
Proceedings of the Cambridge Antiquarian Society

(incorporating the Cambs and Hunts Archaeological Society)

Volume XCI
for 2002



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Cambridge Antiquarian Society**

(incorporating the Cambs and Hunts Archaeological Society)

**Volume XCI
for 2002**

Editor Alison Taylor

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Editorial

After two themed volumes these *Proceedings* return to the usual PCAS format of mixed papers, covering excavations, local history, landscape archaeology, architecture and historical geography. Indeed, in the finest antiquarian tradition many of the papers involve more than one of these disciplines. There should therefore be something to interest all members in this miscellany.

Two departures from recent practice are the inclusion of Conference synopses and an abbreviated *Conduit*. The synopses are by popular request, rising from a realisation that many members would be grateful to have a lasting reminder of these important papers. We are grateful to the authors who supplied copy so conscientiously after the event (naturally we had not thought of this in advance), and to Derek Booth who collected them all together. *Conduit* had to be an even more last-minute construct, when it became clear that the County Council could no longer keep up with the necessary production time-scale. This year's approach is a bit of an experiment, and it will be useful to know what reaction we have both from members and from affiliated societies.

Alison Taylor

President's Address

Two years as President is too short a time to see through any substantial programme of reform for CAS. When I was elected there were a number of initiatives I wanted to start in the hope they would mature in another President's time. To this end Derek Booth as Secretary and I put out a questionnaire in the year 2000 to profile our membership and to canvas opinion on possible changes.

It has been a central part of my Presidency to re-imbue the Society and its membership with confidence in its right to express opinion on heritage issues. It is essential that there remains a well-informed independent Society to safeguard archaeological and related services at a time when other pressures and agenda take precedence within local and central governmental organisations which we perhaps naively assume will be acting in our best interests in protecting the past. It is particularly regrettable that CAS has been excluded from representation within long-established fora to discuss and scrutinise public heritage services within Cambridgeshire at this time.

Another issue I hoped we could address was to reverse the decline of amateur archaeology, perhaps by re-establishing the Society's post of Director of Fieldwork, and to encourage research-led investigation in the County once more. This latter still awaits the right person and opportunity, but I am pleased there are encouraging signs in the way local groups have attracted grants which will give them solid research foci and draw in new members. Notable amongst these are Thriplow Society, Fulbourn Village History Society, Haverhill and District Archaeological Group and Cambridge Archaeology Field Group.

We asked members if it would be beneficial for CAS to develop other venues for meetings, and would there be interest in workshops on current research topics. We have developed the workshop idea with this year's conference dedicated to the archaeology, architecture and history of Ely, a town that has had considerable investigation in the past ten years, with some startling new discoveries but little co-ordination or academic discussion. Synopses of the talks are published within this volume. From October we shall be holding our monthly meetings in more comfortable and more accessible surroundings, in the newly built Divinity Faculty at the Sidgewick Site.

Other positive steps are that, after two years I can report that the Web page is now complete and will shortly appear at www.Cambridge-Antiquarian-Society.org.uk, and that the Society has taken back full ownership of *Conduit* which, over the past ten years, had been produced jointly with Cambridgeshire County Council.

In summary there has been good progress over the past two years and the Society will continue to build upon its strengths as the paramount amenity society guarding Cambridgeshire's heritage. Government policies at central and local level are capricious and we cannot afford to put faith in them without constant scrutiny and challenge. With the advent of regional government and root and branch reform of the planning system, a Cambridgeshire focus for our heritage provided by CAS will be ever more imperative. The Society is therefore essential and I thank you all for continuing to support and contribute to it. I am pleased to leave it in the capable hands of your secretary Liz Allan, and new President, Tony Kirby.

Tim Malim

A Great Circle: Investigations at Arbury Camp, Cambridge

Christopher Evans and Mark Knight

With contributions by CAI French, G Lucas, Q Mould, P Murphy,
AWP Oswald and M Taylor. Postscript by John Alexander

In 1990 and 1995 evaluation fieldwork was undertaken at Arbury Camp, an Iron Age ringwork previously investigated by T McKenny Hughes at the beginning of the 20th century and Alexander and Trump in 1970. Radiocarbon dated to the 4th–2nd centuries BC, the interior of the enclosure was sample investigated, but no evidence of settlement was found. Trenches were excavated across its circuit; in one a major eastern entrance was discovered, including a substantial tower-like gateway. The basal fills of the ditch terminal proved to be waterlogged and a quantity of contemporary leatherwork was recovered. Fieldwalking and ploughsoil test pitting demonstrated that a late Roman pottery scatter extends across much of the enclosure and continues north-east beyond its circuit.

Anticipating expansion of the town's Science Park, in 1990 and, again, in 1995 the Cambridge Archaeological Unit (CAU) of the University of Cambridge was commissioned to undertake evaluation fieldwork on a large site just north of Cambridge (Evans 1991a; 1992; Knight 1995). The roughly triangular 22ha plot lies near the edge of third terrace gravels and the clay plain. It is commanded by Arbury Camp, a large circular univallate enclosure c. 275m in diameter (c. 5ha), much of whose western perimeter had been destroyed during the construction of the Histon Road (B1049) and the A45. Previous investigations indicated it to be of Iron Age date. Given the site's relatively low fen hinterland situation (ie undistinguished topography), it is surely inappropriate to consider it a hill-fort and 'ringwork' seems a more apt term. All classificatory titles are, of course, weighted. Here the enclosure's place-name designation as a 'Camp' will be retained despite its many connotations (eg Evans 1988).

This report involves many 'resonances' and must be informed by a sense of historical research perspective. Perhaps due to its location on the fringes of Cambridge, the Camp had previously seen two campaigns of excavation prior to the recent investigations. The historiographic dimension to this study must be further extended to take account of Arbury's striking similarity with the hillfort at Wandlebury. Involving matters of cultural/geographic affinity, it requires discussion of that hillfort in the broader context of the region's other great Iron Age enclosures, and the contrasting preservational history of the two sites will

also be explored. Finally, because Arbury featured in David Clarke's renowned 'Glastonbury Model' paper of 1972 – arguably amongst the most influential studies of Iron Age society – the recent fieldwork reflects upon the construction of theory as its results would not support his characterisation of the site.

The enclosure survives, at least around its eastern and north-eastern perimeter, as a relatively impressive earthwork. Its plough-distorted bank, although stripped away in the south-west, still stands 0.30–.50m high. (As described by Oswald below, the site was subsequently surveyed by the Royal Commission in 1995 and comparison of their plan with the 1885 OS plotting demonstrates just how much damage its circuit sustained during the 20th century; fig. 1 and 2.) Prior to excavation in 1990, R Palmer undertook an assessment of aerial photographs from the area with the aim of accurately plotting the Camp's perimeter and investigating other cropmarks within its environs (Appendix I in Evans 1991a). Numerous periglacial features were detected. As some could have been potentially 'archaeological', the trenches beyond the Camp itself were laid out so as to maximise their testing. While all the suspect candidates eventually proved to be geological, in the course of Palmer's appraisal a distinct sub-rectangular archaeological enclosure was identified at TL 44726185 (fig. 1 and 6). Lying north of the development area, this has been partly covered by the embanking of the A45. It appears to be discrete with no ditched links to suggest the presence of adjacent contemporary sites or conjoining field systems.

From the out-set our investigations were primarily directed towards two objectives:

- 1) The determination of any internal settlement within the enclosure
- 2) To investigate whether archaeological remains lay outside the field to the east, especially the potential cropmark site SMR: 09530.

It was intended to undertake intensive fieldwalking, but the field was not to be ploughed until after the excavation season. Also, it was learnt that much of the ploughsoil had been stripped away during the demolition of farm buildings in the 1970s. This led us to

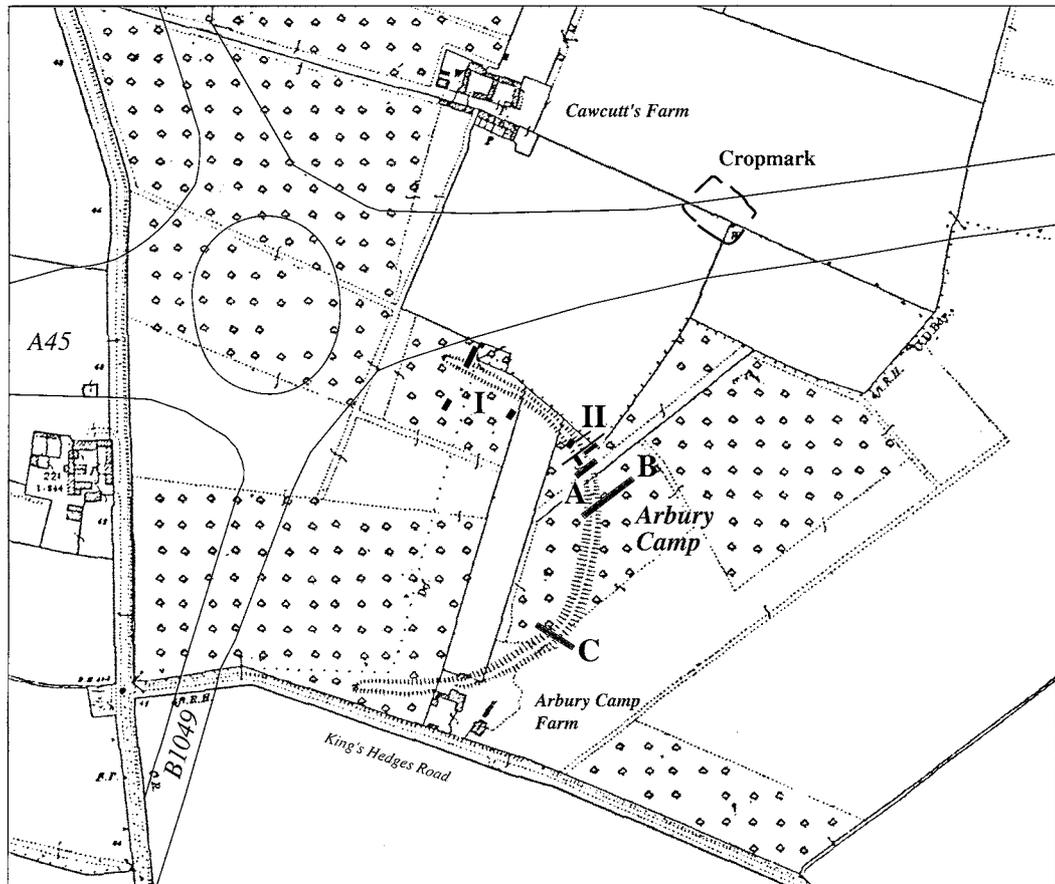


Figure 1. 1885 OS map of area showing location of Hughes' (A–C) and Alexander and Trump's trenches (sub-sites I and II), with modern roads imposed and the sub-rectangular cropmark indicated (note location of Cawcutt's Farm).

revise our strategy and David Hall was only later commissioned to undertake the fieldwalking as a check on our results and, specifically, to establish the eastern limits of a Roman pottery spread discovered through test-pitting.

The first of the above priorities, settlement within the Camp, was addressed through the grid excavation of metre test pits that were later expanded into 5 x 5m trial stations. The issue of extra-enclosure occupation was tested by trial trenching east of the enclosure (V–XI; fig. 5). Three trenches were also taken across the perimeter of the Camp to investigate variations in survival, construction, and artefact density around its circuit (I–III). That the ditch was not present in the eastern of these (Trench III) led to lateral open-area exposure in which a major entranceway was eventually discovered, including potential traces of a substantial gate-tower (Trench IV). Due to the pressure of re-sourcing and the importance of this find, aside from one posthole, this was not excavated but only base-planned.

As proposals for the development site were later revised, in 1995 a second stage of evaluation was undertaken (Knight 1995). Of more modest scale, this was largely management-oriented and directed towards the exact determination of the line of the Camp circuit and the retrieval of environmental samples.

Eight cuttings were taken, set on approximately a 50m interval, across the line of the ditch and bank (Trenches XII–XIX; fig. 5). However excavation *per se* was confined to Trench XVI, with the profile of the ditch otherwise established by augering. Aside from these, to facilitate environmental sampling the northern edge of the Trench IV entrance area was also opened and extended to allow for the clean exposure and excavation of the bank and ditch.

Arbury has now been investigated many times on a small scale. While more rigorous in its application of sampling procedures and of substantially greater scope (due to the machining), even CAU's two-stage campaign only involved *evaluation testing* and not full excavation. Accordingly, many of the interpretations of specific feature groups must remain ambiguous and the plan-only results cannot be equated to excavated sequences.

Earthwork Survey

AWP Oswald

In conjunction with the second stage of fieldwork, in 1995 analytical earthwork survey at a 1:1000 (fig. 2) was carried out by the Royal Commission on the Historical Monuments of England (Oswald and

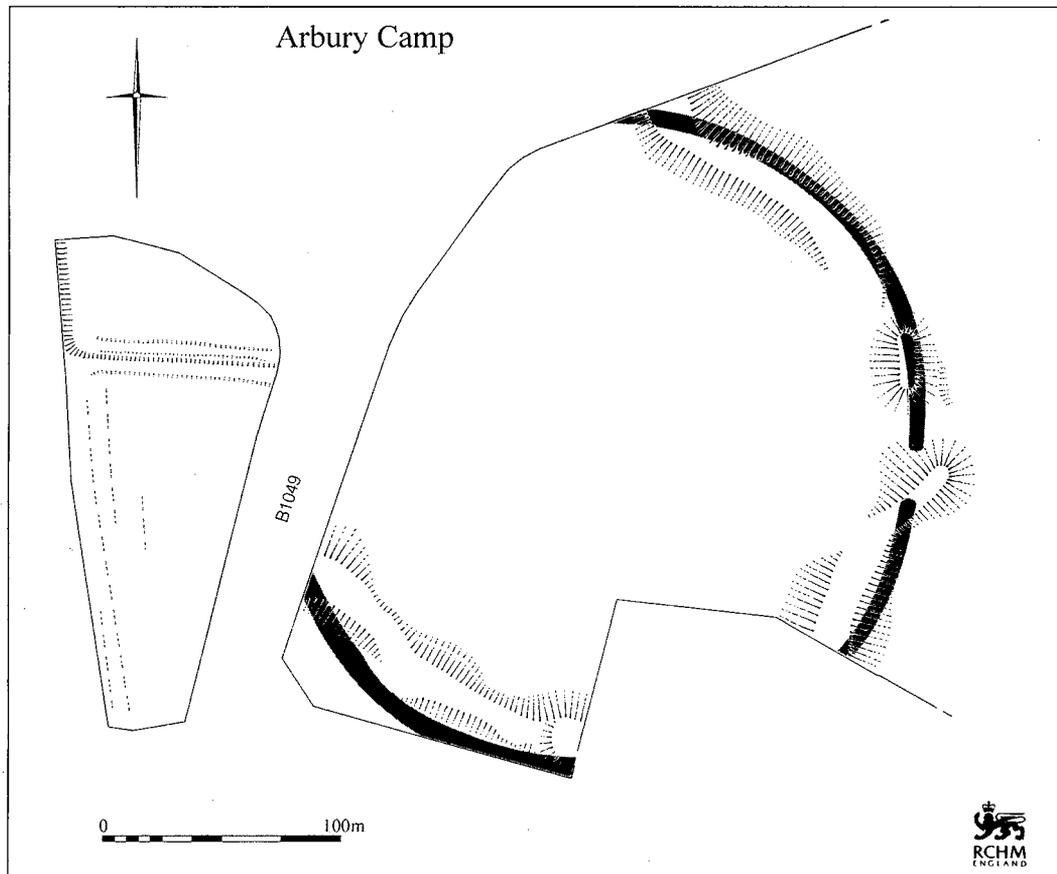


Figure 2. The 1995 Royal Commission earthwork survey with ditch perimeter shaded (reproduced with permission; Crown copyright).

Pattison 1995). The aims of the investigation were:

- to demonstrate the capacity of *analytical survey* – as opposed to ‘objective’ contour survey – to rapidly retrieve useful information about the earthwork remains that still survive, albeit in a degraded and badly distorted form
- to examine the area west of the B1049 Histon Road, where a short stretch of the western perimeter may have survived. This field had evidently been subject to ploughing in the post-medieval period and earlier. Nevertheless under pasture in 1995, it still retained a number of slight earthworks considered worthy of detailed examination
- to record Arbury Camp alongside the other Iron Age forts in the Cambridge region already surveyed by RCHME.

As noted above, the survey demonstrated the severe effects of modern development and intensive ploughing on the rampart. The 2nd Edition OS 25-inch map, surveyed in 1901 (published 1903) shows that the eastern sector of the bank remained well preserved and apparently described as a near-perfect circle. On the 1926 edition one farm building is shown cutting the bank, and the subsequent expansion of Arbury Camp

Farm resulted in the levelling of most of the south-eastern quadrant of its perimeter. By 1995 the remainder of the eastern sector of the bank survived only as a broad, degraded rise, at best c. 0.5m high but generally considerably lower, while the external ditch could not be identified on the surface. The original near-perfect semi-circle of the perimeter could still just be identified, but the earthwork was punctuated at irregular intervals by distortions which belied the form of sub-surface features.

