EAST ANGLIAN ARCHAEOLOGY

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THE EXCAVATION OF ROMANO-BRITISH POTTERY KILNS AT ELLINGHAM, POSTWICK AND TWO MILE BOTTOM, NORFOLK, 1995–7

East Anglian Archaeology
Archaeology and Environment
Norfolk Museums and Archaeology Service

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Frontispiece. Two Mile Bottom, kiln *548*: central pedestal, showing fingerprints (5738 THD 179, Sarah Bates)

The Excavation of Romano-British Pottery Kilns at Ellingham, Postwick and Two Mile Bottom, Norfolk, 1995–7

by Sarah Bates and Alice Lyons

with contributions from
Trevor Ashwin, John A. Davies, Rowena Gale, Kay Hartley, Julia Huddle, Mark Noel, Sarah Percival, Peter Murphy and David Williams

illustrations by
David Dobson, Mark Hoyle and Piers Wallace

and photographs by
Sarah Bates, Jason Dawson and David Wicks

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Cover illustration
Hand cleaning around kiln *674/548* (5738 THD 182). Photo: Sarah Bates

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Ellingham
Grateful acknowledgement is due to Mr and Mrs Chapman of Dairy Farm, who reported the discovery of the kiln to the Norfolk Museums Service, and to the landowner Colonel Smith. The project was initiated by David Gurney (Norfolk Landscape Archaeology). English Heritage funded both the excavation and post-excavation phases of the work and Brian Kerr and Kath Buxton monitored the progress of the project.

The excavation was carried out by Sarah Bates, Niall Donald and Alice Lyons. Archaeomagnetic dating of the kiln was by Mark Noel (GeoQuest Associates). The finds were processed and reported on by Alice Lyons, with analysis of the mortaria stamps and additional comments on the mortaria by Kay Hartley and thin-section analysis of ceramics by David Williams. The animal bone was commented on by Trevor Ashwin and Umberto Albarella. The environmental evidence was assessed and reported on by Val Fryer and Peter Murphy, while the charcoal from the site was studied by Rowena Gale. The illustrations were prepared by Mark Hoyle and Piers Wallace; and photographs of the mortarium stamps are by David Wicks.

The writers would also like to thank Colin Pendleton for providing information from the Suffolk Sites and Monuments Record, and Kath Buxton, David Gurney and Kay Hartley for their useful comments on this report.

Postwick
The evaluation, excavation and post-excavation phases of the work at Postwick were all instructed and funded by the Broadland Park Consortium, whose development proposals necessitated the work. The landowner Peter Tann kindly allowed access to the site.

The initial field survey was by Andy Crowson, Phil Emery and Neil Moss. Sarah Bates was assisted by Kevin Forrest and Steve Manifold during the evaluation excavation, and by Ben Hobbs, Alice Lyons, John Percival, Chris Phillips, Lucy Talbot and Mavis Whitmore during the main excavation. The metal-detecting was carried out by George Kemp and Leslie Laing, and their help is gratefully acknowledged. The geophysical survey was carried out by Geophysical Surveys, Bradford, and the archaeomagnetic dating by Mark Noel (GeoQuest Associates).

The finds were processed by Lucy Talbot and reported on by John Davies (coins), Julia Huddle (small finds), Alice Lyons (Roman pottery) and Sarah Percival (prehistoric pottery). Cathy Tester and Kay Hartley provided specialist comments on the Samian and mortaria respectively; thin-section analysis of the ceramics was by David Williams. Conservation was carried out by Elena Makridu at Norwich Castle Museum. The environmental evidence was assessed and reported on by Val Fryer and

Peter Murphy, with the analysis of the charcoal from the site by Rowena Gale. Illustrations for this report were prepared by Mark Hoyle, and photographs of the kiln furniture were by Jason Dawson. The writer would like to thank Jan Allen (Norfolk Landscape Archaeology) for providing information from the Norfolk SMR.

Two Mile Bottom

The project was funded by Fibrowatt Ltd. Nina Butcher, Martin Eastwood, Dave Raubenheimer and Edward Ryall of Fibrowatt all provided help and advice. The help of Stuart Dunn at Taylor Woodrow Management and Engineering, and of Roger Davies and colleagues at Marley Building Materials, is also acknowledged.

The evaluation was carried out by Trevor Ashwin with Sarah Bates, Kären Gaffney, Ben Hobbs, Katie Lister and Steve Manifold. Metal-detecting was by George Parsons and Ernie King. The finds were processed and reported on by Alice Lyons.

The main excavation was carried out by Sarah Bates, Derek Cator, Niall Donald, Kären Gaffney, Ben Hobbs, Neil Moss, Chris Phillips and Steve Timms. Assistance on site by Peter Robins (excavation) and Rodney Carriage and George Kemp (metal-detecting) is gratefully acknowledged. Conservation and lifting of the kiln was undertaken by John Price and Mary Macqueen (Conservation Services, Farnham), assisted by Kevin Forrest of the NAU.

The finds were processed and catalogued by Julie Curl and were assessed and reported on by Trevor Ashwin (animal bone), Julia Huddle (worked bone), Alice Lyons (Roman ceramics and stone) and Sarah Percival (non-Roman pottery). Conservation was carried out by Elena Makridu at Norwich Castle Museum. The environmental evidence was assessed and reported on by Val Fryer and Peter Murphy, and the charcoal analysed by Rowena Gale. Illustrations are by Mark Hoyle, with artefact photography by David Wicks and Jason Dawson.

