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The excavation of a Bronze Age Pond Barrow, Iron Age and Romano-British settlement at Bradbury Lines, Bullingham Lane, Bullingham, Hereford, 2003

DRAFT

Project No. 1117

The excavation of a Bronze Age Pond Barrow, Iron Age and Romano-British settlement at Bradbury Lines, Bullingham Lane, Bullingham, Hereford, 2003

By

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For

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on behalf of George Wimpey UK Ltd

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The excavation of a Bronze Age Pond Barrow, Iron Age and Romano-British settlement at Bradbury Lines, Bullingham Lane, Bullingham, Hereford, 2003

BY LAURENCE JONES AND MARY DUNCAN

with contributions by J. Cowgill, C. J. Evans, R. Gale, J. Greig, E. Macey-Bracken, W. Smith and A. Woodward

SUMMARY

An archaeological excavation was carried out at land within a former military base known as Bradbury Lines, Bullingham Lane, Bullingham, Hereford, in advance of the redevelopment of the former base. Previous stages of work involved desk- based assessment and trial- trenching. Although there was some evidence for activity in the Mid or Late Neolithic periods the earliest feature was a pond barrow constructed during the Early Bronze Age. This appears to have been the focus for a sequence of ritual activities until at least the later stages of the Middle Bronze Age. A roughly rectangular area of charred oak timbers at the approximate centre of the pond barrow, at the base of a charcoal-rich deposit, may be the remains of a funerary structure.

The remains of one ditch and several pits suggest the site was re-occupied in the Mid to Late Iron Age and iron working was being carried out close by. Spelt wheat may have been the main crop cultivated during this period, together with barley and possibly emmer wheat. An extensive complex of Roman enclosures, field boundaries and droveways, associated with a rural farming settlement, only part of which was revealed during the excavation, appears to have been occupied from 2nd century AD and occupation may have continued into the late 3rd and 4th centuries. Most of the pottery came from local and regional sources. Evidence for trade contacts over longer distances was limited, although small amounts of mortaria suggested access to pottery from a range of different regions. Evidence of iron working during the Roman period points to the presence of a smithy close to the site.

INTRODUCTION

This report provides the results of an archaeological excavation undertaken by Birmingham Archaeology at a former military base known as Bradbury Lines, at Bullingham Lane, Bullingham, Hereford. The work was recommended as a condition of planning consent in advance of the development of the former base, mainly comprising of residential dwellings. The work was commissioned by John Samuels Archaeological Consultants (JSAC) on behalf of George Wimpey UK Ltd and carried out during October and November 2003. Following the completion of the excavation a post- excavation assessment and updated research design was produced (Duncan and Jones 2003).

SITE LOCATION AND DESCRIPTION

The area of excavation (hereafter the site) is situated in a disused sports field within the former military base at Bradbury Lines, Bullingham Lane, Bullingham, Hereford (NGR SO 510 382, Figs. 1 and 2). The site lies just over 2 km to the south of Hereford city centre at the southern edge of the city's suburbs, about 1 km to the S.W. of the River Wye.

The topography of the site is fairly flat. Locally the ground slopes gently down to the east towards the River Wye. The topography on and surrounding the site has been quite radically altered by 20th century construction associated with the redevelopment of the military base, although the site appears to lie on a slight rise at approximately 57m AOD. Changes in level, exist between areas of different land usage, indicating that levelling and terracing has probably occurred at parts of the former base. The first and second gravel terraces of the River Wye form the underlying drift geology of the site. The gravels are overlain by red clays, in places.

ARCHAEOLOGICAL BACKGROUND

A desk-based assessment of the site was carried out by John Samuels Archaeological Consultants in 2002 (JSAC 2002). The desk-based assessment did not find any evidence of archaeological features or deposits within the site itself. An assessment of SMR (Sites and Monuments Record) records for the vicinity of the site showed that evidence of prehistoric and medieval activity exists around the site (JSAC 2002, 8). The site lies around 2 km N.W. of the Iron Age hillfort at Dinedor Camp.

The area around the site was probably settled in the Anglo-Saxon period. The nearest Anglo-Saxon settlement to the site was probably Bullingham, now Bullinghope, which lies just over 2 km to the south of the site. The placename Bullingham may derive from the Old English 'bula inghām' settlement/valley of Bula's people (JSAC 2002, 7). Settlement at Bullingham is attested from the 11th century onwards.

The site itself does not seem to have been settled in the post-medieval period and appears to have lain in the agricultural hinterland of the surrounding villages (JSAC 2002, 7). The site seems to have remained undeveloped until the construction of the first army camp there in 1938. This camp comprised several complexes of wooden huts and was subject to various military uses until the site was occupied by the 22nd Special Air Service (SAS) and 264 Signal Squadron in 1960. The form of the base seems to have been relatively unchanged until the 1970s when a major reconstruction of the base was undertaken. The site was cleared of the original structures and new barrack blocks and attendant buildings were constructed. The base retained these structures and organisational layout established by this reconstruction to the present day.

Following on from the desk-based assessment, Herefordshire Council recommended further archaeological work in the form of archaeological evaluation. The archaeological evaluation was carried out by Birmingham Archaeology (then known as Birmingham

University Field Archaeology Unit), during 2002, on behalf of JSAC. The evaluation, which was carried out in two separate phases (Conway 2002a and 2002b), consisted of 420m of trial- trenching totalling an area of 840m^2 (Fig. 2). Evidence obtained during the evaluation showed that parts of the site had been subject to several episodes of 20th century landscaping. One trench (Trench 1a) contained a single archaeological feature, a large shallow pit, dating to the Iron Age. The pit contained sherds of Iron Age pottery, a flint flake, slag and fired clay.

METHODOLOGY

An area of 120m x 80m (Fig. 2) was selected for excavation, based on the location of the Iron Age pit encountered during the evaluation and focussing on areas not disturbed by modern buildings or associated landscaping. A tracked 360° mechanical excavator, fitted with a toothless ditching bucket, was be used to remove up to 1m of topsoil and modern overburden. Machining was monitored by a qualified archaeologist at all times. The topsoil/ overburden strip was to the top of the uppermost archaeological deposit or to the top of the natural subsoil if no archaeological deposits survived. A programme of manual sample excavation was then undertaken.

EXCAVATION RESULTS (FIG. 3)

At the post-excavation stage ditches were assigned the prefixes: LD (linear ditch, greater than 0.50m wide) or CD (curvi-linear ditch, greater than 0.50m wide).

The underlying natural geology (5002) consisted of a light red-brown clay subsoil with some sand and gravel inclusions and a mainly yellow or reddish brown sand and gravel, located at the N.E. part of the site. The interface between these two types of geology was very clear. The majority of the prehistoric and Roman features were cut into the clay subsoil with only one earlier prehistoric feature cut into the natural sand and gravel. The features were divided into phases on the basis of the pottery and the observed stratigraphic relationships. Illustrated sections are shown blacked in, with numbers in italics on Fig. 3.

PERIOD 1: EARLY TO MIDDLE BRONZE AGE (C.2000 – 1000 BC, FIG. 4)

Evidence of Neolithic activity may be present in the form of sherds of probable Middle Neolithic pottery (Peterborough Ware), although there is a possibility that they could belong to an Early Bronze age Food vessel. These sherds were probably residual within a later context (5084, F570), also containing Early and Middle Bronze age pottery.

A large circular cut (F570, Figs. 5 and 6, Plate 1), interpreted as a 'pond barrow', was located close to the N.E. edge of the excavations, cut into the natural sand and gravel. This was truncated by several modern pipe trenches, especially to the N.E., which meant that the full extent of the feature was not recorded. Pond barrow F570 was 18.4m in diameter and 1.7m deep with steep sides and a near flat base. One section was excavated across the full width of the feature (Fig. 5) and another area was excavated at the central part of the feature (Figs. 6 and 7).

Four stages could be identified in the filling of the pond barrow:

1. Initial infilling.

The primary fill of the base of F570 (Fig. 6, S2 and S3) was a red-brown clayey gravel (5146) containing sherds of Early Bronze Age pottery. Similar fills at the edges of F570: a red-brown sand (5104, 5107 and 5180) with some gravel, overlain by a red-brown sand and gravel (5103, 5106 and 5179), are probably derived from the weathering and collapse of an enclosing sand and gravel outer earthwork bank. Above these fills was a reddish brown silty sand and gravel (5102, 5105 and 5178) which may also be derived from an enclosing bank.

2. Construction of platform and continued infilling.

Overlying fill 5146 was a deposit of light grey clay with some gravel (equivalent contexts 5100, 5101 and 5145) containing a sherd of Early Bronze Age pottery, which would have formed a platform or mound at the centre of F570, 6.3m in diameter and up to 0.44m high.

Partly, sealing the lower parts of deposit 5100 (and equivalent contexts 5101 and 5145) was a brown silty sandy gravel (5099, 5085 and 5118) containing Early Bronze Age pottery and a fragment of animal tooth. Partly overlying light grey clay deposit 5101 and 5099 was a brown clayey silt layer (5098) with some sand and gravel and flecks of charcoal. This was only evident on the N.W. side of the feature.

3. Deposition of burnt timbers and charcoal- rich soils

Overlying the N.E. part of deposit 5100 (or equivalent contexts 5101 and 5145), 5098 and 5118 was a shallow layer of black sandy silt and gravel with a large amount of charcoal (5097, 5083, 5117 and 5144) containing sherds of Middle Bronze Age pottery, flecks of fired clay and fragments of cattle tooth. Several burnt timbers were at the base of layer 5144, near the approximate centre of F570 (Fig. 7 and Plate 2). The main deposit of charred wood was 2.50m x 0.80m and 0.05m thick and was aligned N.E.-S.W. There were two fragments of charred wood located away from the main deposit to the S.W. These burnt timbers were interpreted as the remains of a funerary structure. Small fragments of burnt animal bone were recovered from the top of the charred wood. Radiocarbon dates of 1270 – 1000 cal BC (Wk-16868), from the wood and 1310 – 1050 cal BC (Wk-16869), from the animal bone, were obtained, suggesting both charred wood and animal bone are of Middle Bronze Age date.

Sealing context 5097, and the S.E. part of 5100, was a shallow layer of a brown sandy silt with gravel (5084) containing Neolithic, Early and Middle Bronze Age pottery.

Above black gravely silt layer 5117 and 5144, to the N.W., was a dark brown sandy silt with gravel, (5116 and 5143) containing flecks of charcoal and a sherd of Early Bronze Age pottery. Overlying 5116/ 5143, 5083 and 5084 was a dark greyish brown sandy

gravel silt (5095, 5096, 5115 and 5142), containing some charcoal, flecks of daub and a sherd of Middle Bronze Age pottery. Between 5095 and the final fill, on the N.W. side of the feature, was a lens of charcoal-rich silt (5094) with some flecks of fired clay.

4. Final stage of infilling

The final fill was a brown silty sand and gravel (5082, 5093, 5114 and 5141).

PERIOD 2: MID TO LATE IRON AGE (450BC- 50AD, FIG. 4)

Features dated to this period mainly consist of seven pits (F100, F503, F510, F520, F522, F528 and F535, Fig. 8) the majority of which were situated in the eastern part of the site. Pits F503, F520 and F522 were sub-circular with 'U'- shaped profiles and ranged from 0.6-1.06m in diameter and 0.15-0.49m deep. Pits F100 (excavated during the evaluation) and F510 were oval in shape with steep sides and flat bases. Pit F100 was 2.08m x 1.6m and 0.24m deep. Pit F510 was 1m x 0.5m and 0.2m deep. All these pits, with the exception of F535, contained Mid to Late Iron Age pottery and pit F100 also contained flint, slag and fired clay. Pit F522, which cut an earlier pit (F528), had a charcoal-rich fill. This fill contained a sherd of pottery that cross-joined with a sherd from F520, suggesting both features were contemporary. The fill of pit F535 contained charred cereal grain from which a radiocarbon date of 550BC–390 cal BC (Wk-16871) was obtained.

The fills of the majority of these pits consisted of a compact brown clayey sandy silt with heat affected stones. Other pits adjacent to this pit cluster generally had similar forms and were filled with a similar distinctive burnt stone-rich fill, suggesting they could be of similar date to the pits described above, although no datable finds were recovered.

A linear ditch (LD 5, Fig. 9) which terminated to the N.E. and was truncated by modern drains to the west was located to the S.W. of the pits. Ditch LD 5 was aligned N.E.-S.W. and was 12m long and 1.1m wide and 0.21m deep with a 'U'- shaped profile.

PERIOD 3: ROMAN (150AD- 350AD, FIG. 4)

The main Roman period features consisted of a series of enclosure and field boundary ditches, associated pits/ post-holes and a pebble surface. As the Roman pottery assemblage was not closely datable sub-phases have been suggested on the basis of the physical and stratigraphic relationships of the Period 3 features. All the features in a particular sub-phase are not necessarily contemporary.

Period 3.1

Close to the S.W. edge of excavations, was a wide shallow curvi-linear ditch (CD 1, Fig. 9) which had been recut. The earliest ditch (F603), which was only visible in one section, had been truncated by a recut and only survived at the west edge of the later cut. Ditch F603 was at least 1.2m wide and 0.72m deep. The recut of CD 1 (F595, F600 and F604) was up to 4.9m wide and 0.72m deep. The fill of the recut contained residual sherds of Early Bronze Age pottery.

At the west part of the site was a N-S aligned curvi-linear ditch (CD 2, Fig. 9), up to 1.1m wide and 0.24m deep, with a 'bowl'- shaped profile. Ditch CD2 was generally wider to the south. To the west of CD 2 was a curvi-linear ditch (CD 7, Fig. 9), 11m long and up to 1.7m wide and 0.7m deep, with a 'bowl'- shaped profile. Three ditches (LD 1-3, Fig. 9), 0.88-2.12m wide and 0.25-0.60m deep, with steep sides and flat bases, were also located to the west of ditch CD 2. Ditch LD1 cut earlier short ditch CD 7. LD 1-3 may have formed the S.E. angle of a rectilinear enclosure with two possible entrances. Only the south and east sides of this putative rectangular enclosure were recorded, the remainder of this enclosure, presumably being located beyond the edge of excavation. Ditch LD 3 was 'L'- shaped and appeared to have been recut. The recut ditch was on a similar alignment to the primary cut, but was shorter, terminating further to the east.

A short N.-S. aligned linear ditch (LD 4), 9m long x 0.68m wide x 0.21m deep, was contemporary with the recut of ditch LD 3. A short N.E.- S.W. orientated curvi-linear ditch (CD 6) was located to the N.W. of LD 4, 12m long x 0.9m wide x 0.09m deep, with a 'U'-shaped profile. These features may be evidence of a stock sorting system or entrance arrangement within the possible enclosure.

To the east of ditch CD 2 was an N.E.- S.W. aligned linear ditch (LD 6, Fig. 9) which had been truncated by modern drains to the S.W. Ditch LD 6 was 0.64m wide and 0.32m deep with a 'U'- shaped profile. Another feature, to the east of CD 2 (F540, Fig. 9), was probably the remains of a linear ditch, and appeared to be on a similar alignment to ditch LD 6. Feature F540 was 0.8m wide and 0.14m deep with gently sloping sides and a rounded base. This feature had been heavily truncated and only a short length survived.

A pebble surface (F599) overlay earlier ditch CD 1 (Fig. 9). Surface F599 was 6.5m x 5m and 0.1m thick, although it had been partially destroyed by modern disturbance. It could have been more extensive, but may have only survived only where it slumped over ditch fill. It consisted of a layer (5160) of rounded pebbles, some of which were burnt. Sealing 5160 was a brown clayey silt (5159) containing sherds of Roman pottery, one sherd of medieval and one sherd of post-medieval pottery, iron slag and fired clay including a fragment of a possible crucible.

There were several pits or post-holes that dated to the Roman period which did not appear to form any distinct clusters. These were F507, F513, F548, F555, F562 and F583 which were mainly sub-circular ranging from 0.55-0.85m in diameter, 0.16-0.2m in depth with 'U'-shaped profiles. Pits F555 and F562 were situated within the possible enclosure formed by LD 1-3 and F548 was located just outside and to the east of the possible enclosure. It is probable that F562, F583 and undated pit F601 were associated with a stock sorting system or entrance arrangement at the enclosure entrance between LD 2 and 3.

Period 3.2

Situated to the N.E. of ditch CD 1 was a curvi-linear ditch (CD 3, Fig. 9), up to 1.4m wide and 0.35m deep, with steep sides and a flat base. Ditch CD 3 cut ditch CD 2. The western part of CD3 was truncated by modern drainage features. Ditch CD 3 also contained a sherd of residual Neolithic or Early Bronze Age pottery.

Period 3.3

A later curvi-linear ditch (CD5, Fig. 9), up to 1.48m wide and 0.3m deep, with a 'U'-shaped profile, cut earlier ditch CD 3. It contained some residual sherds of Early Bronze Age pottery. The southern part of CD5 was truncated by modern drainage features. It is probable that a short stretch of ditch (F598), to the south of CD 5 formed its southern terminal.

A curvi-linear ditch (CD 4, Fig. 9), aligned roughly N.- S., cut ditch CD 3. The primary cut of ditch CD 4 was 2.4m wide and 0.3m deep with a 'U'-shaped profile. There was evidence of a recut, up to 2.65m wide and 0.6m deep, situated slightly to the E. of the primary cut, truncating its western side. Both the primary cut and the recut of CD 4 were truncated, to the south, by modern drainage features and the ditch terminated to the north.

A sub-circular depression (F594, Fig. 10), 3m in diameter and 0.08m deep, was identified close to the terminals of ditches LD 1 and LD 3. The primary fill (5152) of F594 was a reddish brown sandy clay. Three sub-oval or lozenge shaped pits interpreted as ovens (F568, F588; Fig. 10 and F573; Fig. 9), with charcoal-rich fills, cut 5152. A radiocarbon date of 01 – 240 cal AD (Wk-16870) was obtained from charcoal from F568. Another similar pit (F577, Fig. 10) was located immediately to the east of F594. These pits were 1.12-2m long x 0.34-0.58m wide and 0.1-0.2m deep with 'U'-shaped profiles. Pit F573 also cut ditch CD 5. *In situ* burnt and fired clay was present at the base of the pits. Two post-holes or small pits (F567 and F579, Fig. 10) with charcoal-rich fills also cut the depression F594. The features cutting primary fill (5152) of F594 were sealed by a grey clayey silt (5079) containing a sherd of Roman pottery, which was the final fill of depression F594. Other undated pits or post-holes grouped around F594 (F569 and F590-3, Fig. 10), 0.6-0.2m in diameter and 0.08-0.25m deep and with 'U'-shaped profiles and similar fills, may be associated with F594. Two post-pits or post-holes (F565 and F566; Fig. 9), S.W. of F594 formed a N- S alignment together with two undated post-pits (F563 and F587), one of which (F587) contained evidence of a post-pipe (F586).

PERIOD 4: MEDIEVAL

Evidence for medieval activity is limited to the find of a single sherd of pottery recovered from a pit (F538) and a sherd of pottery from Roman surface F599. The pottery from surface F599 is intrusive. It is also possible that the single sherd from pit F538 may also be intrusive given the similarity of this pit to others dated to the Iron Age or Roman periods.

PERIOD 5: POST-MEDIEVAL- MODERN

There is no clear archaeological evidence of activity on the site during the early post-medieval period. During the 20th century extensive below ground excavations associated with the use of the site as a military base have taken place. Extensive drainage systems, some of which are associated with the use of the site as a sports pitch, truncated earlier archaeological features. Concrete foundations of former buildings were also present. The natural subsoil was overlain by up to 1m of reddish brown clay (5001) containing modern finds. This was sealed by topsoil, 0.30m deep. The level of the site appears to have been built-up by importing clay to create a level surface.

UNPHASED FEATURES

The majority of the unphased features were pits or post-holes, which were mainly concentrated to the east of the enclosures. Undated pits (F500, F501, F504, F505, F506, F508, F509, F511, F512, F514, F519, F521, F523-F527, F529-F531, F536, F539, F541-F545, F547, F550-F554, F583 and F596) generally had similar burnt stone-rich fills and were of similar morphology and size to those dated to the Iron Age period. One of these pits (F509) cut an Iron Age pit (F510) and many of them were near the main concentration of Iron Age pits. On the basis of morphology, size and the nature of their fills it is probable that these pits date to either the Iron Age or possibly to the Roman period. Several of these undated features could be the remains of drying racks or other structures.

Situated close to Roman feature F594 were several undated possible post-holes (F569, F586, F587 and F590-F593) which may relate to an associated structure of similar date.

Close to the terminal of Roman ditch CD 3 was a cluster of four pits (F533, F537, F602 and F605) which are probably post-pits. The post-pits were 0.68-0.83m in diameter and 0.2-0.7m deep. Three of the post-pits appeared to have the possible remains of post-pipes within them. It is possible that these post-pits date to the Iron Age or Roman periods due to their spatial relationship, which is suggestive of a four-post structure, often interpreted as granaries of Iron Age or Roman date. A short curvilinear linear ditch (F532), 7.7m long was located at the eastern part of the site, to the west of F570.

THE FINDS

PREHISTORIC POTTERY
By Ann Woodward

Introduction

A total of 160 sherds of prehistoric pottery were recovered from a wide range of features. Of these an important group of 91 fragments, weighing 522g, were of Neolithic or Bronze Age date. They mostly derived from the fills of the pond barrow F570. A homogeneous and significant group of 69 sherds of Iron Age pottery, weighing 175g, came mainly from a series of pits. The main features of the context groups are

summarised in Tables 1 and 2. In Table 1 the contexts from within F570 are arranged in stratigraphical order, starting with the earliest. Five samples of pottery, of varying date, were submitted for petrographical analysis by Dr. Rob Ixer (see appendix).

