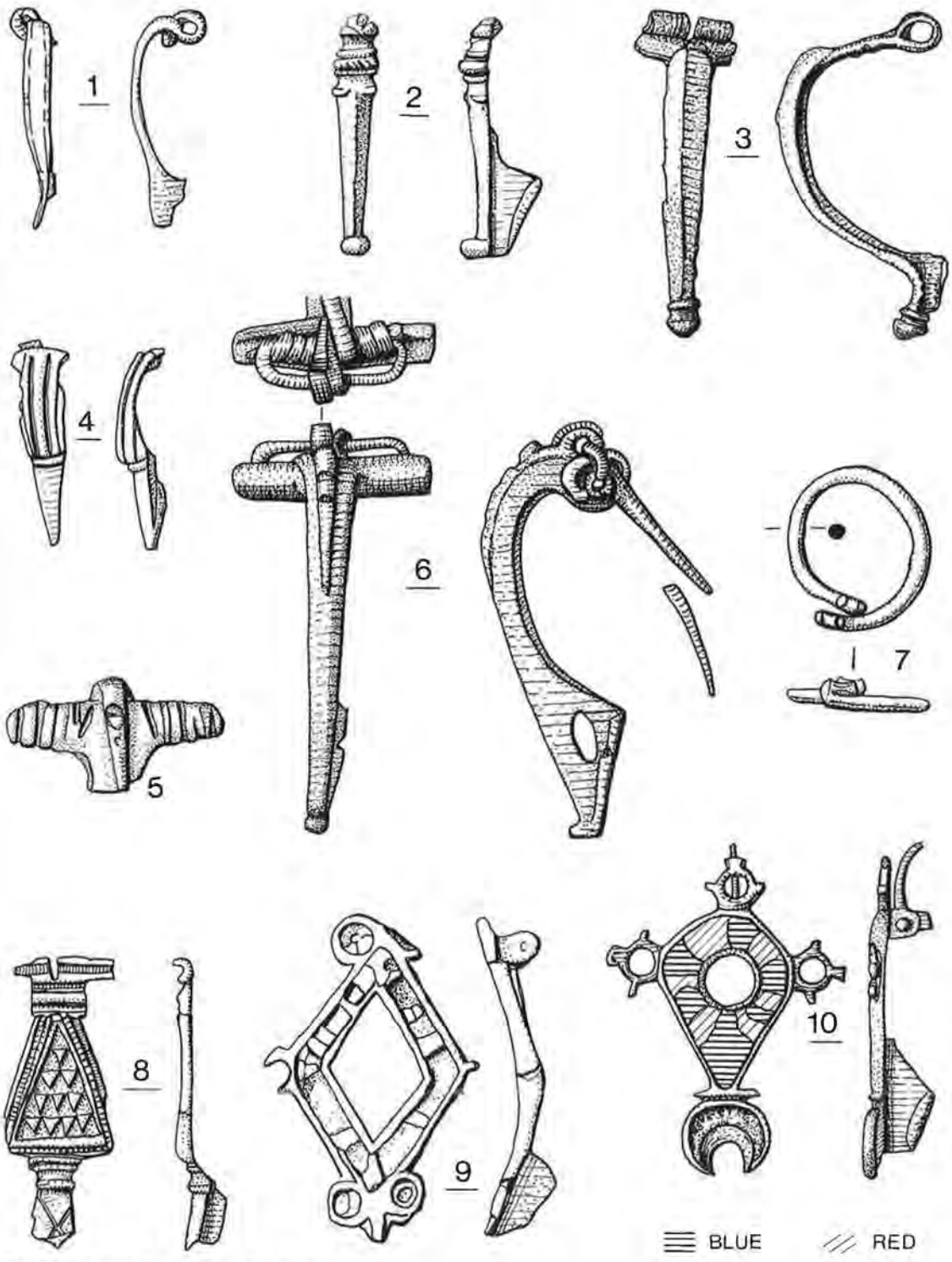

Fig. 28. Copper alloy objects: brooches (1:1).

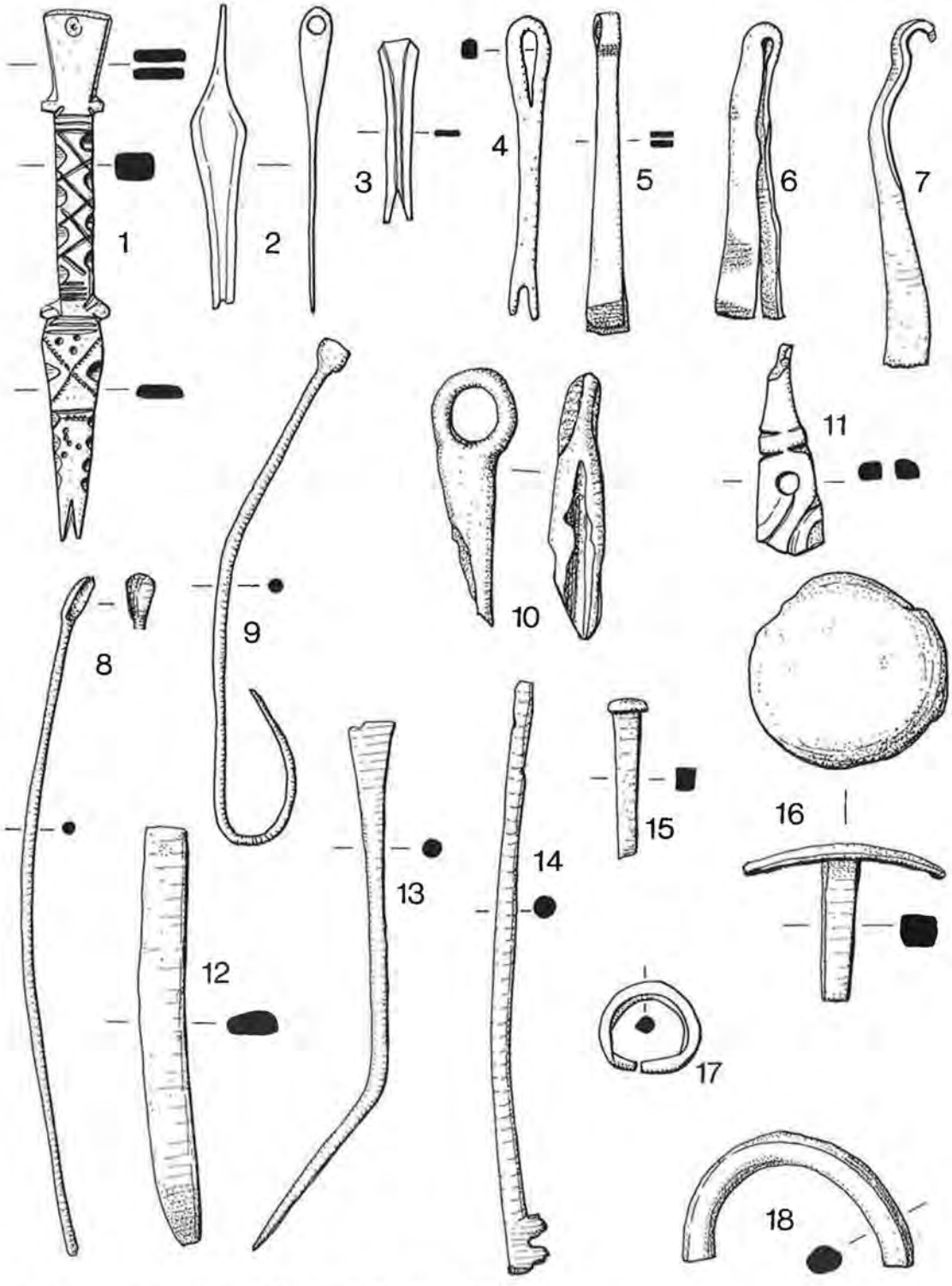

Fig. 29. Copper alloy objects: toilet equipment, fittings etc (1:1).