The writer would also like to thank the Norfolk Industrial Archaeology Society for making available the archive of the Fisons Works at Two Mile Bottom, Paul Brooker for allowing access to some of the pottery from his Turfpool site, and Trevor Ashwin for his advice on many aspects of the site and analysis of the results.

Summary

A mortarium kiln excavated at Dairy Farm, Ellingham, South Norfolk was of late 2nd–early 3rd century date, and was slightly later than a similar kiln excavated at the site previously. Stamped mortaria, including sherds from vessels bearing a previously unknown stamp, were found within the kiln structure and in its fills.

Three pottery kilns excavated at Postwick near Norwich dated to the 2nd century AD. Each kiln was of a different structural type. Two were thought to have produced grey wares, while the third contained oxidised mortaria and white coarse wares.

Excavation at Two Mile Bottom, near Thetford, revealed evidence for activity dating to the Mesolithic period as well as the remains of at least three pottery kilns and other features of late Romano-British date. Again, the excavated kilns were all of different structural types. One of the kilns had apparently been built within the stoke hole of an earlier kiln, and its fills contained quantities of painted white ware of a type previously unknown in Norfolk. Pits, ditches and structural features dating to the Early Saxon period were also excavated, and the evidence suggests continuity of activity at the site from the Roman into the Saxon period.

Résumé

Le four à mortarium mis à jour à Dairy Farm près d'Ellingham dans le South Norfolk date de la fin du premier siècle ou du début du deuxième siècle. Il est donc légèrement postérieur au four similaire qui avait été découvert précédemment sur le site. La mise à jour du four et de ce qu'il contenait a permis de dégager des mortaria avec poinçon, parmi lesquels se trouvaient des tessons de récipients présentant un poinçon jusqu'alors inconnu.

Des recherches entreprises à Postwick près de Norwich ont permis de mettre à jour trois fours à céramique datant du deuxième siècle après J.-C. Ces fours n'avaient pas tous la même destination. Deux d'entre eux servaient apparemment à produire de la faïence de type grey ware, tandis que le troisième contenait des objets funéraires oxydés et de la faïence de type coarse ware.

Les fouilles entreprises à Two Mile Bottom près de Thetford attestent l'existence d'activités datant de la période mésolithique. Il a également été possible de dégager les vestiges d'au moins trois fours à céramique ainsi que d'autres objets datant de la fin de la période romano-britannique. Comme les précédents, ces fours sont de nature différente. L'un deux a apparemment été construit à l'endroit même où se trouvait la chambre de cuisson d'un four antérieur, et il contenait un nombre important de faïences peintes de couleur blanche d'un type qui était jusqu'à présent inconnu dans le Norfolk. Des fosses, des fossés et des éléments appartenant à la structure de bâtiment datant du début de la période saxonne, ont également été mis à jour, ce qui laisse supposer que des activités se sont déroulées sur le site de façon continue de la période romaine à la période saxonne.

(Traduction: Didier Don)

Zusammenfassung

Ein auf der Dairy Farm in Ellingham, South Norfolk, ausgegrabener Mortaria-Ofen stammt aus dem späten 1. bzw. frühen 2. Jahrhundert und ist damit etwas jünger als ein an gleicher Stätte zuvor gefundener Brennofen. Im Ofen und seiner Verfüllung fanden sich gestempelte Reibschalen sowie Gefäßscherben mit bisher unbekanntem Stempel.

Drei in Postwick bei Norwich ausgegrabene Töpferöfen wurden auf das 2. Jahrhundert n. Chr. datiert. Alle drei Öfen zeigen eine unterschiedliche Struktur. Zwei von ihnen wird die Produktion von grauer Ware zugeschrieben, der dritte enthielt oxidierte Reibschalen und grobkörnige weiße Ware.

Eine Ausgrabung in Two Mile Bottom bei Thetford förderte Belege für mesolithische Aktivitäten sowie Überreste von mindestens drei Töpferöfen und weitere Merkmale aus der römisch-britischen Spätzeit zutage. Auch hier weisen die freigelegten Brennöfen unterschiedliche Strukturen auf. Einer der Öfen war offenbar im Feuerungsloch eines früheren Brennofens errichtet worden und mit reichlich bemalter weißer Ware eines bislang in Norfolk unbekannten Typs verfüllt. Außerdem wurden Gruben, Gräben und Strukturen aus der Frühzeit der Angelsachsen ausgegraben, die auf eine kontinuierliche Nutzung der Stätte von der Römerzeit bis in die angelsächsische Zeit hinweisen.

(Übersetzung: Gerlinde Krug)

General Introduction

During 1995–7, a total of seven Romano-British pottery kilns were excavated by the Norfolk Archaeological Unit (NAU) at three sites in Norfolk (Fig. 1). These included a single kiln at Ellingham, near Bungay on the Norfolk/Suffolk border, at a site where another kiln had been excavated twenty years previously, and three kilns at Postwick, to the east of Norwich. Three further kilns were excavated at a multi-period site at Two Mile Bottom, near Thetford, where a Roman kiln had been found in the 19th century.

All three excavations came about in response to the threat of destruction, but different post-depositional processes at each site had affected the preservation of the sub-surface remains. At Ellingham, an isolated disturbance both led to the discovery of the kiln and threatened its survival. At the other sites, proposed industrial and commercial development meant that archaeological evidence that had been identified by evaluation fieldwork carried out within the framework of the planning process was also threatened with destruction. At Postwick, ploughing had caused the gradual erosion of archaeological features and spreading of artefacts lying in the ploughsoil. At Two Mile Bottom, all the archaeological remains were buried beneath more than two metres of modern debris.