Neolithic and Bronze Age

Fabric

In the absence of many featured sherds, identification and dating of the pre-Iron Age pottery depended mainly on the assessment of fabric and wall thickness. Many of the plain featureless pieces, which were often abraded, were ascribed to the Early Bronze Age on the basis of their grogged fabrics. This included the material from contexts 5084, 5118 and unstratified finds from pond barrow F570 and residual finds from contexts 5137, 5161 and 5089 from the Period 3 ditches F600, CD1; ditch F546.05, CD 3; ditch F572; CD 5. Sherds with fabrics containing sand, sometimes in association with grog, from F570 contexts 5101, 5085 and 5116 are more likely to have come from Beaker vessels. The only featured sherd in grog fabric may have derived from a Peterborough Ware bowl or from a Food Vessel (No. 2 below), while the Collared Urn rim fragments contained igneous inclusions (No. 1 below).

The later Bronze Age sherds were all sandy in texture and contained sparse quantities of large inclusions, either of rock or mudstone. In one case (from context 5115) the rock was identified as olivine basalt, possibly derived from Rowley Regis or the Clee Hills (thin section 2, Ixer, appendix).

Form

All featured items are illustrated.

Fig. 11

1. Four rim and collar sherds, two of them joining, from a Collared Urn. Below a rounded slightly expanded rim with slight internal bevel, the collar is decorated with five horizontal rows of twisted cord impressions arranged above double diagonal rows of similar impressions. The diagonal rows probably formed part of a row of triangles. Rim diameter not measureable. Early Bronze Age. Fabric: altered granodiorite/diorite and grog inclusions (thin section 1, see Ixer, appendix). The grog itself also contained fragments of granodiorite. 5146, F570.
2. Small wall sherd decorated with triangular impressions made with a shaped stick or bone point. The angle of the wall is uncertain. Probably Peterborough Ware (Middle Neolithic) or possibly Food Vessel (Early Bronze Age). Fabric: grog inclusions. 5084, F570.
3. Joining rim and upper wall sherds from a straight-sided jar; flat rim with internal expansion and a row of perforations, pierced from the outside before firing, below the rim. Middle Bronze Age. Fabric: possibly with mudstone inclusions (thin section no. 2, see Ixer, appendix). 5117, F570.
4. Rim sherd from an ovoid jar; flat T-shaped rim with a row of perforations, pierced from the outside before firing, below. Middle Bronze Age. Fabric: Sandy fabric with sparse large inclusions, apparently of mudstone (thin section no. 3, see Ixer, appendix). 5117, F570.
5. Joining rim and upper wall sherds from an ovoid jar; flat rim with internal expansion and a row of perforations, pierced from the outside before firing, below the rim. Middle Bronze Age. Fabric: sandy matrix with occasional large black rock inclusions (not examined petrographically due to lack of material for sample). 5116, F570.
6. Slightly expanded base angle. Middle Bronze Age. Fabric: sandy matrix with rare large rock fragments. 5083, F570.

Fragmentation and dating of features

From Table 1 it can be seen that no pottery was found in association with the burnt timbers in F570. Below the burnt timbers all pottery finds were of Early Bronze Age date or earlier. All were abraded, but the urn fragments were less abraded than those of Beaker. Beakers could have been current as early as c. 2200 cal BC, but the primary fill is probably dated, by the large joining sherds of Collared Urn, to the Early Bronze Age c. 2000 – 1500 cal BC. The radiocarbon date of 3030 – 2890 cal BC (Wk-16867), falling within the Middle Neolithic period, was determined on a piece of unidentified charcoal and may be misleading. It is possible that this piece of charcoal was residual, especially as an abraded piece of probable Peterborough Ware (see No. 2 above) was found as a residual item in a higher fill layer (5084). However the nature of any Middle Neolithic activity preceding the construction of F570 cannot be determined. Collared Urns are usually found as funerary vessels. It is possible therefore that the large rim sherds derived from a burial disturbed by the later Bronze Age activity within F570, but this cannot be proven.

The burnt timbers, dated by radiocarbon to 1310 – 1050 cal BC and 1270 – 1000 cal BC, are of Middle Bronze Age date. The charcoal-rich layers immediately above the timbers produced the remains of at least three jars of later Bronze Age date along with some Neolithic and Early Bronze Age sherds. The jar fragments were all fresh, while the earlier fragments were abraded and undoubtedly residual. The perforated rim jars were probably directly associated with the activities that led to the deposition of the burnt timbers and charcoal-rich layers.

Iron Age

Fabric

The Iron Age sherds were mainly of similar fabric, characterised by voids and mudstone inclusions, with only one fragment in a sandy fabric with small quartz inclusions.

Form

The sherds were mainly thin-walled, and many of them, from contexts 1002 (pit F100), 5027 (pit F520) and 5030 (pit F522) may have derived from a single vessel, which is illustrated. One small sherd from another pit (F503) bore traces of linear incised decoration.

Fig. 11.

7. Everted rim sherd from a wheel-finished jar. Fabric: mudstone inclusions (thin section nos. 4 and 5, see Ixer, appendix): Malvernian Group D. 5030, F522.

Discussion

Early prehistoric pottery, belonging to Neolithic traditions such as Peterborough Ware and Grooved Ware, and Late Neolithic or Early Bronze Age Beakers are all extremely rare in the south Marches region. Clarke recorded only three sites in Herefordshire which had produced Beakers and very few are known from Worcestershire either (Clarke 1970, 483 and 505). The occurrence of fragments from Neolithic and Beaker pottery at Bradbury Lines is therefore significant, even though the fragments are very small and largely undiagnostic.

The rim fragments of Early Bronze Age Collared Urn probably derive from a vessel belonging to the Secondary Series, as defined by Longworth (1984). The slightly expanded rim form is unusual, although the shallow internal bevel is more characteristic. The decoration in cord technique and its geometric design can be matched roughly on another Secondary Series Collared Urn, found apparently in a flat Beaker cemetery at Mathon, Herefordshire (*ibid*, plate 181d). Again, vessels of Early Bronze Age date are very rare in the county, and also in Worcestershire where the recorded examples, including the important group from Holt (Hunt *et al* 1986, figs. 14 and 15), mainly belong to the Primary Series.

The fabric of the Bradbury Lines Collared Urn, with its inclusions of granodiorite, is of particular interest. Research has shown that igneous inclusions were quite commonly employed in the manufacture of such vessels during the Early Bronze Age. Examples include the use of gabbro in Cornwall (Parker Pearson 1990), of Lake District greenstones in Cumbria (Freestone 1992) and of various local rocks in north Wales (Williams and Jenkins 1999). The granodiorite in the Bradbury Lines urns is visually similar to that from the well-known sources in Leicestershire (e.g. Mountsorrel). However, assuming that the inclusions did not derive from a glacial erratic, then the nearest granodiorite source to Bradbury Lines is North Hill, Malvern, where diorite, quartz diorites and hornblende granites outcrop (Ixer, pers. comm.). This source lies between 30 and 35 km from Hereford.

If the circular feature F570 was a pond barrow, then the pottery evidence suggests that the hollow was dug during the Early Bronze Age. Few of the pond barrows in Wessex have been excavated, and many such excavations were undertaken in the nineteenth century and the results were not recorded in detail (Atkinson *et al* 1951, 13-14). The example known as the Wilsford Shaft (Wilsford barrow 33a, Wiltshire) was found, on excavation, to surround a shaft over 30 m in depth. The earliest finds (beads and bone points) within the filling were probably of Early Bronze Age date, while the earliest acceptable radiocarbon dates fell within the Middle Bronze Age period (Ashbee *et al* 1989, figs. 7 and 64). One pond barrow where pottery and burials have been recorded is that on Sheep Down (Winterbourne Steepleton barrow 19c, Dorset). This contained a series of 16 Early Bronze Age Collared Urns deposited in pits beneath and around a flint platform (Atkinson *et al* 1951, figs. 2, 4 and 5). The vessels represented included examples belonging to both the Primary and Secondary Series (Longworth 1984, 191-2). Other more recently excavated pond barrows include that at Down Farm, Wiltshire, from

which a fine series of Food Vessel Urns were recovered (Barrett 1991, fig. 8.1-2). Further vessels in the Food Vessel tradition were found with three burials just outside another pond barrow, number 4866, at Barrow Hills, Radley, Oxfordshire (Barclay and Halpin 1999, figs. 4.63 and 4.64).

The later Bronze Age jars associated with the charcoal-rich layers immediately above the burnt timbers bear some resemblance to the large assemblage of early Late Bronze Age from Kemerton, Worcestershire (Woodward and Jackson forthcoming). However, the flattened rim forms are more characteristic of Middle Bronze Age pottery, and the Kemerton vessels usually have internally bevelled rims. The large assemblage of pottery from Kemerton, where rows of perforations below the rim occurred on 18% of the diagnostic vessels bearing decoration, was dated by radiocarbon to the earlier plainware period of the Late Bronze Age, between about 1000 and 800 cal BC, and to a very early stage within that period (c. 1000 cal BC). Assuming that the charcoal-rich layers and the included pottery were contemporary with the radiocarbon-dated burnt timbers then the pottery at Bradbury Lines dates from the later stages of the Middle Bronze Age, probably in the 12th or 11th centuries cal BC. Perforations below the rim are a particular characteristic of Middle Bronze Age pottery, occurring in East Anglia, Sussex and the Thames valley (Longworth *et al* 1988, fig. 19 and Appendix II). The holes may have been used to fix organic coverings, and it is possible that such vessels were used to store milk, blood or other liquids in the context of a pastoral economy (*ibid,* 49).

Other Middle Bronze Age pottery assemblages from the Marches include funerary urns from Mathon, Herefordshire (Blake 1913) and Bromfield, Shropshire (Stanford 1982), and a domestic assemblage from Glanfeinion, Powys (Britnell *et al* 1997). However none of these sites produced any vessels with rows of perforations. Fabrics of some of the pots analysed from Bromfield, and at Glanfeinion, contained inclusions of dolerite, originating from the Clee Hills (Stanford 1982, 309 and Vince 1997, 190). These can be compared with one of the Middle Bronze Age fabrics analysed at Bradbury Lines, which contained inclusions of olivine basalt, derived from the Clee Hills or Rowley Regis areas. The slightly later pottery at Kemerton mainly contained shelly inclusions, but a small quantity contained igneous or metamorphic rock inclusions. However these did not match the typical Malvernian (metamorphic) or dolerite wares (Derek Hurst pers. comm. in Woodward forthcoming). Interestingly, the mudstone inclusions found in the other Middle Bronze Age sherd analysed from Bradbury Lines provide a very early example of the mudstone-tempered Malvernian D ware, as defined by Morris (1982), which is typical of some Iron Age pottery in the Marches. Late Iron Age pottery in this fabric was also found at Bradbury Lines.

The Iron Age vessel with its everted, beaded rim can be matched at Croft Ambrey, where it occurs mainly in the later phases (Stanford 1974, 194) and again at Midsummer Hill the mudstone-tempered plain and stamped wares occurred in the last two centuries cal BC (Stanford 1981, 148). Almost all the Iron Age sherds from Bradbury Lines contained mudstone inclusions. They thus belong to Malvernian D wares, the nature and spread of which has been analysed by Morris (1982, especially fig. 3.2 and Appendix 1). The

distribution includes the site of Dinedor which is the closest Iron Age hillfort to the site at Bradbury Lines.

THE ROMAN POTTERY
By C. Jane Evans

Introduction
A total of 652 sherds, weighing 10.4kg, were recovered. Most sherds (87% by count and 90.5% by weight) came from stratified deposits, predominantly from the ditches (Table 3). Approximately 60% of the assemblage by weight and rim EVE came from a possible rectilinear enclosure (Table 4, LD 1-3). The largest single assemblage came from the middle and upper fills of LD 2, F606 (Table 4). Other reasonably sized assemblages came from CD 4, (F561 and F607) and the curvilinear ditch that it cut, CD 3, F546. The various pits and post-holes across the site, in contrast, only produced individual sherds of Roman pottery. Most of the Roman pottery was fairly abraded, though as can be seen from average sherd weights (Tables 3 and 4) the degree of fragmentation varied across the site.

Methodology

The pottery was analysed using a hand lens at X10 magnification, checked where necessary at X20 magnification. Fabrics (Table 5) were recorded with reference to the Worcestershire County Fabric Series (Hurst and Rees 1992, 200-209; www.worcestershireceramics.org), formerly the Herefordshire and Worcestershire County Series, prefixed WCFS in the tables. Where possible the National Roman Fabric Reference Collection (Tomber and Dore 1998), the Kenchester fabric series (Tomber 1985, fiche frames 1-12), and the *Ariconium* fabric series (Willis forthcoming) are also cross referenced. The assemblage was quantified by sherd count, weight and rim EVE (estimated vessel equivalent). Base EVEs are recorded in the archive. Precise form types and broad vessel classes (for example bowl, cook pot) were recorded (Table 7). Evidence for decoration, manufacture, repair, use or reuse was sought, but much of the pottery was very abraded. The data was analysed in Microsoft Access 2002, using a relational database designed by Birmingham Archaeology.

Data from F606, LD 2 was analysed separately. This was the single largest stratigraphic group, with the highest average sherd weight (Table 4). This data is presented below for comparison (Fig. 14 and 15). However, analysis showed the group to have a similar composition to the assemblage as a whole. In general, therefore, the pottery is discussed as one single site assemblage. Diagnostic sherds are illustrated by fabric.

Fabrics and pottery sources

The range of fabrics is defined and quantified below (Tables 5 and 6). The majority of the assemblage comprised Severn Valley ware, representing 75% by weight and 63% by rim EVE (Table 6, WCFS12-12.3). Within this, a range of fabric variants was noted. These variations are described (Table 5) and quantified below (Table 6). Similar variation has been noted within Severn Valley ware from other Herefordshire sites (Willis

forthcoming, Evans 2001 and Evans 2004). However, the significance of these variations, if any, is uncertain. Malvernian wares, both handmade and wheelmade where also well represented (Table 6, WCFS3, 19). The only other fabric occurring in any quantity was Black burnished ware (Table 6, WCFS 22). Most other fabrics, including the mortaria discussed by Kay Hartley (below) were represented by single sherds. The range of forms occurring in these fabrics, and the evidence these fabrics provide for studying patterns of trade are discussed further below.

Dating

Few of the forms or fabrics were closely datable; there was, for example, only a single sherd of samian. Despite this, there was sufficient evidence to suggest a 2nd to early 3rd century date for both the F606, LD 2 assemblage and the assemblage as a whole, perhaps with an emphasis on activity towards the end of this period. Occasional sherds of late 3rd to 4th pottery were noted, though the focus of activity seems to have shifted away from the excavated site by this period.

The presence of Black-burnished ware (BB1) is generally assumed to indicate a *terminus post quem* of c. AD 120, though it can be found in small quantities in contexts dated earlier than this. Most of the BB1 forms, however, in fact indicated a *TPQ* in the latter half of the 2nd century (Fig. 13.20, 13.22 and 13.23). This date is supported by the small quantity of mortaria (Hartley below), which included forms dating to AD 110-170 and, more significantly, AD140-170; the latter (Fig. 13.25) probably post dating AD 150. The bulk of the coarse wares are consistent with this date, though some have a broad date range from the 1st to the 2nd century (Fig. 12.1 and 12.6) and some from the 2nd to the 3rd century (Fig. 12. 2-5, 7-14, 19). The presence of organic tempered Severn Valley ware in the assemblage perhaps justifies more comment. Fabric WCFS 12.2 is often used as a marker for early Roman activity (Bryant and Evans 2004, 250-3). The low proportion included in this assemblage, however, is consistent with the dating, and the sherds in this fabric need not be residual. The main organic tempered fabric represented (WCFS 12.21) is a finer variant. Similar fabrics were noted at the 2nd to 3rd century Newland Hopfields kiln.

Two ditches (CD 3 and F540) produced sherds of later 3rd or perhaps 4th century pottery. The fill of ditch F540 (5049) produced a fragmentary rim from a BB1 bowl or dish (not illustrated; WA type 25, Seager Smith and Davies 1993, fig. 124), and the fill of ditch CD 3 (F546, 5055) produced a later Severn Valley ware jar type (Webster 1976, fig. 7, C31-2). Another characteristically later Severn Valley ware jar type (Webster 1976, fig. 3 A10-13) was unstratified and was recovered during cleaning. No late Roman shell-tempered ware was recorded (WCFS fabric 23), though this has been noted on other rural sites in Herefordshire (Griffin 2004 and Evans 2001). This fabric is diagnostic of late 4th to 5th century activity. Its absence, therefore, suggests the site was abandoned by this period.

Catalogue of illustrated Roman pottery

Fig. 12

Handmade Malvernian ware (WCFS 3, N02.1, MAL RE A)

1. JK22.02. Malvernian tubby cooking pot with an in-turned, beaded rim; a broadly 1st to 2nd century type (Peacock 1967, 18, fig. 1.10, 11). 5175, F606, LD2. Diam. 17cm (21%).

2. JK22.05. Malvernian tubby cooking pot with an upright, bead rim, a predominantly Hadrianic or Antonine type (Peacock 1967, fig. 1.4, 5), though it is known from 1st century contexts elsewhere (Green and Evans 2001, 105). 5126, F582.3, CD6. Diam.18cm (5%).

3. JL1.01. Angular rim from a large storage jar. This example probably dates to the 2nd to 3rd century. Similar forms were noted at Newlands Hopfields, Malvern, dating to this period (Evans et al. 2000, fig. 37 JLS2, 3) and The Hygienic Laundry site, Malvern (Peacock 1967, fig. 1.12). Similar forms were, however, produced in to the 4th century (Peacock 1967 fig. 4.80-82). 5175, F606, LD2,. Diam. 45cm? (3%).

4. BCB1.01. Shallow, curving sided bowl or dish, with thickened, T-shaped rim. A similar form is dated by Peacock to AD 120+ (Peacock 1967, fig. 1, 15-7) and a similar form was noted in the later 2nd to 3rd century assemblage from the Newlands Hopfields kiln at Malvern (Evans *et al.* 2000, fig. 30, type 6.2, BT69). 5073, F557.3, LD3. Diam. 16cm, (13%)

Severn Valley ware (WCFS 12 variants, O02.1, 5, 8, 9, 10).

5. FB1.01. Open mouthed flagon or handled jar with an elongated bead rim. This broadly 2nd to 3rd century type is known from production sites in Malvern (Evans *et al.* 2000, 28, fig. 19, Type 2, F11, F12). 5067, LD3, F557. Fabric O02.9. Diam. 10cm (32%).

6. NA1.01. Slightly beaded rim from an upright walled tankard, a type dating broadly from the mid-late 1st century to the 2nd century (Webster 1976, fig. 7, E38-9; Evans *et al.* 2000, fig. 20, Type 1). 5112, F561, CD4. Fabric O02.8. Diam. 14cm (18%).

7. JN7.02. Necked, wide mouthed jar with a simple, out-curving rim; dated broadly by Webster to the 2nd to 3rd centuries (Webster 1976, fig. 1, A7). 5174, LD2, F606. Fabric O02.5. Diam. 11cm (13%).

8. JW1.01. Necked, wide mouthed jar with a beaded rim; similar to types dated by Webster to the mid-to-late 2nd century (Webster 1976, fig. 4, C21). 5175, F606, LD2. Fabric O02.8. Diam. 19cm (67%).

9. JW20.01. Necked, wide mouthed jar with an overhanging rim; dated broadly by Webster to the 2nd to 3rd centuries (Webster 1976, fig. 4, C22). 5175, LD2, F606. Fabric O02.10. Diam. 29cm (6%).

10. JW19.10. Triangular rim from a wide mouthed jar; a 2nd to 3rd century type (Webster 1976, fig. 4 C22). 5175, LD2, F606. Fabric O02.10. Diam. 27cm (12%).

11. BI8.01. Rim from a segmental bowl, a Severn Valley ware type dating broadly to the 2nd to 3rd centuries (Webster 1976, fig. 9, J65). 5112, F561.2, CD4. Fabric O02.1. Diam.14cm (18%).

Reduced Severn Valley ware (WCFS 12.1, G04)

12. DA1.04. Straight sided dish with a slightly expanded rim, decorated with zig-zag pattern burnish. Probably copying a BB1 flanged rim dish and therefore dating to the 2nd century (c.f. WA type 22, Seager Smith and Davies 1993, fig. 123). 5112, F561, CD4. Diam. 24cm (13%).

Organic Severn Valley ware (WCFS 12.21, O03.11)

13. JN20.01.
    Narrow mouthed jar with an overhanging rim, short necked; dated broadly by Webster to the 2nd to 3rd centuries (Webster 1976, fig. 3, A8; Evans *et al.* 2000, fig. 21, Type 3, JNM10). 5055, F546.1, CD3. Diam. 21cm (52%).

Fig. 13

14. JN20.01. Narrow mouthed jar with an overhanging rim, long necked; dated broadly by Webster to the 2nd to 3rd centuries (Webster 1976, fig. 1, A6). 5175, F606, LD2. Diam. 23cm (26%).

15. JW7.12. Wide mouthed jar or bowl with an everted rim. Not a closely dated form. 5086, F546.2, CD3. Diam. 21cm (15%).

16. BC21.03. Flange-rimmed bowl with an internal lip and curving walls. This is a long lived type and is not therefore closely datable (Webster 1976, fig. 8, F45-50, fig. 9.F51-2; Evans *et al.* 2000, fig. 26, Type 2.2, BT6-10). 5175, F606, LD2. Diam. 36cm (12%).

17. LA7.01. Concave lid, not closely datable. 5112, F561, CD4. Diam. 19cm (5%).

Reduced sandy ware (WCFS 14, G012.3)

18. LAA1.01. Concave lid with beaded rim, not closely datable. 5175, F606, LD2. Diam. 15cm (5%).

Wheelmade Malvernian ware (WCFS 19, N04)

19. JK22.06. Cook pot with a thickened, slightly everted rim, probably copying a BB1 type. Dated by Peacock to *c.* AD 120 or later (Peacock 1967, fig. 1.14). 5175, F606, LD2, Diam. 19cm (34%).