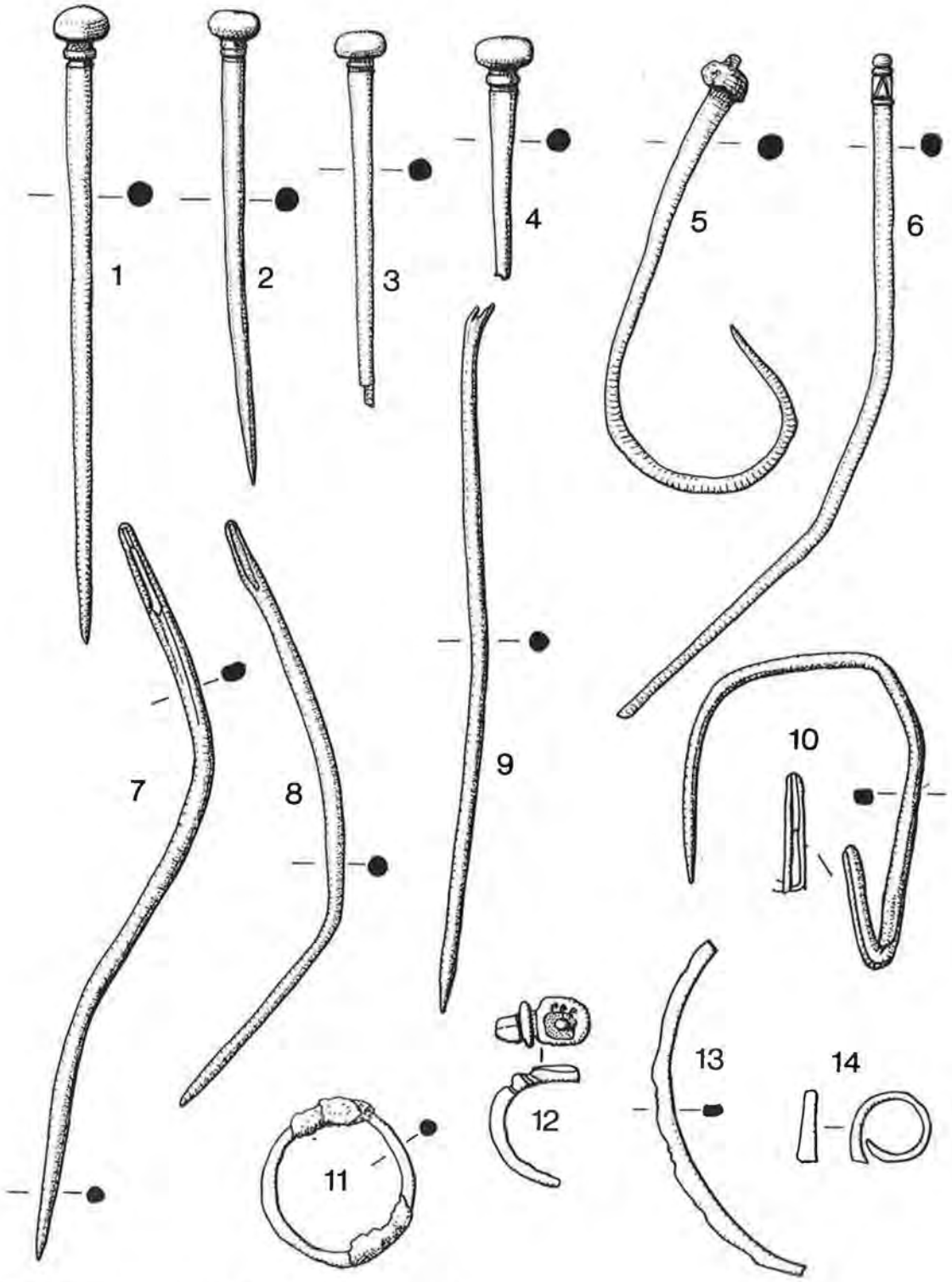

Fig. 30. Copper alloy objects: pins, needles and jewellery (1:1).

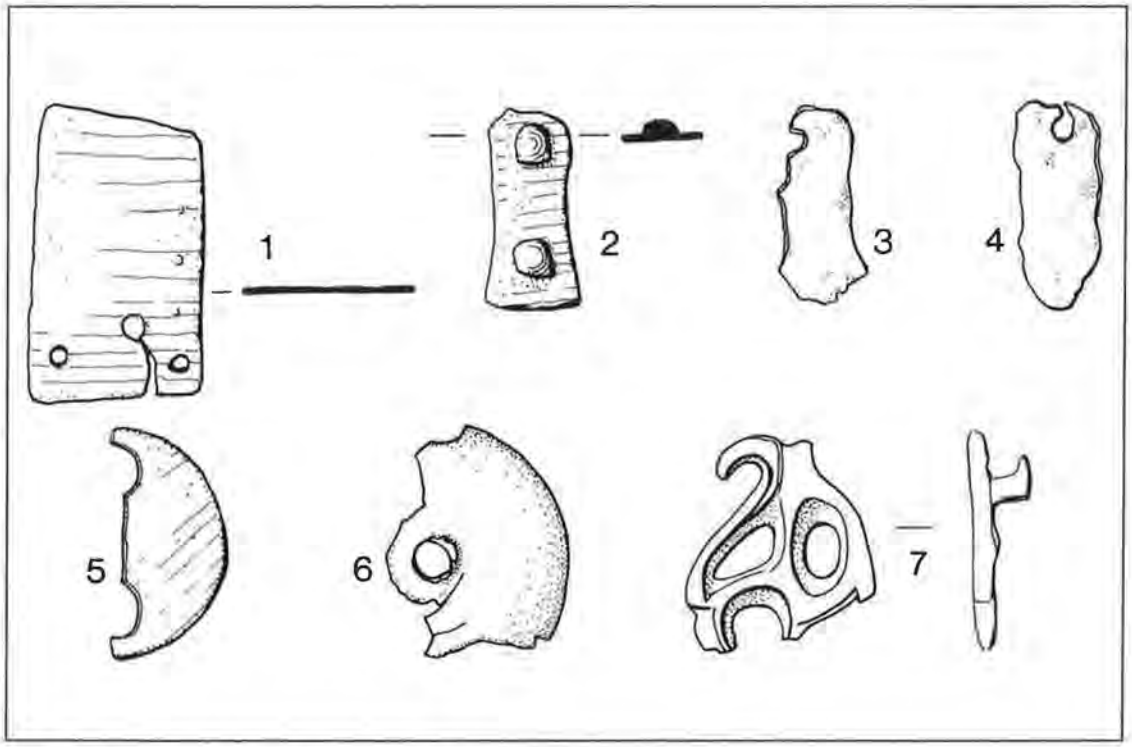

Fig. 31. Copper alloy objects: miscellaneous (1:1).

what are normally periods of high loss on British sites (A.D. 260–296, 330–348, 348–360, 364–378, 388–402) are proportionally under-represented. The chronological groups in which few or no coins were recovered are also those for which British sites in general tend to yield low numbers of coin. The relative or absolute absence of coin from a given group should not, therefore, be interpreted as a break in occupation. The number of ancient imitations is relatively low and they tend to fall into periods in which counterfeiting epidemics occurred. The Mantle's Green Roman coins tend to reflect quite well the chronological distribution characteristic of British sites. (See fiche 1, D5-D13 for full coin listing).

A single pre-Roman coin was reported to have been found at Mantles Green during by-pass construction. This was a silver Celtic unit, British LX, Reverse: Horse, left with pellets above, wreath beneath, Obverse: Head with hair in long tussled coils, Weight: 1.06g.

TABLE 4: All Coins

	GEN *No.*	*IMIT No.*	*TOTAL No.*	*%*
1st C.	3		3	1.4
2nd C.	9	1	10	4.8
1st–2nd C.	14		14	6.8
192–253	1		1	0.4
2nd–3rd C.	1		1	0.4
260–286	16	3	19	9.2
286–295	3		3	1.4
295–315	0		0	
315–330	5		5	2.4
330–348	22	3	25	12.5
348–360	9	7	16	7.7
364–378	15		15	7.3
378–388	0		0	
388–402	15		15	7.3
4th C. illeg.	30	2	32	15.5
3rd–4th C. illeg.	34		34	16.5
illeg.	13		13	6.3
TOTAL	**190**	**16**	**206**	**99.9**

TABLE 2: Excavated Coins

	GEN *No.*	*IMIT* *No.*	*TOTAL* *No.*	*%*
1st C.	3		3	2.0
2nd C.	5	1	6	4.1
1st–2nd C.	12		12	8.2
2nd–3rd C.	1		1	0.6
193–253	1		1	0.6
260–286	13	1	14	9.5
286–296	3		3	2.0
296–315	0		0	
315–330	3		3	2.0
330–348	11	1	12	8.2
348–360	5	4	9	6.1
364–378	7		7	4.8
378–388	0		0	
388–402	15		15	10.2
4th C. illeg.	25	1	26	17.7
3rd–4th C. illeg.	32		32	21.8
illeg.	3		3	2.0
TOTAL	**139**	**8**	**147**	**99.8**

BONE, ANTLER, LEAD AND CERAMIC OBJECTS

by Dr. Stephen Greep

Bone (Fig. 32, 1–4)

1. Plate from a trellis-decorated two-piece handle, 38mm long, broken. Although similar handle plates are common in first and second-century contexts (e.g. Merrifield 1965, 135) the decoration is usually to be found in bands rather than 'all-over' as here (I, 28, SF1395).

2. Bone handle, ?lathe turned and decorated with a simple chevron pattern between grooves and collars. 66mm long, broken (VII, 827, SF3435).

3. Bone handle decorated with a band of angled incised lines and trellis work, probably late Roman. 55mm long broken. (VII, 661, SF4561).

4. Spindle whorl manufactured from a *Bos* femur head, 40mm diameter. These are common finds throughout the Roman period, though not commonly found on rural sites. (VII, 783, SF3436).

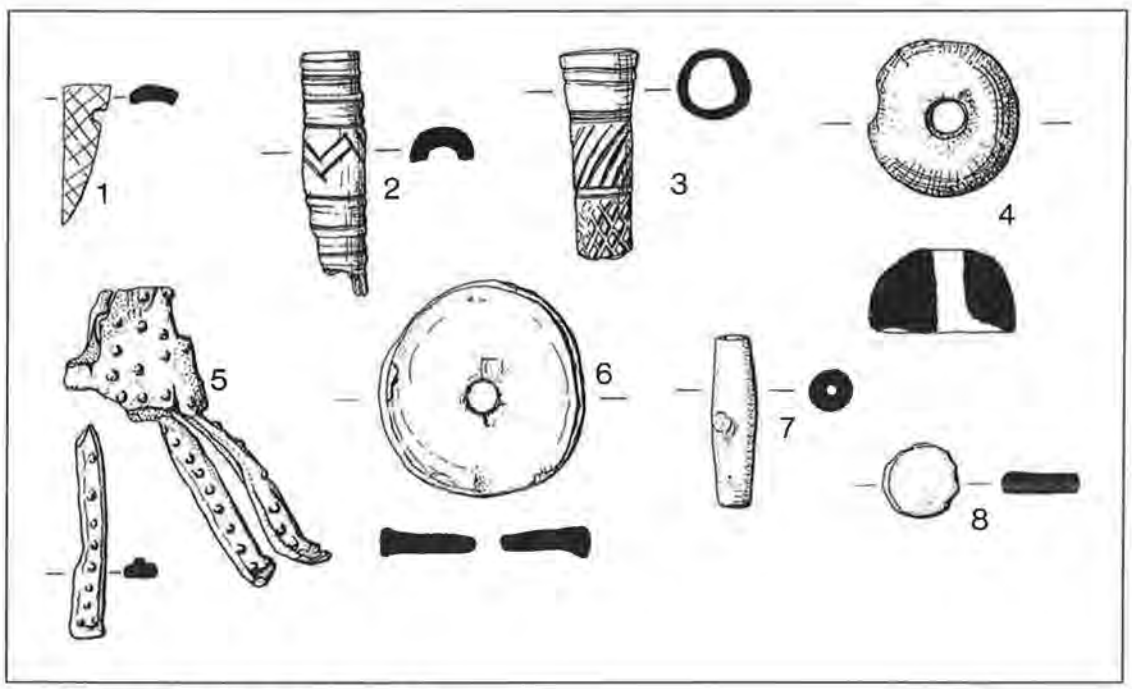

Fig. 32. Bone, lead and ceramic objects (1:2).