Pottery production was an important industry during the Romano-British period and study of the sites, processes and products involved can inform on the social and economic, as well as the technological, history of the period. Pottery is particularly important to the archaeologist as it is one of the few material types where evidence for all stages of production and use survives well: the majority of evidence for other equally important crafts, such as leather- and textile-working, has frequently decayed. In order to advance pottery studies several criteria, such as availability of raw materials, local communications, transport and the nature of local markets for the finished products, must all be considered. The potential of pottery production studies to assist in dating both 'small towns' and sites in rural areas, and for enhancing the limited evidence for the operation of the rural economy, has been highlighted (Going 1997, 40; Going and Plouviez 2000, 19). The fact that many excavated pottery production sites have not been published also means that much detailed information derived from stratigraphic recording and environmental sampling of kiln deposits is not generally available (Swan 1984, 128–9). These factors have all been considered when planning and writing this report.

Each of the sites included in this volume provides significant evidence for increasing our understanding of small-scale pottery production in rural East Anglia, as well as dating evidence for the individual sites and industries which may be of value when applied to settlement archaeology. At Ellingham, important additional evidence for the manufacture of mortaria was recovered. At Postwick, evidence for the production of grey ware and mortaria at a previously-unknown kiln site was discovered. At Two Mile Bottom a previously unknown specialist production centre for late 3rd–4th century decorated wares was identified, while occupation of the site was shown to continue into the Early Saxon period. Two Mile Bottom is already well known as a Mesolithic site, and the excavations recorded deposits containing Mesolithic material *in situ* there for the first time. This evidence is reported on elsewhere, however (Robins 1998).

Excavation and post-excavation work at Ellingham was funded by English Heritage, while that at the other two sites was funded by the individual developers.

The *East Anglian Archaeology* Occasional Paper Series aims to provide an outlet for reports on work of local significance. Publication in the series has enabled the presentation of the results of the excavations, and of the full analyses of the pottery, in an accessible format and in a style consistent with other recently published kiln sites in the East Anglian region (Hartley and Gurney 1997; Gill *et al.* 2001).

The sites are presented and discussed separately; this was felt to be imperative in order to maintain their individual identities, and to allow an appropriate focus on the aspects of the individual site unrelated to the kilns themselves (*e.g.* the late Roman and Early Saxon evidence at Two Mile Bottom). Consistency in the presentation of the excavation and artefactual/ecofactual data and the results of analysis has been maintained wherever possible. In the case of the Ellingham report, however, in order to facilitate comparison with the already-published kiln from the site (Hartley and Gurney 1997) the analysis of the pottery and presentation of the results has followed the methodologies and format used by the previous research as closely as possible. Finds and other specialist reports follow the site/stratigraphic narratives in the case of each site, but summary reference to artefactual and environmental evidence is made in the site accounts as appropriate. Methodologies, pottery fabric and type series, abbreviations and keys to illustrations are presented as Appendices, and are set out in individual site chapters only where they are specific to that site.

The full texts of all specialists' reports, including methodological details, can be consulted along with all the site and finds records in the individual project archives, held by the Norfolk Museums Service.