Dorset Black-burnished ware (WCFS 22, B02, DOR BB1)

20. BI8.31. Conical bowl or dish with a flat, grooved rim (WA type 24, Seager Smith and Davies 1993, fig. 123). Gillam dates the appearance of this form to between *c.* AD 180 and 210, with production continuing until the mid-late 3rd century (Gillam 1976, 67-70). 5058, F549.1, CD2. Diam. 17cm (6%).

21. B/D8.25. Conical bowl or dish with dropped flange rim, a broadly late 3rd to 4th century type, the height of the flange on this example indicating that it dates to the early-mid range within this period (WA type 25 Seager Smith and Davies 1993, fig. 124). 5049, F540. Diam. 16cm (8%).

22. DA8.31. Dish with a plain, flanged rim dating to the 2nd century (WA type 22, Seager Smith and Davies 1993, fig. 123). 5174, F606, LD2. Diam. 22cm (25%).

23. DB1.01. Dish with a slightly beaded rim, dating from the late 2nd to early 3rd century (WA type 20, Seager Smith and Davies 1993, fig. 123; Holbrook and Bidwell 1991, fig. 32, 57.4). 5112, F561, CD4. Diam. 20cm (7%).

Mortaria

By Kay Hartley

South-west white slipped mortaria (WCFS 37.4, M015, SOW WS)

24. MA8.11. Condition: probably worn, but surface eroded. Orange-brown fabric with cream slip. Inclusions: frequent, moderately well-sorted, mostly quartz with a little opaque, red-brown and black material. Trituration grit: the few grits surviving consist of quartz and red-brown sandstone. The rim-profile is unquestionably Antonine, quite similar to the above and of similar date. The fabric is commonly referred to as south-west white slipped ware; no kilns are known, but the workshop is thought to have been in the S.E. Gloucestershire/ N. Wiltshire area; perhaps the main centre being supplied was Cirencester (see Hartley 1993, 392 and Tomber and Dore 1998, 192). 5174, F606, LD2. 195g, diam. 29cm (18%).

Wroxeter white mortaria (WCFS 34, M07a, WRX WH)

25. MA8.1. Cream fabric with self-coloured slip, slightly powdery and slightly rough to the touch. Inclusions: fairly frequent, ill-sorted, transparent and pinkish quartz, red-brown (?sandstone) and rare black material. Trituration grit: on this small sherd, red-brown sandstone is most prominent, possibly with some quartz.

    The incompletely impressed stamp reads ....INI and other stamps from the same die show a half-circle, presumably O, in front of the I, giving ...OINI if the stamp reads from left to right. Other stamps from the same die are known from Alcester, Warks; Leintwardine (Stanford 1968, fig 36, no.14 and 308, no. 12, Period II); Manduessedum; and Wroxeter (Hartley 2000, 303, fig. 4.99, no. 70). The rim-profiles used are all Antonine, similar to those used by Iunius; they point to activity within the period AD140-170, perhaps mostly after AD 150.

    He probably worked at the Mancetter-Hartshill potteries, but, as in this instance, his fabric sometimes suggests activity in the cream ware workshop supplying Wroxeter mainly in the first half of the 2nd century. His distribution, small as it is, would also fit such a source, but if he were ever active there it would have to have been at the tail end of the production. Some movement between the potteries almost certainly occurred, but if it did, his rim-profiles would indicate movement from Mancetter-Hartshill where they are typical, to Wroxeter where there is no obvious precedent for them. 5073, F557.03, LD3. 75g, diam. 28cm (7%).

26. M04c (not illustrated). Body sherd in cream fabric with fairly frequent, smallish-sized, transparent and pink quartz with some opaque red-brown material. Trituration grit: pinkish and brownish quartz. Typical of the Oxford potteries (Young 1977). AD100-400. 5175, F606, LD2. 10g.

27. (not illustrated) Condition: worn or eroded. Very fine-textured, micaceous, red-brown fabric with no visible inclusions and no surviving slip. The few trituration grits surviving are white quartz. This can be attributed with reasonable certainty to the workshop at Caerleon whose floruit was within the period AD110-170 (Webster and Hartley *et al.* 2004, 100-101; Hartley 1993, 411-412). 5067, F557, LD3. 5g.

Trade, status and functional evidence

Most of the pottery came from regional sources. Severn Valley ware, in a range of mostly oxidised variants, dominated the assemblage (Fig. 14a-d, WCFS 12-12.3). This ware is known to have been produced at Malvern, Worcestershire (Peacock 1967; Evans *et al.* 2000). The presence of Malvernian handmade and wheelmade wares (Fig. 14a-d, WCFS 3, 19) demonstrates that the site did have trade contacts with Malvern potters. However, pottery production is suspected on a number of Herefordshire sites, for example at Marley Hall near Ledbury (SMR 1596), and Cradley (SMR 5462). There is also petrological evidence that Severn Valley ware was produced in Herefordshire, based on sample sherds from *Ariconium* and Wellington (Ixer forthcoming). The small quantities of sandy wares (Fig. 14a-d, WCFS 13-15) are probably local.

The only traded ware represented in any quantity was Dorset Black-burnished ware (Fig. 14a-d, WCFS 22), and there was very little imported pottery: no amphora and only a single sherd of plain samian. The small quantities of mortaria, however, reflect access to pottery from a range of different sources: Oxfordshire, Wroxeter, Caerleon and S.E. Gloucestershire or N. Wiltshire (Hartley above). The occupants of this site, therefore, appear to have had access to, but limited use for, the wider trading contacts enjoyed, for example, by the occupants of *Ariconium*. The latter site produced a range of imported amphorae, mortaria, and table wares, as well as a range of traded wares from major Romano-British producers (Tomber 1985, table 2). The range of vessels in the assemblage is very utilitarian, with a heavy emphasis on jars (Figs. 15a and 15b), used for cooking and storage or transport. This is typical of rural, Roman assemblages (Evans 2001, 28). Table wares are very poorly represented; there are no colour coated bowls or dishes and no cups or beakers. The only flagon (Fig. 12.5) is an open, rather than narrow, necked type; arguably more likely to have been used for storing milk than serving wine (Evans *et al.* 2000, 27 and Greene 1993, fig. 4, type 9).

Conclusions

This assemblage adds to the growing body of fully quantified data from Roman sites in Herefordshire, the need for which has been noted elsewhere (Evans forthcoming a). In particular it adds to the data from rural sites in the region, which have the potential to elucidate patterns of 'Romanisation,' as demonstrated by studies in the Wroxeter hinterland (Evans forthcoming b). This appears to be a typical rural assemblage, within the limitations of our current understanding, with connotations for the economic and cultural status of its occupants.

MEDIEVAL AND POST-MEDIEVAL POTTERY

Identifications by Stephanie Rátkai

Two sherds of medieval pottery weighing 2g were recovered. One sherd was recovered, from surface F599 (5159) and the other was recovered from the fill (5047) of pit F538 and was of mid 13-15th century date (fabric A7b, Pearce *et al* 1985). Two sherds of post-medieval pottery weighing 3g were recovered, one of which was from surface F599 (5159) and was of late 17-18th century date, possibly mottled ware. The other sherd was of 16th-17th date and was unstratified. All these sherds were abraded and could be intrusive in earlier contexts.

FLINT

By Erica Macey- Bracken

A single burnt flint flake was recovered from context 1002, the fill of a pit (F100) containing Iron Age pottery, excavated during the initial evaluation.

FIRED CLAY/ DAUB

By Erica Macey- Bracken

A total of 97 fragments of fired clay, weighing 1031g, were recovered from the site (Table 8). The assemblage consisted of small pieces of fired clay, most of which was

quite badly abraded. Six fragments of fired clay were also associated with the slag assemblage (see Cowgill, below). This group included tuyère fragments and vitreous clay.

The majority of the assemblage came from Period 1 contexts from F570. A piece of rim, possibly from a refractory vessel (e.g. a crucible), was recovered from Roman surface F599 (5159).

Examination of the assemblage showed that most of the fragments were amorphous lumps of clay in a coarse dark orange fabric, with no discernible forms or function. Two small fragments in a slightly lighter-coloured fabric (5076, F565 and 5118, F570) had possible surfaces, which were flat, and slightly lighter in colour than the inner fabric, although the poor condition of these pieces means that no more positive identification is possible.

IRON OBJECTS AND NAILS
By Laurence Jones

Three very corroded Roman iron nails were recovered, one from 5159 (surface F599) and two from context 5073 (ditch F557.3, LD 3). Three small unidentifiable very corroded iron fragments were recovered from context 5124 (ditch F582.1, CD 6), dated to the Roman period. One post-medieval nail was recovered from undated context 5003 (pit F500).

TILE
By Erica Macey

A total of eight small pieces of ceramic tile, weighing 37g, were recovered from the site. The assemblage was very fragmentary, with no complete or substantial pieces being recovered, and a high incidence of abrasion was noted across the group. No diagnostic pieces were recovered. The assemblage was quantified by count and weight and examined macroscopically for the purposes of assessment.

Despite the small size of the assemblage, a total of four different fabrics were identified. Fabric 1: Very hard, dense, dark orange fabric with occasional small stone inclusions, well levigated and evenly-fired throughout. Present in: unstratified (surface find) x 1, 5019 (undated pit F519) x 2. Fabric 2: Dense, smooth fabric with orange surface and margins and a pink-brown core and occasional small flint inclusions. Present in 5012 (undated pit F517) x 1. Fabric 3: Coarse, densely fired fabric with pale orange-brown surfaces and grey-black core and occasional small vesicles. Present in 5112 (period 3.3 ditch F561.2, CD 4) x 1. Fabric 4: Soft, sandy orange fabric with occasional small flint inclusions, evenly-fired throughout. Intrusive in context 5030 (Period 2 pit F522) x 3.

SLAG, TUYÈRES AND ASSOCIATED FIRED CLAY
By Jane Cowgill

A total of 678g of slag was recovered from contexts dating to the Iron Age and the Roman periods (Table 9). Slag and associated finds were recovered from three contexts.

The assemblage from the Mid to Late Iron Age pit F100 is a fairly mixed group that could be of any date. The tuyère is, however, the remains of a well-made and quite substantial example. Tuyères were plates or cylinders made of stone, reused tile or purpose made in fired clay. They were used for protecting the bellow nozzle from the heat of a fire. They were therefore only used for high-temperature processes, generally iron smithing or non-ferrous metalworking. This example has a very oxidized orange back that suggests it was not used for iron smithing (they tend to be more a pinky-mauve colour). The piece has the remains of a large oval air hole that, on the surviving portion, is 35mm from the outer rim.

There are only two pieces of iron-smithing slag from pit F100, a proto-hearth bottom and a second possible hearth bottom fragment. All the pieces are small and they may all be abraded suggesting that iron-smithing was not occurring close to the pit, and primary waste from this activity was not being deposited within it.

During the excavation 21 pieces of slag were found on a surface (F599) of Roman date. These are all the by-products of iron smithing using charcoal as the fuel. The encrusted nature (with soil and corrosion products) of the pieces means that it is impossible to estimate condition. No hammerscale was noted in the soil after the pieces had been washed and therefore it is unlikely that they form part of a primary dump although it is common for slag to be used as surfacing in close proximity to smithies (see for example Cowgill *et al* forthcoming). Part of two much thinner and less substantial tuyères were amongst the slag and these are much more characteristic of the examples found associated with iron smithies. Smithing was therefore probably occurring somewhere on the site and the slag by-products were then being used for surfacing, for which they are eminently suitable.

ANIMAL BONE
By Emma Hancox

Animal bone did not survive well. A few poorly preserved fragments of cattle tooth (20g) were recovered from Period 1 pond barrow F570, period 2 pit F100, undated pit F525, during the evaluation and excavation. The fragments recovered from context 5117 (pond barrow F570) were identified as cattle mandibular 3rd molar (right). A further 56g of small fragments of burnt animal bone was recovered from F570 above the burnt timbers (5144), this was not identifiable to species.

THE ENVIRONMENTAL EVIDENCE

RADIOCARBON DATING
Samples were taken from five contexts and submitted to the University of Waikato Radiocarbon Dating Laboratory for radiocarbon dating. The results are shown in Table 10.

CHARRED PLANT REMAINS
By Dr Wendy Smith

A total of eight samples, provisionally dated from the Bronze Age through the Roman periods, were selected for assessment. Of these, only one sample (context, 5044) from Period 2 pit F535 was sufficiently rich to merit further analysis. A charcoal sample from this feature dated between 550 cal BC – 390 cal BC (82.8% - Wk16871) has provided an Iron Age date for this deposit. The results are presented in Table 11 and Figure 16. This assemblage is dominated by charred cereal grain, accounting for 94.1% of all identifications made. In addition to cereal grain, small quantities of cereal chaff and weed seeds were also recovered.

Discussion
The charred plant remains recovered from the Iron Age pit F535 provide some insight into the range of cereal crops cultivated in the period and the crop processing activities which were taking place. The mixture of cereal grain cultivated may also have implications.

The cereal crops cultivated
The majority of cereal grain identified is wheat and of those identified to species level, most clearly were spelt (*Triticum spelta* L.). However, reasonable amounts of emmer-like (*Triticum* cf. *dicoccum* Schübl.) grain and hulled barley (*Hordeum* sp.) grain were also identified.

Spelt (*Triticum spelta*) is a hulled wheat which generally has two grains in each spikelet (individual segment) of the cereal ear. Although rarely grown today, hulled wheats do have a number of properties that would have been advantageous to past farmers. In particular they can tolerate poor soil conditions and can resist a range of fungal diseases (Nesbitt and Samuel 1996, 42). During threshing, cereal ears of spelt will break up into individual spikelets, which contain grains surrounded by tough chaff. At this point the ancient farmer could either store or further process the spikelets of spelt. Storage of spelt (or other hulled wheats, such as emmer or einkorn) in spikelets is well known archaeobotanically and may serve to protect the grain from insect predation (Nesbitt and Samuel 1996, 52).

Evidence for crop processing activities
The limited recovery of spelt glume bases from this sample may suggest that the spelt was already dehusked in preparation for milling. In order to dehusk spelt to extract the grain, the spikelets must be pounded and the resulting mixture of freed grain and chaff is then winnowed, to separate light weed seeds and larger fragments of chaff from the grain, and then sieved, to remove any remaining weed seeds and smaller fragments of chaff from the grain (e.g. Hillman 1981, 1984a, 1984b and Jones 1984, 1988, 1996).

The limited recovery of plant remains other than cereal suggests that this deposit contains the charred remains of a cereal processing 'product(s)' – namely spelt grain, but also possible emmer grain and barley grain, intended for consumption (most likely human

consumption). The chaff and weed/ wild seeds that are present are all of a similar width or length to cereal grain and are likely to have remained with the grain throughout all stages of the crop processing sequence (e.g. threshing, winnowing, coarse and fine sieving).

There are at least two possible explanations for the formation of this deposit:

- Cereal grain accidentally charred in storage.
- Cereal grain accidentally charred, possibly in a corn drier before milling. Certainly, parching is believed to have been an important stage in making glumes more brittle before dehusking glume wheats (e.g. Hillman 1984a and Jones 1984).

Implications of the presence of a mixture of cereal crops

The recovery of a mixture of spelt (*Triticum spelta* L.), possible emmer (*Triticum* cf. *dicoccum*) and hulled barley (*Hordeum* sp.) grain could represent post-depositional mixing of various dumping events, but may also represent the actual mix of cereal grain intentionally cultivated together as one crop. Ethnographic work from Greece suggests that cultivation of maslin crops was one means of reducing the risk of adverse conditions (i.e. soil, weather, pests, etc) from year to year (Jones 1995). By growing a variety of different cereals, each with different environmental tolerances, it was possible for ancient farmers to ensure that at least a portion of a crop was successful in a given agricultural year.

However, as Jones (1995, 112-3) notes, "the existence of deliberate 'maslin' crops should not be sought by looking for fixed or balanced mixtures of different cultigens, because the principal economic advantage of sowing maslins is that the different components tend to perform more or less well under different growing conditions". As a result, it is not possible to determine whether the crops recovered at Bradbury Lines were grown individually or in a mixture as a 'maslin' based on the ratios of cereal crops fully and/ or partially identified. In addition, the fact that these deposits are secondary, and may well represent mixtures of similar crop processing activities, may further complicate the precise origin(s) of these deposits. Nevertheless, the possibility that cereal crops were grown as 'maslins' in the period should not be ruled out, and certainly is a well-attested practice later, in medieval Britain.

Comparison with other Iron Age sites in the region

In Herefordshire and Worcestershire, as well as the surrounding counties, archaeobotanical evidence from Iron Age deposits is extremely limited. Monckton's (1999) results from Conderton Camp Iron Age Hillfort in Worcestershire (near Tewkesbury) has produced small quantities of emmer (*Triticum dicoccum* Schübl.) chaff and grain identifications, as well as a few possible spelt (*Triticum spelta* L.) chaff identifications. However, the majority of these deposits were dominated by cereal chaff, rather than grain. The Romano-British settlement at Tiddington (Warwickshire) appears to have primarily cultivated/ used spelt (Moffett 1986). Roman results from the Deansway (Moffett 2004, 544) in Worcester also suggest that spelt and emmer were both

cultivated in the area well into the Roman period. However, results from the Butts (Smith 2005) suggest that, at least in this area of Worcester, spelt wheat was the main cereal cultivated/ used. In Wales, the hillslope enclosure at Collfryn (Powys) has produced an assemblage where an indeterminate emmer/spelt grain category was dominant, although small quantities of grain securely identified to emmer or spelt were recorded (Jones and Miles 1989, 74).

Conclusions

Although this is simply one sample from one Iron Age site, the results from Bradbury Lines, Hereford are significant because they indicate that in some areas of Herefordshire/ Worcestershire spelt (*Triticum spelta* L.) was becoming the dominant glume wheat cultivated as early as the Iron Age. Further results from the region, however, are essential before if is possible to determine if this is a significant result and/or could indicate changes in cultivation, or indeed, consumption practices. In addition, deposits of 'pure grain' seem unusual in the area, and this may imply a specific crop processing activity was behind the deposition of the Bradbury Lines assemblage. Certainly, full analysis of this deposit has, at the very least, provided useful and unique data set for future comparison of Iron Age results in the area.

CHARCOAL AND WOOD

By Rowena Gale

Charcoal was recovered from Bronze Age pond barrow F570 (5083 and 5144) and Roman oven F568 (5081). Charcoal from the Bronze Age contexts were less well preserved than that from the Roman feature; the latter consisted entirely of roundwood. Charcoal fragments measuring >2mm in radial cross-section were considered for species identification. When possible, the maturity of the wood was assessed (i.e., heartwood/ sapwood) and stem diameters recorded. It should be noted that during the charring process wood may be reduced in volume by up to 40%.

The taxa identified are presented in Table 12. Table 13 indicates the ages and dimensions of roundwood in context 5081. Classification follows that of *Flora Europaea* (Tutin, Heywood *et al* 1964-80). Group names are given when anatomical differences between related genera are too slight to allow secure identification to genus level. These include members of the Pomoideae (*Crataegus, Malus, Pyrus* and *Sorbus*) and Leguminosae (*Ulex* and *Cytisus*). When a genus is represented by a single species in the British flora, it is named as the most likely origin of the wood, given the provenance and period, but it should be noted that it is rarely possible to name individual species from wood features and exotic species of trees and shrubs were introduced to Britain from an early period (Godwin 1956 and Mitchell 1974). The anatomical structure of the charcoal was consistent with the following taxa or groups of taxa:

Aceraceae. *Acer campestre* L., field maple
Betulaceae. *Alnus glutinosa* (L.) Gaertner, European alder
Corylaceae. *Corylus avellana* L., hazel
Fagaceae. *Quercus* sp., oak
Oleaceae. *Fraxinus excelsior* L., ash
Leguminosae. *Cytisus scoparius* (L.) Link, broom or *Ulex* sp., gorse

Rosaceae. Subfamilies:

Pomoideae, which includes *Crataegus* sp., hawthorn; *Malus* sp., apple *Pyrus* sp., pear; *Sorbus* spp., rowan, service tree and whitebeam. These taxa are anatomically similar; one or more taxa may be represented in the charcoal.

Prunoideae. *Prunus spinosa* L., blackthorn.

Bronze Age

Charcoal was recovered from four contexts from pond barrow F570, two of which were selected for full analysis (the remaining two contained insufficient charcoal). Although context 5083 also included a relatively small amount of charcoal, a wide range of species was represented: oak (*Quercus* sp.), alder (*Alnus glutinosa*), hazel (*Corylus avellana*), ash (*Fraxinus excelsior*) and the hawthorn/ *Sorbus* group (Pomoideae). In contrast, the charcoal-rich deposit in context 5144 consisted entirely of oak (*Quercus* sp.) largewood. On excavation, both contexts were interpreted as cremation deposits, although it was not clear whether these originated from a single or separate events. Substantial differences in the wood species identified from 5144 and 5083 suggest either that these episodes were unrelated or, if from a single event, that the charcoal originated from different sources.

Roman

A large quantity of fuel debris (5081) remained from the use of the Period 3.3 oven feature, F568. For identification purposes this was 50% sub-sampled. Examination of the charcoal demonstrated the preferred use of narrow roundwood, predominantly from the hawthorn/ *Sorbus* group (Pomoideae), although field maple (*Acer campestre*), blackthorn (*Prunus spinosa*) and gorse (*Ulex* sp.) or broom (*Cytisus scoparius*) were also named. Overall, the roundwood ranged in diameter from 2mm to about 25mm and in age from 5 – *c.*16 years (data collected from a number of intact stems are shown on Table 13).

Discussion

Bronze Age

Material was examined from two contexts within barrow F570, both were sited near the centre of the feature. Although there was some initial doubt as to the origin of the samples, i.e., from a single or two separate cremation deposits, evidence from the context 5144 suggests the latter as the more likely, since the smaller sample (context 5083) included multiple species (Table 13), whereas the large volume of material from context 5144 indicates the selective use of oak (*Quercus* sp.) largewood for funerary pyre or other funerary structure construction. The latter is of particular interest since there is increasing evidence from Bronze Age cremation sites in Britain to link single-species pyre structures with funerary ritual and/ or burials of significance; in barrows, these remains often occur as primary deposits and may refer to status, age or gender.

