

PROCEEDINGS  
OF THE  
CAMBRIDGE ANTIQUARIAN  
SOCIETY

(INCORPORATING THE CAMBS & HUNTS  
ARCHAEOLOGICAL SOCIETY)



VOLUME LXXI

1981

IMRAY LAURIE NORIE AND WILSON

1982

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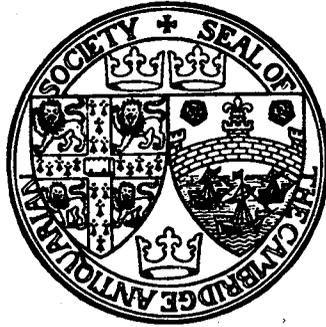
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Published for the Cambridge Antiquarian Society (incorporating the Cambs and  
Hunts Archaeological Society) by Imray Laurie Norie and Wilson Ltd, Wych House,  
Saint Ives, Huntingdon

ISSN 0309-3606



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UNIVERSITY PRINTING SERVICES · CAMBRIDGE

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## THE PROCEEDINGS

1. The Editor welcomes the submission of articles on the history and archaeology of the County for publication in the *Proceedings*, but in order to avoid disappointment potential contributors are advised to write to the Editor, to enquire whether the subject is likely to be of interest to the Society, before submitting a final text. The Editor, if necessary with the advice of the editorial committee, reserves the right to refuse to publish any papers even when an earlier approval of the subject has been given.
2. Authors are reminded that the cost of printing is high and that, all other things being equal, a short and succinct paper is more likely to be published than a long one. It would also assist the Editor if contributors who know of possible sources for subventions towards the cost of printing their paper would inform the Editor of this when submitting their manuscript.
3. The copyright of both text and illustrations will normally remain with the author, and where relevant the photographer and draughtsman, but to simplify future administration contributors are invited to assign their copyright on a form that will be supplied by the Editor.

## BACK NUMBERS OF THE PROCEEDINGS

Members might like to know that a considerable stock of back numbers of the *Proceedings* and other C.A.S. publications can be obtained from the publishers, Imray Laurie Norie and Wilson.

## THE CAMBRIDGE ANTIQUARIAN SOCIETY'S COLLECTIONS 2

J. D. Pickles

Further parts of the collection have been transferred in the past two years in accordance with the policy described in the first report (*Proceedings* LXIX, 1979, ix-x). They are listed below under the places that have received them on deposit.

*University Library*

1. A manuscript volume of early notes and sketches by (Sir) Robert Ker Porter dated 1793 and entitled 'Ancient Armour and Castles &c.'. There are almost 700 pages, many blank.
2. Four large volumes of plans and photographs of Cambridge Colleges, seemingly part of a set already in the Library made by Willis and Clark for their *Architectural History* (1886).
3. A copy of 1880 in two volumes of the Churchwardens' Accounts of Holy Trinity Church, Cambridge, 1504-1635. It was presented by John Barton, sometime vicar, in 1894.
4. Papers of John Ebenezer Foster (died 1912) solicitor and antiquary who for many years was an energetic secretary of the Society and editor of its publications. They are chiefly his working notes, transcripts, and abstracts, not always conspicuously neat, relating to Cambridge history, e.g. extracts from published Patent, Close, and Pipe Rolls, copies of Ickleton deeds (15C-18C), copy of the Registers of Great St Mary's to c. 1711. There are also two extensive indexes to names in the printed version of the *Ely Diocesan Register* and to volume XIII of *The East Anglian*, 1909-10.\*
5. Miss F. L. Wale's manuscript 'History of Shelford'. This handsome and important work was compiled over several years at the beginning of the century and is fully illustrated with Miss Wale's own drawings and plans. About 1920 a small number of photographic copies was made, and even these are now rare and valuable.
6. Notes of C. E. Sayle (1864-1924) the bibliographer, on Cambridgeshire Soldiers. They are presumably the material on which he based a lecture given in 1916 that is noted in *C.A.S. Communications* XXI, 10.

*Fitzwilliam Museum (Department of Paintings and Drawings)*

Three volumes of water-colour sketches known as the Relhan drawings. Most of them were done by Richard Relhan (died 1844) in the period c. 1797-1833 and depict local churches, country houses, heraldic devices, and the like. Although more draftsmanlike than artistic they are of some topographical importance as showing many buildings before Victorian 'improvements'. The original collection was presented to the Society in 1844 by Rev. John James Smith, additions being made later to make a total of 365 items. There is a detailed handlist by G. M. Benton.

*Physical Education Centre at Fenner's: Sporting Archives*

Thirteen group photographs of the University Bicycling Club, 1877-85.

\**Editor's note.* The index to the *East Anglian* has now been transferred to the Cambs. County Record Office.

## FIELD OFFICERS' REPORTS, 1981

The following excavations took place in 1981:-

*Cambridge* (Gonville and Caius College). A. Taylor excavated a 16th-century wall containing 13th-century carved Purbeck Marble architectural fragments. The report is published in these Proceedings (Cambridgeshire Archaeological Committee).

*Ely*: R. Powell excavated several courses of masonry that consisted of part of the inner face of the medieval stone bridge, revealed in a sewer trench in Station Road.

*Godmanchester*: St Ann's Lane. H. J. M. Green excavated the south gate of the Roman fort. There were also timber buildings, and a family burial group of the early 2nd century, one of which was a cremation in a decorated strong box, in addition to the early 4th century town wall (Cambridgeshire Archaeological Committee).

'Chestnuts.' H. J. M. Green excavated the 1st century military road, a late Saxon system of lazy beds, a late Saxon or Danish road running to the waterfront, and 16th century cottage wall-footings and well (Voluntary).

*Haddenham*: I. Hodder has started to excavate a Neolithic causewayed enclosure (Cambridge University and Cambridgeshire Archaeological Committee).

*Maxey*: F. Pryor completed the excavation of a Neolithic henge which included a mortuary enclosure at the entrance and a round-barrow in the centre: see below (Cambridgeshire Archaeological Committee).

*Shelford*: A. Legge, D. Trump and M. Woudhuysen continued excavations of crop marks in the flood plain of the Cam. There was a complex ditch system that appeared to belong entirely to the 4th century A.D. and indications, including much daub and one piece of marble, of a substantial building nearby (Cambridge & London Extra-mural departments).

*Stonea*: T. Potter continued excavations of a Roman villa which is proving to be an extremely important and massive building, thought to be the palace of the regional procurator. An Early Saxon hall has also been found on the site. (British Museum).

(Cambridgeshire Archaeological Committee is funded by the Department of the Environment).

#### *Finds Recording*

The Archaeology Workshop has continued to be held in the City Library on the first Saturday of each month and many interesting objects have been identified and recorded. Members are reminded that they are very welcome to come to this Workshop, either to bring artefacts to be recorded or with archaeological enquiries. Access can also be given to the Cambridgeshire Sites and Monuments record if an appointment is made.

#### *Projects*

Following the Barrow Survey, work this summer has concentrated on surveys of two important classes of archaeological sites: churches that have gone out of use and Neolithic monuments. The aims of these surveys were to visit each site and assess its condition, recommend which ones should be excavated or preserved by being made scheduled Ancient Monuments, and produce reports which will probably be published in these Proceedings.

The Neolithic survey discussed settlements and burials. It also listed 5 possible long barrow sites, 4 causewayed enclosures, 3 cursuses and 5 henges. One of these henges is at Maxey and has just been excavated and another is at Elton which was trial-trenched in 1978. The report on this excavation is included in this survey.

64 churches in Cambridgeshire that have gone out of use were listed. This list included sites that were lost, or survived as earthworks, ruins, and deteriorating buildings, as well as those that are maintained, mostly by the Redundant Churches Fund. It appeared that apart from watching repair work the main problems for archaeologists are: to discover some of the lost sites, to record the ruins of buildings which are at present deteriorating, such as Denton, Ashley, Silverley, Caldecote, Hatley, Wood Walton and Wyton, and to record some of the graveyards that are no longer used. I would be interested to hear from any individual or groups wishing to take on some of this work.

Alison Taylor  
September 1981

## WELLAND VALLEY FIELD OFFICER'S REPORT

The Welland Valley Project is now in its final stages. The winter of 1980/1 was largely given over to the excavation of a Roman and Iron Age complex of linear cropmark features between the villages of Barnack and Bainton. This site was threatened by pipeline construction and the archaeological work was carried out under the auspices of the British Gas Corporation. The success of the excavation was largely due to the support and helpful co-operation of the Corporation, and of its principal archaeologist, Mr P. D. Catherall. Results of the excavation will appear in the Project's final publication, planned for late 1982. This volume, which will also include recent work at Maxey, and the broader valley survey which forms an important part of the Project, will be published by the Northamptonshire Archaeological Society as a monograph, uniform with Fengate Reports Three and Four.

The evidence for extensive field boundaries in the later Iron Age that was an important feature at Barnack and Bainton is also seen at Maxey. However the final four months of the excavation (May-August 1981) were largely devoted to Neolithic and Bronze Age features of a non-domestic "ritual" or ceremonial kind. These features included cursus ditches, a later Neolithic mortuary building, a large ditched "henge" monument and its associated central ring-ditch, internal bank and mound. The henge ditch itself was marked by a gravel bank which ran around its exterior, but which was breached by a single, easterly, entranceway which contained the mortuary house and two square-ditched earlier Iron Age barrows, of a type commonly encountered in the so-called "Arras Culture" of eastern Yorkshire. The excavations also produced a most remarkable later find: the superstructure of a Middle Iron Age beehive-style oven had collapsed into a shallow pit where it was preserved in excellent condition. Normally the above-ground component of such features is destroyed by the plough, but this example was rapidly buried and thus escaped this fate. Details of the central flue are finely preserved and are particularly important. The oven was lifted in a block by members of the Ancient Monuments Laboratory and will shortly go on permanent display in Peterborough Museum.

F. Pryor  
September 1981

## FENLAND SURVEY

The archaeological survey of the Cambridgeshire Fens, begun in 1976, has continued. To date about 125,000 acres have been studied field by field, recording fen soils as well as artifacts, earthworks, and settlements.

Since the last report Borough Fen, Upwell, Little Downham, Coveney, and Chippenham have been among the areas examined. As expected, there is much prehistoric activity on the light soils of the Chippenham region. Most of the settlement lies on the lower ground near to water, the well known barrows being placed on higher sandy ridges.

Two of the most exciting discoveries have been buried barrow fields at Borough Fen, Peterborough, and in the Haddenham-Over fens. This last complex of some 25 barrows also includes a possible long barrow and a causewayed enclosure. There is great potential for the survival of water-logged environmental remains.

The greater part of the Wisbech region silt fen is now complete. Study of the earthworks and place-names suggest that there were already flood defences before the Norman Conquest, and a large scale

reclamation of 9,000 acres in the early 13th century.

The success of the survey is evident in that the British Museum has made two excavations at the Stonea Grange Roman site discovered in 1978. It appears to have been the residence of a regional controller (or procurator), who may have been the overlord of an imperial estate embracing all the fens. The second excavation season revealed an area of early Saxon occupation. Cambridge University has also started a long term project to investigate the Haddenham causewayed-camp and barrow-field with Francis Pryor. A committee has been established to co-ordinate all the work in the fenland counties, *i.e.* including Lincolnshire, Norfolk, and Suffolk as well as Cambridgeshire.

All the Cambridgeshire region that has been surveyed is drawn up on the 1:10560 scale. Further information is available from the computerised record of the fieldwork results, and from the annual reports of the Cambridgeshire Archaeological Committee. A summary report can be found in 'Marshland Landscapes', edited by Trevor Rowley.

David Hall  
September 1981



The Group has been active in the field and working on finds. A monthly series of lectures has given useful background information to members, and help has been given by Mrs J. Pullinger on recognition of pottery types during some of the Wednesday evening finds-sorting sessions at 78 Castle Street.

Several projects which the Group has been undertaking are now nearing completion. These, as well as others in progress, are outlined below, under the headings of Surveying, Field-walking, and Excavation.

#### *Earthwork Surveys*

Stapleford (TL 472518): the survey of this moated site has been published in the Moated Site Research Group's *Report* No. 8 (1981), 7.

Dry Drayton, Drayton Park (TL 382619): further surveying and hedgerow dating has been carried out on the site, in conjunction with the excavations by Michael Sekulla (*PCAS LXX* (1980), 13-45). It is hoped to have the results of this work ready for publication next year.

Haslingfield, River Farm (TL 413517): the survey of the meadows has been almost completed. Field-walking after the meadow was ploughed has produced a concentration of Roman pottery on the western boundary.

#### *Field-walking*

In addition to the fields examined at Haslingfield, referred to above, work has continued at:

Landbeach, in arable fields around TL 482656 (Mr W. Hatley) and TL 484660 (Mr H. Morgan). Significant scatters of Roman pottery have been recovered, which seem to be co-incident with rectangular features shown on air photographs. Very little pottery was found outside these areas, and the relative absence of post-medieval sherds was noticeable.

Cambridge, Newmarket Road, (Marshalls, Ltd.). An area of about 4 hectares around TL 489592, adjacent to the road was walked over in order to find out whether the Iron Age site previously discovered (*PCAS LXIX* (1979), xv) extended in that direction. No Iron Age pottery was found, but several worked flints, medieval and post-medieval potsherds were recovered.

#### *Excavation*

As in previous years, several members of the Group gave assistance on local excavations, including those of Mr Michael Green at Godmanchester, the Extra-Mural Board at Little Shelford, and Mrs J. Pullinger at Teversham. Those who attended gained valuable experience in excavation techniques and pottery recognition.

It is proposed that this should be the last of the Field Group's annual reports. Now that the Group has been active for over three years, it is felt that the results of field-work will in future best be made available by publication of reports or notes on each site. Over the next few years there should be ample material to provide a contribution to the *Proceedings* each year, based on field-work by the Group.

M. A. T. Coles  
December, 1981



## M11 WESTERN BY-PASS: THREE SITES NEAR CAMBRIDGE

The three reports, – Obelisk Kilns, Lingey Fen and Edmundsoles, – are the fruit of work by members of the Cambridge Antiquarian Society's Archaeological Research Group, who daily watched the stripping of topsoil and generally kept an eye on any sites discovered during the construction of the M11 Cambridge Western By-pass, 1977-1979. For the location of the sites, see map, Fig. 1.

*(For all figures see after p. 9 below).*

### ACKNOWLEDGEMENTS

My thanks must go first to the two contractors, Bovis C.E. Ltd. and Amey Roadstone Corporation and the subcontractors of the latter, Blackwells, for permission to observe, record, and where possible, excavate archaeological features revealed during the construction of the M11 Cambridge Western By-Pass. Thanks are due also to the M.O.T. Inspectors for their co-operation.

Secondly I wish to thank those members of the C.A.S. Archaeological Research Group who gave so much time to helping with the various aspects of the work.

For specialist reports I thank Dr C. Young for drawing the kiln pottery and describing it; Miss V. Heal for drawing the timbers and writing notes on them; Dr J. Coles for advice on the storage of the timbers etc.; Dr Switzur for undertaking the carbon dating; Mr A. J. Legge for the Lingey Fen bone report; Mr David Haigh for use of his field names survey; and Mr D. Hopper for air photographs.

Grateful acknowledgement should also be made to Cyril Ridgeon and Son, Ltd., Dalgety Spillers Ltd. and the Department of the Environment for their contributions towards publication costs.

E. J. Pullinger  
September 1980

### 1. OBELISK KILNS, HARSTON

JOYCE PULLINGER AND C. J. YOUNG

#### *Summary*

The site lies immediately south of the Little Shelford-Newton road (Fig. 2). It was discovered during the construction of the By-Pass by members of the C.A.S. Archaeological Research Group. A series of ditches were seen, which later excavation proved were of two different phases – the footings of walls belonging to one or two buildings, and the remains of three kilns; also two other features, a possible working area, and a series of postholes with a rammed chalk floor. It would appear that this site was occupied during the second, third and fourth centuries A.D.

#### The Site

It lies on the lowest part of the chalk slope facing north and east, close to the gravel terraces of the river Granta. A layer of loam varying in thickness from 30cms to 50cms overlies the weathered chalk blown down the slope after the fourth century. This weathered chalk thins out towards the north east. The ground has been used for grazing over many centuries and more recently cultivated as arable land.

A group of features were revealed and were sampled.

#### AREA A

This was a possible working area 13.6m long and 5.0m wide, which continued west of the motorway. It

was flecked with charcoal and associated with a posthole and slot, also a gully. A few heat cracked flints were found (see plan, Fig. 3).

#### AREA B

A series of postholes on the western side of the motorway suggested a timber structure. The postholes cut into the chalk varied in size from 34-40cms in diameter and some had stones for packing. These postholes were 20-25cms deep. There was one double posthole 1.6m along its length and a third post may have been placed alongside these two (see plan, Fig. 4). A slot leads from posthole 'g'. On the eastern side of the postholes was a rammed chalk floor covered by a fine gravel layer. Small fragments of charcoal were found in the postholes.

#### AREA C

A series of successive phases could be recognised here. They proved to be part of a Romano-British industrial site.

#### *Phase I (Plan, Fig. 5)*

A series of ditches on an east-west alignment appeared to belong to the first phase of occupation. Their fill of fine clay/chalk silt contained many snails and a few animal bones. No pottery was found.

##### *Ditch 1*

This ditch sectioned on the west side of the M11 was V-shaped with a slot along the bottom. It was 1.46 wide at the top of natural chalk and 72cms deep (see Section, Fig. 8). Its butt end showed in the mechanically dug drainage trench on the east side of the motorway.

##### *Ditch 2*

A nearly U-shaped ditch sectioned on the west side of the M11 had a ledge on the north side for a possible timber. It was 2.48m wide at the top of natural and 94cms deep (see Section, Fig. 8).

##### *Ditch 3*

Another-U shaped ditch 1.90 wide and a little over a metre deep. Its butt end was seen in the mechanically dug drainage ditch in the east berm, where its maximum width was 1.84cms.

##### *Ditch 26*

This U shaped ditch 1.50m wide and over 1m deep is sealed by the possible potters' workshop, a building of phase II, and cut by Kiln 3, posthole 21 and the edge of the black-filled shallow, 20. There was no sign of this ditch in the mechanically dug drainage ditch in the east berm.

#### *Phase II (see plan, Fig. 6)*

The footing of one flint wall (9), 1.0m wide, was traced for approximately 39.0m. This footing overlay ditch 26. Shallow black gullies, 11 and 12, may have been associated with this wall.

Parallel to the flint wall and away to the west was a remnant of wall footing (17), 90cms wide, which formed a right angle. A smaller wall 40cms wide led off the former. The walls consisted of small square-cut clunch blocks about 10 x 10cms. In the angle of the wider wall was a square-cut stone, and one metre from the corner was a clunch base of an hexagonal pillar 57cms wide. Traces of a chalk and gravel floor were seen close to the wall footings. A few Romano-British sherds were found in association with the floor, including Samian ware.

This feature sealed ditch 14.

#### *Phase III (see plan, Fig. 7)*

To this belonged a series of ditches diagonal to the M11 alignment, three kilns, several black charcoal filled areas and a possible potters' workshop and waste pit. These features were on an entirely different alignment to the two earlier phases.

*Ditch 4*

This ditch cuts the earlier cross ditch 3 and could only be traced for 20m. It was 1.8m wide and 0.5m deep, being U-shaped; it had one recut on the south west side. The recut contained a black charcoal-y fill with many sherds and waste from the kilns, also half a bronze bangle. There was very little in the primary silting of the ditch, a few abraded sherds and one or two flints. Along the N.E. side of the ditch were a series of postholes (see plan, Fig. 4). These appear to finish where the ditch cuts the earlier ditch 3. In the intersection of the ditches 3 and 4 a near oval feature (18) was cut and lined with clay. It was 1.5m long, 0.9m wide and 0.4m deep, with a raw clay lining 10cms thick. It was filled with similar material to that in ditch 4 (see Section, Fig. 8).

*Ditch 28*

Parallel to ditch 4, this ditch had a less black fill and appears to finish where it meets the earlier ditch 26. No positive dating evidence was obtained. It was cut by the potters' waste pit (19).

*Ditch 12*

Another black charcoal-y filled ditch with a number of sherds in it. The sherds were different to those in ditch 4. This ditch 1.8m wide had also been recut on the south west side (see Section, Fig. 8). It cut the earlier ditch 14 and the wall footing (9), (Fig. 6).

*Ditches 15 and 16*

Ditch 15, 1.25m wide, cut ditch 12 at right angles at the west side of the M11 and continued for 10m where it joined ditch 16 forming a right angle. Both ditches 15 and 16 had black charcoal-y fills.

*Ditch 40*

This ditch at a right angle to ditch 16, met the latter at the western edge of the M11. To the north of ditches 14 and 12 were several areas filled with black earth and charcoal. Fragments of pottery and iron slag were found in the fill. It was not possible to excavate these features fully but they appeared to be no more than 30cms deep (see plan, Fig. 7, section, Fig. 8).

*Possible Wooden Buildings (Potters' Workshop?)*

Features 5, 6, 7. (see plan, Fig. 7).

These features were seen and measured as soon as they were revealed by the scraper, but could not be excavated. They consisted of slots cut into the chalk for timber beams. The slots were full of charcoal. There was gravel flooring inside. The slots 40cms wide appeared to form three rooms in a building 14.2m x 8.1m. Room 5 was 3.8m wide, room 6 was 2.5m wide, and room 7, 6.7m wide.

*Potters' Waste Pit (see plan, Fig. 7).*

Next to the timber buildings was a pit (19), 1.20 in diameter, containing wasters, unfired lumps of clay and charcoal.

*The Kilns (Fig. 7)**Kiln 1 (Plan, Fig. 9)*

The kiln and stokehole were together 2.1m long, the kiln itself being 90cms long and 76cms wide, clay lined with a tongue-like pedestal of clay. The remnant of one fire bar (in two pieces) was found. The fill consisted of black earth and charcoal.

*Kiln 2*

This kiln was only partially exposed so that it was not possible to obtain its full dimensions (see plan, Fig. 9). The kiln had been cleaned out and patched up with fresh clay ready for future firings. A fine layer of grey ash was on the bottom. A few sherds of red colour-coated wares were found.

*Kiln 3*

Close to kiln 2, and also only partially exposed, this kiln was of entirely different construction from the

others (see plan and, sections, Fig. 10). The arch of the flue was broken by the mechanical scraper, but the dome of the kiln had collapsed, or was partially removed when the floor of the kiln collapsed during the last firing. A piece of corbelling, which was found *in situ*, for the floor support and thick lumps of baked clay with finger holes through, suggests that kiln floor was a vent-holed one, supported by corbels round the sides.

There was evidence for the kiln being patched up and relined more than once, incorporating wasters from previous firings.

The kiln was full of partially fired vessels, mainly red colour-coated imitations of samian forms, and many mortaria which had broken when the floor collapsed. (For description of pottery see below, p. 5). The stokehole too was full of broken vessels and wasters. The upper fill of the flue contained a coin, date 319 AD.

#### FIELDS NEXT TO THE M11 OBELISK KILNS, HARSTON

Four small archaeologically dug trenches were cut nearby (plan, Fig. 11) prior to the land being used as a permanent dump for unwanted topsoil.

*Trench I* was placed to sample the already known Ditch 4. The edge of the ditch was found and its plan at the one side suggested that it had been raised here, or there had been a causeway. It was cut away on the north east side by kiln 4, which in turn was cut by kiln 5.

No kiln furniture was found in the kilns, only traces of ash and charcoal and a few Romano-British sherds.

Two postholes, one circular and the other square were cut into the chalk on the south-west side of the ditch (see plan, Fig. 12).

*Trench II* (plan, Fig. 11) was at right angles to trench I. A nearly vertical sided gully was located, 38cms wide and 25cms deep. No dating evidence was found, but soil accumulated immediately over the gully contained a few late Romano-British sherds. Ditch 4, expected to come through this area, was not found.

*Trench III*, placed at an angle of nearly 45° to trench II, revealed a Romano-British feature (? pit) cut into the chalk to a depth of 16cms, with a posthole on its western side (see plan, Fig. 12). The maximum width of this feature was 1.3m, and the fill consisted of fine clay silt.

*Trench IV* (further north – see plan, Fig. 2 and detail, Fig. 11). This revealed a curving ditch diagonally across the trench with what appeared to be a butt end. There were lumps of chalk marl on the north east side. A layer of ash and charcoal overlay hard compact orange sand on the south west side of the ditch. The latter was not entirely excavated because of the rate at which water was seeping through from the surrounding area. The ditch fill consisted of fine clay/chalk silt.

#### LITTLE SHELFORD/NEWTON ROAD

Several ditches were located under the original Little Shelford to Newton road (now re-aligned) which was dug away to make room for new bridge footings, and two more ditches associated with existing roadside hedges were seen in the section.

A V-shaped ditch approximately 2.0m wide and 1.5m deep was seen to be running in a N-S direction. Two others were seen, under the existing road, running in a E-W direction, one being V-shaped and the other U-shaped. Both were approximately 1.5m wide and 1.0m deep. These three ditches were sealed by a layer of loam over which the road make-up was placed, but no finds came from them.

#### DISCUSSION

The possible working area in Area A, is difficult to associate with the other features, and may belong to a pre-second-century phase.

The features in Area B, which suggested a timber structure, also failed to produce any datable objects, but do not appear to fit in with the phases recognised in Area C.

Features in Area C fall into three phases dating from the second, third and fourth centuries. The series of ditches on an east-west alignment which form the first phase may well be boundary ditches serving also as drainage ditches, perhaps dividing strips of grazing land.

The wall footings of phase II would appear, from the dating of the few R.B. sherds found, to belong to the late second century A.D. Nearby, worked limestone blocks were found. The structure suggests a dwelling of some local importance.

Phase III appears to belong to the late third and the fourth centuries A.D. The ditches, kilns and black

charcoal areas suggest an industrial site, of which only a small part was revealed by the M11 construction. In 1980 the ditches were seen in the crop marks of neighbouring fields, along with other features. Aerial photographs show features along the gravel terrace which may well be associated with this industrial area. Pottery from kiln 3 has been noted as far afield as Brancaster on the Norfolk coast, and a few pieces have been recognised on nearby late Roman-British sites. Further study on the pottery distribution is necessary, as is excavation of other features in the vicinity, in order to understand the importance of this site.

## THE POTTERY FROM KILN 3, HARSTON

C. J. YOUNG

The pottery from kiln 3 and its stokehole at Harston is of considerable interest since the bulk of it can be linked closely to the Oxford industry, and is perhaps evidence of a migrant potter. Nearly 40 kgs was recovered under salvage conditions from kiln 3, its stokehole and associated features around it.

### THE FABRICS

Three fabrics were recovered:

(i) (Figs. 13, 14, nos 1-37) soft, smooth fine ware, used mainly for red colour-coated ware, but also for white mortaria and a little parchment ware. The colour of the fabric varies from white/pinkish-white for the mortaria through pinkish-buff (Munsell 5 YR 7/6 and 7/4) to red-orange (Munsell 2.5 YR 5/8) on the few well-fired pieces. The colour-coat varies from light red-orange (Munsell 2.5 YR 6/8) to bright red (Munsell 10 R 4/6).

Mrs K. F. Hartley and Dr D. F. Williams have examined the fabrics from this kiln as part of their project for the definition of mortaria fabrics, and I am grateful to them for permission to quote their work here. They commented on fabric (i):

#### *Mortaria*

Very soft, smooth fine-textured fabric, easily abraded, pinkish-white (Munsell 7.5 YR 8/2) throughout, sometimes slightly brownish with a red-brown colour-coat which only survives in tiny patches. Trituration grits; medium to large-size dullish white quartz and quartzite (some coloured grains), with a little flint (some coloured fragments).

Thin section study of the fabric under the petrological microscope shows frequent small fragments of semi-coarse crystalline limestone, together with a groundmass of quartz grains, under 0.05mm in size, and flecks of mica, set in an anisotropic matrix of baked clay.

The red-brown slip, the rim-forms used and even the fine-textured matrix are clearly an attempt to reproduce mortaria of the type made at Baldon, Dorchester and elsewhere in the Oxford region (Young, 1977). A migrant potter could be involved but not necessarily.

In addition to the sample of mortarium, a thin-section examination was also conducted on three other vessels found at the site: two very fine-textured bowls, with a bright red (10R 4/6) colour-coat, and a grey-ware sherd (see fabric (ii) below). The sections from the two bowls proved to be similar in composition to that of the mortarium sample, if slightly more fine-textured.

This ware was used for a range of mortaria, parchment ware and colour-coated vessels.

(ii) (Fig. 15, 38-9) hard, sandy grey ware. Mrs Hartley and Dr Williams comment as follows:

In contrast to fabric (i), the grey-ware sample contains a scatter of shattered quartz grains, in the size range 0.20- .50mm., set in an isotropic matrix of baked clay. With such common inclusions, it is not possible to say if the grey-ware sherd is likely also to be a local product. All that can reasonably be said at this stage is that it appears to have been made of a different clay to the other samples, rather than an unrefined version of the clay used for the finer-textured vessels.

Only a few sherds of this ware were found in Kiln 3. Its scarcity and the fact that it is made from a different clay suggests that it was not made at the same place as fabric (i). The forms also are from a different tradition.<sup>1</sup>

1. Subsequent excavation of charcoal-filled ditches and rectangular areas on the site produced many more sherds of fabric (ii), which suggests that it may have been made on the site, but in kilns not yet located. Recent air photographs indicate that the site is much more extensive than was thought earlier. E.J.P.

(iii) (Fig. 15, 40) Hard, sandy grey ware with orange surfaces and white slip inside and out. One sherd only was found and it is presumably a stray that found its way into the kiln.

#### VESSEL TYPES

The following types were found. The ware is commented on only if it differs from the norm described above:

**FABRIC (I)** (for Oxford parallels cited, see Young 1977)

**Enclosed Vessels** (Fig. 13)

1. Flange-rimmed flagon or jug with one 3-ribbed handle; pinkish ware with greeny-white core and surfaces; red colour-coat; cf. Oxford C6.
2. Disc-necked flagon; white ware, no colour-coat survives; cf. Oxford C8.
3. Base of neck of bottle or flagon; white ware with external red colour-coat.
4. Body of flagon or bottle with rouletted bands; buff-orange ware with external red colour-coat. Such rouletting is common on Oxfordshire vessels (e.g. Young 1977, fig. 53, C8.5, fig. 54, C16.2 for examples on enclosed vessels). It is not common in this form on the products of other industries.
5. Narrow-necked jar; pinkish ware with red colour-coat; cf. Oxford C16.
6. Base of flagon or jar, external red colour-coat.
7. Pedestal base, external red colour-coat. The form is not unknown in Oxfordshire but is uncommon.
8. Wide-mouthed jar, badly misfired, with black fabric and red colour-coat; cf. Oxford C18. The form is common in the Nene Valley industry.

**Beakers** (Fig. 13)

9. Large bulbous beaker with traces of rouletting on body. Insufficient remains for certain, but it is likely that there was a broad band of rouletting, as on the Oxford C23, and rarely elsewhere.

**Platters** (Fig. 13)

10. Shallow platter with upturned rim and slight groove on exterior; pink ware, red colour-coat; cf. Oxford C40.
11. Shallow platter with upturned and inturned rim, with three prominent ridges on exterior; off-white ware with traces of red colour-coat on rim. The type is similar to the Oxford colour-coat form C41, but is exactly paralleled by the Oxford parchment-ware form P16, which would have been painted in red on the rim. It should perhaps be considered as a parchment-ware copy.

**Bowls copying Dr 31** (Fig. 13)

12. Light orange ware, red colour-coat.
  13. Red colour-coat.
  14. Red colour-coat.
  15. Base with footring and three rouletted bands on interior.
- Bowls copying Dr 31 were made by most of the late colour-coated industries. Stylistically these are closest to those of the Oxford potteries (cf. Young 1977, Fig. 58, C45 1-5).

**Bowls copying Dr 36 or Curle 15** (Fig. 13)

16. White ware with pink core, red colour-coat; cf. Oxford C47.
  17. Pinkish ware with white core, red colour-coat; cf. Oxford C49.
  18. As last, but grooved on outer face of rim; cf. Oxford C49.
  19. As last, with traces of painted decoration shown by differential preservation of underlying colour-coat; buffish yellow ware with brown colour-coat. The decorative pattern is common on Oxford vessels (e.g. Young 1977, fig. 58, C48.3).
- This is another common late colour-coat type, made also in the Nene Valley and at Hadham. Stylistically these are closest to Oxford products.

**Bowls copying Dr 38** (Fig. 14)

20. Yellowish-orange ware, red colour-coat; cf. Oxford C51.
21. Orange-pink ware, red colour-coat; cf. Oxford C51.
22. Rouletted on exterior wall; red colour-coat. The rouletting is a rare feature on colour-coated examples of this form, but is known on Oxford vessels of this form made in a fine orange ware (cf. Young 1977, fig. 73, 047.1-3).

*Other bowl forms (Fig. 14)*

23. Hemispherical bowl with deep rouletted band on body; bright orange ware, dull red colour-coat; cf. Oxford C55. The rouletting is typical of the Oxfordshire industry.

24. Double bead-rim, full-bellied bowl; light orange-buff ware, red colour-coat; cf. Oxford C71.

25. Bowl base, fabric as last; ? same vessel.

Apart from the fair numbers of this form from Harston, this type elsewhere was made only by the Oxford industry, in which it was quite common.

26. Necked bowl with everted rim; soft pink-orange ware, red colour-coat; cf. Oxford C75. This form was otherwise made only by the Oxford and New Forest potteries. In the latter industry it was not particularly common and was stamped (Fulford 1975, fig. 21, type 76), but it was one of the staple products of Oxfordshire from c. 325 onwards.

27. Wall-sided bowl; pinkish ware, red colour-coat; cf. Oxford C81.

28. As last, rouletted below rim; pinky-orange ware with yellow-buff core, red colour-coat; cf. Oxford C81.

29. Wall-sided bowl, with double-bead rim and cordon, rouletted at carination; orange ware, red colour-coat. Cordoned wall-sided bowls are another common product of the major southern fine-ware industries. They are normally elaborately decorated, unlike this example. The closest parallel to this one is from the Oxford industry (Young 1977, Fig. 65, C84.1).

*Colour-coated mortaria (Fig. 14)*

30. Mortarium copying Dr 45; flint trituration grit, red colour-coat; cf. Oxford C97. The form was made also by other late fine-ware industries, including Hadham and the New Forest (cf. Fulford 1975, Fig. 22, 98-9).

31. Mortarium with angular flange; flint trituration grit; red colour-coat. This is a typical Oxford form, found also in the New Forest (Fulford 1975, fig. 22, 81.1-2); cf. Oxford C100.

32. Mortarium with simple rounded flange; flint trituration grit, red colour-coat. This form is closest to the Oxford white-ware mortarium, M22, but was not normally made by the Oxford industries with a colour-coat. The form is made also in the New Forest (Fulford 1975, fig. 22, 81.3-4).

*Mortaria without colour-coat (Fig. 14)*

33. White ware, multi-coloured translucent quartzite grit.

34. White ware, flint trituration grit.

35. White ware, flint trituration grit; traces of spout.

These are all typical of the standard fourth-century Oxford white-ware mortarium (Young 1977, Fig. 23, M22). The form was made also in the New Forest (Fulford 1975, Fig. 25, type 106).

36. Very large mortarium with grooved rim and thick flange; multi-coloured translucent quartzite grit. Cf. Oxford M23.

*Parchment ware (Fig. 14)*

37. Wall-sided, carinated bowl with out-turned rim. White ware with red paint on top of rim. Elsewhere this form is known only in the New Forest and Oxford industries. In the former it was very rare, in the latter it was a staple product; cf. Oxford P24.

**FABRIC (II) (Fig. 15)**

Only two vessel types were found:

38. Wide-mouthed necked bowl with burnished lines on the body; there are traces of grey-white slip on the pot.

39. Bulbous beaker decorated with alternating bosses and pendant triangles of impressed dots. This is an example of one of the vessel types normally called Romano-Saxon, and has recently been discussed by Gillam (1979, 105). Such vessels are well known in East Anglia (cf. Rodwell 1970) and it is likely that this vessel comes from one of those sites. For reasons discussed above it is unlikely to have been made at the same place as fabric (i).

**FABRIC (III) (Fig. 15)**

One vessel only was found:

40. Tall necked jar with out-turned, square-cut rim, rilled on the body. This jar-type was made in a number of fabrics and at a number of centres ranging from Northamptonshire to Hampshire in the late Roman period.

## DISCUSSION

Of the three fabrics found in and around kiln 3 it is likely that only (i) was made in or near it. For reasons discussed above it is likely that the sherds of (ii) and (iii) were made elsewhere and were thrown into the kiln at its abandonment. Discussion must therefore centre on fabric (i), since it is quite clear from its quantity, the underfired condition of most of it and the occasional distorted waster, that it was made in the vicinity, probably fired in kiln 3 itself.

It is clear then that we are dealing with the waste products of a minor late Roman fine-ware producer, of which an increasing number are now known. If the c.40 kg of waste material found in and around kiln 3 is representative of the total production c.80% by weight of the products were colour-coat vessels (bowls and enclosed vessels), and nearly all the remainder were mortaria (including colour-coat mortars), with just a little parchment ware being made.

Of the colour-coat vessels the vast bulk were bowls, the most common forms being the double bead-rimmed bowl (no. 24), bowls copying Dr 31 (nos. 12-14) and bowls copying Dr 36/Curle 15 (nos. 16-19). The most common mortarium form was the angular-flanged colour-coated mortar (No. 31).

The most striking feature of the range of vessels produced is its close similarity to the products of the Oxford industry. Normally one would expect a local potter setting out to produce fine wares to be fairly eclectic in his range of products. He would be responding to the same market forces as other fine-ware potters in his area and would be most likely to select for imitation popular forms from his various competitors, or to develop similar forms of his own to fulfill the same demands.

An example of this approach can be seen in the varying ranges of the Oxford and New Forest potteries in the fourth century (cf. Young 1977, Fulford 1975). There are some forms produced by both industries, for example the common imitations of samian bowls and some of the mortaria (e.g. Young 1977, Fig. 23, M22 and Fulford 1975, Fig. 25, types 106, 107). However the two industries produced totally different forms in response to the demand for parchment wares (compare Young 1977, fig. 27, P24 with Fulford 1975, fig. 23, type 89).

Even where two industries do produce the same form the style and decorative patterns tend to be distinctive. This is demonstrated by comparing the geometric patterns of the New Forest with the flowing, bifurcating scrolls of the Oxford potters, or by comparing either with the rather stilted simple curves used by the late Nene Valley potters.

The Harston potters show no signs of drawing inspiration from diverse sources or of developing their own distinctive decorative styles. If a local potter had been developing an existing repertoire to meet a demand for fine wares, he might have been expected to copy the products of the Nene Valley and of Hadham as well as those of Oxford. This is clearly not the case.

Certain of the forms (e.g. Nos. 1, 8, 12-21, 23, 30) were produced by either or both Hadham or the Nene Valley, but even here the Harston examples are closer stylistically to those of the Oxford potters than to the other industries.

All the Harston forms were made at Oxford, and some of them were otherwise made only at Oxford. This is particularly true of the double bead-rimmed bowl (No. 24) which was a common Oxford product and is the most prolific form at Harston. Stylistically all the Harston forms are close to their Oxford counterparts, and the Harston use of rouletting for decoration is entirely in the Oxford manner.

In fact the similarities between both ranges of products are so close that the simplest explanation thereof is a potter migrating from Oxford to Harston. Such a migration from Oxfordshire can be shown to have happened in at least two other cases – to Hartshill, Warwickshire and to the Pevensey area (see Bird and Young 1981).

If it is accepted that an Oxfordshire migrant is involved it should theoretically be easier to date the activities of the Harston potter since the types he produced should be dateable by their Oxford counterparts. Apart from this approach there is little direct dating evidence except for the coin of 319 found in the upper fill of the stokehole, which provides a *terminus ante quem*. Away from Harston the pottery has not yet been recognised in a datable content.

Unfortunately, most of the Oxford types copied at Harston either had a long life or have not yet been dated precisely. There are a few pointers however. The Oxford original of 26(C75) was produced only after c.325. The common bowl from, 23(C71) and the common mortarium 31, are both fourth-century types. There is on the other hand a lack of the heavily decorated types that should have occurred if the move had taken place after c.350.

This would suggest a *floreat* for the Harston potter in the second quarter of the fourth century, which would meet the coin evidence. On the other hand No. 29, the wall-sided cordoned bowl is a copy of an Oxford type (C84) normally dated after 350. The Oxford original is however, with a few exceptions,

heavily decorated with stamps of various sorts, which are conspicuously absent from the Harston example. The plain Oxford examples of this form (C84.1) have not been dated and it is possible that they are earlier than the decorated ones thus showing the sort of progression from plain to decorated that can be seen in other Oxford bowl types, for example the necked bowl, which in its plain form (C75) dates c.325 onwards, and when painted or stamped c.340 onwards, or the wall-sided bowl which if plain (C81), dates from c.300 onwards, began to be painted c.325 (C82) and was stamped from c.350.

If this progression is acceptable in the case of the cordoned bowl also, a date for the Harston fine wares in the second quarter of the fourth century would be perfectly acceptable. It is unclear as to how long the production at Harston lasted. The present sparseness of the distribution and the fact that the pottery was associated with only one kiln of the five found suggests that its life was fairly short.

It is also not possible to do more than speculate about the relationship of the Oxford migrant to other activity in the area. Five kilns were found in an apparent industrial area (see p. 3 above), yet fabric (i) pottery was really only associated with kiln 3, which significantly was of different construction than the others (see Fig. 10). This might suggest that here, as at Hartshill (Bird and Young 1981), the migrant potter settled and worked in an existing pottery.

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### APPENDIX

*Obelisk Kilns, Harston: pottery from features other than kilns. (Fig. 14)*

		<i>Feature</i>
<i>Fig. 16 (Plan, Fig. 4)</i>		
1.	23a	Black slip on buff with grey gritty core.
2.	"	'Flat' dish, dark grey slip on buff with grey core, gritty fabric.
3.	"	Buff, grey core, gritty fabric.
4.	"	Black, shell tempered.
5.	"	Dark grey slip on buff gritty fabric.
6.	"	Black, shell tempered.
7.	"	Black slip on grey gritty fabric, light grey core.
8.	16	Orange buff, black core.
9.	"	Base, red colour-coat on pale orange buff.
10.	"	Base, orange buff.
11.	4	Parchment ware.
12.	"	Dark grey slip on light grey core, sandy fabric.
13.	40	Grey gritty fabric.
14.	"	Black slip on grey gritty fabric.
15.	13	Flagon top orange buff, fine fabric.
16.	18	Mid-grey sandy fabric.
17.	8	Storage jar rim, sandy buff fabric.
18.	5	Black bowl. Large grits in fabric.
19.	"	Black slip on gritty buff with grey core.
20.	"	Mortarium. Nene Valley type. Buff with black grits.

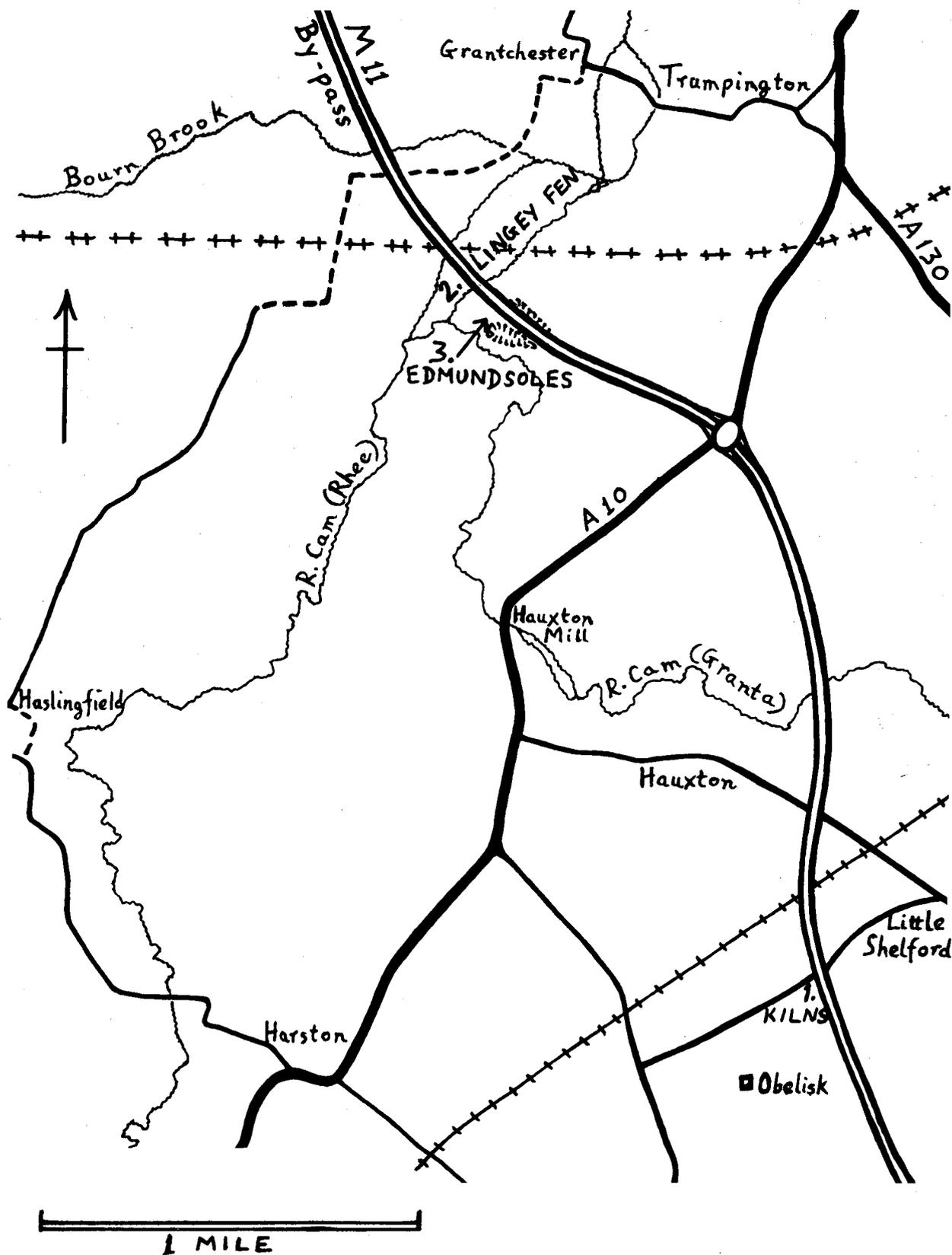


Fig. 1. Map showing archaeological sites.  
1. Obelisk Kilns, Harston  
2. Lingey Fen, Haslingfield  
3. Edmundsoles, Haslingfield

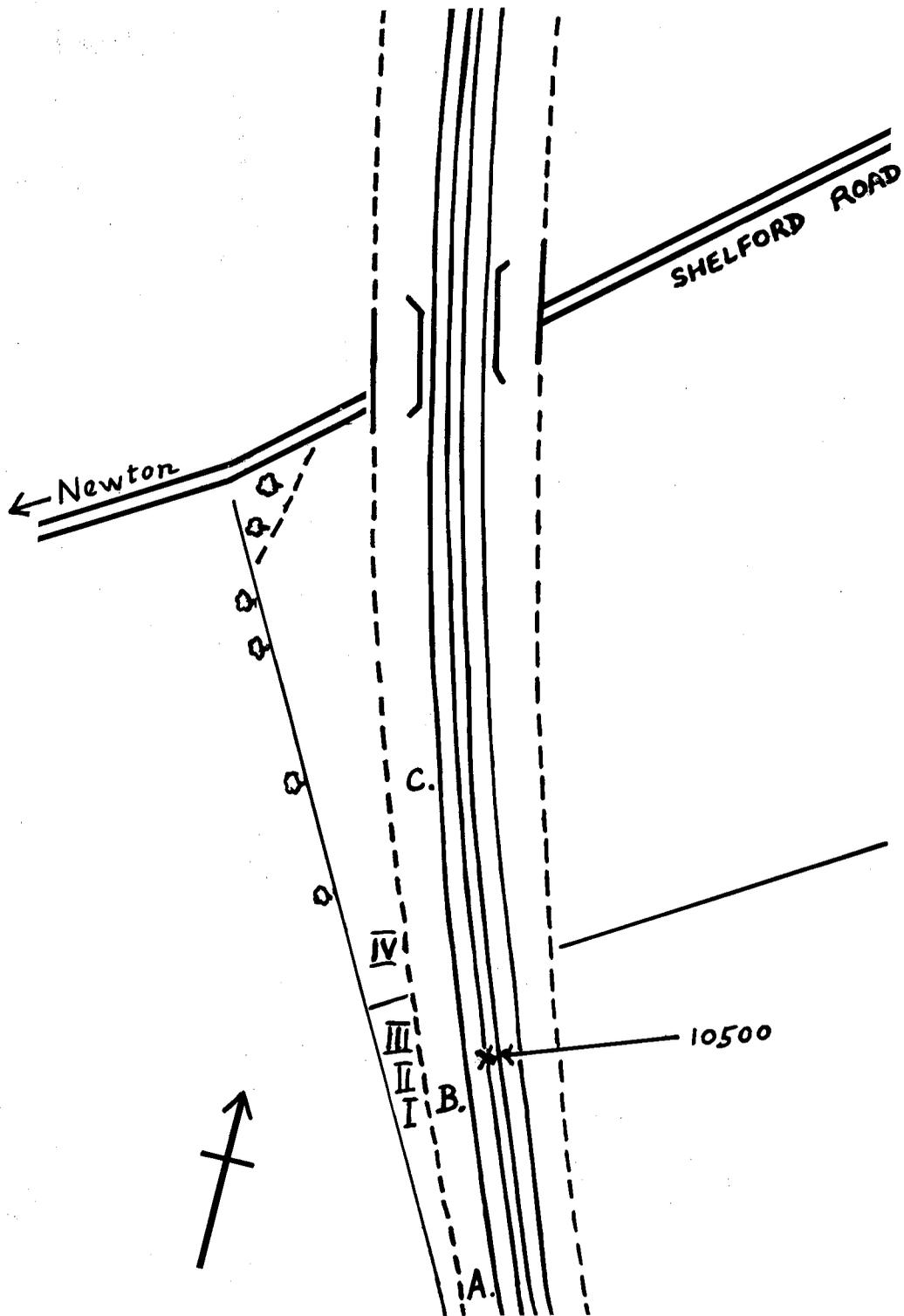


Fig. 2. Site of Obelisk Kilns, Harston

A-C. Areas of archaeological features (see p. 1).