Not illustrated: worn pin with a conical head above a single collar. A common late Roman form (c.f. Crummy 1979, fig. 1, 7) 63mm long. In addition six stem fragments were recovered from both earlier and later Roman types (VII, 684, SF3384).

Bone Waste Material (not illustrated)

- Three splinters of bone, probably manufacturing residue (VII, 784).

- Knife cut section of red deer antler tine, one end being squared off and broken. 75mm long (VII, 661).

- Knife cut section of red deer antler tine with a smoothed surface. This may have been utilised as a simple handle though it is not clear whether the central tissue has been hollowed to receive the tang of the implement, 72mm long, sawn one end, broken the other (VII, 661).

Lead Objects (Fig. 32, 5–7)

5. Lead sheet. Folded, one end cut into strips decorated with raised dots (Crummy 1983, 168 no. 4709). (VII, 783, SF3446).

6. Lead weight (I, 27, SF1090).

7. Lead weight, probably post medieval (VIII, 707, SF522).

Also recovered from Area I, II, & VII, 46 scraps of lead.

Ceramic Objects (Fig. 32, 6)

8. One sherd of pottery reused as counter/gaming piece (u/s).

THE ROMAN GLASS
by Dr Denise Allen (Fig. 33)

The assemblage comprises a total of 176 vessel fragments and one piece of bead. Natural blue-green glass, much used throughout the Roman period, predominates: 124 fragments were found. Of the remaining pieces, 32 are colourless (this includes two crumbled groups of 16 and 9 pieces, clearly from the same vessels), 7 are amber/brown (a colour popular during the first century) and 13 pale green. No Roman window glass was found on the site.

The bead fragment (figure no 14) is of the 'melon' type, which was extremely common on first-century sites throughout the Empire, becoming much rarer during the second century.

The vessel form represented most frequently here is the blue-green bottle, of which 19 fragments are listed below (nos 19–33). These containers were made in a great variety of sizes and shapes, including square, cylindrical and hexagonal bodies, and were traded widely for the different liquids they held. Characteristics have been discussed by Charlesworth (1966). All shapes were very common during the later first and earlier second centuries, and the square continued to be made and used throughout the second and possibly into the third century.

The remaining identifiable vessel fragments belong to a variety of tableware items. Probably the earliest piece is the pillar moulded bowl fragment (figure no 1). These vessels were not blown, but moulded, involving methods discussed recently with reference to fragments from Inchtuthil (Price 1985, 304–5, no. 1). The subsequent characteristic rotary-polishing inside and fire-polishing outside make even very small fragments easy to recognise. Perhaps partly because of this it is one of the most commonly noted glass finds on first century sites in Britain and elsewhere. Examples in blue-green glass were made until some time during the Flavian period, and the sturdy, thick-walled nature of the vessels meant that some survived into the second century. A complete blue-green pillar moulded bowl came from a burial of AD 65–75 at Thornborough, Bucks (Price 1975, 18–20, group 3, fig. 10:1).

All other fragments come from blown glass vessels. Nos 2–4, 6, 8–10 and 15–18 are rims, bases and handles employing finishing devices commonly used by Roman glassmakers, and are not sufficiently diagnostic to allow close identification or dating.

Rim fragment no. 5 and base fragment no. 11 both represent a group of colourless glass drinking cups much used during the years *c.* AD160–230. Characteristics include a fire-thickened rim, a cylindrical body and two concentric base-rings (Isings 1957, 101–3, form 85b). No. 5 apparently comes from a slightly larger vessel than no. 11. More than 60 examples have been found at excavations at Verulamium, 40–50 at Caerleon and at least 30–40 at Corbridge.

Fragment no. 13 can be tentatively identified as part of a chain handle, the scar on the outer curve being from a folded back rim or shoulder attachment. Such handles were formed by nipping together at intervals two strands of glass, to produce a chain-like appearance. They were used on a variety of colourless and blue-green glass jug forms, mainly during the third century (e.g. Kisa 1899, 123, no. 103, Pl. VIII, 81; Morin-Jean 1913, 111, fig. 134; Isings 1957, 151, form 120c).

Nos 7 and 12 both belong to the late Roman period. The former is from an indented truncated conical bowl (Isings 1957, 147–8, form 117). The main period of use of the type seems to have been the second half of the fourth century, and dated finds from Berkeley Street, Gloucester (Price, Cool and Allen forthcoming) and Lullingstone Roman Villa (Cool and Price 1987, 118–9, nos 375–6, fig. 56) apparently support this.

The 'ear-shaped' handle, no. 12, almost certainly comes from a fourth-century vessel. The two most likely candidates for its form are both represented at Lankhills Roman Cemetery, Winchester – namely a one-handled flask with globular and concave base (Harden 1979, 217–8, class VI, nos 472, 551, 632, fig. 27) and a two-handled flask, again with a globular body, but with a base-ring, and often with a collar half-way down to which the handles are joined (*op cit* 218–9, class VIII, nos 450 and 270, fig. 27). The former came from graves dated AD370–410 at Lankhills and the latter from graves dated AD340–390.

The dateable glass can thus be seen to span most of the Roman period. The absence of the brightly coloured glass favoured by manufacturers of the pre-Flavian period may mean that the first-century finds (the melon bead fragment, the pillar moulded bowl, the 7 indeterminate amber/brown fragments and possibly some of the bottles) belong to the later part rather than the middle of the century, but it is dangerous to speculate too far with such a small assemblage. The early and mid Roman fragments all belong to types commonly found on Roman sites of all categories. These, and the late Roman fragments which represent types rarer in Britain but by no means unique, were probably all imported from the Continent. The collection as a whole therefore contains no real surprises.

Catalogue of Glass

Illustrated Glass (Fig. 33)

1. Small body fragment of a pillar-moulded bowl of pale blue/green glass. Formed in a mould, outer surface fire-polished, inner surface rotary-polished. Part of two ribs extant. (VII, V/S, SF 2841)

2. Rim fragment of a bowl of blue/green glass. Rim folded outward and downward, forming hollow tube diam. c 190mm (VII, 661, SF 2652)

3. Rim fragment of a bowl or dish of blue/green glass, rim folded outward and upward forming hollow tube, diam c 120mm (V, V/S, SF 2015)

4. Rim fragment of a bowl, beaker or cup of blue/green glass. Rim outflared slightly, cut off flat and ground smooth, diam c 120mm (I, 39, SF 1466)

5. Two joining fragments from the rim of a cup of colourless glass. Rim turned very slightly inward, fire-rounded and thickened, diam c 130mm (VII, 654, SF 3487)

6. Rim fragment of a bowl, cup or possibly flask of blue/green glass. Rim outflared, fire-rounded, thickened and apparently rotary-polished on inner surface diam c 60mm (VII, 685, SF 3495)

7. Rim and side fragment, not joining, of a bowl of pale green glass, many impurities, streaks and pinhead bubbles within. Rim outflared, broken off flat and unworked. Sides taper slightly downward, with part of one oval indent extant, pushed in whilst the glass was still warm and pliable; diam c 120mm (VII, V/S, SF 2775)

8. Base fragment of a vessel of blue/green glass. Pushed-in tubular base ring, diam 45mm. Centre base rises to high cone. (I, 3, SF 1459)

9. Base fragment of pale green glass, many pinhead bubbles. Thick, fairly large pushed-in tubular base ring diam c 70mm (VII, V/S, SF 3234)

10. Base fragment of a vessel of blue/green glass, flat base with applied solid base-ring, diam *c.* 70mm, diagonal tool marks visible from application. (VII, 783, SF 3515)

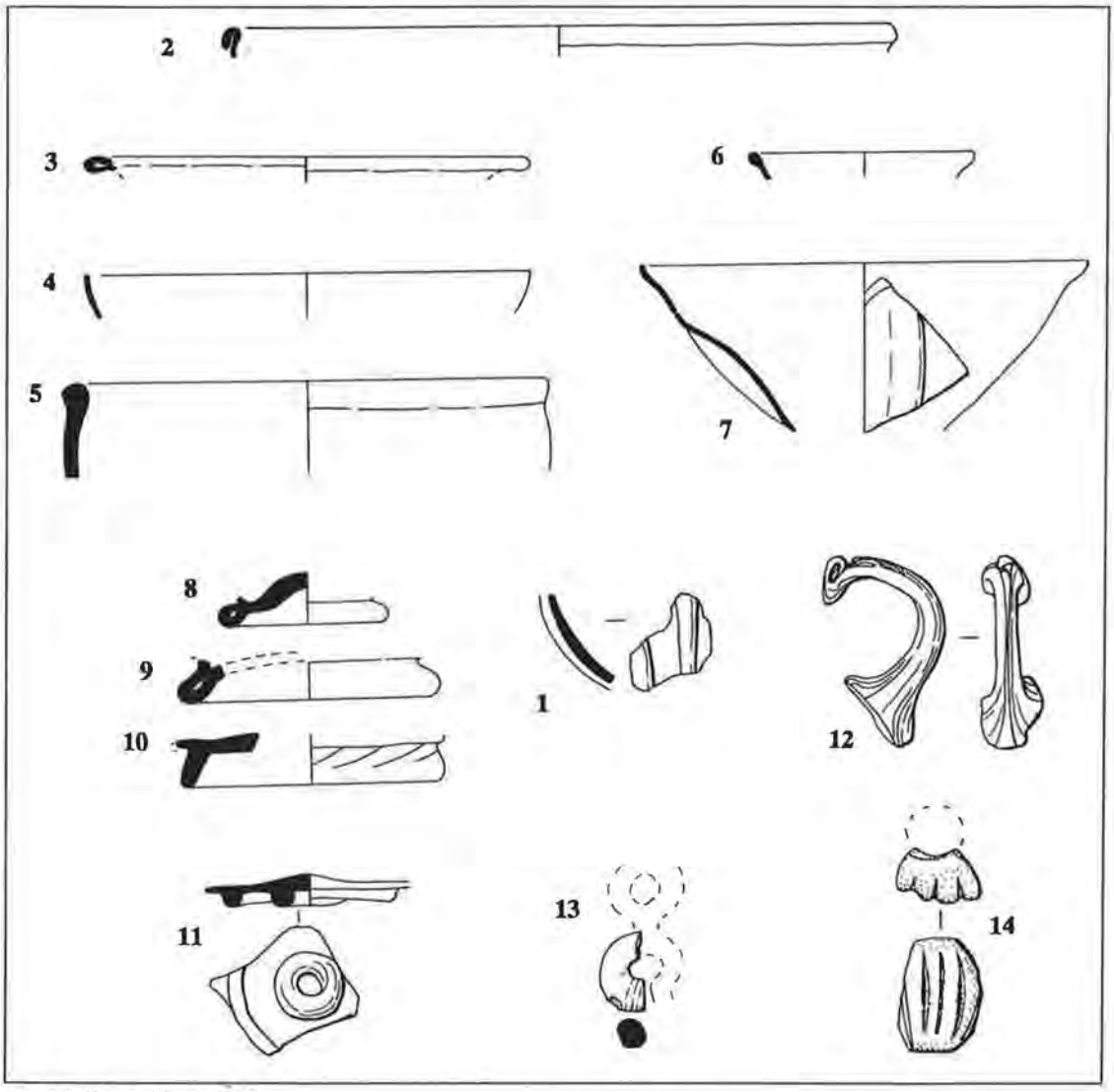

Fig. 33. Glass objects (1:2).