Examples of the specific selection oak for pyre construction were recorded at Barrow Hills, Radley, Oxfordshire (Thompson 1999), Westhampnett, West Sussex (Gale forthcoming a), Coton medieval village, Warwickshire (Gale 2000a), Gayhurst Barrow Cemetery, Buckinghamshire (Gale 2000b), Brackmills Link Road, Northamptonshire (Gale 2003a), Carsington, Derbyshire (Gale 2003b), Eye Kettleby, Leicestershire (Gale

2003c), Risely Farm, Berkshire (Gale 1992), Whitemoor Haye Quarry, Staffordshire (Gale forthcoming b) and Baldock Bypass, Hertfordshire (Gale 2005).

Roman
The function of the oven (F568), located close to enclosure ditches, is uncertain. The character of the fuel used here differed significantly from that obtained from the Bronze Age pyre debris. Firewood for the ?oven was gathered exclusively from narrow roundwood, mainly from the hawthorn/ *Sorbus* group (Pomoideae) but also field maple (*Acer campestre*) and shrubby species such as blackthorn (*Prunus spinosa*) and gorse (*Ulex* sp.)/ broom (*Cytisus scoparius*). None of the stems was larger then 25mm in diameter (when charred). Growth rates were typically slow-moderate and there was no evidence to suggest that this roundwood was grown in managed woodland. In fact, the conspicuous absence of readily coppiced species such as hazel, alder, ash and oak (all of which were recorded from the Bronze Age deposit) suggests that, by the Roman period, woodland was sparse in the immediate vicinity of the site. This suggestion is supported by the abundance of scrubby species (blackthorn, hawthorn and gorse) in the charcoal. Indeed, the frequency of linear features and ditched enclosures at the site are more indicative of an open landscape. Boundary hedges and scrub clearance, therefore, seem to be most likely source of the fuel.

The species identified would have provided high calorie firewood, especially when used as narrow roundwood - the high ratio of wood surface to atmospheric oxygen would have produced an intense, although short-lived, heat-source, unless regularly replenished.

Conclusion
Differences in species content in the two samples from the Bronze Age pond barrow F570 suggest origins from separate deposits/ cremations. The selective use of oak (*Quercus* sp.) identified in context 5144 correlates with ritual funerary customs recorded elsewhere in Britain during this period.

The abundant remains of fuel from the Roman oven F568, context 5081, demonstrate the use of narrow roundwood, predominantly from shrubby species. It is suggested that the firewood was obtained from hedgerows or scrub and, since there was no evidence of woodland species (such as those identified from the Bronze Age deposits), the landscape may have been less wooded by the Roman period.

POLLEN
By James Greig

Three pollen samples from contexts 5116, 5146 (Bronze Age pond barrow F570) and 5073 (Roman ditch F557.03, LD 3), were assessed to see if pollen was preserved, and if so, if it would provide information about the site.

The material did not seem to be especially organic in content, according to examination of the coarse sievings from pollen preparation. The first two samples did not contain enough pollen for a meaningful count. One sample, 5073, from a ditch F557.03, LD 3 dating to the Roman period, did contain enough pollen for a count (Table 14).

The pollen was mainly Lactuceae, a large group of composites which includes dandelions and hawkbits, many of which are grassland plants. There was also pollen of Poaceae (grasses), *Plantago lanceolata* (ribwort plantain) and *Trifolium repens* (white clover), all representing grassland. There was a little Cerealia-type pollen (probable cereals) but otherwise only traces of anything else, such as trees (a little hazel and alder), weeds (a record of Chenopodiaceae, *Aster*-type and *Cirsium* thistle) or wetland plants (records of Cyperaceae and *Persicaria bistorta).*

At a number of other sites Roman ditches have produced similar evidence of open grassy conditions, which seems to suggest a consistent landscape of farmland. These results are probably all the useful information that can be obtained from this material.

DISCUSSION

NEOLITHIC

Although no Neolithic features were recorded during the excavation, the find of residual probable Peterborough ware pottery in a later context, within pond barrow F570, seems to suggest that the site may have been the focus of earlier activity, possibly beginning as early as the Mid or Late Neolithic period. However, there is a possibility that the pottery could belong to an Early Bronze Age Food vessel. Further evidence of earlier activity may be suggested by the radiocarbon date of 3030 cal BC – 2890 cal BC (92.6% - Wk16867) obtained from a small fragment of charcoal, presumably residual, from the primary fill of F570.

BRONZE AGE

The sherds of Collared Urn in the primary fill of pond barrow, F570 date the construction of the hollow to the Early Bronze Age *c.* 2000 – 1500 BC. The latest datable fills of the pond barrow date to the later stages of the Middle Bronze Age, probably *c.* 1200 – 1000 BC. Pond barrows consist of a circular pit or depression often with an outer rim bank, constructed from the material excavated from within. The central depression may contain pits or shafts, and these may contain inhumations or cremations. Pond barrows have ritual, funerary, and/ or ceremonial functions and are often part of larger round barrow cemeteries. They vary in size from 5m to 30m in diameter, although most are within the 9m and 15m diameter range (English Heritage 1989).

No outer bank, satellite burials or pits within the pond barrow were identified during the excavation at Bradbury Lines. Although pits could have been removed by modern drains which disturbed the area. The nature of the gravel fills which accumulated at the edge of the feature suggests a bank, which had weathered, was present. Pottery from the primary gravel fill suggests that that the pond barrow was constructed during the Early Bronze Age *c.* 2000 – 1500 BC . It appears that a mound of grey clayey gravel was deposited at the centre of the feature on top of the primary fill, presumably to provide an elevated platform for the ritual activities which subsequently took place there. The rest of the pond

barrow between the clay mound and the edge of feature, effectively formed a ring ditch, at this time, and this appears to have been subsequently filled in one episode.

The oak timbers, dated by radiocarbon to 1310 – 1050 cal BC (Wk-16868), deposited on top of the mound during the Middle Bronze Age, may have been part of a collapsed structure. This structure probably had a funerary function, possibly as a platform or perhaps a coffin. This is supported by the fact that oak appears to be the dominant material for the construction of funerary structures in the Bronze Age, as at Barrow Hills (Thompson 1999). It appears, due to their largely intact arrangement, that the timbers were burnt *in situ* or, at least, had not been displaced greatly from their original position, although no evidence of intense heat, in the form of discolouration of surrounding soils, was present. Evidence of human remains was lacking and this may be because bone did not survive well overall on the site. Alternatively, any body which may have been present could have subsequently been removed. The animal bone, also dating to the same period as the timbers (1270 – 1000 cal BC, Wk-16869), on top of the wooden structure may suggest either a complete animal was being cremated or parts of animals were being placed within the structure. This could be evidence of cremation of animal remains or, perhaps, could indicate that feasting was taking place at the time of the cremation episode.

The charcoal-rich layer over the oak timbers appears to have been deposited in a single episode at the same time or shortly after this, and contained a mixture of species including oak, alder, hazel, ash and hawthorn/ *Sorbus* group. The variety of different species of wood in this layer may indicate that the wood had a different function. It contained many of the species often used as fuel for cremation pyres (Thomas 2005, 287). The latest datable fill of the pond barrow, overlying the charcoal- rich layer, dates to the later stages of the Middle Bronze Age, probably *c.* 1200 – 1000 BC.

Few pond barrows have been excavated using modern methods, in the country as a whole and even upstanding barrows or ring ditches are comparatively rare in the Wye valley, with just two or three recorded within a 5km radius of Bradbury Lines (Grinsell 1993). Barrows appear to be concentrated in the S.W. and the upland areas of the county. This apparent lack of barrows could be due to the relatively high destruction, caused by arable farming, in lowland areas or poor results from air photographic survey. The majority of known pond barrows have been identified in the southern and eastern parts of Britain, particularly in Wiltshire and Dorset, with a few to the north and east of this concentration. Most of the known pond barrows have been identified as upstanding earthworks. No published examples have been previously excavated in Herefordshire before, although recently a large Middle Bronze Age pit which could be interpreted as a pond barrow was identified during an evaluation at Moreton-on-Lugg (Griffin and Jackson 2003). However, this is only a tentative interpretation ahead of possible further excavation. Recently the West Midlands Research Framework for Archaeology has emphasised the need for modern excavations of Bronze Age sites which can record evidence of "construction, funerary activity, chronology, and environmental context" (Garwood 2003).

The Wilsford Shaft (Wilsford barrow 33a, Wiltshire; Ashbee *et al* 1989) which was originally identified as a pond barrow, and could date to the Early Bronze Age, appears to be associated with a group of barrows close to Stonehenge. However, it is markedly different from other pond barrows excavated by modern methods which do not have deep shafts but do contain evidence of burials or cremations. Other pond barrows excavated using modern methods include those at Winterbourne Steepleton, Dorset (Atkinson *et al* 1951); Down Farm, Dorset (Barrett *et al* 1991); Barrow Hills, Oxfordshire (Barclay and Halpin 1999) and Snail Down, Wiltshire (Thomas 2005).

At Bradbury Lines ritual activities appear to have taken place on a low central mound, rather than on the floor of the pond barrow and, although only a sample of the base of the pond barrow was exposed, no burials, cremations, pits or post-holes were identified at the base. No example of a pond barrow showing this sequence of activity has been published, although the pond barrow at Bradbury Lines appears to have aspects in common with Ring Ditch 611 at Barrow Hills (Barclay and Halpin 1999, 35), which although only 7.5m in diameter, had wide deep ditches and possibly an external bank with a small raised central platform. This barrow was constructed earlier than the Bradbury Lines pond barrow, being of Late Neolithic date (*c.* 2600-2200 BC). Antler and cattle bone, deposited at the base of the ring ditch at this time, suggested a ceremonial function. An urned cremation placed at the centre of the mound was deposited during a later Early Bronze Age phase *c.* 2100- 1500 cal BC, after the ring ditch had silted up effectively forming a pond barrow. The pond barrow at Bradbury Lines also bears some resemblance to the small pond barrow 4583 at Barrow Hills (*ibid*, 52), as it has no primary or satellite burials, although, at Barrow Hills Late Bronze Age burials were inserted into the barrow fill. No satellite or secondary cremations or burials were present at Bradbury Lines, in contrast with the pond barrow at Down Farm (Barrett *et al* 1991, 128) and Barrow Hills pond barrow 4866 (Barclay and Halpin 1999, 118) .

It is noteable that the pond barrow is located at the edge of the of better drained natural sand and gravel geology, not on the less agriculturally productive clay. The location of the pond barrow on the periphery of land better suited to the growing of crops maybe a deliberate statement.

Although pond barrows are often found grouped together with other types of barrow, in extended barrow cemeteries such as at Barrow Hills or Snail Down, there was no clear evidence of further barrows or any other contemporary activity, although residual pottery was recovered from some later features. The nearest evidence of Bronze Age activity is 2km to the S.E., on the lower slopes of Dinedor Hill were trial-trenching revealed a curvilinear ditch containing Late Neolithic to Late Bronze Age pottery (Patrick *et al* 2002).

IRON AGE AND ROMAN

Many of the Iron Age and Roman features are difficult to interpret because only part of the features was exposed and there was extensive modern disturbance. The main focus of activity appears to have been outside the area excavated. The Iron Age activity seems to be mainly represented by the group of pits and part of one linear ditch dating from the

Mid to Late Iron Age. It is possible that some of the undated pits could be contemporary, or perhaps earlier as one of the previously undated pits yielded a radiocarbon date of between 550 cal BC – 390 cal BC (82.8% - Wk16871). It is probable that these features are part of more extensive settlement activity in the vicinity. Dinedor hillfort, 2km S.E. of the site, is the nearest Iron Age site and was probably contemporary with Bradbury Lines, but only a small investigation (Kenyon 1953), has taken place so far, and no comparable results are available.

The limited results from the analysis of environmental remains indicate that spelt wheat may have been the main crop cultivated during the early to mid Iron Age, together with barley and possibly emmer wheat. However this conclusion is tentative as only one feature contained significant plant remains. The undated four-post structure probably representing the remains of a raised granary, a common feature on rural sites, could date to the Iron Age or Roman period. The finds of redeposited iron-smithing waste from a Mid to Late Iron Age pit suggest that iron smithing was being carried out close to the site.

The Roman features also seem to be part of a more extensive site destroyed by the military base, extending to the N.W., beyond the limits of the excavation. The ditch features recorded during the excavation probably form part of a more extensive complex of Roman enclosures, field boundaries and droveways, associated with rural settlement and agricultural activity. The pottery evidence suggests many of the Roman enclosures and field boundaries date from 2nd century AD and occupation in the vicinity may have continued into the late 3rd and 4th centuries. Although there is an apparent break in occupation of the site during the 1st century AD this should be treated with caution, as more evidence for occupation of the site during the 1st century could be located beyond the area excavated. The lack of shell-tempered wares, normally indicating late 4th to 5th century activity, suggests the site may have been abandoned by this time. This evidence of abandonment by the mid 4th century is consistent with an emerging picture of changes in settlement patterns in Worcestershire at this time, as can be seen at Stonebridge Cross and other Roman sites in Worcestershire (Miller *et al* 2004). The national picture, in the later Roman period, appears to be of a flourishing countryside (Millett 1990) as opposed to this increasing regional evidence of possible contraction.

Most of the pottery came from local and regional sources. The occupants of the site had trade contacts with Malvern potters, as indicated by the presence of Malvernian handmade and wheelmade wares. Evidence for trade contacts over longer distances was limited, although small amounts of mortaria suggested access to pottery from a range of different regions: Oxfordshire, Wroxeter, Caerleon and S.E. Gloucestershire or N. Wiltshire. This appears to be a fairly typical low status rural assemblage.

Three stretches of ditch appear to form the S.E. part of a recti-linear enclosure, comprising LD 1-3. It has two possible entrances, evidence of internal divisions and a large proportion of the total pottery assemblage came from these enclosure ditches. There is also evidence of domestic activity, in the form of the possible oven structure, just outside the enclosure, which was disused by this time. This enclosure may have surrounded a farmstead which may also have contained domestic structures such as

roundhouses. Ditch CD 2, to the east of this enclosure may be the remains of a droveway or access route funnelling in stock from areas to the north. The arrangement of features close to the enclosure entrance between ditches LD 2 and LD 3 may be evidence of a management system for stock as recorded at Bronze Age Fengate (Pryor 1998, 105). Examples of a similar type of arrangement have been recorded at the entrances of enclosures dating to the transitional Late Iron Age/ early Roman period (1st century AD) at Little Paxton, Cambridgeshire (pers. comm. A. Jones). Ditches CD 3 and CD 5 may have acted as field or stock enclosures. Ditch CD 1 could also be part of another larger enclosure with a different function, as it is much wider and shallower than any of the other ditches, although the small fraction of the inside of the possible enclosure which was revealed contained no evidence of internal structures. Perhaps the majority of the Roman features, all of which occupied an area of natural clay geology were associated with stock management or settlement, leaving the better drained soils beyond the clay areas free for growing of crops.

Evidence of iron working during the Roman period came from the secondary deposit of by-products of iron-smithing and non-ferrous metalworking which were reused for surfacing, which points to the presence of a smithy close to the site. Smithing may have been an occupation on many rural settlements of this period, however no evidence of furnace structures was present. This surfacing may have been used as a causeway across the ditch CD 1, as was suspected at Wychbold, Worcestershire (Jones and Evans forthcoming) or, perhaps less likely, have formed a working floor.

There is little direct evidence for animal husbandry, food preparation or diet in the Roman period as bone was poorly preserved and environmental remains were sparse. Although the undated probable raised granary structure could date to the Roman period and indicate crops were being stored on site, close to the possible farmstead enclosure.

The exact function of the 2nd or 3rd century AD features recorded outside, and to the east of, enclosure ditch LD 1 is not clear. There is no evidence in the way of finds to suggest that they were associated with manufacture of ceramics or metalwork or that they were associated with processing of crops. It is most likely that they functioned as ovens, although there is no evidence of food crop plant remains from the features. There was no evidence as to what type of foodstuffs may have been cooked in the ovens. These features may have been partly enclosed by a possible windbreak type structure, on the evidence of the post-holes partly surrounding them. The abundant remains of fuel from these ovens came from predominantly shrubby species which would create an intense, but short-lived heat source. The firewood may have been obtained from hedgerows or scrub and, since there was no evidence of woodland species, the landscape may have been less wooded by the Roman period. As is common with sites of this period, which have produced similar evidence of open grassy conditions, the pollen evidence suggests cleared open grasslands which seems to suggest a consistent landscape of farmland.

In recent years evidence from excavation and survey, of a range of generally rectilinear Roman enclosures in Herefordshire, which contain rural farmsteads, has gradually accumulated (Ray 2003). Indeed, a square cropmarked enclosure (HSM 30271), 2 km to

the south at Grafton, may be of Iron Age or Roman date. However, few comparable sites of similar status have been excavated in the region. The enclosures outside the Roman town at Kenchester (Wilmott and Rahtz 1985), 8km to the N.W. of Bradbury Lines, and at Wellington (Jackson and Miller 2004), 10km to the N.W., are of relatively high status with stone buildings and with a higher level of material culture compared to Bradbury Lines. Interim results from Lyonshall (Guest 2003), 24km N.W. of Bradbury Lines, where two ditched rectangular enclosures of similar size were investigated, have shown both probably dated from the late Iron Age to around the end of the 2nd century AD. One, at Moorcourt Farm, appears to have had no internal structures, may have been only temporary occupied and finds indicated a low status settlement. In contrast, nearby at Cold Furrow, a double ditched enclosure appeared to be of high status, possibly containing a farmstead, on the evidence from the finds.

Much of the evidence for other enclosed farmsteads and field systems in Herefordshire is mainly limited to information obtained from small-scale trial trenching such as at St. Donat's Farm, Burghill (Jackson *et al* 1999), north of Hereford. Here features associated with a D-shaped enclosure included a series of ditches and gullies which may have enclosed fields or activity areas and provided drainage. Metalled surfaces suggesting the remains of a minor road and a track or small yard were also revealed. Occupation at the site dated from the later Iron Age or early Roman period with the main period of activity in the 2nd and 3rd centuries AD with the site probably being abandoned by the 4th century. The evidence from Bradbury Lines suggests a level of material culture more similar to this type of rural farmstead.

The project at Bradbury Lines has provided an unexpected chance to investigate a Bronze Age pond barrow and has added to the national distribution of this rare type of site. The study of part of a rural Iron Age and Roman farming landscape, has added to an emerging regional picture. Although more of these sites need to be excavated to enable it to be placed in a wider context.

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APPENDIX

PETROGRAPHIC ANALYSIS OF SELECTED PREHISTORIC POTSHERDS
By Rob Ixer

Thin section 1
F570, context 5146. Early Bronze Age: Collared Urn. The pot is an altered granodiorite/diorite-grog tempered pot.

Sherd
The sherd has a medium dark grey (N4 on the Geological Society of America rock color chart) outer, and dark yellowish brown (10YR 5/4) inner surface both with traces of white mica, small, 1 – 2mm diameter, pale silicate grains and 2mm diameter dark rock clasts.
The cut surface shows a thin, 1mm wide, moderate brown (5YR 4/4) surface overlying a medium dark grey (N4) paste. The clay carries pale-coloured, angular, rock fragments.
Thin Section
In thin section a very thin, 1mm wide, light brown (5YR 5/6) rim overlies a 1cm thick, black (N1) paste. Non-plastics include up to 3mm diameter, equant, pale-coloured igneous rocks, 3 – 4mm long, black, clay-rich clasts with igneous rocks in them and pale-coloured, 3mm diameter siltstone/grog. Petrographically the clean clay carries quartz/untwinned feldspar, some of the quartz shows strained extinction, plus minor to trace amounts of muscovite flakes, alkali feldspar including microcline, altered biotite, epidote, and organic matter. Non-igneous rock clasts are small and rare but include stretched quartz, quartzite, chert and arkosic sandstone.
The main non-plastics comprise approximately equal amounts of granodiorite and grog. Granodiorite clasts include single, angular often-zoned feldspar that is extensively altered to fine-grained kaolinite/low birefringence epidote, white mica and high birefringence epidote. Most feldspar is untwinned but some polysynthetically twinned plagioclase is present. Other common single mineral grains include single, pale green to green-brown amphibole. Large, polyminerallic clasts comprise intergrowths between altered feldspar-green or brown amphibole-quartz-high birefringence epidote-minor amounts of apatite and sphene. These fragments are therefore from an altered granodiorite/diorite.
Angular, and often elongated, grog clasts are abundant and have fired both paler and darker than the main clay, some show a fabric that is at an angle to the main fabric of the pot. Both types of grog carry quartz, white mica, high birefringence epidote, and small granodiorite rock clasts; indeed they are similar to the main clay.
Post-depositional iron-rich cutans are widespread and infill linear gas bubbles and gypsum with fluid inclusions is also present but uncommon.
The pot is clearly tempered and was made by adding crushed rock to a silty clay or, less likely, by adding a very fine quartz sand and coarser, crushed igneous rock to a very clean clay. There is an absence of very fine-grained non-plastics.
The main rock type is rather similar to the Leicestershire intermediate igneous rocks.

Thin section 2
F570, 5115. Middle Bronze Age jar.
This is an olivine basalt tempered pot.

Sherd
The pot sherd has an inner and outer surface that has fired to an even moderate reddish orange (10YR 6/6 on the Geological Society of America rock color chart) about a medium grey (N4) core. Equant, pale-coloured rock clasts up to 3mm in diameter are present.
The cut surface has a 6mm thick, medium dark grey (N4) core enclosed within a 2mm thick, outer, and a <1mm thick, inner, moderate reddish orange (10YR 6/6) rim. Pale, light grey (N6), angular and equant rock fragments 2 – 6mm in diameter are unevenly distributed in the clay matrix.