I-IV. Trenches in fields (see p. 4).

10500. Contractors' survey point, used as reference in plans (Figs. 4-7).

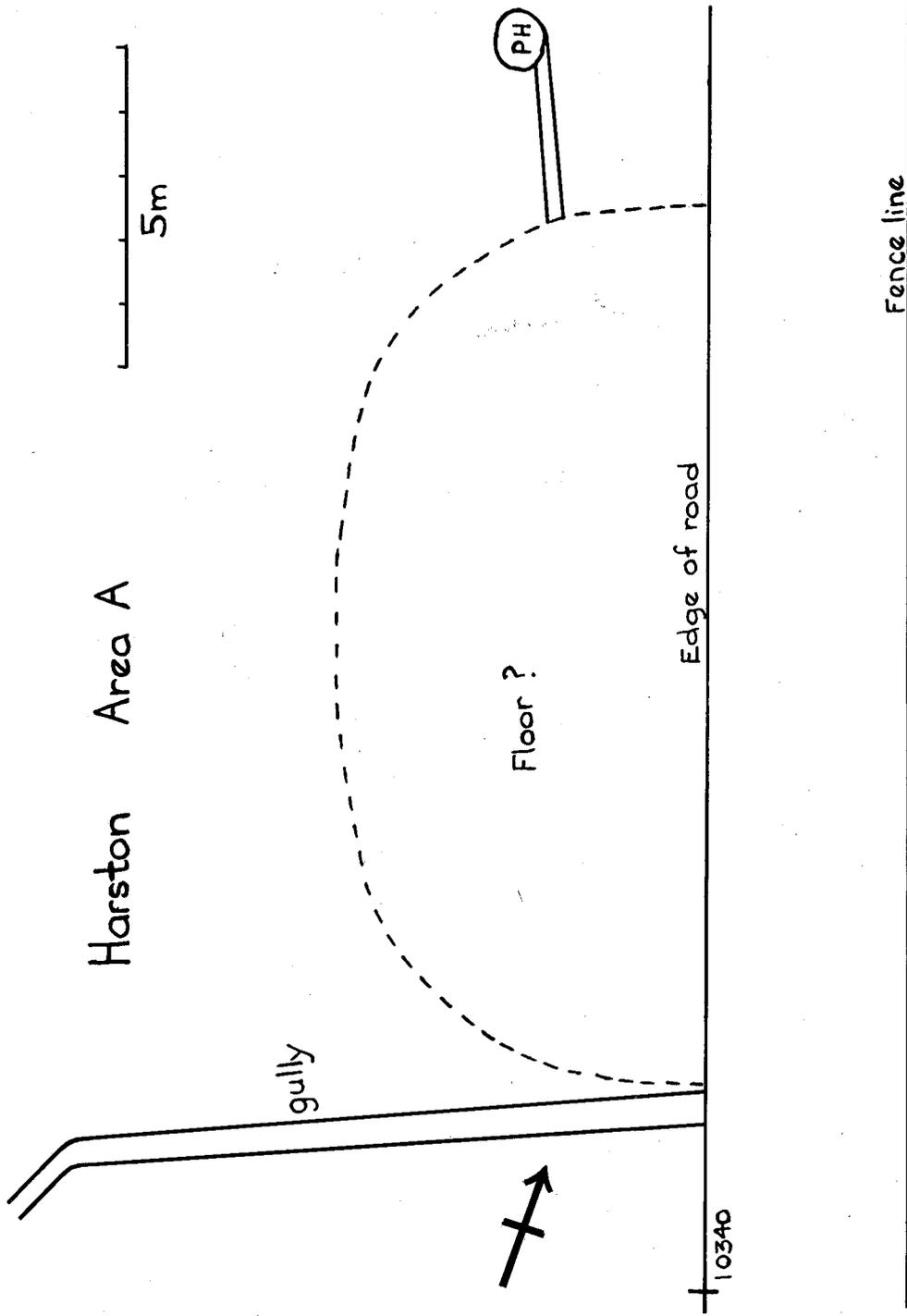


Fig. 3. Obelisk Kilns, Harston. Area A  
For location, see Fig. 2.  
10340, contractors' survey point.

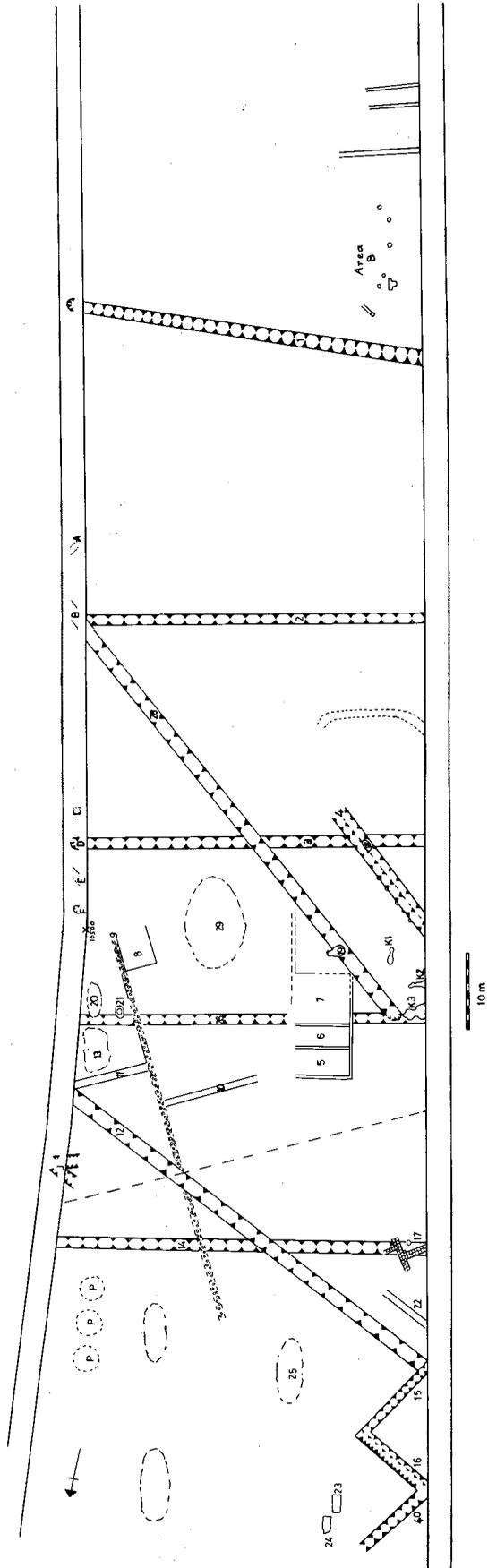


Fig. 4. Obelisk Kilns, Harston. Areas C and B.

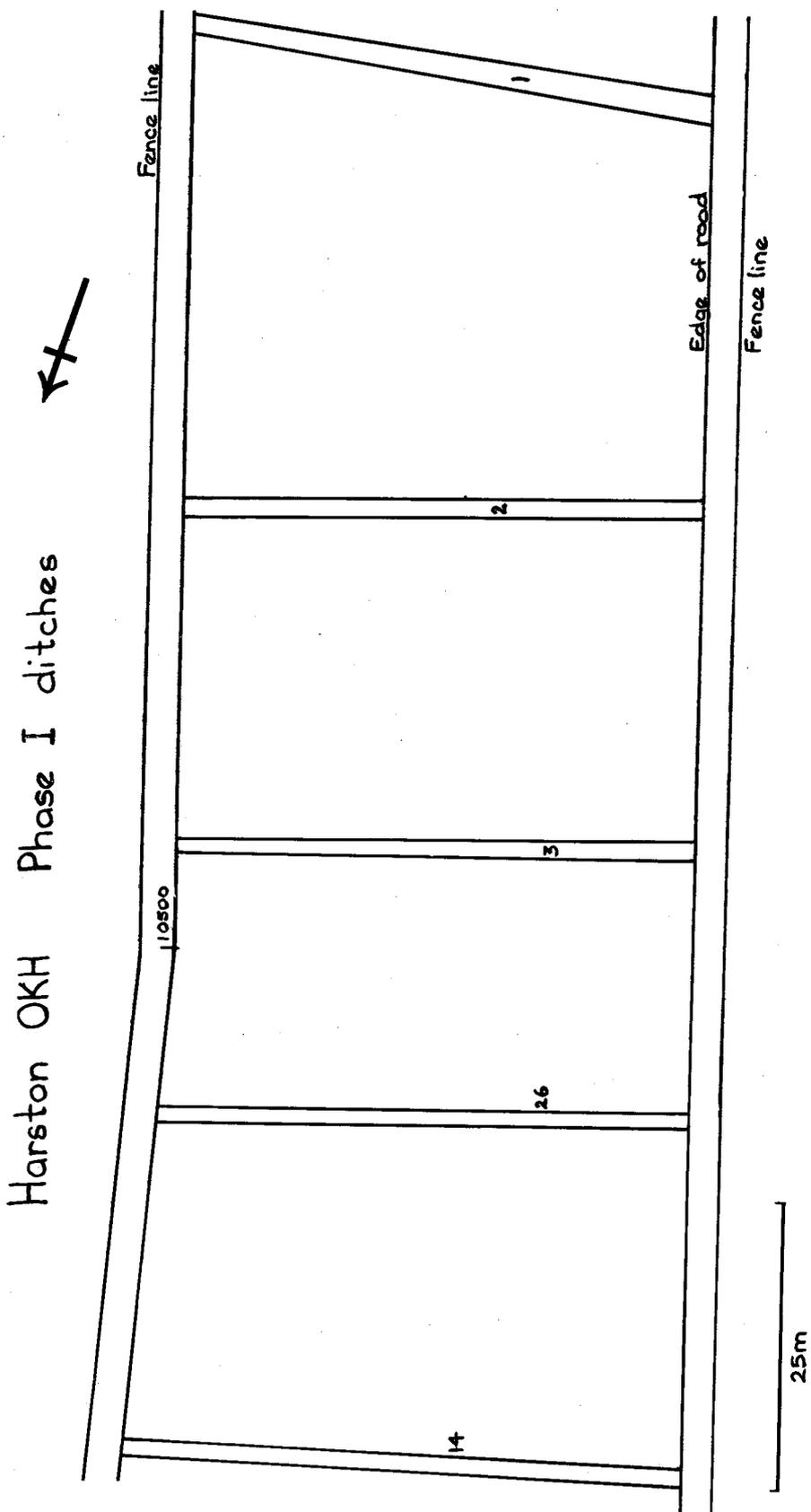


Fig. 5. Obelisk Kilns, Harston. Area C.  
Phase I.

### Harston OKH Phase II

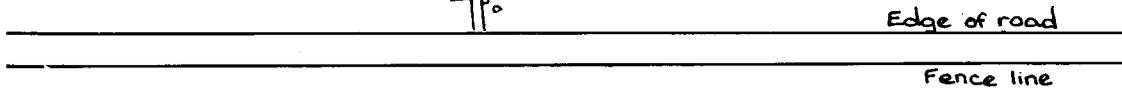
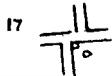
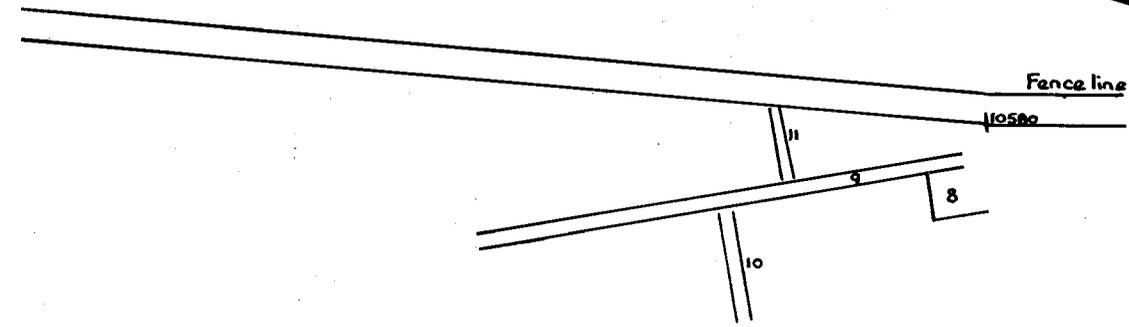


Fig. 6. Obelisk Kilns, Harston, Area C. Phase II.

### Harston OKH Phase III

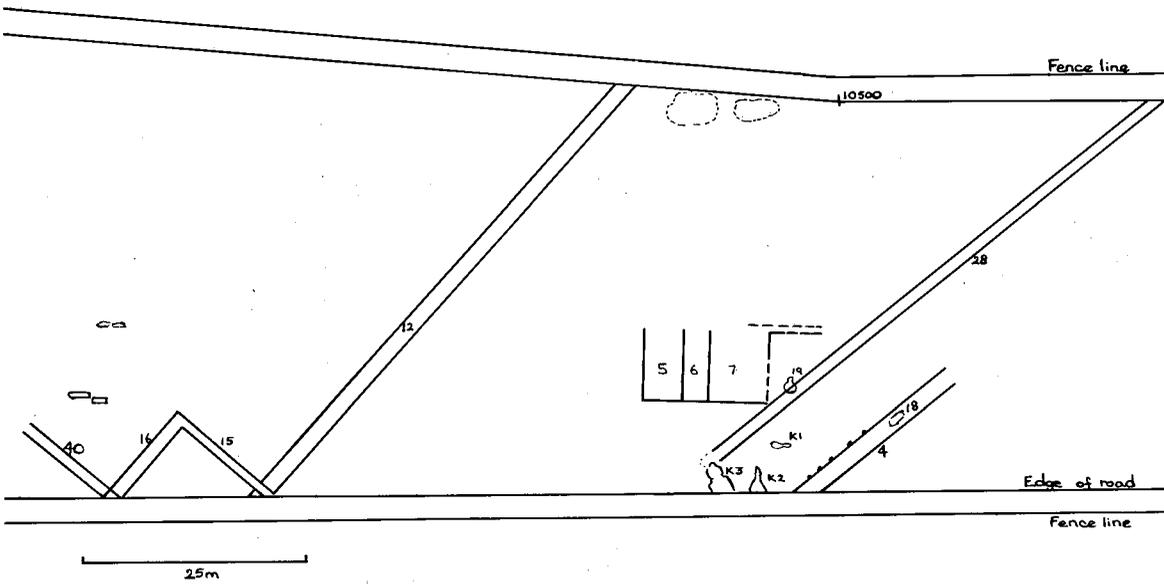


Fig. 7. Obelisk Kilns, Harston, Area C. Phase III.

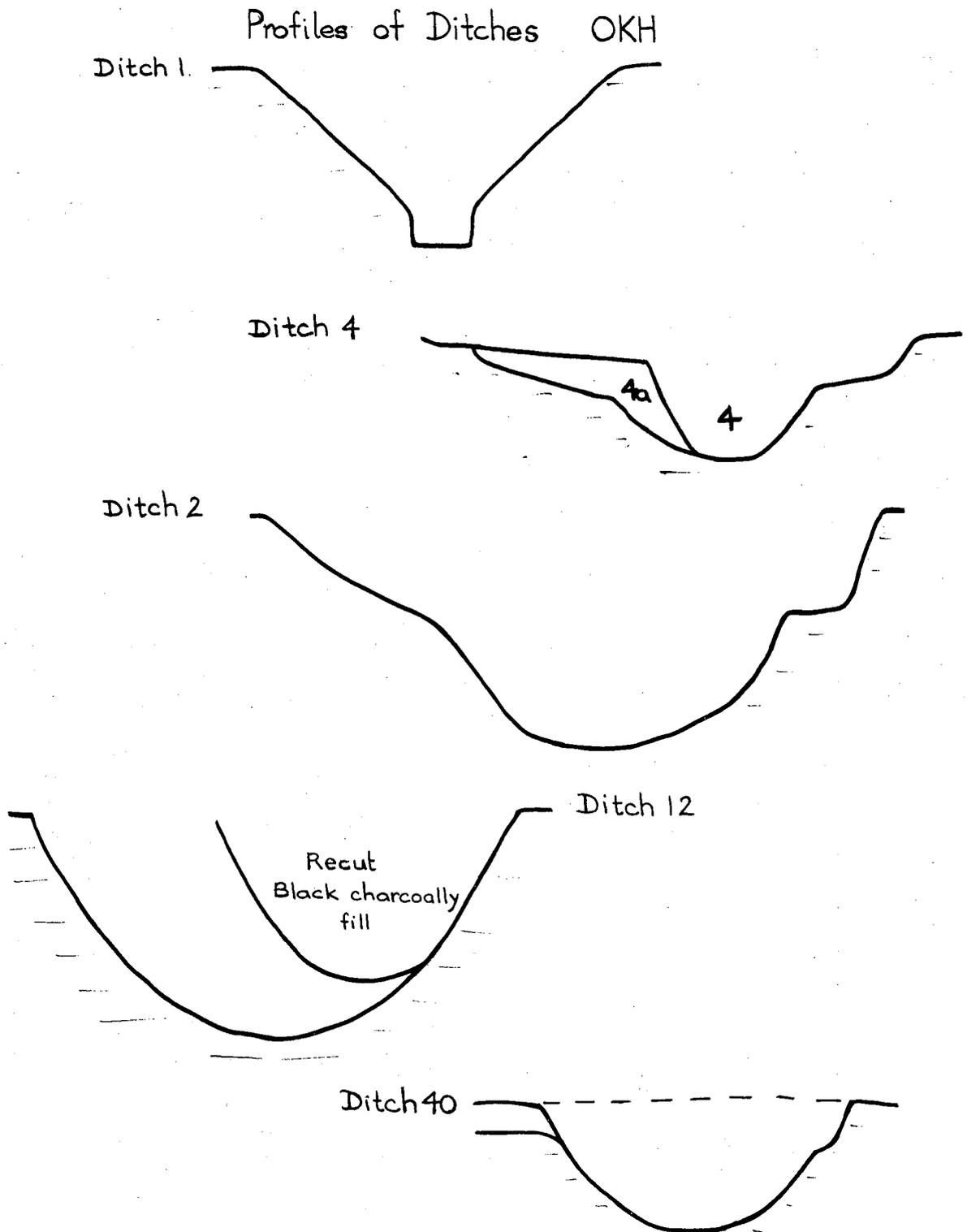


Fig. 8. Obelisk Kilns, Harston. Area C.

Profiles of Ditches.

Ditch 1 and 2, see Fig. 5.

Ditch 4, 12, and 40, see Fig. 7.

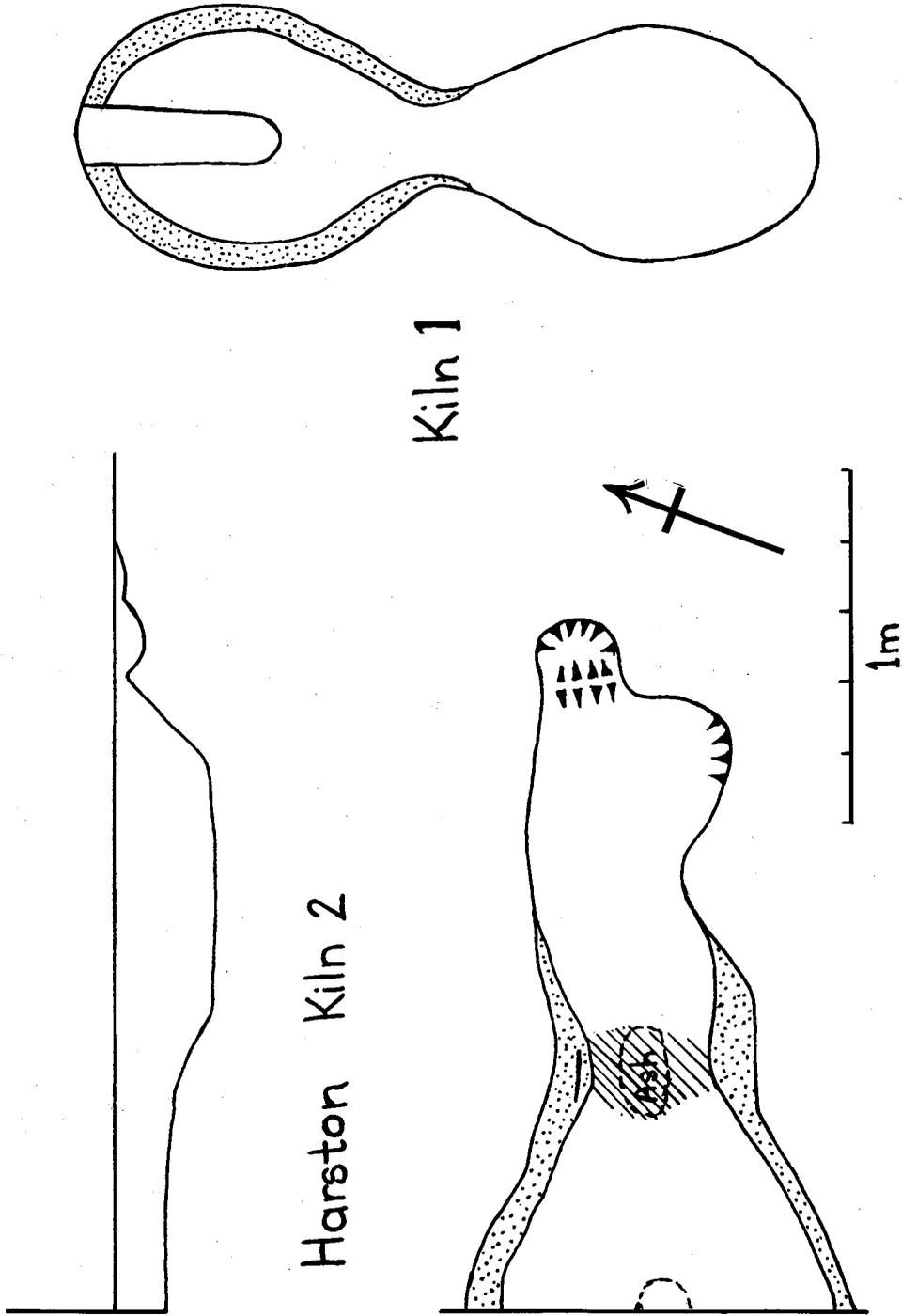


Fig. 9. Obelisk Kilns, Harston.  
Plan of Kilns 1 and 2.

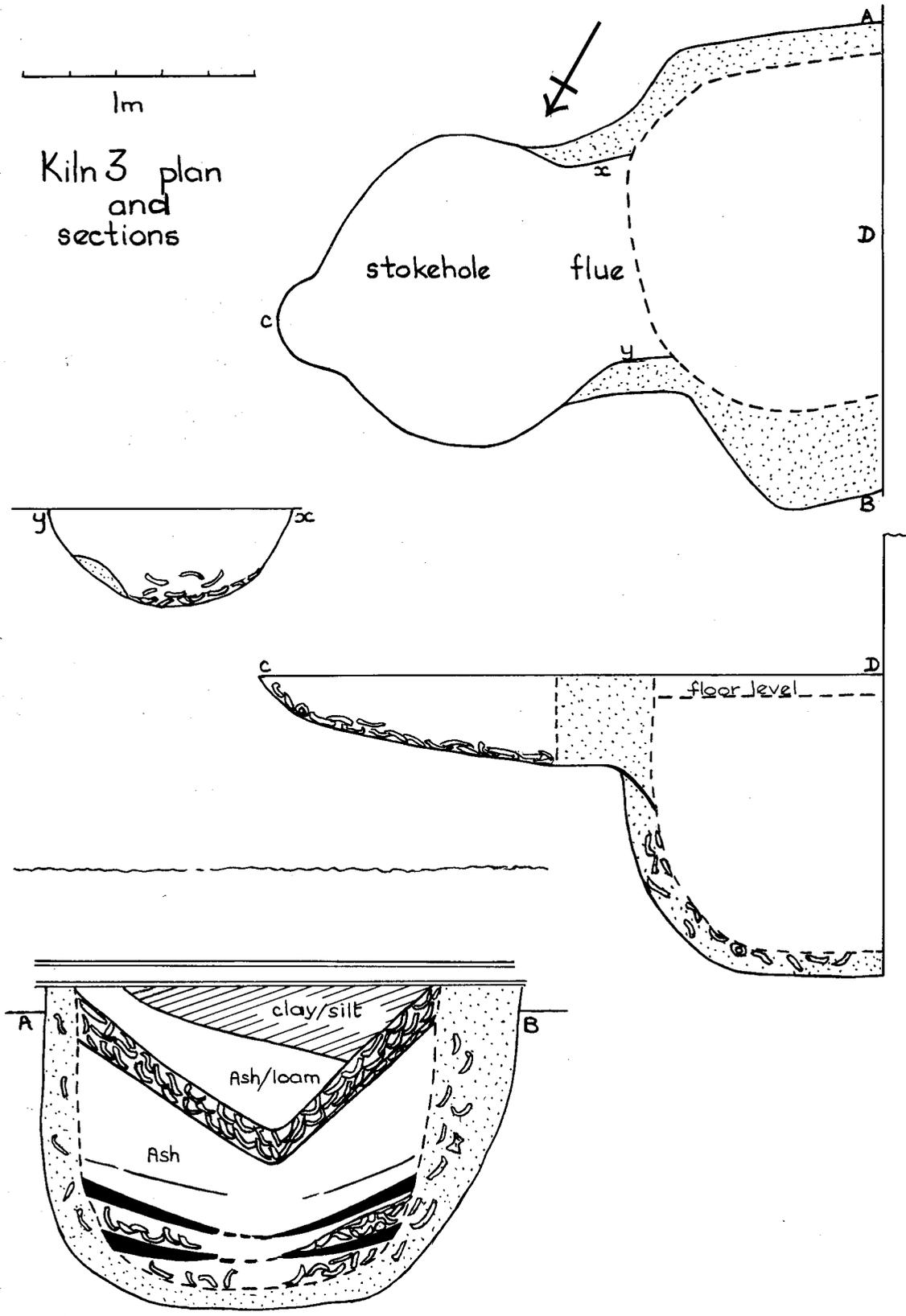


Fig. 10. Obelisk Kilns, Harston.  
Plan and sections of Kiln 3.

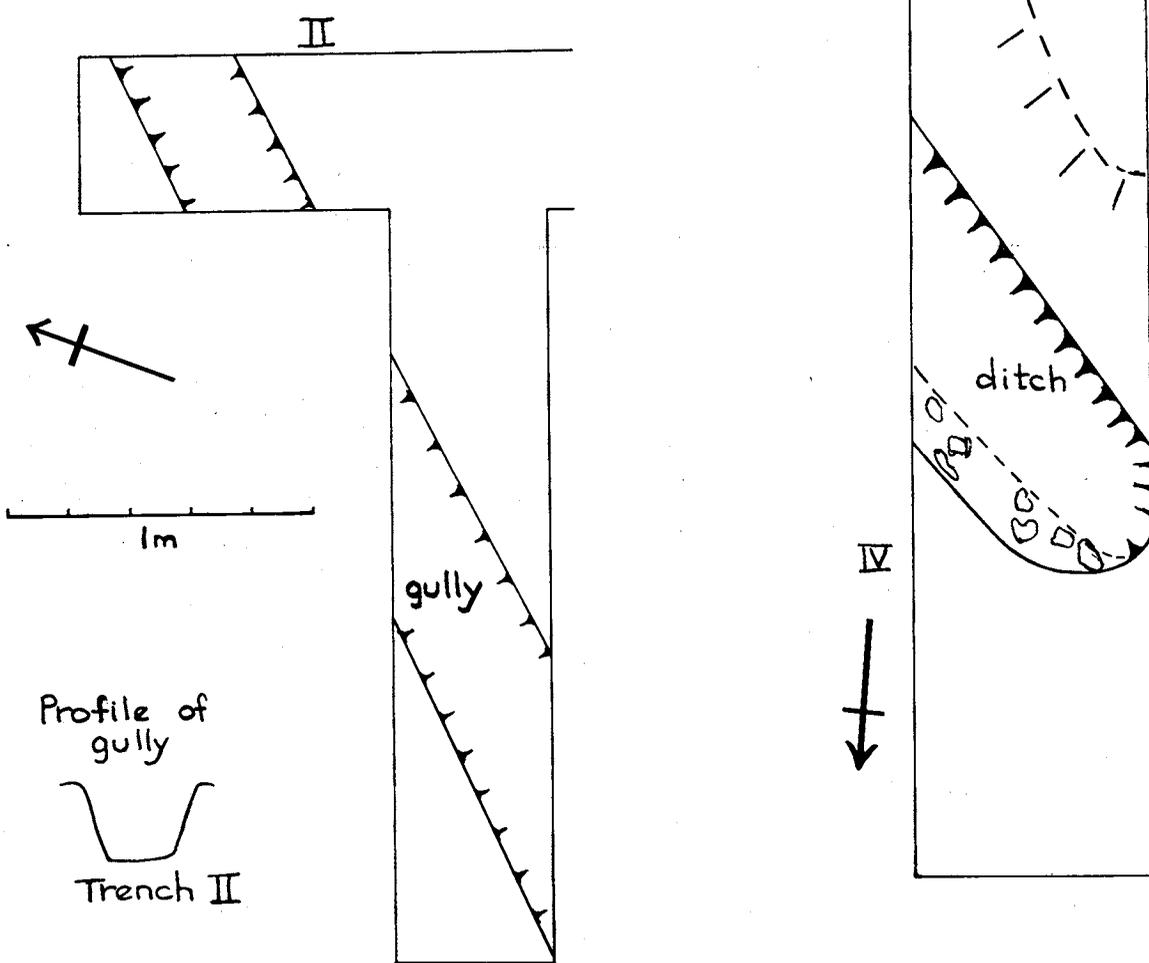
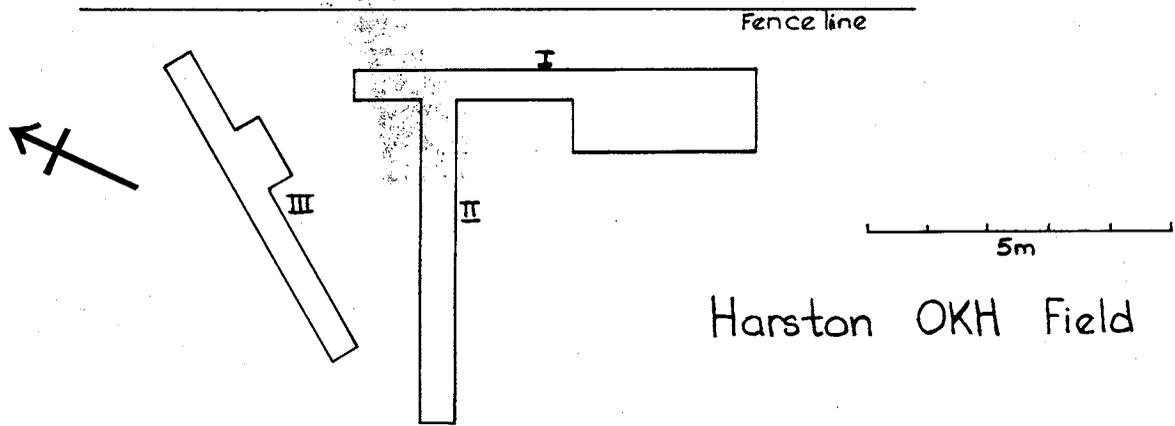
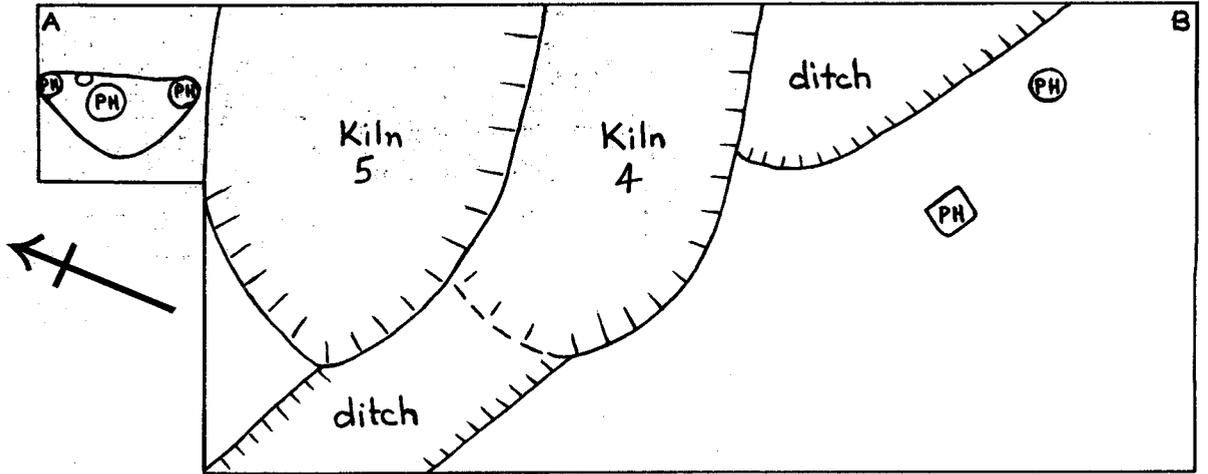
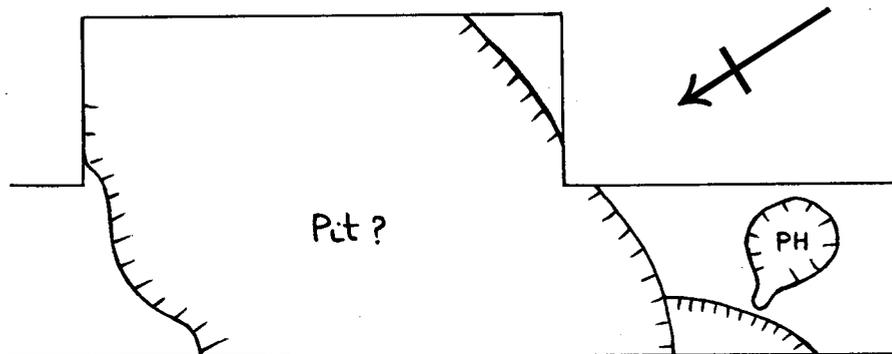
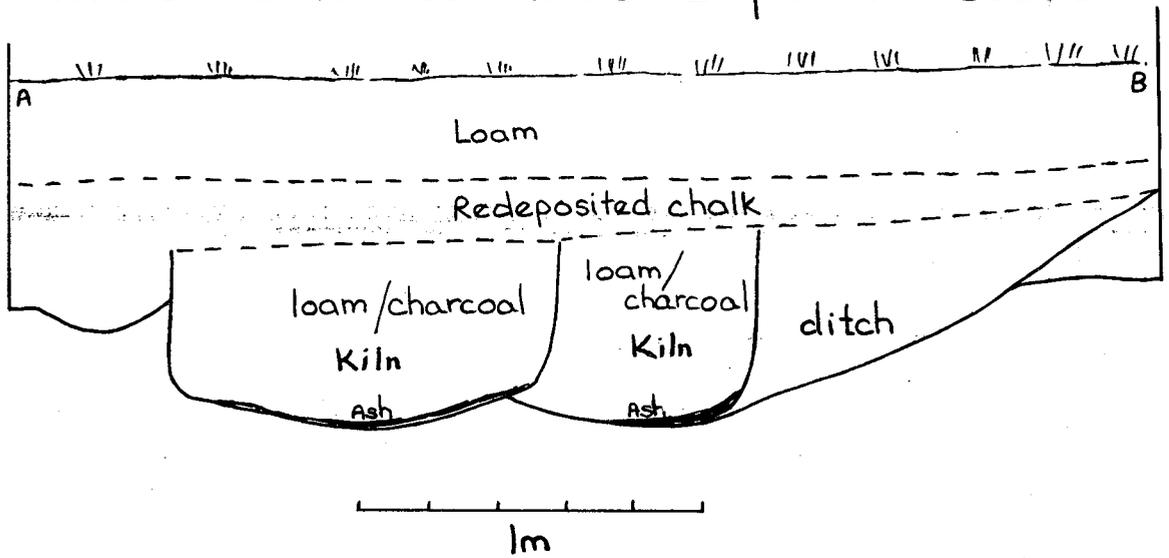


Fig. 11. Obelisk Kilns, Harston.  
General plan Trenches I-IV (see Fig. 2),  
and details of Trenches II and IV.



Harston OKH Field Trench I plan and section



Plan Trench III

Fig. 12. Obelisk Kilns, Harston.  
Details of Trenches I and III.

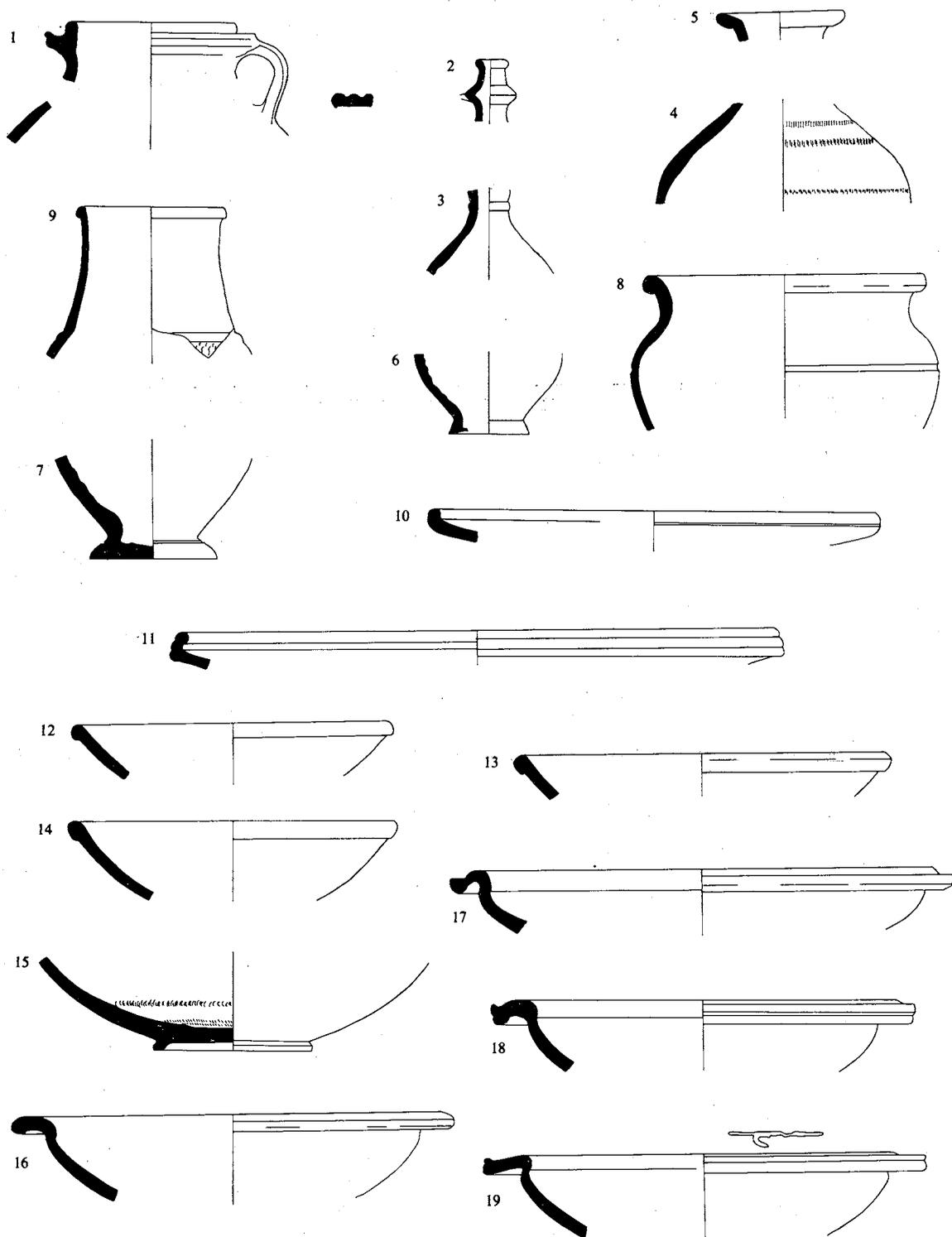


Fig. 13. Obelisk Kilns, Harston.  
Pottery from kilns. Fabric (i), nos. 1-19. Scale 1/4.

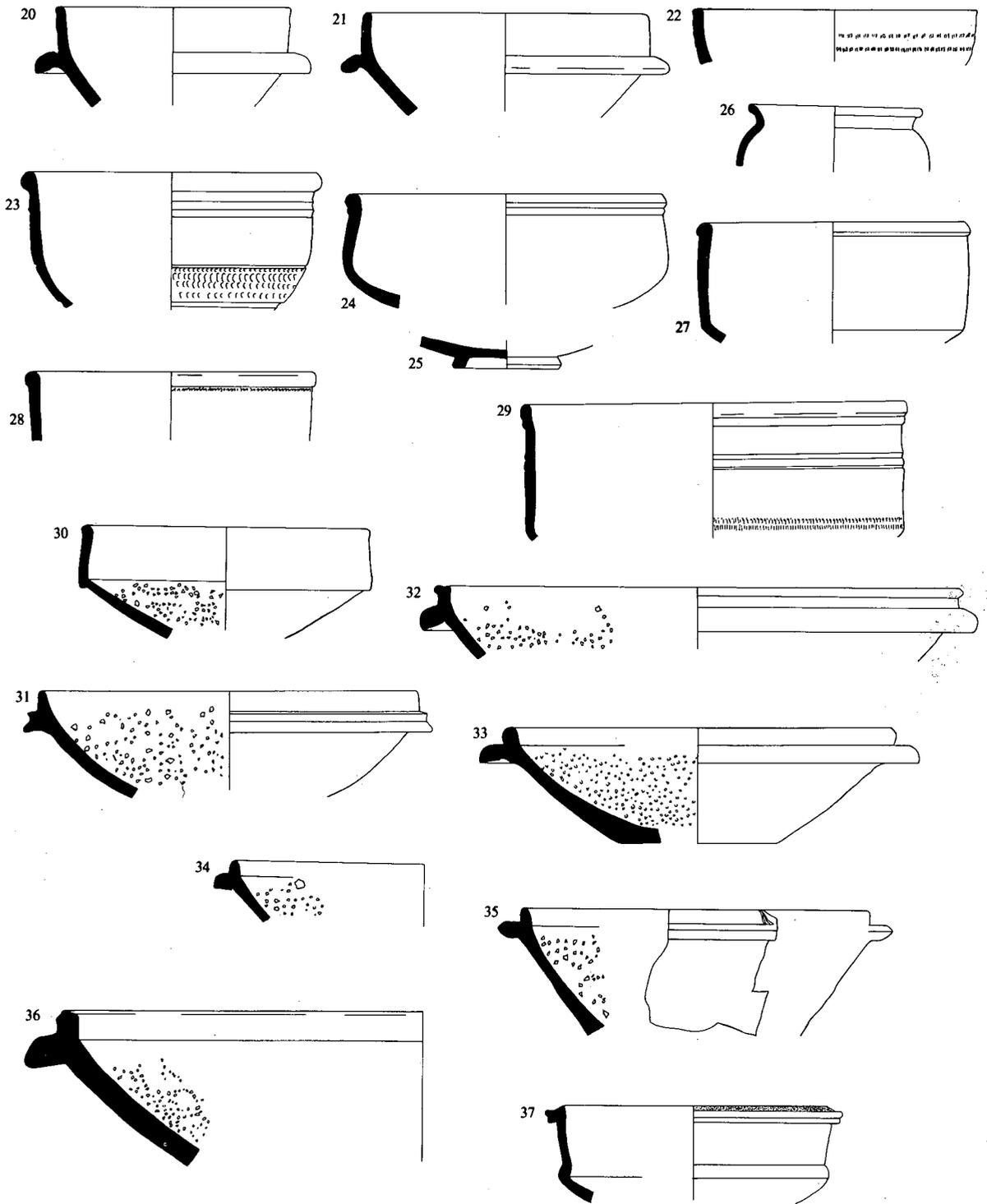


Fig. 14. Obelisk Kilns, Harston.  
Pottery from kilns. Fabric (i), nos. 20-37. Scale 1/4.

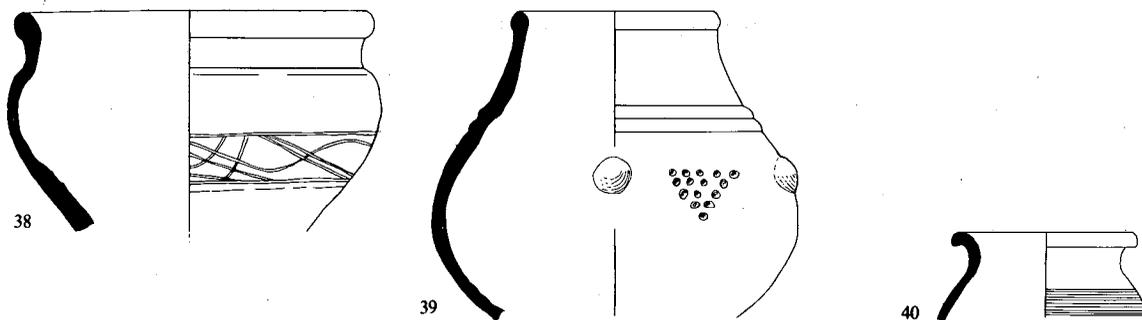


Fig. 15. Obelisk Kilns, Harston.  
Pottery from kilns.  
38, 39, Fabric (ii); 40, Fabric (iii). Scale 1/4.