11. Base fragment of a cup similar to No 5, colourless glass. Flat base with concentric applied coil base-rings, diam of outer coil 46mm, diam of inner coil 18mm. Inner ring bears pointed mark. (VIII, 693, SF 3270)

12. Curved 'ear shaped', D-sectioned handle of a very streaky pale green glass. Folded over at upper sticking point, thickened at lower sticking point. (VII, 784, SF 3527)

13. Small curved fragment of blue/green glass, with apparent attachment scar on outer surface. Possibly part of a chain handle. (VII, 716, SF 3184)

14. Fragment of melon bead of pale turquoise frit. D-sectioned, outer surface divided into segments by vertical lines, some turquoise glaze surviving in the lines. (VII, 716, SF 3181)

Glass not illustrated

15. Rim fragment of a bowl similar to No 2, possibly same vessel. (VII, 660, SF 3488)

16. Base fragment very similar to No 5 possibly same vessel (I, i, SF----)

17. Base fragment of a vessel of blue/green glass, pushed-in tubular base ring, diam c 55mm (I, SO, SF 1404)

18. Small base fragment very similar to 17 (I, 2, SF 1221)

19. Five bottle fragments (II, 805, SF 3024)

20. Base fragment, prismatic bottle (I, 39, SF 1465)

21. Base fragment, prismatic bottle (I, 39, SF 1405)

22. Bottle rim fragment (I, 1, SF(???))

23. Bottle rim fragment (VII, 650, SF 3423)

24. Base fragment, square bottle (VII, 684, SF 3494)

25. Body fragment, prismatic bottle (VII, 728, SF 3507)

26. Body fragment, prismatic bottle (VII, 783, SF 3521)

27. Tiny handle fragment (VII, 783, SF 3524)

28. Body fragment, prismatic bottle (VII, 819, SF 3531)

29. Body fragment, prismatic bottle (VII, V/S, SF 3231)

30. Body fragment, prismatic bottle (VII, V/S, SF 3232)

31. Bottle rim fragment (VII, V/S, SF 3236)

32. Bottle handle fragment (VII, V/S, SF 3441)

33. Bottle body fragment, prismatic bottle (VII, V/S, SF 3488)

34. Base fragment of a vessel of blue/green glass apparently cylindrical body, simple concave base diam c 60mm (VII, V/S, SF3050)

35. Fragment of inner half of handle, blue/green glass, part of thin body wall still adhering (VII, 782, SF 3512)

36. Small handle fragment similar to No 35, blue/green glass (1/VII, 3, SF 1459)

ROMAN POTTERY

A Selection of Romano-British Pottery from Area VII, 1983–4 Excavation by Dr. Stephen Greep (Fig. 34)

The excavations produced a large quantity of Roman ceramics. Unfortunately it has been possible only to undertake a very basic sorting of the material. In the main only major groups from area VII have been examined, it being possible only to extract easily datable pieces from each phase. The dating offered here is therefore be to be treated as very tentative and much future work is necessary for the suggested chronology to be made secure.

The general impression created by the Amersham material is that few of the contexts may be regarded as well-sealed and most contain a chronologically wide range of material. As should perhaps be expected in such a context there is an apparently high proportion of storage jars though also a good deal of finer wares, there being an appreciable quantity of second-century samian (see below). The vast bulk of the material is undoubtedly of local origin with the Fulmer-Hedgerley and Verulamium region kilns noticeably major suppliers during the second century, the Oxfordshire region in the later Roman period.

Phase 1–3

On ceramic grounds alone it does not seem possible to differentiate chronologically between phases 1–3. The bulk of the material is second-century though it is difficult to determine precisely how early. Certainly much of the material belongs to the second half of the century and virtually all the samian seems to be the product of Central Gaulish factories. [Mr. de Bédoyère comments]

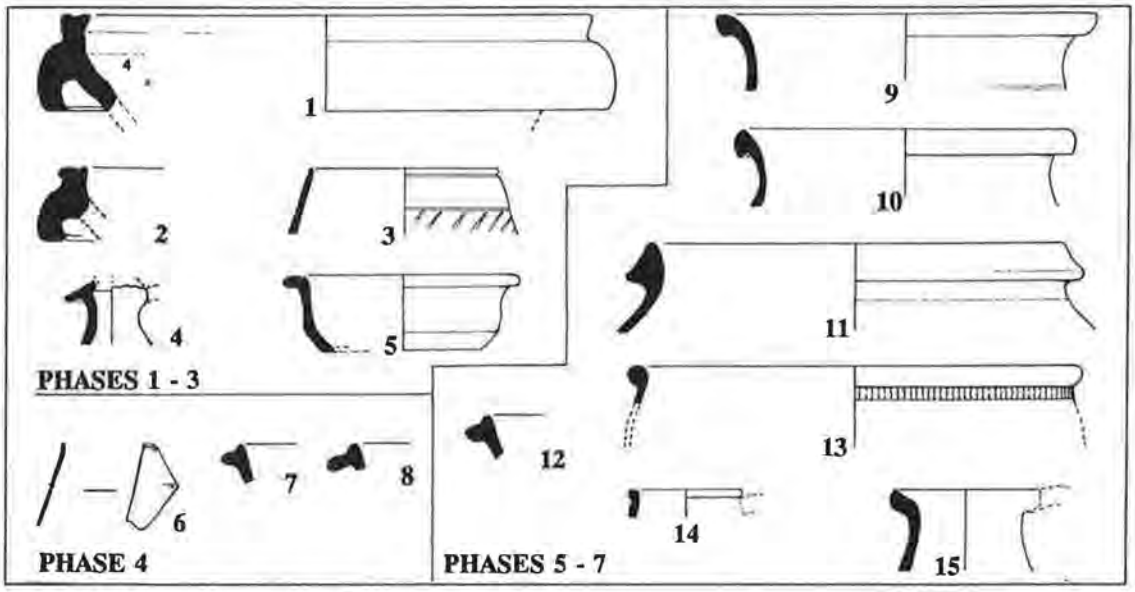

Fig. 34. A selection of coarse pottery from Area VII. (1:4).

The latest pieces from phases 1–3 contexts (fig. 34,) suggest a t.p.q in the late second to early third century.

1. Mortarium. Sandy, white fabric with a pinky core. White and grey grits. A product of the Oxfordshire kilns cf. Young, 1977. Type M10 *c.* AD 180–240. Context 819 (phase 1).

2. Mortarium. Buff core with white surfaces. Form and date similar to no. 1 above. Context 819 (phase 1).

3. Beaker. White, fairly fine fabric with a single large grog inclusion. Darker grey slipped surfaces. A Nene Valley product. Context 819 (phase 1).

4. ?Flagon. Orange-brown fabric with grog inclusions. Traces of a red colour-coated surface with some mica. The fabric is similar to the Oxfordshire red colour-coated fabrics of post AD 240 date though the form is not one of those listed by Young. Context 700 (phase 1).

5. Bowl. Grey sandy fabric with darker exterior surface. Possibly copying a BB1 form of late second to early third-century date (e.g. Gillam, 1976, fig. 3, 42) though BB1 vessels are virtually absent in the Amersham assemblage. Context 783 (phase 3).

Phase 4

The material from these contexts is clearly later than that in the preceding phase though includes much residual from them. The latest datable vessels (fig. 35) include an Oxford red colour-coated beaker and two flanged bowls suggesting a date in the later third century or after for the termination of this phase.

6. Beaker. Orange brown fabric with a darker red brown slip. A product of the Oxfordshire kilns cf. Young, 1977. Context 661 (phase 4).

7. Bowl. Grey-brown core, orange brown surfaces, grey in places. Micaceous fabric. Context 661 (phase 4).

8. Bowl. Buff-brown core, darker grey surfaces. Well sorted small quartz inclusions. Context 661 (phase 4).

Phases 5–7

The material from these contexts contains fourth century vessels in increasing quantities though it is difficult to differentiate chronologically between individual phases. Most noticeable are the increasing quantities of shell-tempered wares with rilled bodies, principally jars though occasional bowls occur as

well, which first appear in phase 5 contexts and become increasingly common thereafter.

9. Jar. Grey core, light brown surfaces. Some shell tempering. Context 787 (phase 5).

10. Jar. Soft buff fabric. Shell tempered. Context 784 (phase 6). Many examples of this form from phase 6 and 7 contexts.