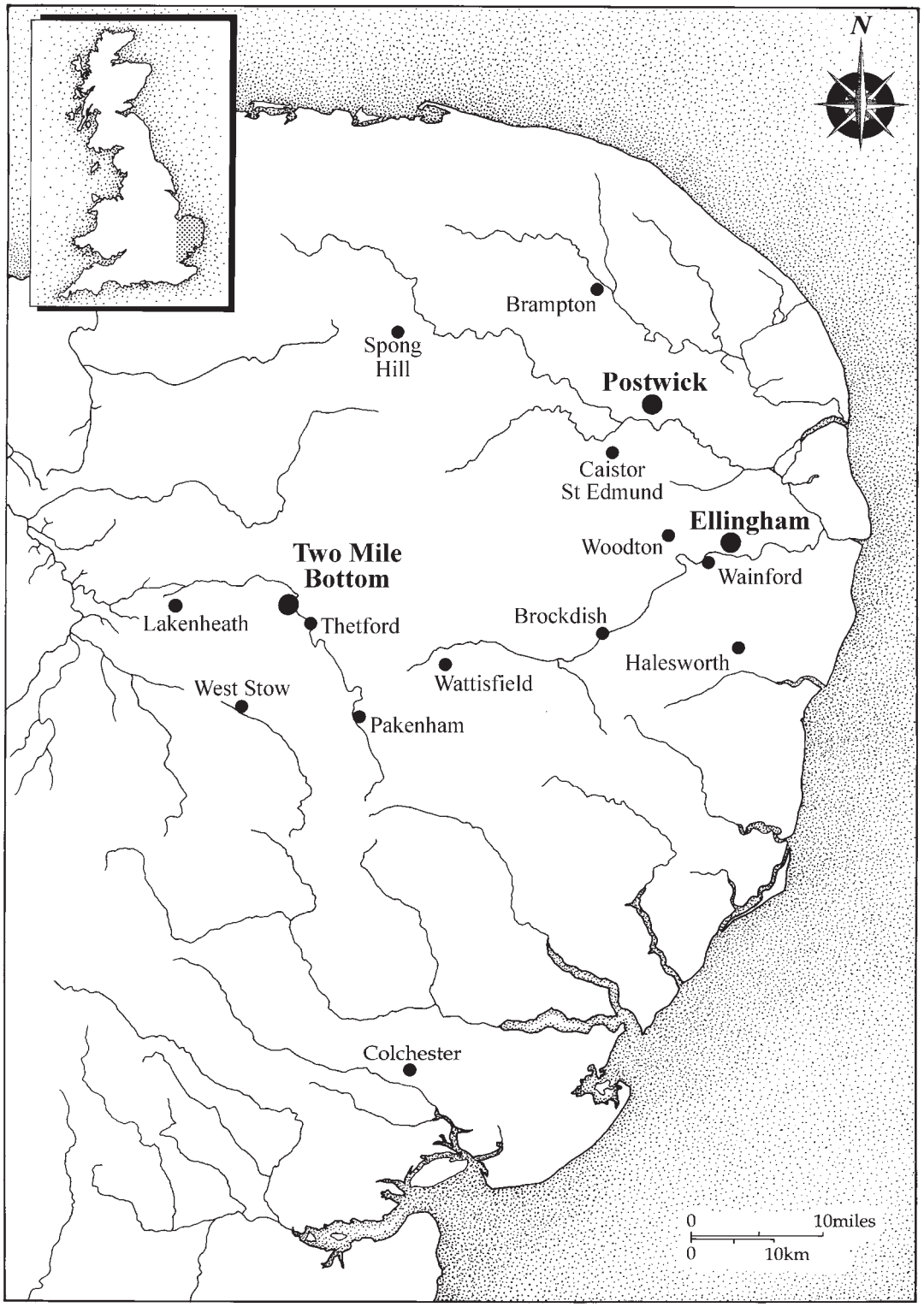


Figure 1 Sites in this report

Part 1 Excavations at Dairy Farm, Ellingham, 1996

Site 11843

by Sarah Bates and Alice Lyons

I. Summary

In May 1996 a Roman pottery kiln was discovered at Ellingham, south Norfolk (Fig. 1), close to the spot where another such kiln had been excavated in 1976. Stamped mortarium 'wasters' found in the fills of the first kiln indicated production at the site during the latter part of the 2nd century AD, and many sherds found built into the kiln structure itself suggested the presence of an earlier kiln at the site. Excavation of the second kiln showed that it, too, contained many pieces of mortarium within both its structure and its fills. With one or two exceptions, the same makers' stamps were identified on mortaria from both the kilns and it seemed that the two had been in use over a relatively short period. Detailed analysis of the pottery, however, suggests that the 'new' kiln was of slightly later date. As well as providing further evidence for the nature and scale of the pottery industry at Ellingham, the 1996 work also posed further questions, since the inclusion of pieces of mortarium within the structure of the second kiln almost certainly means that yet another kiln, or kilns, existed at the site.

II. Introduction

(Figs 2–4)

Location and circumstances of excavation

The site (Sites and Monuments Record Site 11843) at Dairy Farm, Ellingham, lay at TM 3785 9155, approximately 50m from the south-east corner of the field and to the west of the present farm buildings (Figs 2 and 3). The trench was situated immediately to the west of the grain storage buildings to the north of the farmhouse. It lay about ten metres south of the spot where the late 2nd-century mortarium kiln had been excavated in 1976 (see below and Fig. 3).

Topography and geology

The site was on gravels, at an elevation of just above 3m OD. The area of the trench sloped gently down from north to south by about 0.35m. It lay at the top of a steeper incline leading up from the south edge of the field, where a ditch formed the north boundary of the flood plain of the River Waveney approximately 350m further to the south (Plate I). It was reported by the farmer that it is not uncommon for floodwaters to extend from the river up to the edge of the field.

Archaeological background

Few sites or finds of Romano-British date are known from the surrounding area. A search of the Norfolk SMR for the area north of the River Waveney between TM 36 92 and TM 40 93 showed that the majority of the entries of this date are metal-detector finds. The finds previously recorded closest to the site are two dolphin brooches of 1st-century date found to the north-west of Dairy Farm (Fig. 2, Sites 28990 and 17336). Sherds of Romano-British grey ware have been found from the surface on the north edge of the Waveney flood plain 300m to the south-east of Dairy Farm (Site 30620). Sub-rectangular and linear earthworks also recorded here are almost certainly of medieval date (Cushion 1997).

Other Roman finds include pottery, building material, painted wall plaster, coins and weights from fieldwalking and observation of a pipe trench 1km north-north-east of Dairy Farm. Their nature suggests that they originate from a settlement or building. Approximately 2km to the north-east, several other coins and a strap-end have been found near Geldeston Hall (TM 3970 9245), and a rectangular crop-mark — known locally as a 'fort' — has been reported as appearing there every spring. Pottery and a 1st–2nd century coin and brooch were also recovered during construction of the Kirby Cane bypass approximately 2km to the north-west.

A search of the Suffolk SMR for the area immediately to the south of the river has shown that there, too, finds of Roman-British date are sparse. A face-mask urn was found close to the riverbank on Shipmeadow Marshes, 1km to the south-east of Dairy Farm, and a gold finger ring was found further to the east near Barsham Hall in 1816. Further from the site to the south-west, sherds of Samian and 2nd–3rd century pottery, a Colchester derivative brooch, 2nd–4th century coins and other probably Roman pottery have been found.