Thin Section
The thin section shows a dark yellow orange (10YR 6/6), 3mm wide margin about a 6mm thick black (N1) paste. Colourless, igneous rock clasts are densely packed and have a tight size distribution, most being about 4mm in diameter.
Petrographically the clay carries abundant, densely packed, fine-grained, angular quartz/untwinned feldspar plus minor amounts of thin muscovite flakes, plagioclase, and trace amounts of clinopyroxene, zircon and ?epidote. Non-igneous rock fragments are small and rare but include chert, quartzite, quartz-mica phyllite and rare felted mica/amphibole. The non-plastics are evenly distributed.
The main non-plastic is a non-ophitic olivine basalt comprising intergrowths between slightly altered olivine-euhedral to subhedral clinopyroxene-zoned plagioclase-skeletal opaques together with trace amounts of apatite and sphene. A high relief, fine-grained, isotropic mineral infills the mesostasis and perhaps replaces plagioclase.
Rounded, darker fired, clay-rich areas carry quartz and small basalt fragments but are too few to be intentionally added grog. Many lie on or close to the surface of the sherd suggesting that they may be dried clay picked up during the manufacture of the pot.
Post-depositional banded orange-brown, iron-rich cutans line and infill void spaces.
The non-plastic distribution is bimodal with big basalt clasts in a silty clay suggesting that the pot has been intentionally tempered by adding crushed rock to a clean or cleaned clay. The clay source is not from weathered basalt.
Relatively unaltered olivine basalt is not common in England but there are occurrences in the West Midlands notably Rowley Regis and the Clee Hills. The temper is not from Hyssington or from the Whin Sill, both well-known axe-group lithologies.

Thin section 3
F570, 5117. Middle Bronze Age.
The pot is untempered or maybe mudstone tempered.

Sherd
The sherd has a pale greyish orange (10YR 8/4 on the Geological Society of America rock color chart) outer, and a greyish black (N2) inner surface. The outer surface has 1– 5mm diameter voids that resemble gas/fluid escape holes, plus up to 1mm diameter, ferruginous clasts. Broken surfaces show that the pot has a lensoidal fabric.
The cut surface is dark grey (N3) with a thin, dark yellow orange (10YR 6/6) rim; the clay carries dark, up to 2mm diameter clasts.
Thin Section
In thin section a 2mm diameter, dark yellow orange (10 YR 6/6) rim encloses an 8mm thick, black paste that carries few non-plastics.
Petrographically the clay carries sparse amounts of rounded quartz plus a little plagioclase and alkali feldspar including microcline and perthite, white mica flakes and trace amounts of tourmaline. Rock clasts are mainly sedimentary and/or metamorphic and include micaceous sandstone/siltstone, arkosic sandstone, chert, quartzite and quartz-mica phyllite. Some of the sandstone clasts have trace amounts of zircon and tourmaline in them.
Areas of different firing colour and/or showing very low birefringence may be grog or mudstone/fine siltstone, and carry quartz, altered feldspar and white mica. Many have a fabric that is at an angle to the main fabric of the pot.
Darker fired clay-rich areas carry fine-grained quartz and white mica or are inclusion-free and limonite-rich areas also are present.
Orange-brown, post-depositional iron-rich cutans are common.
It is difficult to determine the manufacture of this pot.

Thin section 4
F522, 5030. Late Iron Age.
A poorly made section with much plucking out. The pot may be mudstone tempered.

Sherd
The cut surface shows a medium dark grey (N4 on the Geological Society of America rock color chart), 4mm thick core within a 2mm light brown grey (5YR 5/1) margins. Abundant, dark, clay-rich clasts are up to 1mm in diameter.
Thin Section
In thin section a greyish black (N2) core is enclosed within1mm wide, medium yellow brown (10YR 5/4), margins. Fine-grained rock clasts up to 1mm in diameter are present.
Petrographically a very clean clay carries a little, very fine-grained quartz and small polycrystalline quartz clasts including sandstone fragments.
Rounded pale or dark red-brown, clay-rich areas that are inclusion-free or carry a little quartz and white mica are probably mudstone.
There is little difference between the main clay and clay-rich areas.

Thin section 5
F522, 5030. Late Iron Age.

Sherd
The cut surface is dark grey (N3 on the Geological Society of America rock color chart) with abundant dark grey (N3) rounded and lath-shaped, fine-grained clasts.
Thin Section
In thin section a 3mm wide, medium yellow brown (10YR 5/4) rim overlies a 3mm wide grey black (N2) paste. The clay is quite densely packed with 1.5 – 2mm diameter very fine-grained mudstone clasts and rounded voids that are mainly plucked out clasts.
Petrographically a very clean clay has sparse quartz and even rarer plagioclase, white mica laths and brown hornblende, plus rare, polycrystalline quartz clasts including sandstone and chert and black, cellular, vegetable matter.
Dark-coloured, clay-rich clasts are mainly inclusion-free or carry a little quartz and sandstone and are probably mudstone fragments.
A little post-depositional gypsum, some of which is euhedral, and orange iron-rich cutans are present as is a pale-coloured, silty soil infilling voids within the outer surface of the sherd. The soil is pale yellow and comprises abundant quartz, white mica, with additional feldspar and sandstone fragments; it is very different from any constituents of the pot.
The pot was probably manufactured by adding mudstone clasts to a very clean clay.

CAPTION LIST

Figures

Plates

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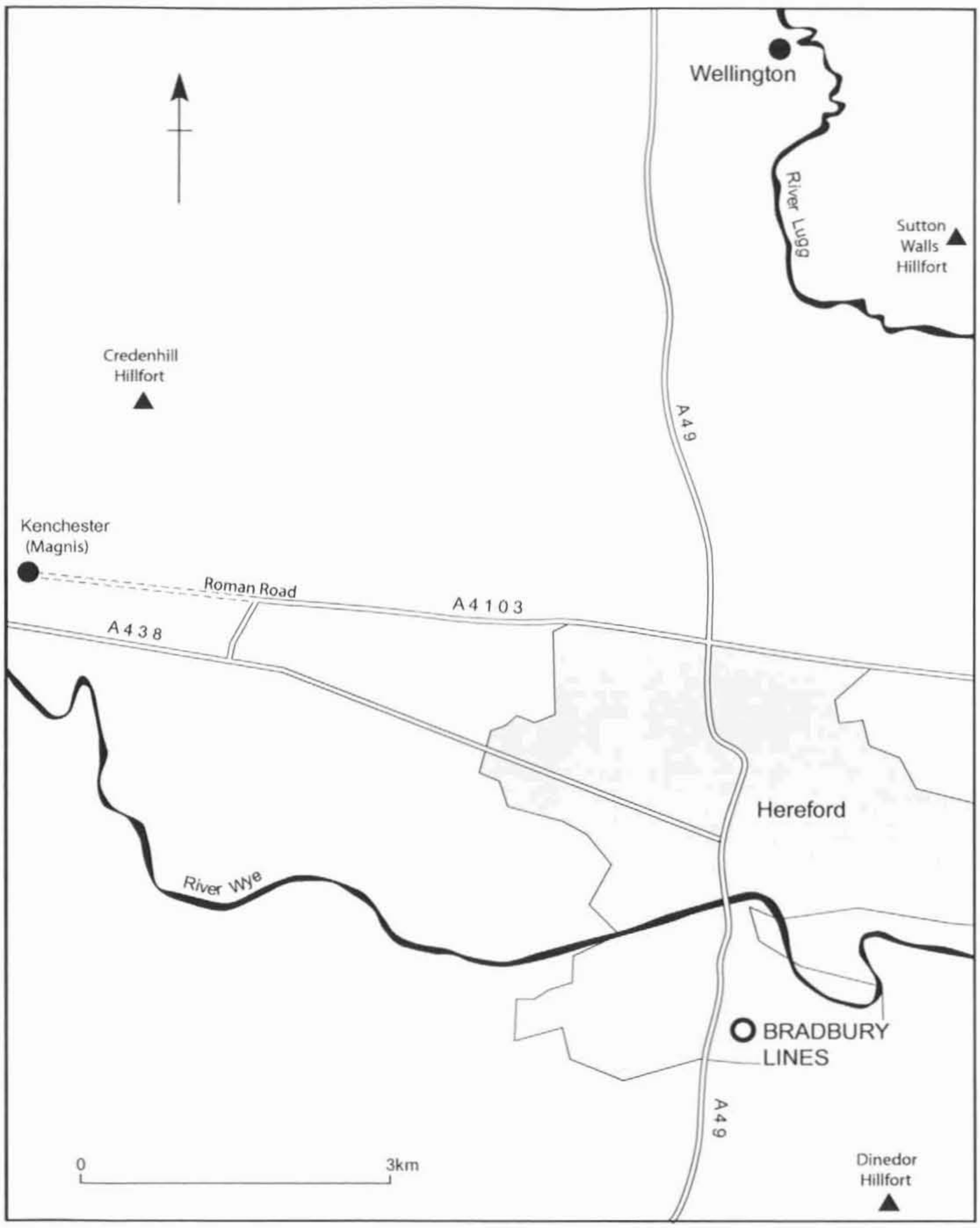
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Fig.1

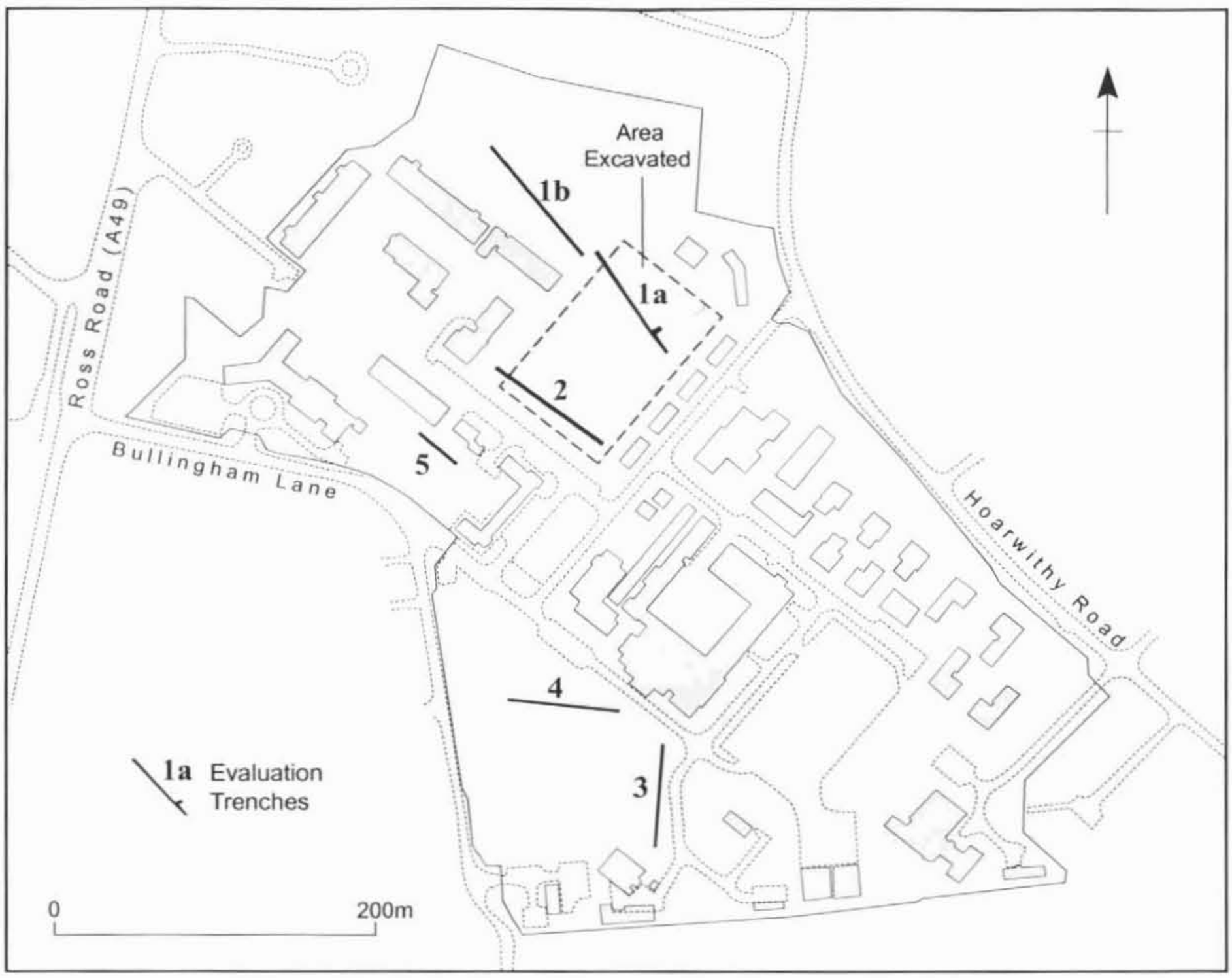
Area
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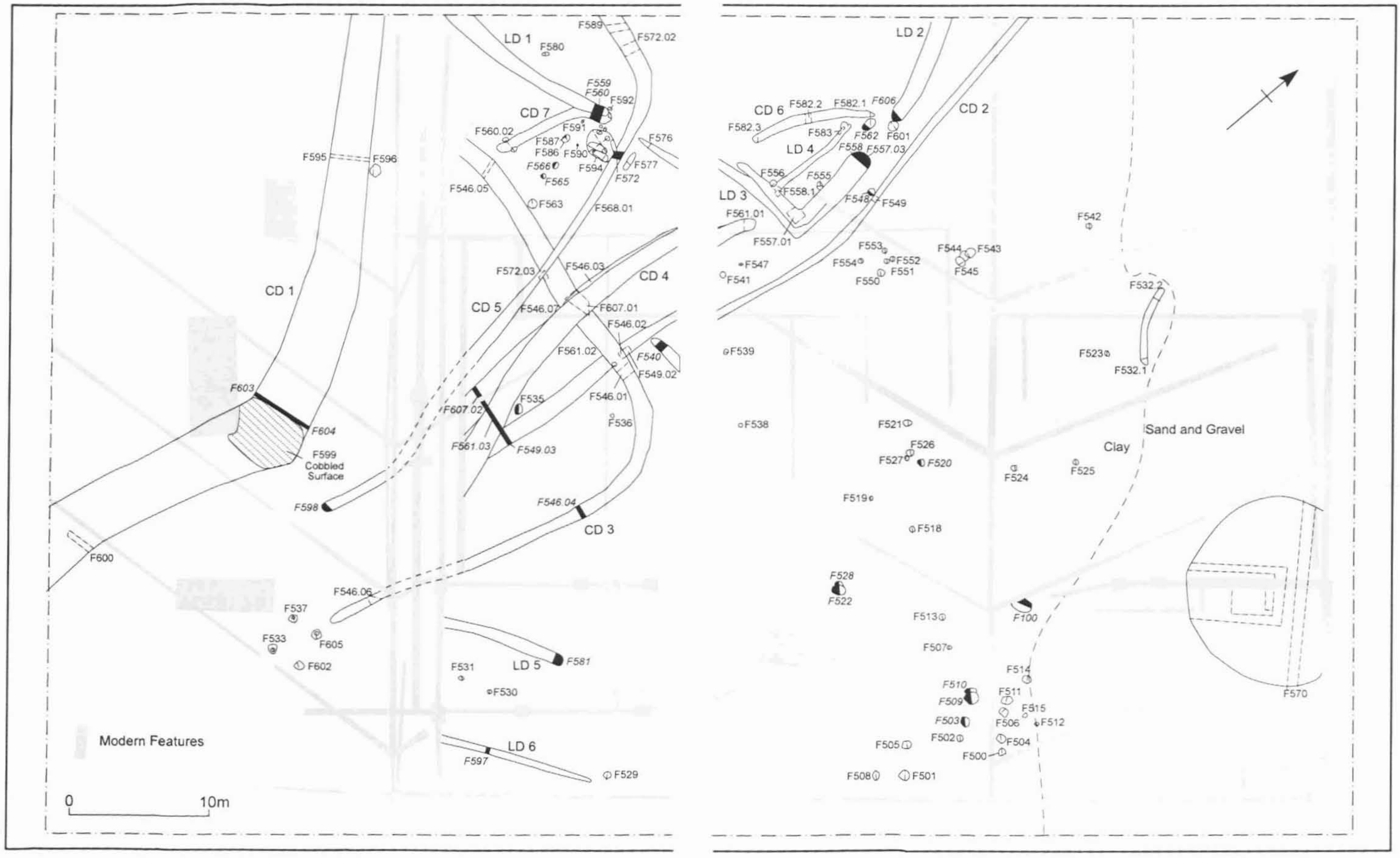
Fig.2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F582.3
F583
F562
F601
F558
F557.03
F556
F555
F558.1
F548
F549
F561.01
F557.01
F553
F544
F543
F547
F554
F552
F541
F550
F551
F545
F542
F532.2
F523
F532.1
F539
F538
F521
F526
F527
F520
F524
F525
F519
F518
F528
F522
F513
F100
F507
F514
F510
F511
F509
F515
F503
F506
F512
F502
F504
F505
F500
F508
F501
F570
Sand and Gravel
Clay
Modern Features
0
10m

Fig.3

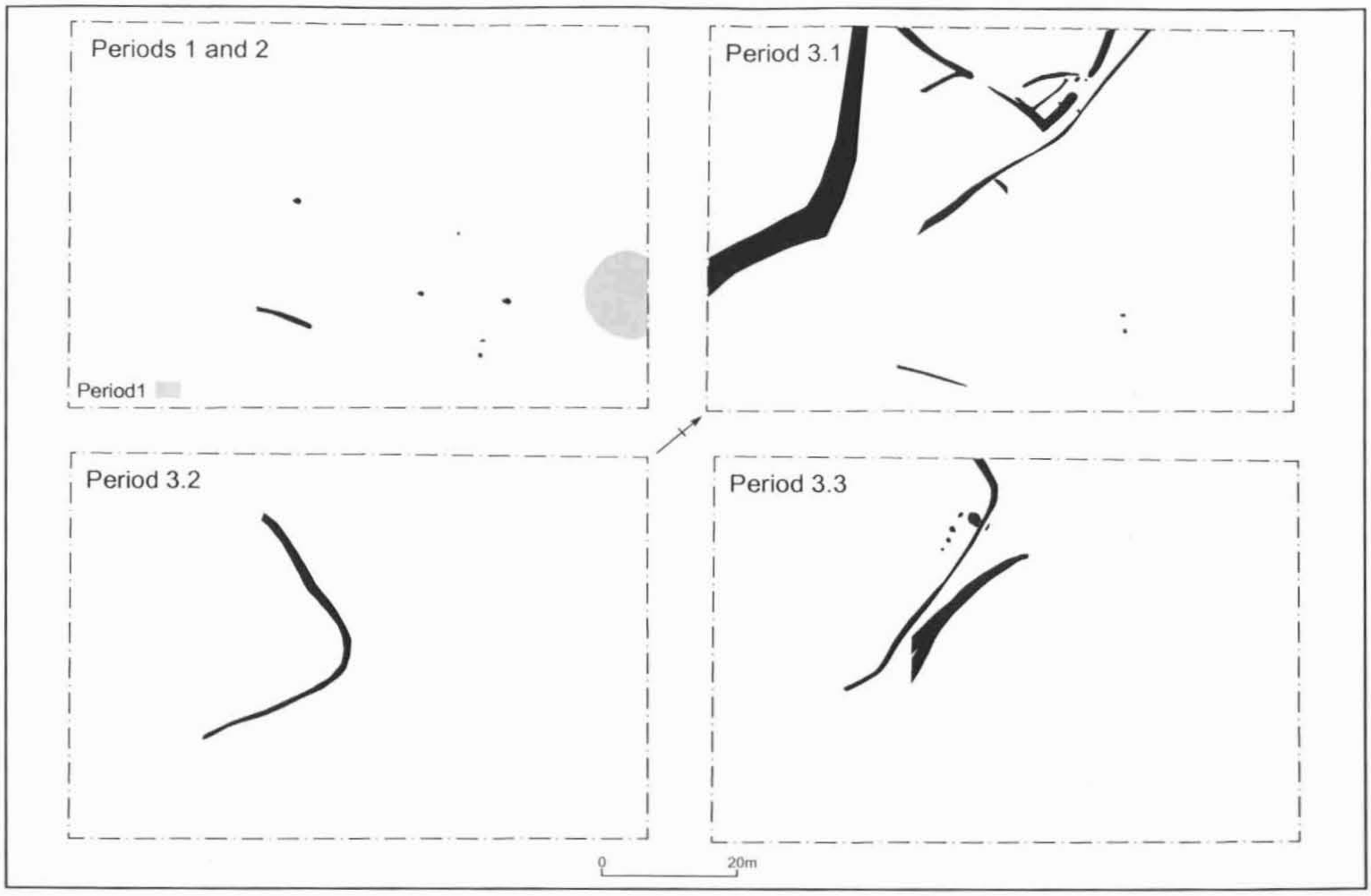

Fig.4

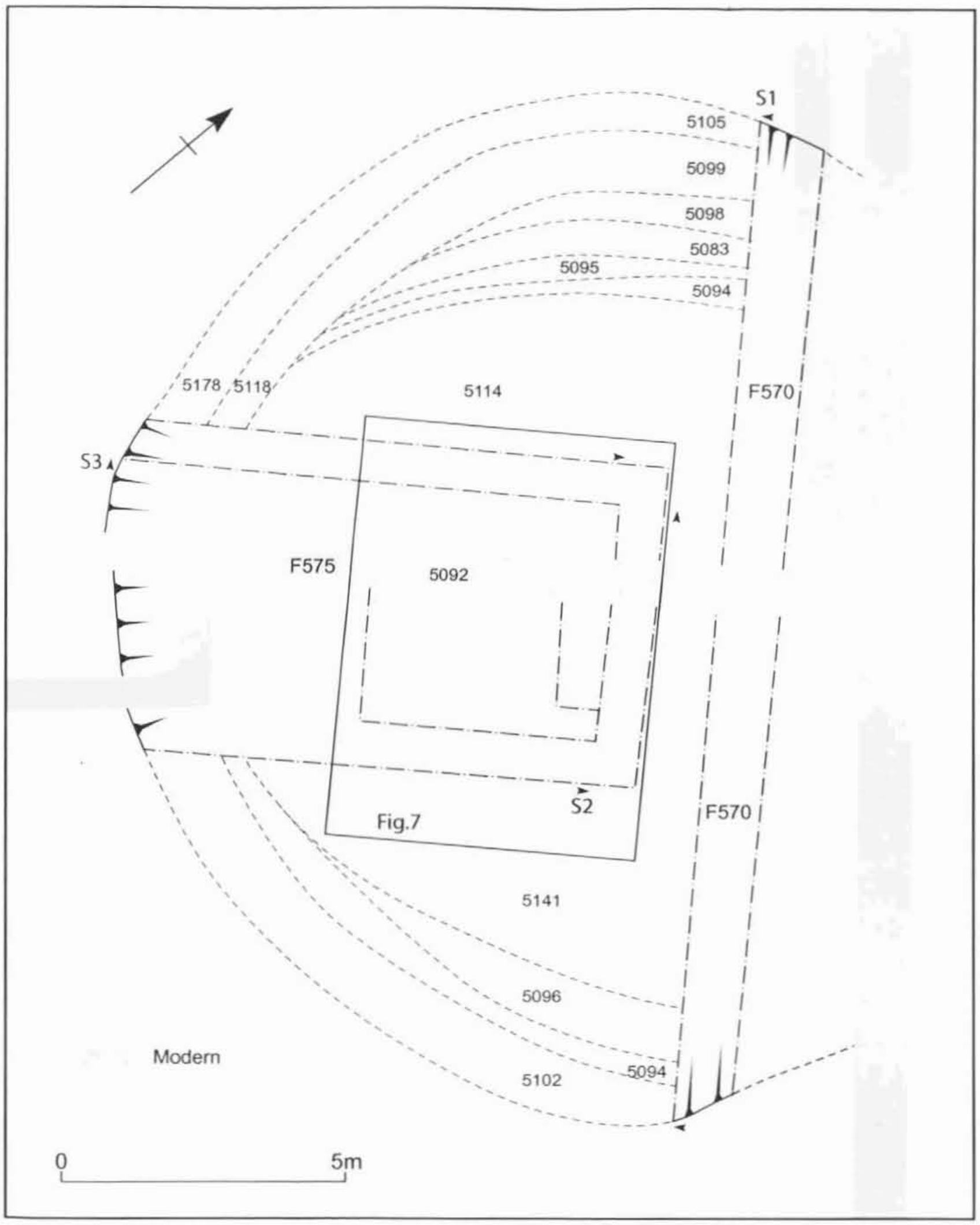
S1
5105
5099
5098
5083
5095
5094
5178
5118
5114
F570
S3
F575
5092
S2
Fig.7
F570
5141
5096
5094
5102
Modern
0
5m