In passing, it is worth noting that the east-facing gateway encountered in the CAU excavations and described below was not depicted on early editions of the Ordnance Survey or any other historic map. Although a gap was detected by the RCHME earthwork survey, this essentially reflected the extent of the trench previously excavated by the CAU. It is possible this omission indicates that the gateway had been blocked at some point. Alternatively, it may be that the condition of the earthwork was not actually as good as the map depictions would suggest, and that the map-makers were unable to distinguish the original entrance from later breaches.

To the west of Histon Road (B1049), the survey identified no conclusive evidence for the course of the perimeter. Indeed, with the benefit of hindsight and an accurate large-scale survey, it can be seen that the circuit – assuming it was circular – would hardly have

extended beyond the embankment of the B1049. However, vestigial ridge and furrow extending along a north-south alignment was identified. All the furrows lay to the south of a broad, low bank interpreted as a headland (which also carried a track in 1806), but there was some slight evidence of similar cultivation to its north. This arable agriculture, which is presumably comparable to the medieval field system recorded by Alexander and Trump's excavations, probably accounts for the levelling of the western half of the perimeter. The name Arbury, meaning 'earthen burh', implies that the perimeter was a complete circuit then, which offers a very imprecise *terminus post quem* for the ploughing. More tellingly, the boundary between the parishes of Impington and Chesterton almost precisely bisect its circular perimeter. The fact that the levelling was limited to the west of this boundary, within Impington, confirms that the parish boundary existed by the time ploughing began. Therefore, although the furrows are not so far apart as might be expected for the broad ridge medieval agriculture, it can be concluded the levelling of the western sector of Arbury Camp took place in the medieval or late Anglo-Saxon period.

Previous Investigations

After publishing a study on the possible origins of Arbury Camp, Prof McKenny Hughes cut three sections across the eastern perimeter (fig. 1; 1904 and

1906). Hughes' fieldwork evidently occurred during a very wet season, reflected in references to rising ground water. Digging without pumps, this could account for why in at least two trenches (A and B) the published sections suggest that the ditch was not fully excavated (fig. 3). Water levels could also have influenced his recovery of finds. Hughes found none to date the enclosure and, on the whole, his excavation threw little light upon it.¹

Hughes' speculations were, nevertheless, insightful. In his pre-excavation essay he variously considered the possibility of the Camp originating in all periods from pre-Roman through to Norman times (1904). Reporting that many Roman coins had been found both within and adjacent to the ringwork (largely late, 3-4th century issues; *ibid.*: 280), he later learnt that most of these, and Roman pottery too, came from a field some 250m north, immediately east of Cawcutts Farm (TL 446619). Though disturbed through quarrying, traces of a bank and ditch system were then still visible in that area and a substantial 'brick' and masonry wall had also been recently discovered north of the farm. This led Hughes to conclude that a late Roman settlement probably lay north of the ringwork (1906: 211-13). Despite the extensive evidence of adjacent Roman settlement, in his initial paper he proposed that Arbury was a pre-Roman construction only re-occupied in Roman times. The negative evidence of his excavations did nothing to alter this suggestion.

In 1970 John Alexander and David Trump under-

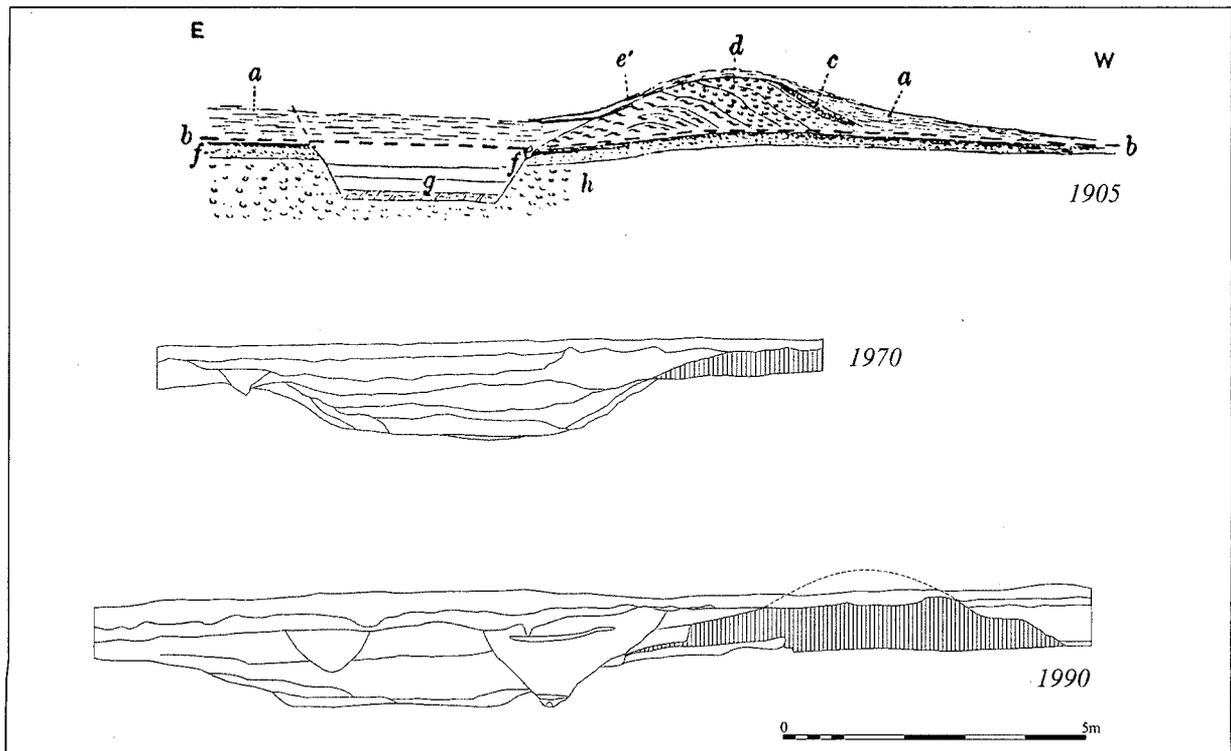


Figure 3. Arbury Camp: comparative sections: top Hughes' Trench C (south face; scaling is approximate; 1906: fig. 5); middle, Alexander and Trump's sub-site II, Trench B (south-east face); bottom Trench II (cf. fig. 9A; here reversed to provide ditch/bank correspondence, with the dashed line indicating the projection of the bank to account for modern plough truncation).

took a four week training excavation on the ringwork (Alexander and Trump 1970). Eight trenches, clustered into two sub-sites (I and II; fig. 1 and 4), were then dug along its northern and north-eastern perimeter. Apart from testing the bank and ditch system, and a small portion of the interior, the western circuit was extensively surveyed by probe, auger and resistivity scan. In the course of their fieldwork, four main periods of activity were identified:

Period 1

The recovery of struck flint flakes, a scraper and a barbed-and-tanged arrowhead attested to a 2nd millennium BC presence. Irregular hollows, probably tree-bowls/root-holes and two possible stake-holes were found in the old (bank-buried) ground surface.

A clay sling bolt of probable Early Iron Age form, was also recovered. In their 1970 interim report, the excavator's placed great emphasis upon its discovery as it was sealed by the ringwork bank which, therefore, must post-date that time.

Period 2

Three sections were taken across the enclosure ditch which was *c.* 8m wide, steep-sided and flat-based (1–1.45m deep). In its lower fills were six small pieces of flint-tempered pottery which 'could well belong to the Woodbury Cultural tradition of the pre-Roman Iron Age' (Alexander and Trump 1970: 5; Hodson 1964). These came from a horizon of grey-blue clay above a 0.05–.10m thick 'peaty layer' in the base of the ditch.

The enclosure's bank was found to be 0.40m high and 6–7.5m wide. Based on the potential volume of the ditch (as a quarry), they postulated that it could only ever have been *c.* 1m high (*cf.* see below). While finding evidence of a turf-stack revetment, there was no trace of a palisade or 'wall' on top of the 11m length bank they exposed. (The line of square holes

indicated in the extension to Trench A on their Site II base plan presumably relates to a recent fence; fig. 4.) Nor did they find evidence of the 'small pits/ditches' discovered on either side of the bank by Hughes (1906: 216–7, fig. 3 and 4). In fact, Alexander and Trump's published section bears little resemblance to Hughes' nearby section (A; Hughes' own sections display little internal consistency). Apart from an isolated gully, Alexander and Trump found no evidence of 'human activity' within the interior of the ringwork; geophysical surveys were also undertaken over 1800 sq m of the interior, apparently with little result.

Alexander and Trump saw their work confirming Hughes' speculations as to the pre-Roman (Iron Age) date of Arbury. They concluded from its unimpressive nature, that it could never have had a military function and, instead, that it might have served as a stock enclosure. This interpretation was cited and elaborated by David Clarke in his 'Glastonbury' paper (1972). He suggested that Arbury (analogous with Mendip hill-forts) could have functioned as a fen-edge winter base camp in a sheep-based transhumant cycle similar to that he proposed for the Somerset Levels.

Period 3

Alexander and Trump concurred with Hughes concerning a Roman presence in the area. While they recovered 84 sherds of Roman pottery in the upper ditch silts in Site II (associated with 98 animal bones, glass, iron and two roof tiles), no pottery of this time was found in its lower fills. This, together with the fact that a ground surface had evidently stabilised over the ditch by the first few centuries AD, led them to conclude that though there may have then been a building in the vicinity, the enclosure itself was not in use and probably lay under cultivation.

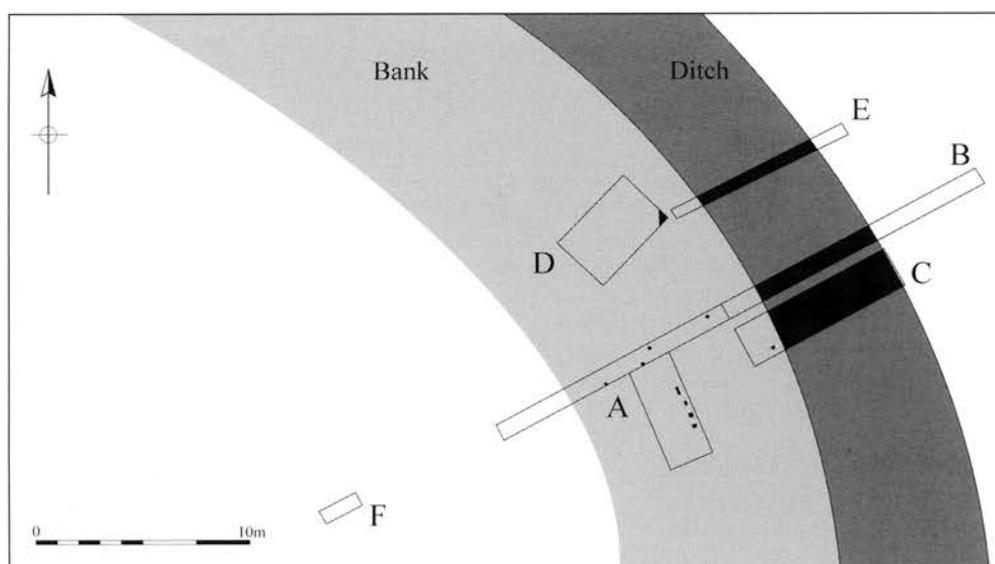


Figure 4. Arbury Camp, 1970: Alexander and Trump's Site II (after original archive drawing).

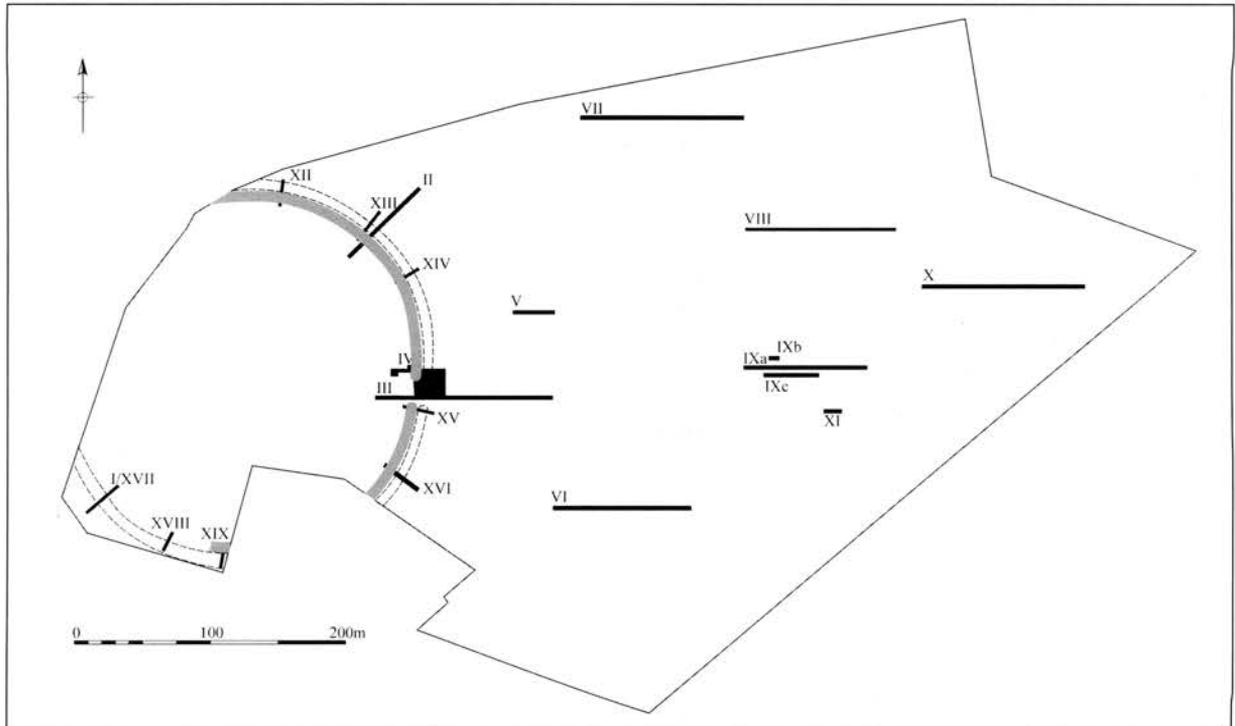


Figure 5. Arbury Camp: Location of the 1990 and 1995 trenches.

Period 4

Through careful excavation Alexander and Trump were able to identify a medieval ploughsoil (11–13th century?) associated with east-west oriented furrows in the upper strata of the ditch in Site II. They suggested that the ringwork bank may have served as a plough headland.

Unfortunately, Alexander and Trump neither formally published (nor finally collated) their findings. While we have had access to some of their sections and photographs, a base-plan (Site II) and finds-lists, at this time the remainder of the archive has not been located (including the finds themselves).²

A number of substantive Iron Age settlements have been investigated within the wider environs of the Camp. Aside from Castle Hill (Alexander and Pullinger 2000), a major Middle/late Iron Age enclosure (including a ditch of fort-like proportions) has recently been discovered at Marion Close off Huntingdon Road (Mortimer and Evans 1997). Nearer at hand are the extensive Iron Age settlements at Arbury Estate (Alexander, *et al* 1969) and the Milton Landfill site (Reynolds 1995). The latter two respectively lie 0.8km south-east and *c.* 3km north-east of Arbury Camp. However, subsequent to the 1990 investigations fields adjacent to the enclosure have been evaluated, which proved remarkable for the paucity of contemporary settlement evidence (Evans 1991b; 1992). These results will be discussed further below. Also noteworthy, however, is that during later evaluation fieldwork across the allotments immediately south of the Camp only a few undated ditches were recovered (Reynolds 1994).

Ringwork Investigations

The Interior

Within the Camp ploughsoil generally lay 0.25–.30m deep above the surface of the natural (at 11.90–12.25m OD). Across most of the interior no buried soil or any horizontal strata survived and the surface of the terrace gravels was deeply plough-scored. The loss of sub-ploughsoil strata precluded the application of chemical survey techniques – phosphate and magnetic susceptibility. In order to evaluate ploughsoil artefact densities, a series of machine-dug metre test pits were excavated (fig. 6). Within the interior of the enclosure these were laid out on a 50m grid ([001–018]; fig. 6). It was originally intended to sieve their spoil, but a dry summer left the soil very compacted. It was therefore decided only to process those five pits that fell along the 100m grid; the remainder were hand-sorted. Set at a 100m interval, four additional test pits were also excavated on an E-W axis extending east of the Camp to check on enclosure-exterior densities.

Of the 1631 artefacts recovered from the test pits, all but 80 came from the eighteen stations within the Camp. 496 sherds of pottery were thus recovered from the interior; only 64 were Roman (12.9%), the rest post-medieval. While the Roman pottery occurred throughout the 'circle', it concentrated in the north-eastern quarter (fig. 6) and this distribution was mirrored in our informal surface collection. The Roman scatter was not, however, confined within the enclosure and extended north-east of its perimeter; six sherds came from the test pit lying immediately east

of the Camp ([019]), but none from the more easterly.

