TESCO STORES LIMITED

EXCAVATION OF A BRONZE-AGE ENCLOSURE AT FULBOURN HOSPITAL, CAMBRIDGESHIRE

by R Brown and D Score

with contributions from
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TL 498 566

OXFORD ARCHAEOLOGICAL UNIT

December 1998

TESCO STORES LIMITED

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AT

FULBOURN HOSPITAL, CAMBRIDGESHIRE

ARCHAEOLOGICAL EXCAVATION REPORT

TL 498 566

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Date: June 1998	
Checked by: K. Atherton	
Date: 2/12/98	
Approved by: R. Williams	
Date: 4/12/1998	

OXFORD ARCHAEOLOGICAL UNIT

DECEMBER 1998

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Summary

The Oxford Archaeological Unit (OAU) carried out an excavation on land adjacent to Fulbourn Hospital, Cambridgeshire, on behalf of Tesco Stores Limited in September 1996. The work followed a programme of evaluation commissioned by East Anglia Health Authority and carried out by the Cambridge Archaeological Unit during May and June 1993. The excavation confirmed the results of the evaluation, revealing a middle to late Bronze Age ditched enclosure and a series of posthole fence-lines and possible structures that may have been livestock management features.

Acknowledgements

The authors would like to record their thanks to Tesco Stores Limited for their cooperation and funding and to the Oxford Archaeological Unit excavation staff. The final text was edited by Kate Atherton of the OAU and the illustrations were the work of Mel Costello, also of the OAU.

Location of the archive

The finds and paper archive for project FUHO 96 will be deposited with the Archaeology Section of the Cambridge County Council, Babbage House, Shire Hall, Cambridge.

INTRODUCTION

Location and geology
(Fig. 1)

The site, centred at NGR TL 498 566, lay approximately 1 km to the west of the village of Fulbourn and 5 km to the south-east of Cambridge city centre. The eastern limit of the modern development of Cherry Hinton lay to the west of the site and the Cambridge to Newmarket railway line bordered the site to the north. The existing structures, internal roads and boundaries of Fulbourn Hospital formed the eastern and southern limits of the site.

The underlying geology of the site was Cretaceous Lower Chalk containing a horizon of Tottenhoe Stone.

Background to the excavations

East Anglia Regional Health Authority commissioned an archaeological evaluation in 1993 in anticipation of development. The evaluation, carried out by Cambridge Archaeological Unit (CAU), identified elements of a prehistoric settlement previously seen as undated cropmarks on aerial photographs. Two substantial ditches of Bronze Age date were identified, one of which was interpreted as a potential enclosure for a domestic settlement (Gdaniec 1993).

Planning permission was granted in 1996 for the development of a retail superstore with car park, access road and additional landscaping. This was subject to a condition that a programme of work should be implemented in accordance with a Written Scheme of Investigation, submitted to, and approved by, the local Planning Authority (ref. S/1436/920 condition no.120). The Oxford Archaeological Unit, in their capacity as Archaeological Consultant to Tesco Stores Limited, prepared a Written Scheme of Investigation which was approved by Bob Sydes, on behalf of Cambridge County Council.

Methodology

An area of approximately 0.36 hectares was stripped in the north-west of the development area, in the location of the possible enclosure ditch and a long ditch aligned north-west by south-east identified by the CAU evaluation. In addition, five trenches measuring 10 m by 2.5 m were excavated along the length of the long ditch (Figs 1 and 2). All soil above the archaeological horizon was removed with a mechanical excavator under archaeological supervision.

All archaeological features were hand-excavated and the recording system was in accordance with OAU standard practice as laid out in the Field Manual (Wilkinson 1992). Each feature or deposit was planned and individually recorded.

ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

A summary of the archaeological and historical background, compiled for the CAU evaluation report in consultation with the Cambridgeshire Sites and Monument Record (SMR), is presented in Appendix 1.

The earliest known activity in the area is represented by a group of prehistoric ring ditches on the higher ground to the north, west and south of Fulbourn Hospital. A ring ditch (SMR: 02692) was located approximately 200 m to the west of the excavation area, under the recent housing development at Teasal Way. Two parallel ditches aligned north-west by south-east were associated with the barrow, as was a third, curving feature of unknown function. The most north-easterly of the cropmarks, associated with the parallel ditches and the curving ditch, was seen to extend into the excavation area.

The numerous local ring ditches are part of a group that skirts the fen edge from Mildenhall, on the Suffolk border, to Cambridge. They are located in a broad corridor on the chalk ridge that is bounded by the fen to the north-west and by the Icknield Way, a prehistoric trackway, to the south-east. Dense clusters of barrows and ring ditches occur at Little Wilbraham and around the Fleam Dyke to the north-east and south-east of Fulbourn respectively and these highlight the substantial late Neolithic and Bronze Age ritual activity of this region. The test pit survey which was carried out as part of the evaluation provided sufficient quantities of flint, scattered in the adjacent fields, to support the claim for nearby Bronze Age occupation (Gdaniec 1993).

Slightly further afield, evidence for Neolithic occupation and part of a Bronze Age field system has recently been recovered at Low Fen, Fen Drayton, Cambridgeshire (NGR TL 3375 6903) (Mortimer 1995). However, no evidence for structural remains was found despite the scattered groupings of pits that dated to the late Bronze Age. Two circular cropmarks at Little Abington, approximately 33 km to the south-east of Fulbourn, were evaluated and proved to be ploughed out Bronze Age barrows (Barclay 1994). Late Bronze Age occupation consisting of pits and an unusual form of round barrow were recently excavated at Bourn Bridge, Pampisford, approximately 40 km to the south of Fulbourn (Pollard 1995).

A large enclosed Iron Age settlement (SAM 95) is situated approximately 600 m to the north-east of the Fulbourn development area. Its position is significant when considered with the Iron Age hillfort at Wandlebury, 3 km to the south of the hospital. It may represent one of numerous, so far undiscovered, Iron Age settlements to the south-east of Cambridge.

Excavations conducted between 1978 and 1981 on an extensive Romano-British settlement, located between the railway line and Teversham village, revealed numerous buildings and cobbled yards (Pullinger and White 1991). The excavations also produced several flints, including a Bronze Age arrowhead, which provide further evidence of prehistoric activity in the locality.

The earthworks of a medieval moated manor survive at the south end of Teversham village. Part of the associated manor lands and field system have been seen as cropmarks on aerial photographs.

Fulbourn Hospital, set within approximately 34 hectares of landscaped grounds, was established in the Victorian period. The site investigation revealed that the

excavation area had, at some point after the construction of the hospital, been subject to cultivation and then later use as a dumping ground.

ARCHAEOLOGICAL DESCRIPTION

The excavations revealed part of a possible enclosure, consisting of three substantial, and apparently contemporary, ditches. The westernmost part of the enclosure (ditch 1001) was created by the partial re-cutting and enlarging of an earlier earthwork (ditch 1402). The ditch that constituted the southern boundary (1003) showed evidence for re-cutting of its upper fills. Ditch 1291, oriented north – south, formed the eastern side of the enclosure with its southern terminus positioned just north of the eastern end of ditch 1003 (Fig. 2).

Two possible pits and a series of postholes, forming fence-lines and possible structures, were revealed within the enclosure. Two ditches and two gullies were also identified which related to a post-medieval phase of activity.

The linear features

Ditch 1402 (Cuts 209, 303, 402 and 503)
(Figs 1 and 2)

Ditch 1402 was visible as a cropmark and had been excavated during the CAU evaluation. It was observed to run for approximately 100 m in a north-west by south-east alignment at the western end of the excavation area and it was examined in segments in trenches 100, 200, 300, 400 and 500 as shown on Figure 1. The ditch varied in width from 2.15 m to 2.80 m and in depth from 1.25 m to 1.50 m. It had steeply-sloping sides and a flat base (Fig. 4, sections 1, 16 and 27). The ditch sustained a generally uniform sequence of fills along its length and these are grouped together for descriptive purposes. The individual context numbers for each trench may be found in the archive. The primary fills (208, 304, 403, 522) consisted of very compact light grey/white silty chalk deposits resulting from weathering and the initial slumping of the ditch edges. These were overlain by a series of chalk-rich sandy silts that appeared to enter the ditch from its western edge and, especially in sections 1 and 5, they appeared to be the result of slumping. These deposits were interspersed with a series of silt chalk deposits that entered the ditch from its eastern edge and suggested that a bank had existed on the eastern side of the ditch. The final fills of the ditch consisted of a gradual accumulation of sandy silts. Flint flakes and occasional bone fragments were recovered throughout the fills of the ditch but no pottery was retrieved.