11. Jar. Dark brownish fabric. Shell tempered. Context 784 (phase 6).

12. Bowl. Purple-brown core with darker grey exterior surfaces. Micaceous. Context 690 (phase 7).

13. Bowl. Orange-brown micaceous fabric. Oxfordshire cf. Young, 1977. Type C55 *c.* AD 240–400+. Context 784 (phase 6).

14. Flagon. White fabric with a dark grey colour coat. Nene Valley product. Context 690 (phase 7).

15. Flagon. Fabric as no. 14 above. Context 690 (phase 7). For this and no. 14 above cf. Howe *et al*, 1980.

Romano-British Pottery from Site VIII
by Barbara Hurman (Fig. 35)

1. Flanged bowl. Grey sandy fabric with a worn black burnished surface. (205).

2. Flanged bowl. Fabric as no. 1 above, this bowl has a good overall black burnished finish, and looks banded on the exterior. (205).

   Both these bowls could be copying BB1 forms although it was noted by Dr. S. Greep that BB1 vessels are virtually absent in the Amersham assemblage. At Brixworth flanged bowls do not appear before the late third century. They take the place of pie-dishes (3–4 below) which are very common in the second century, continuing in use through the greater part of the third (Woods, 1965). They are typical of the late third to fourth century (Swan, 1975 after Farrar).

3. Pie dish. Grey brown sandy fabric with a darker worn surface. (207).

4. Pie dish. Red brown fabric with worn surfaces as no. 3 above. (207). (Woods, 1977, fig. 10 p. 58).

5. Jar. Red-buff grey shell tempered fabric. (213).

6. Rim. Parchment ware, white fabric, with pink core. This is only a small piece of rim but is probably a type copy of samian bowl form 35/36. Remains of a red painted circle show on the top of the rim. (213).

7. Mortarium. Sandy white fabric with a pinky core and pink, white and grey trituration grits. (216).

8. Mortarium. Fabric as no. 7 above.

9. Mortarium. Fabric as no. 7 and no. 8 above. (217).

   These three mortaria are typical products of the Oxfordshire Kilns (Young, 1977 fig. 21, 22), date range AD 240–300.

10. Beaker base. Sandy orange fabric which is coated with a worn dark brown colour-coat. Graffito mark on underside of base. This is a recognisable Oxfordshire ware suggesting a late third or later date. (217).

11. Bowl. Parchment ware, off-white fabric with remains of red-brown paint on interior and exterior. (217).This is a variant copy of the normal parchment ware bowl P. 24 from the Oxfordshire Kilns. Type W57 (Young, 1977) AD 240–400.

Samian
by Guy de la Bédoyère

A limited examination only was possible on the decorated forms and stamps from the Mantles Green excavation. To summarise; most of the samian originates from Central Gaul, *c.*100–180 (phase 1, Mantles Green). None of the material was East Gaulish in origin. There are a few abraded late first-century South Gaulish sherds which are residual (Area VII, unstratified and context 716). Only one stamp was legible (Area VII, 653). It was part of a signed sherd by Cinnamus of Lezoux, *c.*140–180 [CINN] AMI[OF].

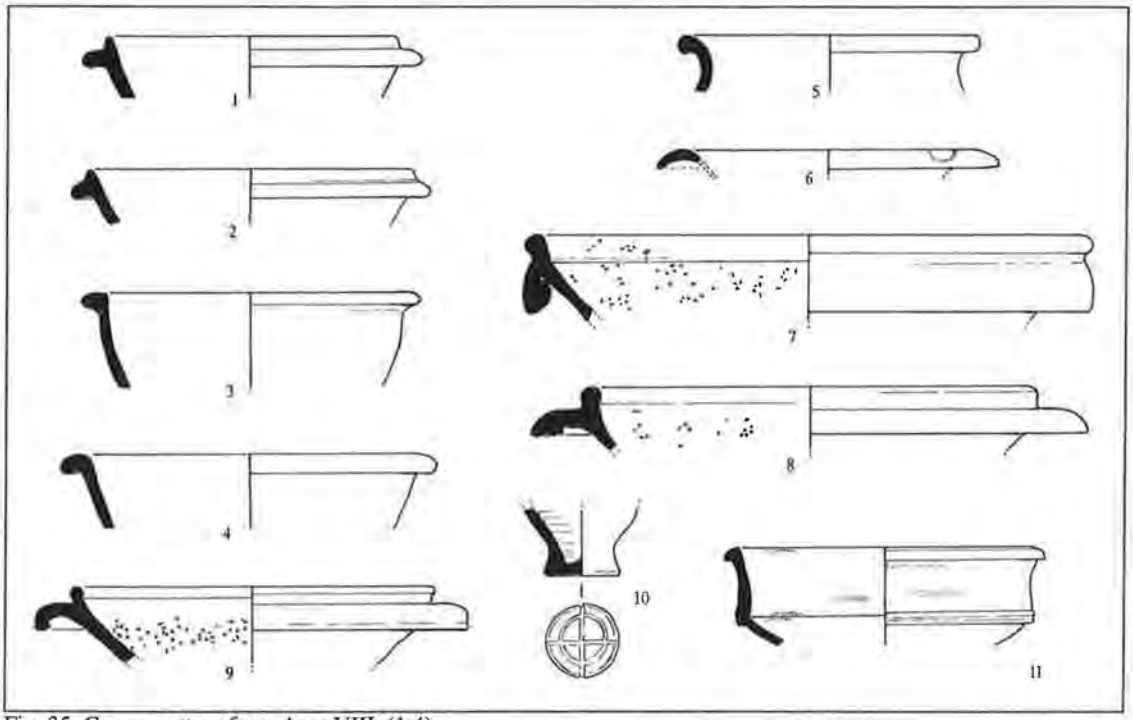

Fig. 35. Coarse pottery from Area VIII, (1:4).

BUILDING MATERIALS

Introduction
by I. J. Stewart

It is only appropriate to discuss building materials in relation to the later phases of the Mantles Green site, *c.*250–410 as prior to this the buildings were of timber. The principal later building material was flint nodule, some of which had been knapped to suit construction purposes.

The stone building in Area VII had flint footings; however, occasional fragments of conglomerate were also used together with fragments of quern–stones. During phase 6, *c.*350–390 a large block of conglomerate had been used in a repair to the stone building. This repair included reinforcing the foundation of the north east corner of the building which had slumped over earlier features. The conglomerate is probably local Hertfordshire puddingstone (see fiche) and has been imported or more likely extracted from gravel drift in the area. The sandstones, with the possible exception of the old red sandstones, and conglomerates used for the quernstones were probably locally quarried (see fiche for possible source).

The two corn driers/malting ovens found in Area V and VII were of flint, tile, brick and chalk. The tile and brick was probably reused from a demolished structure elsewhere in the area.

Maximum use had been made of local raw materials: there is little evidence of imported material specifically for building, apart from a possible fragment of marble from the cobbled surface in Area VII dating to *c.*225–250.

The Wall Plaster
by Rechenda Goffin (Fig. 17)

Three pieces of plaster were analysed: two from sample 40 and one from sample 52. Particle size analysis was carried out, but did not prove particularly useful (graph filed with archive). Sample 40 was found to contain much more sand than sample 52.

Sample 40, context 800: These samples were taken from a fragmented plaster panel which measured 4m × 1m (fig. 17). The so-called "plaster" found here behind the paint was actually more like an orange-brown sandy mortar. It is possible that the plaster was applied to cob and chalk walls; a technique that survived in some areas of Britain until the eighteenth century. Alternatively, this panel was heavily disturbed and may have come from a properly plastered wall.

The simple geometric frieze or dado panel is one of the most common schemes found. There are many examples in Britain; red and black being a popular combination, rather than the red, cream and grey found at Mantles Green. The design here consisted of rectangular red panels 580mm wide divided by thin vertical strips of cream paint. A cream band 50mm in thickness separated the top of these panels from 50mm thick interrupted bars of red paint, which in turn were underneath another border of cream paint. A large area of grey paint was found in the west panel.

Sample 52, context 943: A very small powdered sample was retrieved from the top fill of ditch 945. This was pink coloured painted plaster, the source of which is uncertain.

The Roman Tile
by Barbara Hurman (Fig. 36)

Summary

Some 2145 fragments of tile (160 kg), were recovered from 18 contexts in Area VII. Each piece was recorded according to: type, fabric, quality, weight, dimensions, colour, decoration, with additional comments. It appears that a considerable quantity of the tile was from hypocaust construction. Some flue tile was also found. Out of all the fragments of tile only one flat tile (?brick) was nearly complete, and this was about 80mm square. Other flat-tile fragments were heat cracked and crazed, fused together and blackened presumably from use in a hypocaust. Hypocaust *pila* tiles of similar size were found at the Latimer villa (Branigan 1971, 106) and also at the Shakenoak villa, North Oxfordshire (Brodribb et al 1966, 39).

The tile recovered from Area VII probably derived from the large flint building constructed in phase 4, (c. 250–300) and possibly from the demolition of the main villa buildings. No hypocausts were

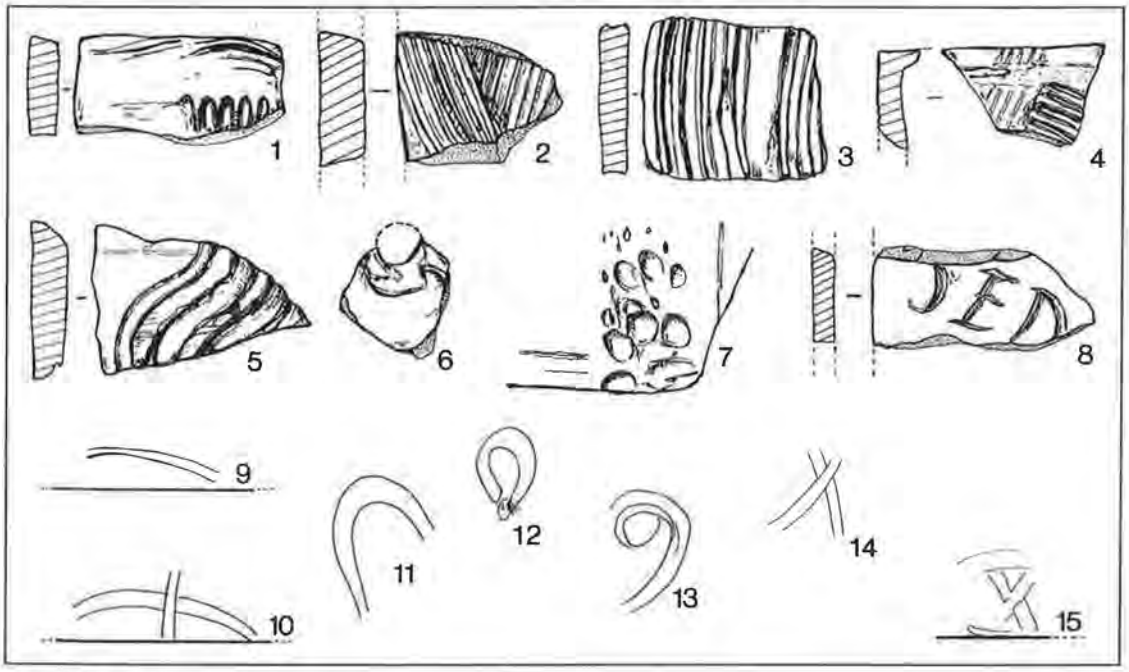

Fig. 36. Tile (1:3).

found during the 1983–84 excavations. Enough roof tile was found in the demolition contexts of the flint building to suggest that it had a tiled roof.