In the course of his December fieldwalking, Hall mapped the full extent of this pottery spread within the development site. While his plots display a close correlation to the test pit distributions (the 5+ sherds per metre contour), they also show that it extends for up to 200m north-east of the ringwork (fig. 6). His collection provides further insight into the character of this scatter. Including a few pieces of tile and oyster shell, it was associated with darker stained soil and concentrated in the area of the enclosure's eastern entrance (Trench IV; see below). Some of this pottery may, of course, have come to the surface as a direct result of our machining. Nevertheless, during the excavations much Roman pottery was recovered from the machine-spoil and on surfaces in that area, but

not in any primary feature fill. This could indicate some degree of Roman (re-)utilization of the ringwork. Yet, the distance to which this scatter continues beyond its circuit suggests that it did not only relate to it. Its north-eastern distribution would, in fact, suggest that it extends south from the postulated Cawcutts Farm complex and probably derives from the sub-rectangular enclosure on the line of the A45.³

The low recovery of animal bone from the plough-soil test pits (14 only) warrants comment. Though their number is too small to say much concerning distribution, none were found in the stations east of the Camp and what little that was, again concentrated around its eastern interior. However, based on butchery technique (a sawn cattle rib), species size and type (a marine fish and domestic fowl), at least three of the

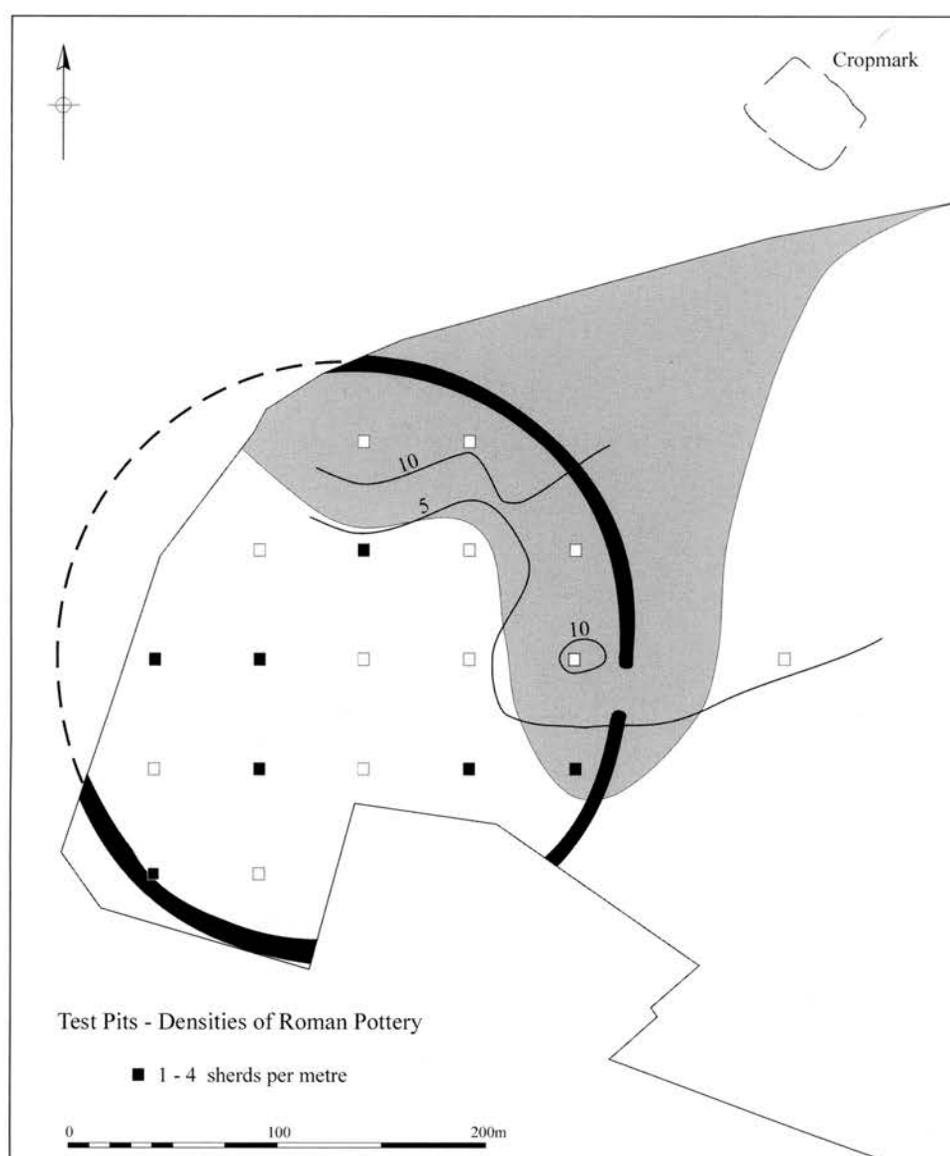


Figure 6. Arbury Camp, 1990: The Roman pottery spread; shading indicates Hall's area of high surface density and stained soil (note relationship to the sub-rectangular cropmark now under A45). The squares within the Camp interior indicate 5m² trial station exposures with metre test pit densities shown by contour (5 and 10+ sherds per metre) and blackened where values fall between 1 and 4 sherds.

bones are, in fact, probably modern.⁴ This could, therefore, suggest that much of the test pit faunal assemblage actually derives from the farm that until recently stood there.

To investigate whether there were any traces of settlement within the Camp, each of the eighteen test pits therein were subsequently enlarged into 5m² trial stations (25sqm each). Due to the potential difficulty of recognising features within the plough-disturbed surface of natural, the base of each of these was machined down 0.05–1.0m below its actual surface level. Despite these efforts, no archaeological features were detected. The degree of plough disturbance in the natural implies that some minor features may have been masked (eg postholes). However, the subsoil within these exposures was carefully examined and any major features would not have been missed (eg ditches and pits). Given, furthermore, the enclosure's fen hinterland location, if it had been occupied then 'robust' archaeological traces could be expected (ie round houses surrounded by eaves gullies accompanied by wells, etc). This, and the largely negative evidence of the test pits, suggest that this recovery pattern is real. While only 450sqm of the Camp interior was excavated (c. 1% sample), this sampling programme is amongst the most methodologically sound applied to the interior of a later prehistoric enclosure in Britain (fig. 7).⁵ Although one or two isolated buildings could have escaped the sampling grid, any substantive settlement cluster would have been detected.

The Perimeter

In 1990 two trenches were excavated across the circuit of the enclosure (I and II); a third was taken across the middle of its eastern side (III; fig. 5). That the ditch and bank system was not, however, present in the latter suggested an entranceway. It was, therefore, decided to extend this trench to the north to locate the terminals of the ditch and bank (Trench IV). This indeed proved to be the case. By extrapolating from the area of the entranceway exposed (c. ⅓rds, presuming the ditch terminals were mirrored in relationship to its central structure; see below) the circuit interrupts for c. 20.00m. Although in hindsight an eastern enclosure entrance could probably have been predicated in the light of Iron Age orientation propensities (eg Hill 1995 and 1996; Oswald 1997), this discovery was entirely fortuitous. (In the course of their various surveys along the western perimeter, Alexander and Trump did not encounter any entrance gap. This does not, however, entirely rule-out the possibility that there is an axially symmetric entrance on that side.)

The ringwork ditch proved to be quite consistent (F. 1), with only limited variation around its circuit. Generally 6.00–7.00m wide and 1.05–1.25m deep, it has a very broad 'U'-shaped profile with a flat base lying between 10.80 and 11.10m OD (3.50–4.00m across; fig. 8 and 9). The greater width of this feature along the southern circuit in Trenches XVIII and XIX must reflect an additional secondary feature. Otherwise, recorded variations to its basic profile relate, in the instance of augered depth (Trench



Figure 7. Arbury, 1990: The Sample Grid, looking north-eastwards with Trench I in foreground.

XII–XIV), to the height of its exposure in relationship to the bank (ie the basal levels are consistent). Similarly, the determination of the actual edge of its more broadly splaying outer profile is also a factor. In contrast to the more consistently steep inner edge (evidently protected by bank slippage), the much broader exterior edge clearly has been subject to sustained weathered reduction.

The fills of the ringwork ditch were remarkably uniform. Producing very few artefacts, it contained no definite trace of recutting (apart from the Trench IV terminal; see below) and nor was there obvious evidence of nearby occupation activities (eg no back-filling episodes or occupation debris-rich lenses). The ditch's primary fills consisted of stiff dark grey clay which, adjacent to its sides, was sealed by and merged into clays with weathered gravels in their matrix. This graded into a mid grey-brown sandy clay silt with extensive iron pan mottling. These very homogeneous upper fills seem to reflect the long-term settling of secondary weathering deposits; whereas the pure clay in the base of the ditch must have been laid down in standing water.

The internal upcast bank (F. 2) survived in all but the trenches along the south-western sector of the circuit (I/XVII–XIX). Although locally only *c.* 5m wide, it appears to have originally been 7–8m across; its more narrow profile elsewhere being attributable to reduction incurred through subsequent agricultural practice and only in Trench II did its full width survive (fig. 9A). There, the bank deposits sealed a north-south oriented linear feature, whose indistinct fills proved difficult to excavate (F. 5). Within this somewhat irregular, 0.40–.60m wide and 0.15m deep, flat-based trough, was what appeared to be a post-hole (0.40 x 0.45m; 0.15m deep). The sides of the latter had been scorched, as had the silts within it which also included burnt flints.⁶ In the main, the trough was filled with dark grey sandy clay silt with charcoal flecks, which had locally been discoloured through scorching and along its sides interbedded with the surrounding natural. This feature could represent an early post-setting trench whose upright timbers had been packed with redeposited natural and which had evidently burnt *in situ*, or, given its irregularity, it could be a burnt-out tree root.

In section this feature, in part, corresponded with and merged into a layer of dark grey sandy clay silt with extensive charcoal flecks which extended for 2.50m west of the ditch-side (fig. 9A.ii). Along its western side, this horizon seemed to bed in relationship to a 0.20m high 'lump' of mid brown-grey sandy clay (upcast natural; fig. 9A.i). This petered-out towards the west where it was sealed by a layer of mid-dark sandy loam clay silt (fig. 9A.iii). Having minute lateral iron pan lenses, the latter was identified as redeposited turf (C French, pers comm). The upcast 'lump' directly overlaid a 'B'-horizon soil, a grey mottled and slightly loamy orange-brown clay.

The basal bank sequence is difficult to understand. Certainly the burning associated with F. 5 did not extend into the upper bank deposits. Given the tenuous character of the evidence, the most ready explanation is that the burnt-out trough reflects tree clearance and the basal strata, the 'prepared' re-deposition of turf. However, within Trench III/IV further evidence was found that the enclosure may have had a timber precursor or, at least, component (see below).

Standing to 0.50m and extending for 6.15m west from the edge of the ditch, the main bank strata consisted of upcast natural clays. A distinct front revetment, as proposed by Alexander and Trump (1970: 4), was not apparent (nor was it likely to be given that its 'ditch-ward' edge was there largely cut away by a post-medieval field boundary ditch, F. 3). However, there was a hint of a turf revetment inasmuch as an indistinct wedge was visible in which dark grey sandy clay silt loam predominated over and interbedded with the upcast clays. Alternatively, this might represent the line of what was probably a medieval boundary detected in the Trench IV sections (F. 41, see below).

In the north section of this trench a distinct, if discontinuous, layer of very dark grey sandy silt was recorded as running through the bank clays; two/three such horizons were observed in the southern section. While this could represent turf-lines, it is perhaps more likely that they reflect differential upcast episodes. Their existence could suggest that even the main bank deposits were not upcast in one go and instead represent cumulative construction. Sealing this, and running down from the western

Table 1. Ditch and Bank dimensions (*ex* = excavated depth; otherwise augered)

Trench	Ditch Width	Ditch Depth	Basal Height (m OD)	Bank Width
I/XVII	7.50m	1.10 (ex)	11.00	-
II	<i>c.</i> 7.00m	1.10m (ex)	11.00	8.00/6.15m
III/IV	7.00m	1.20-.25m (ex)	10.80-.85	7.25m
XII	7.60m +	1.51m	10.91	5.40m
XIII	6.10m	1.45m	11.13	5.00m
XIV	6.20m	1.49m	11.07	4.80m
XV	6.00m	1.13m	11.11	7.40m
XVI	6.00m	1.00m (ex)	11.10	7.00m
XVIII	7.60m +	1.05m	11.10	-
XIX	10.50m+	-	-	4.60m

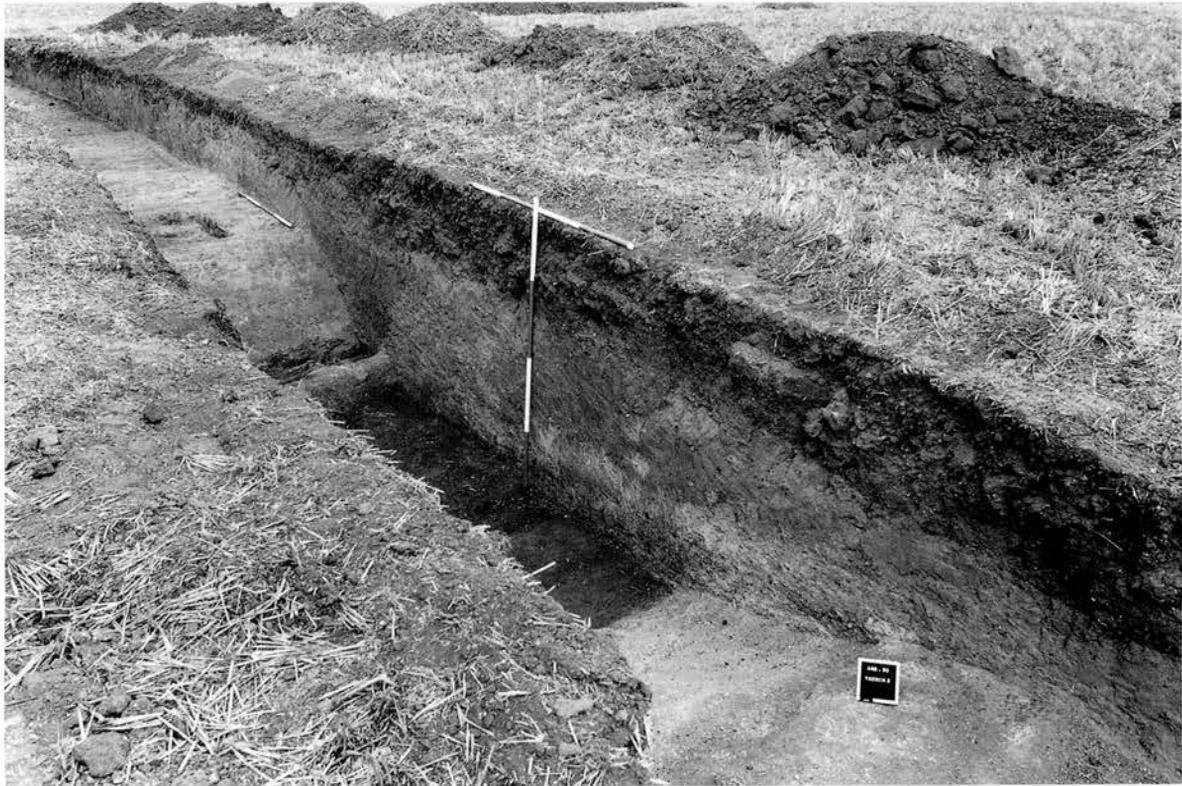


Figure 8. Arbury, 1990: Trench II with ringwork ditch excavated. Note the late ditch cutting its interior edge (F. 3; left) and the marked profile of the internal bank on that side.