Ditch 1001 (Cuts 100 and 1073)

Ditch 1001 was originally considered, on the basis of cropmark evidence, to be a northern extension of ditch 1402. The CAU evaluated the ditch at the point of an anomaly in the cropmark (CAU trench 3) and this revealed that ditch 1402 had been re-cut and enlarged to such an extent that only the primary fill of the earlier ditch survived (Fig. 4, sections 27 and 41). Ditch 1001 (CAU, F11, 47) was also roughly aligned north-west by south-east

and continued for approximately 30 m within the excavation area. It was further investigated in trench 100 where it was 3.6 m wide by 1.5 m deep and had steeply sloping sides and a flat base. The observed anomaly or kink in the cropmark marked the point of the ditch's southern terminus. The primary fill (101, 1086, CAU 46) consisted of a compact silty chalk deposit (up to 0.6 m thick), derived from weathering and slumping. This was overlain by a sequence of fairly thick compact sandy silts, the uppermost of which contained bone, flint, and late Bronze Age pottery.

Ditch 1003 (Cuts 1021, 1029, 1087, 1101, 1292 and 1314, Re-cuts 1036, 1096, 1098, 1333, 1336, 1346 and 1348)
(Fig. 2)

The entire length of ditch 1003 was contained within the main excavation area where it was seen to define the southern limit of the possible enclosure. The ditch ran west-north-west by east-south-east from its western terminus and then curved to a west-south-west by east-north-east alignment, toward its eastern terminus that was rounded with a flattened base. It was 75 m long, 1.12 m to 1.28 m deep and its width increased from 1.8 m in the west to 2.4 m in the east. The ditch had steeply sloping sides and a flat slot-like base (Fig. 4, section 128). The primary fills consisted of sterile, compact silty chalk deposits up to 0.45 m thick. These were overlaid by a gradual accumulation of compact sandy silts, the uppermost of which contained varying amounts of pottery, bone and flint.

Two later ditches cut the upper fills of the eastern half of ditch 1003 (Fig. 4, section 128). The first (cuts 1036, 1098, 1348 and 1333) was approximately 40 m long, 0.8 m wide and 0.4 m deep with gently sloping sides and a rounded base. This removed the upper fills at the southern edge of ditch 1003. The later ditch was approximately 40 m long, 0.8 m wide and 0.4 m deep with gently sloping sides and a rounded base. It was filled with sandy silt deposits (1035, 1099, 1294 and 1334) that contained small amounts of pottery, bone and flint. This ditch was in turn cut by another ditch (1336, 1346 and 1096) that ran for 20 m along the eastern half of ditch 1003. It was 0.8 m wide and 0.30 m deep, with concave sides and a rounded base and was filled mainly by sandy silt deposits. The ditch removed the central upper fills of ditch 1003 and, in two sections (115 and 128), also removed the northern edge and fills of the first re-cut. No finds were retrieved from the second re-cut.

Ditch 1291 (Cuts 1156 and 1363)
(Fig. 2)

Ditch 1291 was recorded as the returning arm of ditch 1003 in CAU evaluation trench 4. Therefore, ditches 1003 and 1291 are both referred to as F3 in the CAU report. The larger area of the excavation revealed ditch 1291 to be a more substantial separate feature that formed the eastern limit of the enclosure. The southern terminus lay within the excavation area and was approximately 4 m to the north-west of the eastern terminus of ditch 1003. It was excavated in two slots but cut 1363 in section 139 (not illustrated) was not fully bottomed. Ditch 1291, oriented north-north-west by south-south-east, was 3 m wide, 1.57 m deep and ran for an observed length of 15 m. In profile the feature had steep, almost vertical sides and a flat base (Fig. 4, section 67).

Almost the entire lower half (0.80 m) of this ditch was filled with alternating, interleaved layers of compact silt chalks and sandy silt deposits with chalk inclusions. This appeared to be the result of initial weathering and gradual silting, with occasional slumping from the edges. No finds were retrieved from the primary fills of the ditch. The upper half of the ditch was filled with a series of sandy silts with chalk inclusions (1162-5, 1394 and 1397-1401), most of which contained finds. The increased quantities of finds retrieved from the uppermost fills (1163-5, 1398 and 1400-1) indicated that these deposits might represent domestic dumping from the interior of the enclosure.

The posthole structures
(Fig. 3)

Ninety definite postholes and thirty possible postholes were revealed during the excavation. The nature of the chalk made interpretation of isolated features such as postholes difficult. It was noted that solution holes and tree-throw holes, within a posthole structure, could appear very similar in appearance to definite postholes.

The postholes varied in diameter from 0.18 m to 0.45 m and in depth from 0.05 m to 0.30 m. Many appeared almost square with rounded edges in plan and a small percentage exhibited post-packing in the form of large cobbles. Pottery was recovered from only one posthole (1223, fill 1224). This was middle Bronze Age in date but the posthole had been extensively disturbed by root action.

The largest posthole structure consisted of 30 postholes that formed a fence-line to the north of, and parallel to, ditch 1003. The postholes ran from the south-western edge of the terminus of ditch 1291 and broadly respected the line of ditch 1003, at a distance of 5 to 8 m and ended 3 m short of the western terminus of ditch 1003. The postholes were fairly evenly spaced at between 0.8 m and 1 m apart.

A second posthole fence-line, consisting of eight postholes, converged on the centre of the first fence-line from the north-west. This effectively created a funnel-like structure with its opening to the west. Several postholes were discovered around the area where the two fence-lines converged although these did not form a coherent structure.

Twenty postholes were excavated in the western part of the excavation area but, although some of them seemed to form a fence-line, their function cannot be determined.

The pits
(Fig. 3)

Two possible pits were excavated. Pit 1211, located between the two converging posthole fence-lines (at the entrance of the 'funnel'), had been largely removed during the excavation of a test pit that was part of the CAU evaluation. This sub-ovoid pit, 1.9 m long by 1 m wide, had a near vertical western edge and a concave eastern edge that sloped to an irregular base. The pit was filled with two sterile and compact sandy silts and was unconvincing as an archaeological feature and was a possible tree-throw hole or a natural feature.

Pit 1252 was located to the west of the site. This was a sub-ovoid feature, 2 m long, 1.6 m wide and 0.9 m deep, with slightly concave sides falling to a rounded base. It

was filled with three thick, compact sandy silts that were sterile except for a small amount of charcoal in the primary fill.

Post-medieval ditches 1404 and 1405, gullies 1166 and 1403
(Not illustrated)

Four shallow linear features were identified in the main excavation area, aligned north-north-west by south-south-east. A limited inspection was sufficient to characterise them and the finds showed them to represent the last phase of activity at the site.

Ditch 1404 ran for a length of 40 m in the eastern half of the site. It was 0.60–0.75 m wide and only 0.05 m deep. Ditch 1405 was visible for a length of 18 m in the south-west area of the site and was 0.60-0.75 m wide and 0.10 m deep. Both ditches were filled with a dark brown grey silty loam (1290 and 1295) that contained post-medieval and possibly 20th-century brick and tile.

Gullies 1166 and 1403 ran parallel to each other at the eastern end of the site and were 0.5 m wide and 0.10 m deep. Gully 1403 was observed for a length of 24 m while 1166 could be traced for 14 m and had a gently rounded symmetrical profile where it cut the upper fill of ditch 1291 (Fig. 4, section 128). Both features were filled with a dark brown silty loam (1167 and 1289 of gullies 1166 and 1403 respectively) which contained post-medieval building material.