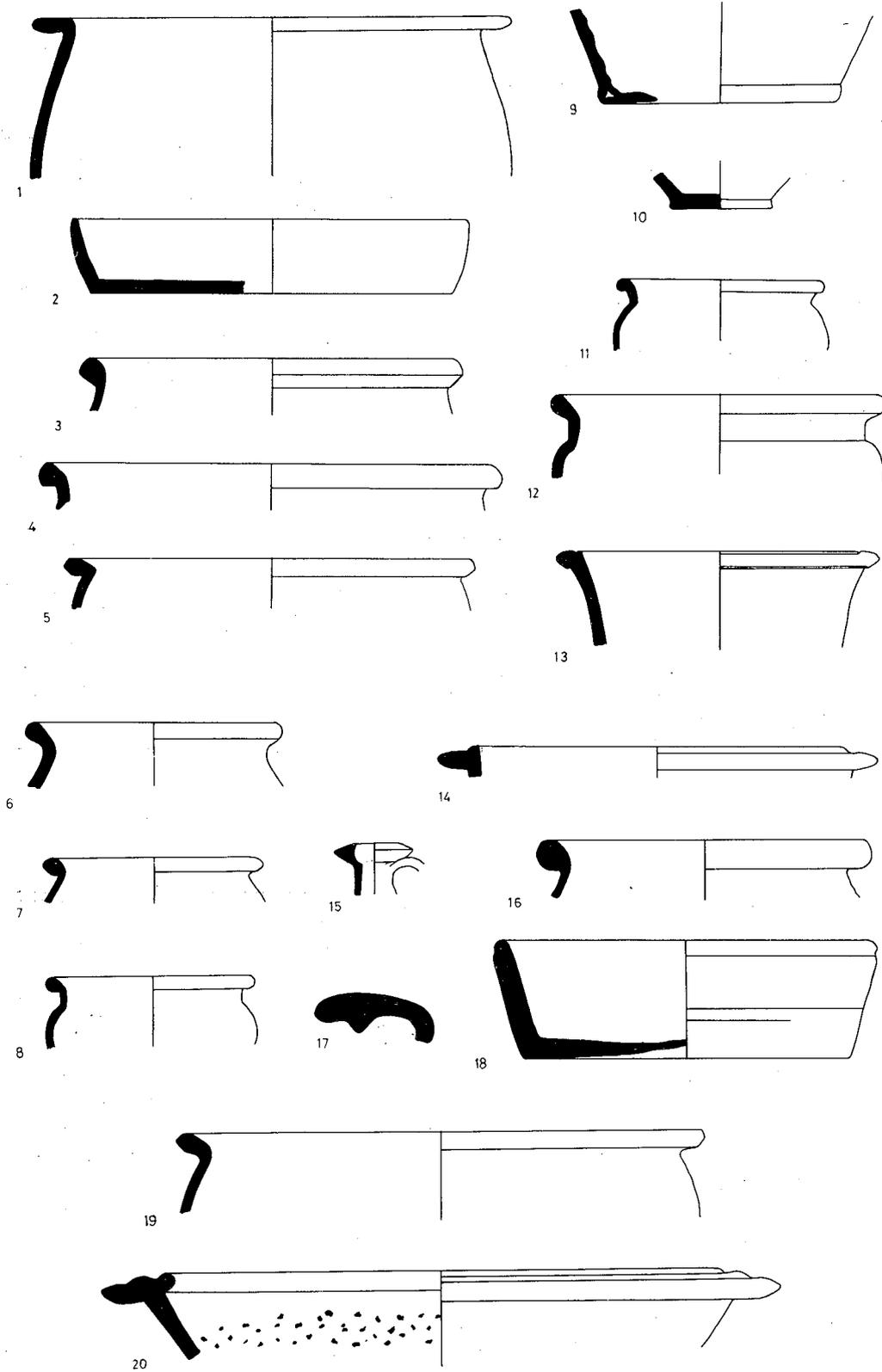


Fig. -16. Obelisk Kilns, Harston.  
Pottery from features other than kilns. Scale 1/4.

## 2. LINGEY FEN, HASLINGFIELD

JOYCE PULLINGER

Work began in the Autumn of 1977 in Lingey Fen where up to 5.0m of peat and black clay silts were cut through. (Section, Fig. 1). The dragline operator noticed an alignment of posts and worked timbers under 4.0m of peat. Their destruction was watched daily and when possible timbers were rescued. It was possible to hand-excavate some posts and study the positions of the timbers and it would appear that they were part of a causeway (Plan, Fig. 2). Further south and still under the peat a second causeway was seen and a small part excavated by hand. (*For illustrations see after p. 33*).

### Area A Timber causeway (1000-900 BC)

The causeway consisted of a series of posts under 4.0m of peat and black clay silt, which had been driven down through a thin layer of greensand into underlying gault clay. Horizontal timbers and brushwood had been packed between these posts. It was possible to excavate only a little as conditions were often too dangerous and the peat extracted by the dragline was replaced quickly by brick hardcore (see below for description of timbers).

The causeway lay across the shallow basin between the two gravel terraces with the river on the south-east side. It was probably a marshy area with peat beginning to form in the 2nd millenium BC. Only bones were found sealed by the causeway, and many more were recovered from the peat immediately overlying it (see Section, Fig. 3).

### Area B

Like the Area A causeway this spanned a low lying area between the river and the gravel terrace to the west and lay 50m approximately to the south of Area A. A small portion of the causeway was excavated by hand. The causeway consisted of large timbers, lying flat, with notches in each end into which were driven stakes to hold them in position (see below, p. 26). A number of shed red deer antlers were found next to this causeway (see below, p. 27).

## REPORT ON THE TIMBERS FROM LINGEY FEN, CAMBS

S. V. E. HEAL

### Site A

From the brief sighting, this part of Site A, which lay in a sediment-filled depression, appears to have been an area of consolidation across a watercourse or marshy area. Since the visible extent of the structure seen in detail was only 2m by 1m its overall form is far from certain, but the general orientation of the timbers was WNW-ESE, with the exception of a large piece at the south lying NNE-SSW, possibly running along the edge of the assemblage.

Branches and stones lay among the worked wood, with vertical posts and pegs between them. With the exception of three post-ends, the wood submitted for examination (some forty fragments) was all from the spoil deposited by the dragline. No individual piece was complete, thus neither the dimensions of the component parts, nor those of the structure as a whole, are known. Nevertheless something may be said of the woodworking techniques employed on the timbers.

The three post-ends found *in situ* had been driven through peat into the underlying Gault clay, taking with them gravel and flint chips. The effort invested in their preparation and positioning indicates that importance was attached to maintaining the stability of the horizontal elements and to the function of the structure.

The great majority of the pieces examined were oak (*Quercus*), with some ash (*Fraxinus*) and hazel (*Corylus*); due to the fragmentary nature and circumstances of retrieval of these, this sample may well not be representative of the site as a whole.

Both roundwood and splitwood (Heal, 1981) were recorded in examination. Roundwood had been used for vertical posts, mainly ash and some oak, which had been worked for up to 50cm of their lower ends to create points for insertion. The profiles of these points vary from streamlined tapers to much

blunter or obliquely chopped ends. (Pl. 1a-c). There was no evidence of pre-dug postholes and it would seem that all these forms were intended to be driven into the ground; however no post-tops survived to indicate how this was done.

Of the multifaceted posts (which had been chopped all around their circumferences), some had been worked uniformly to form a cone-like end concentric with the heart of the wood; others had been begun irregularly on one side so that the roundwood had been reduced to a segment of the cylinder at the tip, though the heart usually lay at the ultimate point. The oblique ends incorporated two or more cuts within the single face. (Pl. 1c)

The position and intersection of the facets suggest that the first blows were directed from the upper end of the stakes with long shallow strokes exploiting the cleaving properties of the wood; in some cases the facets had been partly cut and partly split. Shorter, rounder 'scooped' facets had been cut to execute the steeper taper of blunter tips (Pl. 1b), alone or in combination with initial long shallow ones. As is inevitable with multiple faceting the intersection of the strokes deforms the trace of the blade in use, but the remnant dimensions and profiles indicate a cutting edge up to 5cm across, the shallowness suggests a flattish-sectioned, metal blade. A narrower blade with a more convex section would have produced the scooped facets. The posts examined seemed to correlate the smaller scooped facets with the working of heartwood of oak, though this may be the artificial product of the sample.

One mid length of a roundwood post bore shallow grooves as a result of pressure, possibly from a rope or other lashing .75cm wide wound around it repeatedly. The marks (Pl. 2a) appear only on one side which suggests that whatever was attached was strained in one direction quite forcibly. Whether this was a structural feature or a hitching or mooring post can only be speculated upon.

Smaller roundwood pieces (e.g. small hazel stems) were used for small pegs, sharpened with one two or three simple oblique strokes (Fig. 1a), possibly cut with a knife-like blade rather than an axe. Some pieces of hazel, up to 5cm diameter, showed vestigial remains of the 'elbow' characteristic of coppice or secondary shoot growth from a stump; however the sample cannot justify any claim for positive evidence of woodland management (Coles, Heal & Orme, 1978).

Splitwood was used in quantity: the retrieved pieces were also fragmentary and predominantly oak. Most appeared to be from horizontal elements, an exception being a radially split and obliquely sharpened stake. Tangentially and radially split boards or slats were represented by numerous fragments. Some of these had been split out and used without secondary working, others had been further shaped or trimmed with shallow lengthwise strokes (Fig. 5). None were sufficiently complete to indicate their overall dimensions, but widths up to 23cm were recorded, and thicknesses of as little as 1.5cm.

Only one piece of splitwood bore any other details of specific working; this was a radial split which had been perforated by diagonal holes 2mm by 4mm, running tangentially through the thickness towards the broader edge of the split (Pl. 2b). Its one intact end had been shaped to a curve running up to the thinner straight edge; the final working consisted of three consecutive facets. It was the only utilitarian artefact from the retrieved material.

A few small radially split pieces may have been used as pegs (Fig. 1b), though they would have offered little rigidity. A single piece of wood had a charred groove across its width, but bore no evidence of function. Unlike the roundwood, all sapwood had been removed from the splitwood.

### *Site B*

Site B lay southwest of Site A, and slightly higher up the slope of the same depression. A stretch of the structure c.3m long and c.1.5m wide was seen under the same circumstances as Site A. Planks and stakes were reported, with a basic NNW-SSE orientation; the main timbers, 2m or more long, lay on brushwood and were held in place by vertical and oblique stakes of varying size. A large trunk lay across the north side of the exposed area.

The wood retrieved for examination comprised mainly splitwood, most of which was oak, with some hazel and ash roundwood, a total of fifteen pieces. Both radial and tangential splitting was used and there was more evidence of secondary working than at Site A. Again the material was fragmentary, mainly pieces of slats and boards, but also stakes which had been further shaped, and notched and morticed pieces.

The most notable piece was one end of a rectangular-sectioned tangentially split heavy plank, with a carefully cut notch (Pl. 2c). None of its outer surfaces had been worked after the initial splitting from the oak bole. The notch had been cut by splitting the sides, and two major facets, one from each broad face of the plank to the middle, formed the base. A sloping facet from one surface is all that remains of any earlier

stages of shaping the notch-base. The ends of the arms of the notch had been shaped by a diagonal facet on each outer surface; both have been damaged subsequently.

A piece of ash, a half-split stem, though badly damaged, retained evidence of a mortice cut through its centre and a notch at one side (Fig. 1d). The split surface had not been worked further and the other, curved, face was the natural under-bark surface. The mortice was rectangular in plan on the curved surface, but from the other side it was seen to be cut straight at one end and at a slope at the other; it appears to have been cut unevenly from this surface and finished tidily on the other.

One roundwood piece of ash was part of a shallowly faceted post, and small obliquely cut hazel roundwood pegs were also found (Fig. 1c).

The working traces are comparable with those from Site A, but the more intricately worked timbers (Pl. 2c, Fig. 1d) are similar to elements of the Meare Heath Track, Somerset, which also dates to c. 1000bc.

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#### LINGEY FEN: THE FAUNA

A. J. LEGGE

The floodplain of the upper River Cam is bounded by the 'intermediate' terrace which, from its sparse arctic fauna, is regarded as of last glacial age (Lambert, Pearson and Sparks, 1963). Within these physical limits, the valley is infilled with alluvial sediments of Flandrian age, consisting of peats and peaty muds, with occasional layers or lenses of mineral sediments. The line of the Cambridge western bypass crosses the upper Cam in several places. At the river crossings near Little Shelford and Grantchester the peats in the river valley were removed by mechanical excavation as part of the engineering works associated with the construction of bridge foundations. The crossing point near Grantchester (Lingey Fen) produced, from the base of the peat and from within it, large animal bones which were collected from the excavations by T. and M. Miller and J. Pullinger. I visited the Little Shelford river crossing on several occasions during the excavations and, in contrast with Lingey Fen, this produced few bones. During 1979 an archaeological excavation was also made in the north bank of the Cam about 200 metres downstream of the Little Shelford bypass bridgeworks. This excavation extended from the margin of the intermediate terrace and onto the floodplain of the river for 7 metres. The aim of this excavation was to trace the extent of Iron Age settlement on the adjacent arable fields (see St Joseph, 1965) and to establish the stratigraphic relationship of this site to the valley peats (Alexander, Legge, Trump and Woudhuysen, forthcoming). Again, in this excavation, few animal bones were recovered from the lower levels of the peats. It therefore seems that animal bones occur in the valley sediments in local concentrations.

It should be noted that the bones from Lingey Fen were collected under difficult conditions, mainly from the dragline trench during breaks in work, and also from the excavated spoil. While some stratigraphic uncertainties therefore exist, it was possible to assign most of the bones to one or two broad groupings of *basal peats* and *upper peats*. The bone is well preserved and hard; a few specimens of antler and two pig canines fractured on slow drying. The bone from the lower peat is a dark brown colour and has white encrustations on its surface, while that from the upper peat is of a lighter brown and is without encrustations.

The total identified sample consists of 165 bones, teeth and antlers; a few ribs and vertebrae have not yet been identified to species. Most of the bones are whole or were broken only by the mechanical excavator. The bones generally show some surface scratches, but these appear to be the product of natural forces rather than butchery by man. Exceptions to this are noted below. The species were distributed in the two units in the following way:

Upper Peat	Number of bones	Lower Peat	Number of bones
Dog	2	Dog	5
Horse	10	Horse	9
Pig	4	Pig	6
Roe Deer	2	Roe Deer	0
Red Deer	27*	Red Deer	36*
Cattle	19	Cattle	21
Sheep/Goat	9	Sheep/Goat	12
Birds	3	Birds	1
Man	3	Man	2
		Beaver	1
		Fish	3

\* figures include shed antlers

The two faunas do not show significant differences, with cattle and red deer being the most numerous in each. If shed antlers are excluded from the counts of red deer the figures are more nearly equal for the two common species in the upper peat; red deer remain the most abundant animal in the lower peat.

Two species are represented which are now extinct in Britain as wild breeding populations; the beaver, and the European Crane *Grus grus*. One of the most interesting features of the fauna is the presence of *Bos primigenius*, an animal now wholly extinct.

#### The cattle

Two specimens from the lower peat can be attributed to *Bos primigenius* with some confidence on the basis of their large size. These are a well preserved left mandible with an  $M_3$  fully erupted and in wear on all cusps, and a proximal articulation of the left metatarsal. The mandible shows no signs of human interference by way of cut marks or breaks, while the metatarsal is anciently broken by percussion at a point slightly above the mid-shaft; the break is also slightly burnt.

The mandible requires a more detailed comparison with other known specimens than is possible here; the relatively gracile form suggests that it is from a female, while the length of the  $M_3$  exceeds in size those from domestic cattle of the Neolithic period.

#### Length of $M_3$ in cattle from six sites, in mm.

Site	Length of $M_3$	Diagnosis	Author
Lingey Fen	43.3 mm	<i>Bos primigenius</i>	
Lowes Farm*	46.5 mm	<i>Bos primigenius</i>	Shawcross, 1961
Charterhouse			
Warren Farm	46.0 mm	<i>Bos primigenius</i>	Everton, 1975
Star Carr	46.0 mm	<i>Bos primigenius</i>	Frazer & King, 1954
Windmill Hill**	41.0-42.0 mm	domestic bulls	Grigson, 1965
Hambledon Hill**	40.6-41.4 mm	domestic bulls	Legge (forthcoming)

\*\* 2 specimens from each site. \* $P_2$  congenitally absent in this mandible.

On the basis of these figures the mandible is regarded as that of a *Bos primigenius* female.

The position of the metatarsal bone is more obvious, as this is a very large specimen. The width of the proximal articulation of this bone is compared with other published specimens below:

#### Width of proximal articulation of metatarsal in cattle from four sites, in mm

Site	Metatarsal, width of proximal articulation	Diagnosis	Author
Lingey Fen	67.4 mm	<i>Bos primigenius</i>	
Lowes Farm	61.0 mm	<i>Bos primigenius</i>	Shawcross, 1961
Star Carr	58.0-66.0 mm*	<i>Bos primigenius</i>	Frazer & King, 1954
Windmill Hill	51.0-58.0 mm**	domestic bulls	Grigson, 1965

\* range of 6 specimens

\*\* range of 4 specimens, bulls only given here

From this, the Lingey Fen specimen is substantially larger than the Lowes Farm *Bos primigenius*, which is now known to fall in the early second millenium bc, and is also larger than six specimens from the earlier site of Star Carr (Fraser & King, 1954). In view of the interest in these finds, and their possibly quite late position stratigraphically, it was decided to submit the specimens entire for dating at the British Museum Radiocarbon Laboratory as part of an investigation into the problem of faunal extinction (Burleigh & Clutton-Brock, forthcoming). The results of this test will be published at a later date with further considerations and data on the morphology of the specimens concerned.

The other cattle from the Lingey Fen collection are also of large size, though with dimensions falling within the known range of Neolithic cattle from Southern Britain. At the sites of Windmill Hill (Grigson, 1965) and Hambleton Hill (Legge, forthcoming) the dimensions of the cattle bones show a bimodal distribution when plotted as a histogram of a single measurement (for example, see Grigson, op. cit. fig. 5g). My work on the Neolithic fauna from recent excavations by R. J. Mercer at Hambleton Hill, Dorset, shows that the domestic cattle have a similar distribution of body sizes. Grigson interprets the bimodal distribution as a representation of the two sexes, a point with which I fully agree.

It is difficult to suggest the sex of the Lingey Fen cattle; while they agree closely with the size of large Neolithic cows, they could equally be the males of later cattle, perhaps from the Bronze Age. Iron Age cattle from this area are considerably smaller. None of the Iron Age cattle from Great Shelford (Legge, forthcoming) have metapodial bones with dimensions as large as those from Lingey Fen.

*Width of metatarsal in cattle from two sites, in mm*

Site	Metatarsal, width of proximal articulation	Diagnosis	Author
Lingey Fen	44.0-49.0 mm	Domestic cattle	
Windmill Hill	42.0-47.0 mm	Domestic females	Grigson, 1965

*The canids*

Besides some limb bones of dogs, the fauna contains two mandibles and one skull of that species. This small assemblage is marked by a great variety in size. Harcourt's (1974) review of prehistoric dogs in Britain gives a range in size for the length of the mandible tooth row of 64-71mm in Neolithic dogs (six specimens, dimension XV, Harcourt, 1974). The Lingey Fen mandible from the upper peat has a tooth row length of 74.0mm, while that from the lower peat is 76.8mm. However, it should be remembered that dogs are highly variable in later prehistory, and Iron Age dogs are rather larger, at the top of their size range, than those from the Neolithic. Although two mandibles are from large dogs, the skull from the basal peat is very large. Measurement I, after Harcourt (op. cit.) is 219.0mm, which is substantially larger than any dog included in Harcourt's survey with the exception of a few post-Roman specimens. At present the distinction between dogs and wolves in early prehistory is still subject to uncertainties. On the basis of Clutton-Brock's (1969) 'carnassial index' the Lingey Fen specimen falls within the population of dogs; again, a final judgement must await further study.

*Deer*

The faunal collections from both the upper and lower peats contain more remains of red deer than any other species. This remains so even when antlers and fragments of antlers are removed from the counts; the lower peat contains seven antlers or fragments and 29 limb bones and skull fragments. Of the antlers, four antler bases are present, of which three are unshed, showing that these came from animals dying or killed during the time of full antler growth. Most of the limb bones are present in the collection, probably from several different animals. The bones are mostly complete and do not show cutting or working marks. Areas of scratching or abrasion on the bones appear to have come from the conditions of deposition. Roe deer are not present in the lower peat.

*Pig*

The pig is represented by a few bones in each of the units, and by some isolated teeth. The bones are seldom whole, being either broken or from juvenile animals. A pair of canine teeth in very poor condition come from the lower peat, and are very large, though their poor condition prevents measurement. They need not be larger than those from a domestic boar, and there is nothing in the collection besides these teeth which could suggest the presence of wild pigs.

*Horse*

The horse is of interest in being moderately well represented in both units. Horse bones make up slightly less than 12% of the total identified samples, which is a high percentage for later prehistoric material from Britain. From the upper peat, the metacarpal, metatarsal and tibia are well preserved and can be measured; they suggest a small horse of the size known from the British Bronze and Iron Ages.

*Length of Metapodial bones of horse from three sites, in mm*

	<i>Lingey Fen</i>	<i>Grimes Graves</i>	<i>Ashville</i>
Metacarpal	207.2	227.2	204.0-231.0*
Metatarsal	259.0	249.2; 244.4	233.0-258.0**

\* sample of 3: \*\* sample of 4. (Wilson, 1978). These are specimens from the Iron Age, while those from Grimes Graves are from middens of the Bronze Age (Legge, 1981).

The metatarsal from Lingey Fen falls within the range of three specimens from the Ashville Trading Estate excavations (Wilson, 1978), as does the Middle Bronze Age specimen from Grimes Graves. The Lingey Fen metatarsal is rather larger than the Iron Age specimens from Ashville. Wilson (op. cit.) calculates shoulder heights of from 1.20m to 1.42m for the Ashville horses, using Keiswalter's factors, though with some reservations (pp. 117-118). The few comparisons that can be made with the Lingey Fen material suggest, from this site, a horse or two of similar size to those from Grimes Graves.

*Other species*

The lower peat contains several specimens of less common animals. The beaver, *Castor fiber*, is represented by a single left tibia, showing a recent break at the proximal extremity, and an ancient break at the distal extremity. The Crane, *Grus grus* is represented by a left tibiotarsus in the lower peat. This species occurs now only as an occasional visitor to Britain. Fish remains, as might be expected, are rare in the collection, in spite of the proximity of the river. The Pike, *Esox lucius*, is present in the lower peat, represented by two dentaries (jaws) and a preoperculum. The bones are strongly ossified and well preserved. They come from a large fish, of at least 5 kg in weight.

*Man*

A few human bones were found in the assemblage, belonging to the upper peat in most cases. Two gracile parietal bones from the upper peat come from two separate skulls; one of these joins with an occipital bone. All of these are from females. The very open skull sutures argues for no great age in the individuals concerned. From the lower peat, a more robust proximal femur may be from a male, and a left fibula possible from a female.

*General considerations*

Extensive settlements of the Iron Age are known upstream of Lingey Fen, at Hauxton, and Great and Little Shelford. These settlements are situated on the intermediate terrace of the Cam which flanks the peats from which the bones described here were recovered. The site at Great Shelford has been excavated from 1975-1979 (J. Alexander, A. Legge, D. Trump, and M. Woudhuysen, report forthcoming) and the occupation has proved to be largely of the early Iron Age, late Iron Age, and Romano-British periods. A recently discovered crop mark upstream of Hauxton Mill is situated on the valley floor, and a first season of excavation has shown this to be of Iron Age and Roman date, though earlier phases cannot yet be excluded. The nature of the faunal remains at Lingey Fen argues that a pre-Iron Age settlement must have provided the bulk of the bones, at least in the lower peats. At Great Shelford, the cutting made into the valley alluvia showed that early Iron Age levels were stratified 1.5m above the *lowest* levels of the peat over the gravel bedrock near the terrace edge. This would argue, if the stratigraphy 1km or so downstream is similar, that the bulk of the faunal material is of pre-Iron Age date, in coming from the lower part of a deeper peat stratigraphy. The size of cattle was shown to decline from the Neolithic to the Iron Age by Jewell (1962), and my own recent work on Neolithic and Bronze Age faunas from Eastern Britain confirms this observation. The local Iron Age cattle from Great Shelford, Wandlebury and Barley are of very small size; the cattle from Lingey Fen are large, and closer in size to cattle from the Neolithic period. In the lower peat, *Bos primigenius* is also present. The 'early' nature of the fauna is also suggested by the

number of red deer bones. Examination of the excavated material from Great Shelford shows that red deer is very rare indeed at that site; at Iron Age sites generally in Southern Britain red deer is scarce. For example, Wilson (1978) records only two antler fragments among a sample of 3438 bones of the Bronze and Iron ages at the Ashville Trading Estate excavations. Certainly the faunal remains from sites of the Iron Age argue for an open landscape much as now, with few local wooded and other refuge areas. On the other hand, the presence of horses at 12% of the fauna is unlikely at a date much before the Bronze Age; at this time, harness fittings suggest domestication. Grigson (1966) has reviewed the distribution of horse finds within the British Neolithic, and while there may be some argument for the introduction of horses in the Neolithic period as domestic animals, their remains in sites are exceptionally rare. In the Middle Bronze age faunas from Grimes Graves which I have examined, horse reaches 6.0% of the fauna on post-cranial bones, though only 1.1% of the total faunal sample. Correction of the faunal totals to allow for the under representation of horse crania at this site puts their abundance at about 3.3% of the site fauna from this phase. Of course, it must be remembered that the fauna of Lingey Fen is not the normal type of archaeological assemblage, and only a minority of the bones appear to have been deposited after butchery. Indeed, most of the bones show little human interference, and even dog gnawing is not common. It seems likely that many of the animals represented may have died some distance upstream and fell (or were thrown) into the river to be floated downstream until coming to rest at the obstruction offered by the timber construction crossing the river at this point.

The large cattle, and the high proportion of deer, point to a pre-Iron Age date for the assemblage. The stratigraphy at Great Shelford supports this point. The fauna argues for a less intensely cultivated landscape than would be suggested by the animal remains from the nearby Great Shelford excavations (Iron Age and Romano-British). A high frequency of red deer, the survival of *Bos primigenius* and beaver indicate some refuge areas in the valley bottoms. On the other hand, the single roe deer antler, although unshed, does not argue for the woodlands preferred by this species. The number of horses in Lingey Fen fauna, combines with the relatively large size of the cattle, is most likely to be found in the Bronze Age. The British Museum radiocarbon dates will add much to the understanding of the bone assemblage.

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	UPPER PEAT							LOWER PEAT						
	Cattle	Pig	Horse	Sheep/Goat	Red Deer	Roe Deer	Dog	Cattle	Pig	Horse	Sheep/Goat	Red Deer	Dog	Beaver
Skull								2		2				
Mandible	3		2	3	1		1	4	1	2	2	1	2	
Scapula	3	1	2	1	2			2		1		3	1	
Humerus	1		1					2	1		1	1		
Radius	2			1				1	1	1	1	6	1	
Ulna										1		2		
Radius/Ulna								2				1		
Metacarpal	1		1	2	2			1			1	3		
Pelvis	2				6			1		1		1		
Femur	1			2	2				1	1	4	3	1	
Tibia	2	2	2		2			3	1		3	6	1	1
Astragalus					1									
Calcaneum	1							1						
Metatarsal	3		1				1	1				1		
Antler unshed					4	1						3		
Antler shed					3							1		
Axis/Atlas					2							1		
TOTALS	19	3	9	9	25	1	2	20	5	9	12	33	6	1

Sample = 154

Table 1. Distribution of bones from eight species in the upper and lower parts of the peat sequence. The numbers do not imply that all bones are entire, but represent specimens sufficiently complete to eliminate double representation of broken bones. Note that loose teeth are not included in the above counts.

#### FOOTNOTE

The bones submitted to the British Museum Radiocarbon Laboratory have now been dated, and have given the following results:

BM-1707	<i>Bos primigenius</i> mandible	4630 ± 50 b.p.
BM-1708	<i>Bos primigenius</i> proximal metatarsal	6370 ± 70 b.p.

BM-1709	<i>Equus</i> tibia	2050 ± 50 b.p.
*BM-1711A	<i>Cervus elaphus</i> antler	2620 ± 40 b.p.
*BM-1711B	<i>Cervus elaphus</i> antler	2560 ± 45 b.p.

\*Collagen extracted by two methods.

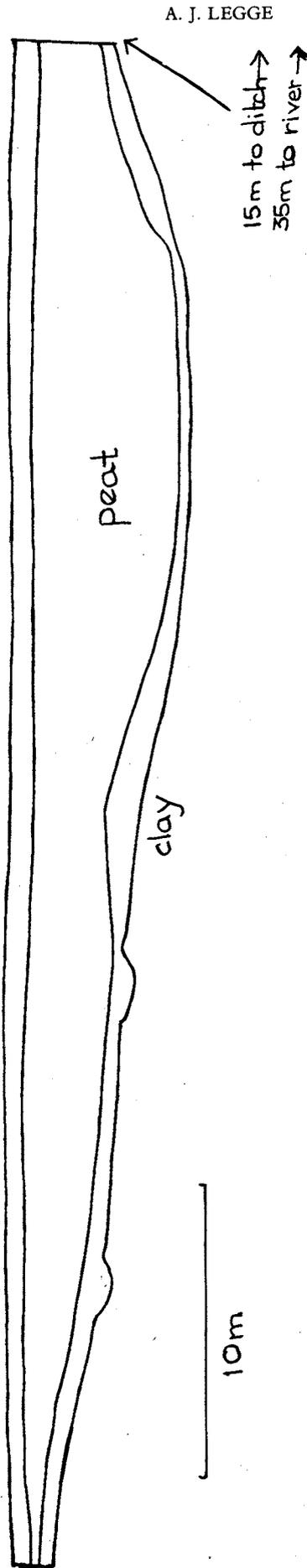
The above dates confirm some of the interpretations placed upon the animal bones described above. It is evident that the specimens of *Bos primigenius* pre-date the peats in which they were found, especially in the case of BM-1708. This specimen showed more evident signs of human modification than the other bones in the collection, and presumably was derived from a Mesolithic context. The *Bos primigenius* mandible must also be derived and, though a relatively late date for the survival of this species, dates of more than 1000 years later than this specimen have been obtained (Burleigh and Clutton-Brock forthcoming). By implication, the large (but probably domestic) cattle also from the lower peats must also be derived from earlier sediments.

The *Equus* tibia from the upper peats gives a date that would place the specimen within the Iron Age; the horses from Lingey Fen seem therefore to belong to a period of prehistory when the horse was a relatively common domestic animal. From the base of the sequence, two dates from one antler were obtained using different methods for the extraction of collagen. The dates are very similar by either method. The antler was taken from the 'black clay peat' at the base of the section, from the level associated with the timber constructions (J. Pullinger pers. comm.). The dates are somewhat later than those obtained from timbers at the same level, but not to the extent that the dates are contradictory.

The radiocarbon dates therefore confirm the interpretation that the lower levels of the alluvia within the valley of the upper Cam contain a mixture of bones which were derived from different contexts. Some of these are from re-worked earlier sediments. This explains the apparently 'early' nature of a fauna, with large cattle and many red deer bones, being found with significant numbers of horses. The date of the horse tibia from higher in the sediments suggests that the bones from the upper levels are likely to be contemporary with the sediments. It may be remembered that the valley stratigraphy a short distance upstream at Great Shelford appears to have been stable and not to have suffered significant erosion, at least from the early Iron Age.

#### ACKNOWLEDGEMENTS

I am grateful to Mr .R. Burleigh of the British Museum Radiocarbon Laboratory for the radiocarbon dates on the Lingey Fen Bones. Dr T. Molleson of the British Museum (Natural History) kindly gave an opinion on the sex of the human bones.



# Lingey Fen Sketch Section across peat

Fig. 1. Lingey Fen, Area A.  
Section across peat.

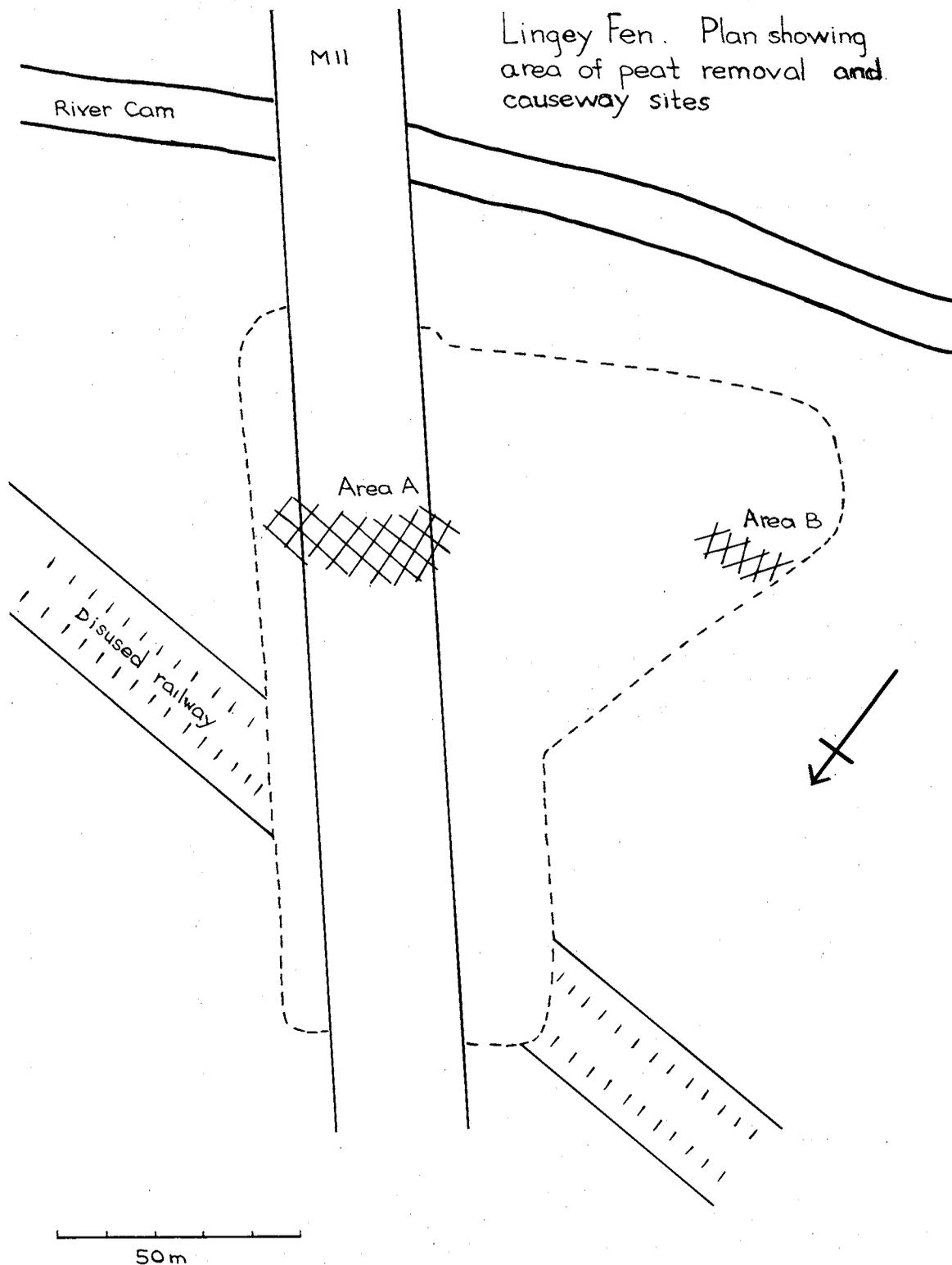


Fig. 2. Lingey Fen.  
Plan of causeway sites.

# Lingey Fen

## Section through peat

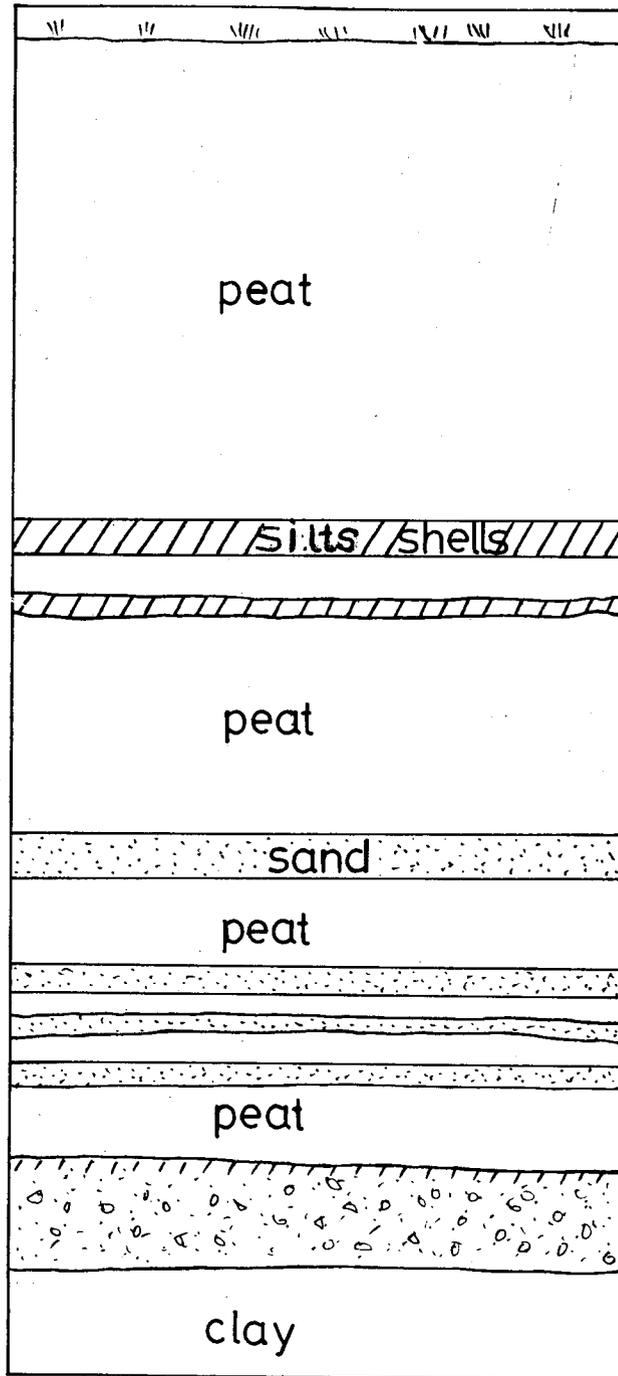


Fig. 3. Lingey Fen.  
Section through peat layers.

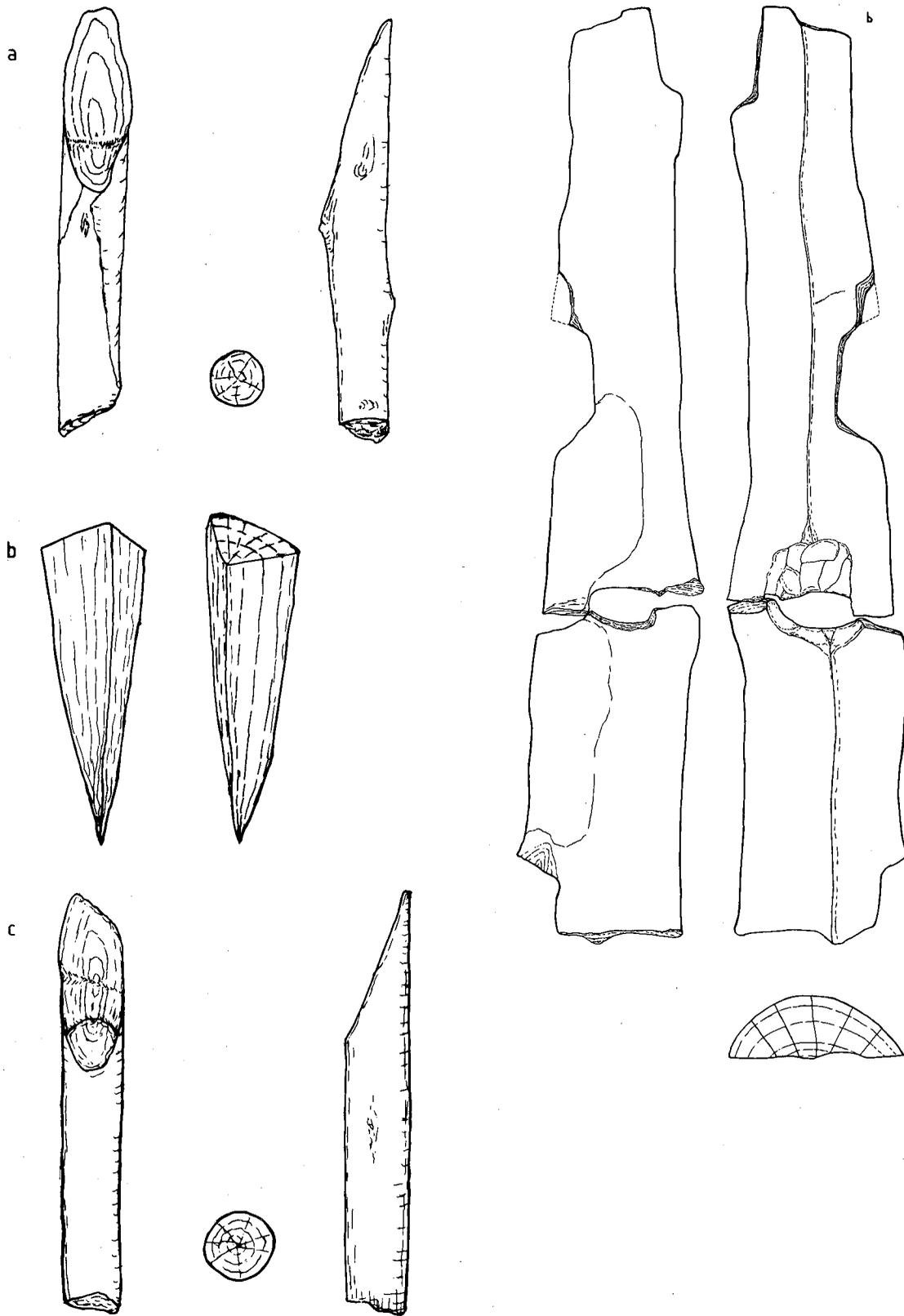


Fig. 4. Lingey Fen.

Worked timbers from causeway.

a. Roundwood peg, Site A.

b. Splitwood peg, Site A.

c. Roundwood peg, Site B. a-c. Scale  $\frac{1}{2}$ .

d. Mortised and notched splitwood, Site B. Scale  $\frac{1}{4}$ .

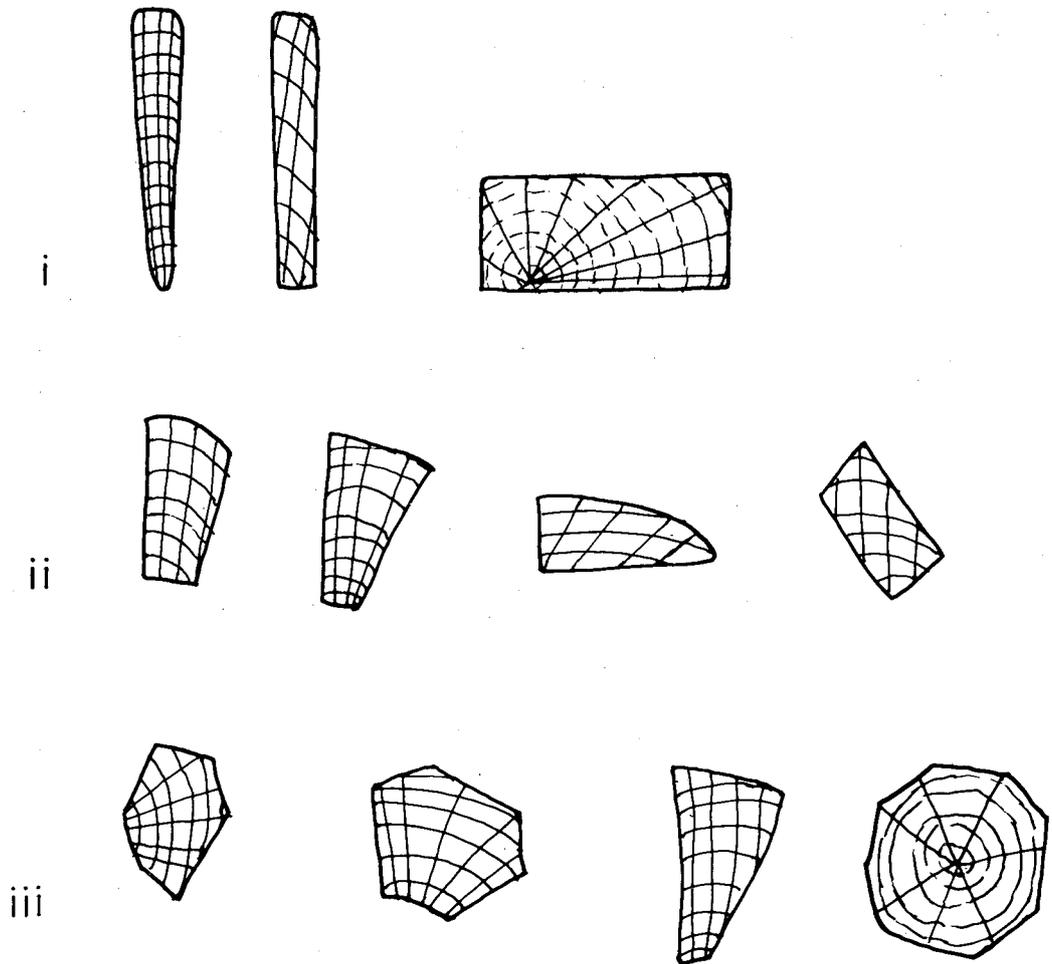


Fig. 5. Lingey Fen.

Worked timbers from causeway.

Sections of splitwood, Sites A and B, not to scale.

i. planks and boards.

ii. slats.

iii. posts and stakes.



Plate 1. Lingey Fen.

Timbers from causeway.

a. Post, Site A. Length 31cm. Diameter 9.5cm.

b. Post, Site A. Length 25cm. Diameter 13cm.

c. Post, Site B. Length 19cm. Diameter 7cm.



b.



c.



a.

Plate 2. Lingey Fen.

Timbers from causeway.

- a. Post with grooves, Site A. Grooves .75cm. wide.
- b. Splitwood artefact, Site A. Length 5cm Width 4cm. Thickness 2cm.
- c. Notched plank-end, Site B. Length 22cm. Width 27cm. Thickness 8cm.

### 3. EDMUNDSOLES, HASLINGFIELD

T. E. AND M. MILLER

This Iron Age and Romano-British site is in the parish of Haslingfield, Cambridgeshire, on the north bank of the river Cam (or Granta), approximately 300 metres up-stream from its junction with the river Rhee (Grid reference TL 432539). See general plan, p. 1 above. It lies on the farm land of the Plant Breeding Institute, Trumpington, Edmundsoles being the ancient name of the field.

The site is on the lower terrace of the Granta, overlooking an area of alluvium that lies between the two rivers. The thin gravel of the terrace lies on top of gault clay and is covered by only a thin layer of top soil. Coprolite working in the mid-nineteenth century and again during the 1914-18 war, when two large spoil mounds were deposited in the field, caused considerable disturbance in the area.

The site was recognised by the authors in 1971 when they found Romano-British pottery on the surface between the southern mound and the river. Over the succeeding five years the field was extensively field-walked and objects of Mesolithic, Neolithic, Iron Age and Roman type were collected.

In the autumn of 1976, when it appeared that the southern mound would be removed for use in the construction of the Cambridge Western By-Pass (M11), permission was granted for an exploratory excavation. It was sited on the evidence of crop marks and the high concentration of pottery at that point.

In 1977, the northern mound, which was partially on the motorway line and entirely made up of top soil, was lowered to the level of the present land surface and the surplus spread over low-lying areas bordering the river Cam. No archaeological features were exposed at this time.

In 1978 the southern mound, which consisted entirely of sub-soil, was lowered to a level which permitted cultivation by removing the top soil from the area around the mound, spreading the mound subsoil over the cleared area and then replacing the top-soil.

Permission was again granted for further excavations to be carried out during April and May, 1978. Many features which appeared on aerial photographs and some which had been hidden beneath the northern mound were investigated. (Figs. 1 & 2). (*For all figures see after p. 58*).