In Area VIII, a fragment of tile was recovered from the boundary/roadside ditch fill (209 SF3530), with graffito cut before firing reading: SED[.....] Dr M. Hassall comments: 'This is most likely the personal name SEDATUS, a probable example of the same name was found at Holt, in Wales (*Britannia* II (1971) p.303, no. 92).' For a fuller account of the tile see fiche 1, D14-E3.

Catalogue of illustrated tile (Fig. 35)

1. Flue tile, combed. (782).
2. Edged flue tile, combed. (547) (Area VIII).
3. Flue tile, combed. (653).
4. Flue with part of corner, combed. (684).
5. Flue tile, combed. (938).
6. Tile with broken perforation. (827).
7. Tegula with dog paw prints. (690).
8. (Tile with SEDATUS). (Area VIII).

9–10. Edged tegula with mark. (690).

11–13. Tegula with mark. (684) (783) (819).

14. Flat tile (brick) with mark. (659).
15. Edged flat tile (brick) with mark. (659).

QUERNS
by I. J. Stewart

The petrological report on material from the site was kindly compiled by Dr. H.P. Powell and is included in fiche 1, frames E4-E14. The summary below is based on his identifications. Eighty-eight possible quernstone fragments were examined, although some are so small that their identification as quern fragments lacks certainty. All were residual in that they have been removed from their primary context and reused as wall fill or hard core, or as resurfacing material for yards (e.g. context 783) or roads (e.g. context 58).

The frequency with which quernstones occur increases from *c.*225 onwards and may indicate an overall increase in arable agriculture. Wheat and to a lesser extent oats were grown on the floor of the Misbourne valley. Samples recovered from the late Romano-British corn drier in Area V appear to support this (see report below).

The quernstones may be divided into four basic types based on their composition: Old Red Sandstone (58% of total), other conglomerates (25%), sandstones and grits (12.3%), and lava (4.5%).

Three types of conglomerate were present: Old Red Sandstone, a quartz pebble conglomerate, and Hertfordshire 'Puddingstone' consisting of flint pebbles in a coarse angular glassy quartz. The sandstone and grits included: a fine-grained glassy of angular sandstone (?Sarsen); carboniferous millstone grit; and a fine grained unidentified sandstone and pebbly grit, possibly Drybrook sandstone (Lower Carboniferous, Forest of Dean). Four fragments of quern were provisionally identified as a 'Niedermendig lava' from the Eifel region.

None of the above materials outcrop at Mantles Green, but pebble conglomerates occur in the region as does sarsen which was locally available at Denner Hill.

THE PREHISTORIC FLINT ASSEMBLAGE
by Hal Dalwood

A total of 1270 pieces of worked flint were recovered from the 1983–4 excavations, which were classified into diagnostic tool types and waste (table 1). A small quantity of burnt flint was recovered, together with very crudely flaked primary flakes with a thick white cortex, all identified as Roman building materials. The flint assemblage was recovered from Roman features and the ploughsoil/colluvium overlying Roman deposits, and was all regarded by the excavator as residual and redeposited material.

The tool types represented in the assemblage clearly indicate that it was of mixed origin, containing mesolithic (microliths, tranchet axe) and neo–lithic material (leaf shaped arrowhead, knife, projectile point). There was also some evidence of Bronze Age material (barbed-and-tanged arrowhead). The preliminary conclusion drawn from the ratio of blades: flakes in the assemblage was that the majority of the waste material was neolithic. A further report will present the metrical analysis of the waste assemblage and provide a more detailed interpretation of the evidence for prehistoric occupation (Dalwood and Edwards, *Records of Bucks* forthcoming).

TABLE 6: Classification of Flint Assemblage

Tools	
Microliths	5
Tranchet axe	1
?Projectile point	1
Arrowheads	4
(1 leaf-shaped, 1 transverse, 2 barbed-and tanged)	
Knife	1
Scrapers	18
Notched flakes	1
Truncated flakes	4
Utilised flakes and unclassified retouch	16
Total tools	**51**
Waste	
Cores	17
Flaked lumps	6
Microburin	1
Flakes	1087
Blades and snapped blades	108
Total waste	1219
Total flint assemblage	**1270**

THE ENVIRONMENTAL EVIDENCE

SUMMARY OF THE ANIMAL BONE REPORT
by Gillian Jones

The animal bone report appears in microfiche, 1, F1-G2. It includes a fuller description than is given here with supporting tables, information about butchery patterns, and bones with signs of disease or anomalous growth.

The animal bone found was of the mid second to late fourth century. Most was from general surface layers, in particular the cobbled farmyard/courtyard in Area VII. The bone is summarised on Table 1. Bones of cattle dominated the assemblage, increasing in relation to sheep up to the mid fourth century. In the late fourth-century phase (VII), cattle and sheep bones were found in about equal numbers. The percentage of pig was low. Horse bones were quite frequent and deer was present in all phases. Bird bones were represented by fowl, goose and raven.

Two-thirds of the bone came from Area VII. This area produced most of the antler fragments, which suggests that antler-working was taking place there. In Area I, the area of agricultural/horticultural activity, the proportion of cattle was high, which indicated a tendency for the larger bones of cattle to be disposed of away from the buildings.

Bones were hand-collected, but with considerable care. The bones were highly fragmented and only a little over a third were identified. Both these factors will have introduced a survival and recovery bias in favour of stronger, larger bones.

There were large differences in the proportions and degree of fragmentation of different bones. It was noted that although cattle horncores were well represented, there were no sheep horncores. The bones of both cattle and sheep were fragmentary. Pig bones were rather less fragmentary, and it is possible that small fragments have either not survived or not been identified. Bones of the foot were in very low numbers for pig, even in comparison with those of sheep which are of similar size, and some difference in disposal can be inferred, with, perhaps, the bones of pig trotters being thrown to dogs, or being weakened by long boiling and thus surviving less well. Extremely few vertebrae and ribs survived, probably the result of damage by trampling. Since most of the bone is from surface layers, cattle is probably overrepresented in the overall summary.

In comparison with Iron Age and Medieval sites in Buckinghamshire (Jones 1983, p. 41, and fig. 19), even bearing in mind the biasses discussed above, the bone sample indicates the greater importance of cattle in the Romano-British local economy, which is typical of Romanised sites (King 1978).

A series of fence lines found in Area VII are considered by the excavation director to be part of cattle enclosures. If this is so it may indicate that this part of the estate provided a collecting point for cattle ready for slaughter. The primary areas for pasture and woodland would have been the valley sides leaving the valley floor for crops.

Data from the sheep mandibles suggest that half of sheep slaughtered were adult. Of the young sheep killed a few were lambs but most had been kept for

two or three years. Winter pasture and provision must therefore have been sufficient to keep both the breeding stock and these young sheep through the winter. The pig mandibles were all from pigs between about six months and two years old.

Measurements of cattle horncores suggest a similar size range through the Romano-British period, but with a higher average basal diameter and a more circular basal shape in the mid third and fourth-century phases (see fiche 1, G2). Measurements of cattle long bones fall within the expected range for Roman sites in South-Eastern England.

A fragment from a hornless sheep (or goat) was found from phase 4 (mid to late third century). No certain remains of goat were found.

The other species found are shown on table 1. Horse bones were fairly numerous. They were less broken than the cattle bones; two bore chopmarks, and they were scattered across the site. Horse meat may have been eaten, or fed to dogs or pigs. The 96 antler pieces included fourteen substantial pieces of tines, seven of them sawn. Fowl was present only from the third century onwards. Raven is a common find on Roman sites; the immature partial skeleton found suggests that the species was breeding in the area.

Worked Bone and Antler

In comparison with the great quantity of iron-working residues, evidence for bone-working was slight. Saw marks were found most commonly on antler (seven pieces) and only once on bone. Two cattle metapodia bore repeated chopmarks across the ventral shaft as if used as a chopping-board and a few bone fragments had a polished surface as if from frequent handling. Most of the antler was from Area VII (fiche 1, F11).

TABLE 7: Species Present

Phase	*BN*	*Cattle*	*Sheep*	*Pig*	*Others*	*Horse*	*Deer*		*Bird*	*% id.*
I, II	358	194	114	30		16	red 4a			
mid-late 2nd C.		*54%*	*32%*	*8%*	*6%*					*36%*
III	871	468	290	61		23	red 24a	dog 3		
late 2nd-3rd C.		*54%*	*33%*	*7%*	*6%*		roe 1	hare 1		34%
IV, V	899	513	293	55		22	red 1+7a	dog 3	fowl 4	
mid 3rd-mid 4th C.		*57%*	*33%*	*6%*	*4%*		roe 1			38%
VI	908	516	219	50		44	red 14+54a	dog 6	fowl 2	
mid-late 4th C.		*57%*	*24%*	*6%*	*14%*		roe 2		raven 1sk	36%
VII	344	138	145	36		7	red 4+7a	fox 2	goose 1	
late 4th C.		*40%*	*42%*	*11%*	*7%*		roe 1+3a			35%
TOTAL	3380	1829	1061	232		112	red 19+96a	dog 12	fowl 6	*36%*
mid 2nd-late 4th C.		*54%*	*31%*	*7%*	*8%*		roe 5+3a	fox 2	goose 1	
								hare 1	raven 1	

BN – no. of identified bones; id. – identified; a – antler; sk – partial skeleton

FRUITS AND SEEDS
by A. J. Gouldwell

Summary

Fourteen sediment and soil samples were investigated for botanical remains by washover and paraffin flotation. A fuller account with listings appears in fiche 2, A3-B2. Small numbers of wild plant seeds and fruits were recovered though uncarbonised seeds which were present were mostly considered to be of recent origin, particularly as roots were common in most samples. Carbonised grains of oats, and grains and chaff of spelt wheat were also recovered in quantity from three contexts. Reasons are given for considering one sample (28), a pit-fill from phase 5, as constituting burnt crop-cleaning waste. The two other samples (41, 39) from the corn drier area (phase 6 and 7 respectively) are interpreted as main crop product in different stages of cleaning. The oats present may be contaminant to the spelt crop, or a minor crop.