Fig.5

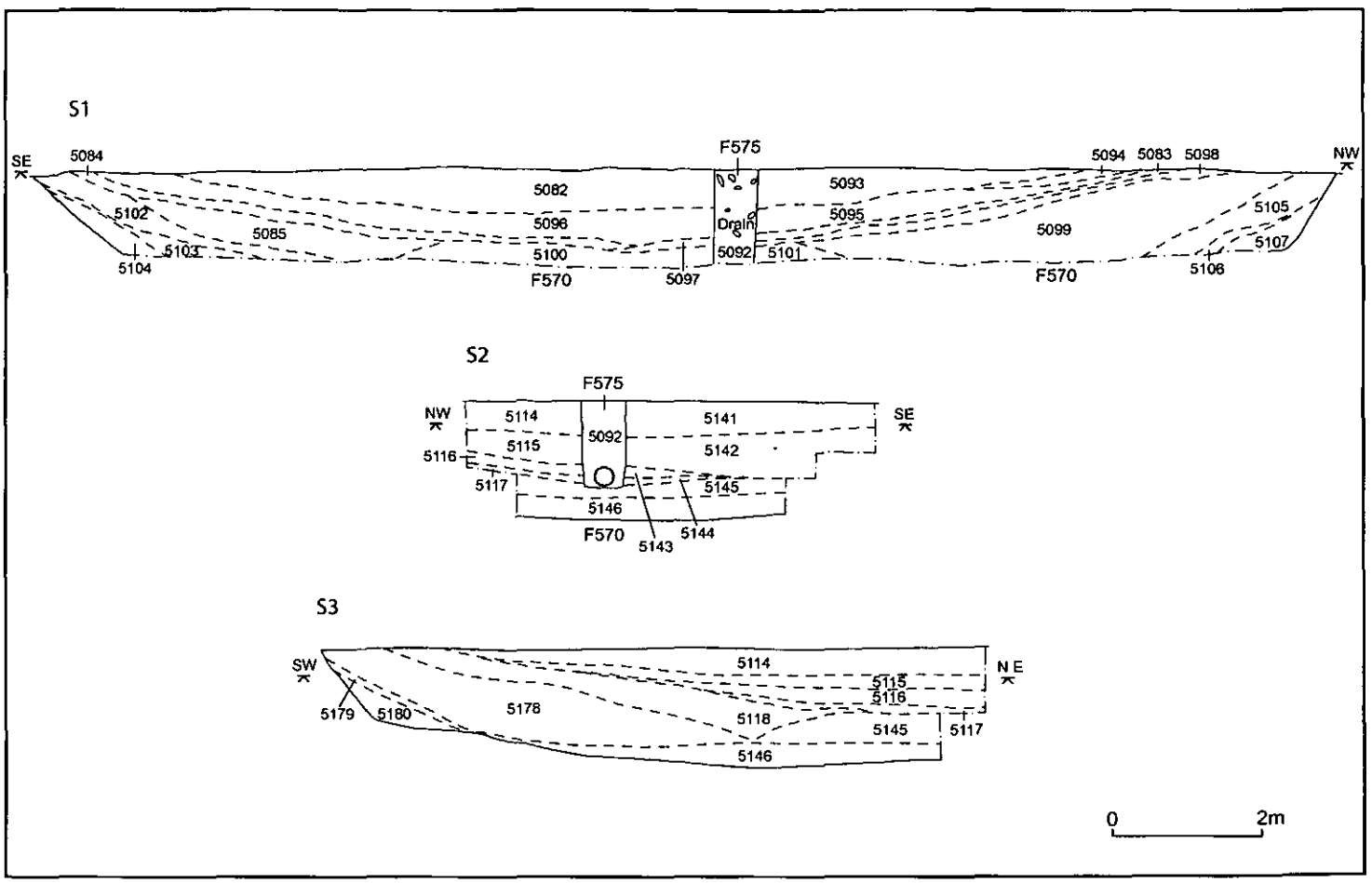
S1
SE
5084
F575
5094
5083
5098
NW
5082
5093
5102
5096
Drain
5095
5105
5085
5099
5103
5100
5092
5101
5107
5104
F570
5097
F570
5106
S2
F575
NW
5114
5141
SE
5092
5115
5142
5116
5117
5145
5146
F570
5143
5144
S3
SW
5114
N E
5115
5116
5179
5180
5178
5118
5145
5117
5146
0
2m

Fig.6

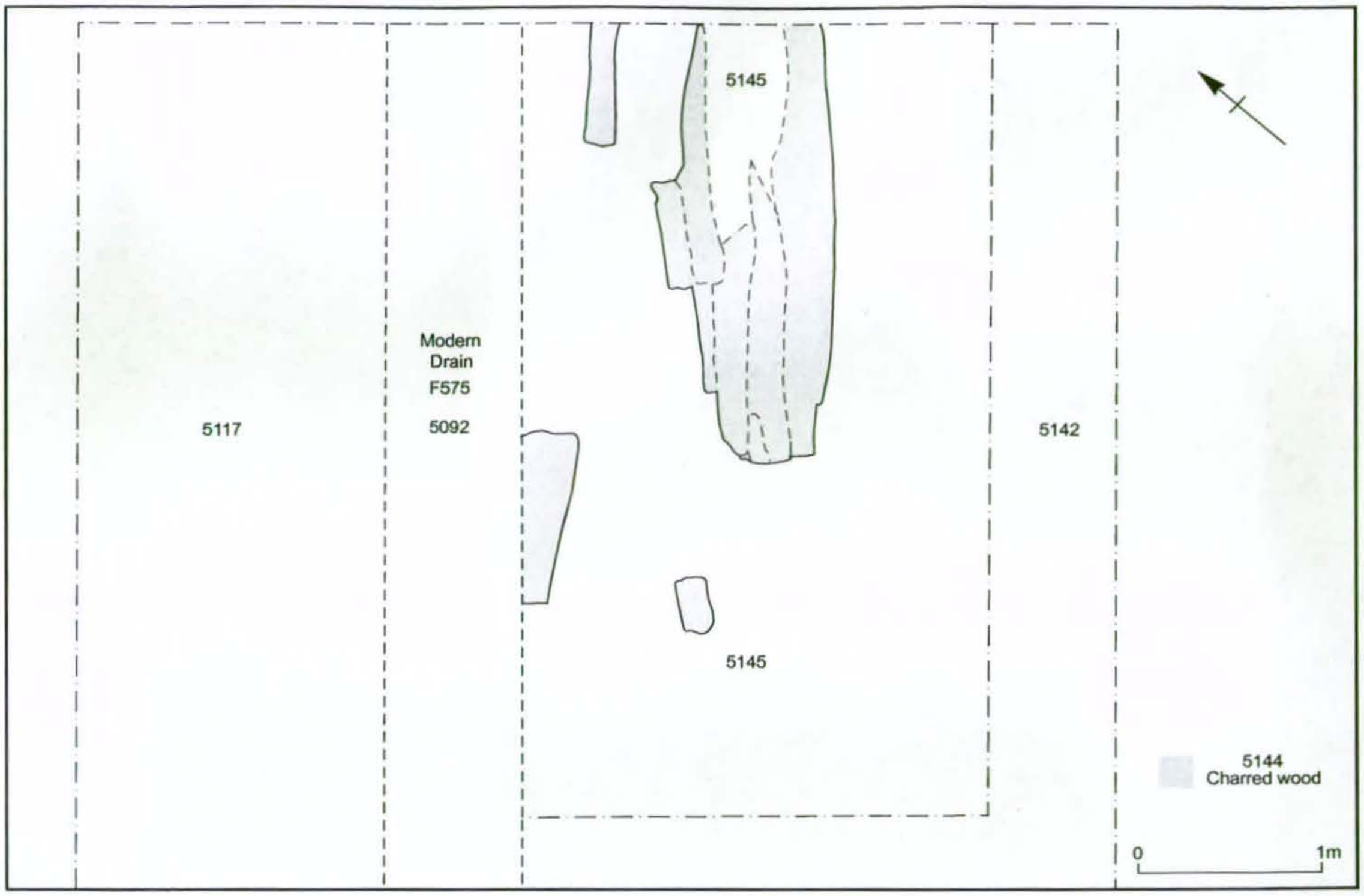
5145
Modern
Drain
F575
5117
5092
5142
5145
5144
Charred wood
0
1m

Fig.7

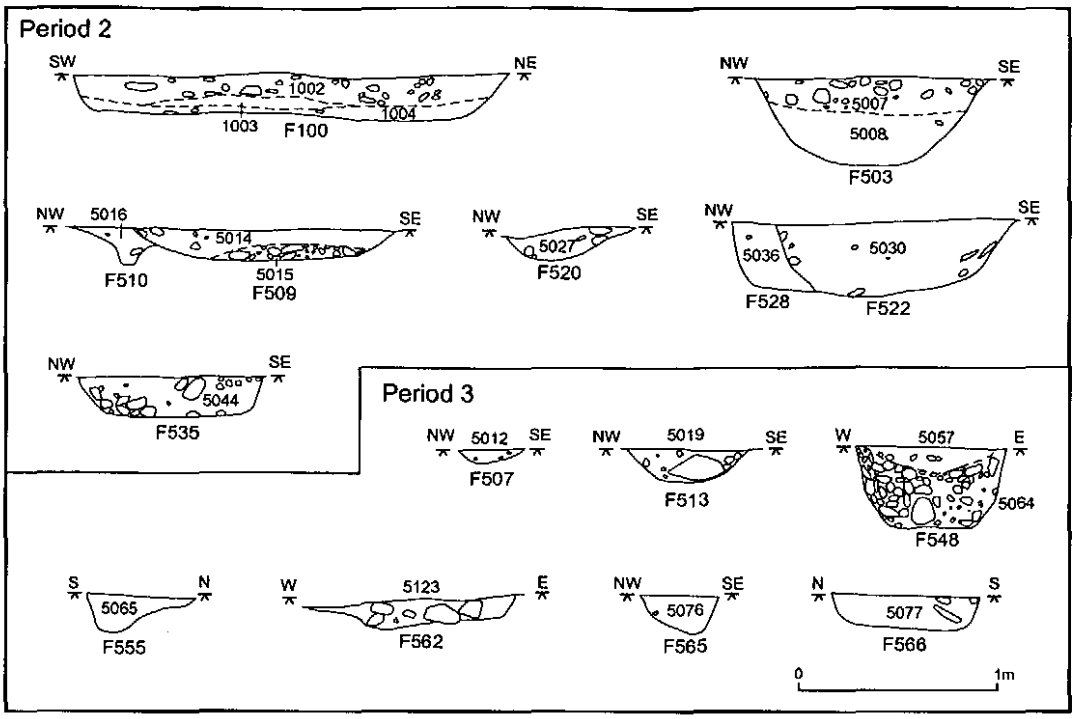
Period 2
SW
NE
1002
1003
1004
F100
NW
SE
5007
5008
F503
NW
5016
SE
5014
F510
5015
F509
NW
SE
5027
F520
NW
SE
5036
5030
F528
F522
NW
SE
5044
F535
Period 3
NW
5012
SE
F507
NW
5019
SE
F513
W
5057
E
5064
F548
S
N
5065
F555
W
5123
E
F562
NW
SE
5076
F565
N
S
5077
F566
0
1m

Fig.8

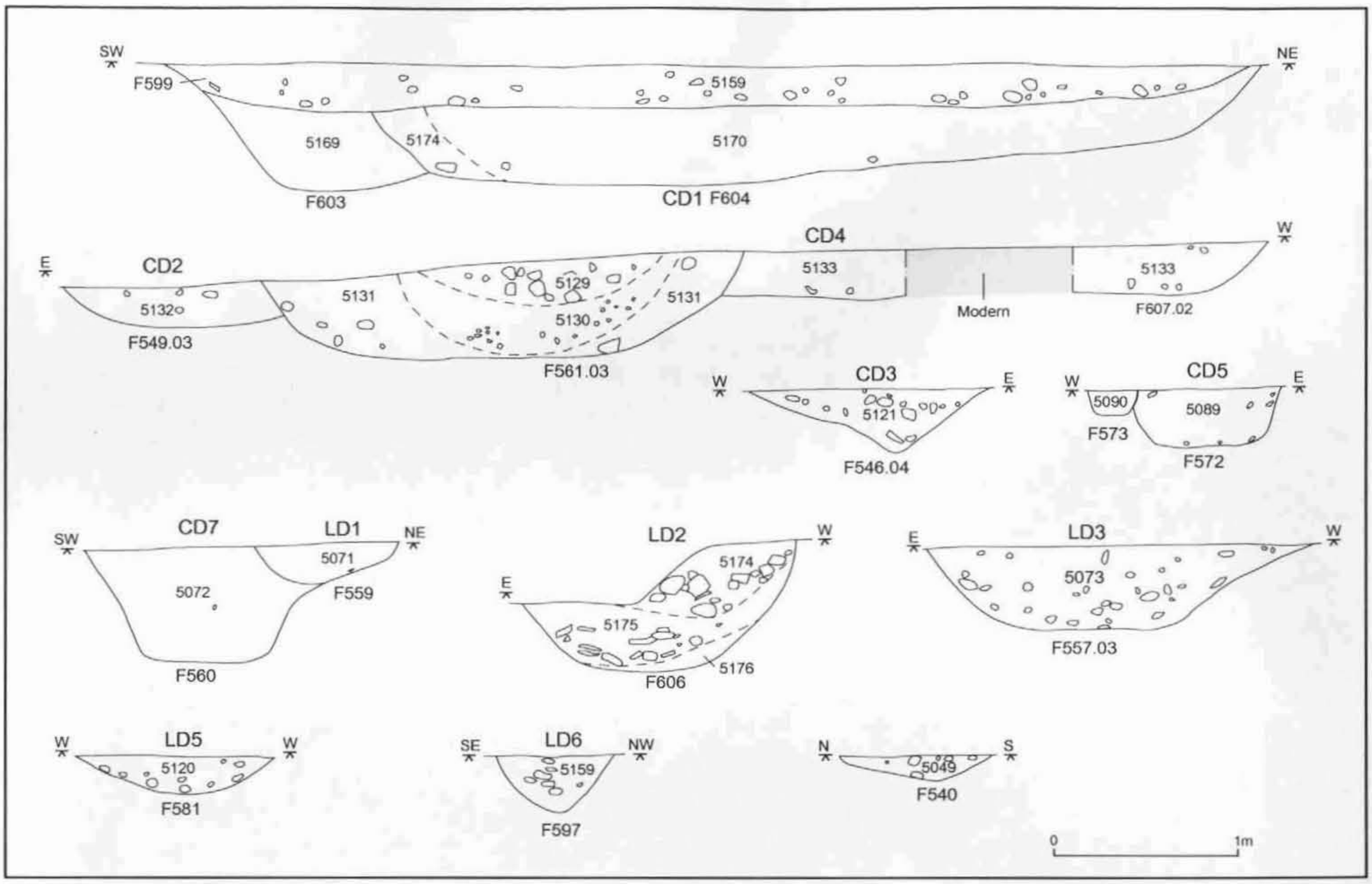
SW
NE
F599
5159
5169
5174
5170
F603
CD1 F604
CD4
W
E
CD2
5133
5133
5129
5131
5131
5132
Modern
F607.02
5130
F549.03
F561.03
CD3
CD5
W
E
W
E
5121
5090
5089
F573
F572
F546.04
CD7
LD1
LD2
LD3
SW
NE
W
E
W
5071
5174
5072
F559
5175
5073
F560
5176
F606
F557.03
LD5
LD6
W
W
SE
NW
N
S
5120
5159
5049
F581
F597
F540
0
1m

Fig.9

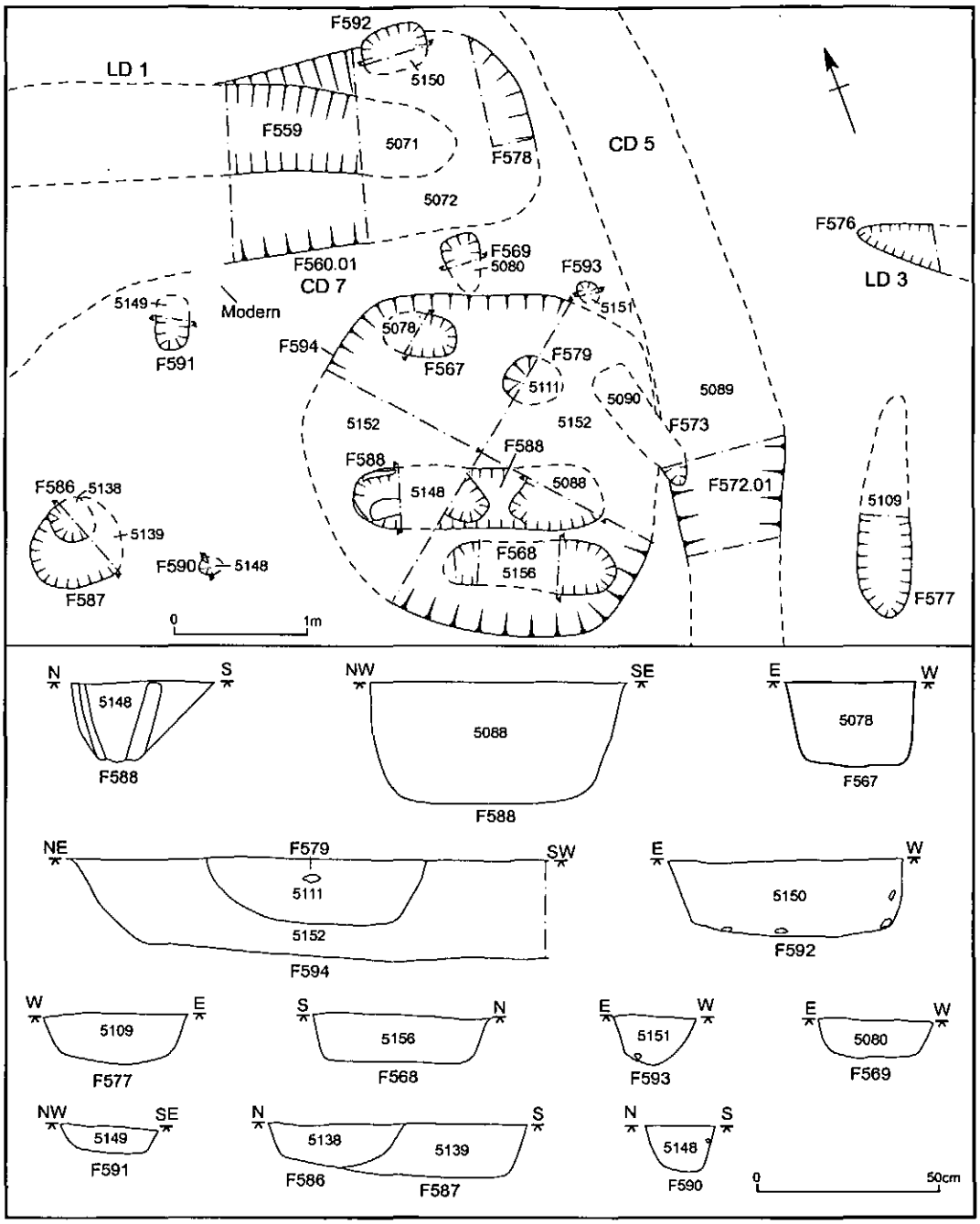
F592
LD 1
5150
F559
5071
F578
CD 5
5072
F576
F569
5080
F560.01
CD 7
F593
LD 3
5149
Modern
5151
5078
F594
F567
F579
5111
5090
5089
5152
5152
F573
F588
F588
F586
5138
5148
5088
F572.01
5139
5109
F590
5148
F568
5156
F587
F577
0
1m
N
S
5148
F588
NW
SE
5088
F588
E
W
5078
F567
NE
F579
SW
5111
5152
F594
E
W
5150
F592
W
E
5109
F577
S
N
5156
F568
E
W
5151
F593
E
W
5080
F569
NW
SE
5149
F591
N
S
5138
5139
F586
F587
N
S
5148
F590
0
50cm