For convenience, the site will be dealt with as a unit in chronological order of the features, rather than the separate excavations.

#### PRE-FIRST MILLENIUM B.C.

No features of Mesolithic, Neolithic or Bronze Age occupation were found in the excavations, although field walking had previously produced two flint tranchet axes, 100 flint cores and over 700 other flint artifacts (Fig. 14) as well as a scatter of heat crazed flints (pot boilers); more were found throughout the later features.

#### FIRST MILLENIUM B.C.

##### *NON BELGIC IRON AGE*

When the soil was stripped from the area north of the southern mound, a series of 10 pits were revealed (Figs. 1 and 3). It was not possible to excavate these completely but all were extensively sampled and from their contents may be grouped together.

*Pit 1* was 1 metre in diameter and filled with dark loamy soil. It contained five pieces of coarse black pottery with flint temper, a few pieces of burnt clay and fragments of animal bone (Appendix III).

*Pit 2* was 1.5 x 2 metres and filled with dark loamy soil, which contained 22 pieces of coarse black pottery with flint temper (Fig. 11). The surface of some sherds had fired a reddish brown. It also contained animal teeth and bones (Appendix III). There were also pieces of burnt clay, a few large stones and a lump of slag.

*Pit 3* was 1 metre in diameter and may have been a hearth. It was filled with a black ashy loam containing only a few fragments of bone (Appendix III).

*Pit 4* was 1 metre in diameter and filled with dark loamy soil. It contained two small fragments of coarse black pottery, a few pieces of daub and a few bones (Appendix III).

*Pit 5* was 1.5 metres in diameter and filled with dark loamy soil. It contained 24 sherds of coarse black

flint-tempered pottery; two sherds of coarse black fabric with vegetable inclusions and one red shell-tempered sherd. There were also fragments of bone (Appendix III).

*Pit 6* was 1.4 metres in diameter and cut 30 cm. into the natural gravel. It was filled with dark loamy soil. It contained 24 sherds of coarse black flint-tempered pottery, some of which had fired to a reddish brown exterior (Fig. 11:5, 6), one greyish sherd with vegetable inclusions and one sherd of red shell-tempered fabric. There were also small fragments of bone (Appendix III).

*Pit 7* was the largest, being 2.5 metres in diameter and filled with dark loamy soil. It contained 95 sherds (Fig. 11:1, 3, 7, 8) of coarse black flint-tempered fabric, some had fired to a brown exterior, and one was burnished; and one sherd of buff fabric. There was also a quantity of animal bones (Appendix III).

*Pit 8* was 1.6 metres in diameter and filled with dark loamy soil. It contained 105 sherds of coarse black flint-tempered fabric, some had fired to a brownish exterior and 17 were burnished. There were also many bones (Appendix III).

*Pit 9* was 1 metre in diameter, filled with dark loamy soil. It contained one burnished coarse black flint-tempered sherd, a few fragments of bone and a few burnt stones.

*Pit 10* was 1 metre in diameter and filled with black ashy soil. It contained one burnished coarse black sherd (Fig. 11:4), a few small fragments of bone and several burnt stones. This pit may have been a hearth.

At the south-west corner of the southern mound the soil stripping revealed three circular ditches (Fig. 1); unfortunately only a perfunctory examination was possible.

*Circular Ditch 1* contained a very black fill consisting almost entirely of carbonised wood fragments. No features or objects were found inside the circle or in the ditch, but four fragments of coarse black flint-tempered pottery were found close to its outer edge.

*Circular Ditches 2 and 3* were both incomplete and filled with brown soil. No other features or finds were found associated with them.

To the north of the mound and west of the pits, an enclosure and a marl area were revealed (Fig. 1). *The enclosure* was rectangular, being 9.8 metres along the east-west axis and 6 metres from north to south, with a 1 metre wide entrance in the centre of the eastern end. The ditch was 35 cm wide at the surface of bedrock, with one post hole visible in the western side. No datable evidence was found.

The marl patch was trapezoid in shape but no other features or dateable evidence were found in association with it.

### BELGIC IRON AGE

Only a small area of Belgic features were revealed by the excavations. These were a tapered gully, the edge of a gully, and two post holes (Figs. 2 and 4).

#### *Gulley 1*

The gully was 60 cm. wide and cut 20 cm. into the natural gravel which at this point was 56 cm. below the modern land surface. It had a post-hole in its bottom near the tapered eastern end; this was 20 cm. in diameter and 46 cm. deep from the lip of the gully. The post-hole and the gully were filled with soft brown loamy soil which was sealed by the modern plough soil. This contained 57 sherds of large Belgic vessels (Fig. 11:9-13), and 15 sherds of coarse black fabric similar to that found in the pits. There were also bones, pieces of burnt clay, an iron nail and a few large stones.

A post-hole, 27 cm. in diameter, was found 47 cm. north of Gulley 1. It was cut 25 cm. into the natural gravel and the fill was the same as Gulley 1 but no finds came from it.

#### *Gulley 2*

A small area of another gully was uncovered running obliquely to Gulley 1, about 1 metre to the north. Only the southern edge was present; the rest had been destroyed by a later feature. It was filled with a sandy soil and contained a few fragments of Belgic pottery and animal bones.

## THE ROMANO-BRITISH PERIOD

Most of the features exposed by the excavations were of the Romano-British period. These were mainly a complex of superimposed foundation trenches (Fig. 2). Despite the overlay and disturbance of the successive developments, it was possible to distinguish several distinct phases of occupation.

*PHASE I* (Fig. 5)

The earliest features were two possible foundation trenches, one running east-west and the second running N.E.-N.W., and a shallow irregularly shaped hollow.

*Structure 1*

This, probably a foundation to a rectangular building, had a shallow butt end to the east and was deeper with a possible right angle corner to the west. Much of it had been obliterated by later features. The eastern butt end contained a 20 cm. deep post-hole. The trench was at this point 40 cm. wide and 20 cm. deep, whereas the middle region varied in width from about 0.5 to 1 metre and was cut 60 cm. into the gravel with sloping sides. On the southern edge there were several small post-holes.

At the western end, the trench was cut with steep sides 65 cm. into the natural gravel and had itself been cut into by the butt end of a later feature.

The fill of the eastern end was sandy soil, containing sherds of 2nd-3rd-century pottery and fragments of bone (Appendix III). This was sealed by the modern plough soil, the surface of which was only 50 cm. above the natural at this point.

The middle region was filled with sandy gravel (Fig. 9, Section 1 (1)), containing a few fragments of 2nd-3rd-century pot. This was sealed by the brown, slightly gravelly soil (Section 1 (2)) of a later trench containing 4th century pottery.

The fill of the western end was a compact orange soil (Fig. 9, Section 2 (1)) which contained a few pieces of early Romano-British pottery, a flint blade and some bone fragments. Near the bottom was a thin black carbonaceous layer, a sample of which contained one grain of barley (*Hordeum vulgare*) and several grains of bread wheat (*Triticum aestivum*). This was sealed by a brownish sandy soil (Section 2 (2)) containing sherds of 3rd-century pottery, fragments of bones, a tile, pieces of daub, iron, nails, flint blades, a lump of slag and an iron fibula. This was, in turn, sealed by the modern plough soil.

*Structure 2*

The second trench was approximately 8 metres to the S.E. and was also part of a straight-sided structure. At its northern end it was fairly shallow with sloping sides; the width, at the only point where both sides remained, was about 0.5 metres. At the southern end the south-eastern edge became almost vertical and turned to the west. A 1.2 metre length of the south-east side had a row of post settings against the vertical side, some of which were packed round with stones. The fill was of sandy, gravelly soil (Fig. 9, Section 3 (1)) and contained only 27 small sherds of Romano-British pottery. At the southern end this was sealed by the dark soil with ashy patches of a Phase III trench (Section 3 (2)). At the northern end it was sealed by a layer of brown soil, which was immediately below the plough soil.

*Hollow 1*

A shallow, irregularly shaped, area lay close to the Structure 1 trench. It contained two shallow post-holes; one was circular and 20 cm. in diameter, the other was approximately 30 cm. square. Two further shallow post-holes were situated on the gravel ridge between the arms of the feature. One was circular and 15 cm. in diameter, the other was a rectangle of 20 cm. x 30 cm. The fill, which had a marl edge, was a dark soil containing only 12 sherds of post 2nd century pottery. The hollow was cut by features of Phases II and III.

*PHASE II*

During the 2nd century a large well-built house was erected to the east of the Phase I features.

*The House* (Fig. 6)

A corridors, winged building with a north-east to south-west axis and a door in the north-west wall, was partially excavated. The parts of the building excavated consisted of three rooms; one immediately inside the entrance (A); one at the angle of the main section and the wing (B), one at the end of the wing (C), and a corridor along the south-east side. The remainder still lies beneath the lowered southern mound.

*Room A* was 2.75 metres x 5 metres with a pea-gravel floor. The room led directly to the outside via an entrance, which was 84 cm. wide on the inside and 1.5 metres wide on the outside. Both the inner and outer parts of the entrance were flanked by post holes. The two outer post holes were circular, being 31 cm. x 37 cm. in diameter and both 20 cm. deep. The inner ones were elongated, being 44 cm. x 18 cm. and 49 cm. x 23 cm. and again both were 20 cm. deep.

Just inside the entrance and sealed by the gravel floor were two 25 cm. diameter post-holes. These must

either have belonged to an earlier structure or some modification of the existing building had made them redundant.

There was one more post-hole at the opposite side of the room from the entrance. This was possibly double. It was 64 cm. long, 20 cm. wide at one end, 30 cm. wide at the other and 20 cm. deep. The interior of the room was covered with a brown soil which became darker at the south western end. The soil contained only a few sherds of early 3rd-century pottery. A small area of common orache (*Atriplex patula*) seeds were found on the floor just inside the entrance (Appendix I, Sample 1).

Room B occupied the corner between the main part of the building and the south wing and was presumably entered from the corridor. The room had an overall length of 6.5 metres and an overall width of 3 metres. The central portion was 3 metres square with a 2.5 metre x 1.5 metre extension into the wing and a 1.8 metre x 1.5 metre area beside Room A. The floor area, which was lower than Room A, was natural sand with traces of beam slots around the edges and running at right angles to the main part of the building. The beams presumably held a suspended floor. This area of the building was covered with a very dark ashy soil, which contained, immediately above the floor, a large quantity of early 3rd-century pottery sherds, an iron knife blade, an iron flesh hook, and several iron nails. A later phase ditch had been cut across the west corner of the room but had not penetrated to the floor level. One early 4th-century coin was found just outside the northern wall of this room (Appendix II, Coin 1).

Room C occupied the end of the south wing and was approximately 2 metres square, although the walls were not parallel. The floor was gravelled and on it, as in Room B, lay a dark ashy layer of soil, which contained a few sherds of early 3rd-century pottery, some iron nails and an iron buckle (Fig. 10:10). There was no evidence of an entrance into this room at the level of the remaining wall structure.

The Corridor ran the whole length of the south-east wall of the building. The corridor was 1.25 metres wide and divided from Room A by a faint row of stake holes. There was evidence of sleeper beams along either side. Like Room B the floor level was lower than the Room A floor level; this again suggests a suspended floor. The sub floor consisted of a 15 cm. layer of compact soil above a 25 cm. layer of mixed soil and gravel.

The outer walls of the building had foundations of rammed soil, stones and sherds. At the one point of the south-west wall which was sectioned, the foundations were cut 43 cm. into the natural gravel. There were post settings of about 18 cm. in diameter at approximately 30 cm. intervals. The foundations were capped with a layer of clunch (hard chalk) blocks, some of which showed signs of burning. Post settings at similar intervals were also found in the outer wall of the corridor. A few larger post settings were investigated, notably at the west corner and the junction of Rooms A and B. Both of these settings had curved clunch blocks which had apparently been cut to fit around the post. The outer walls varied in width from slightly less than 0.5 metres for the south-east, north-west and south-west walls to just under one metre for the north-east wall of the wing.

The wall dividing Rooms B and C had foundations 50 cm. wide and 15 cm. deep, containing rammed soil and stones. On the Room B side there was a 15 cm. wide strip of sand with a line of stake holes and inside this a 15 cm. wide and 5 cm. deep beam slot. Above the foundations were a scatter of large stones and lumps of clunch. These foundations seem unduly wide for an internal wall and may have been originally an external one before Room C was added. At the point where the entrance wall disappeared beneath the mound, it no longer had well constructed foundations and only a double row of post-holes existed. These post-holes were in the natural gravel which extended both outside and inside the wall. The surface of this natural gravel was approximately 10 cm. above the level of the floor of Room A.

#### *Hollow 2* (Fig. 6)

At the eastern corner of the wing there was a shallow irregularly shaped area cut into the natural gravel. This area had a series of post-holes around the edge. From west to east these were 30 cm. in diameter and 20 cm. deep; 30 cm. in diameter and 30 cm. deep; 16 cm. in diameter and 20 cm. deep; 25 cm. in diameter and 20 cm. deep; 25 cm. in diameter and 15 cm. deep; 30 cm. in diameter and 30 cm. deep and 24 cm. in diameter and 20 cm. deep. The three small post-holes just outside the area were 10 cm. in diameter and 15 cm. apart. The area contained pottery similar to the rest of the building. The rather irregular shape of this area in relation to the regular angular shape of the building makes it difficult to draw any conclusions about this feature.

Although no evidence of hearths or the like were discovered in any of the rooms, it appears that the building had been destroyed by fire. The main area of burning was in Room B and had spread to the whole of the south-east wing but had not spread far into Room A or along the corridor. From the quantity of pottery and bones in Room B it may have been either a kitchen or a pantry.

*The Boundary Ditch (Fig. 1)*

This had the same orientation as the corridor building and was sampled at two points: where the ditch disappeared under the southern edge of the mound and where a branch appeared to drain it towards the river.

At the first point the ditch was 2.4 metres wide, with the bottom 1.5 metres below the surface. It was cut 80 cm. into the gravel, with sloping sides and flat bottom. The lower 50 cm. of the fill was a sandy gravelly mixture (Fig. 9, Section 14 (1)) containing only one small samian sherd. This was sealed by a layer of soft brown soil with black areas (Section 14 (2)). This upper fill contained a quantity of 2nd and 3rd-century pottery sherds and a few pre-Roman sherds. There were also tiles, iron nails, quern fragments, large stones, many bones, worked flints and a black bone bead.

The second point of investigation confirmed the eastern curve of the outfall towards the river. The ditch at this point was much shallower, being cut only 20 cm. into the natural gravel. The fill was a sandy-gravelly mixture containing Romano-British pottery sherds and a few bones.

*The Boundary Stockade*

On the inside of the ditch was a wide shallow double trench. The trench was 2.6 metres wide and 25 cm. deep with a central sandy ridge 60 cm. wide at its base, with its top level with the sides of the trench (Section 14 (3)). The ridge showed signs of having had a row of stakes set in it. The whole of the trench was filled with soft brown soil like the ditch but without the black patches and with few inclusions.

*PHASE III*

The Phase III features consisted of two structures, which were modified during the later 3rd and 4th century, and a large curved ditch. One consisted of an irregular series of foundation trenches enclosing a roughly oval area with a group of large post-holes in the centre at one end (Fig. 7). The other, lying east of the first, consisted of a series of foundation trenches and post-holes enclosing a roughly rectangular area (Fig. 8).

There were no surviving floor levels of either structure.

*PHASE IIIa**Structure 1 (Fig. 7a)*

Two trenches enclosed a roughly oval area of about 6 metres x 13 metres between the two Phase I structures, which were cut by it at the east and west ends. The northern trench, which was curved and had sloping sides, varied in width from 0.25 metres to 1.25 metres and in depth from 0.20 metres to 0.70 metres from the top of the gravel. The trench finished in a butt end to the west, which had a 30 cm. x 38 cm. diameter post-hole. The hole was 62 cm. deep with a sloping lip on the south side. It was filled with dark soil containing a few sherds of Iron Age pottery and a few fragments of bone. This was sealed by the fill of the trench which was of dark ashy soil containing a few sherds of 3rd-century pottery, which in turn was sealed by the plough soil. The central part of the trench was all but obliterated by Phase IIIb and IIIc modifications. At the east it finished in a butt end with a shallow post-setting at the outer edge and a post-hole just on the inside. Beyond the end was a narrow (25 cm.) and shallow (20 cm.) extension with a shallow post-hole at the end and a square post setting on the inner side. The square post setting was filled with a red clayey soil. The extension trench was filled with a very dark soil containing vertical pieces of carbonised wood, which appeared to have been the remains of stakes. These were sealed with a very mixed layer of soil, sand and gravel, containing a few sherds of 3rd-century and Belgic pottery and a few bones.

The extension, which was at an outward angle to the main trench, may have supported a wattle wind break to protect a doorway situated between the ends of the two trenches.

The southern trench was much straighter and varied in width from 0.5 metres to 1.5 metres. At its western extremity it had a butt end which was cut through the Phase I trench with steep sides 55 cm. into the natural gravel which was 80 cm. below the surface at this point. It was filled with sandy soil (Fig. 9, Section 4 (1)) containing sherds of Romano-British pottery, pieces of bone, pieces of daub and two flint blades. This was sealed by a layer of brown soil (Section 4 (2)) containing sherds of 3rd-century pottery. This, in turn, was sealed by the modern plough soil.

The centre varied in depth, the deepest point being towards the west where it reached a depth of 1.40 metres below the surface and 0.9 metres from the top of the gravel. The sides at this point sloped at about 45° (Fig. 9, Section 5 (1)) and it was filled with orange loamy soil which contained a few sherds of 1st-

century pottery, bones, large stones and a flint blade. This was sealed by a layer of gravelly soil (Section 5 (2)) containing sherds of late 3rd-4th-century pottery, iron nails, bones, pieces of daub and chalk and burnt stone and flint. This, in turn, was sealed by the plough soil.

Midway along the trench, two stake holes and a post setting were found on the inner edge. The trench at this point was 1.5 metres wide and U-profiled. It was 95 cm. deep from the surface and cut 60 cm. into the gravel. The fill was a sandy-stony mixture containing a few sherds of Belgic and Romano-British pottery and a few bones. It was sealed by a layer of slightly stony soil with brown patches, which was gravelly towards the base. This contained a few sherds of pre-Roman and 4th-century pottery. This in turn was sealed by the modern plough soil.

To the east, the trench turned sharply northward towards the northern trench and finished in a butt end. Just before the turn, the trench was just under 1 metre wide and reached a depth of 90 cm. below the surface and cut 25 cm. into the gravel. The trench was U-profiled with a 20 cm. wide and 15 cm. deep slot in the bottom which ended in a slightly wider square end. Both were filled with a gravelly soil (Fig. 9, Section 6 (1)) containing a few sherds of 3rd-4th-century pottery, a few fragments of bone, an oyster shell and a flint point. This was sealed by a layer of brownish soil with reddish sandy patches, containing a few sherds of Romano-British pottery and a few fragments of bone. The southern edge was built up by a layer of sterile sand (Section 6 (3)) and capped with a layer of gravel. This gravel may have been a small remnant of contemporary surface covering.

Only the lip of the butt end remained, as it had been cut into by the Phase IIIb trench. Again the inner edge had been raised by a sterile layer of mixed sand, gravel and soil (Fig. 9, Section 3 (3)) which also carried the remnants of a layer of gravel. The group of post-holes in the central region, none of which contained any datable material, in all probability do not all belong to this phase, but are all included on the plan (Fig. 7a) for convenience.

Both holes of the double setting were approximately 25 cm. in diameter and cut 60 cm. into the gravel. The ones to the north and south of these were 33 cm. in diameter and also 60 cm. deep. The large one to the east was 53 cm. in diameter and 30 cm. deep. The smaller one to the south was 20 cm. in diameter, as was the one to the north which was 23 cm. deep and had a raised lip of re-deposited gravel. The very small 10 cm. diameter hole had a sloping edge all round. All were sealed by a layer of brown soil containing late 3rd-century pottery.

A large irregular pit (Pit 11, Fig. 7) close to the northern trench may belong to this phase or Phase II. The pit cut the northern Phase I trench and was itself cut by the Phase IIIb internal trench. The pit was approximately 2 metres x 80 cm. and cut 80 cm. into the natural gravel. The fill was a sand-soil mixture with many small stones (Fig. 9, Section 13 (1)). Where it had not been cut by later features, it was sealed by the general layer of brown soil just below the plough soil (Section 13 (2)). The fill contained sherds of 3rd-century pottery.

### PHASE IIIb

#### *Structure 1 - First modification (Fig. 7b)*

This phase consists of an enlargement of the Phase IIIa structure and the introduction of a dividing wall in the 4th century A.D. The northern trench was recut and the southern one partly recut and moved southwards, thus increasing the internal area of the structure. Two further trenches appeared running side by side across the centre, probably to support internal dividing walls. If this was their function they were probably cut at different times. Two small pits were also dug close to these central features.

It can be seen from Figure 2 that the northern trench followed the line of the Phase III trench, but without the extension at the eastern end. At its western end it finished short of the Phase III trench. The western butt end was U-shaped in section, the bottom being 1 metre below the modern land surface. It was filled with a dark brown soil (Fig. 9, Section 1 (3)) which contained 4th-century pottery sherds and was sealed by the plough soil.

The central and widest part had a very sloping inner side and contained a gravel-soil mixture containing a few sherds of 3rd-4th-century pottery. This appeared to be back filling on the inside of a later feature (see Fig. 7, Phase IIIc and Fig. 9, Section 8 (1)). On the inner edge of this part of the trench, a small triangular area with 25 cm. sides had been cut. This contained two intact 4th-century vessels (Fig. 12:44, 45). They were placed one inside the other and were obviously purposely buried.

Towards the east, the trench became narrower, about 40 cm. with steeper sides and finished in a butt end. It was filled with dark brown soil with black patches. The fill contained a large quantity of 3rd and 4th-century pottery sherds. There were also iron nails, tiles, brick, pieces of chalk, pieces of iron, large

burnt stones, charcoal, a pair of iron shears (Fig. 10, 15), a hammer-stone and a bone pin. Most of the inclusions were in the upper layers of the fill and by their position may have been packing at the base of a wall.

The southern trench had a butt end to the east where it curved north towards the northern trench. This end was a recutting of the Phase IIIa trench. The trench was U-profiled and reached a depth of 1 metre below the surface. It had a 25 cm. wide and 18 cm. deep slot cut in the bottom, which widened to the full width of the trench at the southern-most point. The inner edge of the trench at this point was built up with a layer of sterile red clay (Fig. 9, Section 6 (6)). The slot was filled with an almost sterile gravelly mixture (Section 6 (4)). This was sealed by the dark brown loamy soil with ashy patches of the upper part of the trench (Fig. 9, Section 3 (2), Section 6 (5)). This fill contained a large number of 3rd-4th-century pottery sherds, pieces of tiles, pieces of chalk, large stones, fragments of querns, iron nails, pieces of iron, bones, oyster shells, a black polished bone bead and an early 4th-century coin (Appendix II, Coin 2). Like the northern trench, most of the finds were in the upper part of the fill. Many of the larger stones, pieces of chalk and quern fragments, lay just outside the centre line of the trench (Section 3 (2)). As in the northern trench, these appeared as if they had been used as packing around the outer base of a wall. There were also indications of vertical stakes along the centre of the fill. The main part of the southern-most curve of the trench was plotted after the soil stripping. Only a small section was excavated in this area. The trench at this point was 75 cm. wide and cut 50 cm. into the gravel which was 40 cm. below the surface at this point. It had a steep inner side and a more sloping outer side. It contained a gravelly fill with few inclusions (Fig. 9, Section 7 (1)) which was sealed by a layer of brownish soil containing a few Romano-British pottery sherds, some bone and pieces of chalk (Section 7 (2)).

Further round, the trench became wider (1 metre) and shallower (60 cm.) and was once more U-profiled. It was filled with a brownish soil containing late 3rd-century pottery sherds, a few bones and iron nails and a lump of slag. In this region it was also cut by a large pit (Pit 12, Fig. 2), approximately 2 metres in diameter, containing a slightly sandy brown soil with a few sherds of 3rd-4th-century pottery, a few fragments of bone, a tile, two flint blades and patches of seed (Appendix I, sample 2). Beyond the pit the trench widened considerably (over 2 metres) into what appeared to be a large butt end. Unfortunately only one side of the trench was excavated and it was not possible to delineate it further after the soil stripping. This end section overlay the Phase IIIa trench. The fill was a stony soil with some brownish patches containing a few 4th-century pottery sherds in the upper levels. In places a few patches of marl and charcoal were found; these may have been all that remained of the floor level on the inside of the wall.

Just inside the south western section of the trench was a small ash-filled pit (Pit 13), 35 cm. diameter and 25 cm. deep. It contained a few bones and a few grains of bread wheat (*Triticum aestivum*). The surrounding area contained patches of marl which again may have been the remnants of the floor. Only a few undatable sherds of Romano-British pottery was found in this area.

The main internal dividing trench ran from the northern trench almost to the southern one where it finished in a post-hole. It varied in width from 30 cm. to 75 cm. and was mostly only cut about 20 cm. into the gravel. Towards the southern end a deeper slot had been cut. About half-way along was a post-hole which may or may not have been contemporary. This is described in Phase IIIa. The fill was a brown soil containing a few Romano-British pottery sherds, a few bones, a few pieces of building material and a bone knife handle (Fig. 10, 16). Towards the northern end groups of stake holes were found. The stakes were about 6 cm. square.

The trench running parallel to the south west was 40 cm. wide and 20 cm. deep. The fill was a sandy soil with marly patches containing a few sherds of 3rd-century pottery. It had one 30 cm. diameter and 50 cm. deep post hole with similar fill but no datable material.

At the southern end of this trench were two adjacent pits (Pits 14 and 15), both approximately 60 cm. across and reaching a depth of 70 cm. below the surface. Both had sides that sloped in two stages. The western pit tapered almost to a point which sloped up to the edge of the trench. The eastern one had a curved bottom. Both showed traces of a marl lining which also spread over and up the far side of the main dividing trench (Fig. 9, Section 6 (7)). The bottom of the pits were filled with a dark soil with traces of ash containing a few sherds of 3rd-4th-century pottery and a few bones (Section 6 (8)). The eastern pit also contained a broken iron scythe blade (Fig. 10, 12). These lower fills were sealed by the same fill as that contained by the trench (Section 6 (9)).

Some of the post-holes described for Phase IIIa may belong to this phase.

*PHASE IIIc**Structure 1 – Second modification (Fig. 7c)*

This phase consists of alterations to the northern wall of the Phase IIIb, Structure 1.

A new foundation trench was cut into the northern Phase IIIb trench. This trench made a right angle turn to the north at its eastern end and may possibly have done the same at the western end. The trench was generally U-profiled, becoming wider to the west and shallow along the northward arm (Fig. 9, Section 9 (1)). The shallower part contained a shallow post-hole, 20 cm. x 30 cm. and 20 cm. deep. The trench contained a dark ashy soil (Section 8 (2) and 9 (1)), late 3rd-4th-century sherds, bones, pieces of tile, fragments of larva quern, pieces of chalk and a late 4th-century coin (Appendix II, Coin 3). The angle of the trench held a 40 cm. diameter post-hole which was 60 cm. deep, containing a few sherds of Romano-British pottery and a piece of bronze.

The eastern section of the northern Phase IIIb trench appeared to have been recut, especially adjacent to the new feature. There was no distinct difference between the fills of the two features.

The Phase IIIb trench on the inner side of the new trench had been backfilled with a gravel soil mixture (Section 8 (1)) containing a few late Romano-British pottery sherds, a few pieces of bone and some fragments of stone and clay tile. Two small shallow adjacent post holes were cut into this back fill; one was 20 cm. in diameter and the other 10 cm. in diameter.

The whole was sealed by a layer of brownish soil lying directly below the modern plough soil, containing a few Romano-British pottery sherds (Section 8 (3)).

One large post hole, 54 cm. x 39 cm. across and 56 cm. deep was cut into the side of the Phase IIIb dividing trench. It contained a brownish soil with no inclusions.

Once again, some of the post-holes described for Phase IIIa may belong to, or have continued in use into this phase.

*PHASE IIIb**Structure 2 (Fig. 8a)*

Immediately to the east of the Phase III, Structure 1, and west of the Phase II house, lay a further series of foundation trenches. These enclosed a more or less rectangular area approximately 3 metres x 10 metres, with the long axis running north to south, and a possible entrance in the east side.

On the south side of the possible entrance the trench finished in a butt end with a post-hole. The trench at this point was U-profiled, 40 cm. wide and cut 17 cm. into the natural gravel. The post-hole was 20 cm. x 25 cm. in diameter and 43 cm. deep, with a sloping lip on the side away from the end of the trench. This post-hole formed the end of a line of post-holes which were revealed by the soil stripping. The line ran diagonally across the feature to the south-west corner. It is not known if a final post-hole existed at the end of the line at the corner of the trench; the trench at this point being only excavated sufficiently to locate the corner. The fill of both post-hole, the trench and the surrounding area above the natural at this point, was a dark black compact soil, lying directly below the plough soil. It contained 3rd-century pottery sherds, bones, iron nails, an oyster shell and a piece of marble tile.

Towards the corner, the trench became wider (70 cm.) and deeper, being cut 25 cm. into the gravel which was around 45 cm. below the surface in this area. The fill was still a dark black compact soil, lying immediately below the plough soil. It contained a few sherds of 2nd-3rd-century pottery, a few pieces of bone and a tile.

At the corner, the trench was 90 cm. wide and sides sloped in two steps to a U-profiled bottom. Again the fill was a dark black compact soil, lying immediately below the plough soil. The fill contained late 3rd-4th century pottery sherds, bones, iron nails, pieces of chalk, a mussel shell, an iron blade and a piece of a bone measuring instrument (Fig. 10).

At the south-west corner, the trench was 80 cm. wide. The full depth was not excavated. The fill was a dark soil, which was sealed by the plough soil, and contained a few sherds of 3rd-4th-century pottery, a few pieces of bone and a tile fragment.

The western trench varied in width from just over a metre in the middle down to 70 cm. to the north and reached a maximum depth of 80 cm. below the surface. It was generally U-profiled in section, although in the middle for part of its length the slope of the sides was unequal; the outer slope being more shallow than the inner one. Mid-way along the trench a post-hole had been cut into the slope of the outer side. The hole was 20 cm. x 35 cm. across and cut to a depth of 85 cm. below the surface. The fill was a uniform brownish soil from the base of the trench to the plough soil. It contained a quantity of 3rd-century sherds, bones, iron nails, pieces of larva quern and large stones. The large stones may have been

packing for the base of a wall. Opposite what may have been the entrance, the inner edge of the western trench had been cut by a large pit (Pit 16, Fig. 2). The pit was straight sided and reached a depth of 1 metre below the surface. It was filled with a sandy, gravelly soil which contained a few Romano-British sherds and a few fragments of bone. Two post-holes had been cut into the northern lip of the pit; one was 20 cm. in diameter and 30 cm. deep, the other was 15 cm. in diameter and 10 cm. deep. This feature may have been dug in the interior of the structure or may be of later origin. The north end of the western trench had been destroyed by later features (see Phase IIIc below).

Only a small strip of the eastern trench remained north of the entrance, the rest had been destroyed by a later feature. The remaining portion narrowed from 40 cm. to 25 cm. wide and was cut 25 cm. into the gravel. There was a post-hole in the bottom of a 25 cm. x 40 cm. rectangular protrusion on the inner side. The post-hole was a 13 cm. x 27 cm. oval and 18 cm. deep. The fill was a dark soil containing a few sherds of late 3rd-century pottery (Fig. 9, Section 10 (1)). This was sealed by a layer of brown soil immediately below the plough soil (Section 10 (2)).

About half a metre to the east of the southern part of the eastern trench and parallel to it were two small trenches. The southern one was 1.3 metres long, 20 cm. wide and 26 cm. deep. At the south end it had a 30 cm. diameter post-hole cut obliquely into the gravel. The fill was a dark compact soil. The northern one was 1.25 metres long, 25 cm. wide and 25 cm. deep, containing a dark compact soil with a few sherds of 3rd century pottery.

Between and slightly further east was a post-hole, 35 cm. x 55 cm. across, with a sloping lip towards the main trench. The hole contained a dark compact soil indistinguishable from that of the surrounding area and the two small trenches.

A general layer, which lay directly above the natural gravel and below the modern plough soil, sealed the feature and contained 3rd-4th-century sherds, bones, iron nails, pieces of daub, pieces of stone and shell-tempered ceramic tiles, pieces of quern and an iron chisel (Fig. 10, 14).

Immediately to the east there was an area of pure yellow sand and pure greensand, presumably deposited by the coprolite working of the 19th or 20th century.

### *PHASE IIIc*

#### *Structure 2 Modification (Fig. 8b)*

This feature consisted of a curved trench which cut across the northern end of the Phase III, Structure 2, in the later 3rd or 4th century (see Fig. 2). It cut directly across the north end of the western trench and curved into the north-eastern portion. The trench had a butt end with a post-hole to the east and became narrower and shallower to the west. At its widest it was 1 metre across and at its narrowest it was 30 cm. wide. It was cut 25 cm. into the gravel. The fill was a dark soil which was more gravelly at the base (Fig. 9, Section 11 (1)). The trench fill contained several sherds of late 3rd-century pottery, bones, pieces of tile, oyster shells, a piece of iron and a flint core. The post-hole at the end was a shallow bowl shaped depression, 45 cm. in diameter. Beside the narrow part of the trench were two adjacent post-holes. A large one 33 cm. x 50 cm. and 16 cm. deep, and a small one 18 cm. in diameter and 27 cm. deep. The whole was sealed by a layer of brown soil (Section 11 (2)) lying immediately below the modern plough soil.

### *PHASE III*

#### *Ditch (Figs. 1 & 2)*

A large ditch running in a curve from north-west to south-west was also investigated. It lay immediately north of the Phase IIIc, Structure 2, trench and cut the south-west corner of the Phase II house. The ditch was 1.1 metres wide, with sides that sloped in two stages to a U-profiled bottom which was cut 40 cm. into the gravel. The fill was a dark loamy soil containing pre-Roman and 3rd-century pottery sherds, bones (including a dog skeleton), iron nails, small pieces of clunch and a block of clunch (Fig. 9, Section 12 (1)). This was sealed by a layer of brown soil immediately below the plough soil (Section 12 (2)).

#### *Other Romano-British Features*

Four post-holes were excavated to the south of the Phase III, Structure 1. The northern-most two were 17 cm. in diameter by 27 cm. deep and 16 cm. in diameter by 15 cm. deep. The southern two were larger. The western one, which was 45 cm. in diameter, had been cut by the 19th-century ditch. The eastern one was 26 cm. in diameter and 30 cm. deep (Fig. 9, Section 3 (5)). All four were filled with a brownish soil.

Although they contained no datable material apart from one small Romano-British sherd in each of the northern-most holes, they in all probability belong to the Romano-British period.

During the final stages of mechanical scraping, a quantity of 1st-4th-century Romano-British pottery came to light between the main area of excavation and the river but no associated features were found.

Several large pits were uncovered by the soil stripping, mainly in two areas: one area just west of the main excavations and the other area towards the eastern end of the mound, again on its southern side (Fig. 1). Time was not available to investigate these pits, but they all appeared of similar size and fill to Pit 12 (p. 47) and therefore are also probably of the Romano-British period.

#### *Post Roman Period*

No evidence of the use of the area between the 5th century and the 19th century A.D. was found. Many of the features on the sketch plan (Fig. 1) towards the eastern side, where deposits of greensand occur, may be the result of farming or the coprolite workings of the late 19th and early 20th century.

The large wide ditch running east to west was investigated at the southern end of the excavation (Fig. 2), and probably represents a field boundary or drainage ditch. It was over 3 metres wide and cut 80 cm. into the natural gravel with a flat bottom. The bottom was covered with a very thin layer of silt containing pieces of coal; suggesting that it was open in the later 19th century. On the south side, the fill was a gravel soil mixture which spread in a slope to within 1 metre of the north side (Fig. 9, Section 3 (5)). This layer contained a mixture of modern and earlier material similar to the surface scatter, including a 4th-century Romano-British coin (Appendix II, coin 4). The rest of the fill was a dark loamy soil also containing a mixture of modern and earlier material similar to the surface scatter. Among the inclusions were a counter, made from a samian sherd and a 4th-century Romano-British coin (Appendix II, coin 5). The fill was sealed by the general layer of brown soil immediately below the modern plough surface.

#### *Undated Features*

When the soil was removed mechanically from above the crescent-shaped ditch, between the Phase II house and the river (Fig. 1), parts of at least three human bodies were exposed (Appendix IV). These had been damaged by the weight of the earth scrapers, but one complete skull was reconstructed. One child's radius still wore an iron bangle. The bones were not articulated but lay together in the general fill of the ditch. Unfortunately, no time was available to investigate the area and it is therefore not possible to relate the bones to any particular period.

### DISCUSSION

The gravel terrace at the area of the site rises slightly higher than the surrounding areas and consequently is well drained and dries rapidly. This fact probably made it a prime occupation site, especially with the rising water table of the 1st millennium B.C. At this time the low lying area to the south between the Cam and its tributary was probably the haunt of wild fowl and provided an abundant supply of reeds and osiers.

The lack of any pre-Iron Age features could be due to several reasons. Occupation may have been on the lower ground between the rivers, which although now covered with over 3 metres of alluvium, yielded Late Bronze Age material at that depth during the construction of the motorway (Lingey Fen, see p. 30 above). Alternatively, it could have been destroyed or could lie, inaccessible, beneath the southern mound, an area in excess of 5,000 square metres. The discovery of the large number of humanly struck flints points to the close proximity of an occupation area.

There appears to have been virtually continuous occupation of the site from the later 1st millennium B.C. through to at least the fourth century A.D., a common pattern for sites in this area.

The size of the settlement in the 1st millennium B.C. is impossible to estimate because of the inaccessible area beneath the mound in its centre. It may have formed part of a much larger settlement including the area investigated by Davidson and Curtis in 1969 (*P.C.A.S.* LXIII (1973), 1), 600 metres to the north-east and the one investigated by the authors 1,000 metres to the east-north-east. The settlement was probably part of a series of settlements already known at intervals of a few miles along the gravels of the Cam at Hauxton Mill (Fox, C. *The Archaeology of the Cambridge Region*, 1920) and Rectory Farm, Gt Shelford (Alexander, Trump, Legge and Woudhuysen, 1976 forthcoming).

No pre-Belgic features were recognisable south of the mound but many of the later features contained

occasional pottery sherds of this period.

Belgic features were found only south of the mound and no estimate, therefore, of the area of occupation can be given; but it may have been similar to that of the pre-Belgic period.

No certain Romano-British features of the first century were discovered, although a few sherds of early Romano-British pottery were found. The first recognisable phase of Romano-British occupation (Phase I) appeared to date to the 2nd century. As the foundation trench of only one side of a building was discovered, it is difficult to draw conclusions about the shape of the building. However, as the trench was straight, with a possible right angle corner, it seems reasonable to suggest a rectangular building for this phase. The other feature of this phase may have been the foundation of a protective fence for the building.

The second phase (Phase II) presents a much more definite picture. Here was a well-defined building with substantial walls and divided into definite rooms, with a corridor running the length of the long axis. The building stood in the centre of a large enclosure, surrounded by a ditch with a fence on the inside. Once again, the mound raises the tantalising question as to what is concealed beneath it. How large was the building, and were there any other structures?

It appeared that the building had been destroyed by fire and not rebuilt. The collapsing structure presumably was responsible for the large quantity of pottery in Room B with clean breaks, many of which fitted together.

Only a few roof tiles were found. If the building had had a tiled roof, these must have been robbed and possibly re-used. Few bricks were found on the whole site, so it seems, therefore, that the structure was probably of timber with wattle and daub walls set in a low foundation wall of clunch blocks. Clunch would have been easily obtained from either Chapel Hill at Haslingfield or St Margarets Mount (Obelisk Hill), Harston, both of which are only 3,000 metres away.

The Phase III, Structure 1, appears to have been a large, roughly oval, hut, which was enlarged and modified over a period during the 3rd and 4th century. The presence of the two intact buried pots, we assume as an offering, leads us to believe this to be a house and not an associated barn or other structure. The evidence here points to an entirely non-brick structure with large central supporting posts and a wattle wall.

The Phase III, Structure 2, on the evidence of the pottery (Table 3), may have been contemporary with the Phase IIIb, Structure 1. On the other hand, its rectangular shape and orientation are more akin to the Phase II house, and possibly suggest a replacement for that building. The presence among the finds of a chisel and a piece of a measuring instrument perhaps indicate that this was a workshop associated with the Phase III, Structure 1.

It is virtually impossible to draw any conclusions about the Phase IIIc, Structure 2, trench as only a small length was investigated. One can categorically state that it post-dated the initial Phase IIIb, Structure 2, but it may only have been a later associated feature.

The curved ditch running north-west to south-east could have been contemporary with all of Phase III, but was certainly later than Phase II as it lay above the remains of that building.

The site was apparently abandoned at some time during the fourth century and has never since been occupied, apart from the short periods of coprolite extraction in recent times.

#### ACKNOWLEDGEMENTS

The authors wish to thank the Plant Breeding Institute for granting permission to excavate and for their co-operation during the excavations; C. A. Blackwell Ltd., the earth moving contractors for their co-operation and tolerance; the authors of the specialist reports; Dr J. A. Alexander for his critical reading of the manuscript, and members of the Cambridge Antiquarian Society for their assistance.

#### APPENDICES

- I The Seed Samples by R. J. Flood
- II The Coins by M. Sekulla
- III The Animal Bones
  - Table 1, Iron Age Pits
  - Table 2, Romano-British

IV The Human Bones by C. B. Denston

V The Small Finds (Fig. 10)

VI The Pottery (Figs. 11-13)

Coarse Wares:-

Pre-Belgic Iron Age 1-8

Belgic 9-13

Romano-British 14-69

Table 3, Comparison of Pottery Fabrics

Table 4, Samian Ware

## APPENDIX I

*The seed samples*

R. J. Flood

### *Sample 1*

The sample consisted of 227 completely carbonised seeds of *Atriplex patula* (common orache). The leaves of this species have been used as a spinach-type vegetable, probably by collection from the wild rather than from any deliberate cultivation and in this context it should probably be regarded as a weed. It is a common weed of cereals and certain other crops and is also widespread on bare and waste ground. No other seeds were present in the sample.

### *Sample 2*

The "seed" was not carbonised, although small pieces of charcoal were present, but it had a dull, weathered appearance and most appeared to have been damaged, possibly by insect action. In almost every case the seed coats had been broken open and the embryo and nutritive tissue completely destroyed. The seed coat damage did not seem likely to have been the result of natural decay or damage in the soil. The composition of the sample was as follows:-

	No.
<i>Aethusa cynapium</i> (fools parsley)	36
<i>Atriplex patula</i> (common orache)	3
<i>Polygonum aviculare</i> (knotgrass)	33350*
<i>Stellaria media</i> (chickweed)	1

\* number estimated by weighing

These species are all common weeds of cereal crops and the deposit is most likely to represent seeds cleaned out of a cereal crop. In this respect it is rather unusual that so few species are present, that no seeds of the crop occur and that there is such a large preponderance of one species. In these circumstances it is necessary to consider if this represents a deliberate collection of *Polygonum aviculare* with the other species present as contaminants. This would imply use of the "seed" either as a food material or for some form of "manufacturing process". There is little evidence of use of seeds of plants of *P. aviculare* for food purposes; they tend to act as an irritant and can cause gastro-enteritis if eaten in any quantity. Seeds of this species were found in the stomach of Grauballe man but only in small quantities and these could have occurred as contaminants of other species present in the "gruel", which may have been a ritual last meal rather than a normal part of the diet.

Flour has been produced, at times, from two related species, *Polygonum convolvulus* (black bindweed) and *Fagopyrum esculentum* (buckwheat) but these have larger seeds and there is no evidence of the use of *Polygonum aviculare* for this purpose. There seems to be no record of nor evidence for any non-food use of the plants or seeds of this species. This leads to the conclusion that the material is probably the residue of a seed cleaning operation.

## APPENDIX II

*The coins*

M. Sekulla

1. House of Constantine, post 330 A.D. Contemporary forgery. Very worn. Obv. VRBS ROMA.
2. Crispus (as Caesar) Follis 317-326 A.D. Very worn. Obv. CRISPVS NOB CAES. Rev. BEATA TRANQVILITAS PLG. Mint: LVGDVNVM.
3. Valentinian I, AE 3 367-375 A.D. Obv. DN VALENTINIANVS PF AVG. Rev. SECVRITAS REPUBLICAE.
4. House of Constantine, 335-341 A.D. Rev. GLORIA EXERCITVS. Mint: probably Trier.
5. Constantine II (as Caesar), 330-335 A.D. Slightly worn. Obv. CONSTANTINVS IVNNOBC. Rev. GLORIA EXERCITVS Mint: Trier.
6. Constantine I? Follis 320 A.D.? Slightly worn. Rev. BEATA TRANQVILITVS.

## APPENDIX III

*The Animal Bones*

TABLE 1 *Summary of identifiable bones from the Pre-Belgic Pits*

	<i>Cattle</i>	<i>Caprines</i>	<i>Pig</i>
Pit 1	-	-	4
Pit 2	4	10	11
Pit 3	1	-	-
Pit 4	-	-	-
Pit 5	2	-	6
Pit 6	-	5	-
Pit 7	12	16	7
Pit 8	5	46	13
Species total	24	78	41
Percentage	16.8	54.5	28.7

TABLE 2 *Summary of identifiable bones from the major Romano-British features*

		<i>Horse</i>	<i>Cattle</i>	<i>Caprines</i>	<i>Pig</i>	<i>Total</i>
<i>Phase II</i>	Species total	65	254	94	12	425
House	Percentage	15.3	59.7	22.2	2.8	100
<i>Phase II</i>	Species total	3	35	26	9	73
Boundary Ditch	Percentage	4.1	47.9	35.7	12.3	100
<i>Phase IIIa</i>	Species total	10	36	26	3	75
Structure 1	Percentage	13.3	48.0	34.7	4.0	100
<i>Phase IIIb</i>	Species total	5	25	39	8	77
Structure 1	Percentage	6.5	32.5	50.6	10.4	100
<i>Phase IIIc</i>	Species total	9	80	102	11	202
Structure 1	Percentage	4.5	39.6	50.5	5.4	100
<i>Phase IIIb</i>	Species total	7	23	26	-	56
Structure 2	Percentage	12.5	41.1	46.4	-	100

<i>Phase IIIc</i>	Species total	3	7	10	-	20
Structure 2	Percentage	15.0	35.0	50.0	-	100
<i>Phase III</i>	Species total	6	6	6	-	18
Ditch*	Percentage	33.3	33.3	33.3	-	100
Overall total		108	466	329	43	946
Overall percentage		11.4	49.3	34.8	4.5	100

\* Also contained 41 partly articulated dog bones

#### APPENDIX IV

##### *The Human Skeletal Remains*

C. B. Denston

A thorough examination, and reconstruction of the bones where possible, suggested that the remains were possibly representative of four individuals.

##### No. 1

Sex: male

Age at death: approximately 25 years

Stature: approximately 5' 7"

Possibly associated material: cranium plus a mandible, right radius, right ulna, right clavicle, fragment of a right scapula, fragmentary atlas, an axis, three cervical and one thoracic vertebrae, a right calcaneum, two metacarpal bones and four phalanges of the hand, and two metatarsal bones and one phalange of the foot.

##### No. 2

Sex: female

Age at death: approximately 15 years

Possibly associated material: the facial portion, frontal bone, left temporal and a few other fragments of a cranium, plus a mandible. A portion of a sacrum, two lumbar vertebrae, shaft of a right fibula, a left talus, and the distal half of a metatarsal bone.

##### No. 3

Sex: ? male

Age at death: between 9-11 years

Material: just the right half of a mandible

##### No. 4

Sex: indeterminable

Age at death: possibly 7-8 years

Possibly associated material: remains of a left femur, left fibula, left tibia, right humerus, right ulna, right radius (that found with iron bangle), right and left clavicles, pelvic bones, four lumbar, two thoracic and one cervical vertebrae.