THE FINDS

The prehistoric pottery
by Alistair Barclay

Introduction

This report incorporates the prehistoric pottery found in the evaluation (Gdaniec 1993). The assemblage has been quantified by weight and sherd number (Table 1). Refitting fresh breaks are excluded from the sherd count. The pottery is characterised by fabric, form, surface treatment, decoration and colour. Only the more diagnostic featured sherds are listed in the catalogue. A record was made of burnt residues. The sherds were analysed using a binocular microscope (x 20) and were divided into fabric groups by principal inclusion type. OAU standard codes are used to denote inclusion types: A = sand (quartz and other mineral matter), F = flint, G = grog, S = shell. Size range for inclusions: 1 = <1 mm fine; 2 = 1-3 mm fine-medium and 3 = >3 mm medium-coarse.

Table 1 presents a breakdown of the total assemblage by period and context. Only four contexts produced more than 50 g of pottery, from which only one contained more than 100 gm and most produced no more than 20 g of pottery. Most of the sherds were small and abraded, with the general exception of one or two sherds.

Fabrics

Eleven fabrics have been identified through the analysis of the principal inclusion types and the assemblage has been divided into three fabric groups: sand-tempered (A1), flint-tempered (F2, FA1-3) and shell-tempered (SA1-3, SF1). Approximately 39% of the

sherds by weight belong to the flint-tempered group, while 61% belong to the shell-tempered group. The average sherd weight for the flint-tempered fabric group is 12.3 gm, which is approximately double that of the shell-tempered group which has a mean weight of 5.8 gm. This figure may reflect the fact that the shell-tempered fabrics are more prone to breakage, although it could also be an indicator of greater redeposition of this material. It is tentatively suggested that some of the sherds in shell-tempered fabrics (SA1-3) are middle Bronze Age in date, while the remaining fabrics are thought to be late Bronze Age in date.

The fabrics contain no unusual, non-local or exotic inclusions and it is probable that the sand, flint and shell were all procured locally either as naturally occurring inclusions within the clay or as deliberate tempering agents. Both shell and flint are common temper or opening material in later Bronze Age pottery, and shell is also found in Iron Age fabrics. The sandy fabric (A1) could be of this date, but is perhaps more likely to be Iron Age.

Sand: A1 Hard fabric with moderate coarse quartz sand.
Flint: F2 Hard fabric with common medium angular flint.
FA1 Hard fabric with common fine angular flint and sparse quartz sand.
FA2 Hard fabric with common medium angular flint and sparse quartz sand.
FA3 Hard fabric with common coarse angular flint and sparse quartz sand.
FS1 Hard fabric with moderate fine angular flint and sparse fine shell platelets.
FS3 Hard fabric with moderate coarse angular flint and sparse medium shell platelets.
Shell: SA1 Hard fabric with moderate fine shell and sparse quartz sand inclusions.
SA2 Hard fabric with moderate medium shell and sparse quartz sand inclusions. Some fabrics also contain rare medium-coarse angular grog.
SA3 Hard fabric with moderate coarse shell and sparse quartz sand inclusions. Some fabrics also contain rare medium-coarse angular grog.
SF1 Hard fabric with moderate fine shell and sparse angular flint inclusions.

Forms

The assemblage includes no complete vessel profiles and is generally fragmentary, with an average sherd weight of 8.2 g. Of the six rims that are present one is expanded, one is of simple form, three are everted and one is flaring (Fig. 5.2-5, 10 and 12). With the exception of the latter, all of the rim forms are compatible with a later Bronze Age date. The simple rim and the expanded rim are likely to be from coarser jars or bucket-shaped vessels, while the everted rims are from finer biconical vessels. The flaring rim is part of an unusual miniature vessel that can best be described as an accessory vessel or pygmy cup (cf. Abercromby 1912, Pl. 78-84). This vessel has an impressed finger-nail decorated flaring rim with a maximum diameter of 60 mm. Such vessels tend to be either early or middle Bronze Age in date and while many are found in funerary contexts some are found on domestic sites.

Three shoulder sherds are present. One is angular and appears to come from a fine bipartite jar or bowl. Another is from a slack-shouldered vessel and is decorated with an impressed finger-dimple. The remaining shoulder sherd is represented by a tiny fragment and is of indeterminate form. Eight base sherds are present. These occur in both shell and flint tempered fabrics and all are of relatively simple form (Fig. 5.7- 8, 11 and 13).

The largest group of pottery (48 sherds, 552 gm) and featured material is from context 14 (CAU, Tr.4, F3), an upper fill of the ditch recorded in the excavation as 1291,

and includes everted rims, an expanded rim, an angular shoulder and a small number of base sherds (Fig. 5.3-9). Parallels for this material can be found amongst the vessels of late Bronze Age assemblages. There is an absence of decorated material from this group, although given the small number of sherds from this context this need not be significant. The only decorated sherd, the shoulder with the finger dimple, is from context 105, which is the upper fill of ditch 1001 recorded in trench 100, and was found with a simple everted rim. The most complete vessel is the miniature cup fragment from 1224, the fill of posthole 1223. This was found with a large base sherd manufactured from the coarse shell-tempered fabric SA3 and both could be of middle Bronze Age date.

Beaker and early Bronze Age

Two sherds are of this date. One is from a rusticated Beaker and the other is a plain body sherd. Both sherds contain moderate amounts of medium sized grog (<3 mm) and the Beaker fabric also contains quartz sand and voids from either leached shell or burnt out organics. The rusticated sherd (Fig. 5.1) has plastic finger-tip decoration and has been fired to a reddish-brown. It is from a relatively small Beaker Domestic pot (Gibson 1982).

The Beaker and early Bronze Age sherds found respectively in contexts 19 and 20 from the evaluation (CAU, Tr.4, F3) are in a worn condition and can be considered as redeposited residual material within the fills of the later Bronze Age ditch 1291. Similar Beaker Domestic pottery with pinched and plastic decoration has been found at Chippenham, Fengate and Shippea Hill, and is relatively common around the Fen Edge and from East Anglia (Bamford 1982; Gibson 1982).

Later prehistoric pottery

The evaluation and excavation produced a total of 114 sherds (945 gm) of handmade prehistoric pottery. The assemblage comprises both middle and late Bronze Age pottery and includes a miniature vessel, possible Deverel-Rimbury material and a small number of late Bronze Age featured sherds.

Decoration and surface treatment

Both decoration and surface treatment were noticeably rare. The only record of decoration was the finger-nail marks on the rim of the miniature vessel and an impressed finger dimple on a shoulder sherd. There was relatively little evidence for surface treatment with no evidence for careful finishing or burnishing.

Residues

A few sherds carried burnt residues on their interior surfaces indicating use as cooking pots. This included a body sherd and a base sherd from CAU context 14 and a number of refitting body sherds from context 105.

Discussion

The middle Bronze Age pottery may be broadly contemporary with the construction and primary use of the enclosure, while the late Bronze Age pottery appears to be associated with its later and final use. The rather low quantities of pottery, often small and abraded, from the ditches and internal features perhaps indicate that the enclosure was not used primarily for domestic occupation.

Some possible middle Bronze Age pottery, represented by relatively small body sherds, was recovered from excavated tree-throw holes 1264, 1281 and 1283 (contexts 1265, 1280 and 1282 respectively), that could represent pre-enclosure clearance. The only significant group of middle Bronze Age sherds was recovered from posthole fill 1224 within the enclosure interior and close to ditch 1001. The early Bronze Age sherds recovered during the evaluation from the bottom of the enclosure ditch are considered to be redeposited residual material (see above).

The late Bronze Age material was invariably recovered from the upper fills of ditches 1001 (105, 1074), 1003 (1095, 1097, CAU 30) and 1291 (1164-5, 1400-1, CAU 13, 14). No pottery was recovered from primary ditch fills although two small pieces came from the middle fills of ditch 1291 (1395 and 1397).