The nearest substantial Roman settlement was probably located at Wainford, Suffolk, just to the south of Ditchingham and approximately 3km to the west of Dairy Farm. Surface and metal-detected finds have been recovered there, and fire-bars, fragments of kiln material and pottery wasters all indicate pottery manufacture. Wainford is situated where 'Stone Street', a Roman road that runs from Halesworth in Suffolk to Woodton in Norfolk, crossed the River Waveney. This road probably continued southwards to other settlements in Suffolk, and further northwards as well, passing to the east of Caistor St Edmund but connected with it by a branch road.

History of the project

Kiln 1

The first kiln was discovered at Dairy Farm in 1976 during the excavation of a stanchion pit for a grain storage building (Fig. 3). Part of it was destroyed by the pit but some of its wall, flue, oven floor and fire chamber, and

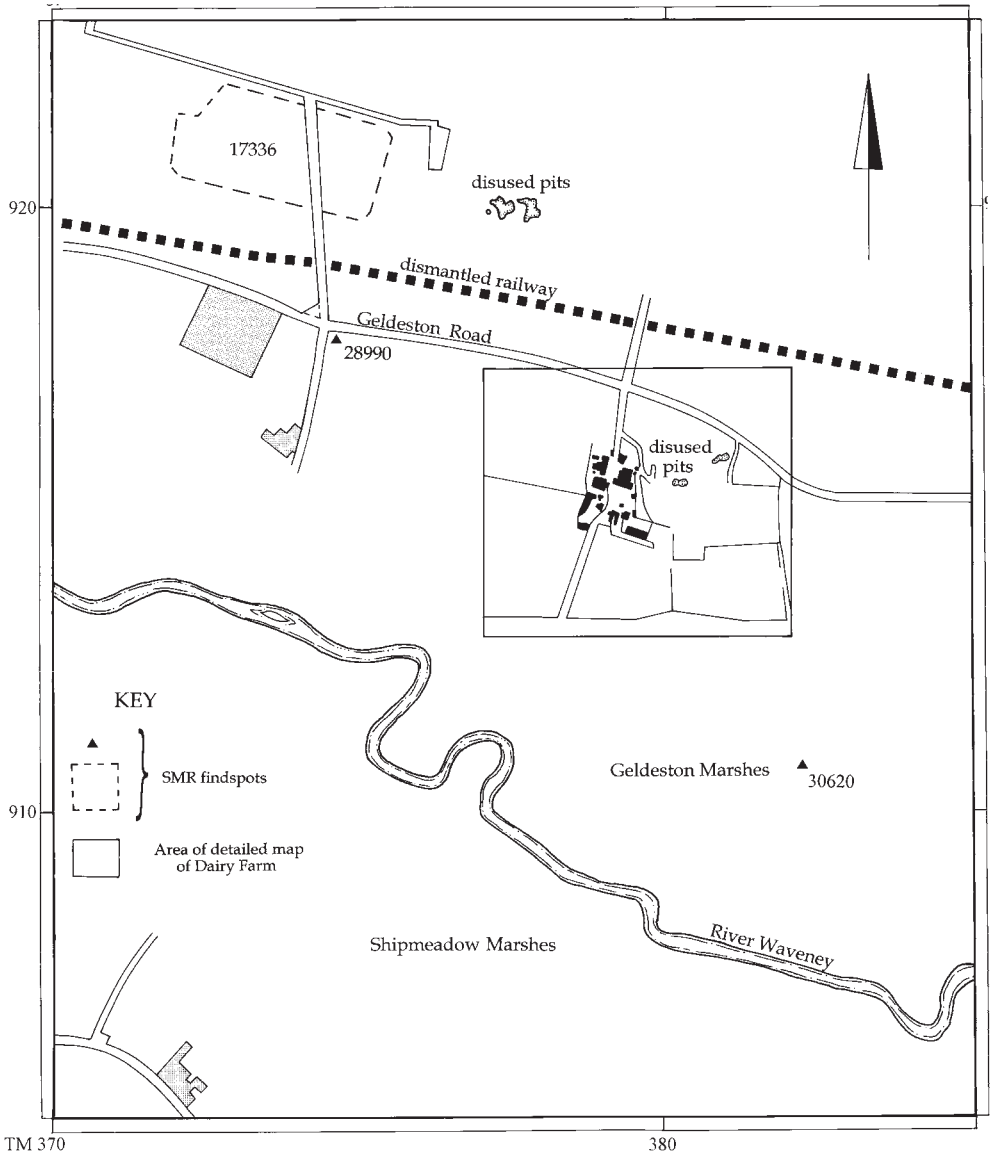


Figure 2 Location of site. Scale 1:12,500

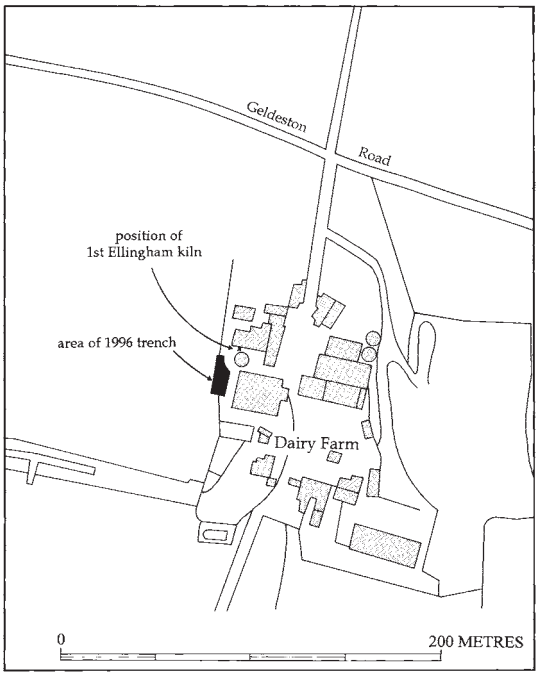


Figure 3 Location of trench and Kiln 1. Scale 1:400.