The interpretation of one context (I 62) as a hearth layer is supported by wood charcoal residue. Interpretation of the remaining contexts is not enhanced by botanical evidence; reasons are given for suspecting recent origin for at least some of it.

THE CHARCOAL
by Ann Miles

TABLE 8: Tree/Shrub species by phase

	Phases						
	1	**2**	**3**	**4**	**5**	**6**	**7**
Oak	48	67	47	48	61	44	48
Poplar/Willow	1		5	1	4		
Beech	12	5	14	3	3	26	10
Alder	28	14	20	27	19	21	17
Horse Chestnut	2	5					
Rosaceae	9		2	4	1		4
Ash			3	8	10		11
Lime		9	6	6	1		
Elder			1	1		5	3
?Shrub			1	1	1		7
Birch			1	1		5	3
Elm			3			2	
Hornbeam				1		2	

The number opposite each species is the percentage of branches (see fiche for definition), recorded per phase. The picture as can be seen from this chart is a fairly constant one of mixed Oak-Alder-Beech woodland used as a source for firewood, with only Ash, of the other species, becoming noticeably more common with the passage of time, possibly because of opening up of woodlands since Ash is a light-demanding tree. This would appear to be the only Roman record for Horse Chestnut.

A fuller listing by context, will be found in fiche 2, B7-B14.

ACKNOWLEDGEMENTS

The director of the 1983–84 excavations, Peter A. Yeoman, wishes to express his gratitude to all those who assisted on site especially Hal Dalwood, Barbara Hurman, Duncan Brown, and the County Museum Archaeological Group. M.E. Farley wishes to acknowledge the help of members of the County Museum Archaeological Group who kindly assisted at short notice with Areas VIII and IX.

The co-author, Ian J. Stewart, acknowledges the assistance of Mélanie Steiner (finds drawings), Peter A. Yeoman (drawings and photographs) and Simon Smithson (preliminary archive preparation). The assistance of the specialists for their various contributions are gratefully acknowledged here in alphabetical order; Dr. Denise Allen (glass), Guy de la Bédoyère (samian), Hal Dalwood (flints), Dr. Andrew David (geophysics), M.E. Farley (watching briefs/editing), Rechenda Goffin (painted plaster), A.J. Gouldwell (fruits/seeds), Dr. S. Greep (pottery and bone, lead and ceramic objects), Dr. M. Henig (intaglio), Barbara Hurman (pottery and tile), Gill Jones (animal bones), Valerie Kempster (iron objects), Dr. C. King (coins), J.G. McDonnell (slag analysis), D.F. Mackreth (brooches), Anne Miles (charcoal analysis), Dr. H.P. Powell (stone identification) and Paul Wilthew (hearths and furnace lining analysis). The assistance of Pam Russell in typing up the manuscript and fiche is also gratefully acknowledged, also the assistance provided by Christine Baldwin.

The excavation was funded by the Inspectorate of Ancient Monuments, Department of the Environment, and much of the post-excavation work by English Heritage.

Plate 1. Aerial view June 1982, looking south at Mantles Green, Amersham, with Shardeloes Lake (south end) in foreground. The excavation site lies at the junction of the River Misbourne and the A413 (prior to by-pass construction).

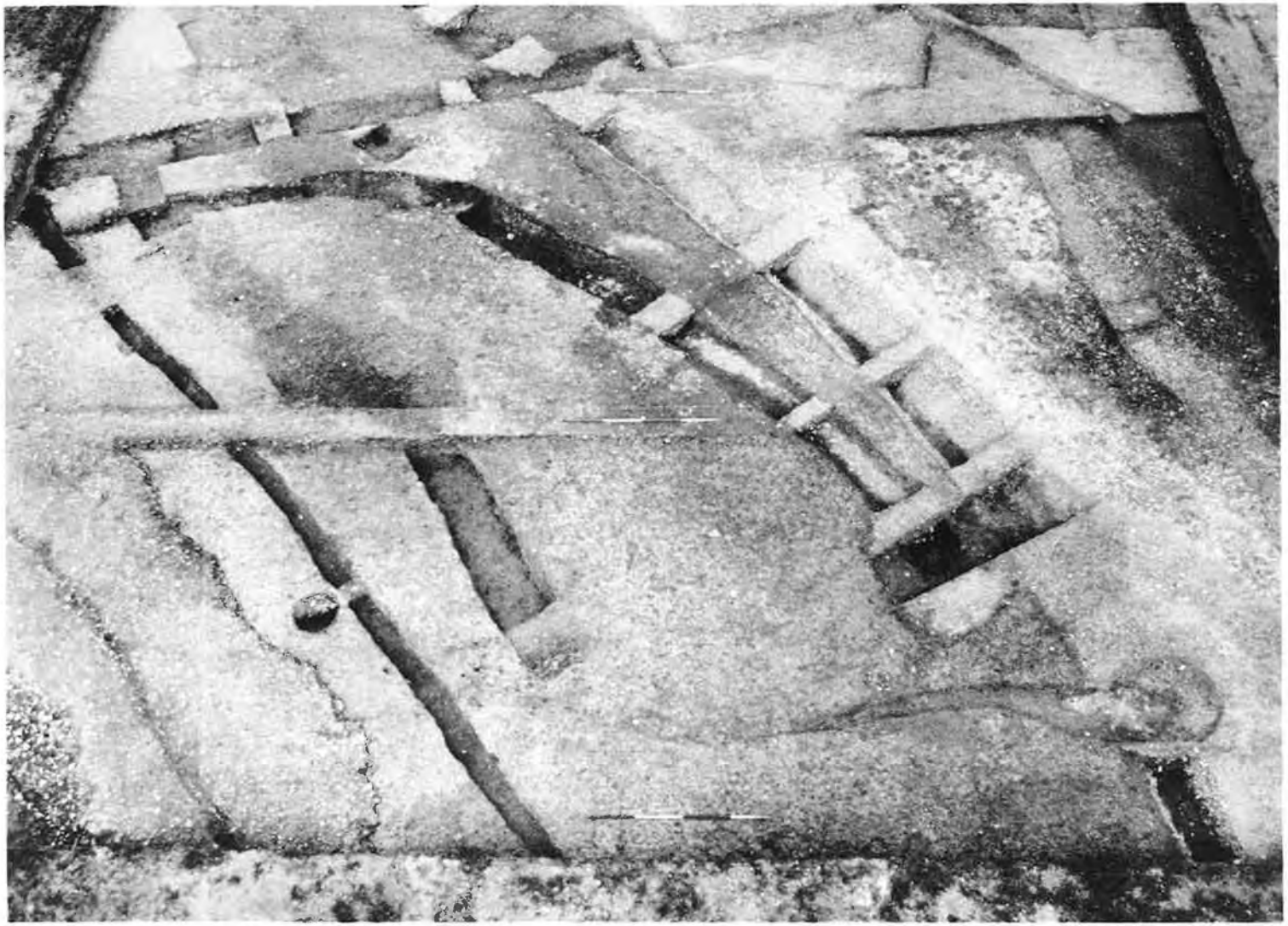

Plate 2. Area I: Looking east showing ditches and cobbled track (see fig. 7).

Plate 3. Area V: Twin flue corn drier looking east overlying earlier ditch (see fig. 12).