It is suggested that the assemblage broadly belongs to the later Bronze Age. It is argued above that the group of material from context 14 has its closest affinities with late Bronze Age pottery found in lowland Britain (Barrett 1980), while some sherds, including a fragmentary miniature vessel may hint at an earlier middle Bronze Age component. Given the small size of the assemblage, it cannot be stated with certainty that the lack of decoration is of significance. Late Bronze Age Plain Ware assemblages, as defined by Barrett (1980), are rare in this region. There is some similarity in vessel forms between the Fulbourn material and Cunliffe's Ivinghoe-Sandy group which includes part of an unpublished assemblage from Green End Road, Cambridge and other material from Chippenham and Grantchester (Cunliffe 1991, 558, fig A:5 9-10; Barrett 1980, fig 5:13-6). The as yet largely unpublished Plain Ware assemblage from Flag Fen may also be of relevance (Barrett 1986, 12). The Fulbourn assemblage has few parallels with the so-called Decorated Ware assemblages recorded from Fengate or West (Hawkes and Fell 1943) or with the early Iron Age pottery recorded from Linton (Fell 1953).

Catalogue of illustrated sherds
(Fig 5.1-13)

1. Beaker. Pinched and finger-tip decoration (13 g). Fabric GAV2. Condition worn. Ctx. 19.
2. LBA. Simple rim (3 g). Fabric FA2. Condition average-worn. Ctx. 13.
3. LBA. Everted pointed rim (7 g). Fabric FS3. Condition average. Ctx. 14.
4. LBA. Expanded rim (6 g). Fabric SA2. Condition worn. Ctx. 14.
5. LBA. Everted squared rim (5 g). Fabric SA2. Condition worn. Ctx. 14.
6. LBA. Angular shoulder (5 g). Fabric SA2. Condition average-worn. Ctx. 14.
7. LBA. Simple base angle (17 g). Fabric SA3. Condition average. Ctx. 14.
8. LBA. Simple base angle (17 g). Fabric FS1. Condition average. Ctx. 14.
9. LBA. Sherd from the base of a large vessel (271 g), approx. dia. 160 mm. Fabric FA2. Condition average. Ctx. 14.
10. LBA. Shoulder sherd with impressed finger-dimple (3 g). Fabric FA1. Condition average. Ctx. 105.
11. ?MBA. Large sherd broken at the base angle (48 g). Fabric SA3. Condition average-worn. Ctx. 1224.

12. ?MBA. Decorated rim fragments from a miniature vessel (7 g). Fabric SA2. Condition average. Ctx. 1224.
13. LBA. Simple base angle (16 g). Fabric FA2. Condition average-worn. Ctx. 1401.

Roman, medieval and post-medieval pottery
(with identifications by Paul Booth)

Four small sherds of non-prehistoric pottery were recovered (Table 1). The two Roman sherds were from plough disturbed postholes (1063 and 1067), while both the medieval (408) and post-medieval sherds (1293) were from the upper fills of ditches 1402 and 1291 respectively.

The flint
by Theresa Durden

Introduction

A total of 89 pieces of flint were recovered from the excavation. This total included two natural unstruck pieces and one piece of burnt unworked flint. Flint recovered from the previous evaluation by CAU was attributed to the middle/later Bronze Age with a small quantity of residual Neolithic material (Edmonds 1993); this was also re-examined briefly with the aim of increasing the sample of flints from features that were re-excavated.

Raw material

The flint used appears to be exclusively chalk flint which outcrops in the immediate area. Almost all of the flint is corticated white or speckly grey. Some pieces have a light calcium carbonate encrustation and a few are iron-stained. The material is all in reasonably fresh condition.

The excavated struck flint assemblage

Flakes are generally broad with a thick platform, irregular in shape and struck with a hard hammer. Completely and partly cortical trimming flakes are well represented with 56 examples plus seven chips. However, almost a quarter of all the flake material consists of six blades and twelve blade-like flakes. These flakes are thinner, narrower, have a more regular outline and are struck with soft or hard hammers. No cores or irregular waste pieces were collected, although these were recovered by the CAU evaluation. The retouched material consisted of two end scrapers, a side/end scraper, a serrated blade and a simple edge-retouched flake. The two end scrapers were quite finely flaked and made on thin blanks, though the other scraper was made on a very thick piece and was partly step-flaked.

Dating

The flakes which make up the bulk of the assemblage would be typical of a middle/later Bronze Age industry. The thinner and narrower flakes, however, would be more typical

of Neolithic industries. The serrated piece is a typical find in assemblages up to the early Bronze Age. The scrapers are not particularly diagnostic, though the end scrapers may be associated with the earlier material and the side/end scraper may be of Bronze Age date on the basis of the thick blank and crudeness of flaking.

Discussion

The bulk of flint from the excavation was recovered from four features; ditches 1001, 1402, 1003 and 1291. The nature of the material and its probable date did not appear to vary between the ditches or within the ditches in different fills. The ditches are of probable Bronze Age date (supported by pottery evidence) and the uniformity of the lithics suggests flintworking activity in the vicinity did not change while the ditches were open. It is likely that the possible Neolithic element is surface residual material that had become incorporated into the ditch fills.

The material recovered from the excavation would appear similar in nature and date to that recovered in the evaluation. Material from the CAU test pits, which covered a wider area, would support the middle/later Bronze Age date, with only a few possible Neolithic flakes. Test-pitting results showed that the density of material appeared to be highest close to the ditches, and 93 pieces of worked flint and 18 pieces of burnt unworked flint were recovered from sections of the above four features during the evaluation (CAU F1, F3 and F11).

This material also appeared to be mostly of middle/later Bronze Age date. The only difference between the excavated and evaluation assemblages from these ditches was the quantity of earlier Neolithic material contained within them. Edmonds had identified a very small amount of residual Neolithic material, and this was confirmed by re-examination. Of the 93 pieces of worked flint from the four ditches, only about half-a-dozen flakes had obvious technological characteristics which would be more typical of an earlier industry, although there is always a certain amount of overlap between different technologies and also between different stages of the knapping process. The excavated assemblage, however, contained a larger proportion of potentially earlier material, as shown above. This can be attributed purely to sample bias as the earlier and later material is evenly mixed throughout fills and between features.

The lack of chips collected, even in sieved samples, suggest that flint was not worked here, but may have been dumped in or close to the ditches from elsewhere. The presence of four refitting flakes found in the evaluation in a middle fill of F3 (OAU 1003) suggests the flint would have been worked close by. The large number of cortical and trimming flakes in the assemblage, and general lack of retouched implements, confirms Edmonds' suggestion that this is not a domestic assemblage but more likely represents the residue of a more 'industrial' activity, the procurement of flint and production of crude flakes.

THE ENVIRONMENTAL REMAINS

The animal bone
By Bob Wilson

A total of 447 bones from ditches 1402, 1001, 1003 and 1291 have been examined and recorded to species frequency and other levels of information. Nineteen percent of the bones were identified. Overall results of recording the bone fragment frequencies are given in Table 2.

No bones of goat were identified among the sheep/goat category. Three fragments of a large horn core may be of aurochs but it is difficult to be certain. A femur and a tibia are of badger and they are leached enough to have been deposited in antiquity. However, they may be intrusive bones from burrowing animals rather than part of the human occupation debris.

Bones of cattle are much more numerous than sheep, pig and horse bones but bones of the medium sized mammals may be under represented. Firstly, most of the bones have been considerably eroded and smaller bones may not have survived the process of bone degradation as well as the larger bones. Secondly, ditches (compared to other types of feature like pits and postholes) often yield a higher proportion of the bones of larger species like cattle and horse.

All major parts of the carcasses of cattle and sheep are represented. Mandible wear stages at death (Grant 1982) recorded are: sheep 28 and 34e and cattle 28, too few to indicate the Bronze Age kill-off patterns. A cattle metacarpal measured 171 mm (G1) and the badger femur measured 112 mm (G1).

In general the bones appear to be typical food detritus and indicative of domestic or ritual activity at the site even if it is concluded not to be a settlement and may be an animal management system.

Land snails
By Mark Robinson

Introduction

The site was situated on the Chalk, resulting in all the archaeological features being filled with calcareous sediments suitable for the survival of mollusc shells. Two column sequences of samples were analysed from the enclosure ditches for molluscs (Fig. 3, Sections 1 and 41, Table 3). At least the early fills of ditch 1402 (Column 2) pre-dated the digging of ditch 1001 (Column 3) but both ditches were completely filled by the late Bronze Age.