almost the entire stoke hole, survived. Large numbers of stamped and unstamped mortarium sherds had been used in the construction of the kiln. The results of excavation and pottery analysis have been published (Hartley and Gurney 1997). Mortaria by Regalis and Lunaucis, and others distinguished by a herringbone stamp, showed links with the pottery industry at Colchester, with Regalis and the herringbone potter apparently having moved from Colchester to work at Ellingham between AD 170–180. A fourth, trademark, stamp was thought possibly to relate to the West Stow pottery tradition, though the stamp itself (not the mortaria) shows an affinity with stamps used at Colchester.

The number, size and condition of the mortarium sherds suggested that they had been made at the site in an earlier kiln. However, no sign of another kiln was seen in 1976, in spite of careful searching of other stanchion pits and disturbed areas of soil. A geophysical survey of the area to the south of the kiln and extending up to 100m to the west of the farm buildings was carried out in 1977. No significant anomalies were identified, although survey was not possible in the immediate vicinity of the known kiln due to the large amounts of dumped metal around the farmyard.

Analysis of the mortaria from the kiln suggested that Regalis and the herringbone potter may have been primarily involved with an earlier kiln at the site, and that the herringbone stamp may have actually been used by Regalis, since it was found alongside a Regalis stamp on one rim. The trademark potter and Lunaucis seemed more likely to have been associated mainly with the excavated kiln. However, the occurrence of stamps representing all four potters within the fabric of the kiln showed that all of them must have used a kiln earlier than that which was excavated.

Plate I Kiln 2, looking south across the Waveney flood plain. Scale 2m (HMX 14, Sarah Bates).

Kiln 2

The second kiln was discovered in May 1996 when Mr Chapman, the tenant farmer, machine-dug a trench to replace a water pipe. The trench was about 3m south-west of a large circular grain silo, and approximately 10m south of the site of the 1976 excavation (Figs 3 and 4). Fired clay and sherds of mortarium were recovered from the excavated soil. Due to the nature of the disturbed material, and its proximity to the first Ellingham kiln, its importance was immediately recognised and the discovery was reported by Mr Chapman to the Field Archaeology Division of the Norfolk Museums Service. The site was visited by David Gurney (Principal Landscape Archaeologist) and it was realised that the machine-dug trench had actually cut through part of the fired clay structure of a kiln and disturbed its fill. An application was made to English Heritage for funding to excavate the kiln. Excavation and recording of the kiln, and of a small number of features in the area immediately surrounding it, took place over three weeks in November 1996.

Excavation methodology

The trench that had disturbed the kiln had been left open; although it had become partly filled with slumped soil and was overgrown with weeds, the kiln was still visible. Overburden was removed by machine from an area around the kiln measuring approximately 12m x 6m. The overgrowth and recent fill was removed by hand from the slot across the kiln and the resulting sections recorded. The kiln was then excavated by hand, as far as possible (within the constraints of the pipe trench) employing a quadrant system. With the exception of those deposits already removed from the area of the pipe trench, a continuous section was recorded along the length of the kiln and stokehole. Further sections were recorded across the stokehole, flue and surviving part of the kiln structure. Other features were either half-sectioned or sample-excavated.

The site was planned at a scale of 1:20, with subsequent plans being made as the excavation progressed. Sections were recorded at a scale of 1:10 and NAU pro-forma context sheets were used to record all cuts and deposits; context numbers following in sequence from those used in the 1976 excavation. A photographic record of excavated features and of the progress of the excavation was made, and samples were taken for environmental analysis and identification of fuel types. On completion of excavation and recording, samples of the kiln fabric itself were taken for archaeomagnetic dating.

Topsoil was metal-detected during machining of the site, and the spoil heaps were searched visually and by detector for artefacts.

On the completion of excavation and recording, the farmer machine-excavated the rest of the trench for the replacement pipe in the presence of NAU staff. This trench ran from the north side of the stripped area northwards around the side of the circular grain silo.

Plate II Kiln 2, looking west. Scale 1m (11843 ELL 53, Sarah Bates).