Teeth were in situ in the maxilla and mandible of skull No. 1 = 16 teeth; the maxilla and mandible of No. 2 = 21 teeth; and the mandible of No. 3 = 6 teeth, the condition of the teeth reflecting a consistent degree of good oral health (absence of caries etc.).

Fragments of ribs were also found with the remains.

## APPENDIX V

*Small Finds (Fig. 10)*

1. Bronze fibula with scroll pattern, 4cm x 1cm. Possibly first century continental. Surface find.
2. Bone pin with point missing, length 8cm. Phase IIIb, Structure 1.
3. Bronze pin, length 9cm. Pit 11.
4. Bronze shield-shaped clasp, 6cm x 3cm. Surface find.
5. Bronze penannular brooch. Turned ends and transverse incised lines. Surface find.
6. Decorated bronze strip, 3cm x 1.8cm. Pattern has some similarity to that of the bronze fibula. Surface find.
7. Iron fibula, length 7cm. Phase I, Structure 1.
8. Part of a small cast bronze face, 3cm x 2cm. Surface find.
9. Part of a shale bangle. Phase IIIc, Structure 1.
10. Iron buckle with fixing rivets, 5.5cm x 3.25 cm. Phase II, House, Room C.
11. Stone bead. Surface find.
12. Iron scythe with thickened back to blade and upturned haft socket with petrified remains of wooden haft. Length 78cm (end missing), width 4cm. Phase III, Pit 15.
13. Iron knife blade. Phase II, House.
14. Iron chisel, length 13cm, width 1.2cm. Phase IIIb, Structure 2.
15. Iron shears, length 15.5cm. Phase IIIc, Structure 1.
16. Carved bone knife-handle, length 7cm. Phase IIIb, Structure 1.
17. Black polished bone bracelet beads with two longitudinal holes.  
*a.* 1.8cm x 1.2cm, Phase IIIb, Structure 1. *b.* 2.2cm x 1.4cm, Phase II, Boundary ditch.
18. Broken counter made from a samian sherd. 19th century ditch.
19. Part of bone measuring instrument with small divisions, approximately 7 per cm. Large divisions at 2cm. Holes for iron rivets. Phase IIIb, Structure 2.
20. Oyster shell pendant with drilled hole. Phase II, house area.
21. Spindle whorl made from base of coarse ware pot. Surface find.
22. Large "counter" with carefully chamfered edges; made from the base of a coarse grey pot. Phase IIIc, Structure 1.
23. Colour-coated Nene valley ware pot face. Phase I, Structure 1.
24. Brick red fabric pot face. Surface find.
25. Pinched face; brick red fabric pot. Phase IIIc, Structure 1.
26. Polished oval sandstone hammer stone, length 9.2cm, diameter 5.1cm. Phase III, Structure 1 (not illustrated).

## APPENDIX VI

*The Pottery**Coarse Wares*

The following selection of the coarse wares are illustrated in Figs. 11-13.

*Pre-Belgic Iron Age (p. 39 and Fig. 11).*

1. Cooking pot; coarse black fabric with calcite grit, burnished outside. Pit. 7.
2. Cooking pot; coarse black fabric with calcite grit. Pit 2.
3. Cooking pot; coarse black fabric with calcite grit fired to a red-brown exterior; vertical combing on outside. Pit 7.
4. Cooking pot; coarse black fabric with calcite grit fired to a brown exterior; burnished outside. Pit 10.
5. Cooking pot; coarse black fabric with calcite grit. Pit 6.
6. Beaker; coarse black fabric with calcite grit fired to a brown exterior. Pit 6.
7. Beaker; coarse buff fabric fired to a brown exterior, with incised pattern on rim. Pit 7.
8. Dish; coarse black fabric with calcite grit. Pit 7.

*Belgic (Fig. 11)*

9. Cooking pot; grey fabric with three burnished lines.

10. Cooking pot; grey fabric.
11. Cooking pot; grey fabric; burnished grooves and pattern on shoulder.
12. Storage jar; coarse grey fabric; hole in side made after firing.
13. Cooking pot; coarse black fabric with calcite grit; irregularly combed outside and burnished rim.

*Romano-British* (Nos. 14-39, Fig. 12; nos. 40-69, Fig. 13).

14. Cooking pot; pink shell-tempered fabric; combed pattern on outside. Phase I.
15. Flagon; white fabric with brown colour-coat; surface find.
16. Flagon; buff fabric with green-brown metallic colour-coat. Phase III.
17. Jar; white fabric with dark brown colour-coat. Phase II.
18. Flagon; pale buff fabric with orange colour-coat. Phase III.
19. Flanged bowl; grey fabric with black colour-coat, burnished inside and outside of rim. Phase II.
20. Cooking pot; grey fabric with broken tile temper; black burnished outside. Phase I.
21. Castor box lid; white fabric with brown colour-coat, patterned. Phase II.
22. Castor box; white fabric with brown colour-coat. Phase III.
23. Small flagon; pale buff fabric with colour-coat and brown painted lines. Phase II.
24. Jar; buff fabric with painted and impressed pattern. Phase II.
25. Cooking pot; grey fabric; horizontal line pattern. Phase II.
26. Candle stick? Grey fabric with black coat. Phase III.
27. Jar; buff fabric with burnished and decorated rim. Surface find.
28. Cooking pot; red-grey fabric; burnished pattern and lower outside. Phase II.
29. Dog dish; white fabric with brown colour-coat. Phase II.
30. Storage jar; coarse grey fabric. Phase III.
31. Bowl; buff fabric with red colour wash. Phase III.
32. Cooking pot; buff fabric with red colour wash and incised pattern. Surface find.
33. Cooking pot; grey-white fabric. Phase I.
34. Bowl; grey fabric with black burnished surface and pattern. Phase III.
35. Dish; grey fabric with black burnished surface; fine burnished line pattern on underside of base. Phase II.
- 36-38. Three dishes; grey fabric with black burnished surface; scored burnished pattern on inside of base.
39. Cup; grey fabric with burnished lines and impressed pattern. Phase III.
40. Jar; orange fabric with pattern on underside of rim. Phase III.
41. Strainer; brick red fabric. Phase III.
42. Strainer; black fabric. Phase III.
43. Mortarium; pale buff fabric with cream coat and black grit. Phase III. Buried offering with 44.
44. Imitation samian bowl; buff fabric with red colour-coat. Phase III.
45. Dish; white fabric with brown colour-coat. Phase II.
46. Cooking pot; grey fabric with black burnished outside and inside of rim. Phase III.
47. Storage vessel; brown shell-tempered fabric, pie crust rim. Phase III.
48. Bowl; grey fabric with chamfered base. Phase II.
49. Storage jar; brown shell-tempered fabric. Phase III.
50. Beaker; white fabric with dark green colour-coat. Phase III.
51. Deep bowl; grey fabric with black coat, part burnished. Phase III.
52. Cooking pot; grey fabric with black burnished outside. Phase III.
53. Flanged bowl; grey fabric with black burnish. Phase II.
54. Flanged bowl; white fabric with dark green colour-coat. Phase III.
55. Storage jar; grey fabric. Phase II.
56. Dish with internal flange; pink shell-tempered fabric. Phase III.
57. Jar; white fabric with orange colour-coat; circular dimples and incised pattern. Phase III.
58. Shallow dish with chamfered base; grey fabric. Phase II.
59. Mortarium; cream fabric; black grit. Phase III.
60. Mortarium; pale buff fabric; coloured grit. Surface find.
61. Mortarium; brown fabric with grey centre, black burnish and coloured grit. Surface find.
62. Mortarium; cream fabric; black grit.
63. Mortarium; red fabric with grey centre and red colour-coat and coloured grit. Phase III.
64. Mortarium; brick red fabric; coloured grit.

65. Mortarium; cream fabric, scored pattern on rim. Surface find.  
 66. Mortarium; cream fabric; fine black grit. Phase III.  
 67. Mortarium; buff fabric; coloured grit. Surface find.  
 68. Mortarium; red fabric with grey centre and cream colour wash; coloured grit. Phase III.  
 69. Mortarium; cream fabric; black grit. Surface find.

TABLE 3

*Comparison of pottery fabrics found in the major Romano-British features*

	<i>Samian</i>	<i>Colour-coat</i>	<i>Buff</i>	<i>Grey</i>	<i>Shell-tempered</i>	<i>Mortaria</i>
<b>Phase I</b>						
<i>Structure 1</i>						
No. of sherds	6	7	47	181	28	1
%	2.2	2.3	17.3	67.1	10.4	0.4
<b>Phase II</b>						
<i>House</i>						
No. of sherds	43	120	382	1305	213	12
%	2.1	5.8	18.4	62.9	10.3	0.6
<b>Phase IIIa</b>						
<i>Structure 1</i>						
No. of sherds	1	11	18	259	28	3
%	0.3	3.4	5.6	80.9	8.7	0.9
<b>Phase IIIb</b>						
<i>Structure 1</i>						
No. of sherds	1	55	103	406	81	3
%	0.2	8.5	15.9	62.5	11.4	0.5
<b>Phase IIIc</b>						
<i>Structure 1</i>						
No. of sherds	2	66	139	349	116	4
%	0.3	9.8	20.6	51.6	17.2	0.6
<b>Phase IIIb</b>						
<i>Structure 2</i>						
No. of sherds	2	51	103	317	96	7
%	0.3	8.9	17.9	55.1	16.7	1.2
<b>Phase IIIc</b>						
<i>Structure 2</i>						
No. of sherds	1	15	42	114	22	-
%	0.5	7.7	21.6	58.8	11.3	-

TABLE 4

*Samian Ware*

*Phase I*

One rim, two bases and one body sherd, all small and unidentifiable.

*Phase II*

- 1 Drag 18/31 R  
 1 Drag 18/31 R with part Potter's stamp VNDI  
 4 Drag 31 all 24 cm. diameter.  
 1 Drag 33 cup, slight concave wall with single groove half-way down outside.  
 1 Drag 37 patterned bowl

- 1 Drag 45 Mortarium base (probably used inverted as a small dish).  
 1 unidentified 25 cm. diameter rim.

*Phase IV*

- 1 Drag 31  
 1 Drag 38 with bead rim and very high gloss. 14 cm. diameter.  
 1 Ritterling 8

*Phase VI*

- 1 Drag 37 patterned body sherd (possibly same vessel as Phase II bowl).  
 1 unidentifiable base

*Phase VII*

- 1 Drag 32

*Surface finds*

- 2 Drag 33  
 1 unidentifiable bead rim.

#### FURTHER FINDS FROM THE MOTORWAY SPOIL-HEAPS

These finds were made by Mr Miller on contractors' spoil-heaps on the Plant Breeding Institute's farm. The material was peat alluvial deposit and came from Lingey Fen. The objects found remain in Mr Miller's possession.

Two shafts of red deer antler were found. One had a deep V-shaped notch with smooth edges at the basal end where the shaft had been broken, and there was a cut surface where a tine had been removed. The second was a shed antler, retaining the burr. Three of the tine stubs had cut surfaces and there were three transverse notches and three cut marks across the shaft, as well as a round hole 3mm. deep and a large oval hole 2cms. deep with a notch at each side of it.

Two antler side-pieces from a bit of early Iron Age pattern were also found (Fig. 15). One (b) was found close to the notched and holed antler (above), while (a), though found on a different spoil-heap, came from similar material. They appear in fact to be a matched pair, as the patterning and holes correspond to each other on opposite sides. Only the central hole goes right through, although the upper and lower holes penetrate most of the way. (a) is made from a solid piece of antler, while (b) is hollow, with a cavity tapering towards the burr. Both are polished, and decorated with areas of dots; both also show scored marks where the tool has slipped.

\*\*\*\*\*

These finds, together with all those from the Edmundsoles site, remain in the possession of Mr Miller of the Plant Breeding Institute, Trumpington.

The finds from the Obelisk Kilns, Harston will be deposited in the Museum of Archaeology and Anthropology, Cambridge.

M.D.C.

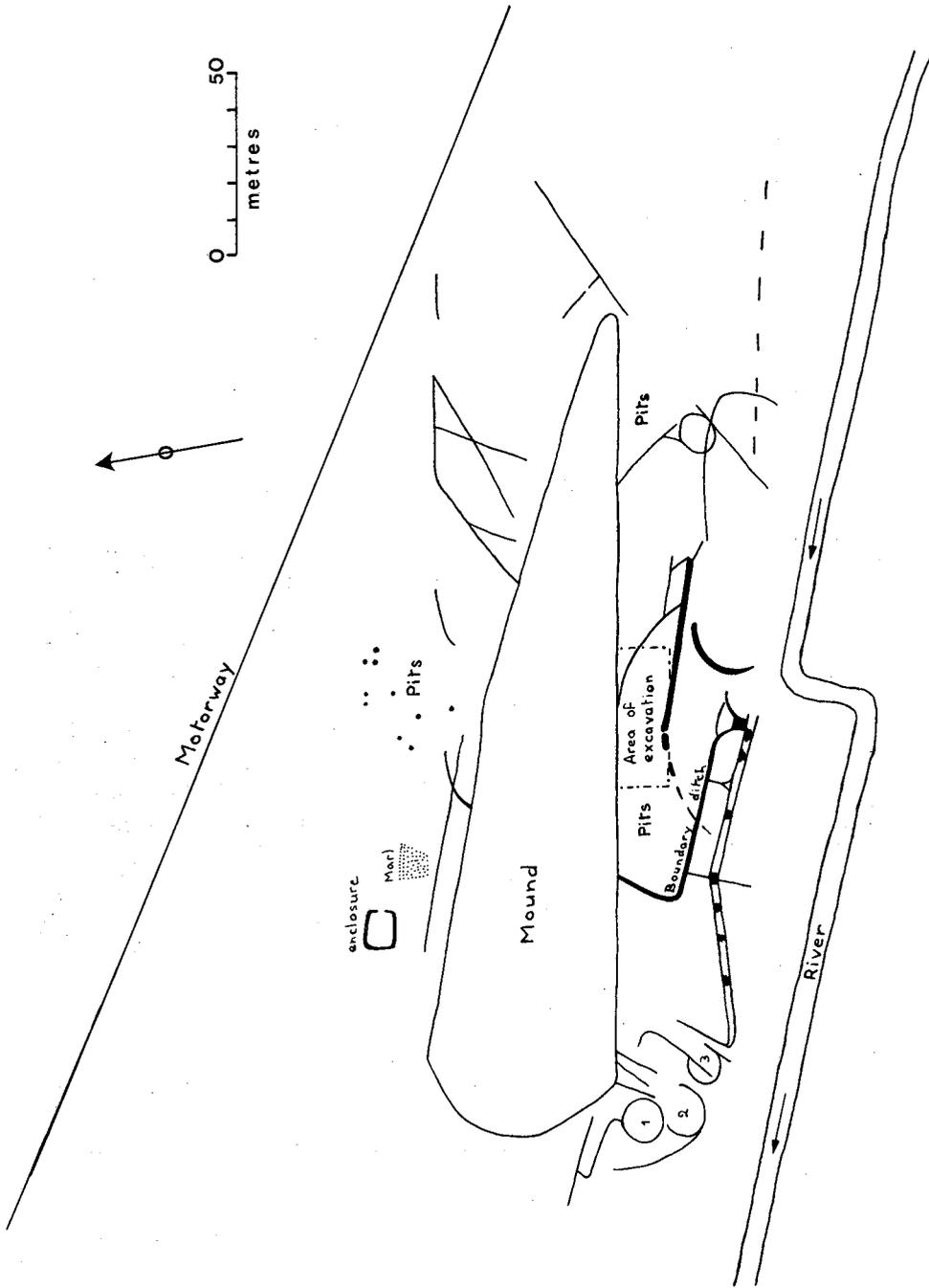
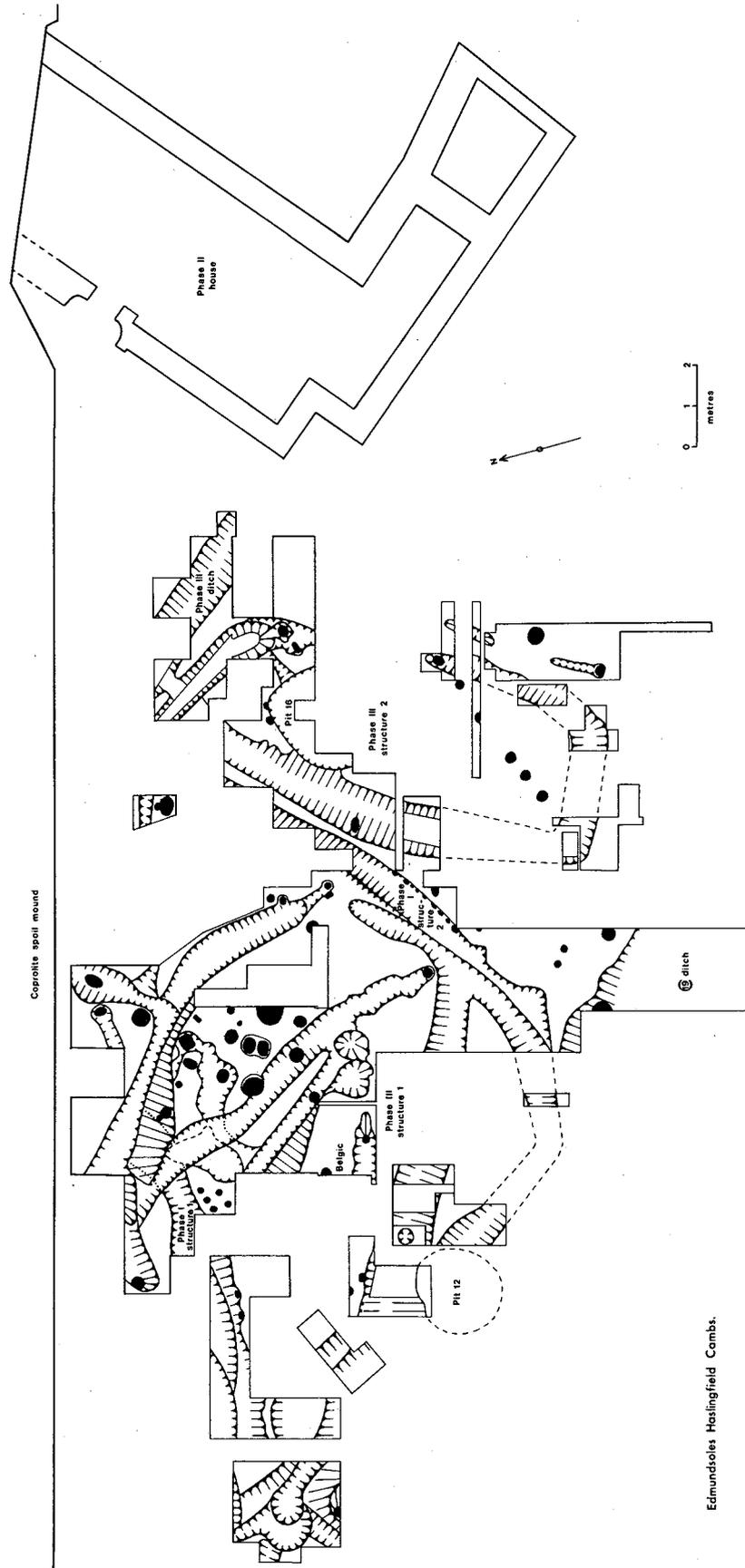


Fig. 1. Sketch map of the Edmundsole site, compiled from aerial photographs and investigations on the ground.  
For details of Pits north of Mound, see p. 41 and Fig. 3.  
For details of Circular Ditches 1-3 see p. 42.  
For details of Enclosure north of Mound, see p. 42.  
For details of Area of Excavation, see p. 42, fol. and Figs. 4-8.



Edmundscales Hastingfield Combs.

Fig. 2. Plan of main area of excavation.

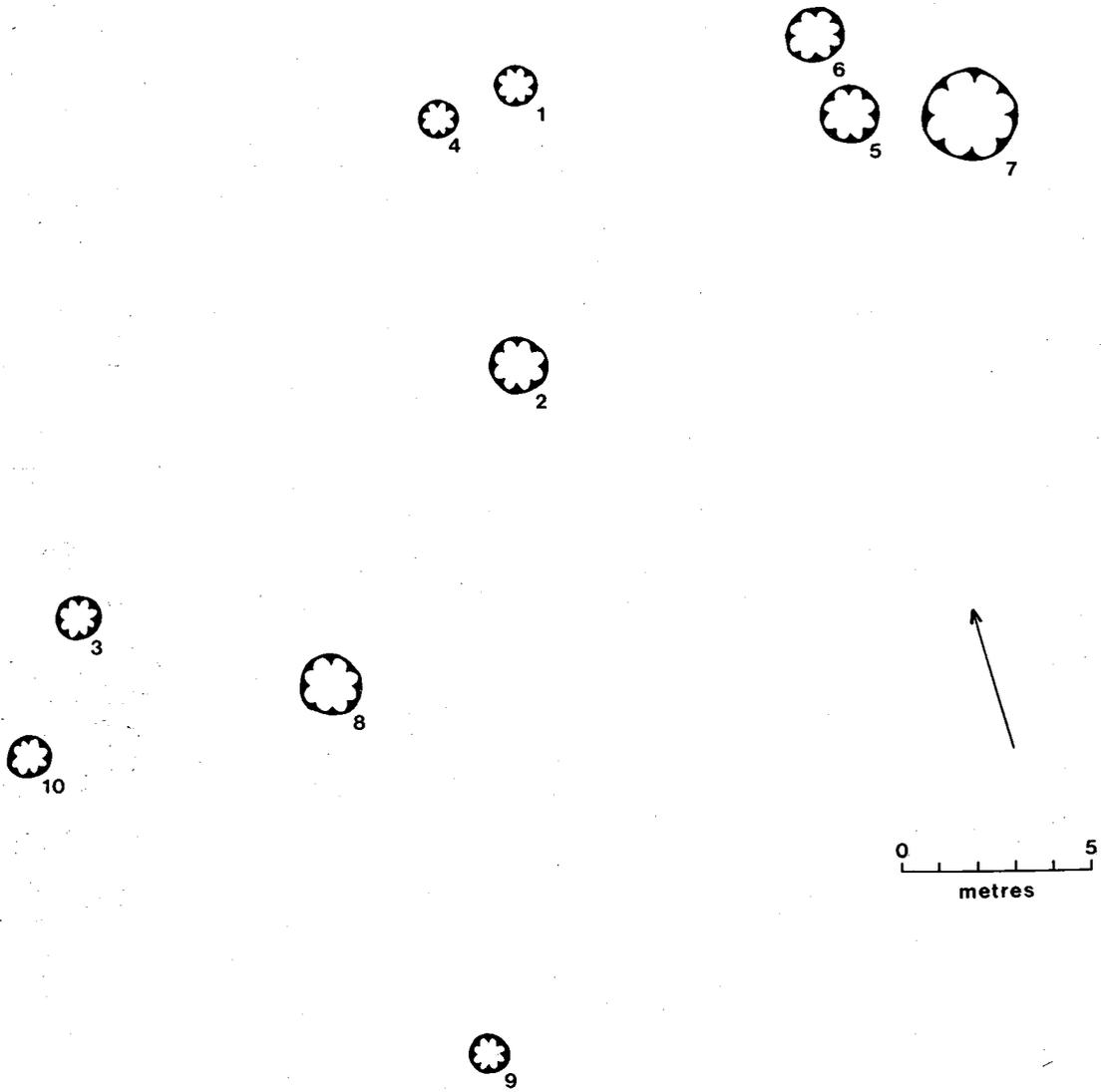


Fig. 3. Pre-Belgic Iron Age pits north of Mound (see Fig. 2).

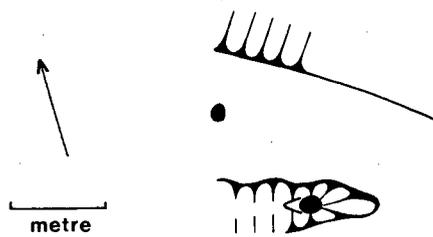


Fig. 4. Belgic features (see Fig. 2).

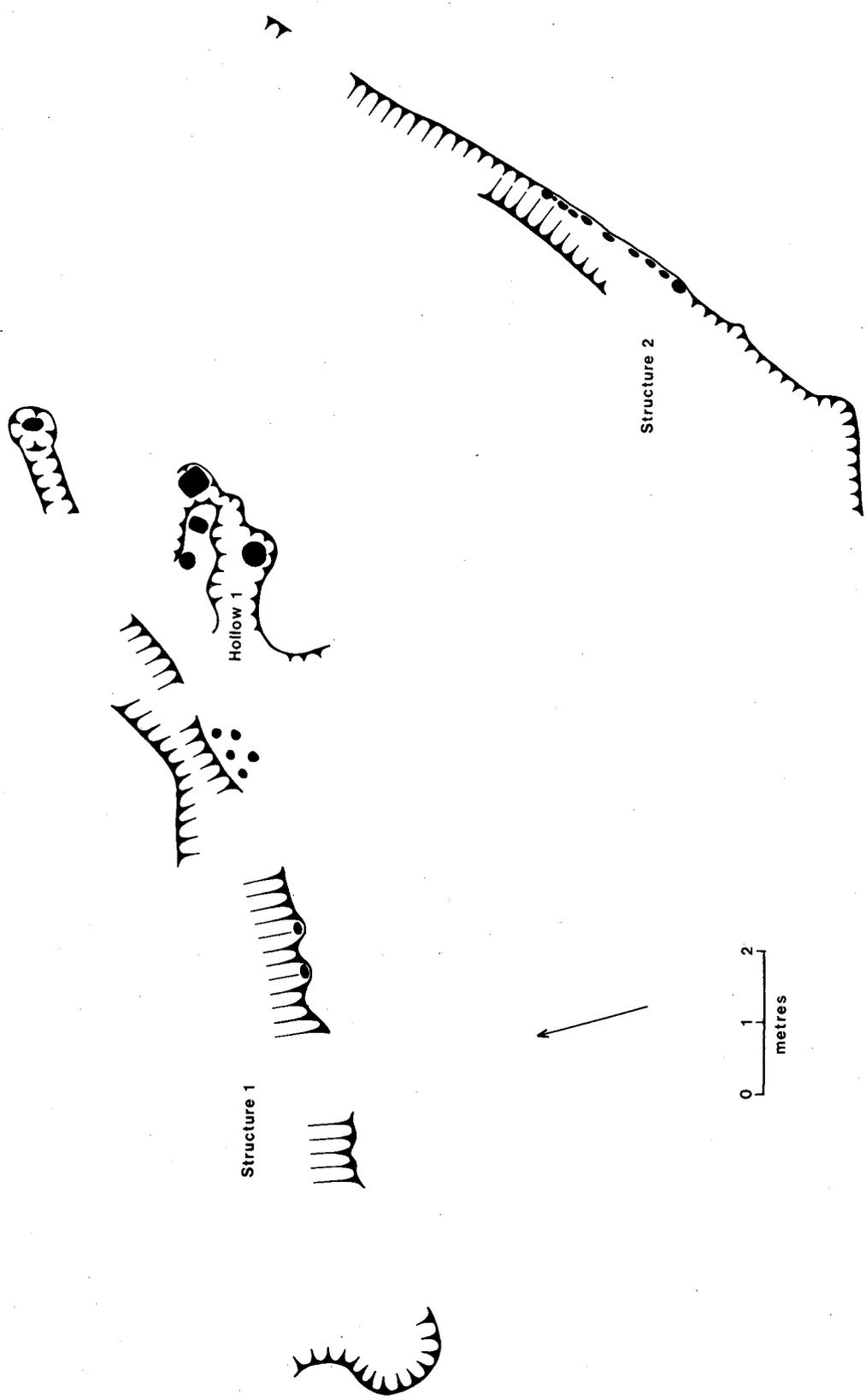


Fig. 5. Romano-British Phase I features (see Fig. 2).

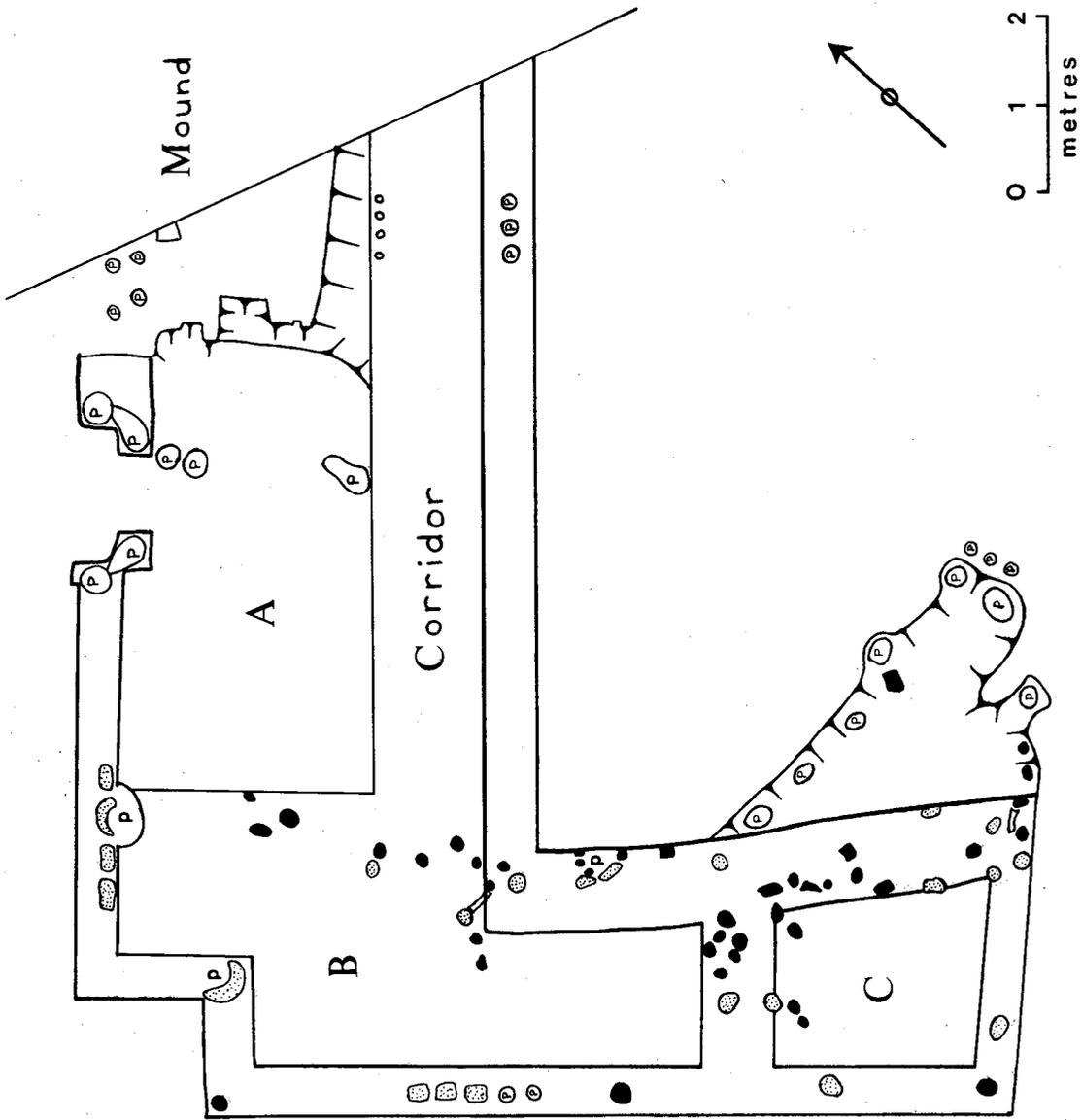


Fig. 6. Romano-British Phase II House.

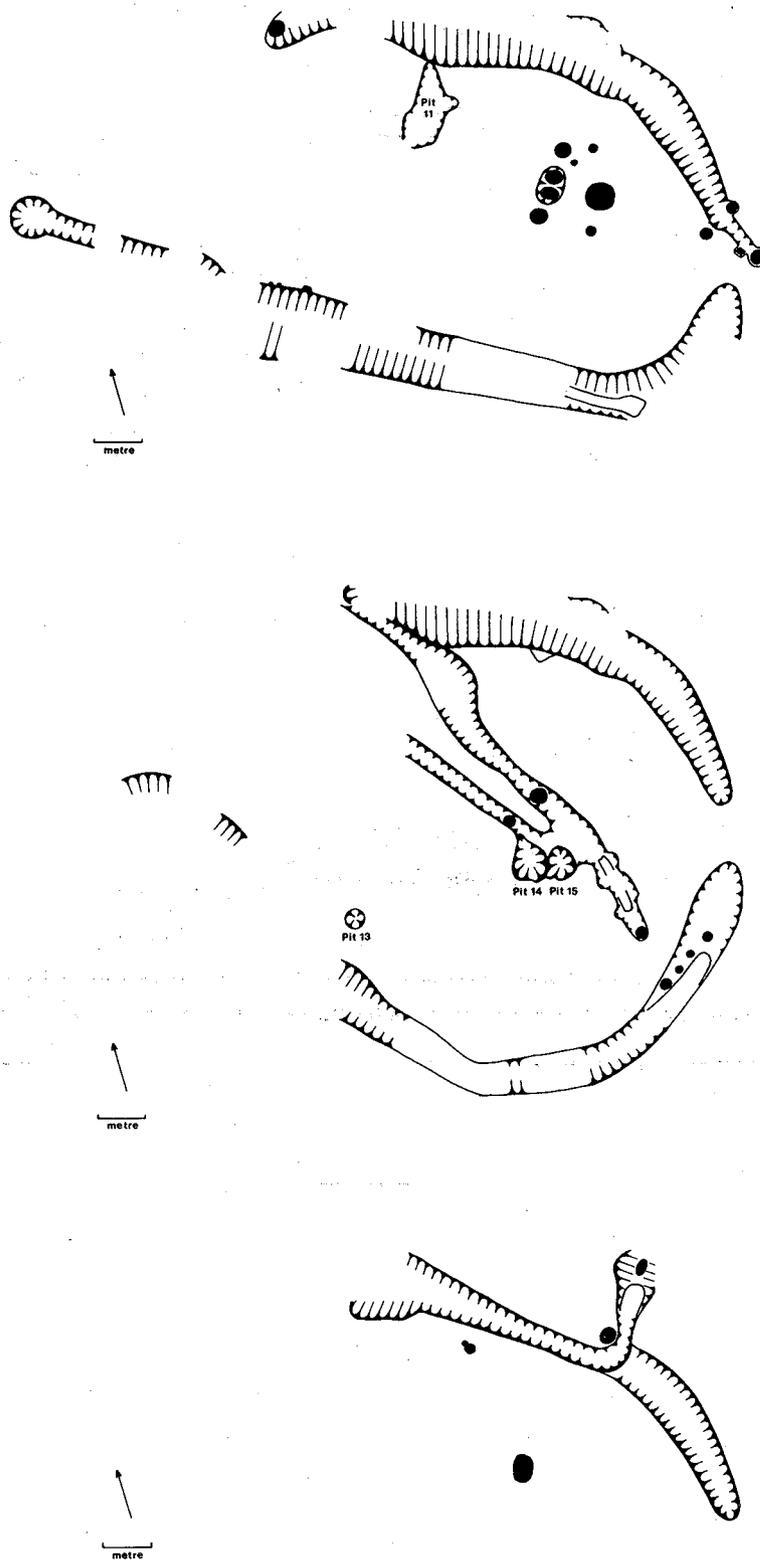


Fig. 7. Structure 1 (see Fig. 2).  
 (a) Romano-British Phase IIIa.  
 (b) Phase IIIb, first modification.  
 (c) Phase IIIc, second modification.

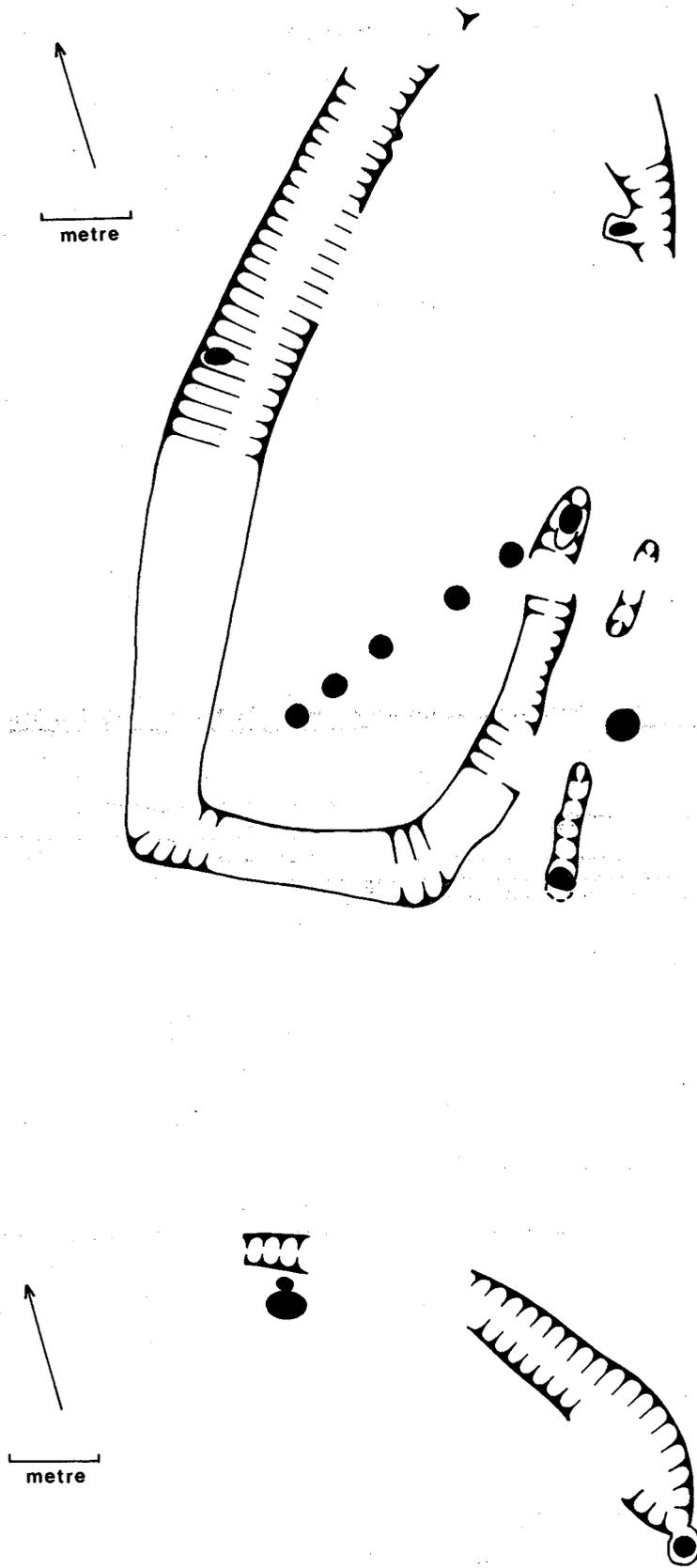


Fig. 8. Structure 2 (see Fig. 2).  
(a) Romano-British Phase IIIb, Structure 2.  
(b) Phase IIIc, modification.

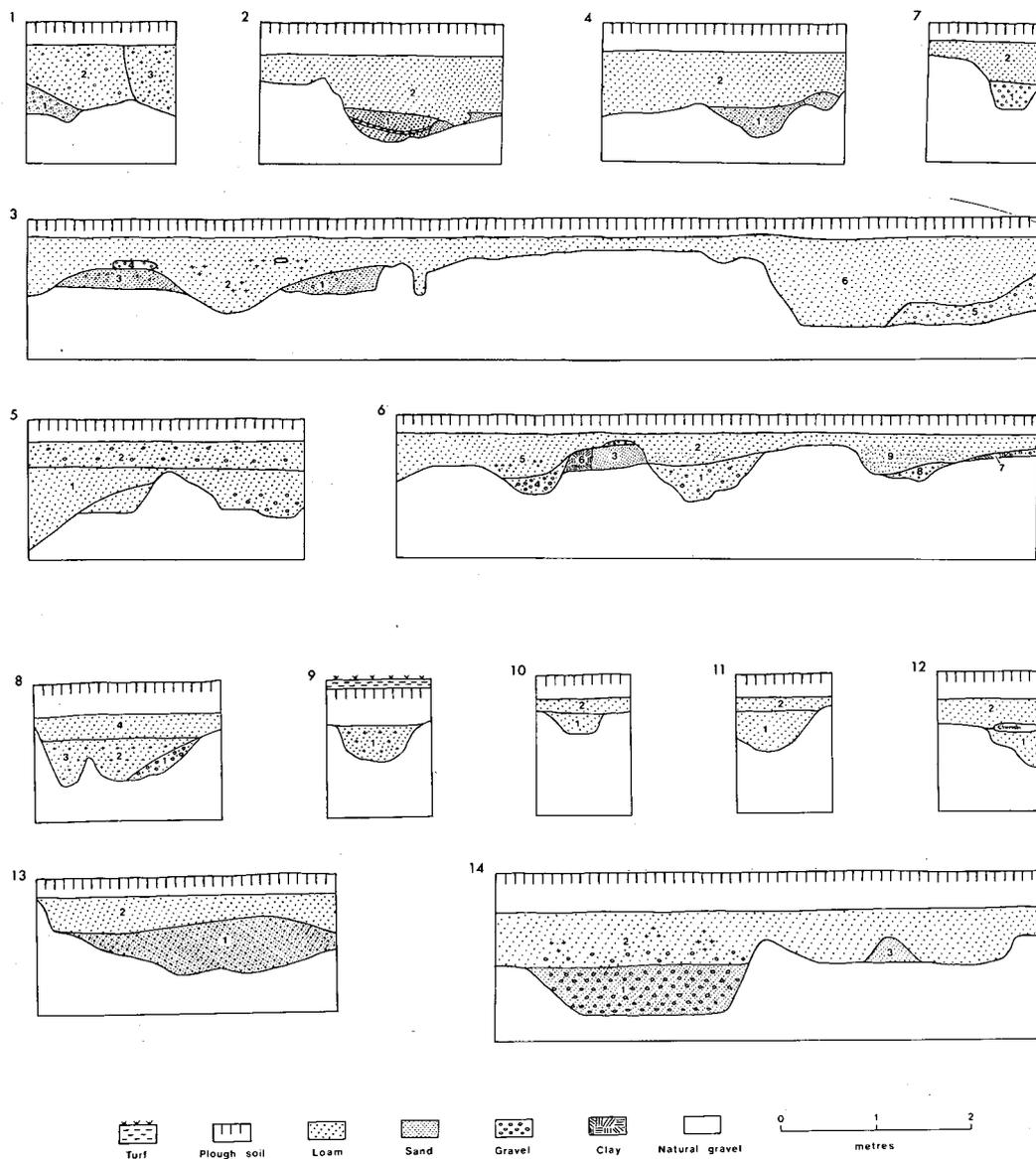


Fig. 9. Section drawings.

1. N - S. Middle region of Phase I, Structure 1, trench.
2. N - S. Western end of Phase I, Structure 1, trench.
3. N - S. Phase III, Structure 1, southern trench (oblique).  
Phase I, Structure 1 (oblique) and 19C ditch.
4. N - S. Phase IIIa, Structure 1, southern trench.
5. S - N. Phase IIIa, Structure 1, southern trench.
6. S - N. Phase IIIa and Phase IIIb, Structure 1, southern trench and Pit 15.
7. S - N. Phase IIIb, Structure 1, southern trench.
8. N - S. Phase IIIc, Structure 1, modification.
9. W - E. Phase IIIc, Structure 1, modification.
10. E - W. Phase IIIb, Structure 2, northern trench.
11. W - E. Phase IIIc, Structure 2, trench.
12. N - S. Phase III, Ditch.
13. S - N. Pit 11.
14. W - E. Phase II, Boundary ditch and stockade.

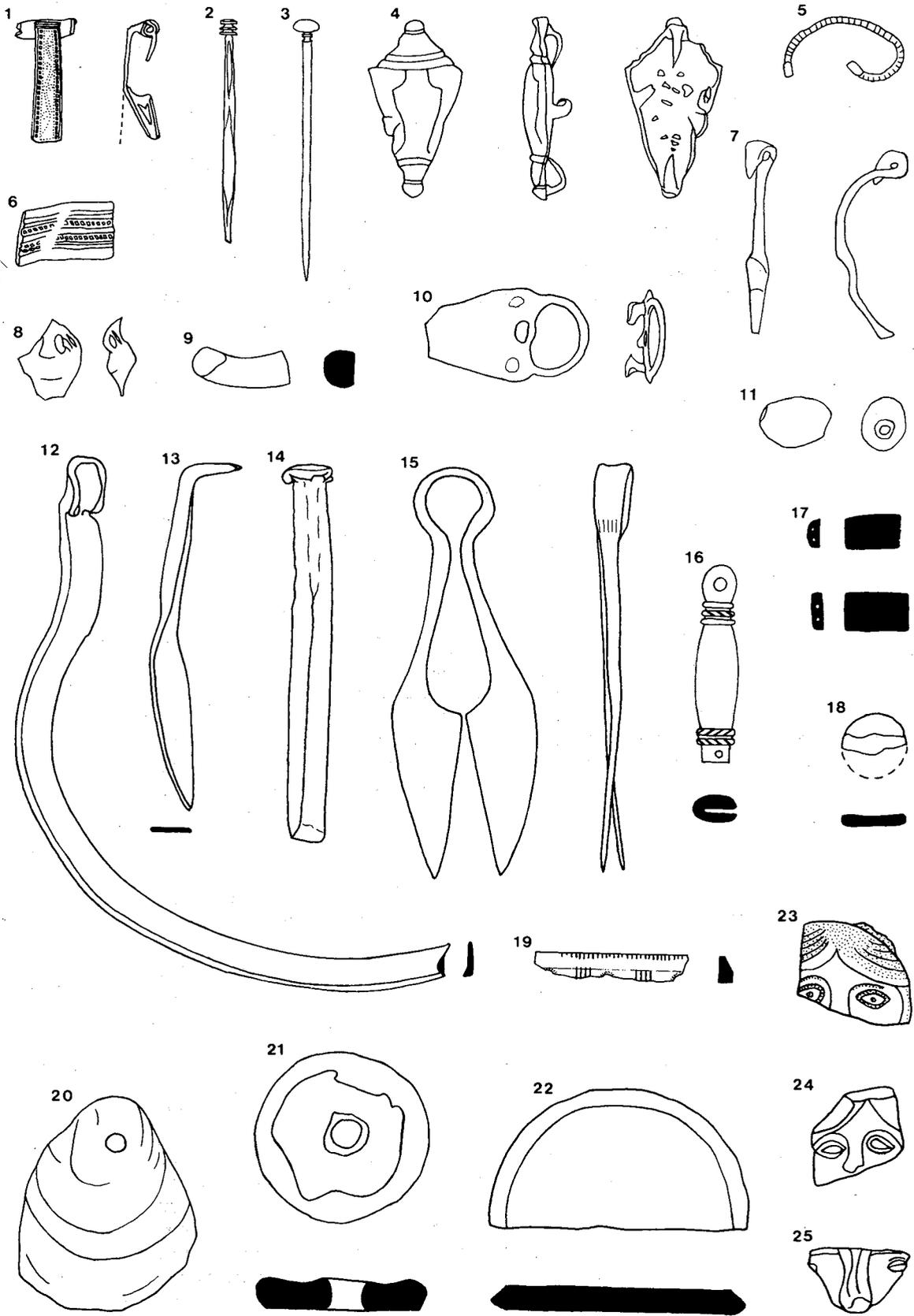


Fig. 10. Small Finds; see Appendix V. Scale 1/3.