Methods and results

Samples of 0.5 kg were sieved down to 0.5 mm and the molluscs extracted as described by Evans (1972, 44). Shells were absent from Samples 1.35 m and 1.15 m of column 2 and Samples 1.35 m and 1.20 m of Column 3. Otherwise the samples contained well preserved shells, mostly in quite high concentrations. The results have been listed in

Table 4, excluding *Ceciliodes acicula* because it is a burrowing species. The nomenclature follows Kerney and Cameron (1979, 39-47).

Interpretation

Although ditch 1402 pre-dated ditch 1001, both columns gave broadly similar results so have been considered together. Shells were absent from the lowest sediments, which comprise almost entirely chalk and presumably accumulated rapidly. The earliest samples from which shells were recovered, Sample 0.95 m of Column 2 and Sample 1.02 m of Column 3, both contained rather sparse assemblages mostly of open country species. As the rate of sedimentation slowed, so the concentration of shells increased. Samples 0.70 m of Column 2 and 0.78 m of Column 3 both contained open country faunas which included *Pupilla muscorum*, *Vallonia costata*, *V. excentrica* and *Helicella itala*. *V. costata* was the most abundant species, which would be consistent with dry grassy conditions. Although a few shade-loving species such as *Aegopinella pura* were present in Sample 0.70 m of Column 2, the numbers of *Carychium tridentatum* were not so great as to suggest tall grass. Sample 0.85 m of Column 2 and Sample 0.78 m of Column 3 both contained shells of *Truncatellina cylindrica*. This is now a very rare species of short-turfed grassland, although it does still occur in Cambridgeshire, but it seems to have been more widespread in the Bronze Age (Evans 1972, 140-1; Kerney and Cameron 1979, 68, 263).

Further up the sequence in both ditches, conditions became more stable and shaded, with the result that Sample 0.50 m of Column 2 and Sample 0.54 m of Column 3 both contain high concentrations of shade-loving species especially *Carychium tridentatum* but also *Acanthinula aculeata*, *Punctum pygmaeum* and *Aegopinella nitidula*. Another species, *Pomatias elegans*, is favoured by loose soil or a layer of leaf litter. Open country species, however, retained a presence. There were significant numbers of *Vallonia costata*, an open country species which also lives in longer grass and can tolerate some scrub. *Helicella itala*, which is less tolerant of shading, was also present and there were several individuals of *Truncatellina cylindrica* in Sample 0.54 m of Column 3. Although the almost complete absence of *Discus rotundatus* was probably a reflection of the dry conditions of the site (Evans 1972, 185), these assemblages did not have the character of full woodland faunas. Indeed, the most numerous species, *Carychium tridentatum*, readily flourishes amongst tall grass. While it is possible that the faunal changes were the result of general but incomplete scrub development, they could also have been caused by hedges growing alongside the ditches becoming overgrown and tall vegetation growing in the ditches against the background of an open landscape.

The upper two samples from each of Columns 2 and 3 showed an increase in the proportion of an open species and a decline in the proportion of shade-loving species. This would suggest a return to more open conditions.

DISCUSSION

The evaluation found no positive indications of settlement and, similarly, the excavation was inconclusive. However, the larger area of the excavation helped to clarify the character of the enclosure. It was established that ditches 1003 and 1291 were separate features that formed the southern and eastern limits of an enclosed area rather than a

single boundary. It was also observed that ditch 1291 curved towards the east, which would be unlikely if a site was being enclosed. Such ditches are more consistent with boundaries or field divisions. Ditch 1402, linear for at least 100 m, was clearly a land boundary which continued in use as ditch 1001. The chalk fills of ditch 1402 indicate the presence of a bank along its eastern side.

The relationship between ditches 1291 and 1003 cannot be proven in the absence of any physical relationship but the proximity of their terminals, which clearly appear to respect one another, strongly suggests that they are contemporary. This is supported by the fairly uniform finds that were recovered from both ditches. In addition, the posthole line ran from the terminus of ditch 1291 and parallel to ditch 1003. These posts and the two recuts of ditch 1003 reinforce the continued use of the southern boundary.

The flint and pottery assemblages indicate a middle Bronze Age date for the initial excavation and use of the ditches that continued into the late Bronze Age. The Neolithic flint, the Beaker and early Bronze Age sherds are interpreted as redeposited residual material. It is, therefore, probable that this area was the subject of significant land partition in the mid-late Bronze Age. The size of the ditches and the extensive recuts of ditches 1402 and 1003 indicate that, as well as a reorganisation of the landscape, there was also a degree of continuity in the utilisation of boundaries which lasted some considerable time. The boundaries seem to have lost their significance in the later Bronze Age when the ditches were infilled. Two probable drainage ditches and a pair of gullies which may have flanked a trackway are certainly post-medieval or later in date and relate to more recent farming activity in the area.

It is difficult to speculate on changes over a wider area, beyond Fulbourn, but the creation of these ditches may be part of the general move towards large-scale reorganisation of the landscape during the middle Bronze Age (Bradley 1994, 96; Darvill 1987, 108). During this period large areas of land were divided with a much higher degree of uniformity and order than had previously existed. In many areas, such as Fengate, this appears to have been accomplished over a fairly short period of time and with a high level of cohesion, with major boundaries being laid out together and smaller divisions added according to requirements (Pryor 1980, 179).

The specialist reports confirm that the enclosure does not contain evidence for domestic use. The quantity of pottery is limited (Barclay) and the flint collected is indicative of raw material procurement and initial production of crude flakes rather than a domestic assemblage. No features were found which would contradict this. The bone analysis demonstrates the presence of cattle, sheep, pig and horse remains but the assemblage is small and little can be gleaned from it except that the animals were available and probably formed the basis for a pastoral economy in the area. This interpretation is strengthened by the analysis of the snails collected from the site which indicate a dry, open grassland environment. The substantial nature of the ditches would also argue for stock-management rather than arable farming, as would the use of fences and other possible stock-management features evidenced by the postholes.

Although no settlement was found associated with the ditches the quantity of flintwork produced by the test pitting of adjacent fields carried out in the evaluation argues for a possible habitation site nearby (Gdaniec 1993). The ring ditches and barrows outlined in the archaeological background to this excavation indicate substantial activity in the area although much of this is only provisionally dated to the later Bronze Age. The

excavation at Low Fen, Fen Drayton, Cambridgeshire (Mortimer 1995) did uncover part of a Bronze Age field system similar in character to that excavated at Fulbourn although in both cases the limited nature of the area examined makes it difficult to place the features in their wider context.

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APPENDIX 1

The Cambridgeshire Sites and Monuments Record (SMR) was consulted by CAU for the location of archaeological sites and find spots within the vicinity of the Hospital grounds. The Record comprises information on stray finds, archaeological excavations, cropmark and soilmark data gathered from aerial photographs, and descriptions of the Scheduled Ancient Monuments (SAMs).

SMR/AP REF	Grid ref	Date	Description
02692	494/565	Prehistoric	Ring ditch, linear and curving features
09593	491/568	Prehistoric	Ring ditch
BFC 62-4	491/560	Prehistoric	Group of three ring ditches
09305	518/574	Prehistoric	Group of three ring ditches, 1 concentric, 1 incomplete, 1 D-shaped
09036	510/561	Prehistoric	Enclosures and ring ditch
06315 SAM 95	503/567	Iron Age	Incomplete rectangular ditched settlement enclosure with trackway, internal linear features and pits
05099	499/570	Romano-British	Excavation, finds scatter, cropmarks relating to a ditched settlement with buildings and field systems
05100	498/575	Romano-British	Excavations, finds scatter, earthworks and soilmarks
GW 8-10	496/567	Romano-British?	Sub-square enclosure (AP)
08896	501/576	Medieval	Moat and Manor

Table 1 Quantification of pottery from the excavation (sherd number, weight) by context and date.