Fig.10

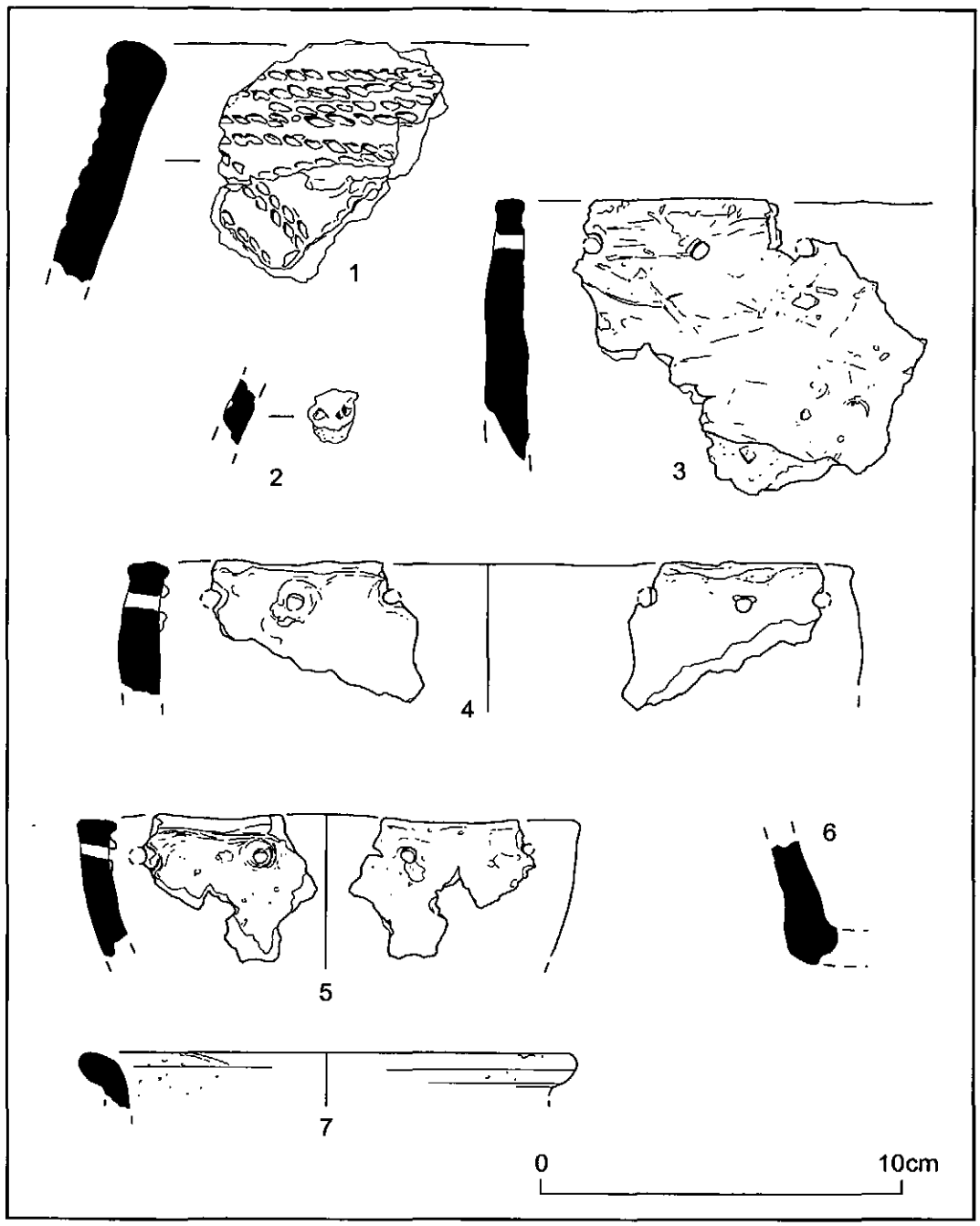

Fig.11

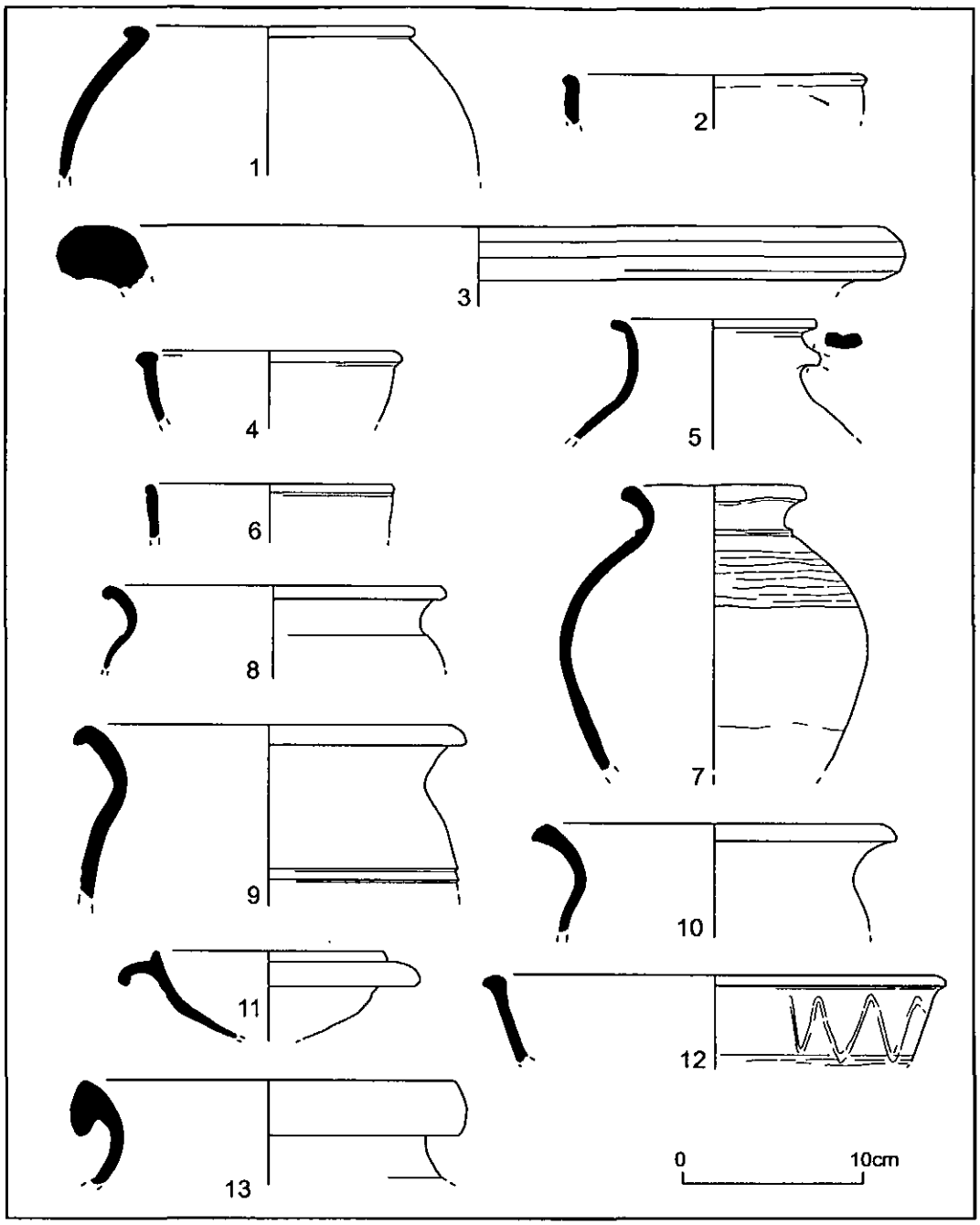

Fig.12

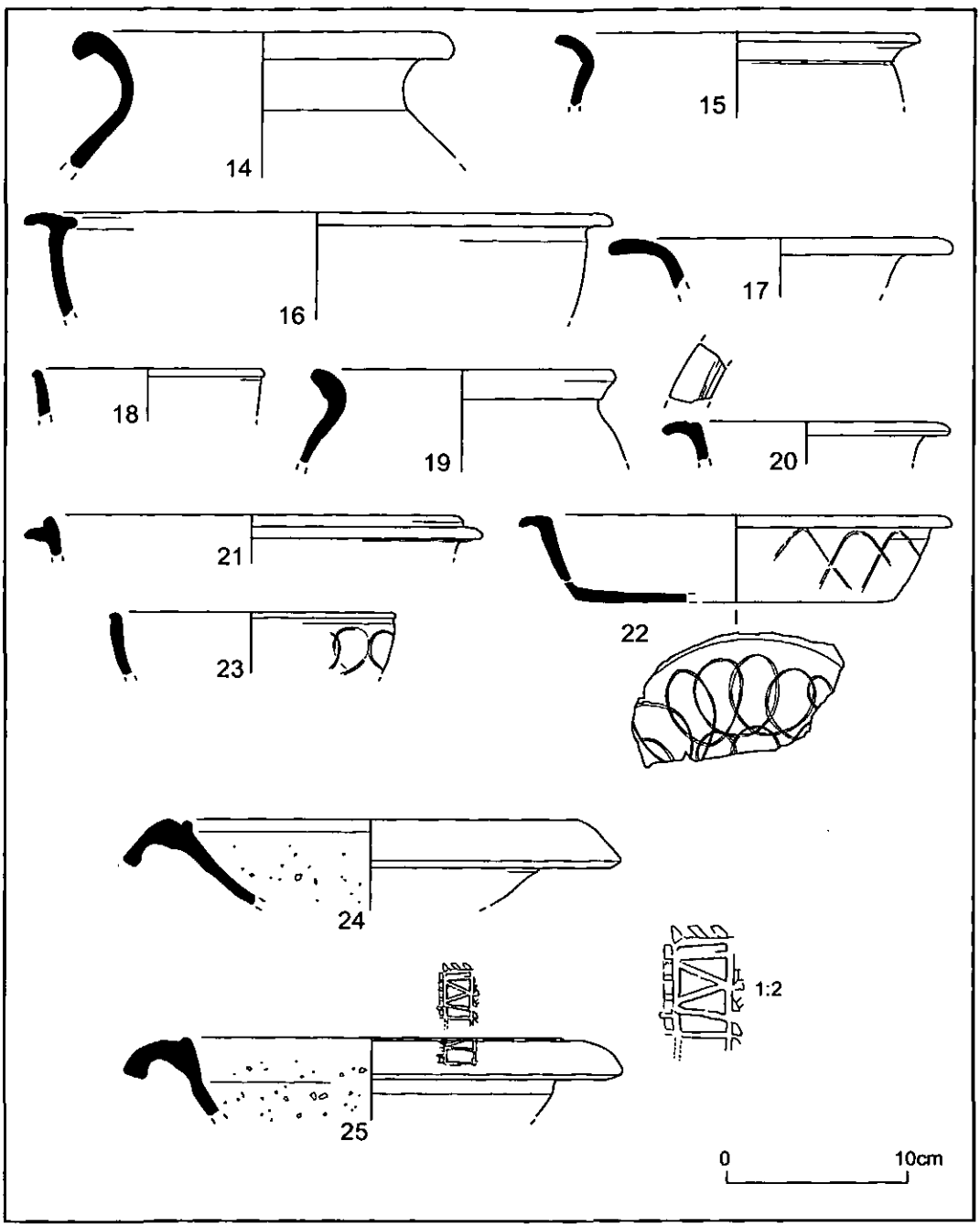

Fig.13

Fabric (% Wt)

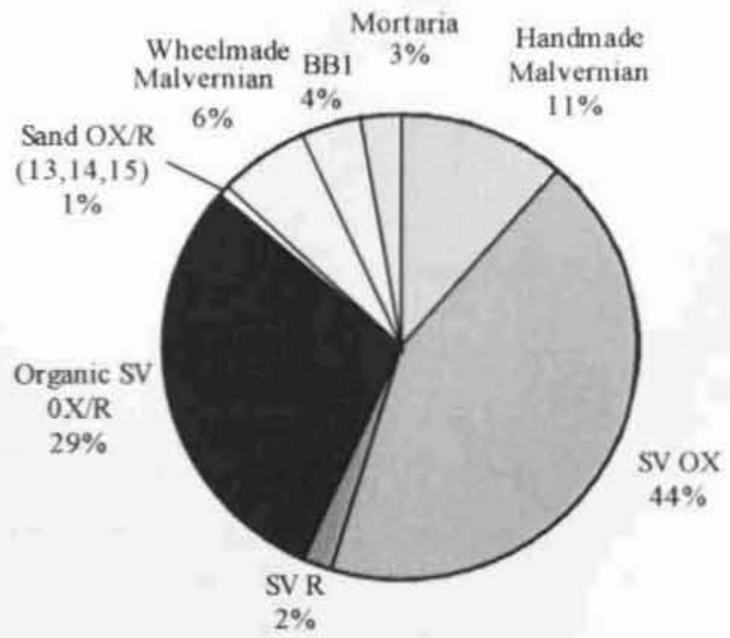

Fig.14a

Fabrics (% Rim EVE)

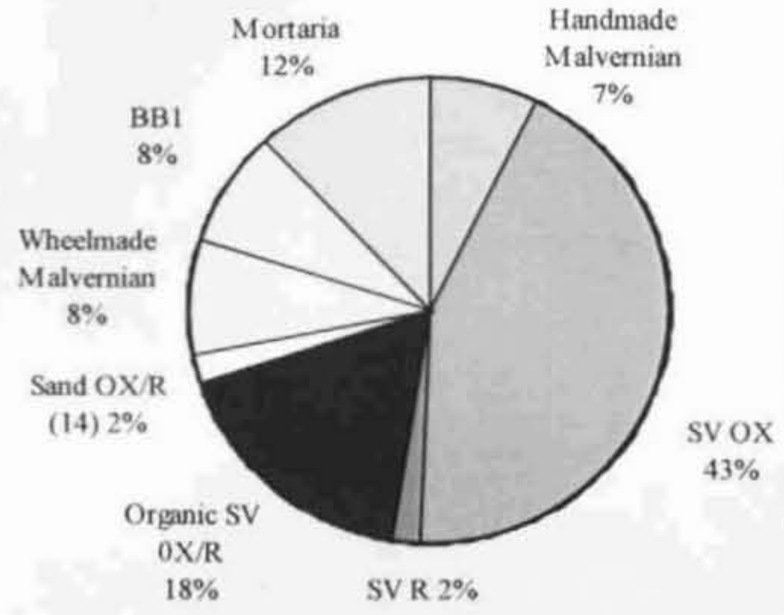

Fig.14b

F606, Fabrics (% Weight)

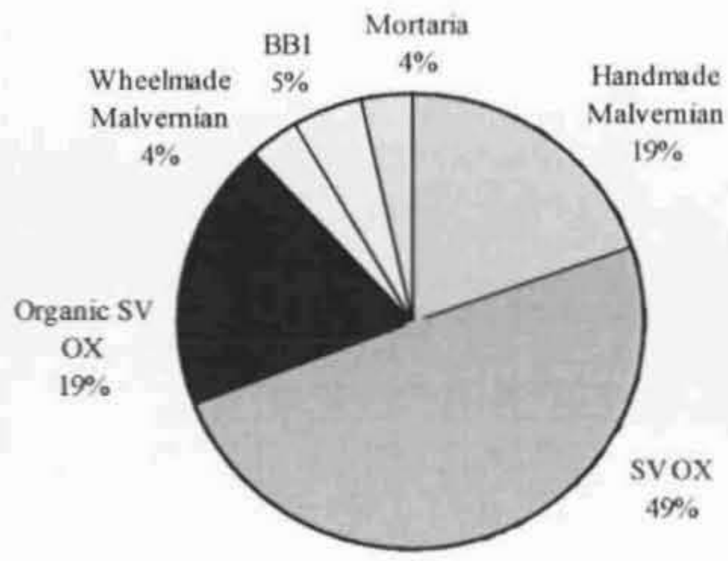

Fig.14c

F0606, Fabrics (% Rim EVE)