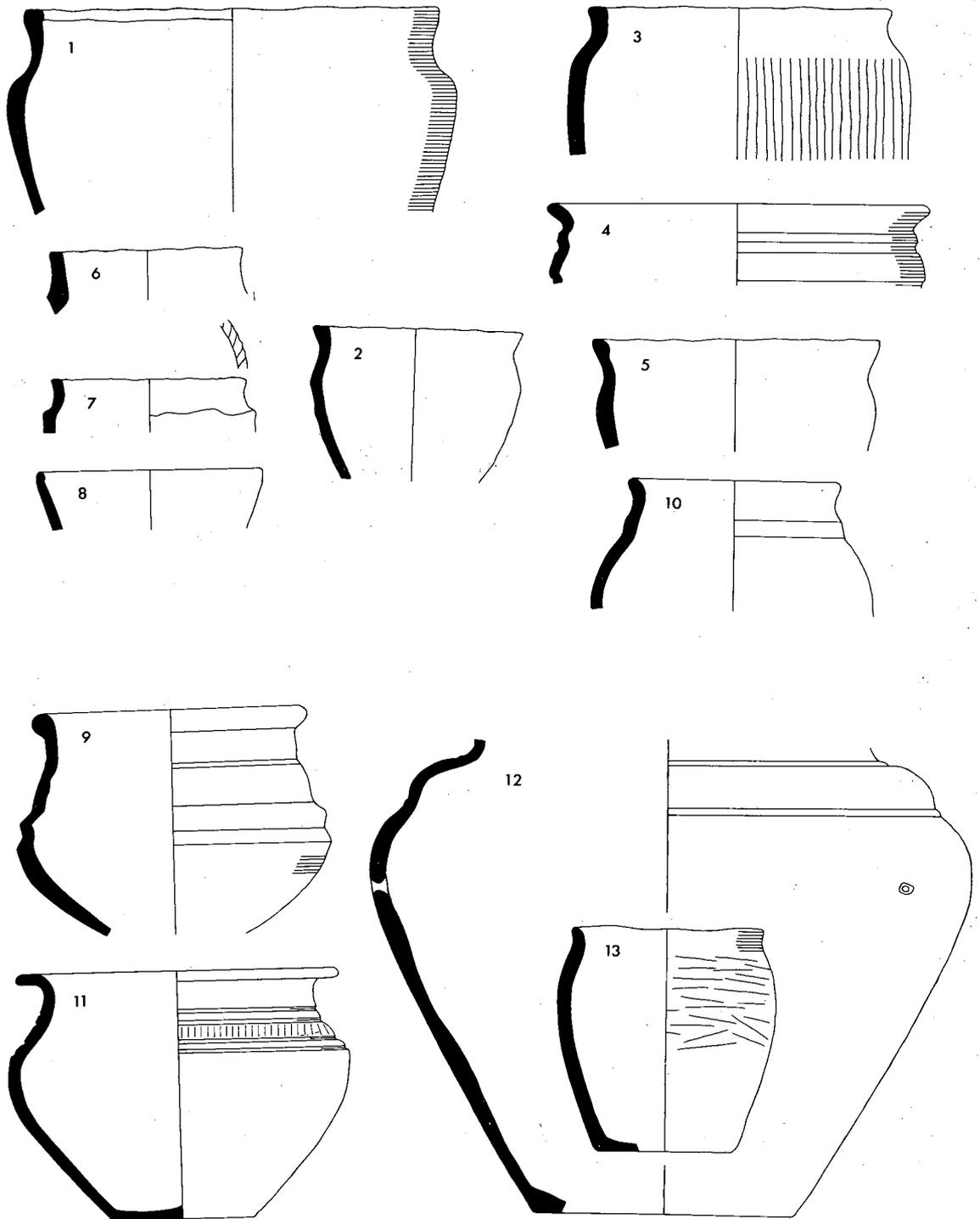


Fig. 11. Iron Age Pottery; see Appendix VI. Scale  $\frac{1}{4}$ .

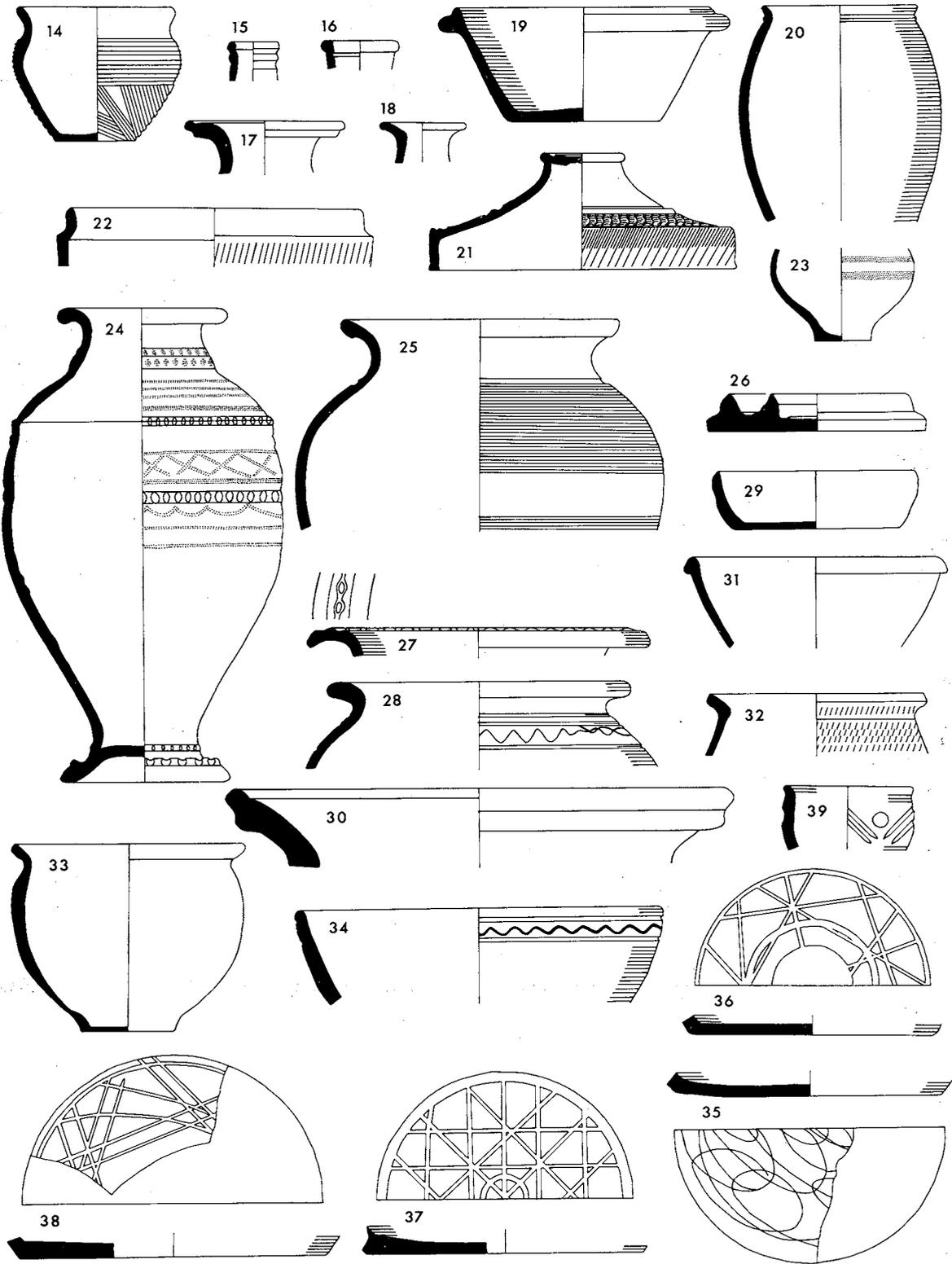


Fig. 12. Coarse Pottery; see Appendix VI. Scale 1/4.

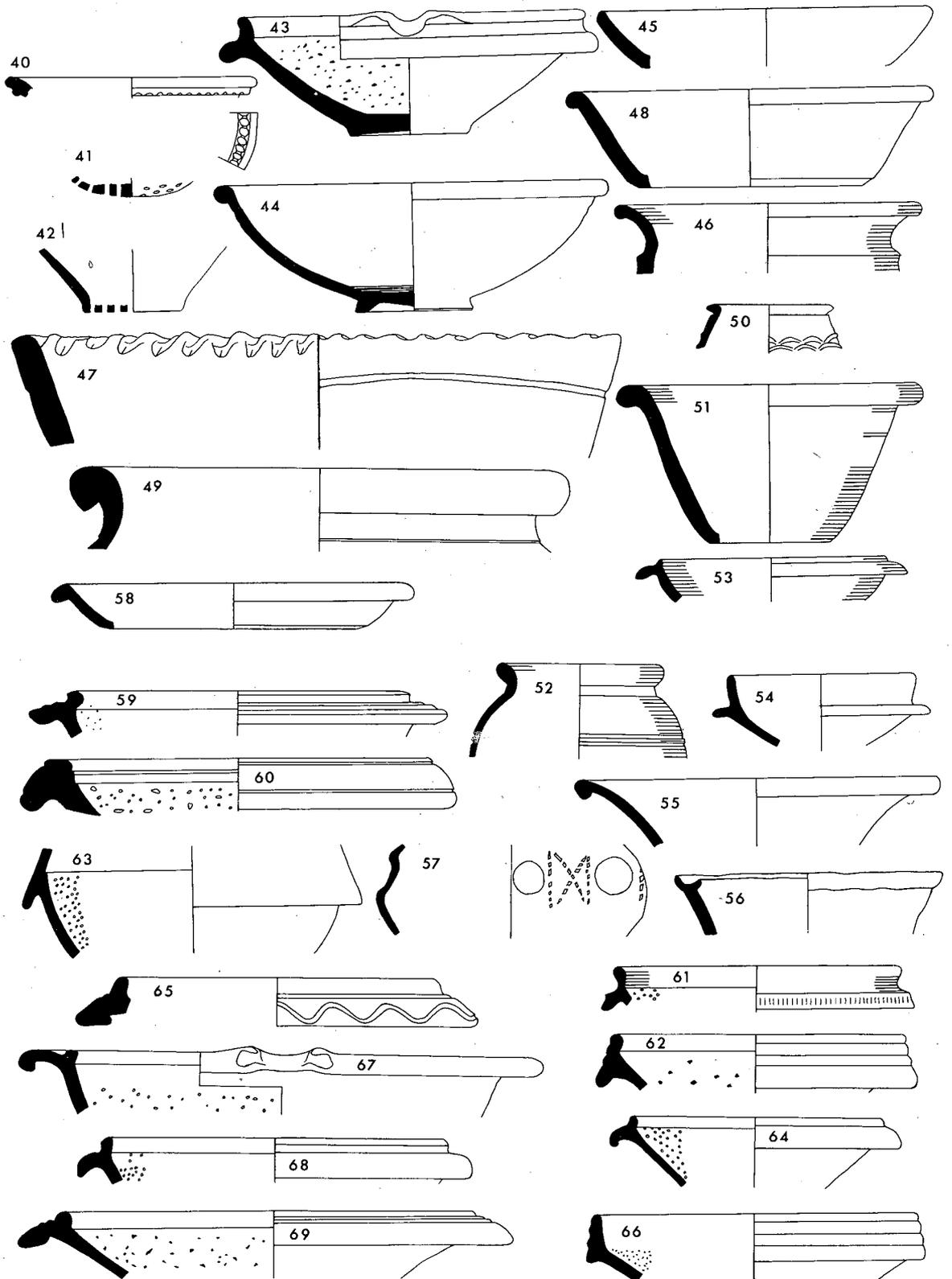


Fig. 13. Coarse Pottery; see Appendix VI. Scale 1/4.

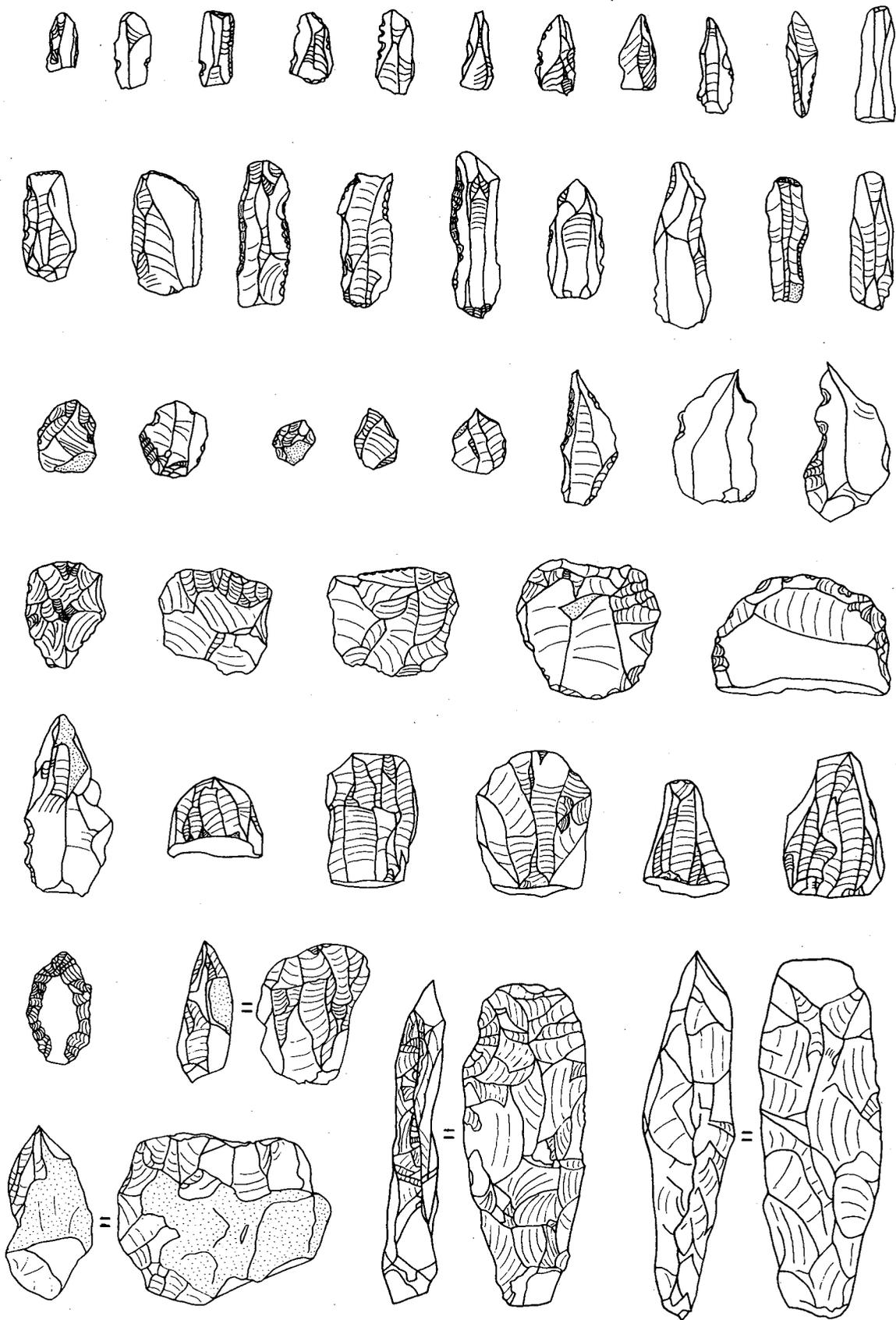
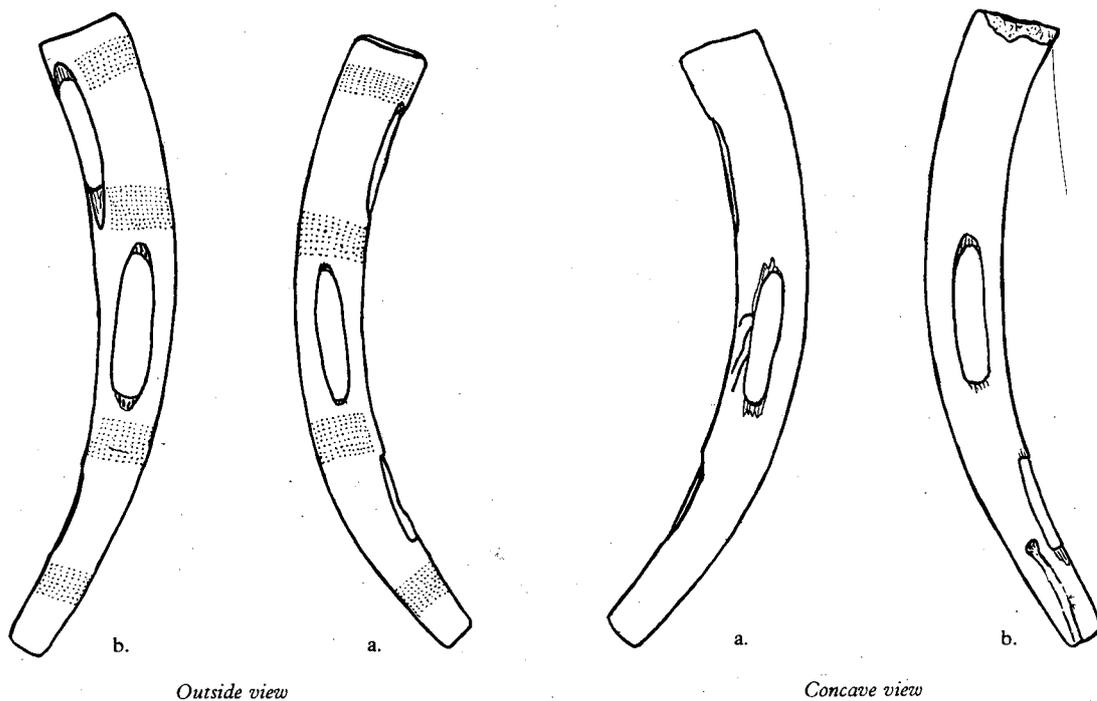


Fig. 14. Selection of flints from Edmundsoles. Scale  $\frac{1}{3}$ .



b.

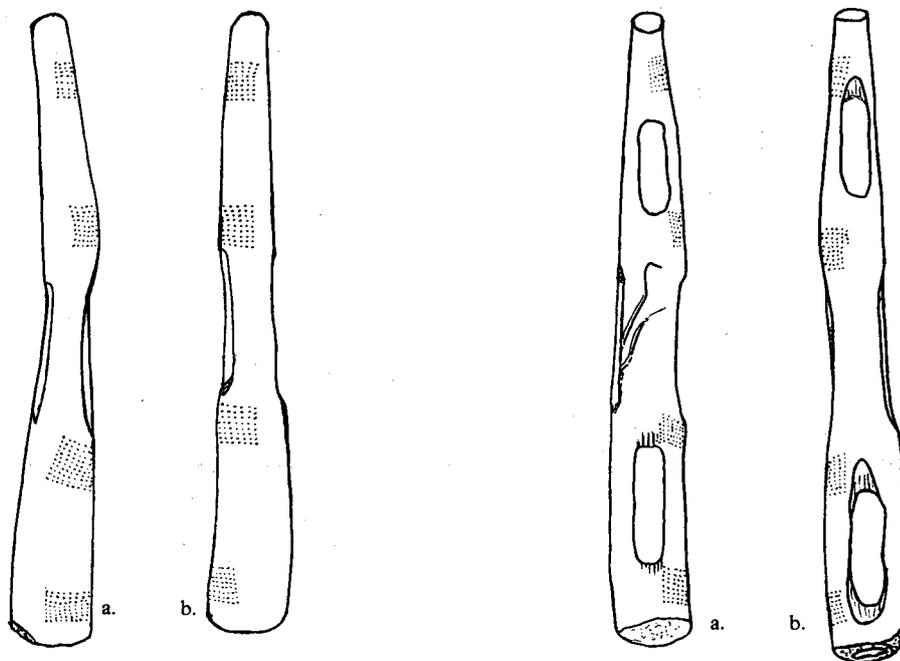
a.

a.

b.

*Outside view*

*Concave view*



a.

b.

a.

b.

*Inside view*

*Convex view*

Fig. 15. Antler side-pieces of Iron Age horse bit. Scale  $\frac{1}{2}$ .

## TWO RADIOCARBON DATES FROM THE CREMATION PIT AT PILSGATE

FRANCIS PRYOR

The site was located close to the river Welland, near the village of Pilsgate, in the parish of Barnack, Cambs. (OGR TF 049069). It was excavated during the course of a single afternoon as part of gravel-digging salvage work, and was published in a previous number of these *Proceedings* (Pryor, 1974).

The sample for assay was taken from layer 4 of the cremation pit (Pryor, 1974, fig. 2) and consisted of large pieces of charcoal (submitted to the laboratory 1971). The layer lay directly above the clean gravel of the pit bottom and was composed mainly of charcoal, calcined bone and flint implements. The two dates are fully published in the journal *Radiocarbon* (Burleigh and Hewson, 1980, 341):

BM-868  $3522 \pm 38$  bp (ca. 1572 bc)

BM-869  $3296 \pm 50$  bp (ca. 1346 bc)

These determinations fall well within the Early Bronze Age, as the associated pottery (Collared Urn and Food Vessel) would indicate (Burgess, 1974, 221-232). The two centuries, or so, that separate the dates from these closed contexts imply that the wood used to form the pyre was of different age when felled or collected. The size of this time span emphasises the importance of closely examining all material before it is submitted for radiocarbon assay (Coles and Jones, 1975). It also provides a salutary reminder of the dangers inherent in over-interpreting single radiocarbon dates.

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## A BURIED PEAT BAND AT MANEA - AND ITS POSSIBLE IMPLICATIONS

DAVID HALL AND ROY SWITSUR

The soils of the fenlands vary greatly in detail, and are the chief source of evidence for reconstructing the former landscapes. The simplified stratigraphical sequence in the southern fenlands consists of a Neolithic Lower Peat, a marine deposit of Fen Clay, formed approximately between 3000-2000 BC, and an Upper Peat which developed until the 17th century. In the Wisbech region, there was a second marine flooding that laid down clayey, silty and sandy deposits, mostly before the Roman era; these deposits are usually called the 'Silt Fen', but 'Marshland' may be a more appropriate word, as large areas are of clayey deposits. The details of the soil sequence and the dating evidence have recently been summarised by Evans and Mostyn,<sup>1</sup> and Seale.<sup>2</sup>

Further evidence on the dating of the onset of the second marine flooding has been derived from a section exposed near Manea (Grid Reference TL 47909300). The acidity of the dated buried peat band may imply that not all the Upper Peat is a fen peat derived from reeds and sedges growing in pools and swamps.

### *Stratigraphy at Manea (Fig. 1, p. 80)*

At Manea a large rodham was being levelled for agricultural purposes. It was about 60m wide and up to 2m high. The laminations of the coarse silt-loam/very fine sandy-loam rodham-deposits showed the complexity of the silting process. These deposits overlay a thin band of peat, less than 0.15m thick, at about 1.7m depth from the top of the rodham. Fragments of wood were common in the peat. Adjacent to the rodham the peat band formed the base of the excavation, or was just below the surface. Within the rodham deposits, at about 1.5m depth was an occasional pocket of peat. Below the peat was a silty clay which merged into a similar deposit within the rodham, where it overlay, for a short distance, the fringing peat band.

The sequence of deposition was probably as follows:

- 1) The lower silty clay is the Fen Clay; a lagoonal deposit merging upward into a tidal marsh deposit.
- 2) Above the silty clay a layer of peat formed, which is equivalent to the lower part of the Upper Peat.
- 3) The formation of the rodham. The merging of the Fen Clay and the clay of the rodham, and the inward sloping peat band, suggests that a water course was in existence here prior to marine flooding, and that with the onset of flooding, clays were deposited under quiet-water conditions. The coarser deposits of the rodham were laid down in channels in which water-flow was rapid; and the peat on the banks of the channel was eroded. Clay was deposited in the last channel of the rodham.
- 4) The dark, humose topsoil suggests a former peat cover over the rodham which, away from the rodham, merged with the buried peat band.

### *pH of the peat*

Samples of the peat and rodham deposits were taken and placed in polythene bags; these were sealed and taken back to the laboratory. Field-moist samples were diluted with distilled water to form a 1:2.5 suspension. This was stirred for 15 minutes, a glass electrode was then immersed into the suspension, and the pH value recorded. The results are given in Table 1. The high pH values in the coarse sediments are due to the presence of comminuted shells.

### *Age of the peat*

A sample of the peat was taken (sample 1, Fig. 1) and dated by the radiocarbon method. The radiocarbon determination was carried out after the peat sample had been purified to remove any contaminating substances of a different age, that might have been brought into the peat layer by ground

water movement, e.g. humic acids from decaying plant materials from a more recent period. The peat containing the carbon radioactivity was converted to pure benzene for scintillation spectrometry. A sub-sample of the material was used to measure the stable isotopes ratio,  $^{13}\text{C}/^{12}\text{C}$  using a mass spectrometer. This latter value  $\beta^{13}\text{C} = -26.40$  per mille, served two purposes, (a) to indicate the origin of the sample and (b) as a correction factor in the age calculation. The value was well within the range of fractionation expected from a typical acid peat sample.

The 'conventional' radiocarbon age for the peat was found to be:

$$2,555 \pm 45 \text{ B.P. (Laboratory Reference Q-2113).}$$

TABLE 1. pH VALUES

		pH			
		1.	2.	3.	Mean
1)	Floor of excavation; at 17m depth; hard, compact, little contamination with alluvium; wood fragments common up to 5cm long and 2cm wide.	4.08	4.10	4.07	4.08
2)	2-3m west from (1); at 1.7m depth below coarser creek deposits and thin band of clayey marsh deposits; hard peat; with occasional small fragments of wood.	4.40	4.37	4.28	4.35
3)	Detached peat in channel deposits; at 1.5m depth; friable peat, intimately mixed with creek alluvium; occasional plant remains.	7.00	6.90	7.00	6.99
4)	Channel deposits; at 1.5m depth; coarse silt loam to very fine sandy loam; sampled 20m from samples 1 and 2.	8.53	8.21	8.28	8.34
5)	Channel deposits; at 0.6m depth 3.5m S of samples 1 and 2; coarse silt loam to very fine sandy loam.	8.54	8.78	8.58	8.67
6)	Channel deposits; at 0.4m depth; silty clay - last phase of marsh silting.	7.98	8.08	8.25	8.10

This is based on Professor Libby's half-life determination for the  $^{14}\text{C}$  isotope of 5,568 years and using the standard reference year AD 1950. This conventional radiocarbon date may be calibrated, using the latest calibration tables in *Radiocarbon* to yield a calendar date lying between 440 and 820 B.C. The true date has a certainty of 95% of lying between these values. (Klein et al. *Radiocarbon* 1982)<sup>3</sup>

#### Discussion

The rodham became tidal after  $2555 \pm 45$  B.P., (or 820 to 440 B.C.). This is earlier than the dates quoted by Churchill<sup>4</sup> for, what is probably the same band of buried peat at Saddle Row,<sup>25</sup> near Kings Lynn dated at Q-549,  $1875 \pm 110$  B.P., Q-550,  $2070 \pm 110$  B.P. which when calibrated become 155 B.C. to 255 A.D. and 390 B.C. to 200 A.D. respectively, and Nordelph Q- ,  $2270 \pm 90$  B.P. It is later than those for Flaggrass<sup>25</sup> (Q-532,  $4055 \pm 110$  B.P. and Q-531,  $3065 \pm 120$  B.P. which calibrate to 2905 B.C. to 2335 B.C. and 1585 to 1100 B.C. respectively) and Magdalen Bend,<sup>25</sup> Runcton Holme, Norfolk Q-547,  $3305 \pm 120$  B.P. which calibrates to 1875 B.C. to 1400 B.C. However, it is suggested that at Flaggrass, near March and Magdalene Bend the peat band was incomplete and that the upper parts may have been scoured away by example wave or tidal action. This was not evident at Manea and the age of the upper peat band here may be more reliable. Nevertheless, this buried peat formed during a period of some 2000 years before the Christian era<sup>1,5,6</sup> and its date of inundation will depend upon its position, thickness and elevation, since the peat extends over an undulating surface<sup>1,4</sup> with a height range of about -2m O.D. to +2m O.D.

The date when Manea became affected by tides is in accord with the archaeological evidence which requires the marine deposits to be laid down before, rather than during the Roman era. Thus, there was an extensive Roman occupation of the silt and marshland deposits dating from the end of the 1st century A.D., but nothing earlier.

The acidity of the peat band is puzzling. Generally, the Upper Peat is considered to have formed from reeds and sedges which grew in mineral-rich waters and swamps of neutral or alkaline reaction. The peat band may have become more acid because of the drainage of the Fens and subsequent oxidation of iron pyrites (iron sulphide,  $\text{FeS}_2$ ) resulting in the release of acidic sulphate ( $\text{SO}_4^{2-}$ ) ions.<sup>7</sup> But chemical oxidation is slow at pH above 4.0, whereas oxidation is rapid at lower pH because of the presence of a micro organism, *Thiobacillus ferro-oxidans*.<sup>8</sup> In the laboratory there was no growth of the *Thiobacillus ferro-oxidans* at pH 4.0, but there was at pH 3.5.<sup>8</sup> The water percolating through the coarse rodham deposits is likely to be calcareous or neutral, which would inhibit oxidation. It seems unlikely, therefore, that at this site the acidity of the peat band is due to the release of acid sulphate ions by the oxidation of iron pyrites.

An alternative is that the peat developed its acidity during, or after its formation, but before it was buried by the calcareous tidal deposits. The evidence from the stable isotope ratio is that this was a typical acid peat sample. An explanation can be offered.

If, as is suggested by Godwin and his co workers,<sup>9</sup> the sea level regressed between the end of Fen Clay deposition and the beginning of the post 800 B.C. inundation, at the beginning of this period the surface of the Fen Clay, whilst swampy, would not everywhere be inundated by standing water. In these pools and swamps reeds and sedges would grow, if the ground water was neutral or alkaline. However, they could only grow until the decaying reeds and sedges had accumulated to the level of the ground water table; thereafter, unless the water table rose, different plant communities would colonise the surface. These communities would be tolerant of the drier conditions which would develop once the ground surface was above the water table and liable to drying out in summer. Soil nutrients would also become leached out of the peat by rainwater (pH 4.5), and the peat would become more acid.

At Manea the peat band contains much wood, suggesting there were trees and shrubs at the locality, forming on a drier, more acid peat.

The end result of this sequence of decalcification is the formation of an acidic plant community. Poore<sup>10</sup> notes that at Woodwalton Fen the Fen Clay is overlain by reed peat which gives way to a wood peat containing birch, pine and possibly juniper and yew. Over much of Woodwalton Fen this layer is in turn overlain by peat comprised of moss (*Sphagnum*), heather (*Calluna*) and cotton grass (*Eriophorum*). This type of peat can maintain its own growth, as the water table rises with the growth of the *Sphagnum*. The source of the water for the growth of the raised, or blanket bog is rainfall, not ground water.

There is no evidence at Manea of the presence of *Sphagnum* peat, nor is there over much of it in the Peat Fens. Only at the margins is there evidence of *Sphagnum* peat<sup>10,11,12,13,14,15,16</sup>. The suggestion that there may have been large areas of raised or blanket bog cannot be proved because of the wastage of the peat since the onset of drainage in the mid-17th century by shrinkage, oxidation and wind-blow. For instance, since draining Whittlesey Mere in 1852, about 3.6m of peat has disappeared at the Holme Fen Post<sup>17</sup>. Poore<sup>10</sup> points out that acid peat is better than alkaline peat for fuel, so probably much of it was cut and used in this way.

Moreover, in areas where peat survives, that below the plough level is frequently acid in reaction<sup>14,15,16,18</sup>. This acidity may not be an inherent property of the peat but engendered by the oxidation of pyrites or leaching following drainage. On the other hand, the presence of a moderately acid (pH of about 5 to 6) organic layer below the plough depth is not an indicator of a fen peat. In a soil profile description of the Prickwillow series<sup>16</sup> at Ramsey Hollow a spongy *Sphagnum* peat (over Fen Clay) has a pH of 5.9, presumably because of the downward leaching of the lime applied to the topsoil.

However, there is some indirect evidence which suggests that acid peats may have been more widespread in the Cambridgeshire and Norfolk Fens than is presently considered.

1) Wicken Fen, still a managed Fen with a high water table, partly comprises a *Molinia* purple moor grass community<sup>19,20</sup> because the peat in parts has become acidified. Godwin and Bharucha<sup>19</sup> show that in summer at Wicken Fen, transpiration by vegetation can lower the water table by 0.45-0.75m. This drying out causes peat to acidify as any basic minerals are leached by humic acids and rainwater to the water table. Plants which are tolerant of more acid conditions do not return bases to the soil, and further acidification will ensue. Bog forming plants tolerant of acid conditions may then invade the *Molinia* community. This process could have been widespread during peat formation.

2) In the literature it is common<sup>20</sup> for the following peat sequence to be described, given that the water table is not rising. In a hollow with a high water table a fen peat forms first if the water has a high base status. Secondary mires then form beyond the margins of the hollow, the peat itself retaining water and acting as the water supply. The third, and most acid stage is when the peat grows beyond the limits of the ground water and, by capillarity, maintains a perched water table above the ground water table. This is

the raised bog stage. This sequence is common around the margins of the Fen<sup>10,11,12,13</sup> away from the limits of the Fen Clay, and may have been so in the Fens away from the rivers.

3) The close juxtaposition of mineral rich and mineral poor peats is also noted frequently in the literature. The width of the mineral rich fen peats being largely controlled by the width of the mineratrophic water body, and the distance into the adjacent peat swamp that water will percolate. Often the water level in the fen is little affected by the rising and falling of the water level in the drains.<sup>10,19</sup> Except for flooding, mineral rich waters will therefore only affect a short distance either side of the waterway. This effect was seen on a large scale at Whittlesey Mere prior to its drainage in 1852. Around the Mere were reeds and sedges for a width of 45-150m, but thereafter, on the moor, cotton grass grew.<sup>10</sup>

Hence, away from the through-flowing rivers the ground water would not be rich in nutrients, particularly when over Fen Clay, which is acid. Fen peat, therefore, may have been found mainly adjacent to water courses but away from these, more acid peats may have developed.

4) The post-800 B.C. marine deposits hardly penetrate into the southern Cambridgeshire and Norfolk Fens, except along major river channels. Presumably the Upper Peat stopped the encroachment of these deposits.

The surface of the Fen Clay is often at 0 O.D.<sup>22</sup>, but can be as low as -1.8m O.D. in the Downham Market Fens.<sup>23</sup> The heights attained by the later marine deposits are 3.0-3.6m O.D.<sup>23</sup>. It could be that a fen peat accumulated at the same rate as the water table rose during the marine incursion, but this seems unlikely; and a sequence of marine alluvium/peat beds could be expected. However, other than the Dowels soil series<sup>18</sup> of post 800 B.C., marine alluvium over peat over Fen Clay, like that described at Manea, forming a narrow zone along major channels, there is no evidence for widespread intercalating alluvium and peat deposits.

It may be that the level of silting was controlled by the height of the peat, which had already attained that height prior to the marine incursion. For peat to have attained this height, it seems likely it was a raised bog peat.

### Conclusion

Although there is little direct evidence for a mosaic of fen and acid peats, it seems a reasonable hypothesis to explain the lack of marine deposits further south and east in the Cambridgeshire and Norfolk Fens.

There could have been continuing growth of peat, therefore, from the Neolithic period to the mid-17th century which in later periods did not depend on the presence of a ground water table. This raised bog formation may also explain why there are references between 1589 to 1665 to the surface of the peat fen being 1.2 to 1.8m higher than the adjacent Marshland to the north.<sup>24</sup>

### ACKNOWLEDGEMENTS

The authors are grateful to Dr R. Evans, Soil Survey, Cambridge, for much help and pointing out many relevant references. Thanks are also due to Mr A. Sears and Mr C. Sears of Manea, for access to the rodham.

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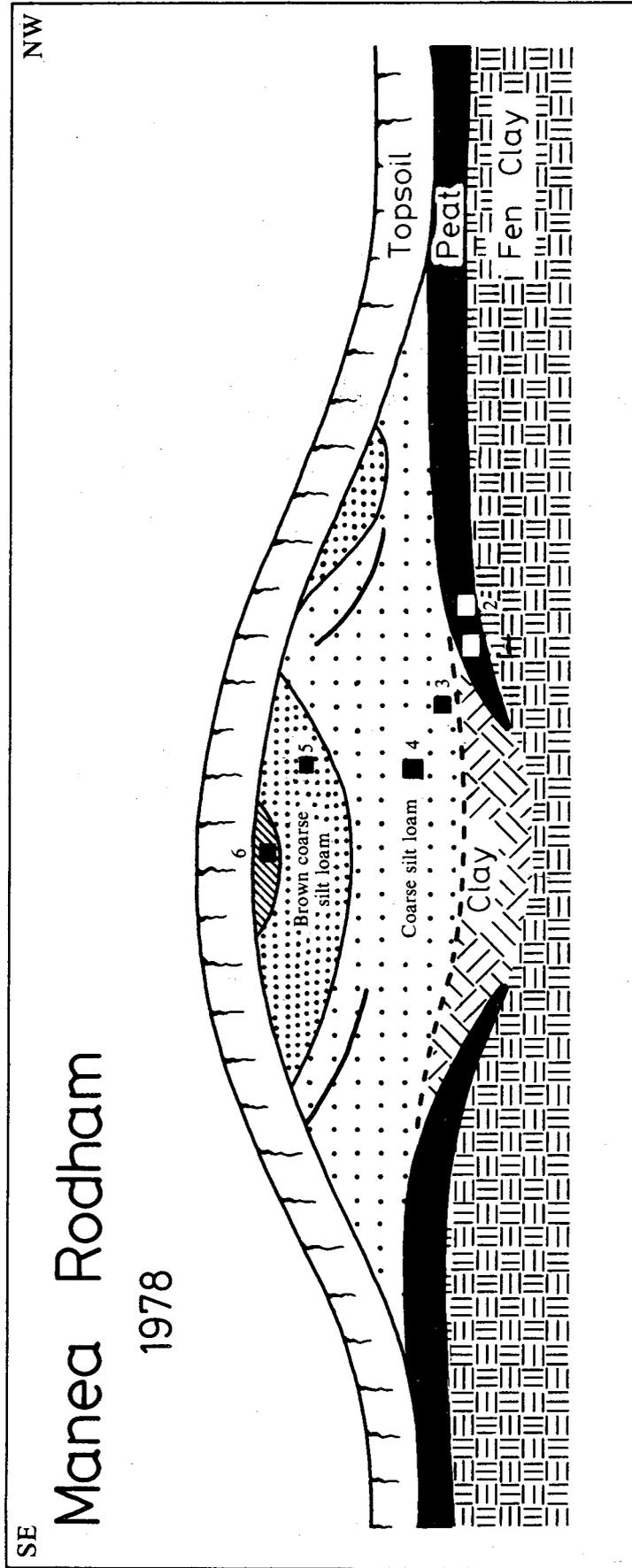


Fig. 1. Diagrammatic section of Manea rodham. Linear scale approximately 50 metres, vertical scale 2 metres. The numbered boxes show where the samples described in Table 1 were extracted.

# ROMANO-BRITISH SALT PRODUCTION ON THE WESTERN FEN-EDGE: A RE-ASSESSMENT

DAVID GURNEY

## *Introduction*

The collections of Peterborough Museum include several boxes labelled "Roman salt-panning equipment". Many of these finds come from sites referred to in gazetteers of saltern material (Hallam 1960, Phillips 1970), giving the impression that a number of possible salterns exist in the Peterborough area. This re-examination suggests that these are not saltern finds, and argues against the presence of a salt industry along the western fen-edge in the Romano-British period.

## *The Sites*

The locations of these sites are shown in Figure 1. Sites mentioned in the gazetteers but without finds in Peterborough Museum are also included (sites 2, 5, 11). (*For figures see after p. 84*)

### SITE 1. ST GUTHLAC'S CELL, CROWLAND (LINCS) TF 251109

Thirteen firebar fragments, marked "Crowland 5000". Six are square in section, six rectangular, and one cigar-shaped with one flattened surface. They may have either slightly splayed or tapered ends. Four are illustrated (Fig. 2, Nos. 2-5). The associated finds are three pieces of horn, one piece of fossil deerhorn, one piece of Roman tile, and five sherds of Roman pottery. These were found by A. S. Canham and J. W. Bodger.

References: Irvine n.d. Irvine 1889 Phillips 1970,275

### SITE 2. SINGLESOLE FARM, EYE TF 253070

Finds of "wedge-shaped bricks" on a ploughed field are recorded.

References: Irvine n.d. Irvine 1889 Hallam 1960,73 Phillips 1970,274

### SITE 3. THE REACHES, EYE TF 245047

Seven supports or "handbricks" (acc. no. L109/L109A) of South Lincolnshire type, with characteristic finger and thumb impressions. Heights vary from 60mm to 125mm, and the largest stem diameter is c. 75mm. Four are illustrated - Fig. 3, Nos. 6-8 and Fig. 4; No. 11. Hallam incorrectly gives the provenance of these finds as TF 253070.

References: Hallam 1960,72 Phillips 1970,273.

### SITE 4. NORTHAM QUARRY, EYE TF 230032

Two firebar fragments and three support fragments. One firebar is 30mm x 30mm in section with a splayed end and a minimum length of 110mm. The other is 24mm x 28mm in section, tapering slightly, with a minimum length of 55mm. The three supports have flat prominently splayed bases rising to a rounded ridge with a slightly upturned end. The largest is 75mm tall, with a minimum length of 60mm. One is illustrated - Fig. 4, No. 10. The associated finds are 23 pieces of bone (marked "P.R.") two pieces of flint, and 16 pottery sherds of probable Roman date. These were found by Samuel Egar in 1888.

### SITE 5. TANHOLT FARM, EYE TF 233023

Ploughing in 1951 exposed flue-like features of indeterminate function. Fieldwalking on this site in 1979/80 has produced no saltern finds.

References: Hallam 1960,73 Phillips 1970 273

### SITE 6. PETERBOROUGH CATHEDRAL TL 19429866

Eight firebar fragments and one fragment of a fired clay slab (25mm thick). Seven of the firebars are square in section. The largest is 41mm x 41mm in section, and the longest has a minimum length of 148mm. One is illustrated - Fig. 4, No. 9. The remaining firebar is 30mm x 37mm in section, with a minimum length of 94mm. There are six associated pottery sherds; one is modern, and the other five are

Roman (acc. nos. 33/54/1-2). These were found in 1889 by J. W. Bodger in an east-west ditch running under the west wall of the north transept.

References: Irvine n.d. Irvine 1889 Hallam 1960,73 RCHM 1969,3 Phillips 1970,184

#### SITE 7. ALWALTON

One firebar fragment (acc. no. L107) 50mm x 50mm in section, with a minimum length of 300mm. This find is marked "Alwalton 1.5.26" and "Presented by ..... Bailey".

#### SITE 8. LONDON BRICK CO. NO. 4 YARD, WOODSTON c.TL 185960

One firebar fragment (Fig. 2, No. 1), described on a contemporary label as a "Brick Tent Peg". It was found in 1884 by J. T. Irvine.

References: Irvine n.d. Irvine 1889 RCHM 1969,36 Phillips 1970,183

#### SITE 9. LONDON BRICK CO. NO. 1 YARD, FLETTON c.TL 198965

Two firebar fragments. One is 48mm x 55mm in section, with a minimum length of 160mm, and the other is 42mm x 45mm in section with a minimum length of 146mm.

References: RCHM 1969,29 Phillips 1970,183.

#### SITE 10. STANGROUND NORTH TL 217982

One firebar fragment, 40mm x 48mm in section, with a minimum length of 132mm.

References: RCHM 1969,33 Phillips 1970,187

#### SITE 11. HORSEY TOLL, WHITTLESEY TL233954

The finds from this Romano-British site, excavated by Mr Eric Standen in 1957 are held by the Field Section of the Peterborough Museum Society. They consist of one fragment of hearth wall, four fragments of fired clay slabs, three small rim sherds from large calcite-gritted vessels, and 16 firebar fragments. The largest of these is 55mm x 60mm in section, and the longest has a minimum length of 150mm.

References: Hallam 1960,64n,65n,73 Phillips 1970,188

#### SITE 12. GLASSMOOR HOUSE, WHITTLESEY TL 284934

Two complete supports from a Romano-British site, found c. 1880, and presented by the Revd Peter Royston in 1906 (acc. nos. L108A and B). They are both 145mm tall, and possibly form a pair or part of a set. The top of each is c. 20 x 75mm in plan, rising up at each end, thereby forming a curved central hollow. The body of the support tapers slowly outwards towards the base, which splays out to the shape of an oval, truncated at each end, and with maximum dimensions of c. 80 x 105mm. These appear to be much larger examples of the support type represented by the fragments from Site 4.

References: Phillips 1970,187.

#### *Unprovenanced Finds*

Eight firebar fragments. In section, four are rectangular, three are roughly square, and one is cigar-shaped. The largest is 48mm x 48mm in section, with a minimum length of 220mm. One has a contemporary label which reads "Harrow Tine Brick, Peterborough. Presented by Miss Bristow 27.2.26". Her father, James Bristow presented material from Woodston to the Museum, so this may be from the same provenance.

#### *Discussion*

##### 1. *The Finds*

As these finds come from a variety of sites and uncertain contexts, detailed fabric and colour descriptions will not be given. Most are in a hard well-fired fabric, with either chopped vegetable or shell inclusions. Nearly all of the associated finds appear to be of Roman date, and there is no evidence to suggest that any of the finds come from contexts of other than that period.

A) *Supports*. Only the "handbricks" from Site 3 can be confidently related to the salt production industry as these are common on Iron Age and Roman salterns in south Lincolnshire. (Hallam 1960, 39f), and at Ingoldmells they were found to act as supports for the large troughs known as "Swinerton dishes" (Swinerton 1932, 244-8 and figs. 7-8). It must be stressed however, that their presence on this site is not in itself evidence of salt production, and they may be from a site where salt was dried or traded, or where saltern equipment was manufactured.

The supports from Sites 4 and 12 are not certainly of saltern origin, and they may derive from another type of hearth, as suggested by Phillips (1970,187).

B) *Firebars*. Fifty-two firebar fragments were examined, and except where stated, all have rounded edges and taper slowly to a rounded point. Although firebars do occur on salterns in the area (Hallam 1960,40 and plate II), they are very uncommon, and do not appear to be a fundamental part of the equipment for salt-production. In the southern fens, firebars have not been found on saltern sites during extensive fieldwalking (pers. comm. D. Hall).

As firebars are not exclusively used in the salt industry, it would be unjustified to assume that the firebars here are from saltern sites. Six of the sites (1, 6, 7, 8, 9, 12) have evidence of industrial activity other than salt-production. While there are similarities between the finds considered here and kiln bars from Water Newton (pers. comm. A. Challands) and possibly also at Stibbington and Sibson (Hartley 1972, 10,14) they are generally of a lighter construction and are not burnt to the degree usually found with local kiln bars. The use of these firebars in other types of hearth (e.g. bread ovens, corn-drying ovens) cannot be discounted.

It should also be noted that no trace of the vitrified yellow-green glaze-like surface deposit commonly found on saltern furniture is present on these finds.

## 2. *Salt-production in the Fens*

The earliest evidence for salt production in the fens comes from two sites near Peterborough, Fengate (Pryor 1980) and Northey (Gurney 1980), where finds of fired clay saltern furniture occur in early or middle Bronze Age contexts. These isolated finds are probably from fen-edge settlements where salt was dried or saltern equipment manufactured.

During the Iron Age, the southern fens appear to have been covered by a raised bog, while much of the northern fens was covered by a salt water lagoon (Hall forthcoming). Certain evidence of Iron Age salt production is limited to the sites found in south Lincolnshire (Simmons 1977).

The marine inundation which flooded the northern fens during the Iron Age deposited large areas of silt, and when a fall in sea level around the mid 1st C. A.D. left these silts dry, they became the focus of extensive settlement and saltern activity, as at Elm (Hall 1978).

During the 3rd C., increased seaward deposition appears to have led to a deterioration in drainage conditions. Increased flooding caused a shift to the higher silt areas, and by the 4th C., there is little evidence of occupation on the silts.

## 3. *The western fen-edge*

There is no structural evidence for Romano-British salt-production on the western fen-edge, and fieldwalking has failed to produce scatters of saltern material like those found in the southern fens and on the silts to the east (pers. comm. D. Hall).

It can be seen in Figure 1 that in north Cambridgeshire, certain salterns are known only along the eastern edge of the peat fen, on the junction of the fen and the silts in the Roman period. The sites considered here are all on the western edge of the peat fen, up to three miles from the eastern edge of the silts. While it seems possible that the silts would have been penetrated by narrow tidal channels during the Roman period, little salt water would have reached the far side of the peat fen. With fresh water draining down from the uplands as well, the water on the western fen-edge is unlikely to have been sufficiently saline to make salt extraction a viable economic activity.