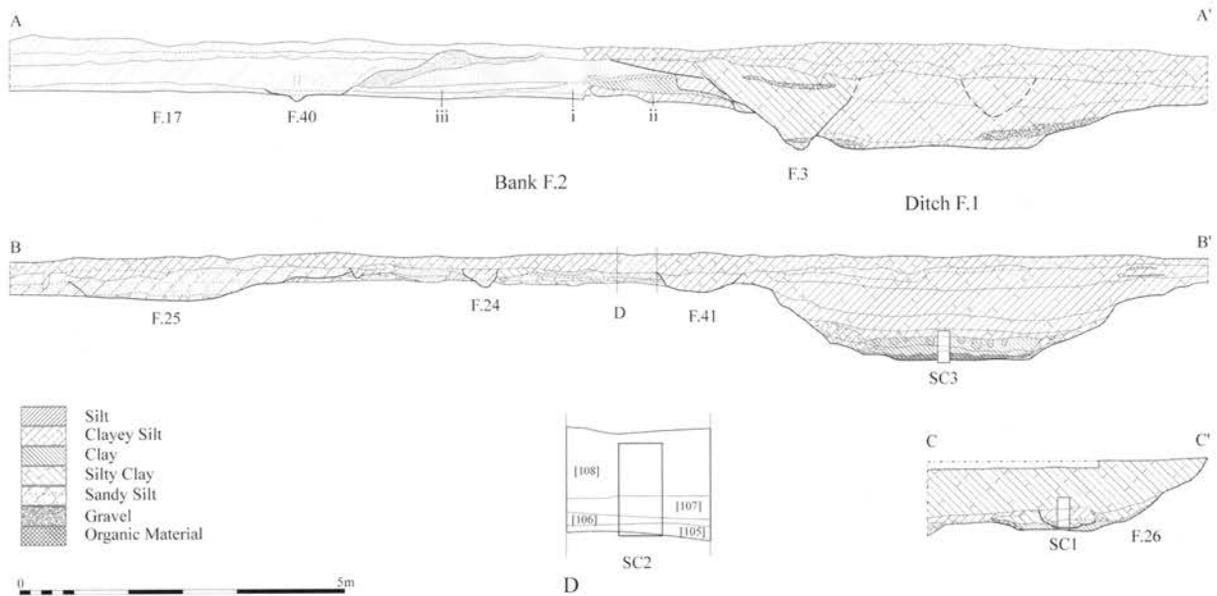


Figure 9. Arbury Camp: sections: A) Trench II north-western face; B–B') Trench IV north edge; C–C') north-south section through F. 1/26 terminal; D) 1995 soil micromorphology sample column (SC2; see French below), with its corresponding position projected onto the 1990 section (B–B'; see fig. 14 for location of Sections B and C).

crown of the clay upcast, was a continuous layer of redeposited natural gravel (0.05–0.35m thick).

Thus far, the sequence of bank construction has been relatively straightforward, as it reflects a direct inversion of the natural strata – turf followed by clay, capped by gravels – evidently derived from digging deeper into the subsoils within the ditch, whether at once or progressively (ie interrupted phases or episodes). It is at this point in its sequence that serious stratigraphic complications come to the fore. The gravel tail of this bank was sealed by a massive horizon of relatively homogeneous mid grey-brown sandy silt loam (F. 17). This bedded down from the crown of the bank for a distance of 6m, beyond which it continued as a horizontal layer. Definitely *sealing* the western flank of the bank, this must essentially be the product of medieval agriculture and represent the plough headland identified by Alexander and Trump (1970: 2). However, that *no* weathering lines were seen to come off the bank gravels could suggest that it had been sealed immediately following deposition. 1.10m west of the outer edge of the upcast gravels, a vertical edge was recorded in the ‘back-bank’ deposit. While difficult to distinguish, east of that line this deposit had a slightly darker hue and more pebbles within it. This boundary would, moreover, correspond with the position of a c. 0.25m diameter posthole, the ‘ghost’ of whose post-pipe could be seen in this upper section. These eastern deposits also lay directly above a broad 0.10–0.20m deep and 1.50m wide trough cutting the ‘B’-horizon and redeposited turf layer (F. 40). Suggesting some manner of redefinition of the bank, this may represent a post-revetted turf-stack capping upon the clay and gravel bank. If so, then its final form would have been impressive; approximately 8m wide and, if projecting the profile of the gravel layer, at least 1.50m high (and possibly even higher if compensation is made for collapse in the lower turf horizons; see French below). This could attest to a massive expansion of the bank system. The construction of such a ‘stack capping’ would have probably involved de-turfing much of the interior of the enclosure. If this interpretation was to prove valid then these upcast deposits would warrant the term ‘rampart’ rather than bank. Alternatively, although exact co-relationship is difficult given differences in their scale, this apparently linear feature may equate with F. 25 in Trench IV, which rather seems associated with medieval agriculture. Unfortunately, the limited trench section-exposure of these features does not allow unambiguous determination.

The Entranceway

Extending for some 7m into Trench IV, there the ring-work ditch proved to be somewhat deeper (1.25m; 10.80m OD) and narrower, with its base only 2.50m wide (fig. 14). The ditch proper continued uninterrupted for 3.50m beyond the northern edge of excavation; thereafter its southern terminal took the form of a large, sub-rectangular pit (F. 26; 3.50 x c. 7.00m).

Together excavated in longitudinal half-section, only the western half of the terminal was dug. The butt-end pit proved nearly as deep as the main ditch, its base being essentially flat and oriented across the line of the circuit. The bottom profile of the ditch and pit were not, however, continuous and a c. 0.20m high ridge of natural divided them. This effectively formed a 1m wide horizontal shelf, from which the southern and northern sides of the two features respectively sloped away (fig. 9B and C, 10 and 11).

How is the configuration of this ditch terminal to be accounted for? While there was evidence of recutting, this must have occurred quite early in its life. This is demonstrated by the fact that the lower clays and upper silts sealed the intervening ridge and continued uninterrupted over the basal fills of both the ditch and the pit. The only satisfactory explanation would seem to be that a shallower precursor of the ditch originally ran across the length of terminal (base at c. 11m OD – the level of the shelf). The butt-end pit was later cut below this level and the (secondary) end of the ditch subsequently deepened, leaving the original base upstanding as a ‘shelf’. Given its fill sequence, this redefinition of the ditch terminal could *not* have occurred late in the life of the enclosure.

It was discovered that the base of the ditch held waterlogged, dark brown-black organic ‘muck’ to 0.10–0.25m depth (fig. 10). Upon reaching this level the machining of the trench was stopped and the remainder was hand-excavated; a few pieces of bone, worked wood, and many fragments of leather were thereby recovered. Apart from these waterlogged deposits, the fill of the ditch (proper) in this trench was as that described for the other trenches. The basal horizon was overlain by grey clay which graded into the upper silts, with lenses of gravel interbedded with grey-brown sandy clay silt along both lower edges the results of primary weathering.

To further investigate these waterlogged deposits, the ditch/pit terminal was longitudinally half-sectioned. While in the other trenches we sorted through the machine-upcast ditch spoil and took a metal detector over it, the fills had not been hand-excavated. The results of these searches were only a few fragments of bone and a sherd of pottery. Because a noticeably greater number of bones had been found in the initial machine excavation of the upper silts of the ditch in this trench (IV), it was dug so as to control and maximise artefact densities. A 0.60m wide sondage was taken through the upper silts down to the clays in the western half of the terminal. 100% sieving of the spoil only resulted in the recovery of a piece of bone and two sherds of pottery (Roman). In other words, very little.

The remaining (non-sieved) upper silts of this ditch terminal were machine-excavated to the top of the clays, a depth of 0.75m. Below this level, the terminal was hand-dug using a metre grid (fig. 12). While the base of the terminal pit also proved to be waterlogged (F. 26), no leather had been deposited within it. Apart from nut-shell cases, reed stems, and small fragments of wood, the only artefact of note was the scapula of



Figure 10. Arbury, 1990: Trench IV looking north-east to excavated section of main ditch (F. 1) with longitudinal half-section of terminal pit in foreground (F. 26); note waterlogged deposits at base of both sections and the 'shelf' between the pit and ditch.



Figure 11. Arbury, 1990: Trench IV looking southwards across excavated terminal of F. 1/26; unexcavated, the tower gateway lies in the trench background (with human scale provided by A Taylor and M Parker Pearson).



Figure 12. Arbury, 1990: metre-excitation of the waterlogged deposits in the base of the ringwork terminal (F. 1/26; Trench IV).

an ox in the base of the pit, which may have been employed in its original digging. The basal mid to dark grey plastic clay had localised concentrations of (primary) weathered gravels. These were overlain by a block of mid orange-brown clay (redeposited natural) which must represent a backfilling episode. Subsequently (re-) cut by a 0.33m deep sub-rectangular pit, it was in the base of this that the waterlogged 'muck' lay. This was in-turn sealed by grey clay which graded into the upper silts.

Environmental sample columns were taken from these deposits.⁷ Analysis shows that the primary fills (clay and weathered gravel) were laid under conditions of standing water (c. 0.05–1.0m deep). The waterlogged muck was apparently produced in reed swamp conditions in 0.30–4.0m of standing water; a line of fine gravel across the top of this deposit probably reflects erosion from the edges of the ditch and its subsequent sorting by water (C French, pers comm). These waterlogged deposits were confined to the lower 'below-shelf' bases of the ditch and terminal pit (<11.00m OD). Their occurrence only in the area of the Camp entranceway could reflect that the ringwork terminals were probably regularly mucked-out and therefore deepened. At various times, standing water and reed swamp conditions probably existed right the way around the circuit. The survival of these deposits must relate to post-ringwork (ie post-Iron Age) ground-water levels rather than localised environmental conditions in the immediate area of the entranceway.

The British Museum accepted the leather from the ditch for conservation, where a selection is now on display (fig. 13; Registration no. P1990, 12–3, 1). As discussed by Mould below, though largely off-cuts, some appear to be trimmed/shaped and probably relate to shoe production.

Gate Structures

South of the excavated terminal of F. 1/26 were observed traces of a very substantial tower-like gateway, whose four large ovoid-shaped postholes defined a structure of c. 5 x 5m (F. 6, 27, 29, 38; fig. 14.2). Only the south-western of this group was excavated (F. 6). This steep-sided ovoid-plan pit (2.80 x 1.15m) had a maximum depth of 0.52m. Across its eastern half the base sloped down broadly, from where it broadened and held the impression of a flat-based posthole (c. 0.30m/12" dia). The ovoid form of this feature was evidently determined by the fact that the shallow sloping base in the east must have effectively served as a ramp along which the post was slid into position, and that a second c. 0.25m diameter posthole had been cut into the main post-pit, extending its overall configuration. The two large post-pits that defined the northern side of this gate structure were not so elongated (F. 29 and 38; 1.80 and 1.60m long respectively). However, bordering their north-western ends were two separate postholes (F. 30 and 31). Whereas no discrete posthole was found to conjoin the south-eastern post-pit of this square setting (F. 27), it was also elongated in the same manner as F. 6 and it is reasonable

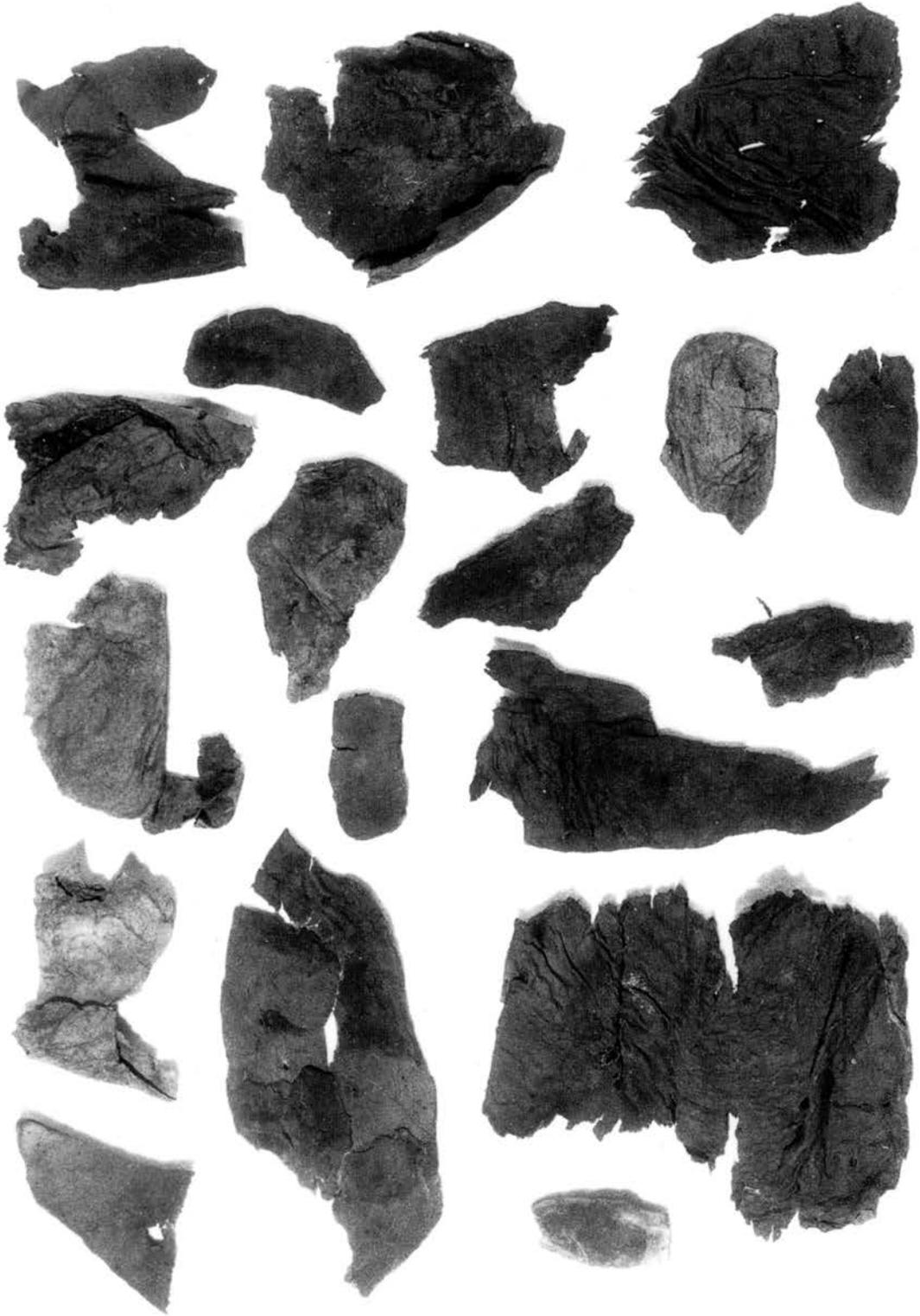


Figure 13. Hide/leather from the Trench IV ditch terminal (copyright: The British Museum)

to infer that it also held a second post in its south-west end. A fifth, sub-triangular post-pit (F. 28; 1.05 x 1.40m) was found to lie approximately mid-way between the two western pits. This may have either been a central gate post (ie for stopping) or relate to a later blocking of the entrance.

Two points should be stressed concerning this evidently rebuilt, or at least reinforced, gate structure. First, given the proximity of the southern limits of this trench, it conceivably extends beyond the edge of the excavation and, though unlikely, it could incorporate further post 'bays' (ie a six- or even eight-post structure). The second, that it projects beyond the line of the bank system and lies flush with the entrance terminal of the ditch. However impressive (possibly topped with a watch platform), its situation defies normative defensive logic. The only obvious way that this gate tower could have been secured is if the line of the main bank out-turned to flank its north and south sides, effectively bending around the ditch terminals. Though no evidence was found of this, such a configuration could have been eradicated by farm-related disturbance and ploughing, as these putative bank 'arms' would not have been afforded the projection of the medieval headland deposits.

Apart from this configuration, it proved difficult to fully distinguish the ringwork bank and related features in this area, due to the way the medieval headland continued across the entranceway, the extent of recent farm-related disturbance and the complexity of the exposed structural features. A line of six postholes were observed to extend for some 12m south from the main northern edge of excavation (fig. 14.3). The northernmost, F. 24, was 0.65m across and was seen in section to be 0.33m deep. South in F. 34, a burnt post-hole was detected within the fill of its larger packing pit (c. 1m diam.). The potential interrelationship of these two postholes seem mirrored in F. 32/33 at the southern end of this line. From the latter of these, which was c. 0.80m in diameter (F. 33), a c. 0.20m wide slot ran north-east for 2.80m. Immediately south of this, F. 32 took the form of a parallel elongated trough-like hollow (3.35 x 0.90m). However, the configuration of the southern terminal of this feature would suggest another posthole c. 0.80m in diameter. Whereas the apparently paired post settings, F. 24/34 and F. 32/33 do seem to match each other, within the c. 8.00m gap between these were two smaller postholes (slightly off alignment/projected forward), F. 37 and F. 39. Both of these held distinct, if markedly smaller, postpipes (0.15 and 0.30m in diameter) with the latter being burnt. Generally having mid grey buried soil-derived sandy loam fills, all of these features in the northwest of this area were considered to be 'definite' or 'real'. However, two sub-polygonal hollows, F. 35 and F. 36 (the former cut by posthole F.34), roughly aligned on an opposite axis complementary to F. 32/33, appeared much less distinct and can only be considered as of 'possible' status.

Two other postholes were recorded west of the southern side of the main gate. Both 'definite', the one,

F. 7 (lying on the same line as F. 24, 32-33), was excavated and found to be 0.45m in diameter and 0.24m deep (in the top of the sub-soil). The other, F. 18, observed in the western section to be 0.68m across and 0.35m deep, held a distinct 0.20m diameter post-impression. However, cutting through the back-bank deposits, the latter may well be a late feature (ie post-medieval).