Context	MBA	LBA	Prehistoric	Roman	Medieval	P-med.	Total
105		38, 96g					38, 96g
408					1, 7g		1, 7g
1063				1, 3g			1, 3g
1067				1, 3g			1, 3g
1074		6, 18g					6, 18g
1095		1, 4g					1, 4g
1099		4, 15g					4, 15g
1164		1, 11g					1, 11g
1165		3, 18g					3, 18g
1224	9, 54g						9, 54g
1265	1, 4g						1, 4g
1280	3, 8g						3, 8g
1282	1, 4g						1, 4g
1291		2, 3g					2, 3g
1293						1, 9g	1, 9g
1329			1, 1g				1, 1g
1334			1, 1g				1, 1g
1339		1, 5g					1, 5g
1395		1, 3g					1, 3g
1397			1, 3g				1, 3g
1400		8, 19g					8, 19g
1401		9, 36g					9, 36g
Total	14, 76g	74,233g	3, 5g	2, 6g	1, 7g	1, 9g	95,425g

Table 2 Fragment frequency of bone by species

Period	MBA	Late Bronze Age				
Ditch context	1402	1001	1003	1291	Total	%
Cattle	-	5	23	26	54	66
Aurochs	-	-	1?	-	1?	1
Sheep/goat	-	1	12	9	22	27
Pig	-	-	2	2	4	5
Horse	-	1	-	-	1	1
Identified total	-	7	38	39	84	
Unidentified	3	50	181	129	363	
Total	3	57	219	168	447	
Burnt bones	-	-	8		9	

Table 3 The column samples

	Depth below surface (m)	Context	Description
Column 2			
Ditch 1402	0.15	309	Brown silt
	0.35	309	Brown silt.
	0.50	308	Buff silt.
	0.70	306	Pale brown silt.
	0.95	305	Buff silt with chalk flakes.
	1.15	304	Pale grey chalky silt with chalk rubble.
	1.34	304	Pale grey chalky silt with chalk rubble.
Column 3			
Ditch 1001	0.30	1074	Brown silt.
	0.50	1074	Brown silt.
	0.54	1075	Pale brown silt with a few chalk fragments.
	0.78	1085	Pale brown silt with chalk fragments.
	1.02	1086	Buff sandy silt.
	1.20	1086	Pale grey chalky silt with chalk rubble.
	1.35	1086	Pale grey chalky silt with rubble.

Table 4 Mollusca: Minimum number of individuals per sample

	Ditch 1402, Column 2					Ditch 1001, Column 3				
Context	305	306	308	309	309	1086	1085	1075	1074	1074
Pomatias elegans (Müll.)	1	6	18	25	17	-	1	24	7	1
Carychium tridentatum (Risso)	2	5	198	36	18	-	2	95	12	3
Cochlicopa sp.	-	2	48	12	3	-	3	13	5	1
Truncatellina cylindrica (Fér.)	2	-	-	-	3	-	2	3	2	2
Vertigo pygmaea (Drap.)	-	-	-	1	-	-	-	-	-	-
Pupilla muscorum (L.)	1	6	3	2	3	1	17	7	5	2
Vallonia costata (Müll.)	3	11	14	16	20	1	13	46	36	9
V. excentrica Sterki	5	4	4	8	9	1	3	4	9	4
Vallonia sp.	8	27	10	21	34	2	41	33	59	36
Acanthinula aculeata (Müll.)	-	1	36	10	3	1	-	18	3	1
Ena obscura (Müll.)	-	-	3	4	-	-	-	2	-	-
Punctum pygmaeum (Drap.)	-	5	33	8	6	-	2	20	2	3
Discus rotundatus (Müll.)	-	-	-	-	-	-	1	-	1	-
Vitrina pellucida (Müll.)	-	-	5	-	-	-	-	-	-	-
Vitrina cf. *contracta* (West.)	-	3	74	13	1	-	1	12	7	1
Nesovitrea hammonis (Ström)	-	-	2	-	-	-	-	-	-	-
Aegopinella pura (Ald.)	2	4	31	6	2	-	-	7	-	1
A. nitidula (Drap.)	2	3	35	12	1	-	-	22	1	-
Oxychilus cellarius (Müll.)	1	1	11	8	1	-	-	5	1	-
Limax or *Deroceras* sp.	-	1	5	4	-	1	1	1	3	3
Cochlodina laminata (Mont.)	-	-	-	2	-	-	-	4	-	-
Clausilia bidentata (Strom.)	1	2	3	2	3	-	-	7	2	-
Helicella itala (L.)	4	11	7	11	8	-	7	11	10	9
Trichia hispida gp.	1	1	8	21	9	-	1	12	11	4
Helicigona lapicida (L.)	-	-	2	-	-	-	-	1	-	-
Cepaea sp.	-	1	1	-	-	-	-	-	-	-
Arianta or *Cepaea* sp.	-	-	1	-	1	-	-	2	1	-
Total	33	94	552	222	142	7	95	349	177	80