The evidence for a salt industry on the western fen-edge rests solely upon the finds discussed above and with the exception of the "handbricks" from Site 3, none is of certain saltern origin. It seems unwarranted to suggest that along the western fen-edge in the Peterborough area, there existed a salt-production industry using firebars, in contrast to salterns in south Lincolnshire and to the sites on the silts only three or four miles to the east. The site 3 "handbricks" may represent an "inland" phase of the saltern industry – perhaps the manufacture of saltern furniture for use on the silts, or alternatively, the refinement of salt on the western fen-edge after initial extraction on the far side of the peat fen.

## *Conclusions*

It has been suggested that the finds discussed here might derive from industrial activities other than than of salt-production. All confirmed saltern sites are on the silts on the eastern side of the peat fen, no structural evidence for saltern activity has been found on the western fen-edge sites, and there is an

absence of surface scatters of saltern material like those found on the silts. Furthermore, there are no certain saltern parallels for the finds discussed here, and they do not have the surface deposit which is a characteristic and reliable indicator of a saltern origin.

#### ACKNOWLEDGEMENTS

I am particularly indebted to Martin Howe, curator of Peterborough Museum, who drew my attention to these finds and kindly agreed to further study and publication. Also to Adrian Challands, Peter Chowne, Tony Gregory, David Hall, Don Mackreth, Francis Pryor and Maisie Taylor for their help and advice on a variety of subjects.

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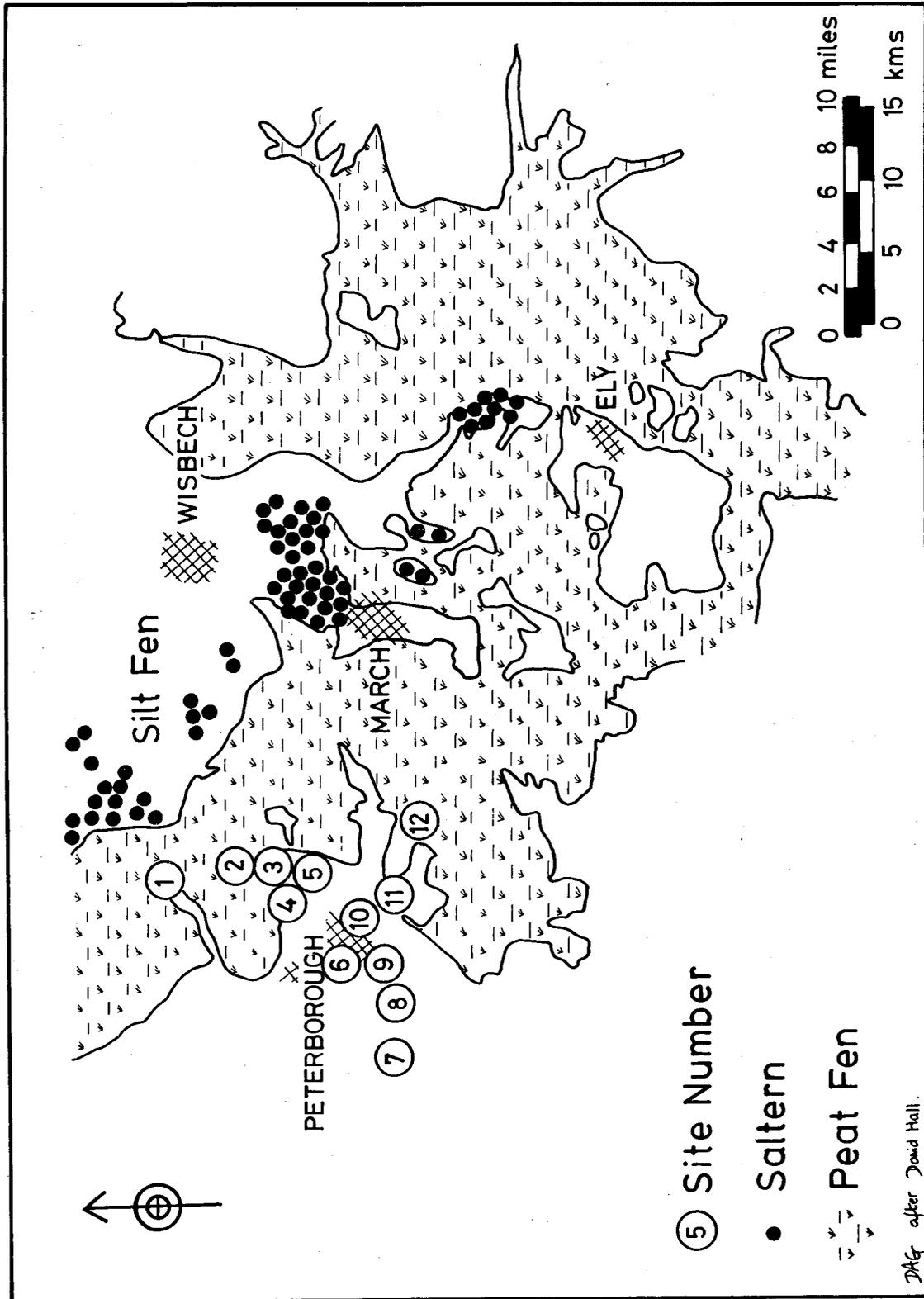


Fig. 1. Romano-British salt-production sites in the Fens

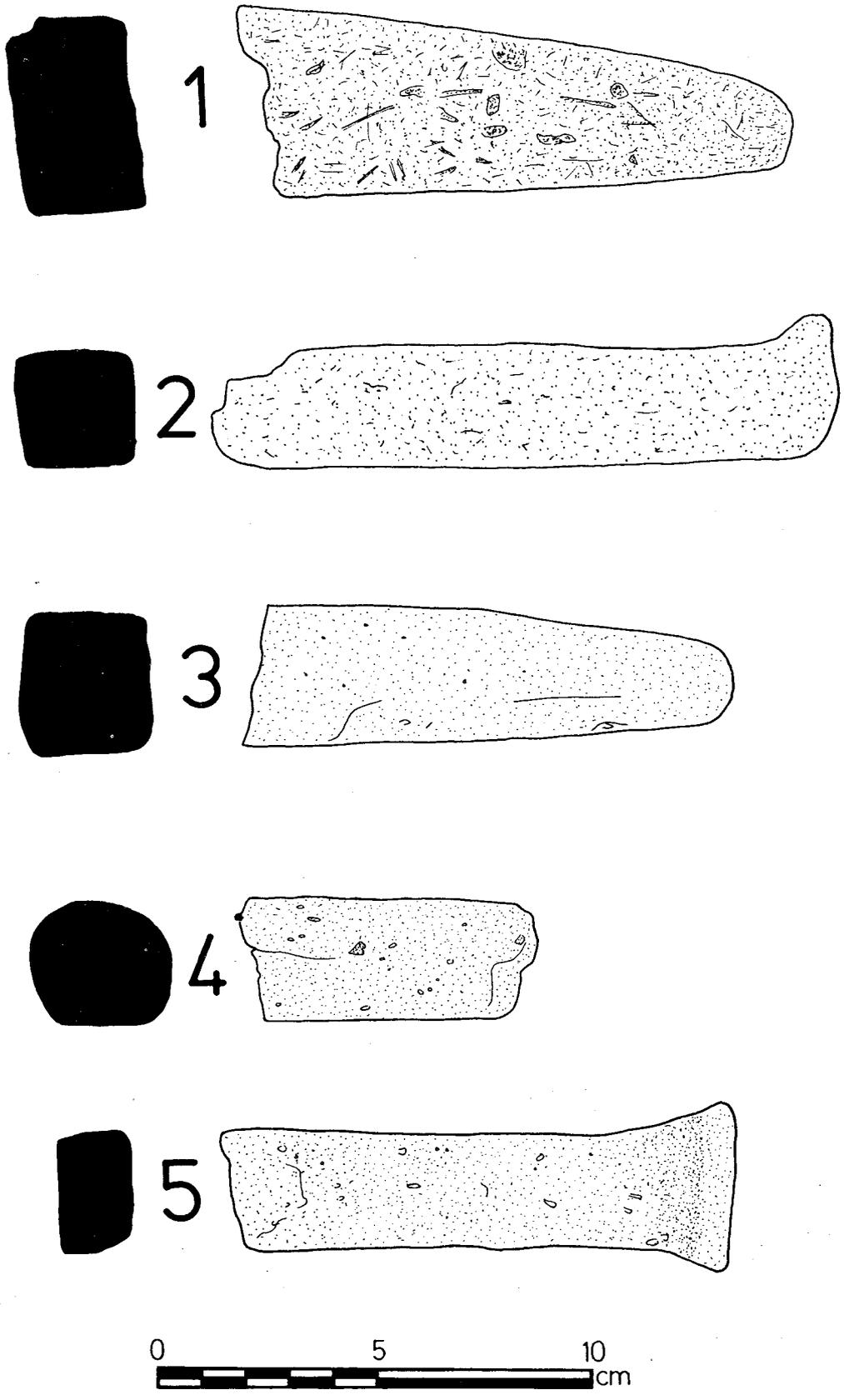


Fig. 2. Firebars. (1 Woodston, 2-5 Crowland).

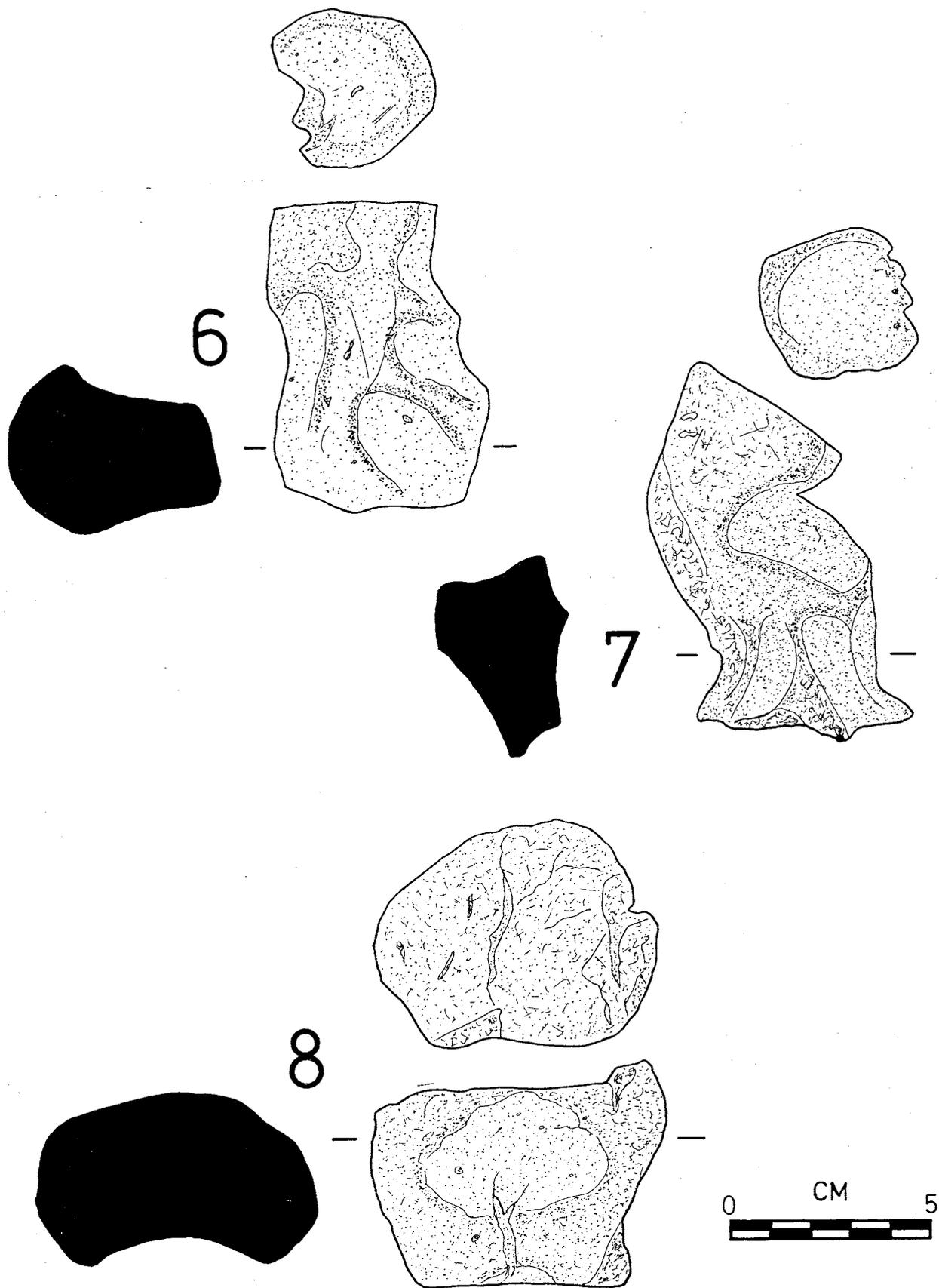


Fig. 3. "Handbricks" from The Reaches, Eye.

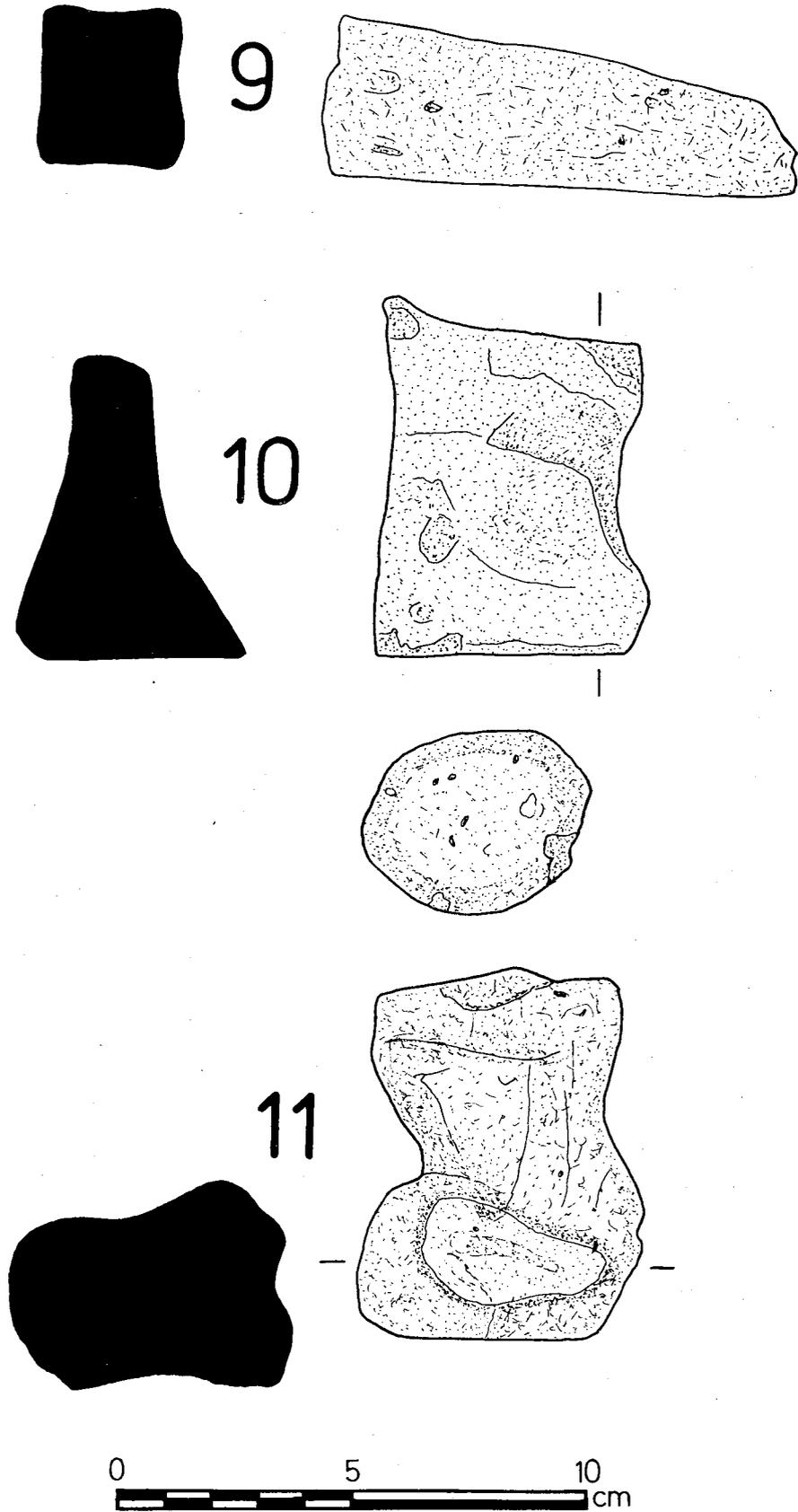


Fig. 4. Firebar (9 Peterborough Cathedral), Support (10 Eye) and "Handbrick" (11 Eye).

## A SAXON GLASS BEAKER FROM DRY DRAYTON, CAMBS\*

### I. GLASS BEAKER FROM THE A604 ROAD, NEAR DRY DRAYTON, CAMBRIDGESHIRE

D. B. HARDEN

#### *Description* (Plate 1)

Beaker; body and most of trailing bluish-green, but one pale yellow zigzag trail in upper criss-crossing band. Intact, except for one slanting internal crack, c. 6 cm long, low down on body; bubbly and streaky, with black impurities; no visible weathering.

Vertical rim, lip thickened and rounded in flame; walls taper gently down to level of uppermost horizontal trailing, below which they taper even more gently down to lowest horizontal trailing, whence they curve more rapidly inward to smallish bottom, flattened on a marver, near edge of which part of ring pontil-wad is still *in situ*.

From about 4.5 cm below rim to 2.5 cm above bottom are four spaced-out groups of horizontally-wound spiral trails, nos. 1 and 3 of which (reading downward) are fourfold with overlapping ends and nos. 2 and 4 are similar, but twofold. Linking nos. 1 and 2 and nos. 3 and 4 and overlying them are two bands each comprised of a pair of fourfold criss-crossing zigzags with 'wish-bone' pointed angles, one overlying the other. In the upper band a pale yellow zigzag overlies a bluish-green one; in the lower band both zigzags are bluish-green.

Vessel free-blown; trails drawn on.

Height 18.6 cm. Diameter rim 7.9 cm. Thickness walls at mid-point 0.2 cm.

*Glass at the Fitzwilliam Museum* (Cambridge, 1978), 57, no. 118, fig. on p. 58; D. B. Harden, 'Anglo-Saxon and later medieval glass in Britain: some recent developments', *Medieval Archaeology*, XXII (1978), 6, pl. iv, C; *National Art-Collections Fund Annual Report* (1979), 48, no. 2771, with fig.; D. B. Harden, 'Section IV, early medieval', in *Glass in the British Isles: Bulletin de l'Association Internationale pour l'Histoire du Verre*, no. 8, 1977-1980 (Liège, date not stated), 54, 240, fig. 19.

#### *Discussion*

In its shape this vessel is, so far as my knowledge goes, unparalleled in Saxon or Frankish glass, although it bears a close relationship to the large bag-beakers, type VI *a*, a type believed to be of British origin.<sup>1</sup> The slight concavity near the top of the body and the rather snub-nosed bottom remind us forcibly of these large bag-beakers, but the absence of any bulging of the body near the bottom divorces it in profile from all hitherto known examples of that shape. Despite this difference in profile there is, I believe, no justification for creating a new type and we must count this vessel a fresh sub-type within type VI.

The layout of the decoration is also unparalleled on Saxon or Frankish glass, although the components of it – horizontal spiral trails and zigzag bands – are no strangers to the Saxon and Frankish decorative repertoire.<sup>2</sup> What is specially unparalleled is the superimposition of zigzag bands over spiral trails and of one zigzag band over another. Always elsewhere, so far as I recall, vertical loops or zigzag bands often meet horizontal spiral trails, but never overlap them, except accidentally for one or perhaps two revolutions.<sup>3</sup> Very rarely also do more than two groups of horizontal trails appear on one vessel.<sup>4</sup>

We may see comparable horizontal spiral trailing on many shapes in the Saxon type-series.<sup>5</sup> On the other hand, although round-angled zigzags and wavy trails are frequent enough on Saxon and Frankish glasses,<sup>6</sup> zigzags with 'wish-bone' pointed angles, as on this Dry Drayton vessel, occur, so far as I know, on one other shape only, variety *a* of the pouch-bottle, type VII, which has a horizontal spiral trail on the neck changing without a break into a zigzag trail with 'wish-bone' pointed angles on the body.<sup>7</sup> Seven

\*The Society acknowledges gratefully a publication grant from the Department of the Environment.

examples of this variety of pouch-bottle are known from England (six from Kent, one from Suffolk) and I can cite none from the continent: indeed the continent seems to have produced none of the other two varieties of pouch-bottle<sup>8</sup> either, and there is every reason to believe that pouch-bottles, like bag-beakers, are a British, not a continental, form and must have had their origin in Kent.

In its decoration, therefore, as well as in its shape, this Dry Drayton vessel has a fresh and unexpected outlook. Most of the features this vessel exhibits point unhesitatingly to a date in the 7th century. Its close typological relationship to the bag-beakers, type VI, a type belonging to the 7th century,<sup>9</sup> are one good indication. Another is the very noteworthy resemblance between its zigzags and those on the pouch-bottles of type VII *a*, another 7th-century type. There can be no question of this beaker being of earlier date. Typologically it could perhaps be later, but since its completeness and its place of discovery – far away from any known settlement-site – suggest that it must have been part of a burial of which the mechanical digger threw up no other traces, we may safely accept it as having been buried no later than the 7th century, after the close of which deposition of grave-goods with burials fell into desuetude.

Where was it made? Its shape and decorative pattern have been shown to be as unparalleled on the continent as they are in England, and since its closest relations, the other bag-beakers, were very probably made in Kent, it seems likely that this new form of bag-beaker may also be of Kentish manufacture. That its particular form of zigzag ornament with ‘wish-bone’ pointed angles, is also, seemingly, only found on another English type, the pouch-bottle, adds strength to this suggestion.

#### NOTES

1. D. B. Harden, ‘Glass vessels in Britain and Ireland, A.D. 400-1000’, in *Dark-age Britain: studies presented to E. T. Leeds*, ed. D. B. Harden (1956), 141, 163, fig. 25, type VI *a*, pl. xviii, *d*. On the likelihood of these bag-beakers being Kentish see also J. Ypey in *Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek*, 8 (1957-8) 87-91.
2. In support of these views cf. the wide range of Saxon and Frankish material described in Harden, *op. cit.* in note 1; F. Rademacher, ‘Fränkische Gläser aus dem Rheinland’, *Bonner Jahrbücher*, 147 (1942) 285-344; W. von Pfeffer, ‘Zur Typologie merowingerzeitlicher Gläser mit Fadenverzierung’, in *Festschrift des Römisch-Germanischen Zentralmuseums in Mainz zur Feier seines 100 Jhr. Bestehens 1952*, Bd. III, 147-60; and *id.* ‘Fränkisches Glas’, in *Glastechnische Berichte*, 33 (1960), Heft 4, 136-42.
3. Cf., e.g., the broad-bodied cone-beaker from Faversham, Harden, *op. cit.* in note 1, type III *a* ii 1, fig. 25, pl. xviii, *b*., and a squat jar and bowl in Bonn, Rademacher, *op. cit.* in note 2, pls. 64, no. 2, and 65, no. 2.
4. I know no example in Britain. For the continent see, e.g., Rademacher, *op. cit.* in note 2, pls. 48, no. 2, and 71, no. 3.
5. Cf. Harden, *op. cit.* in note 1, fig. 25, *passim*.
6. Cf. *ibid.*, types III *b*, VIII *a* iii and iv, and XI *a*, Rademacher, *op. cit.* in note 2, pls. 64, nos. 1-2, and 65, no. 2; von Pfeffer (1952), *ut cit.* in note 2, fig. 3, nos. 14, 16, 18, 19.
7. Harden, *op. cit.* in note 1, 14, fig. 25, type VII *a* 2 (Sarre, Kent) and pl. xviii, *f*, type VII *a* 1 (Bungay, Suffolk).
8. *Ibid.*, 141, fig. 25, types VII *b* and *c*.
9. *Ibid.*, 141.

#### 2. A SAXON GLASS BEAKER FROM A POSSIBLE ROUND BARROW, AND A MEDIEVAL GALLOWS SITE AT DRY DRAYTON, CAMBS

ALISON TAYLOR

The beaker (Fig. 1), described above by D. B. Harden, was discovered by a workman in the bucket of his machine during improvements to the A604 in 1977, at TL 395630. Human bones were noted on the site and so an emergency excavation was carried out over a week-end, with voluntary assistance and co-operation from the Eastern Road Construction Unit. No further grave-goods were discovered but it became apparent that there had been a low mound, perhaps originally built to cover a Saxon burial accompanied by the beaker, which had later been used for a gallows, probably in the Middle Ages.

The site lies next to the Roman road that ran from Colchester through Cambridge to Godmanchester and Ermine Street. It was an important highway in the Middle Ages and parish boundaries follow most of its length. The turn to Dry Drayton where this beaker was found is on the parish boundary and at a cross-roads that was probably in existence quite early, being the quickest route between Dry Drayton and Oakington. The cross-roads are shown on a map of about 1809 in the County Record Office, which also gives a field-name near the site as “Gallas field”. Farm-buildings, and later a public house, the Bell, stood here, obliterating any upstanding mound, and the area has now been landscaped as part of the new road junction.

At least half the site had been removed before it was examined archaeologically, and the entire surface

was very disturbed to about 30 cm below the modern ground level. However, traces of a gravel mound were visible and a total of at least twelve skeletons recovered. Some were disturbed and disarticulated, others had been crushed by machinery and portions of most of them were missing. All were very near to the excavated surface, therefore the original depths of the graves were not known. The graves were extremely narrow, with the skeletons packed tightly into them, and in places they intercut each other. All appeared to be adults, but the conditions of the skeletons and their recovery were such that detailed analysis of the skeletons was not justified.

The dating of the mound to the Saxon period depends entirely on its association with the beaker. A complete vessel of this quality and fragility must almost certainly have been deposited originally as a grave-good, but there is a slight possibility that it could have been brought from elsewhere as a collector's item and later lost, perhaps in the cellars of the public house. Its discovery on or very near a gallows mound would therefore be coincidental. It is particularly unfortunate that its exact location could not be determined, and that the presence of so many bodies made it impossible to tell if one had been associated with the beaker.

Early Saxon burials have been commonly found but barrows and glass vessels of this date are both very rare. In Cambridgeshire two other Saxon barrows have been recorded: one, at Bottisham, was 75cm. high and contained an inhumation in a 1.7m. deep grave, accompanied by a pair of gilded bronze mounts with shell and garnet bosses.<sup>1</sup> The other site, at Linton, was a large oblong mound, 53m by 28m, containing 104 inhumations with rich grave goods. These grave goods included a cone beaker of thin greenish glass with incised linear decorations.<sup>2</sup> Necklaces with glass beads are not uncommonly found in Early Saxon cemeteries, but the only other glass objects known in this County are the beakers from Dry Drayton and Linton and a 'claw' beaker from Chatteris, found in 1757 with a skeleton, sword, shield boss and spear, possibly as a secondary burial in a barrow.<sup>3</sup>

Hanging and mutilation were the normal punishments in the Middle Ages, prisons generally only being used for people awaiting trial, and, until the thirteenth century they were frequently imposed by the lords of the manor who benefitted by being allowed to retain the goods the hanged thief had stolen. Later the justices of the peace, representing the Crown, came to have more control over capital punishment and most hangings took place at the County's judicial centre, which in the case of Cambridgeshire would be Castle Hill, Cambridge. Felons were not given burial in consecrated ground and would probably be disposed of without ceremony where they were hanged.

The Dry Drayton gallows were apparently owned and used by the Abbot of Crowland, who had the right of *infangenethef* on this manor.<sup>4</sup> Technically this meant he had the right to hang thieves caught red-handed on his land but, like many other lords, he often exceeded this right. One Abbot of Crowland hanged a man who stole sixteen eggs, although the theft occurred outside his liberty;<sup>5</sup> therefore it would not be surprising if these gallows were well-used.

Gallows, which are often remembered in names such as "Gallows" or "Galley" field or hill, were normally sited on parish boundaries, in order to be as far from human habitation as possible. The only surviving (and much restored) example in Cambridgeshire is the Caxton Gibbet on the A45. They were often placed on low mounds and it is likely that suitable historic or natural features might be used for convenience, although there is a possibility of folk-memory relating to certain places. The use of the Bran Ditch, another Early Saxon earthwork, for hanging and burying felons has been discussed by David Hill in an earlier volume of these Proceedings.<sup>6</sup>

This glass beaker and its site are of exceptional interest if they represent an Early Saxon primary burial in a round barrow. The location of such a barrow on a Roman Road is also significant as it indicates the highway was important in the seventh century, which also means that the parish boundaries could have been laid out at a very early date. Re-use of the site for a gallows was probably due to the convenient shape of the mound and its situation on a highway and parish boundary.

#### NOTES

1. Royal Commission on Historical Monuments *North East Cambridgeshire* (1972), 13.
2. R. C. Neville, "The Anglo Saxon Cemetery on Linton Heath". *Archaeol. J.* 11, (1854) 95-115.
3. Victoria County History, *Cambridgeshire and the Isle of Ely I* (1938), 312.
4. "Placita de quo Warranto", Royal Commission, 1818, 103.
5. "Placita de quo Warranto", Royal Commission, 1818, 519, quoted by H. S. Bennet in "Life on the English Manor 1150-1400" (1956), 196.
6. D. Hill, "The Cambridgeshire Dykes" *PCAS* 66 (1977) 126-8.

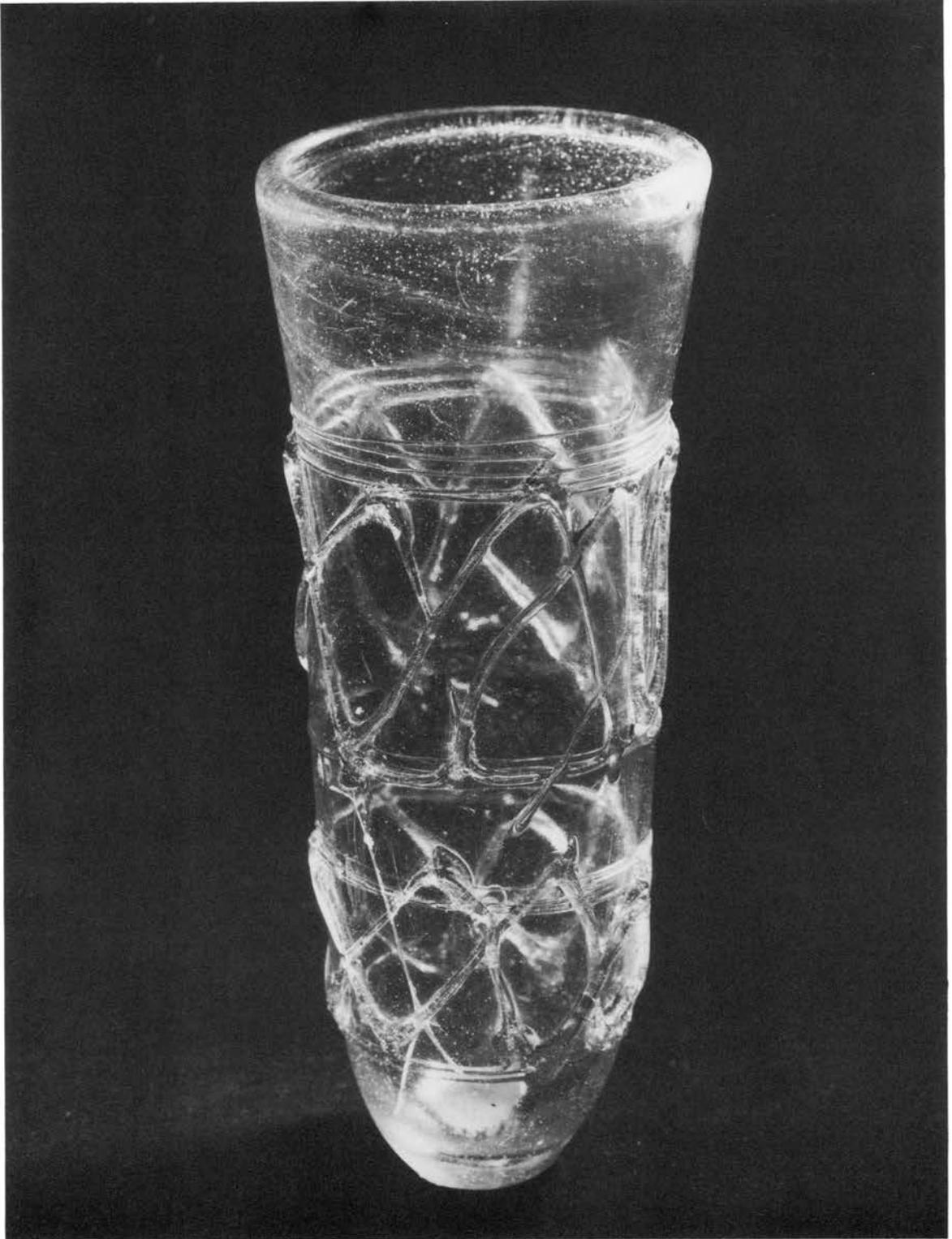


Plate 1. Saxon glass beaker from Dry Drayton, Cambridgeshire  
*Photograph by courtesy of the Fitzwilliam Museum.*

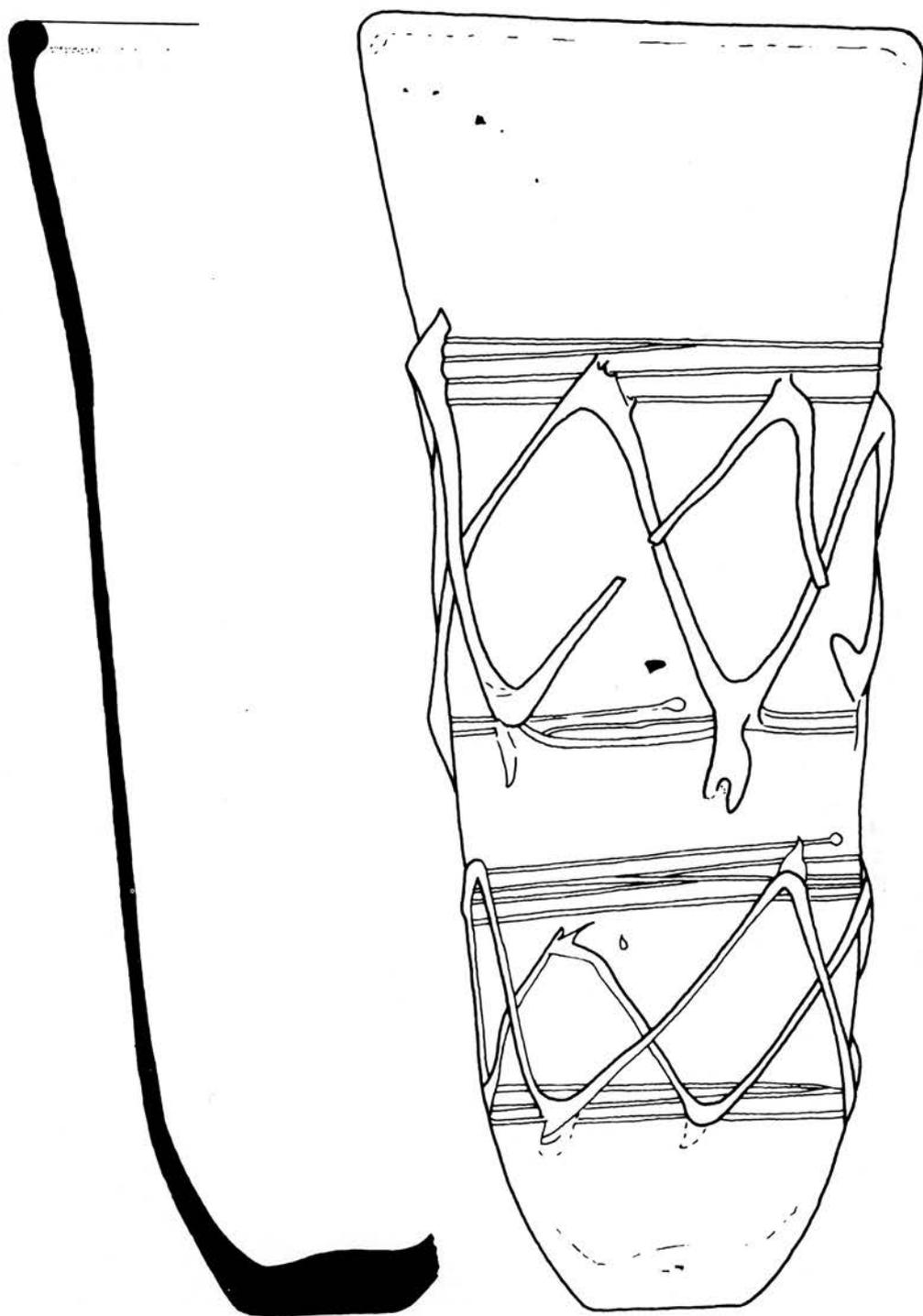


Fig. 1. Saxon glass beaker from Dry Drayton. Scale  $\frac{1}{1}$   
*From a drawing from R. Powell*



## RECENT DISCOVERIES IN GONVILLE AND CAIUS COLLEGE

HUGH RICHMOND, CATHERINE HALL AND ALISON TAYLOR

It happened by chance that two discoveries were made in Gonville and Caius College in the early months of 1981. In January trenches were cut in Tree Court for hot water ducts, which revealed the base of John Caius' garden wall of 1565; between January and March preparations were made in the gallery in the College chapel to receive the new organ, and the opportunity was taken to strip and repair the plaster on the south wall adjacent to the gallery. This brought to light traces of the 15th-century oratory which was built at approximately the level of the present gallery as part of the Master's Lodge, between the Master's bedroom and the original Chapel. The second discovery has made possible both clarification and revision of the early history of the chapel; the first not only revealed an interesting piece of Caius' building work, but also some remarkable fragments of medieval masonry quarried (in all probability) from Ramsey Abbey. In the first part of this paper Catherine Hall describes the documentary evidence for the history of chapel and oratory, Hugh Richmond the architectural and archaeological discoveries in the chapel; in the second Alison Taylor reports on the excavation in Tree Court, and with the help of Colin Forbes, Jo Draper, June Johnstone, Marsha Levine and Hugh Richmond, the nature and significance of the finds. The investigations were made at the request (and with the help and encouragement) of Professor Christopher Brooke, acting on behalf of the Master and Fellows of the College, who gave permission for them and for the use of the College archives, and the Junior Bursar, Mr Christophe Grillet, under whose direction the trenches had been cut and the plaster stripped.

### THE CHAPEL AND THE ORATORY

CATHERINE HALL AND HUGH RICHMOND

#### *Prefatory*

The two indispensable authorities, Willis and Clark's *Architectural History of the University and Colleges of Cambridge* and John Venn's *Biographical History of Gonville and Caius College*, are the products of the scholarship of the last century, and, excellent as they are, it is not in the nature of any work to be entirely exhaustive and without error. Moreover the references they give are not always in a form that leads today's searcher to the original documents they used. It is an unnerving experience to be faced with two equally reputable and substantially differing printed versions of what purports to be the same original document.

Defects of omission in Professor Willis' accounts of this and other colleges have usually arisen either from the unsatisfactory and confused state of the muniments of the college he was investigating (*not* the case in Gonville and Caius) or because subsequent transfers of property had left parts of the archive of one college in the custody of another. Hence the serious gaps in Willis' account of the site of Gonville Hall prior to the exchange with Corpus Christi College which will justify a fairly lengthy description on another occasion. In the work of John Venn we meet a man assiduous in his collection of biographical data and miscellaneous information about his college, but with only a limited understanding of medieval collegiate life and of the transactions producing the documents from which he quoted. The following summary of the documentary evidence relating to new constructions on the Gonville Hall site between the mid-14th century and the end of the 15th century attempts to disentangle first-hand documentary source material from the accretions of subsequent constructions put upon it.

#### *Direct evidence for the funding, building and licensing of a College Chapel*

Evidence for the establishment of a college chapel within the college site, a practice which in the mid-14th century began to replace the earlier one of using the neighbouring parish church, comes from several

types of written source. Most directly important are the licences from the diocesan bishop or the pope. Since permission had to be obtained from the appropriate ecclesiastical authorities for the performance of any kinds of divine service that might duplicate or rival those of the parish church, a series of such licences mark the stages by which a collegiate society attempted to become ecclesiastically self-sufficient. Such a licence was in the nature of permission obtained in advance, not the regularisation of an accomplished practice, and as the machinery for producing a permanent grant was both cumbersome and expensive, a limited or temporary licence from the lower authority might be taken out to cover the gap between intention and completion. Corroborating evidence from another type of source is needed to ascertain that a projected building was actually completed and in use by any given date.

The first licence obtained by Gonville Hall is a case in point. It was issued by the diocesan bishop on 3 April 1353 (see p. 99), when the incompletely-founded house of scholars was still in the buildings provided by Edmund Gonville in Lurteburne (present Free School) Lane. Its wording points to a possible development in the future, 'ut vos possitis capellam erigere'. With the exchange of properties with Corpus Christi College in the following July and the removal of Gonville's foundation to the new site, the permission obtained for this particular building ceased to be relevant. That the application was made at all must be seen in the general context of planning ahead on a generous scale, paralleled by the foundation licence for a house of up to twenty scholars, a total only a quarter achieved in the medieval period.

Current developments in other colleges are also relevant. The most important during the period of Gonville Hall's foundation and endowment (1348-1353) was the three-cornered contest for the parish church of St Botolph, simultaneously coveted by the rival new foundations of Pembroke Hall and Corpus Christi College. The initial victory of the Countess of Pembroke in securing the advowson made it unlikely that Gonville Hall (on its original site) would have the use of a parish church. Even when the Countess renounced St Botolph's (and the inconvenience to her scholars of using a church that lay the other side of the town ditch and gate is obvious) and adopted the plan of a chapel as an integral part of her new college buildings, it remained unlikely that Gonville Hall would succeed in wresting the church from Corpus Christi College, since Corpus had wealthy local support backed by the patronage of the Duke of Lancaster. The exchange of properties negotiated in 1353 between the two colleges was a businesslike affair, and support for the claims of Corpus Christi to St Botolph's against all other possible rivals was part of the price of the deal. On its new site, Gonville Hall did not immediately need a chapel. It could and did make use of the parish church of St Michael, recently rebuilt as chapel to Michaelhouse and parish church combined, initially for all purposes, to the end of the medieval period for all burials, and for some of these into the nineteenth century. Nevertheless the use of a portion of a church (the east end of the north aisle) compared very unfavourably with the facilities enjoyed by the better-endowed colleges. Pre-eminent in this respect was Peterhouse, whose totally-appropriated adjacent parish church had been demolished between 1350 and 1352 to make way for a new building on a lavish scale directly linked to the college and eminently suited to the needs of a college chapel, parishioners being relegated to the rear portions. That this building was used for the conduct of business beyond the immediate sphere of college interests is evidenced by a deed issued from it for Gonville Hall [G.&C.C. Muniments, VII 1b]. Across the road the Countess of Pembroke, having secured the requisite papal and episcopal licences in 1355 and 1356, was putting up her new buildings complete with chapel, ante-chapel and belfry-turret. These wealthier colleges were the creators of models emulated by the less wealthy, and a comparison between developments at Pembroke and in Gonville Hall shows that in the ensuing period, whatever Gonville Hall achieved, Pembroke Hall had already enjoyed for some decades. Even the basic plan and known architectural features of the two colleges present marked similarities.

#### *Evidence supplied by Dr Caius*

Earlier historians of the College tended to treat the account of the medieval period given by Dr Caius as if it carried the authenticity of an original source. Dr Caius was writing up to two centuries after the events he described, and the reliability of his source material, like that of all historians, was mixed. We are fortunate in that the greater part of the original material available to him still exists. Indeed there is additional matter in the College muniments which must have escaped his notice or not been deemed relevant. When Caius' transcriptions of medieval documents as given in the *Annals* are compared with their surviving originals, or early copies, it is clear that he has considerably amended and classicised the Latin. He dated the Bull of Boniface IX as 1384, though Boniface did not become Pope until November 1389. A similar check of the versions in the volume of 'Evidences' made under the mastership of Edmund

Sheriffe in 1472, a volume known to have been used by Caius, both from its marginalia and from his praise of it in the *Annals*, reveals a reassuring standard of accuracy. The copyist was near enough in time to his original to have few difficulties with the script. In the event of conflicting versions Sheriffe is to be preferred.

Where Caius is making a statement that cannot be verified by reference to existing documentary sources, it is sometimes possible to deduce what his source must have been. It is likely that he had a current calendar of obits of benefactors containing a date and indicating the nature of their good works. But since such a list is only summary and can seldom give more than one date, it cannot be taken as total evidence about a building work which must have taken a considerable time to complete. The date given is likely to have been that of the completion of the main structure, and the name that of the principal benefactor(s). Corroborating or amplifying evidence from other sources, such as accounts, must be sought where possible. Statements about what Caius actually saw, such as the number of chapel windows and the legends in their glass, can be accepted as completely authentic. What he believed to have been the case long before his memory or that of the older fellows with whom he might have talked, should be treated with the reserve given to all oral evidence and hearsay. When the *Annals* is dealing with Caius' own time and in particular with his own building works or benefactions, the record can be taken as entirely accurate.

Of more value than the summarised and edited account of the development of the earlier College buildings as given in the *Annals* is the leaf of rough notes about the chapel windows found by Venn and incorporated into the volume of miscellanea that forms Library MS. 714 (Venn (1901), p. 156, n. 3). This paper describes the position and glazing of the five windows of the chapel proper as they were prior to the alterations made by Caius. That of the east window had the inscription, 'Orate pro anima W<sup>i</sup> de Rougham (medicine professoris) qui fecit istam capellam fieri'. The other four, with the 'orate pro anima' had the names of Rougham again (first window on left), Henry le Despenser (first on right), Nicholas de Bottesham (second on left) and John de Ufford (second on right). Venn translated the genitive case as 'by' and assumed that the glass in each was inserted in the lifetime of the donor it commemorated. In the case of John de Ufford, who died in 1375, this would mean that a glass window existed nearly two decades before the building into which it was inserted came into use. A more reasonable assumption would be that the glazing in the windows was a final embellishment, conceived as a set, to commemorate the principal donors to the building fund and giving special place to William Rougham as prime mover and benefactor of the project. We have no means of telling when they were put in and it could have been as late as when the glass windows, also commemorating donors, were put into the hall. It could hardly have been before their deaths. The significance of the name of John Ufford is that a donation from him, either in the form of cash or as the 'precium' raised by pledging the valuable book(s) of his bequest, was used towards a projected building that took about twenty years to materialise. The position of Henry le Despenser's window, in the first place opposite that of Rougham, who is believed to have acted as his physician, suggests that this forthright Bishop of Norwich was the ultimate source of the greatest part of the funds. The latest known deed to which Rougham was a party is dated from Bury on 20 July 1392 [G.&C.C. Muniments IX.11]; the last recorded of Pulham, his colleague of forty years previously, is dated from Cambridge on 24 February 1394 [G.&C.C. Muniments VIII.12a]. The building of the chapel in its first state may be dated between c. 1354 and 1394.

#### *Evidence from the Accounts*

The extant account-books of Gonville Hall, originally in loose paper notebooks but bound together (with some misplaced leaves) from at least the late 18th century, were until recently in too fragile a state to be safely consulted. With thorough restoration in 1980 it is now possible to use them. The misplaced pages have been returned to the order indicated by their original foliation. The main account commences so abruptly in the middle of the year 1423 that we must postulate a previous notebook long since lost.

A very literal translation of some items from the opening pages is quoted by Venn ((1901), p. 16) and gives the earliest reference to some of the fixtures in the chapel, namely two stalls and four 'standards'. The building of a farm- or garden-type of wall (clay bats covered with straw) 'towards the chapel' suggests that the chapel was sufficiently free-standing for the college precinct to be otherwise incompletely enclosed. But whether this wall was to the east, west or south we shall never know.