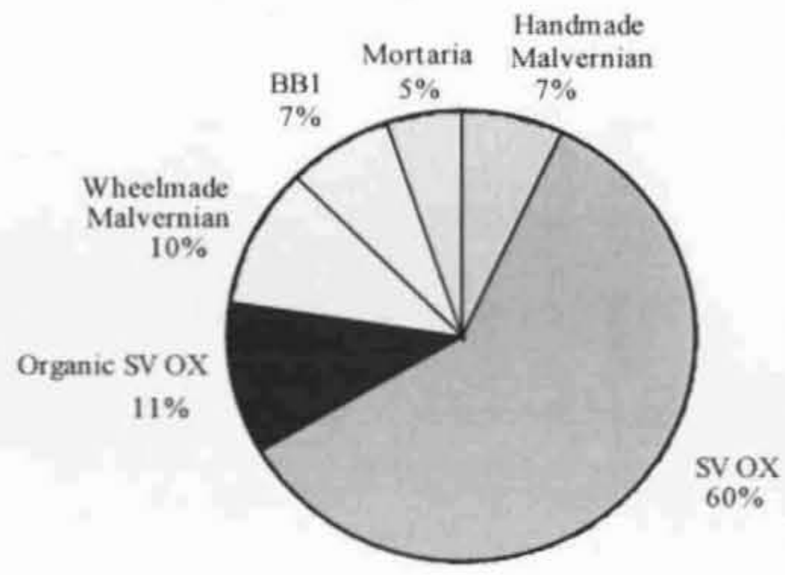

Fig.14d

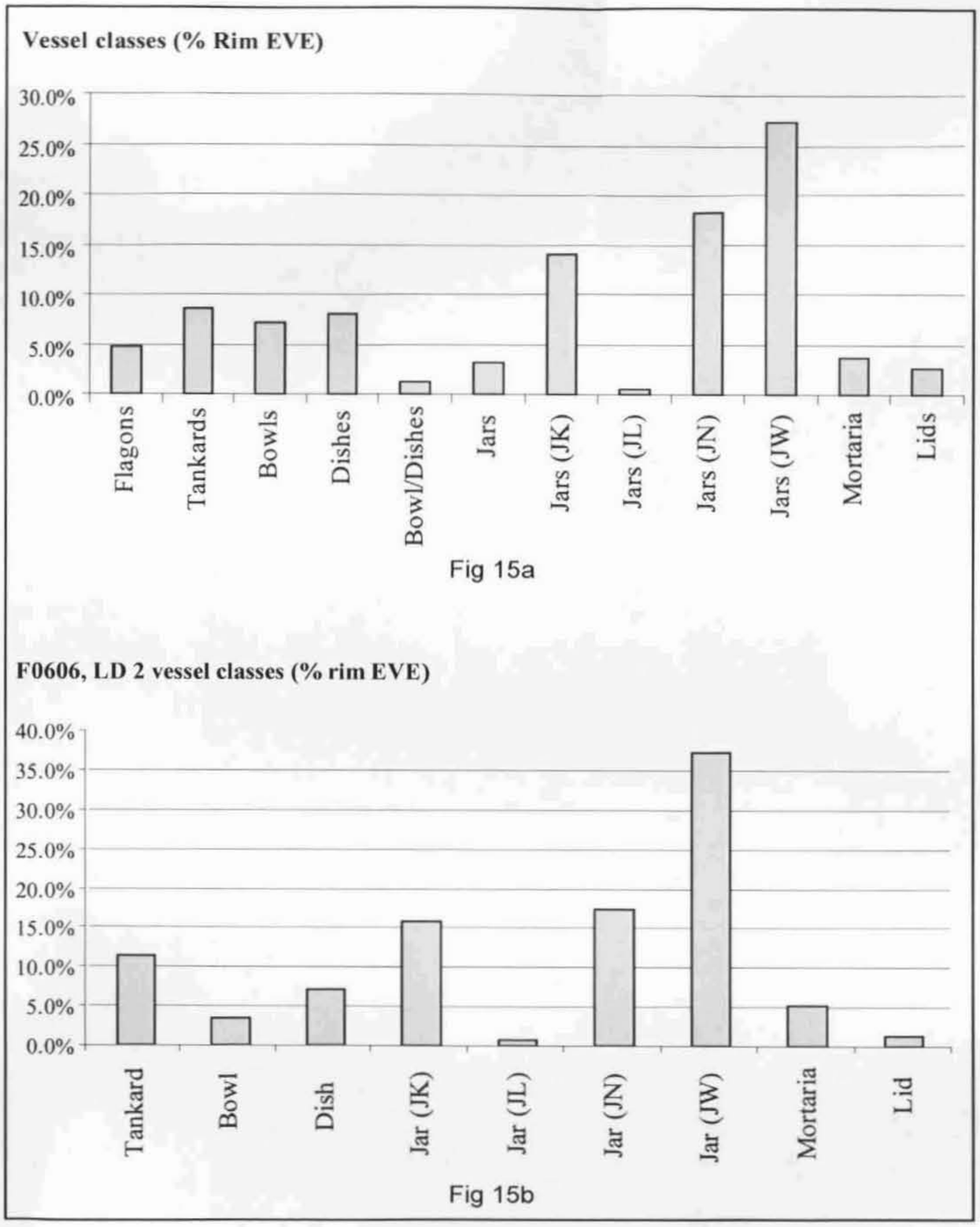

Fig 15a

Fig 15b

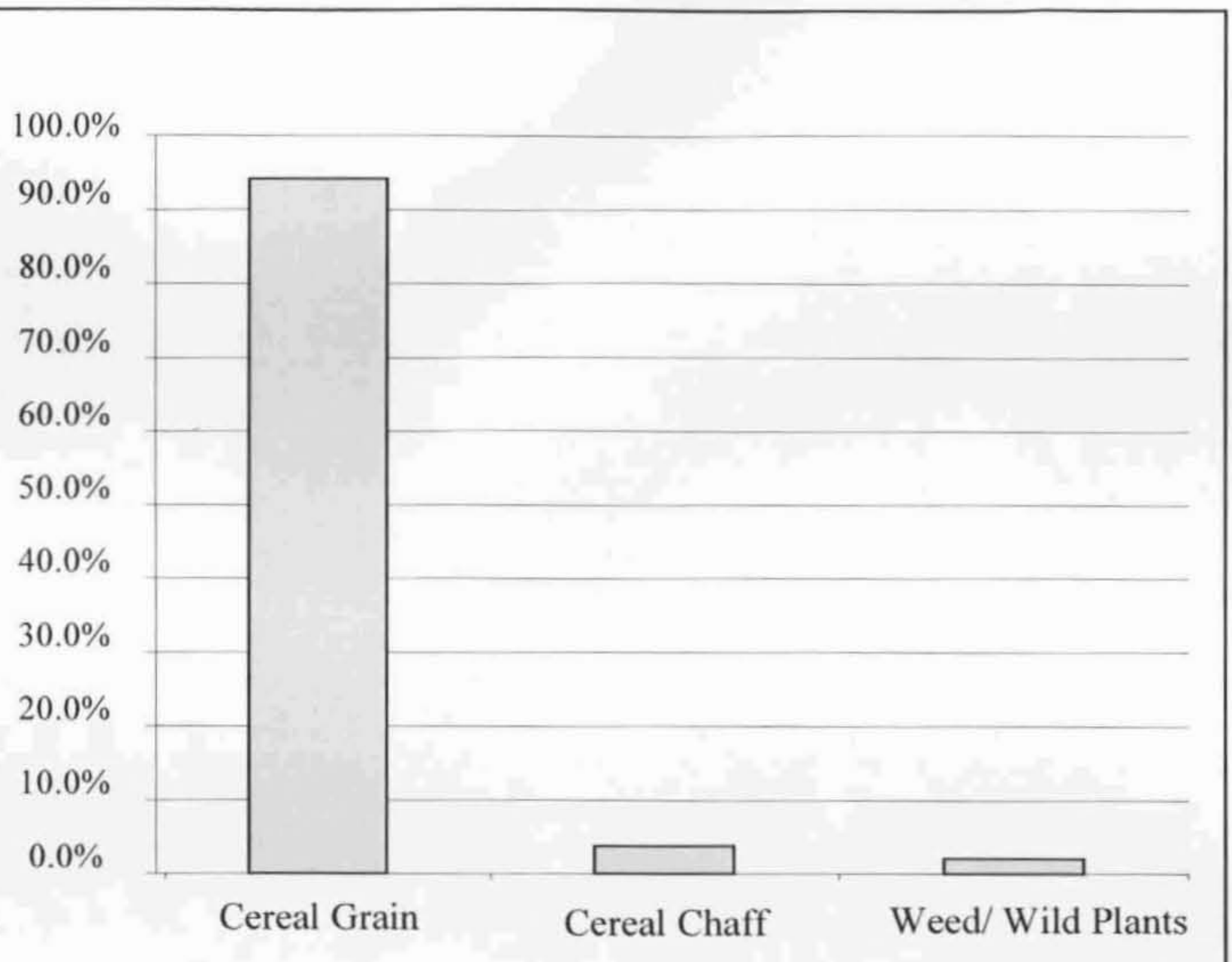
100.0%
90.0%
80.0%
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
Cereal Grain
Cereal Chaff
Weed/ Wild Plants

Fig.16

Plate 1

Plate 2

Plate 3

Table 1 Summary of Neolithic and Bronze Age pottery

Feature/ description	Context	No. sherds	Weight	Ceramic form	Period	Abrasion	Fig. no.
F570 primary fill	5146	4 (2 join)	85g	Collared Urn	EBA	Moderately abraded	11.1
F570 seals primary fill	5101	1	2g	?Beaker	Late Neo/EBA	Abraded	
F570, below burnt timbers	5085	5	10g	?Beaker domestic	Late Neo/EBA	Abraded	
	5118	1	11g	Urn	EBA	Moderately abraded	
F570 charcoal-rich layer directly overlying burnt timbers (5144)	5083	11	39g	Jars	MBA	Fresh	11.6
	5117	13	236g	Jars	MBA	Fresh	11.3 and 11.4
F570 above charcoal-rich layer	5084	4	14g	Peterborough Ware or Food Vessel	Middle Neo or EBA	Abraded	11.2
	5084	22	12g	-	EBA	Abraded	
	5084	7	36g	Jar	MBA	Fresh	11.5
	5116	1	3g	Beaker or small urn	EBA	Abraded	
F570 above 5116	5115	1	6g	Jar	MBA	Moderately abraded	
F570	unstratified	1	4g	-	EBA	Abraded	
F600 ditch CD1 (Roman)	5161	4	12g	-	EBA	Abraded	
F572 ditch CD 5 (Roman)	5089	4	6g	-	EBA	Very abraded, residual	
F546.05 ditch CD 3 (Roman)	5137	1	7g	-	Neo or EBA	Abraded	
Total		**91**	**522g**				

Key: Neo= Neolithic, EBA= Early Bronze Age, MBA= Middle Bronze Age

Table 2 Summary of Iron Age pottery

Feature/ description	Context	No. sherds	Weight	Notes	Fig. no.
F100 pit	1002	2	4g	One abraded	
F503 pit	5007	1	2g	Linear decoration	
F510 pit	5016	5	12g	Some join	
F520 pit	5027	29	61g	Same vessel as in 5030	
F522 pit	5030	17	59g	Same vessel as in 5027	11.7
F581 ditch LD 5	5120	12	26g	Unabraded, with RB pottery	
	Unstratified	2	3g		
F561.02 ditch CD 4 (Roman)	5112	1	8g	One rim same vessel as in pits F520 and F522	
Totals		**69**	**175g**		

Table 3 Summary of the Roman pottery assemblage by feature type

Feature Type	Qty	% Qty	Wt. (g)	% Wt.	Average sherd wt.	Rim EVE	% Rim EVE
Ditch	545	83.6%	9168	88.2%	17	6.45	95.4%
Hollow	5	0.8%	17	0.2%	3	0	0.0%
Layer	7	1.1%	144	1.4%	21	0	0.0%
Pit	7	1.1%	44	0.4%	6	0.12	1.8%
Post-hole	1	0.2%	39	0.4%	39	0	0.0%
Unstratified	87	13.3%	985	9.5%	11	0.19	2.8%
Total	**652**		**10397**		**16**	**6.76**	

Table 4 Summary of the Roman pottery assemblage by structure number

Group Number	Qty	% Qty	Wt. (g)	% Wt.	Average sherd wt.	Rim EVE	% Rim EVE
CD1	8	1.2%	15	0.1%	2	0	0.0%
CD2	10	1.5%	81	0.8%	8	0.06	0.9%
CD3	61	9.4%	1006	9.7%	16	0.67	9.9%
CD4	87	13.3%	637	6.1%	7	1.18	17.5%
CD5	3	0.5%	55	0.5%	18	0	0.0%
CD6	5	0.8%	29	0.3%	6	0.05	0.7%
LD1	35	5.4%	312	3.0%	9	0.25	3.7%
LD2	245	37.6%	5604	53.9%	23	3.49	51.6%
LD3	24	3.7%	194	1.9%	8	0.2	3.0%
LD4	1	0.2%	12	0.1%	12	0	0.0%
LD5	13	2.0%	57	0.5%	4	0	0.0%
LD6	1	0.2%	3	0.0%	3	0	0.0%
Other	159	24.4%	2392	23.0%	15	0.86	12.7%
Total	**652**		**10397**		**16**	**6.76**	

Table 5 Roman pottery fabrics represented in assemblage

Common Name	WCFS Fabric Code	Archive Fabric Code	Kenchester Fabric Code	Ariconium Fabric Code	Description/references (T&D = Tomber and Dore 1998)
Malvernian group A, handmade	3		Malv. HM	G11	**MAL RE A** ,T&D 147, plate 120; Peacock 1967, Peacock 1968
Severn Valley ware, oxidised	12	O02.01	SVW/SV W allied	O10-O24	Standard oxidised fabric, unsourced: **SVW OX 2**, T&D 149, Pl 122; Webster 1976, Rawes 1982
		O02.5			Fine, micaceous variant, with fine organic inclusions <0.1mm and sandstone/siltstone pellets of a similar size
		O02.6		O18?	Distinguished by the presence of off-white sandstone/siltstone pellets <1mm, giving a speckled appearance
		O02.7			A highly micaceous variant, with sparse brown sandstone/siltstone <2mm and sparse-moderate, sub-rounded quartz, mainly white
		O02.8			With very fine off-white sandstone/siltstone pellets and sub-rounded quartz
		O02.10			Similar to O02.6 but with moderate red/brown and black inclusions
		O02.11			With very fine charcoal and red/brown sandstone/siltstone pellets
Severn Valley ware, reduced	12.1	G04	Grey ware	R20, R24, R33	Standard fabric, reduced
Organic tempered	12.2	O03.1			Organic tempered variant, oxidised (elongated voids

SVW, oxidised					appearing as black/dark grey streaks in fracture.
Fine, organic tempered SVW, oxidised	12.21	O03.11		?O18, ?O22	Fine organic tempered, cf Evans et al. 2000, 17 fabrics O1 and O5?
Organic tempered SVW, reduced	12.3	G05			Bryant and Evans 2004, 254
Sandy ware, oxidised	13	O06.18	Sandy Ox.		Bryant and Evans 2004, 257
Sandy ware, reduced	14	G012.3	Sandy Red.		Bryant and Evans 2004, 257-9
Coarse sandy ware, reduced	15	G012.1	Sandy Red.		Bryant and Evans 2004, 259
Malvernian, wheelmade	19	N04	Malv. WM		Bryant and Evans 2004, 260-1
South-east Dorset BB1	22	B02	BB1	B11	**DOR BB 1**, T&D 127, pl 100; Williams 1977; Seager Smith and Davies, 1993
South-west white slipped ware mortaria	37.4	M015		M50?	**SOW WS**, T&D 192, pl 60a-b
Wroxeter white ware mortaria	34	M07a	West Midlands, WM		**WRX WH**, T&D 179, pl 150a-c
Oxfordshire white mortaria	38	M04c	Oxford WW	M25	**OXF WH**, T&D 174, pls 145-6 a-b; Tomber 1985 fiche, 11
Caerleon mortaria	110	M08	Caerleon	M40	**CAR CC/OX?**, T&D 204-5, pl 170, 171a-b, Tomber 1985 fiche 12. No traces of slip survive on the single sherd recovered
Central Gaulish Samian	43.21	S02	CG samian	S02	**LMV SA**, T&D , 30. pl 19

Table 6 Summary of the Roman pottery by fabric

WCFS Fabric Code	Archive Fabric Code	Qty	% Qty	Wt. (g)	% Wt.	Av. Sherd Wt.	Rim EVE	% Rim EVE
3	N02.1	51	7.8%	1192	11.5%	23	0.54	7.3%
12	O02.01	149	22.9%	1126	10.8%	8	0.39	5.3%
	O02.5	37	5.7%	618	5.9%	17	0.43	5.8%
	O02.6	37	5.7%	548	5.3%	15	0.13	1.8%
	O02.7	1	0.2%	4	0.0%	4	0	0.0%
	O02.8	39	6%	623	6%	16	1.22	16.5%
	O02.10	71	10.9%	1331	12.8%	19	0.73	9.9%
	O02.11	9	1.4%	249	2.4%	28	0.3	4.1%
12.1	G04	22	3.4%	207	2.0%	9	0.13	1.8%
12.2	O03.1	13	2.0%	122	1.2%	9	0	0.0%
12.21	O03.11	110	16.9%	2906	28.0%	26	1.3	17.6%
12.3	G05	1	0.2%	31	0.3%	31	0	0.0%
13	O06.18	1	0.2%	11	0.1%	11	0	0.0%
14	G012.3	8	1.2%	48	0.5%	6	0.15	2.0%
15	G012.1	1	0.2%	21	0.2%	21	0	0.0%
19	N04	56	8.6%	638	6.1%	11	0.59	8.0%
22	B02	41	6.3%	439	4.2%	11	0.6	8.1%
32	M07a	1	0.2%	75	0.7%	75	0.7	9.5%
37.4	M015	1	0.2%	194	1.9%	194	0.18	2.4
38	M04c	1	0.2%	7	0.1%	7	0	0.0%
43.2	S02	1	0.2%	2	0.0%	2	0	0.0%
110	M08	1	0.2%	5	0%	5	0	0%
Total		**652**		**10397**		**16**	**7.39**	

Table 7 Vessel classes within assemblage

Form name	Description
B/D	Bowl/Dish
BC	Curving sided bowls
BCB	Shallow, curving sided bowls
BI	Flanged bowl
DA	Straight sided dishes
DB	Curving sided dishes
FB	Squat, wide-mouthed, two-handled flagon
J	Jar
JK	'Cooking pot' jars
JL	Storage jar (thick walled vessels usually more than 40cm tall)
JN	Narrow mouthed jars (i.e. rim diameter less than 2/3 girth)
JW	Wide mouthed jars (i.e. rim diameter usually exceeds girth)
LA	Flat, conical, domed lid
LAA	Flat, conical, domed, concave lid
MA	Hook rimmed/bead and flange mortaria
NA	Upright tankard
NB	Moderately splayed tankard

Table 8 quantification of fired clay

Context	Feature	Group no.	Count	Weight (g)
1002	F100		2	50
5011	F506		1	4
5018	F512		3	<1
5027	F520		1	2
5049	F540		1	4
5055	F546.1	CD 3	2	4
5057	F548		2	13
5075	F563		1	<1
5076	F565		1	13
5083	F570		4	103
5084	F570		2	4
5113	F580		1	4
5116	F570		41	370
5117	F570		18	360
5118	F570		1	23
5153	F595	CD 1	10	16
5159	F599		6	61
TOTAL			**97**	**1031g**

Table 9 catalogue and quantification of slag, tuyères and associated fired clay

Feature	Context	Type	Count	Weight	Comments
F100	1002	Tuyère	1	46g	Some missing; remains of oval air hole; rim to air hole 35mm; orange-oxidized back; 22mm thick.
F100	1002	Fired clay	1	4g	Probably a part of the tuyère.
F100	1002	Slag	1	6g	Iron-smithing slag. Part of a very dense hearth bottom?
F100	1002	Protohb	1	35g	Iron-smithing slag. 4 abraded fragments; charcoal fuel.
F507	5012	Clinker	1	1g	Partially burnt coal.
F599	5159	Tuyère	2	35g	Fragments with bubbly slagged face, 1 x pink/mauve back and part of air hole; 1 x orange back. Maximum thickness 12mm.
F599	5159	Vitclay	2	20g	Tuyère fragments? Orange back; slagged face; part of rim? Maximum thickness 18mm.
F599	5159	SSL	3	23g	Charcoal fuel. Totally encrusted with soil and corrosion products.
F599	5159	HB	2	136g	Charcoal fuel. Totally encrusted with soil and corrosion products. 1 partially magnetic. 50 x 50 x 25mm and 45 x 50 x 25mm.
F599	5159	HB	16	372g	Fragments - recent breaks and some missing. Abraded and dense, probably originally small HBs. Charcoal fuel. Totally encrusted with soil and corrosion products.
F599	5159				No hammerscale in residue from washing.

Codes used in the catalogue:

Protohb	proto-hearth bottom
HB	Plano-convex slag accumulation (commonly known as hearth bottom).
SSL	Smithing slag lump.
Vitclay	Partially vitrified fired clay.

Table 10 Radiocarbon dating results

Context/ Feature/	Lab. code	Material	Conventional Age	1 sigma cal. (68.2 % probability)	2 sigma cal. (95.4 % probability)
5146 F570 pond barrow primary fill	Wk-16867	wood charcoal	4336±36BP	3010BC – 2900BC	3090BC – 3060BC (2.8%) 3030BC – 2890BC (92.6%)
5144 F570 pond barrow pyre material	Wk-16868	wood charcoal (oak *Quercus* sp.)	2915±40BP	1210BC – 1030BC	1270BC – 1000BC
5144 F570 pond barrow	Wk-16869	burnt animal bone	2968±34BP	1260BC – 1120BC	1310BC – 1050BC
5081 F568 fill of oven	Wk-16870	wood charcoal (hawthorn group or blackthorn)	1902±50BP	20AD – 140AD (59.3%) 150AD – 170AD(4.2%) 190AD – 210AD(4.7%)	AD – 240AD
5044 F535 fill of pit	Wk-16871	charred wheat grain (*Triticum* sp.)	2401±33BP	520BC – 400BC	740BC – 80BC(10.3%) 670BC – 640BC(2.2%) 550BC – 390BC(82.8%)

2386 BC neo

965 BC barrow

1018 BC barrow

48 AD roman pit(dom?)

451 BC IA pit

Table 11 charred plant remains from pit F535

Feature	**F535**	
Context	**5044**	
Sample volume	**20 L**	
Flot volume	**100 ml**	
Proportion of flot sorted	**50%**	
Seeds per litre of sediment	**129.6**	
Latin Binomial		**Common Name**
Cereal Grain		
Hordeum sp. - hulled	162	Hulled barley
Triticum cf. *dicoccum* Schübl.	70	Possible emmer
Triticum spelta L.	190	Spelt
Triticum sp.	317	Wheat
Cereal – Indeterminate	150*	Indeterminate cereal
Cereal/ Large Grass – Indeterminate caryopsis	300*	Cereal/ Large grass
Cereal/ Large Grass – Detached embryo	30	Cereal/ Large grass
Cereal/ Large Grass – possible sprout	1	Cereal/ Large grass
Cereal Chaff		
cf. *Triticum dicoccum* Schübl	1	Possible emmer
Triticum spelta L. – glume base	13	Spelt
Triticum sp. – indeterminate glume base	25	Glume-wheat
Triticum sp. – glume	1	Wheat
Triticum sp. – free-threshing type rachis node	4	Wheat – free-threshing type
Cereal – indeterminate rachis internodes	4	Indeterminate cereal
Cereal – indeterminate glume fragments	1*	Indeterminate cereal
Weed/ Wild Plants		
Lapsana communis L.	1	Nipplewort
Poa sp.	1	Meadow-grass
Avena sp.	2	Cultivated/ Wild oat
Avena sp. – floret base	2	Cultivated/ Wild oat
Avena sp./ *Bromus* sp.	14*	Oat/ Brome grass
Bromus sp.	5	Brome grass
Indeterminate	2	Indeterminate
TOTAL	**1296**	

- = estimate count

Table 12. Charcoal from F570 Bronze Age pond barrow and Roman oven F568

Context	Feature	*Acer*	*Alnus*	*Corylus*	*Fraxinus*	*Pomoideae*	*Prunus*	*Quercus*	*Ulex/ Cytisus*
5083	F570	-	4	3	4s	2	-	2h, 3s	-
5144	F570	-	-	-	-	-	-	118h,124s	-
5081	F568	3r	-	-	-	83r	7r	-	2r

Key: h = heartwood; r = roundwood (diameter <25mm); s = sapwood (diameter unknown)
The number of fragments identified is indicated

Table 13 Roundwood from the Roman oven feature, F568: stem dimensions and ages

Species	**Roundwood**		
	No. of growth rings	**Diameter (mm)**	**Growth rate**
Acer campestre, field maple	9	12	Moderate
Pomoideae, hawthorn/ *Sorbus* group	2	5	Moderate
	4	10	Moderate
	5	7	Moderate
	5	7	Moderate
	5	15	Moderate
	6	10	Fastgrown
	7	7	Moderate
	8	10	Moderate
	10	10	Moderate
	10	11	Moderate
	11	10	Slow/ moderate
	13	15	Moderate
	13	15	Moderate
	13	18	Slow/ moderate
	13	20	Slow/ moderate
	14	20	Slow/ moderate
	15	15	Slow/ moderate
	15	15	Slow/ moderate
	15	18	Slow/ moderate
	*c.*16	15	Slow/ moderate
Prunus spinosa, blackthorn	10	8	-
Ulex sp., gorse/ *Cytisus scoparius*, broom	*c.* 10	20	Moderate

Table 14 pollen and spores from sample 5073 (F557.03, LD 3)

Spores	**Count**	**% Total Pollen**	**Common Name**
Pteridium	1	0.5	bracken
Polypodium	1	0.5	polypody
Pollen			
Ranunculus-tp.	1	0.5	buttercup, crowfoot
Quercus	+	+	oak
Alnus	+	+	alder
Corylus	3	2	hazel
Chenopodiaceae	2	1	goosefoot
Caryophyllaceae	7	4	stitchwort family
Persicaria bistorta-tp.	3	2	bistort etc
Trifolium repens-tp.	1	0.5	white clover
Plantago lanceolata	10	5	ribwort plantain
Cirsium-tp	1	+	thistles
Lactuceae	106	55	a group of composites
Aster-tp	7	3.5	daisies etc
Cyperaceae	1	0.5	sedges
Poaceae	43	23	grasses
Cerealia-tp.	4	2	cereals
Total Pollen	**191**	**100**	

+ only recorded as present or less than 1%