There are two ways of interpreting the north-western cluster of features. One would have the posts as a bank revetment, possibly protruded through its crown to carry some manner of breastwork. In this case, the elongated southern pair, F. 32/33, could have contained the bank terminal proper. A second explanation would focus on the symmetry of the F. 35/36 and F. 32/33 pits (and their interrelationship with postholes F. 24, 34, 37 and 39) and have them relate to another gateway. Possibly pre-dating the main 'five-post square', this would have a funnel-like plan narrowing from 8 to 5m internally (ie westwards). The problem with the latter interpretation is that the northern flank pits, F. 35 and 36, are dubious and, unless pre-dating the ditched perimeter, an entrance in this location would be entirely illogical given the distance of the perimeter's opening. Aside possibly from F. 24 (seen in section to cut through the bank), all of these features are of 'early' attribution (ie pre-modern/-medieval). However, given the manner of excavation it is difficult to be certain of their exact stratigraphic situation. Despite the burning of F. 34 and 39, postholes F. 34, 37 and 39 (and pits F. 35 and 36) were not visible in the upper surface of the bank. Yet this cannot be interpreted as indicating that they were definitely sealed by its upcast as ploughing and farm-related damage may have obscured their recognition.

The medieval headland across the entranceway confused the distinction of the ringwork bank proper.⁸ Nevertheless, its main bulk was eventually delineated and, c. 7m across, it terminated 2.50m beyond the southern end of the ditch circuit. For the most part, the basic sequence of upcast deposition in this trench did not vary greatly from that recorded in Trench II (see, however, French's description below of the 1995 exposure; where the bank seems truncated along its interior edge).

In the northern section the headland silts continued to bed down for 5.80m beyond the primary bank profile. At the western foot of the latter, these sealed a north-south oriented ditch 1.40m wide and 0.30m deep (F. 25). An arm of this flat-based feature was observed to return east for 2.20m within the north-west length of the trench (fig. 14.3). Filled with quite homogeneous grey silt with charcoal, the status of this shallow ditch is problematic. While reminiscent of the depression observed beneath the back-bank turf stack in Trench II, F. 25 was considerably deeper and charcoal-flecked. That what was obviously a southward extent of this ditch was observed in section in the western arm of Trench III implied that it continued uninterrupted across the Camp entrance. Therefore, though possibly contemporary with the ringwork *per*

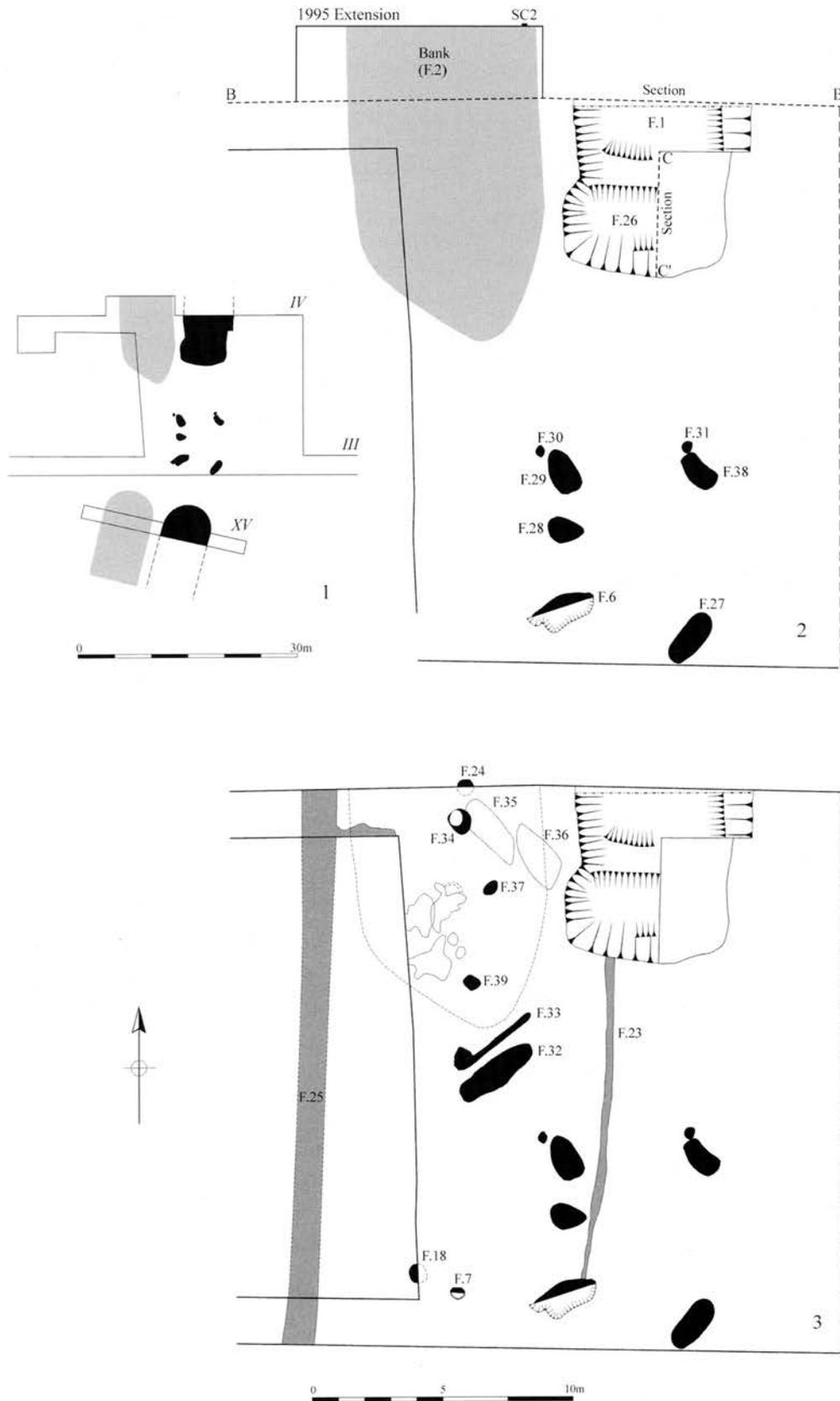


Figure 14. Arbury Camp: the eastern entrance:

1) as reconstructed, showing relationship of 1995 Trench XV exposure to 1990 area (Trench III/IV); 2) 'five post' gateway in relation to ditch terminal (F. 1) and bank (F. 2); 3) other features, including probable medieval ditches (F. 23 and 25), 'early' postholes and suspect features (the latter shown open/unblackened).

se, this suggests that this ditch relates to later usage, possibly medieval agriculture.

Running south from the northern terminal of the ringwork ditch was a shallow, 0.05m deep, and 0.25–.35m wide concave-profiled trough (F. 23). When first seen this appeared to continue over the fill of the south-western of the main gateway postholes (F. 6). It subsequently disappeared through cleaning and, therefore, the southern plan extent of this trough is not precise. While not visible in the southern section of this trench, it was not seen to terminate as such (ie it peters-out in relationship to machine-depth). This feature is open to a number of interpretations. It could represent either an early minor marking-out trench, dug to lay out the main ditch, or a fence-line relating to an earlier timber enclosure (cf. F. 5). Alternatively and more likely, it may be a relatively late element. When the northern section was re-opened in 1995 a shallow flattish ditch, 2m wide and 0.30m deep, was observed to cut the uppermost ditch fill and the exterior edge of the bank (F. 41; the hint of this possible north-south oriented feature was also apparent in the 1990 section). This could well have been the upper profile of F. 23, which would, therefore, have had to continue north across the fills of the ringwork ditch. If so, probably associated with F. 25 along the interior bank-side, it more likely represents a medieval field boundary and attests to later arable activity along the edge of the earthwork enclosure.⁹

Absolute Dating

A radiocarbon date obtained from the leatherwork recovered from the ditch terminal in Trench IV gave a determination of $2160 \pm 50\text{BP}$ ($210 \pm 50\text{bc}$; OxA-6582). This has a 68% confidence of falling between 360–290 or 250–160 or 140–120 cal BC (380–40 cal BC; 95%). Whereas the scapula fragment from the base of the terminal pit there (F. 26 [068]) – and possibly associated with its digging – produced the somewhat earlier date of $2250 \pm 60\text{BP}$ ($300 \pm 60\text{bc}$) which calibrates to one sigma to either 390–340 or 320–205BC (68% confidence; 95%: 410–160 cal BC Beta-142340). Together these samples suggests that the enclosure dates from the 4th–2nd centuries BC and, therefore, is appropriately assigned to the Middle Iron Age (ie pre-100BC).

Table 2

Depth (cm)	
0–21	Ap; dark brown silt loam with occasional fine-medium gravel, <30mm; distinct boundary
21–34	redeposited subsoil (context 108); greyish white/yellowish brown mottled, silty clay marl; distinct but irregular and undulating boundary
34–40	redeposited ? turf (107); dark greyish brown silt/very fine sandy loam; distinct but irregular and undulating boundary
40–41	lens of reddish yellow/brown iron pan (106); distinct but irregular boundary
41–44	<i>in situ</i> turf (105); dark brown silt/very fine sandy loam with occasional flecks of charcoal, <10mm; variable thickness; merges over 20mm
44–60	buried soil (105); pale greyish brown silt loam with rare flecks of charcoal, <5mm; distinct boundary
60+	subsoil; yellow/white mottled silty calcareous marl

Specialist Studies

Whilst many of the finds categories (and pollen) occurred in such low numbers that they only require summary reportage, the results of the soil, macrofossil and pottery studies, and also the wood and leather assemblages warrant more detailed presentation.¹⁰

Micromorphological Analysis

CAI French

The re-exposure in 1995 of the associated bank and palaeosol sequence in Trench IV (SC2; fig. 9D) permitted sampling for micromorphological analysis (after Murphy 1986 and Bullock *et al* 1985). Its profile is described in Table 2.

A continuous soil profile was taken through this sequence from the base of the bank material to the top of the subsoil (from 29 to 60cm). The description of the thin sections taken is summarised in Table 3.

Beneath the present day ploughsoil, on the upper surface of the mixed loamy sand and gravel deposit which comprises the inner bank of the monument ([108]), there is a 1.5cm thick zone of loamy sand which exhibits much sesquioxide impregnation and has a horizontal and parallel crack pattern. This could either represent turf development on the former bank's surface and/or iron pan development at the transition between the base of the present ploughsoil and the upper surface of the bank. The underlying context was mainly comprised of a similar loamy sand fabric, but in addition it contained irregular aggregates and zones of clean, very fine quartz sand ([107]). This heterogeneous mixture soil and subsoil material was probably also part of the bank upcast. In the field, there were also thought to be small lumps of turf-like material within this context.

There is then an abrupt change to a thin zone of heavily iron impregnated, highly organic loamy sand. In thin section this appears as two lenses of iron impregnation 'sandwiching' a thin zone of loamy sand material ([106]/[109]/[106]). This turf zone is highly compressed and oxidised, and could just possibly represent one horizon of laid turves on top of the *in situ* turf. In addition, the upper 500um of the upper surface of the turf exhibits a 'crust' of silty clay, as if it was a trampled surface (after Gé *et al* 1993).

Table 3

Depth (cm)	Context	Description	Interpretation
29-31.5		loamy sand	similar to buried soil
31.5-33	[108]	loamy sand with much sesquioxide impregnation, and horizontal/parallel cracks	turf on/within the bank
33-40	[108]	loamy sand with small gravel pebbles throughout	upcast material from external ditch comprising the bank
40-46	[107]	loamy sand with irregular aggregates/zones of very fine sand	mixed soil and subsoil, probably also upcast material of bank
46-46.2	[106]	surface 'crust' of silty clay on a lens of iron impregnated organic material	compacted/trampled surface on former turf
46.2-46.8	[109]	loamy sand	redeposited soil with turf
46.8-47	[106]	lens of iron impregnated organic material	compacted grass mat of former turf
47-60	[105]	loamy sand with very fine organic component and irregular zones of greater silty clay content	buried soil, probably disturbed before burial
60+		terrace sands and gravels	subsoil

[105] is a similar loamy sand fabric to the other contexts, but exhibits a greater amount of finely comminuted amorphous organic matter and occasional zones of greater amounts of non-laminated silty clay within the fine groundmass. As this buried soil has an homogeneous composition and few features of note, it therefore contains few pointers as to the history of its development. Nonetheless, the relatively small amount of within-soil illuviation of fines down the profile does point, however, to the rather poor development of a former brown earth (Avery 1980).

The thin section analysis has mainly served to confirm the field observations of a brown earth with turf development sealed by deliberately dumped material containing turf, soil and subsoil material, presumably derived from the earthmoving activities associated with the digging of the outer ditch. The buried soil is now severely oxidised and mixed by the soil fauna, with some evidence for soil disturbance given by the relative abundance of dusty or silty clay within the fine groundmass. Turf development on this soil points to an open, grassland landscape prior to bank and ditch construction. The thinness of the turf (<1cm) points to considerable compression, compaction and organic degradation, by an estimated factor of at least ten (given an average turf depth of about 10cm). By way of comparison, a compression factor of two-thirds was observed in the turf buried beneath the chalk/turf bank at the Overton Down Experimental Earthwork site after 32 years (Macphail and Cruise 1996).

Macrofossils

P Murphy

In 1995 monoliths were collected for macrofossil evaluation from the ringwork ditch in Trench IV (SC3 on fig. 9B; tops at 11.32m OD). Sub-samples were removed at 11.01–.02, 10.97–.98 and 10.93–.94m OD, each comprising a 1x10x10cm 'slice'. Following

disaggregation, the organic fraction of each was then separated from the mineral residue by wash-over using 2.0, 0.5 and 0.25mm meshes. The samples had a very small organic component, including macrofossils of a range of weeds, grassland plants, wetland and aquatic plants (Table 4). Also noted were occasional pinnules of bracken (*Pteridium aquilinum*), rootlets, very rare small charcoal fragments (<3mm), scraps of monocotyledonous epidermis and degraded small fragments of mosses. Invertebrates included mollusc shell fragments, ostracods, cladoceran ephippia (water-fleas) and beetles.

The aquatic invertebrates and fruits of horned pondweed (*Zannichellia palustris*) and water crowfoot (*Ranunculus* subg. *Batrachium*) establish that the basal fill formed under standing water. The single fruit of reedmace (*Typha* sp) may have come from a plant growing in the ditch or was dispersed from elsewhere. Macrofossils of sedges (*Carex* spp) and rushes (*Juncus* spp) indicate poorly-drained soils.

Most taxa recorded, however, were of weeds, associated with some grassland species: greater plantain (*Plantago major*) and buttercups (*Ranunculus acris/repens/bulbosus*). Bracken may have grown on dry leached soils in the vicinity.

No twigs or deciduous leaf fragments were noted, nor fruits/seeds of shrubs or trees. The seeds of black nightshade (*Solanum nigrum*), including endosperm tissue, were modern intrusive specimens.

From the assessment the following preliminary conclusions can be drawn:

- 1) The ditch terminal held standing water at its base.
- 2) In contrast with Wardy Hill, Coveney, where comparable rapid scanning immediately detected macrofossils of rosaceous thorny shrubs (Murphy, in Evans forthcoming), no evidence was seen for the existence of a perimeter hedge.

Table 4. Macrofossils noted during scanning of basal ditch fills in Trench IV (NB: All plant taxa are represented by fruits or seeds except where indicated).

	Height (mOD):		
	11.01-.02	10.97-.98	10.93-.94
Herbs (weeds/grassland taxa)			
<i>Aphanes arvensis/microcarpa</i>			x
<i>Atriplex</i> sp.		x	x
<i>Chenopodium album</i> L.	x		
<i>Cirsium/Carduus</i> sp.		x	x
<i>Papaver cf. argemone</i> L.			x
<i>Plantago major</i> L.		x	x
<i>Polygonum</i> sp.	x		x
<i>Potentilla anserina</i> L.	x		
<i>Ranunculus acris/repens/bulbosus</i>		x	x
<i>Solanum nigrum</i> L.	x		x
<i>Sonchus</i> sp.			x
<i>Stellaria graminea/palustris</i>			x
<i>Stellaria media</i> -type			x
<i>Urtica dioica</i> L.			x
Fern			
<i>Pteridium aquilinum</i> (L.) Kuhn (pinnule)	x	x	
Wetland/aquatic taxa			
<i>Carex</i> spp.		x	x
<i>Juncus</i> spp.	x	x	xx
<i>Ranunculus</i> subg. <i>Batrachium</i>	x		
<i>Typha</i> sp.			x
<i>Zannichellia palustris</i> L.	x	x	x
Other plant macrofossils			
Charcoal	x	x	x
Rootlets	x	x	x
Monocotyledonous epidermis		x	
Mosses		x	
Invertebrates			
Mollusc fragments	x		
Ostracods	x		
Cladoceran ephippia	x	x	x
Beetles	x	x	x

3) Local terrestrial vegetation seems, provisionally, to have consisted of grassland and weeds.

The Wood Assemblage

M Taylor

Recovered from the basal deposits of the main ditch in Trench IV, the wood is very soft and beginning to disintegrate. Because of its state and the smallness of the assemblage, very few measurements were taken; those that were are for guidance only. A proportion of the material is derived from very small roundwood (ie less than 10mm diameter) which is likely to have found its way into the deposit from shrubs or trees growing close by. There is quite a large number of

pieces, but as they are all tiny this does not represent a large proportion by bulk. There are also one or two pieces of roundwood with slightly larger diameters (10–15mm) which are almost certainly root.