Venn also prints what he calls an 'undated building account', now on the dorse of the first folio ((1901), p. 17), and he rightly suggested that it may refer to the works undertaken under Atwood's mastership. But as to dating he has been led astray by his literal following of Caius' 'in 1441'. The hand is one used in the

main series of accounts between 1430 and 1436 but not thereafter. On p. 24 of the Computus book we find the following:

‘Extractum post festum michaelis in vigilia etheldrede.	
Anno domini 1431	
In primis furbisshon	xl s.
Item eidem	ijj li.
Item -	-
Item m. furbysshon	v li. ijs. viij d.ob’.

The total works out at £10.2s.8½, exactly the sum allocated to Mr Furbishon for commons in the last item of the ‘undated’ building account. From this we conclude that the building was going ahead in the summer of 1431. Furbishon, then one of the fellows, would naturally claim commons for the days when he was supervising the workmen.

On the following page we find in the expenses account for the half year after Easter 1432

‘Item expenses pro pensionibus subsidiis reparacionibus et aliis diversis.	xxvij li. ijs. ix d.
Item pro diversis expensis circa novum opus	vj li. xvijs. jd.’
And again p. 38 [1440]	
‘Item pro meremio ad novum edificium empto	vi li. ijs. vd.’

Again a building project is found on closer examination to have taken longer and to have cost more than the account of either Caius or Venn would have led us to suppose. The work covered at least the years 1431-1440 and the date in Caius’ *Annals* of 1441 was very likely the correct date of completion.

An item-by-item examination of the whole volume might yield further details, but unless a work is specifically designated as ‘new’ or itemised in more than ordinary detail it is impossible to distinguish improvements from repairs. An unfortunate gap in the accounts recorded in the Computus Book between 1455 and 1488, except for the year 1465, leaves the documentary sources for the later medieval period rather thin.

#### *Further developments in the later 15th century*

The grant of the Bishop of Ely in 1476 is our only evidence for the further development of the chapel. The original licence in the College muniments is endorsed, ‘Licencia episcopi Eliensis pro divinis celebrandis in oratorio iuxta cameram magistri’. Venn’s transcript is reasonably accurate, but the heading he has given it, and the construction put upon it in his general account of the chapel (Venn (1901), 157) show that he has mistaken the licensing of an additional, self-contained smaller chapel or oratory for one for the extensions of the functions of the chapel proper. It may be noted that as early as 1398 Pembroke College had similarly created a second oratory by the conversion of its former ante-chapel or vestry at the ‘ecclesiastical west end’ of their original chapel. Their development likewise featured an entry at the first floor from chambers beyond, a spiral or turret stair on the S. side, and a probable squint. Further broadening of the functions of the chapel at Gonville Hall were provided for by the consecration of 1493, as described by Venn ((1901), pp. 333-4), and the Bull of 1500 of Pope Alexander VI. This last, extending the right of worshipping in chapel to residents of Fyshewick Hall and conceding the much-coveted privilege of burials, completed the self-sufficiency of the chapel for all services needed for present and past members. But they involved no necessary structural changes to the existing buildings and we have no evidence of further alterations or additions until those of John Caius.

#### *Architectural Evidence*

The stripping of the plaster near the gallery made it possible to examine the wall around a piscina which could be seen high on the south wall of the chapel between the front of the gallery and the adjacent window. When plaster was removed two features were uncovered: a blocked doorway west of the piscina and a blocked rectangular area to the east. It was clear that both these features and the piscina had been inserted into the chapel wall at the same time. The doorway had a four-centred head and plain splayed arris. It was .76 m. wide, 2.03 m. high and its east jamb was .33 m. west of the piscina. Also the threshold was .83 m. below the level of the bowl of the piscina. The rectangular feature was .09 m. east of the piscina and had a sill level with its bowl. It was .78 m. wide and had plain rectangular jambs which ran up to the top of the wall which was disturbed by later work. As it was impracticable to remove the blocking material

it was not possible to establish whether this feature was a recess or a small window, but the latter is probable. None of the three features can be closely dated but the door is of late medieval character. The style of the piscina suggests that it may be of somewhat earlier date but the detail of the construction of the wall shows that it was built in at the same time as the door. The wall has been replastered and only the piscina now remains visible. The three features indicate that in the late medieval period there was an upper floor over the west part of the chapel which extended at least as far as the west side of the tall windows adjacent to the present gallery. This floor was presumably over an ante-chapel. The piscina also shows that there was an altar on the upper floor. The doorway is more difficult to interpret but it will be seen that documentary evidence indicates that it gave access to a stair turret built against the south wall of the chapel. (Fig. 1, p. 105)

The original 14th-century building was rectangular in plan, about 60 feet long and 20 feet wide, and extended from the present south east corner of Gonville Court to the east side of the later passageway which now connects Gonville Court with Caius Court. A piscina in the south wall, now concealed by panelling, which is 10 m. west of the present east wall presumably served the main altar of this chapel. The west side of Gonville Court and the remainder of the south side were probably completed by 1441. It is clear that the new buildings abutted the chapel on the west and the adjacent part was occupied by the Master's Lodge as the Hall and Library were in the west range of Gonville Court. This is confirmed by Loggan's engraving of 1688 which shows a range of buildings of domestic character meeting the higher west gable wall of the chapel (Fig. 2). A diagonal buttress is shown at the south-west corner of the chapel which indicates that the west wall was probably originally free-standing. The west end of the chapel has two storeys and attics and windows similar in character to those of the Master's Lodge. Also shown is a stair turret attached to the south wall of the chapel just west of the middle window. It does not appear to have had an external door. There is no record of this turret before the time of Dr Caius but it must have been built earlier as it was heightened between 1573 and 1575, the money being provided by Dr Caius (*Annals*, ed. Venn (1904), p. 187). It has been shown that a licence of 1476 refers to the altar in the first-floor oratory at the west end of the chapel and that the stair turret was used to connect the oratory with the chapel.

Examination of the upper room of the Master's Lodge which abuts the west wall of the chapel shows that the floor level of this room was approximately 1.10 m. below the estimated level of the floor of the oratory, based on the threshold of the doorway to the stair turret. However, there is, at the north end of the wall between Lodge and chapel, a blocked doorway with a threshold which corresponds with the level of the oratory floor and this doorway is reached by a short flight of stairs from the first floor of the Lodge. Also at the south end of the same wall .20 m. from the corner of the room within a cupboard .65 m. deep is a splayed masonry jamb which formed the south side of an opening. The jamb is vertical and rises from the floor and is cut by the soffit of the cupboard at about 2 m. None of these features can be dated with any certainty but it appears that the oratory was connected to the Master's bedroom by a doorway and a squint and both are therefore probably of the 15th century. It is clear that the oratory was used by the Master from the Lodge and perhaps by the Fellows from the chapel. The stair turret might also have served as a convenient access to the chapel, for the Master, from the first floor of the Lodge.

#### *Appendix - List of Documents*

##### *Licences*

1. Licence of Thomas de L'Isle, Bishop of Ely, to the Master and College of Scholars of the Hall of the Annunciation for the building of a chapel on their site. Dated from Downham 1 April 1353. Approved by Prior and Convent of the same. 3 April 1353. With seals of both in red wax. Original in College Treasury I.25. Text, Venn (1901), p. 228.
2. Licence of the Bishop of Ely, issued from Downham, 22 Nov. 1384, to the Master and Scholars (Fellows) of the College of the Annunciation of Blessed Mary at Cambridge, to have divine service celebrated by themselves or by their chaplain in a chapel or oratory within the College, 'si ad hoc decens fuerit et honestum', and provided that it is not to the prejudice of the rights of the parish church. To be valid for three years only. Register of Bishop Fordham, transcr. Baker. Text printed Venn (1901), p. 331.
3. Licence of the Bishop of Ely to Simon Neylond, issued 24 December 1392. Licence to celebrate and hear divine service in the College of the Annunciation for two years. [Neylond, ex-Warden of King's Hall and beneficed at Elsworth, Cambs, with leave of non-residence for three years from 1389, was probably living at Gonville Hall at this time and was believed by Venn to have acted as chaplain.] Summarised from the Baker transcripts, Venn (1901), p. 3. *E.D.R. G1/2. fo. 49v.*

4. Bull of Pope Boniface IX, issued from St Peter's Rome, 13 November 1393. Licence to the Master and Scholars (Fellows) of the College of the Annunciation in Cambridge permitting them and others residing with them there in priests' or holy orders to celebrate mass and other divine offices 'in capella Collegii vestri ... fundata et constructa', 'etiam cum nota et alta voce'. Original lost. Earliest text in Sheriffe, *Evidences* (MS. 706/692 in College Library), p. 26. Printed Venn (1901), p. 332. The version in the *Annals* is corrupt.

5. Licence of William Gray, Bishop of Ely, dated from Dodyngton 5 September 1476. For the celebration of divine service in an oratory next the chamber of the master, if it is suitably disposed and furnished, and not to the prejudice of the parish church. Seal of bishop in red wax. Original in College Treasury I.32. Text, Venn (1901), p. 332.

#### *Documents Issued from the Chapel of the College*

The College still possesses four original documents issued from the College chapel in December 1393. All four are notarially attested 'public instruments' drawn up by Robert de Foxton, public and apostolic notary. They relate to the livings of Mattishall and Wilton in Norfolk which the College was appropriating. The earliest, dated 1 December, was issued in the presence of Robert Pulham, Master, and additionally carries the College seal. The other three, of 12 December, were simply notarially attested before the two necessary clerical witnesses. It might be regarded as an indication that the College chapel was not in use, even for business purposes, early in 1388, since a similar public instrument, authenticated by the same notary and relating to the same business of Wilton, was on 22 January 1388 issued from the church of St Mary-the-Less (used by Peterhouse as their college chapel).

College Muniments,	Box VII	Nos. 1b, d, e, (Wilton);
	Box VIII	Nos. 10, 11, (Mattishall).

The text of these documents is given in Sheriffe, pp. 47-8, 73-5.

#### *Other Documentary Sources*

Computus Book, Sheriffe's *Evidences*, described in the notes to Willis and Clark, Vol. I, pp. 166-7. MS. 714 in Library, described Venn (1901), p. 156n.

## A SIXTEENTH-CENTURY WALL CONTAINING MEDIEVAL MASONRY

ALISON TAYLOR

### *Summary*

In January 1981, trenches for hot water ducts in Tree Court, Gonville and Caius College, cut through a stone wall and layers of gravel and cinders that had been garden paths (Fig. 3). The site had been orchards and gardens from early medieval times and the wall is recorded as being built by Dr John Caius in 1565 and demolished by Alfred Waterhouse in 1868-9 (Willis & Clark, I, pp. 189-90). The interest of the wall lies in the re-use of 13th-century decorative capitals and bases from Ramsey Abbey and the extremely good documentation of all the building materials and the site itself.

### *Historical Background*

Although Gonville Hall was settled on part of its present site in 1353, initially using existing tenements in Trinity Lane, and the chapel was in use by 1393 (see above), the earlier college buildings did not expand beyond the area of the present Gonville Court until the 16th century. Dr Caius, the co-founder and Master from 1559 to 1573, enlarged the site of the College, built Caius Court and designed the three gates of Humility (moved in 1868, and now in the Master's Garden), Virtue and Honour. Dr Caius bought the northern portion of the site of the present Tree Court and the rest of the Court was acquired piecemeal up to 1782. In the 1860's and 1870's the present buildings were erected. The complex history of the small piece of land that is now the southern part of Tree Court is an interesting example of the slow transfer of ownership from religious holdings to townsmen's land and then to colleges.

The portion of the College with which this site is concerned belonged in the medieval period to the Priory of Angelsey. The stone house of the Prior stood on Trinity Street in the south-east corner and its

orchards stretched westwards, meeting the garden (formerly the property of Sir John de Cambridge) within the present Caius Court. At the Dissolution the Prior's stone house passed to William Atkinson, Citizen and Alderman of Lincoln, who sold it to Robert Lane, a Cambridge baker. When Dr Caius planned to build Caius Court he bought a piece of ground to the east from Robert Lane, part of which was used for the east wing of Caius Court, the remainder becoming the President's garden. The wall he built in 1565 to bound this garden on the east was the one that was found in 1981. Its substantial proportions are therefore explained, for it divided the College from the properties occupied by townspeople until 1782.

The land to the east of the wall is not mentioned in records again until 1675 when it belonged to Thomas and Richard Prior. They sold the western part to William Morden in 1675; it passed to Conyers Middleton in 1738, to Charles Finch in 1761 and to the College in 1782. Meanwhile, the eastern part of the site (once the Prior's stone house) contained two houses, one of which was held by Trinity Hall, who passed it to Gonville and Caius in 1782, and the other of which was owned successively by John Richardson, Mary Heath, Mary Collet and Charles Finch. Charles Finch conveyed it to the College with the rest of the garden in 1782. The houses were in part leased for trading purposes and later used for College rooms down to 1868, when they were demolished by Alfred Waterhouse to make room for the range containing the present entrance tower built in 1870.

The land on either side of the 1565 wall was therefore used only for orchards and gardens from the time it was held by the Priory of Anglesey onwards. The fate of the Prior's stone house is not known: the houses demolished in 1868 look like good 18th-century town houses from their frontages as seen in photographs (e.g. Venn, 1901, pp. 140, 147) but might in part have incorporated some earlier work. Nothing of these survived the rebuilding by Waterhouse, whose contract was based on the complete demolition of existing structures.

Documentation of Dr Caius' building work is extremely interesting, for it contains accounts of all the materials used, their cost, their carriage (by land and water) and, most importantly, their origin. It appears that freestone found in the garden wall came from the Northamptonshire quarries at King's Cliffe and Weldon. Stone from nearby Barnwell Priory had already been robbed, for example for Trinity College, but it was still available for use into the 19th century and it is not clear why Caius should go approximately 25 miles to buy stone at Ramsey. The Abbey there, one of the leading religious houses in medieval England, was obviously already in a sorry state just 25 years after the Dissolution. It had fallen to the ownership of Henry Cromwell (grandfather of Oliver Cromwell) and an Indenture, dated May 1st 1564, between Henry Cromwell and Dr Caius relates the sale of some of the ruins. It also gives evidence for one part of the Abbey that was used for Caius' buildings, although the following Indenture for materials worth £10. can only be concerned with a small amount of the stone purchased: "Witnesseth that the said Henry, for the summe of ten poundes of good and lawful money of England to hym payd the day of the date thereof hath bargayned and sold ...all that his hepe of stone... which lyeth in the cross Ile of the church of the late abbey of Ramsey, between the body of the church there, and the late quere or chancel of the same, in the place of the belfre or steple otherwise called the lantern.

Which said hepe of stone was sumtyme parcell of the said steple or lantern before the fall thereof". (Gonville & Caius College Muniments I, 49).

The Abbey was also used as a quarry for the builders of the Hall of King's College in 1562 (Willis & Clark I, 1886, 536), Trinity Chapel, 1555-67 (RCHM, 1959, p. 218) and the upper part of the tower of Great St Mary's, 1594 (RCHM, 1959, p. 275).

The materials and labour for Dr Caius' buildings between 1564 and 1573 (excluding the Gate of Honour and the Master's Staircase) are given in his Annals as follows:

"A table summarie of all the expenses of our Founders Mr Doctor Caius buyldings from the feste of Ester 1564, untill the nativitie of St John Baptist 1573."

	li.	s.	d.
In primis for trees bought of Sr Henrie Cromwell	)		
	)		
out of Warboys and Ramsey woods in number 510	)	66	5 0
Item for vewing marking felling lopping squaring	)		
	)		
drawing and carriage by land and water from thens	)		
	)		
to Cambridge	)	46	4 8

Item to Thorne Raynsforth and Rothery for the fyrst	)			
and Weste frame part by greate parte by daye	)	84	10	9
Item to Rotherey and his men for their worke by	)			
daye from Midsomer 1566, untill Midsomer 1573	)	123	6	3
Items for bourdes bought and brought into the	)			
College	)	29	15	10
Item for staging tymber, hardles, lathes, lyne,	)			
cordes and nayles	)	31	16	6
*Item for Ramsey stone free and ragge,	)			
cutting and carriage by land and water	)	254	19	8
*Item for free stone from Kyngs Clyffe and Welden,	)			
digging and carryage parte by land, parte by water	)	101.	19	2
*Item for whyte stone from Haslingfield and	)			
Barrington digging and carriage	)	91.	3	5
Item for stone from Barnewell digging and carriage	)	6	5	2
*Item for lyme for Reche, Hinton and otherwise	)	54	10	1
Item for Sande and Claye by Barnes, Thompson & others	)	11	6	6
Item for Iron worke for wyndowes dores etc	)	24	8	10
Item for Leade and to the plommer for casting and	)			
laying it	)	46	15	7
Item to free Masons from Michaelmas 1564	)			
untill Midsomer 1573	)	337	11	7
Item to the Carver	)	7	4	11
Item to roughe Masons	)	97	8	2
Item to Laborers	)	219	8	5
Item to Slatters for Slatte, tyle and the workemanshippe	)	161	8	6
Item for charges extraordinarie	)	37	15	2
The hole summe of theis expenses	)			
ordinarie and extraordinarie	)	1834	4	2

Besides the expences omytted by negligence and expences also yet to come for the perfection of the building of the college and paving of the Courts of the same". (Venn 1904, 186-7)

Items marked \* were included in the garden wall.

### *Site Description*

The trenches (Fig. 3) for hot water ducts were one metre wide and had been cut to a depth of 60 cm before they were investigated archaeologically. Only about two hours were available before the site was to be filled with concrete and therefore it was only possible to clean the bottom and sides of the trench containing the wall and to excavate the west side of the wall. The trenches (Fig. 4a) were filled fairly uniformly with garden soil, containing lenses of mortar but no distinguishable layers apart from garden paths of gravel or cinders.

Excavations on the west side of the wall showed that the soil below about 60 cm was darker, with flecks of charcoal. It is not known whether this was an uniform layer at the greater depth, or the result of this part of the garden being used as a flower bed.

The garden soil continued to a depth of 1.05 m below the lawn before a stony surface at the base of the wall was reached. It was not possible to investigate further.

The wall was 60 cm (2 ft) wide. Five courses of regular blocks of Cornbrash survived, joined with mortar and filled with rubble containing clunch, fragments of Cornbrash and a piece from a re-used column. The foundation of the wall, however, included a capital and bases from late 13th-century arcading, made of Purbeck Marble (Plate 1). Clearly, these were part of the ruins of Ramsey Abbey mentioned in the above accounts and Indenture. Four of the stones were taken out of the wall and are discussed in detail below (p. 104). The wall extended into both sides of the trench and no doubt more medieval stones are preserved along its base. The east side of the wall, the "town-side", was not investigated at this time.

In July the same year another trench, 2 m long and 1 m wide, was cut by hand 50 cm north of the previous trench, and was excavated on both sides of the wall (Fig. 4b). In this trench the wall was visible as a layer of rubble 25 cm below the turf. Below the rubble there were six layers of regular Cornbrash blocks, well morticed together and set on large protruding Cornbrash blocks that were fairly symmetrical on both sides of the wall, equivalent in position to the Purbeck Marble fragments described above. No architectural fragments were noted in this trench.

Chalky marl with rubble was reached at a depth of just over one metre, sloping away slightly from the wall, especially on the east side. This layer extended over most of this small trench, except the extreme eastern edge where garden soil continued to slope down. The garden soil on the western (College) side was uniform, with no distinctive layers and scarcely any finds. On the eastern (town) side it contained soot, tiles and much rubble from a depth of about 50 cm down to the base of the wall. This layer also contained a great quantity of animal bones and sherds of middle to late 18th-century pottery. Apparently kitchen refuse and other debris were piled against the wall while the lowest levels were visible. No foundation trench was noted and all the datable finds were later than the construction of the wall. Therefore it seems that all the excavated stone-work, standing on wide rubble foundations, stood above the old ground surface, but rubbish tipping and gardening covered the lower levels during the next two centuries.

Apart from animal bones, finds from the trench were scarce and of little archaeological interest. There were pieces of pipe-stem, tile and wine bottle, oyster shells, nails and 18th and 19th-century pottery. Two earlier pot sherds and a wine glass fragment are discussed below.

### *Conclusion*

The wall was built by Dr Caius as a boundary to his new President's Garden and to separate his college from the town properties to the east. It was a substantial and well-built structure, probably similar in appearance to the present walls of Caius Court. Virtually all the stone of this wall was almost certainly brought from Ramsey Abbey.

### *Geological report on the Architectural stones – Colin Forbes, Ph.D*

- (a) The carved stones at the base of the wall are confirmed to be *Purbeck Marble*.
- (b) Fragments of stone from the facing stones of the wall and rubble fill proves upon cutting and thin sectioning to be *Cornbrash*. Cornbrash was much used as ragstone for walling in early days at

Cambridge and this sample can be matched in the Free School Lane wall of Corpus Old Court (14th-15th century), St Benet's Tower (11th century) and in the lower courses of the Master's Garden wall at Caius, outside Trinity Hall. It may be seen with several other types of stone of various provenance in the Senate House Passage wall of Gonville and Caius College.

A writ of Henry I (*Regesta Regum Anglo-Normannorum*, II ed. C. Johnson and H. A. Cronne, Oxford 1956, No. 1410) confirmed the rights Ramsey Abbey claimed from Saxon times to obtain stone from Barnack and Peterborough. The rights were extended in 1185 when Gervase de Berneche offered forty perches of land in his quarry. (*Cart. monasterii de Rameseia*, ed. W. H. Hart & P. A. Lyons (3 vols., London, Rolls Series, 1884-93) i 188-91). A writ of Edward the Confessor of doubtful authenticity but representing 11th or 12th-century tradition, mentions "Wercestan at Bernace and Walston at Burh in return for 4000 eels" (F. E. Harmer *Anglo-Saxon Writs*, Manchester, 1952, pp. 262-5, No. 62 cf pp. 248-56) 'Wercstan' presumably refers to Barnack freestone, which was capable of being worked, i.e. squared or carved, and 'Walston' to a ragstone suitable for rough use such as rubble.

There is a large area of Cornbrash outcrop just west of Peterborough and therefore it is likely that these fragments, together with blocks of Barnack freestone and architectural fragments of Purbeck Marble were first used in Ramsey Abbey and were subsequently brought to Cambridge.

#### *Post-Medieval Pottery* – Jo Draper

- (a) Body sherd of local coarse-ware with a hard, sandy-grey fabric, glazed overall apple green with tiny streaks of dark brown.
- (b) Body sherd of Westerwald stoneware. Very hard, fine, grey fabric. There are externally five surviving impressed circles 6mm in diameter enclosing five heavy lines; the lines are in a different direction for each circle. The circles are grey and the rest of the external surface is bright dark blue. It is difficult to be sure whether this sherd is from a jug or mug. Similar, but rougher looking, decoration is found on a mug with a 'GR' cartouche of the early to mid-eighteenth century (*Steizung* 1976, No. 594a, P334). If from a jug the date is mid-17th century, if a mug, late 17th to mid-18th century.

#### *Glass fragment* – June Johnstone

Fragment of vessel, comprising part of the stem and the base of the bowl. It is blown with a hollow baluster stem between two collars, the inner base of the bowl having a low raised 'kick'. It is made in colourless glass, now showing iridescent weathering on all surfaces. The outer surface of the lower part of the bowl section has many fine, closely spaced scratches, possibly acquired during manufacture. The fragment comes from a wine glass probably originating in the Netherlands and dates to approximately the mid-17th century.

#### *Animal Bones* – Marsha Levine, Ph.D

The collection comprises 67 bones, of which 25 are certainly or probably sheep bones, 39 cow bones and one pig. Most of the anatomical elements are the same as those found in cuts of meat today. Many show cut marks, suggesting that butchery practices were similar to those employed today. In contrast to most prehistoric deposits there are very few non meat-bearing bones.

The minimum number of individuals for each species is as follows: 1 pig, 2 cows, 1 sheep, and one probable foetus. Most of the material is immature, the epiphyses are unfused and the teeth are deciduous and scarcely worn. One of the cows is less than one year old and probably considerably less; the other is older than 2 years. The sheep is possibly 3-3½ years old. There were also a considerable number of oyster shells.

The assemblage is too small for serious conclusions to be drawn but it is interesting to see how closely this 18th-century deposit of kitchen waste resembles modern remains in its choice of joints, butchery practices and preference for young animals.

#### *Architectural Fragments* – Hugh Richmond

The capital and bases of Purbeck marble are of late 13th-century date and uniform in style (Plate 1). They are small, well carved and finished to a high standard. Each is cut from a single block and is circular in plan with a spur, along the sides of which mouldings are returned. Enough of the bases remain to show

that they carried a circular shaft with a diameter of 90mm. The capital is less complete but it was established that it carried a shaft of similar diameter.

It is therefore suggested that these fragments originally formed a part of a small wall arcade with freestanding circular shafts and that the capital and bases were tied to the inner wall surface by means of the spurs. The height of the shafts was probably something in excess of 1 metre (Fig. 5).

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#### ACKNOWLEDGEMENTS

Grateful thanks are given to the Master and Fellows of Gonville and Caius College and to Professor Christopher Brooke for arranging for the excavation to take place, to Catherine Hall for her assistance with the historical background, to Robert Powell for help on the excavation and with the draughting work, to Professor Brooke, Alison Bennett, Michael Franklin and Susan Ridyard for their assistance on the excavation, and to the specialists for their reports and general comments.

The Cambridge Antiquarian Society also acknowledges with gratitude the generous grant from the Master and Fellows of the College and the Department of the Environment towards the publication costs of this paper.

*Note by Prof. C. N. L. Brooke*

On behalf of the Master and Fellows of Gonville and Caius College, I should like to express our very warm appreciation to the authors of this paper for the time and scholarship they have generously given to reconstructing and preserving these elements in the history of the College.

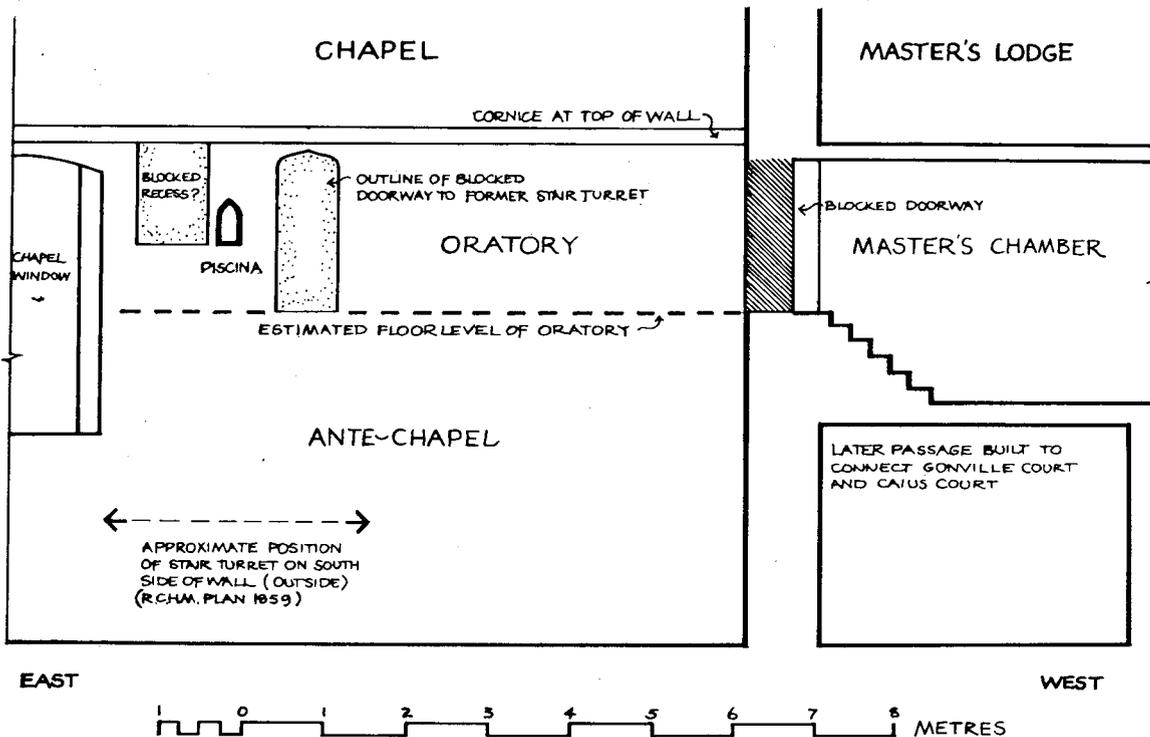


Fig. 1. Section through west end of Gonville and Caius College chapel, showing connecting door at first floor level and details of 15th-century oratory.

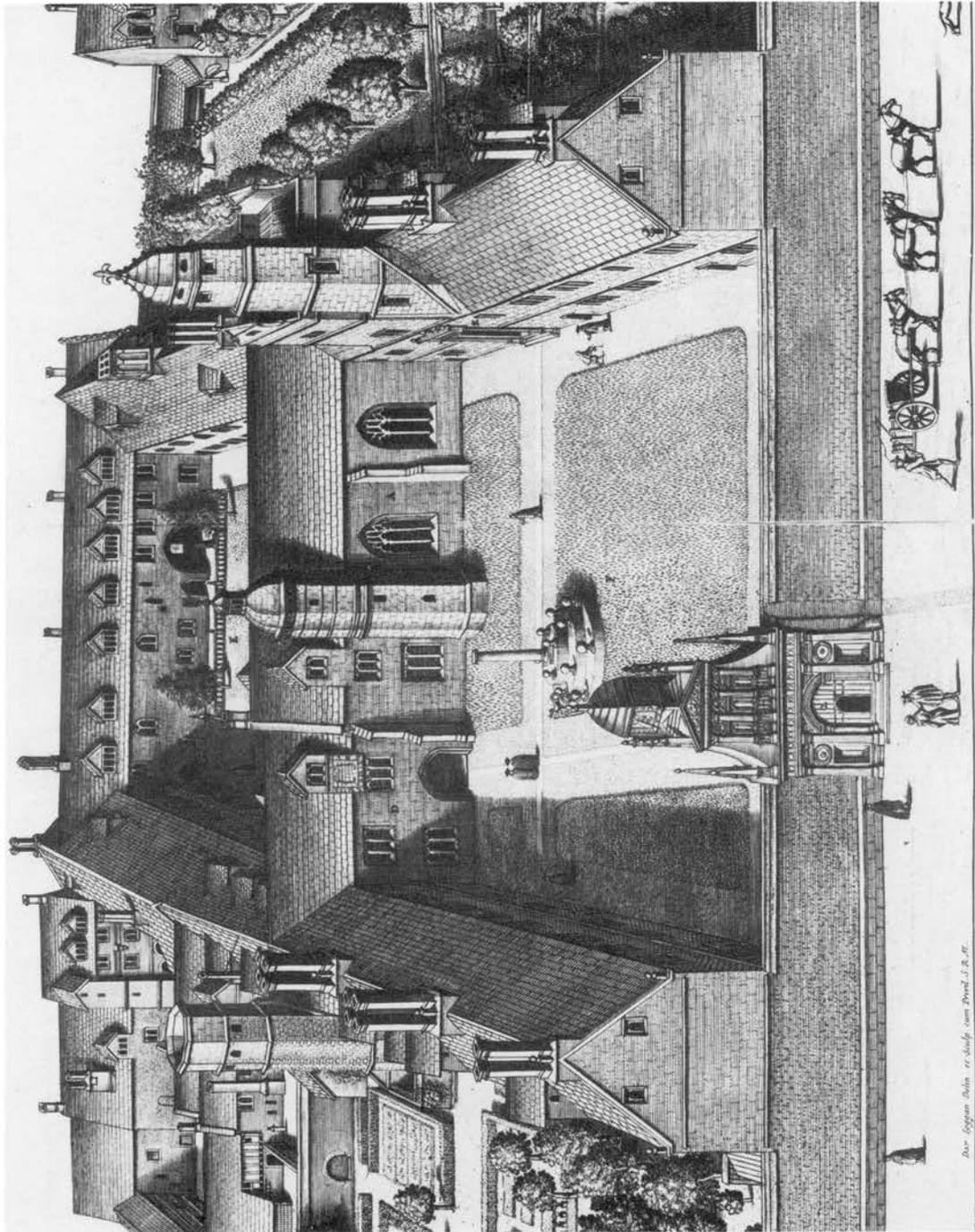


Fig. 2. Loggan's view of Gonville and Caius College c. 1685 from *Cantabrigia Illustrata*. The Chapel is marked A and the Master's Lodge D. By kind permission of the Syndics of the University Library.

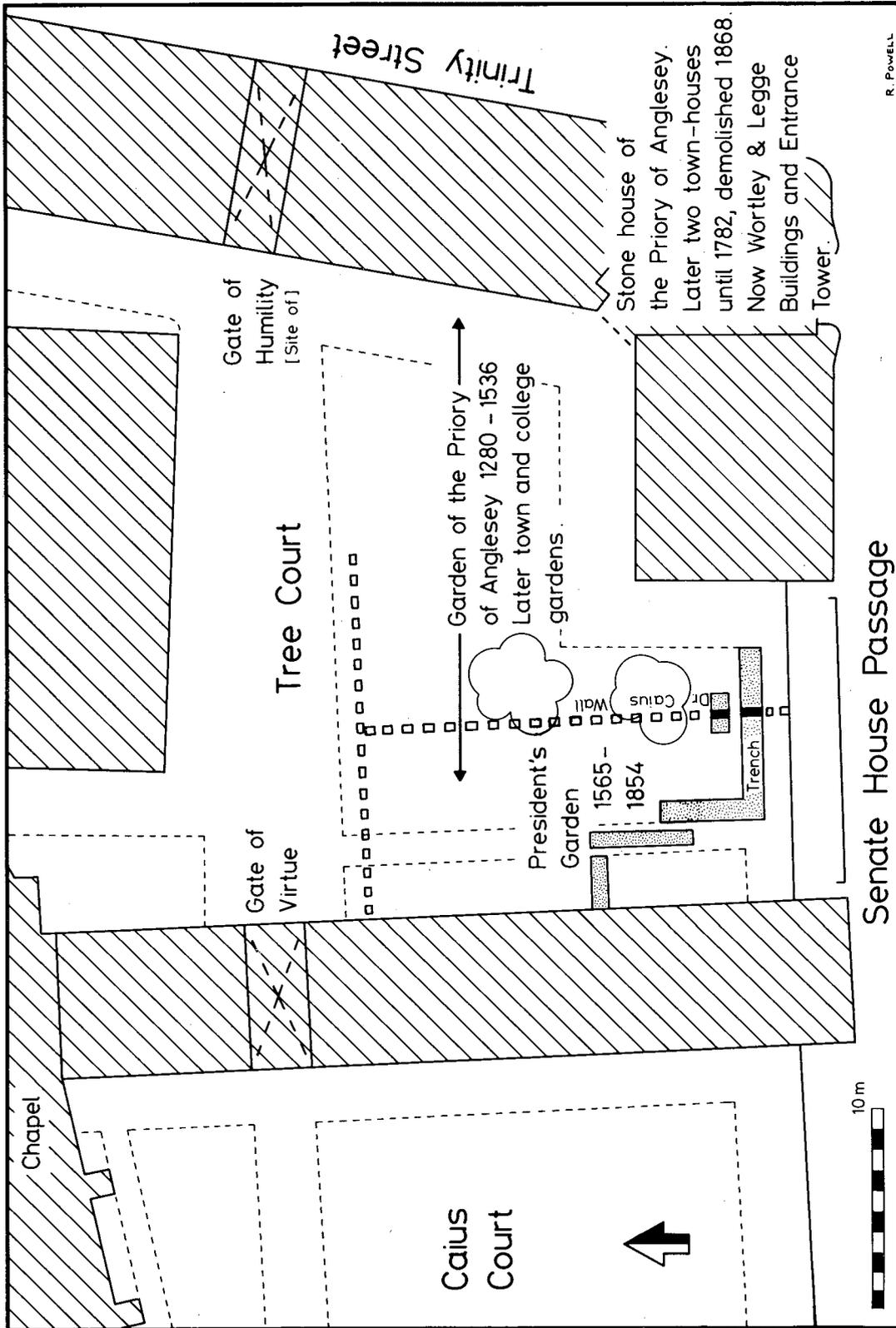


Fig. 3. Plan of trenches in Tree Court, Gonville and Caius College.

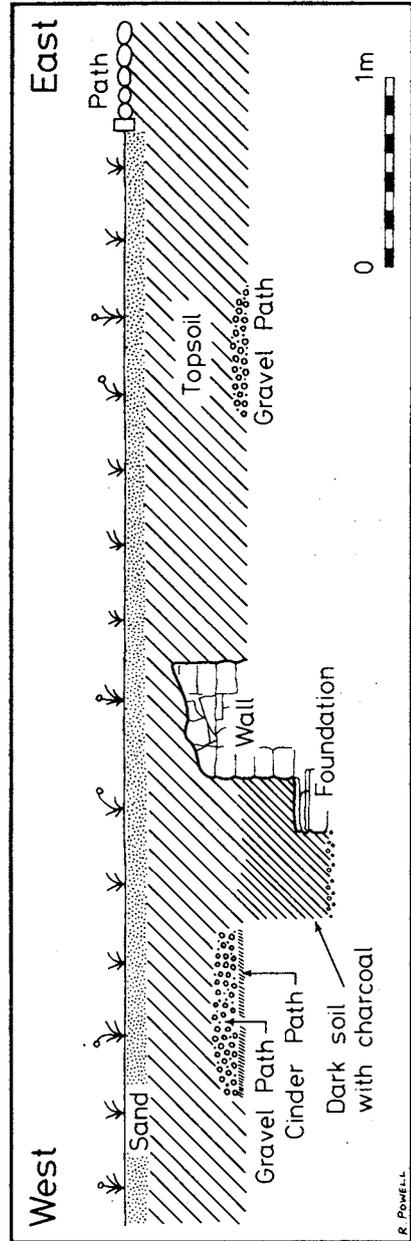
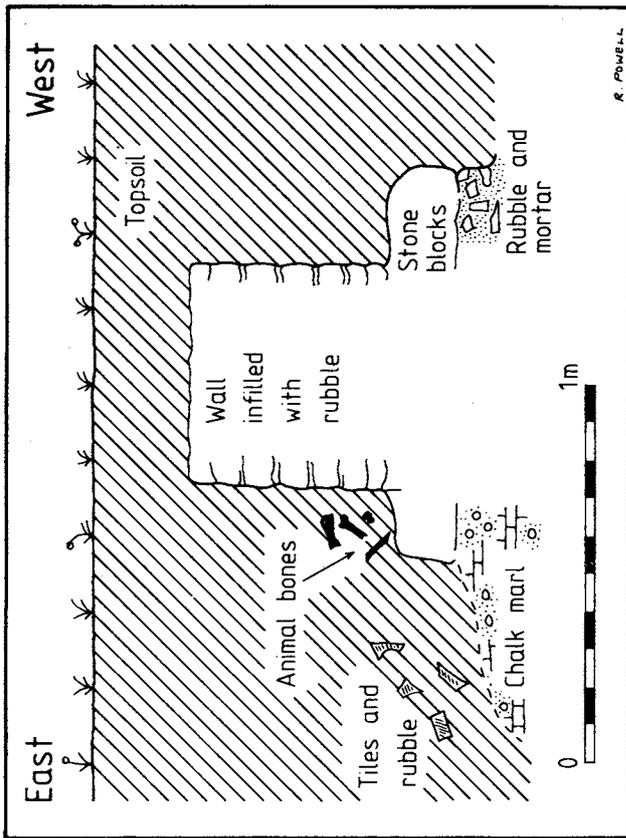


Fig. 4. Sections showing 16th-century wall, Gonville and Caius College.  
4a

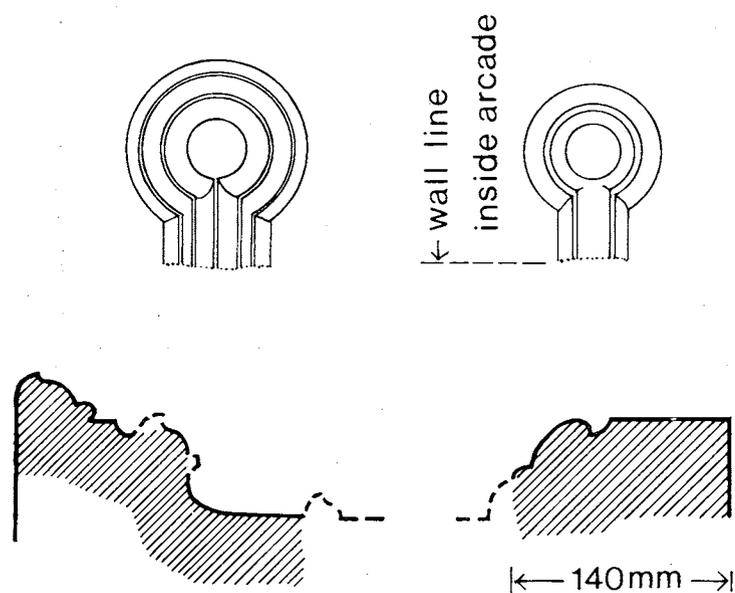
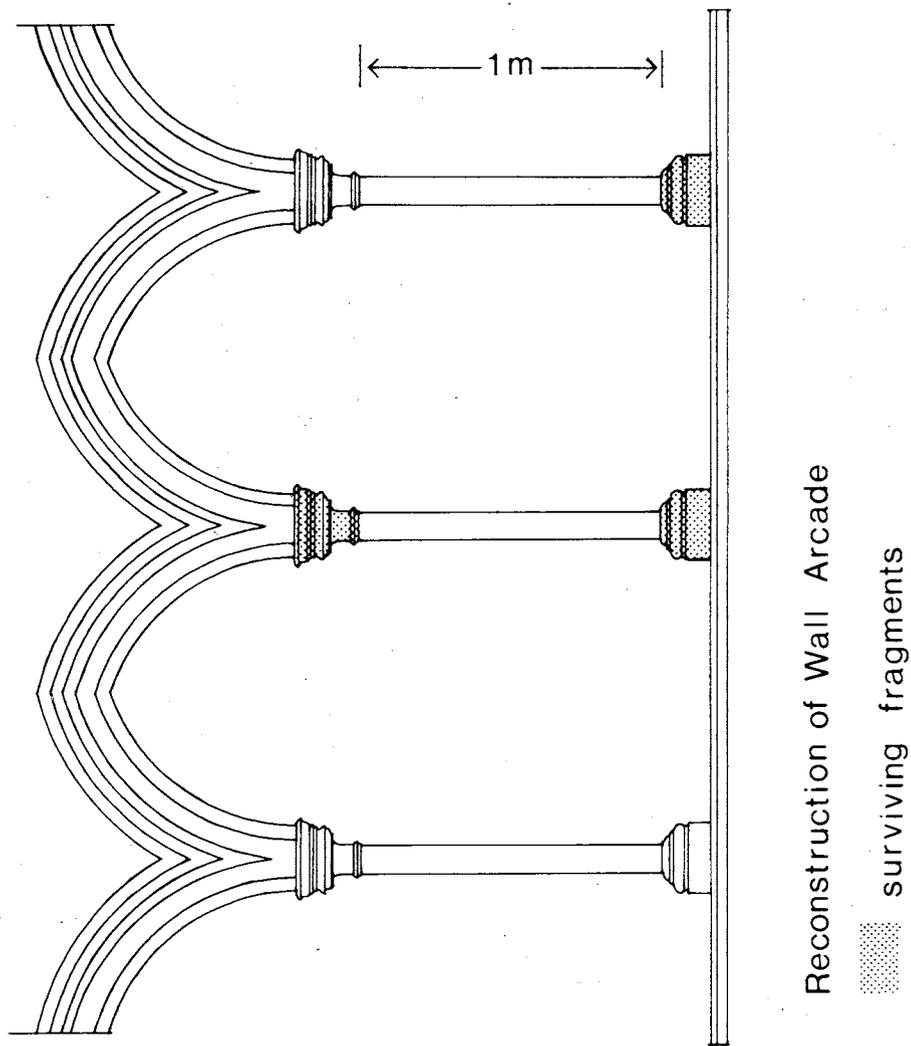


Fig. 5. Fragments of 13th-century arcading.

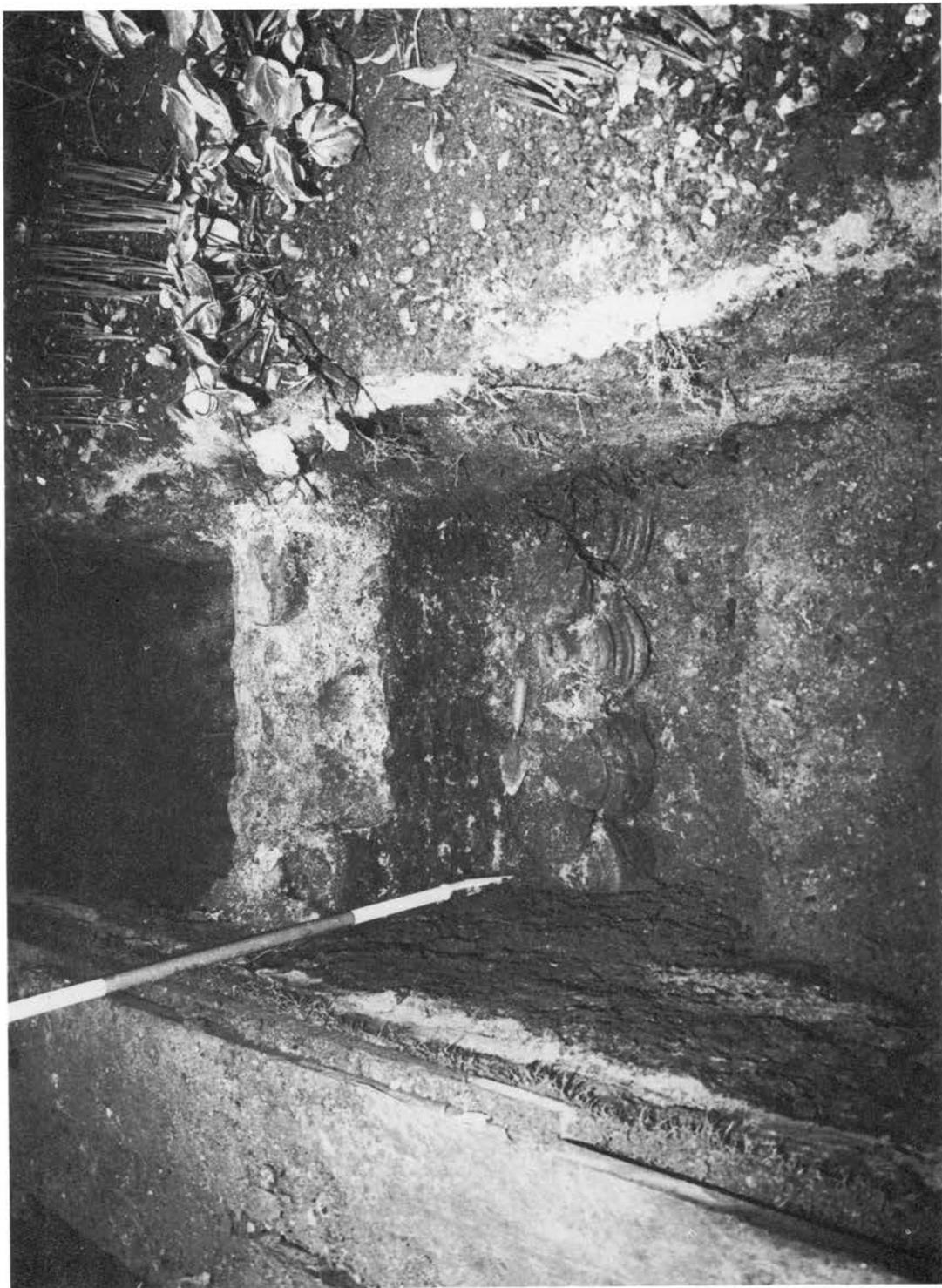


Plate 1. The 16th-century wall in Tree Court, Gonville and Caius College, with re-used 13th-century architectural fragments.

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