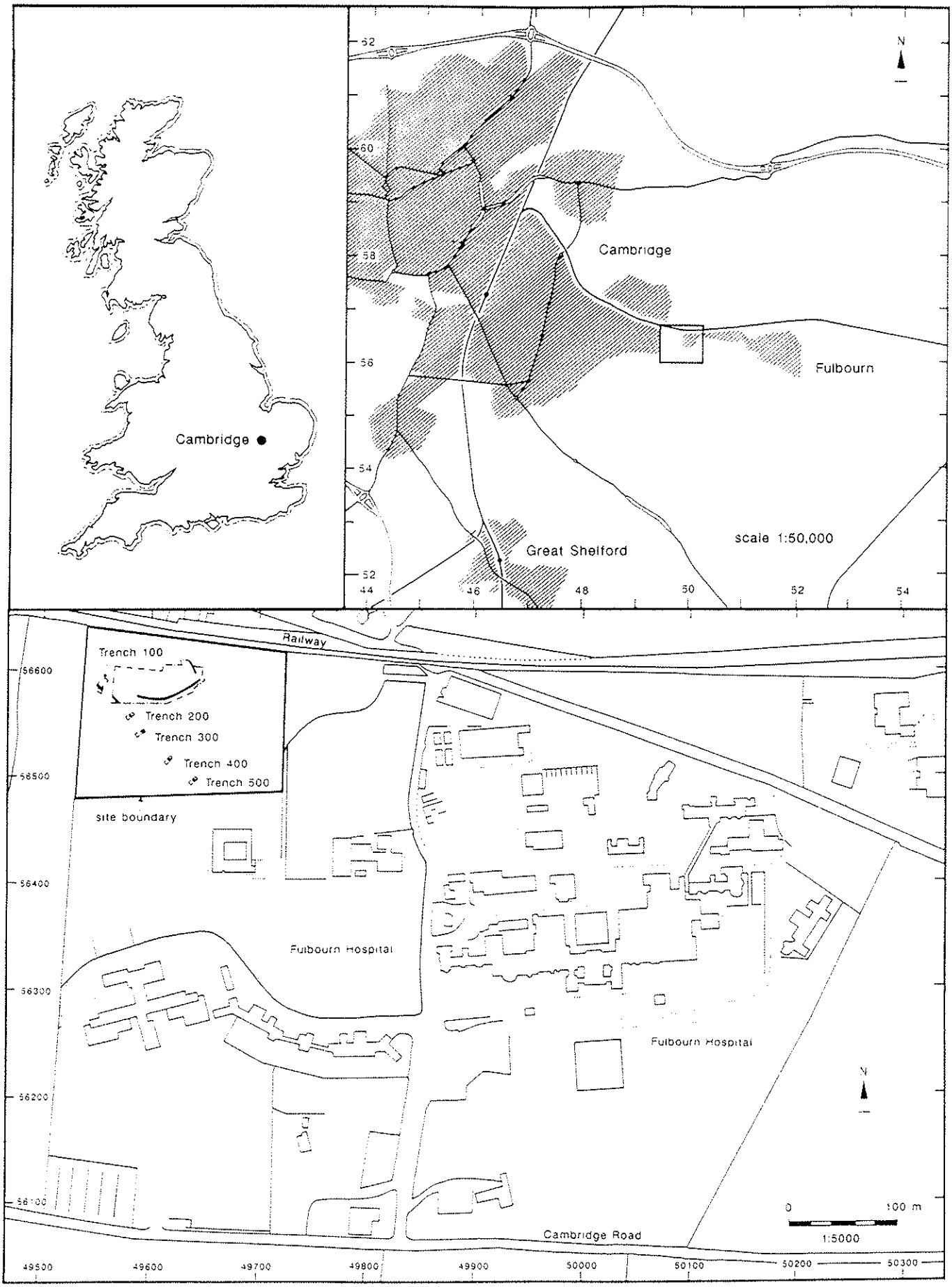

Figure 1 Location plan

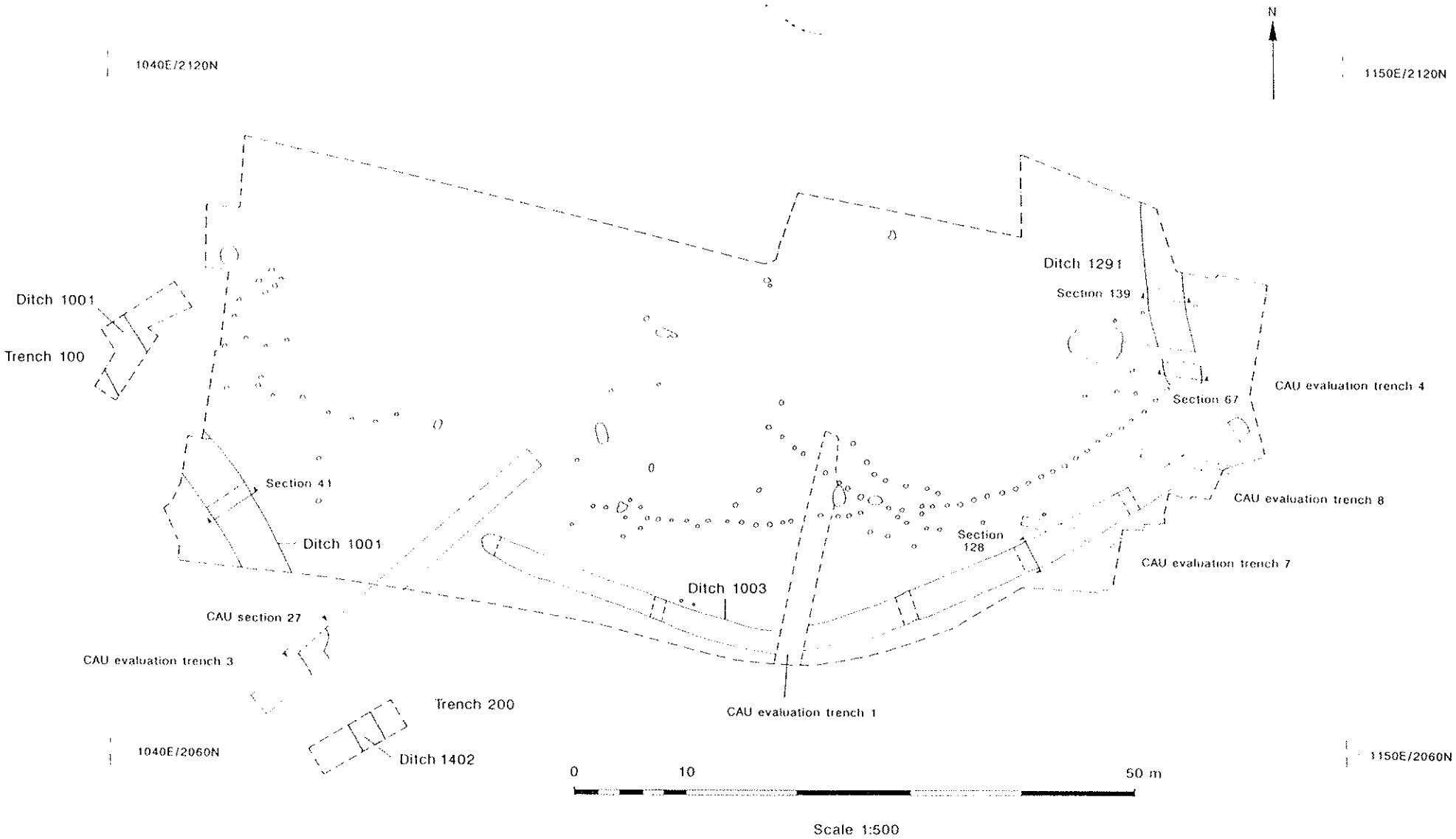

Figure 2 The ditches: plan of excavated features

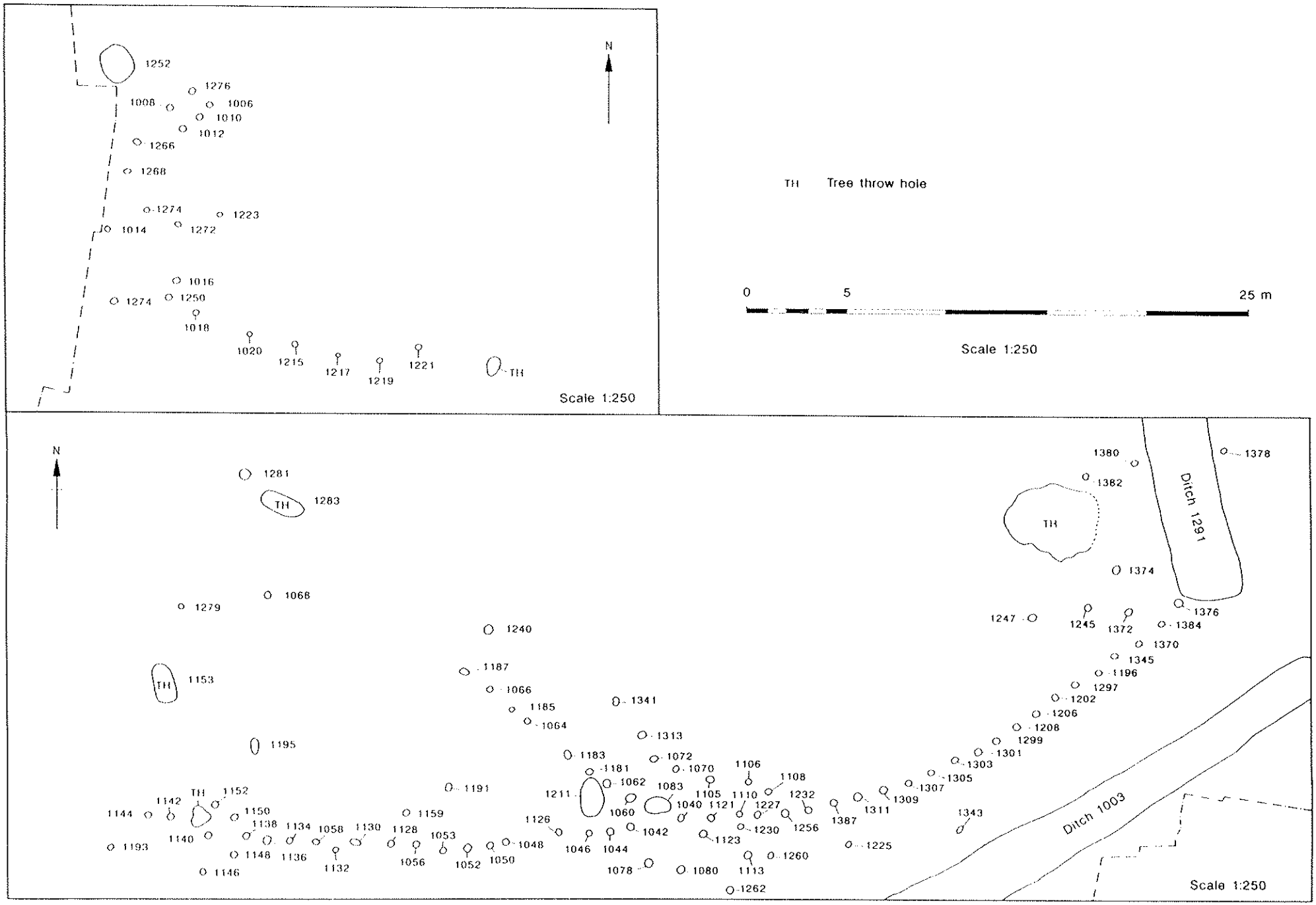