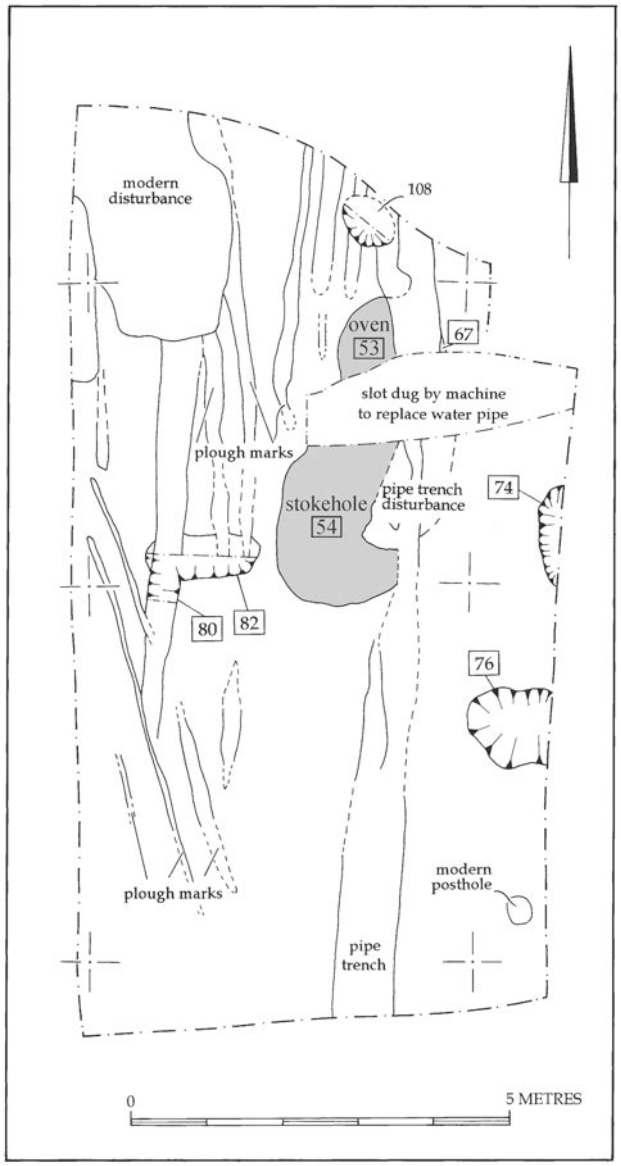


Figure 4 Plan of excavated features. Scale 1:100.

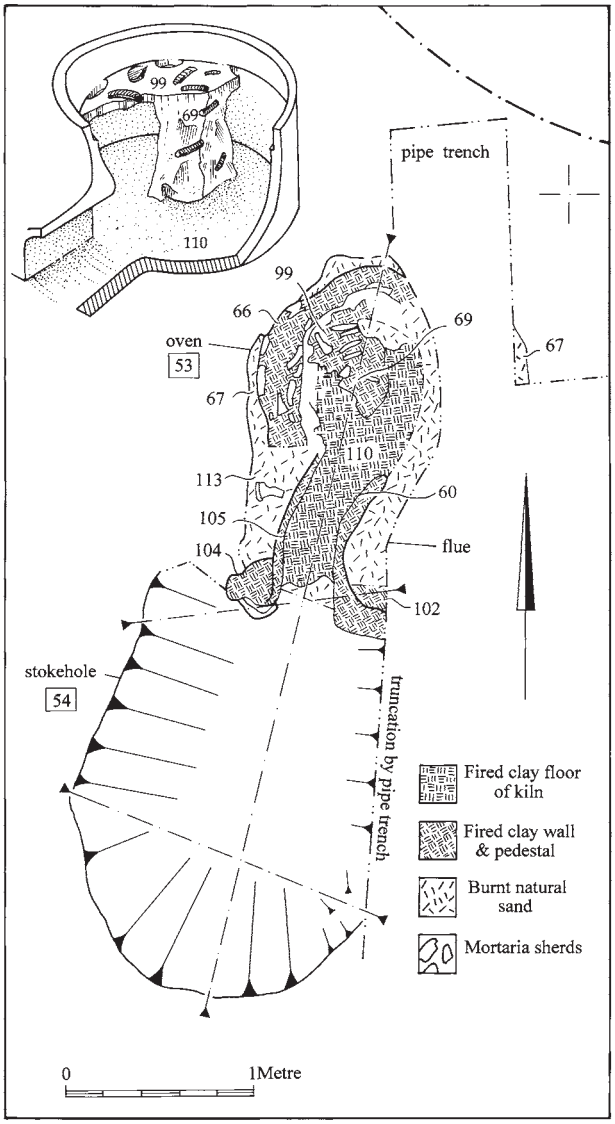


Figure 5 Plan of Kiln 2. Scale 1:40.

III. Stratigraphic evidence

(Plates I and II, Figs 4–6)

Introduction

The topsoil was a dark grey/brown gravelly sand loam which was about 0.30m thick at the west side of the trench and up to 0.50m along the east side, where it had built up at the edge of the field. The topsoil overlay the natural gravel into which archaeological features had been cut (Fig. 4).

The kiln was located in the north part of the trench and was orientated roughly north-to-south (Figs 4–6). Despite truncation by the pipe trench its form was clear. On excavation, it was seen to consist of a circular clay-lined pit (*53*) with a vented clay floor to its upper part (oven) supported by a central pedestal above the lower (furnace) chamber. A clay-lined flue led from the south side of the furnace chamber into the stokehole *54* (Plate II; Fig. 5). The kiln is of Swan's Type F6 (Swan 1994). Numerous sherds of pottery, mainly mortarium, were incorporated within its fabric. Part of the oven (the south side of the pedestal and most of the flue) had been destroyed by the pipe trench. The stokehole extended from the south side of the kiln and had been truncated to its east by the pipe trench. A few other cut features and disturbances were also observed within the stripped area (Fig. 4). Nothing of archaeological interest was observed when the pipe trench was extended to the north.

Excavated contexts were assigned to five phases, as follows:

Phase 1	construction of kiln
Phase 2	use of kiln
Phase 3	disuse of kiln
Phase 4	post-kiln activity
Phase 5	unphased.