Of the remainder, there are ten or twelve wood-chips, some of which have started to fragment. Half of these are extremely small and, only a few millimetres thick, have been detached tangentially from relatively small roundwood. They are probably the debris from sharpening sticks or stakes and are not oak. The remainder of the debris, although still fairly small, tends to be more chunky and derives from working oak. The softness and poor state of the material makes it difficult to speculate about the original size of timbers, but two of these chips are bark and are very dense and thick. There is no wood attached to either,

and no sign that the complete thickness of the bark is represented. The bark chips are better preserved than the wood and have sharp edges suggesting that they have been cut rather than naturally shed. As one piece is at least 15mm thick and the other 25mm thick, these must be from a mature tree, possibly oak.

Leather

Q Mould

227 small fragments of leather were recovered from the waterlogged basal fill of the Trench IV ditch terminal. These, though rather unprepossessing in themselves, have been radiocarbon dated to between the 4th and 2nd century BC and are of the greatest interest as leather of this date is rare. An initial assessment of the material has been made and the results presented here. It is hoped that a more extensive investigation of the assemblage will be the subject of a future paper.

The leather has been conserved by freeze-drying and when examined was flexible but friable. Few features are visible macroscopically. The grain surface appears abraded or heavily worn and few hair follicles remain, with the result that the leather species was impossible to determine with certainty from this alone on initial inspection. The majority of the fragments are thin and delaminated, with all their edges torn. Few diagnostic features are present. A small number of pieces have a cut edge visible (11) and possible stitch holes were also noted.

Four pieces are distinctive, however, being of more robust appearance and significantly thicker (2–2.5mm). Knife cut edges are present around the perimeter indicating that they have been deliberately cut from a hide. One is of elliptical shape with an oblique hole passing across one edge (35 x 14mm, one end folded), two others have most of their perimeter cut (37 x 18 and 54 x 21mm) and the fourth has a cut edge surviving in places (37 x 18mm). These small pieces, particularly the ellipse, are comparable with waste leather of Roman date that derive from cutting out shoe fastening loops. Waste fastening loop cut-outs have been found in a number of Roman assemblages (eg Scole in East Anglia, and Catterick and Birdoswald in the northern frontier zone). While cut-out fastening loops occur on Roman shoes of differing constructions, the presence of certain features, such as decorative lobes, has enabled some shapes to be positively associated with the production of shoes of one-piece construction, a feature first recognised from waste leather from Maastricht (van Driel-Murray 1987: 22–28). Shoes of this type are amongst the earliest forms of footwear to have been recovered. Simple shoes, cut from a single piece of leather which wrapped around the foot and were pulled to shape and fastened to the foot by a thong passing through a series of loop holes around the edge, occur as casual finds from Scandinavian bogs. While many of these simple prehistoric shoes fasten through small thong holes or stretched slits made in the edge, examples which fasten through larger, deliberately cut-out

loops are known. A shoe with large elliptical cut-out fastening loops was found in Rishjarup Mose in North Schleswig in 1804 (Hald 1972: 46, 50, fig. 42–3), regrettably it cannot be independently dated. Pattern cutting of the fastening loops from this style of shoe would produce elliptical waste pieces similar to that found at Arbury and it is suggested that the elliptical cut-out and the three other small waste pieces come from the production of a shoe(s) of one-piece construction.

The majority of the leather comprises small fragments with all their edges torn; it is possible that they originally derived from a single item. The leather is thin, much is delaminated, and fine rootlets appear to have penetrated between the grain and the flesh sides in many instances. Some areas are distinctly puckered or pleated by use/wear. The largest fragment has two parallel lines of distinct pleating with the suggestion of a third between. The grain side is heavily worn or abraded. A small area of grain pattern preserved in a fold of one piece suggests that it may be of sheep/goatskin (ovicaprid). Other fragments have the appearance of a split skin. Occasional holes are present. While some may relate to damage to the surface of the hide in life, others are elliptical and appear to have been made with an awl or needle. Most of the fragments are very small so that the surviving holes appear to be random and no seaming is discernible at present. One fragment, however, appears to have three small tunnel stitches (not penetrating through to the grain side) and a possible thread can be seen passing through these. Alternatively, they may have been penetrated by a rootlet. Similarly, a hole present in another fragment appears to have a thread impression running from it on the flesh side. Yet, in view of the rootlets present, this may only be determined with further analysis.

The recovery of leather of Iron Age date is rare. Featureless fragments of Iron Age date have been found at Dragonby (Friendship-Taylor 1996: 385) and Tattershall Thorpe, Lincs. (Chowne, Girling and Greig 1986), and Haddenham in Cambridgeshire (Evans and Serjeantson 1988). The lack of material of Iron Age date is in direct contrast to the large quantity of leather recovered from excavations of Roman date wherever waterlogged burial conditions allow.¹¹ It has been assumed that the earlier leather was oil tanned using a process based on smoking the cleaned skin and working animal fats into the surface (brains and marrow), followed by manipulation to make it flexible. Leather tanned in this way usually rots when exposed to damp conditions, whilst vegetable tanned Roman leather is preserved in a wet environment. How the surviving leather of Iron Age date came to be preserved is integrally linked with how it was tanned. Features of the Arbury leather, such as the thin nature of the skin, heavily abraded grain surface, and pleating and puckering, most closely resemble archaeologically recovered leather believed to have been oil tanned. Are the small fragments of leather of pre-Roman date oil tanned leather preserved under extraordinary burial conditions or do they reflect the adoption of the use, if only par-

tially successful, of vegetable tannage? It is hoped that future detailed microscopic examination and chemical analysis may address this.

Roman and Later Prehistoric Pottery

G Lucas

A small assemblage of Roman pottery was recovered amounting to 117 sherds; an archive report was compiled by Morag Woodhuysen and, in combination with inspection of the ceramics by this author, forms the basis of this discussion. Most of the sherds derive from unsealed contexts and are correspondingly mixed in date, and in many cases, post-medieval pottery is also present (chiefly 19th century). The pottery is discussed summarily by broad provenance below:

Test Pits ([001–019])

The largest proportion of the assemblage comes from the test pits and includes material from 1st through to 4th century. Included in this group are Nene Valley ware colour-coated vessels, Horningsea storage jars, shell-tempered jars and probable Hadham/Oxfordshire vessels. Some probable post-conquest or conquest period 1st century vessels occurred in test pits [009], [011] and [018], including one grog-tempered vessel and sandy wares. The most interesting sherd is one with pierced holes conjoined by scored lines on the exterior of a vessel in a fine red fabric; the Litlington incense burner provides a parallel (Fox 1923: pl. XXI).

Surface Finds within Enclosure ([027])

Although possible earlier material is present, the majority of diagnostic sherds from this context are late 3rd/4th century in date, including Nene Valley colour-coats, shell-tempered wares and greywares.

Surface Finds outside/east of Enclosure ([038])

Only two sherds were recovered: one heavily gritted (quartz/fine flint) in a grey fabric, possibly handmade; the other, a shell-tempered sherd. The former is of interest insofar as it could be late Roman (e.g. Rettendon ware) or even possibly post-Roman.

Main Enclosure Ditch F. 1 ([036], [047/064])

Only three sherds came from the upper silts of the enclosure, none very diagnostic except for one from the Nene Valley and on the whole, are probably early (ie 1st/2nd century).

General Finds ([028], [033], [034])

Little can be said about these beyond the fact that pottery from all periods are represented.

A summary of fabric groups is given in Table 5; unsurprisingly, coarsewares and greywares dominate, but there is still a high number of other types. Given the small sample size, little can be gleaned from this. On the whole, only about half the sherds are dateable, and these more or less evenly divided between early (1st/2nd century) and late (3rd/4th century).

Table 5. Summary of fabric groups

Fabric Type	No. sherds (%)
Local coarsewares	37 (31.6)
Greywares	29 (24.8)
Nene Valley wares	15 (12.8)
Shell-tempered wares	13 (11.1)
Oxfordshire/Hadham redwares	11 (9.4)
Buffware	8 (6.8)
Other	3 (2.6)
Samian	1 (0.85)

Generally, the assemblage is in very poor condition. Almost all of it has suffered moderate to heavy abrasion, and even large sherds show clear signs of weathering on their surface or edges. The only point of note is that the later sherds are on the whole larger than the earlier ones, but this probably reflects the hardness of their fabrics as much as the degree/length of weathering suffered (fig. 15). While perhaps their density is too great to represent outfield manuring alone, their condition nevertheless suggests some kind of post-depositional attrition, perhaps a midden dump displaced for manuring.

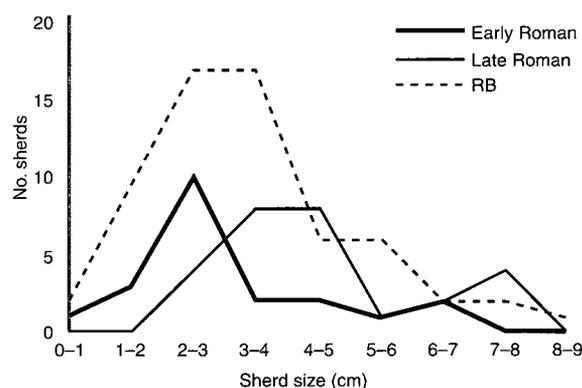


Figure 15. Fragmentation of Roman pottery by period.

In addition to this assemblage, the material collected from fieldwalking by David Hall in 1990 was also examined; a total of 39 sherds (530g) was recovered, all of it fairly abraded and small to medium sized (c. 1–4cm). Most of it comprised of local sandy coarsewares of the 2nd century or later, including some from Horningsea but there were also a few sherds of late Nene Valley colour-coat and Hadham redware (4th century). Two tegula fragments were also recovered. Overall, the assemblage, such as it is, is comparable to the excavated material. Two sherds of possible handmade vessels were noted; one in a reduced fabric, the other white/buff – these may be Late Iron Age.

Otherwise only two undiagnostic handmade body sherds of definite Iron Age date were recovered in the recent excavations. With a sand temper these can only be generally attributed to the Middle/late Iron Age (ie 300BC to AD 50). The one was from the upper silts of the ringwork terminal in Trench IV (F. 1); the other was recovered, in 1995, from the F. 2 bank deposits in that trench (as re-opened).

Eastern Field Investigations

Few pre-modern remains were found in the trenches east of the Arbury ringwork. A post-medieval field system (later 18–19th century) was found to extend north-east/south-west between Trenches VI, IX and X. Having ‘clean’ and much more pale leached fills, traces of what appeared to be a substantially earlier ditch system were also recovered in Trenches IXa–c and XI. Whilst possibly of prehistoric attribution (?Bronze Age), no dating evidence was recovered.

This essentially negative recovery pattern was further confirmed when, later in 1991 the CAU were able to extend this landscape sampling in a comparable evaluation programme on the conjoining Unex Lands site immediately to the east (5.6ha; Evans 1991b; 1992). While there, it was observed that deep ditches had recently been dug around the perimeter of the neighbouring eastward plot to discourage the encampment of gypsy travellers (fig. 16). Given that Roman Akeman Street was known to pass between these two sites (and their proximity to Alexander and Trump’s Arbury Road complex), the decision was made to utilise these dyke-like sections to archaeological ends. In the course of this recording the line of the Roman Road was indeed distinguished and a low density of bordering contemporary features identified (fig. 17; Evans 1991b).

Aside from extensive trial trenching on the Unex Lands, metre test pits were excavated along the length of the site (five in total); this sampling transect was also continued east into the plot beyond the Roman road line where three others were dug. While only two of the test pits on the Unex Site produced Roman pottery (each single abraded scarps), three and four sherds were respectively recovered from those two sample pits nearest the early road on the ‘Gypsy Ditches’ plot (fig. 16). There, comparable to Arbury Camp densities, the evidence suggests that low density settlement activity extends along the line of Akeman Street north of the Arbury Estate/King’s Hedges complex (see also Ette 1991 for findings on land to north and Evans 1992 for an overview of other recent work in the vicinity).

Discussion

Dating and Place History

From the evidence at hand, it is impossible to propose a close date for the enclosure and this is not abetted by the range of its calibrated C-14 dates. Certainly, given the simplicity of its plan and sequence a short chronology is possible. Yet there are hints in the possible re-modelling of its bank and gateway to suggest a greater duration. The problem with the latter is, of course, that it is one thing to envisage a relatively brief usage for the enclosure involving negligible deposition, and quite another to see such a specific function continuing over an extended period. In the light of how little artefactual and dating evidence was forthcoming, its dating can only be provisional. It is

nevertheless reasonable to presume that the leather dumped within its ditch terminal probably relates to the enclosure’s final usage and possibly even occurred immediately upon when it ceased to be actively maintained. The radiocarbon dates have a 95% probability of falling between 410/380–160/40 BC and, while probably best described as of Middle Iron Age attribution, it is conceivable that the enclosure had its origins in the later Early Iron Age (La Tene 1 and 2). This need not, however, imply that it was utilised throughout the 4th–2nd centuries BC and it may have only been operational for a century or less. Within this bracketing, a pre-Late Iron Age date (ie pre-100 BC) would complement the depth from which Roman pottery was recovered in the enclosure’s ditch. Occurring, at most, approximately down to its middle profile, this implies a considerable period of silting/weathering prior to the early centuries AD.

Though it is conceivable that the possible re-definition of the Camp’s bank system actually relates to a Roman utilisation of the enclosure, this seems unlikely on two accounts. Firstly, if this was the case then a re-cutting of the ditch should be anticipated which obviously did not occur. Secondly, the quantity of Roman pottery recovered must essentially reflect manuring, as far more bone would be expected if this pottery had been generated through (*in situ*) occupation of whatever intensity.

However denuded today, that the Impington and Chesterton parish boundary bisects the Camp indicates its significance in historical times. This is also implied by its earthwork-suggestive Anglo-Saxon name, and the survival of its eastern perimeter was clearly impressive until the early years of the 20th century. Given this and Hughes’ postulation of its Iron Age date, its sorry history thereafter warrants comment. Culminating in the recent construction of the A45/Histon Road junction (when its western perimeter was destroyed), this primarily centres upon how it was that Arbury Camp Farm came to expand so far along its eastern circuit in the middle years of the 20th century without any apparent hue and cry. On the one hand, largely involving negative evidence, Hughes’ pre-Roman attribution of the enclosure was not particularly convincing, nor was the site given much prominence in Fox’s *The Archaeology of the Cambridge Region* (1923: 137). Yet it is salient to compare the post-War history of the Camp with, for example, the protection afforded Wandlebury. Since 1925 a scheduled ancient monument and from the 1950s managed by the Cambridge Preservation Society – with folklore associations to Gog/Magog and its spurious hill figures – Wandlebury’s wooded chalkland setting is picturesque and it more closely fits ‘Hardyseque’ or normative expectations of what a monument should be. To this extent, the contrasting fortunes of these two sites over the course of the 20th century is telling of the downland constitution of the region’s prehistory at the expense of its lowland component prior to the 1960–70s.

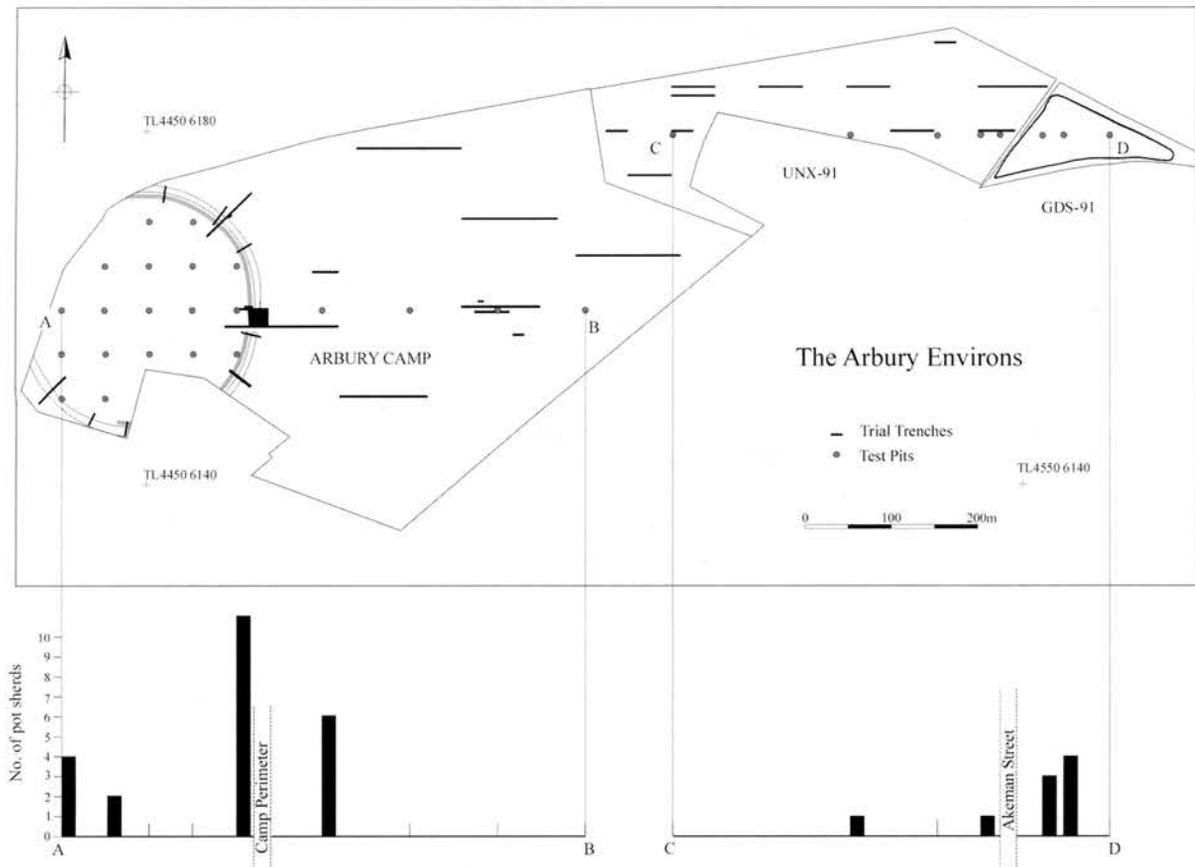


Figure 16. Showing the location of the conjoining Unex Lands and Gypsy Ditches investigations (respectively UNX-91 and GDS-91); below, density plot of Roman pottery from metre test pit sampling indicating higher values within the Camp and adjacent to the line of Akeman St.