Figure 3 The posthole structures and pits

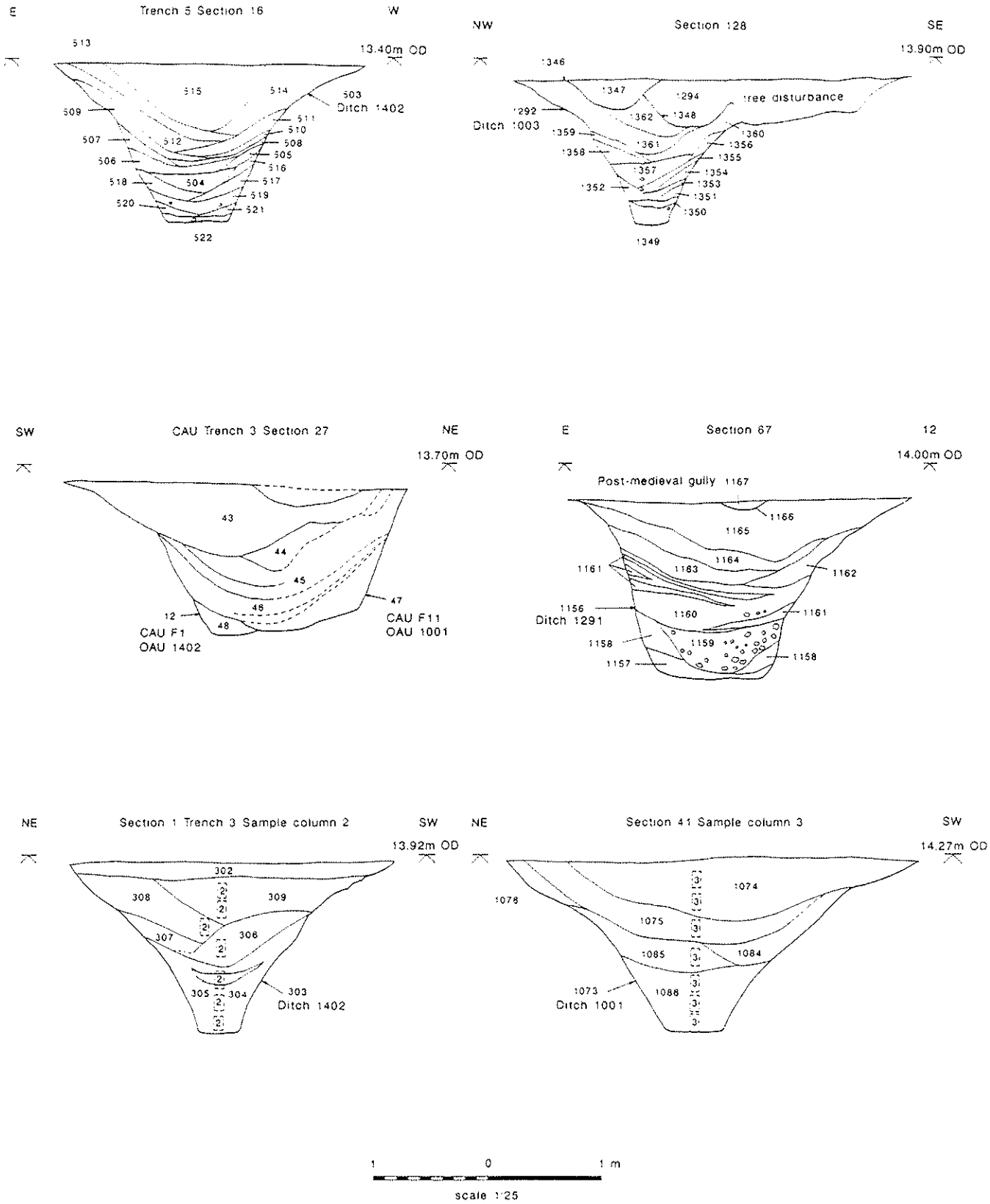

Figure 4 Sections

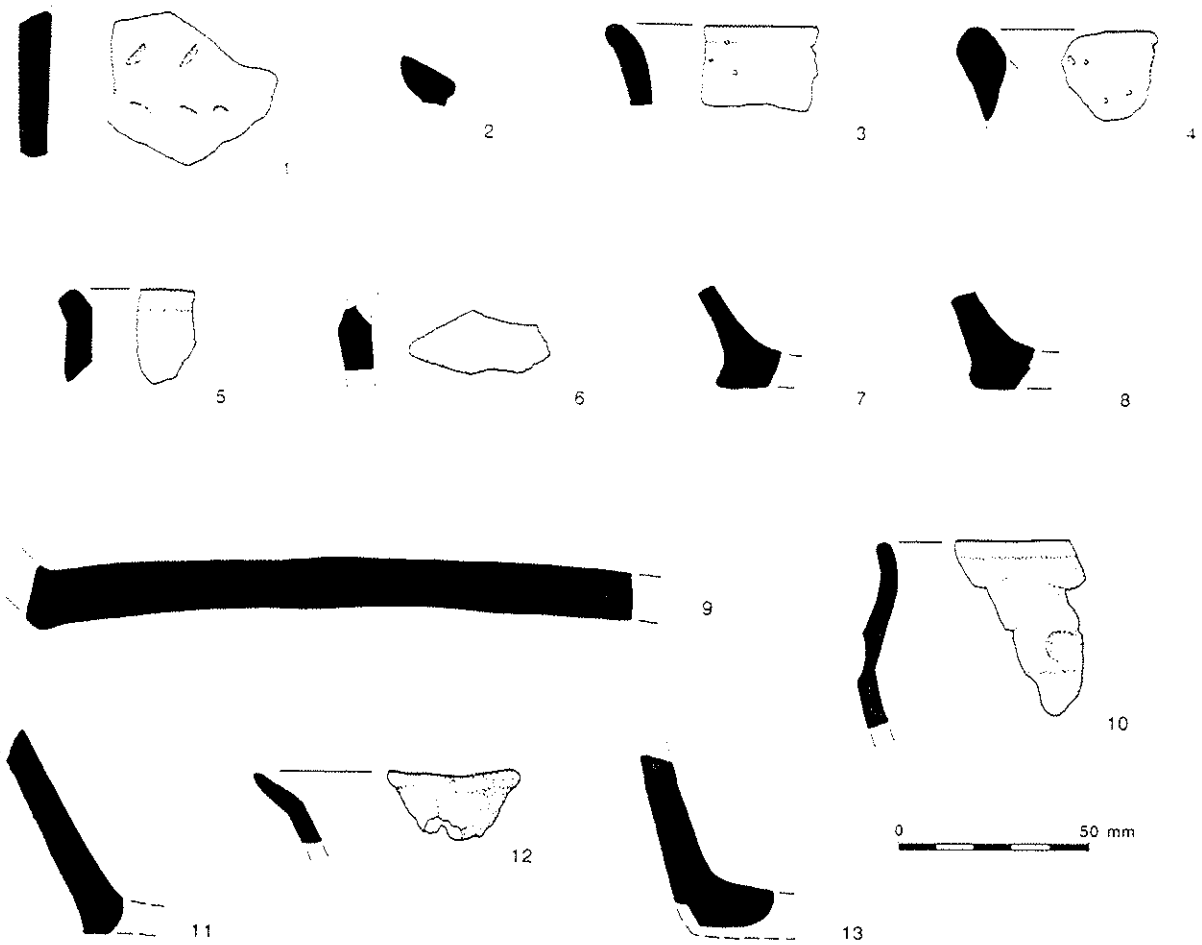

Figure 5 Illustrated sherds: prehistoric