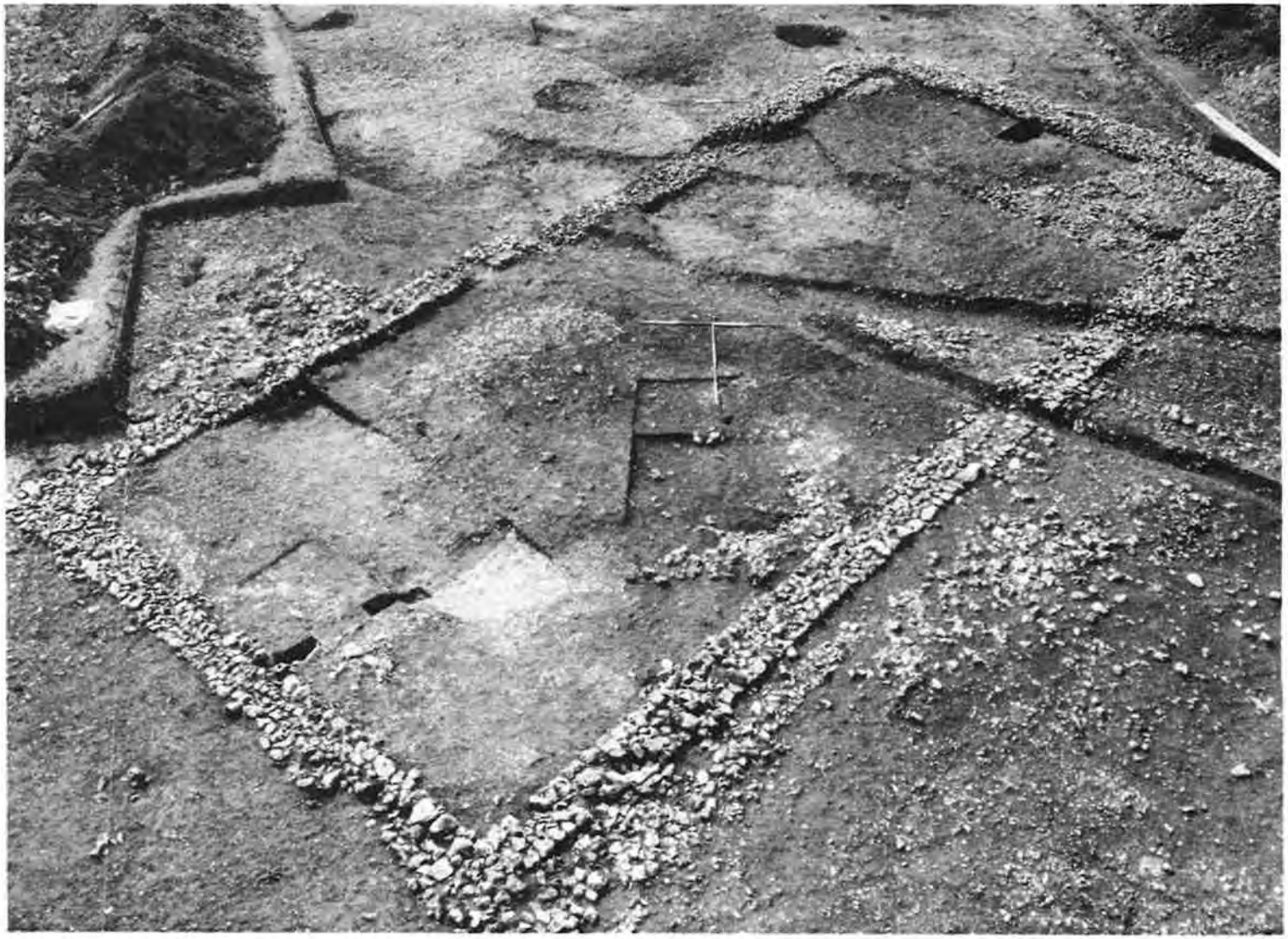

Plate 4. Area VII: Stone building with demolition rubble and subsidence looking south east; road hedge top right.

Plate 5. Area VIII: Detail of ditch (945) underlying stone building with subsidence containing wall plaster. N

MICROFICHE

Two microfiche are included with this volume. The fiche include detail related to specialist reports which are summarised in the main text. A fiche can hold up to 98 pages of text and the individual pages are referred to by the letters A-G vertically and numbers 1–14 horizontally.

Content of Fiche

Fiche 1	*Frames*
1. Slag report by J.G. McDonnell	A3-C8
2. Hearth/Furnace Linings by Paul Wilthew	C9-C11
3. List of Copper Alloy Objects by P.A. Yeoman	C12-D4
4. Roman Coins Catalogue by Dr. C. King	D5-D13
5. Tile Report by B. Hurman	D14-E3
6. Objects of Stone; identification by H.P. Powell	E4-E14
7. Bone Report by Gillian Jones	F1-G2
Fiche 2	
8. Fruits & Seeds by A. J. Gouldwell	A3-B6
9. Charcoal by Anne Miles	B7-B14
10. Geophysical Survey Report (AML No. 3855) by Andrew David	C4-D2

ADDENDUM

In 1993 it was learned that during 1986 metal detectorists discovered, but did not report, a hoard of late fourth-century coins adjacent to the main excavated area subsequent to soil stripping for road construction.

BIBLIOGRAPHY

Armitage, P. L. 1982 'A System for Ageing and Sexing Horn Cores of Cattle'. In Wilson, R. *et al*, 1982, 37–54.

Armitage, P. L. & Clutton-Brock 'A System for Classificiation and Description of Horn Cores of Cattle from Archaeological Sites', *Journal of Archaeological Science* 3, 329–348.

Beijerinck, W. 1947 *Zadenatlas der Nederlandsche Flora* Veenman, Wageningen.

Berggren, G. 1981 *Atlas of Seeds and Small Fruits of Northwest-European Plant Species with Morphological Descriptions, Part 3*, Swedish Museum of Natural History, Stockholm.

Bertsch, K. 1941 *Früchte und Samen*, Stuttgart.

Brade-Birks, S. G. 1944 *Good Soil*, Teach Yourself Farming series English Universities Press, London.

Brailsford, J. W. 1962 *Hod Hill, Volume 1, Antiquities from Hod Hill in the Durden Collection*, London.

Branigan, K. 1967 'Romano-British Rural Settlement in the Western Chilterns', *The Archaeological Journal*, Vol. CXXIV, 129–159.

Branigan, K. 1967 'Development of Romano-British Occupation in the Chess Valley', *Recs Bucks* 18, Part 2, 136–149.

Branigan, K. 1971 'Tiles' in *Latimer*, 106–108. (Bristol).

Branigan, K. 1985 *The Catuvellauni*, Peoples of Roman Britain Series.

Brodrib, G. 1983 'Roman Tile and Brick', *Current Archaeology* 89, 177.

Brodribb, A. C., Hands, A. R. & Walker, D. R. 1968 'Brickwork', *Excavations at Shakenoak I*, 39.

Brown, A. 1982 'Excavations at Towcester 1954: The Grammar School Site', *Northants Arch J* 17, 47–48.

Bull, G. & Payne, S. 1982 'Tooth Eruption and epiphysial fusion in pigs and wild boar', In Wilson, R. *et al*, 1982, 55–71.

Charlesworth, D. 1966 'Roman Square Bottles', *J. Glass Studies* VIII, 26–40.

Cocks, A. H. 1921 'A Romano-British Homestead in the Hambleden Valley, Bucks', *Archaeologia* Vol. LXXI, 141–198.

Cool, H. E. M. & Price J. 1987 'The Glass', in Lt. Col. G. W. Meates *The Roman Villa at Lullingstone, Kent II: The Wall Paintings and Finds*, 110–141.

Crummy, N. 1979 'A Chronology of Romano-British Bone Pins', *Britannia* 10, 157–164.

Crummy, N. 1983 *The Roman Small Finds from Excavations in Colchester*, Colchester Archaeological Reports, Colchester.

Von den Driesch, A. 1976 *A Guide to the Measurements of Animal Bones from Archaeological Sites*. Harvard.

Von den Driesch, A. and Boessneck, J. 1974 'Kritische Anmerkungen zur Widerristhöhen-berechnung aus Längenmassen vor-und Frühgeschichtlichen Tierknochen', *Säugertierkundliche Mitteilungen* 22(4), 325–348.

Dudley, D. 1967 'Excavations on Nor Nour in the Isles of Scilly, 1962–66, *Arch Jnl* 124, 1–64

Farley, M. 1983 'The villa at Mill End, Buckinghamshire and its neighbour', *Britannia* 14, 256–259.

Farley, M., Henig, M. and 'Taylor, J. W. 1988 A Hoard of Late Roman Bronze Bowls and the Mounts from the Misbourne Valley, near Amersham, Bucks', *Britannia* Vol. XIX, 357–366.

Gillam, J. 1976 'Coarse Fumed Ware in Northern Britain and Beyond', *Glasgow Archaeological Journal* 4, 57–80.

Grigson, C. 1976 'The Craniology and relationships of four species of Bos', *Journal of Archaeological Science* 3, 115–136.

Groves, J. 1984 'Identifying Ceramic Building Material'. *Museum of London, Department of Urban Archaeology*.

Hamilton, R. 1971 in Branigan, K. 1971, 163–6.

Harden, D. B. 1979 'Glass Vessels' in Clarke, G. *Winchester Studies 3, Pre-Roman and Roman Winchester part II: The Roman Cemetery at Lankhills* 209–222.

Hartley, B. R. 1959 'A Romano-British Villa at High Wycombe', *Recs Bucks* 16, Part 4, 227–257.

Henig, M. 1978 *A Corpus of Roman Engraved Gemstones from British Sites*, BAR 8, British Series.

Hillman, G. 1984 'Interpretation of archaeological plant remains:

Taschereau, P. M. 1985 'Taxonomy of Atriplex species indigenous to the British Isles', *Watsonia* 15 (3), 183–209.

Trow, S. D. 1988 'Excavations at Ditches hillfort, North Cerney, Gloucester, 1982–3', *Transactions of the Bristol and Gloucestershire Archaeological Society* 106, 19–85.

Tutin, T. G. , Heywood, V. H. , Burges, N. A. , Moore, D. M. , Valentine, D. H. , Walters, S. M. and Webb, D. (eds) 1964–1980 *Flora Europaea* 1–5, Cambridge.

Tylecote, R. F. 1963 *Metallurgy in Archaeology*, London.

van der Veen, M. & Fieler, N. 1982 'Sampling Seeds', *J. Archaeological Science* 9 (3), 287–298.

Wedlake, W. J. 1958, *Excavations at Camerton*, Somerset (privately printed).

Webster, G. & Smith L. 1987 'The excavation of a Romano-British Rural Establishment at Barnsley Park, Gloucestershire 1961–1979', Part II, *Trans. Bristol & Gloucs. Arch. Soc.* 65–189.

Williams, R. J. 1984 'Bancroft Mausoleum', *South Midlands Archaeology* 14, 21–26.

Williams, R. J. 1986 'Bancroft Mausoleum', *South Midlands Archaeology* 16, 43–49.

Wilson, R. , Grigson, C. & Payne, S. (eds) 1982. 'Ageing and Sexing Animal Bones from Archaeological Sites', *Brit Archaeol Rep* (Brit. Ser.), 109.

Woods, P. J. 1976 'Brixworth Excavation: The Romano-British Villa, 1965–70. (Part 1 The Roman Coarse Pottery and Decorated Samian Ware)', *Northants Museum Journal* 8, 12, 37, 58, 86.

Young, C. 1977 *Oxfordshire Roman Pottery*. British Archaeological Reports, 43, 72, 76, 107.

Zeepvat, R. J. 1985 'Bancroft, the Villa Outbuilding', *South Midlands Archaeology* 15, 30–38.

Zeepvat, R. J. 1987 'Bancroft Villa 1986', *South Midlands Archaeology* 17, 43–46.

The Society gratefully acknowledges a grant from the Historic Buildings & Monuments Commission towards the cost of publishing this report.