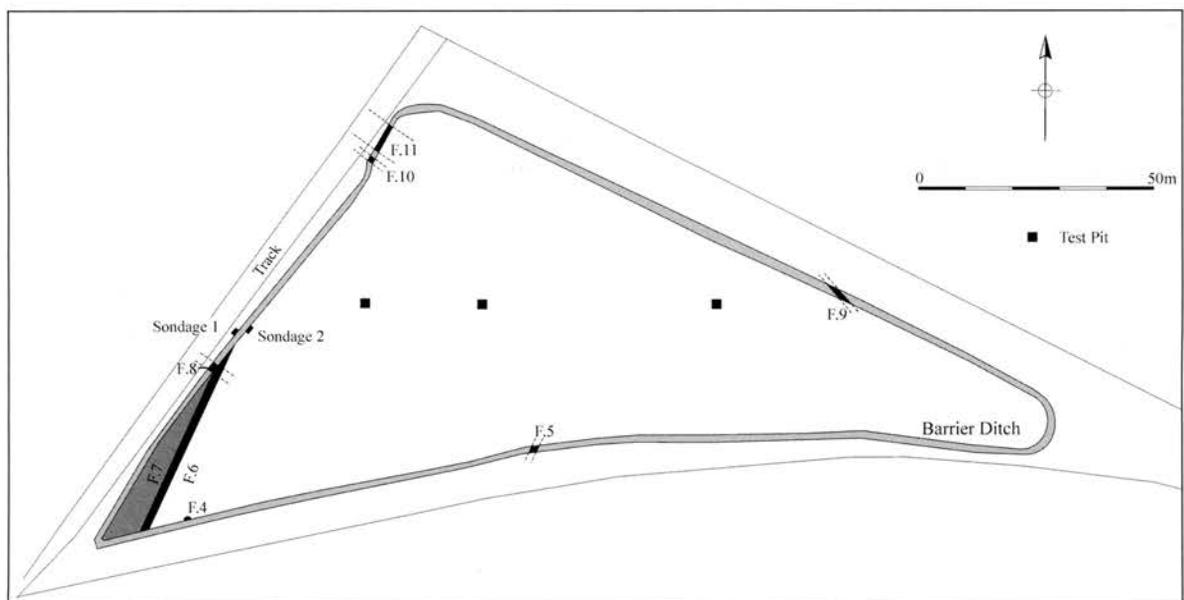


Figure 17. The Gypsy Ditches Investigations (GDS-91) – F. 7 indicates the extent of Akeman St.-related metalling, with F. 6 a flanking road-side ditch. Possibly relating to the 'great enclosure' of Alexander and Trump's Kings Hedges villa, F. 5 would seem to be a contemporary ditch; F. 4 was the northern side of what was probably a substantial pit (1.35m across and 0.60m deep) which produced over a 100 large sherds of Roman pottery, mostly Horningsea wares (M Woodhuysen, pers comm). The remainder of the features indicated were all post-medieval; a cluster of small pits of early attribution were excavated in Sondages 1 and 2.

Lowland Defensive Architectures

Although not definitive, the evidence of the site's environmental studies (including its wood assemblage) suggest that the Camp originally lay within grassland, perhaps dotted with oaks (see Murphy and Taylor above, and note 7). Against this and given the area's undistinguished topography, the 'monumental architecture' of the enclosure's bank and gateway would certainly have been imposing, with the line of its perimeter locally emphasised by aquatic plant communities, stands of willow and shrubs. Appearing as if almost planted in the landscape, there is nothing in the immediate environs that need imply that Arbury Camp necessarily occupied the apex of any local settlement hierarchy. Nevertheless, its scale and regularity of plan must reflect the hand of social authority in its execution and the organisation of labour required. Certainly the formality of Arbury's 'great circle' is striking. With a broad entranceway now known in the east, although of vastly different scale, it has obvious basic affinities with the plans of eaves gully-surrounded roundhouses of the period. However, apart from only the most general structuralist/symbolic associations with their eastern orientation (eg Oswald 1997; Parker Pearson 1996), it would probably be erroneous to take this parallel too far given Arbury's paucity of internal features and settlement evidence in general. Rather, the employment of unelaborated circular design as it were – an easily 'strung' geometry – is more appropriately considered as reflecting a long tradition of later prehistoric construction, and which can now also be locally linked to late Iron Age funerary architecture (Hill, *et al* 1999).

Daunting in its very simplicity, Arbury Camp continues to evade ready characterisation. Accepting its Iron Age date and that it could not have included a substantial settlement component, even Alexander and Trump's proposals that it was a great stock enclosure do not seem convincing. Admittedly, it is tempting to link the recovery of so much leather from its ditch terminal with specialist pastoral production. Yet this material could have derived from an off-site source and, lacking evidence of butchery on any scale, there is insufficient domestic evidence to even support its seasonal occupation by herders/shepherds.¹² While the act of construction itself may have been a compelling social impetus (ie group binding), by normative criteria this same negative evidence would equally apply to any kind of usage as a ceremonial or ritual centre; had large group gatherings regularly occurred there more would be expected. Therefore, almost by default – but granted some credence by the proportions of its bank and the character of the eastern gate – one is left as seeing the enclosure as either a defensive refuge or a commanding 'statement' in the definition of territory. In neither instance could it have seen any intense usage (nor assault). In this context, the enclosure's situation at the edge of the clay plain on heavy clay/marl-pocketed gravels (that saw only limited contemporary settlement within the immediate environs), is surely relevant. Amid these poorly drained soils, the Camp may have staked

rights to pasture and would essentially seem to have been a fort, albeit one with design flaws.

Based essentially on the size of their surrounding ditches and internal area, Iron Age enclosures of the scale of Arbury have, by *de facto*, generally been termed 'fortified settlements' or 'defended enclosures' (eg Taylor 1977; Chowne, *et al* 1986). Pryor has argued that such definitions of 'defensiveness' probably overlook a range of less physically impressive palisade-fortified sites, at least within lowland eastern England (1982). While these have not been forthcoming, a defensive potential has since been recognised for a range of more modest Iron Age enclosure forms (eg Evans and Serjeantson 1988; Evans and Hodder forthcoming).

Alexander and Trump's earlier dismissal of Arbury's defensive capability largely related to the scale of its bank. Certainly when compared to the collective impact of Wandlebury's ramparts they are not impressive. Nevertheless, their interpretation was clearly biased by factors relating to site survival; both plough damage and compression within the bank's core. If, as it seems, all of the ditch upcast went into the construction of the bank, with an average circuit profile of 6.50 x 1.10m, theoretically this could have generated a bank approximately 2.15m high and 7.50m wide through a 1.5 displacement factor of quarried strata. While the Arbury defences may never have stood to this height and have only been c. 1.25–.35m high (by the projection of the gravel capping in Trench I with appropriate compensation for its turf compression), this would still have resulted in a 2.35–.50m rise in relationship to the base of its encircling ditch. Even without any manner of further bank-top breastworks, this would have been a formidable barrier.

The character of ditches also clearly contributes to the impression and attribution of defence. Yet deeply steep profiles, widely held to be a hallmark of fortified defence in later periods (ie 'V'-shaped 'leg-breaker' type) and found, for example, at Wandlebury (Hartley 1957: fig. 4), would simply have been impossible to achieve beyond a certain ditch width (c. 2–3.00m) in a lowland context due to high groundwater levels. None of the sites of this type investigated within the fenlands have steep ditch profiles and almost all are uniformly broad with flat bases (Evans forthcoming). In the case of Arbury, there would be no compelling reason to construct a circuit of its scale, with ditches so wide, only to kraal stock. Based on the evidence of other prehistoric enclosures (and ethnography) this could have been fulfilled by ditched perimeters of much more modest proportions (animals can only leap so far). Ultimately, the scale of its ditch fulfils no obvious functional logic unless simply to emphasise the enclosure's 'divide' and contribute all the more to the scale of its embanked perimeter.

No direct parallels are known for the Arbury entranceway. The extremely wide gap between its ditch terminals is not common and usually the passage through the ditches in large non-outwork-complicated Iron Age enclosures is between 5 and 10m,

not 20m as at Arbury (fig. 14.1). It is, however, the free-standing tower gateway situated proud of the bank that is its most outstanding feature and this would have no immediate regional parallel. While a line of four posts was found to run across a causeway located within the inner ditch at Tattershall Thorpe (Chowne *et al*, 1986: 162, fig. 2), and analogies could be drawn with the timber 'triumphal arch' at Rainsborough, Northants. (Avery, *et al* 1967), neither are directly comparable to the Arbury gatetower. It is, however, quite similar to the 'five-post-set' gateway in the south-western entrance at Danebury, though there the structure is situated between the bank terminals (and the central post is on the exterior side; Cunliffe and Poole 1991 fig. 3.19). Arbury's topographic situation may be relevant in this context. It is *not* a fort set on a hill – a *hillfort* – and its locale is essentially flat with little relief. Under such circumstances, elevated observation from such a tower would have obvious advantages. Certainly it would have made a bold statement, albeit perhaps something of a false-front.

In recent years the symbolic role of 'classic' hillforts have been emphasised in terms of their visual impact and communal definition through the very act of enclosure (eg Bowden and McOmish 1987; Sharples 1991). Equally, how do we draw the line between war and raiding; the threat of violence and actual conflict? Combat in pre-industrial societies is often characterised by set-piece 'dramas' – the taunt, dance-like duels and lingering blood feuds – and ethnography demonstrates that war can be amongst the most ritualised of activities. To attribute defence to a site is to potentially imply a wide range of social activities; group definition, the control of territory/resources and access into the enclosed, and bridges the gamut of human interaction from conflict to settlement and ritual. Given these multiple associations, it may well be appropriate to consider such constructs as some form of ubiquitous 'communal monuments'. Nevertheless they have certain characteristics (closed and heavily embanked circuits, etc.) whose defensive potential distinguishes them from just being places of generalised social gathering. While there is no evidence of attack at Arbury, nor is there documented evidence of such actions for the majority of fortifications in historical times (eg Martello towers). The key issue relating to the determination of defensive capability is a *perceived* threat of violence, which need not imply the actual occurrence of war (see Evans forthcoming and Carman and Harding 1999 for further discussion).

Given the defensive character of the Camp, the implications of its relatively 'early' or at least pre-Late Iron Age date need stressing. There has been something of a tradition in the Cambridge region of readily attributing too much to ubiquitous 'Belgic' invaders or with conflicts stemming from Romanisation. In contrast, Arbury must be seen as arising in strictly an Iron Age context and reflecting the social dynamics of that period alone (ie pre-Belgic and Roman). The recovery of Roman pottery from the enclosure and its ditch is essentially an 'incidental' aftermath in terms of the site's usage. That it clearly did not continue to

be maintained into the 1st century BC suggests that its abandonment is probably attributable to changes amongst the region's later Iron Age communities (eg Hill *et al* 1999).

Marking Territory – Regional Affinities and Enclosure Definition

It is beyond the scope of this paper to review in detail the evidence for the region's Iron Age forts (see Malim 1992a; French and Pryor 1993: 68–76; Evans 1992, 2000c and forthcoming). Equally, as the many broadly contemporary settlement sites within Arbury's immediate environs still await publication, it would be rash at this time to speculate upon the Camp's broader affiliations. What, however, warrants emphasis is that the north Cambridge clay plain seems to have been a 'cultural group' border in the latter two centuries of the first millennium BC and, based on cemetery evidence, at least during the 1st century BC the immediate Cambridge area was a significant centre (Hill *et al* 1999). Though Arbury seems to date before these developments, does its existence reflect a territorial antecedent and effectively mark a claim within what may have been disputed lands?

Although only six definite and three possible Iron Age forts are known in Cambridgeshire, these display great variability of size and form (eg number of circuits). Whereas previously a propensity for circular and/or univallate enclosures in the south of the County could be recognised, in contrast to complex multi-circuit forms within the fenlands (eg Stonea, Borough Fen and Wardy Hill)¹³, the discovery in 1992 of what seems a large ovoid double or even triple vallate enclosure at Borough Hill, Sawston, erodes such broad patterning (Taylor, *et al* 1993). While geophysical survey attests interior features, trial trenching has provided inconclusive dating evidence. Nevertheless, lying on the edge of the Cam floodplain only 4.5km south of Wandlebury, it is probably an Iron Age construct.

There is a marked similarity between the plans of Wandlebury and Arbury. Given the occurrence of circular forts in the south of the County and elsewhere in the region, what takes their potential interrelationship beyond the level of vague affinity is the near-perfect circularity of their layout, particularly Wandlebury's (fig. 18; Hartley 1957).¹⁴ It is one thing to construct a circular perimeter on the 'flat' as at Arbury, and quite another to employ this plan on a elevated chalkland spur at Wandlebury. There are, of course, major differences between the two enclosures. Aside from Wandlebury's double circuit and elaborate rampart construction, most telling is the extensive evidence of settlement within its interior. Recent excavations by the University of Cambridge have demonstrated that the earlier Iron Age settlement features continue beyond the enclosure's northeastern perimeter (French and Gdaniec 1996; 1997). Possibly dating as early as the 5th century BC, while an open phase of settlement may have preceded the construction of the ditched perimeter, its interior does seem to have been occupied until c. 300 BC (La Tene 1) and, again, in

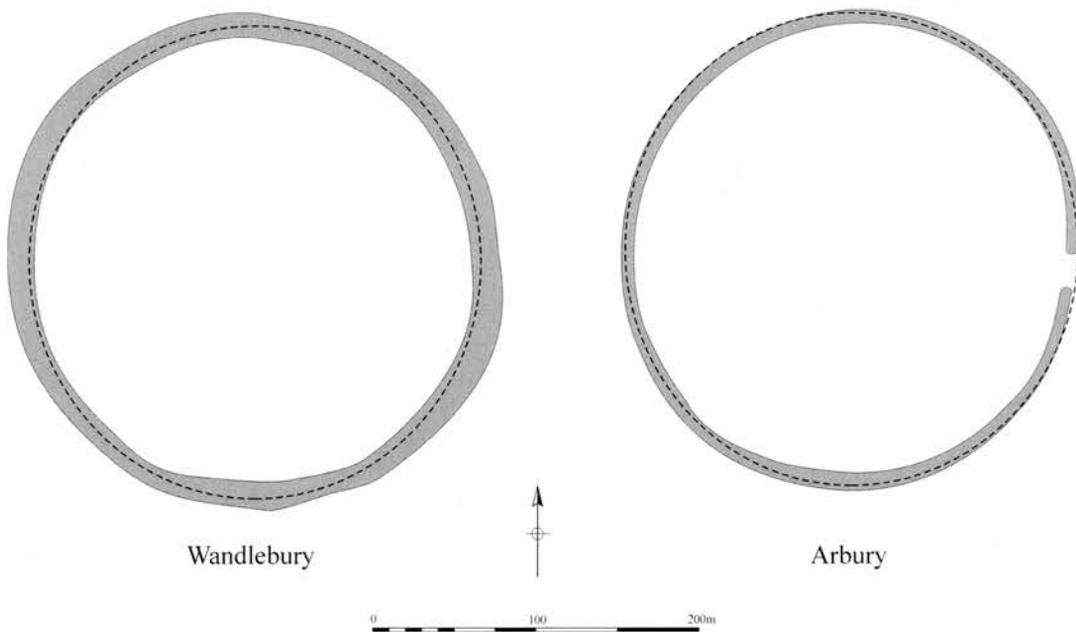


Figure 18. 'Great Circles': comparison of the plans of Wandlebury (outer ditch) and Arbury; their layouts respectively match with diameters of c. 300 and 275m (as imposed).

early Roman times. However, settlement features have not been positively identified in association with its secondary inner circuit (Hartley 1957) and in this phase/form the site may offer a parallel to Arbury's usage.

The potential matching or twinning of these sites suggests a 'historical' specificity and a direct interrelation. Lying 9.5km apart, together they may perhaps represent the extent of an immediate 'group territory'. First suggested by the late John Moss-Eccardt (1991), in such a scenario Wandlebury may have marked the core or main fortified settlement of this group, with Arbury perhaps representing a northern expansion of territory.¹⁵ Yet, alternatively, it could be the case that both Arbury and Wandlebury were peripheral to a core zone of contemporary settlement within the Cam Valley. Such 'story-telling' explanations would, moreover, be unwarranted awaiting full analysis and dating of the other sites in the area, and do not take account of any potential interrelationship between Wandlebury and the Borough Hill, Sawston earthwork. Particularly relevant, nevertheless, is the status of the War Ditches. Lying on the lower chalk c. 3km north of Wandlebury, the enclosure has now all but been quarried away. It appears to have been circular (c. 165m diameter) and enclosed by a steep sided 'V'-shaped ditch 3.00m deep. The first serious investigation of the site was by Hughes (1903). His interpretation was that the enclosure was constructed in the 3–4th centuries BC and in the first century BC the 'massacred remains' of the site's last defenders were interred in, and the smouldering rubble of its defences shovelled into, the upper profile of the ditch by Belgic invaders; it was later occupied in Roman times (Taylor 1977: 40). However, when Lethbridge

excavated the site in 1939 he found only Bronze Age material in the ditch's primary fills. This, and the fact that he could not locate the circuit on its eastern side led him to speculate that it was "an unfinished work or something of a different character" (1949: 119). The War Ditches certainly cries out for a full reappraisal. If the accepted interpretation stands then it would prove to be quite unique (ie a relatively small, perfectly circular, Middle Iron Age enclosure). Yet in the light of Lethbridge's findings, the possibility of its first phase being either a henge or even huge ring-ditch-like Bronze Age settlement enclosure cannot be dismissed.

Two other, possibly major Iron Age enclosures are known within the immediate Cambridge environs. However, given their limited exposure, there can be less certainty of their plan and extent. A 20m long arc of a 2m wide ditch was traced at Ridgeon's Gardens, Castle Hill, Cambridge (Enclosure IX; Alexander and Pullinger 2000). While as projected it is estimated to have a diameter of c. 100m and enclose 1.3ha, any irregularity in its circuit could result in a much more modest enclosure (ie 'typical settlement'-scale). Only Belgic pottery was recovered from its lower fills and it apparently dates to the Late Iron Age. Large postholes associated with the ditch's south-eastern terminal may relate to an entrance structure and the occurrence of at least one roundhouse within its interior led its excavator to suggest that the enclosure may have been the seat of a minor chief.

In 1996 the extreme south-western arc of a massive Middle/late Iron Age enclosure was excavated at Marion Close off Huntingdon Road, Cambridge (Mortimer and Evans 1997). Producing substantial finds assemblages, this was also evidently settlement-related. Re-cut, at its most impressive its 'V'-shaped

ditch circuit was 6m across and 2.25m deep. At this scale it is comparable to Arbury and Wandlebury, and can be considered defensive; a palisade trench was found to run interior to the main circuit. While landscaping and house cover has made it impossible to detect the enclosure's circuit from the air, it must be large. When combined with the previous evidence of Iron Age occupation at New Hall (Evans 1996; 2000d), it seems remarkable that another enclosure of this date should have been located in the town's western hinterland, given how sparse the excavation sample has been. Moreover, if it is another 'great' enclosure, then it could suggest some frequency of such sites within the wider Cambridge environs and perhaps further attests that the area was an important foci during the Middle/late Iron Age.

The aim of this overview has not been to pigeon-hole the period's large enclosures into neat categories of 'unoccupied' and 'settled'. The crucial issue being that these communal constructs would intrinsically have been many things and, though predominate usage may be discerned, this need not imply any exclusivity of function (ritual or settlement *vs.* defence). Nevertheless, after nearly a century of research – but whose fieldwork impact still in total amounts to only a c. 2% area-sample (and much of that has not involved full excavation) – the challenge which Arbury continues to pose is how to reconcile its apparently 'empty' interior with its imposing perimeter. Given the current state of the period's research within the region, 'fort' now seems the most appropriate term for its characterisation. However, and perhaps inherent with the 'monumental', a sense of lingering inadequacy must inform any mode of prime-attribute interpretation.

Arbury Camp – A Postscript

John Alexander

It is kind of the authors to have dedicated this report to me and to have invited me to write a postscript when my connections with the site are so far in the past. The difference between the ways in which most local archaeology had to be carried out more than thirty years ago and those of today is immense and it has been a great pleasure to read how competently the recent research has been carried out.

In the 1960s plans to develop the fields in which Arbury Camp lies were already being discussed but no move for its archaeological investigation or to provide funds to do it were being made. David Trump and I undertook it with volunteers on university extra-mural training courses in field archaeology. It was due to their enthusiasm that the research could be carried out; I was sad to see that parts of their results could not be located.

The work reported on here has been thorough and skilful while the discussion and bibliography show how greatly the knowledge had increased in recent years. I found it particularly interesting that it has proved possible to distinguish the use made of the

area in Roman times and that the purpose of such a large enclosure in the last millennium BC can now be discussed in more general terms than were available to us. The Cambridge region, lying as it did in the boundary zone between two, perhaps three, pre-Roman polities was of greater significance and perhaps in greater danger of aggression than has previously been realised, while attention has quite rightly been drawn to similarities with the Norfolk sites and parallels with the Mendip hillforts abandoned. The finding of a substantial gate makes our tentative suggestion of a simple stock enclosure less acceptable, although the extraordinary and well dated find of possibly oil-tanned leather might be attributed to the aftermath of stock round-ups and the absence of evidence of a palisade on the banks to thorn hedges.

I was pleased to find that the significance of the work of two of my students, Tony Gregory and John Moss-Eccardt both of whom died before their time, was recognised here.

Acknowledgements

The 1990 excavations were commissioned and funded by Camtech Developments Ltd. The co-operation of D Morgan of that company, and D Ward, their agent, is duly acknowledged, as is also that of Mr Chivers, the landowner, and D Shelbourne, the farm manager for Chivers Farms Ltd. Commissioned by Sainsbury plc, the subsequent 1995 investigations were organised by R Clark of Countryside Planning and Management, with K Gdaniec acting as the CAU Project Manager.

The 1991 Unex Lands investigations was sponsored by the UNEX group and we are grateful to its Property Director, V McElroy. Equally, the recording of the Gypsy Ditches would not have taken place without the co-operation of Messrs Atwell and Cowen of Cambridge City Council's Property Department, nor Jon Finney of the City Engineers.

This first phase of the Camp's investigations should be seen as a joint project between the Cambridge Archaeological Unit and the Department of Archaeology, University of Cambridge. We are indebted to Todd Whitelaw, then of that Department, who supervised the excavation of sampling stations. Our work schedule was tight and considerable demands were made on the site staff (I Bapty, S Hinds, S Kaner, J Meredith, J Miller, C Powell, R Rippengal, A Segobye, D Sloan and S Tarlow) and we are particularly grateful to those who volunteered their time: E and J Allen, J and S Finney and M Parker Pearson; Dick Stripe undertook the metal detector survey. During the second phase of fieldwork the site staff comprised S Ekland and L Lloyd-Smith.

Directly in connection with the production of this text and facilitated by Barry Henderson, in 2000 J Sainsbury Developments Ltd. provided a generous grant allowing for the second radiocarbon date and the advancement of the specialist study of the site's leatherwork. The illustrations in this report are the work of C Begg; the Royal Commission Survey figure

is reproduced with the permission of P Topping of that organisation (now English Heritage).

We would like to thank those specialists whose work featured in the first assessment report, but which is here only summarised: Steve Boreham (pollen), Mark Edmonds (flint), David Hall (field-walking), Dale Serjeantson (animal bone) and Morag Woudhuysen (Roman pottery). Our gratitude to Dr Ralph Jackson of the British Museum, both for his advice and in encouraging the Museum's acceptance of the site's leatherwork, is hereby acknowledged. He, with Janet Ambers, also organised its radiocarbon dating, and Alex Bayliss of the Ancient Monuments Laboratory kindly re-calibrated the two sigma/95% determinations. We are variously thankful for information and advice provided by R Boast, C Chippindale, Prof B Cunliffe, J Ette, T Lane, T Malim, T Reynolds, N Sharples, A Taylor and D Trump; as always, discussions and debate with JD Hill proved inspirational. Finally, the co-operation and advice of Dr John Alexander throughout must also be stressed. His site visits and advice provided an invaluable sense of research perspective and, in due acknowledgement, this report is dedicated to him.

Endnotes

- 1 Though indicated to be published at a scale of '8 feet to the inch', the printers seem to have taken liberties with the reproduction of Hughes' illustrations (1906). In Figure 3 the scale of the section has, accordingly, been adjusted based on the presumption (encouraged from his accompanying descriptions) that he evidently bottomed the ditch.
- 2 It has proven impossible to plot Alexander and Trump's trenches with any accuracy. In the 1970 report they are roughly shown in relationship to Hughes' 1906 plan. The marked location of Site II (for which an inter-trench base plan is alone available) cannot be accurate inasmuch as the orientation of the trenches (tied to magnetic north) does not correspond with the angle of the ringwork ditch at this point and instead must lie further east. A more surprising oversight is that in the issued sketch plan it is the line of the Camp's bank that is blackened to indicate the ditch circuit.
- 3 See Hall in Evans 1991a concerning the collection methodology (Appendix I.ii). East of the enclosure in the area of Trenches IX and XI, Hall also distinguished two other areas of slightly darker soil. While not nearly so distinct as in the area of the Roman scatter, red burnt pea-gravel occurs within them; there were no finds of any description, either sherds or flints.
- 4 Identified by D Serjeantson (Appendix II.iii in Evans 1991a), only 23 bones were recovered from contexts other than the test pitting. Those from F. 1 included the range of species which would be expected in the Iron Age: sheep/goat (six bones), cattle (five), and pig (three). There is also an ulna from a very large dog from within the upper silts of that ditch and F. 26 pit in Trench IV; comparisons with modern dogs show that this was the size of a large hunting dog.
- 5 Drawing, in part, upon procedures developed in the course of the earlier Haddenham Project, the sampling programme was designed in conjunction with Dr T Whitelaw. Subsequently this technique of machine-expanded 5 x 5m 'stations' from metre test pits was adopted as the basic sampling policy of English Heritage's Fenland Management Project (see Evans 2000a). Having the virtue of providing expedient site sample cover, in the case of Arbury grid while statistically there would only be a 9% probability of recovering 10m diameter 'objects' (ie individual roundhouses), there would respectively be a 49 and 100% chance of intersecting 30 and 50m diameter settlement clusters (presuming that occupation traces were present within each 5m²/25sqm of their extent). Otherwise, the 450sqm given to sampling the Camp's interior would not have even extended to the cutting of a single machine bucket-width trench across it (ie continuous, c. 2.00m wide).
In conjunction with the 1995 programme, geophysical surveys were undertaken across the area of the enclosure. That no interior features were then identified cannot itself be taken as negative evidence as the ditch circuit also failed to register.
- 6 As reported upon by M Edmonds (in Evans 1991a) only a small quantity of lithics were recovered from 1990 excavations and test pitting programme. Of the 46 pieces in total, there were only seven struck flints, though 14 other pieces showed evidence of working prior to burning (25 otherwise unmodified burnt flints were also retrieved). Unfortunately none retained sufficient attributes to indicate their dating. However, when compared to the frequency of worked stone from other excavations and surveys elsewhere in the region (eg Edmonds *et al* 1999), the density was so low as to suggest that the immediate area saw little activity associated with the production and use of stone tools at any point in prehistory.
Only two flints were recovered from the 1995 investigations, a blade and a denticulate.
- 7 A monolith was recovered from the basal deposits of the ditch terminal in Trench IV (F. 26; SC1 on fig. 9C) and three samples were examined for pollen by S Boreham (see Boreham in Evans 1991a for methodology). Unfortunately pollen proved to be very sparse (<5000 grains/cm³). While some grains of *Quercus* (oak), *Salix* (willow), Gramineae (grasses) and spores of Filicales (ferns) were noted, many of the grains were degraded suggesting that the sediment had been oxidised. As a result, it was decided not to proceed with a full palynological investigation.
- 8 The full width of this secondary headland bank was visible in the southern section of Trench III, where it stood 0.35m high and was 14.50m wide (F. 17). A minor 'tail' of brown sandy gravel bedded along its eastern edge; gravel was also observed along its western side but not so distinctly.
- 9 Here attributed to medieval agriculture, in the 1991 report the F. 23/25 linears were thought more likely to be of 'early' derivation. Equally, the 1995 investigations have necessitated some adjustment to the line of the western circuit as shown in Evans 1992.
- 10 While no post-medieval material was retained in the 1995 investigations, in 1990 some 460 sherds of pottery, and 430 and 25 pieces of glass and tobacco pipe of the period were respectively recovered (plus clinker/slate and brick/tile, etc).

- 11 Typically, no leather was recovered from the extensive Iron Age waterlogged deposits recently excavated at Market Deeping, Lincs. (otherwise producing much cultural material of that period), whereas a shoe sole was recovered from the site's Roman levels (Lane 2000 and pers comm). No leather has been recovered from Flag Fen (M Taylor pers comm) nor, for that matter, was any reported from Glastonbury.
- 12 With so little leather recovered from Iron Age sites in general and, too, the otherwise negligible deposition around the Camp's perimeter, it is impossible to assemble any convincing context for its dumping at the entranceway. Considered in relationship to the paucity of immediate settlement evidence, why such waste material would be transported any distance just for the sake of discard cannot be explained. Any overtly convenient argument that the re-worked ditch terminal was itself intended for the purposes of tanning would, as outlined by Mould above, be undermined by what seems to have been the properties of the leather's probable oil-based treatment. Incidental factors are probably relevant here and perhaps the introduction of oak bark into the watery deposits of the ditch (see Taylor above; possibly stripped from the timbers during the construction of the gateway) inadvertently created a 'secondary' tanning environment. Beyond this, in all honesty the recovery of this material at all can only suggest that, however minor or localised, some settlement and/or 'industrial' component of the site's usage has escaped our sampling.
- 13 Although considerably smaller (1.5–3.5ha), the closest regional parallel to Arbury/Wandlebury-'type' plans is provided by a cluster of near-perfectly circular 'forts' in northern Norfolk: Wareham, South Creak and possibly Narborough (Rickett and Gregory and Rogerson in Davies, *et al* 1991: 59–68, 69–72). Generally attributed to the Iron Age, their assignment is not conclusive due to the limited quantities of material recovered. This is especially marked in the case of Wareham which was subject to test excavation by George St Gray in 1914 and, later, by RR Clarke (1959); the paucity of finds and interior features would also suggest that it, at least, was also unoccupied (Gregory in Gregory and Gurney 1986: 22–6).
- 14 An Iron Age attribution has also been proposed for Belsar's Hill – located near the fen-edge at Willingham and commanding the Aldreth causeway approach to Ely – based on its relationship to the pattern of surrounding fieldsystems (Hall 1996); this can now be further supported by the recovery of pottery of the period eroded from out of its ramparts (D Hall and C Evans pers comm). Of univallate form, while it could be argued that it has general affinities to the Arbury/Wandlebury Cam Valley group, its plan is much more irregular and it may have been unrelated to the southern circular enclosures. Whereas a major settlement component has been identified within the Borough Fen, Newborough enclosure (French and Pryor 1993; Malim and McKenna 1993), Stonea seems essentially unoccupied and have been a focus of trade/exchange and ritual activity (Malim 1992a and b; Jackson and Potter 1996). Like Belsar's, Wardy Hill was also situated to control a causeway route (across the Coveney marshes of the Isle of Ely). The latter basically seems to have been a defended familial residence, though it was connected to a much more extensive linear dyke system with other associated settlement (Evans 1992 and 1997; see Evans forthcoming for comparative discussion of the labour and social implications of these respective enclosures).
- 15 The potential interrelationship between Wandlebury and Arbury to some extent reverses Clarke's speculations of Arbury's role. In the Glastonbury model it was envisaged as a winter base camp in a transhumance cycle and from which stock would have been driven out onto the fen in summer months (1972). Here, instead of being the parent or home community, Arbury may have been the off-shoot in relationship to Wandlebury. While perhaps relating to pasture rights with the north-of-town clay plain, there is no evidence that Arbury had any direct inter-connection with the fens (see Evans 1987 concerning the 'convenient' linkages of transhumant modelling). In hindsight, Clarke's enlistment of Arbury as a parallel to the Mendip hillforts seems arbitrary and he obviously never appreciated the full ramifications (or extent) of Alexander and Trump's negative evidence.

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