Phase 1: construction

The kiln chamber was approximately 1.20m in diameter, the oven having an internal diameter of *c.* 0.90m (Fig. 5). The oven's vertical wall *66* survived to a maximum height of 0.10m above a vented floor *99*, and was 0.07m thick; mortarium sherds were incorporated within it. The wall continued beneath the floor to a depth of 0.35m, sloping slightly at its northern end towards the base of the kiln (Fig. 6). Excavation showed that clay had been packed against the sides of the construction pit, with pottery body sherds pressed into it and coated with more clay that had been smoothed on its inner face. The pottery may have been incorporated to provide additional strength to the structure, or to aid heat refraction. A thin layer of clay (0.01–0.02m thick) formed a smooth floor to the furnace chamber; it did not incorporate any sherds of pottery, and may have facilitated the cleaning-out of the kiln. There was no evidence that integral pilasters had ever existed, nor for any patching or repairs to the kiln.

The central pedestal *69* stood on the floor of the furnace chamber. It appeared to have been constructed separately, after the floor and walls, and consisted of alternating layers of mortarium body sherds and fired clay. It stood to a height of 0.38m and supported the surviving part of the vented oven floor *99* (Fig. 6). This was about 0.08m in thickness and was of fired clay and mortarium sherds, the latter including many rim sherds and constituting about 40% of the floor fabric. The floor edges abutted the chamber wall, showing that it had been constructed after the main part of the chamber. However the thick, solid nature of the floor showed it was an integral part of the permanent kiln structure. Semi-circular indentations in the edge of the floor and in the wall of the chamber formed oval vent-holes through the floor. Two of these occurred in the surviving part of the floor in the north-west part of the kiln. Other vent-holes might originally have existed in the central part of the floor, but there were none in its surviving area. Parts of the floor had collapsed into the furnace chamber.

The flue ran from the south side of the furnace chamber (Fig. 5). Much of it had been destroyed by the slot for the water pipe but its line, a small part of its lower walls and a short length of intact arch at its south end, survived. It ran from the kiln chamber on a north-east to south-west alignment, turning slightly to continue on a north-to-south alignment into the stokehole. The reason for the slight curve is uncertain, and it would have made the raking out of the ashes from the furnace chamber more difficult. Perhaps it prevented gusts of wind blowing directly into the kiln. The flue walls were of fired clay, varying in colour and hardness with proximity to the former source of heat. The inner face of the wall was of smooth hard fired clay *60*/*105*; behind this the clay was more lumpy (*102*/*104*) and included several large pieces of mortarium (Fig. 6). The construction would have provided maximum strength whilst maintaining a smooth inner surface to the wall. The walls were mostly approximately 0.15m thick, but were much thicker where the flue opened out into the stokehole; presumably extra sturdiness was needed here where the 'jambs' would have been exposed and liable to damage during stoking and cleaning of the kiln.

The flue opened into an ovate stokehole (*54*), 2.00m long and about 1.80m wide (Fig. 5). Its sides were quite steeply sloping apart from at the south end; this sloped more gradually, probably to permit access into the working area. In the bottom, just in front of the flue, was a pronounced bowl-like scoop. Here the stokehole survived to a depth of 0.70m.

On the east side of the flue a deposit of brown sand silt (*106*) was seen (Fig. 6), apparently running beneath the 'natural' sand. It probably represents disturbance during the construction of the flue.

Phase 2: use

The natural sand into which the kiln was cut had been heat-discoloured by the firing of the kiln. Scorched pink sand *67*/*87* extended from the outside of the kiln wall for a distance of up to 0.18m, and beneath the flue and into the north end of the stokehole to a depth of 0.07m (Figs 5 and 6). The series of deposits that filled the kiln and stokehole are shown in Fig. 6.

The earliest deposit within the kiln was thin layer of ashy sand *107*, found on its floor and on part of the sloping north side of the furnace chamber. It probably accumulated during the use of the kiln. Also probably use-related were the lower fills of the flue and stokehole. A layer of mottled yellow brown sand silt (*88*) covered the base and sloping south end of the stokehole. Near the top of the slope at the south end, patches of this sand merged with the overlying fill and were interpreted as representing trampling of the natural sand: the sand into which the stokehole had been cut was extremely soft, and during use of the pit it would inevitably have become mixed with dirtier material. To the north deposit *88* was overlaid by brown silt sand *86*, which continued along into the flue. Flecks of charcoal were present throughout this layer but were concentrated in lenses within the flue. The deposit probably represents *in situ* fire debris, possibly including some rake-out from the kiln.

Above deposit *86* was the main lower fill of the stokehole, *72*. This was a dark grey/brown silt sand with many flecks of charcoal, which was shallower towards the south end of the pit. Within the flue a much darker, more charcoal-rich, area (*103*) could be distinguished towards the bottom of deposit *72*. Both contexts probably related to the use and raking-out of the kiln, with the greater concentration of burnt debris occurring closer to the source of the fire in the furnace chamber and flue.

Phase 3: disuse

The fills of the stokehole and flue above layer *72* probably related to the disuse of the kiln (Fig. 6). Deposit *61*, in the stokehole, was a dark grey/brown silt sand with sparse flecks of charcoal and burnt clay. It represented an accumulation of material, possibly including some deliberate backfill, after the kiln had gone out of use.

In the furnace chamber, layers of sand silt *101* and *97* overlay the ashy use-related deposit *107* (Fig. 6). Charcoal in the lower fill (*101*) may represent *in situ* fire debris, but it seems likely that the furnace chamber would have been raked clean and that most of the material had been washed or blown into the chamber after its disuse.

Overlaying deposit *97* were collapsed fragments of the vented oven floor (*96*) and wall, and accumulated silt sand layer *85* (Fig. 6). Where the pipe trench had truncated the upper part of the kiln only the lower deposits survived: grey/brown sand silt loam *94* was probably equivalent

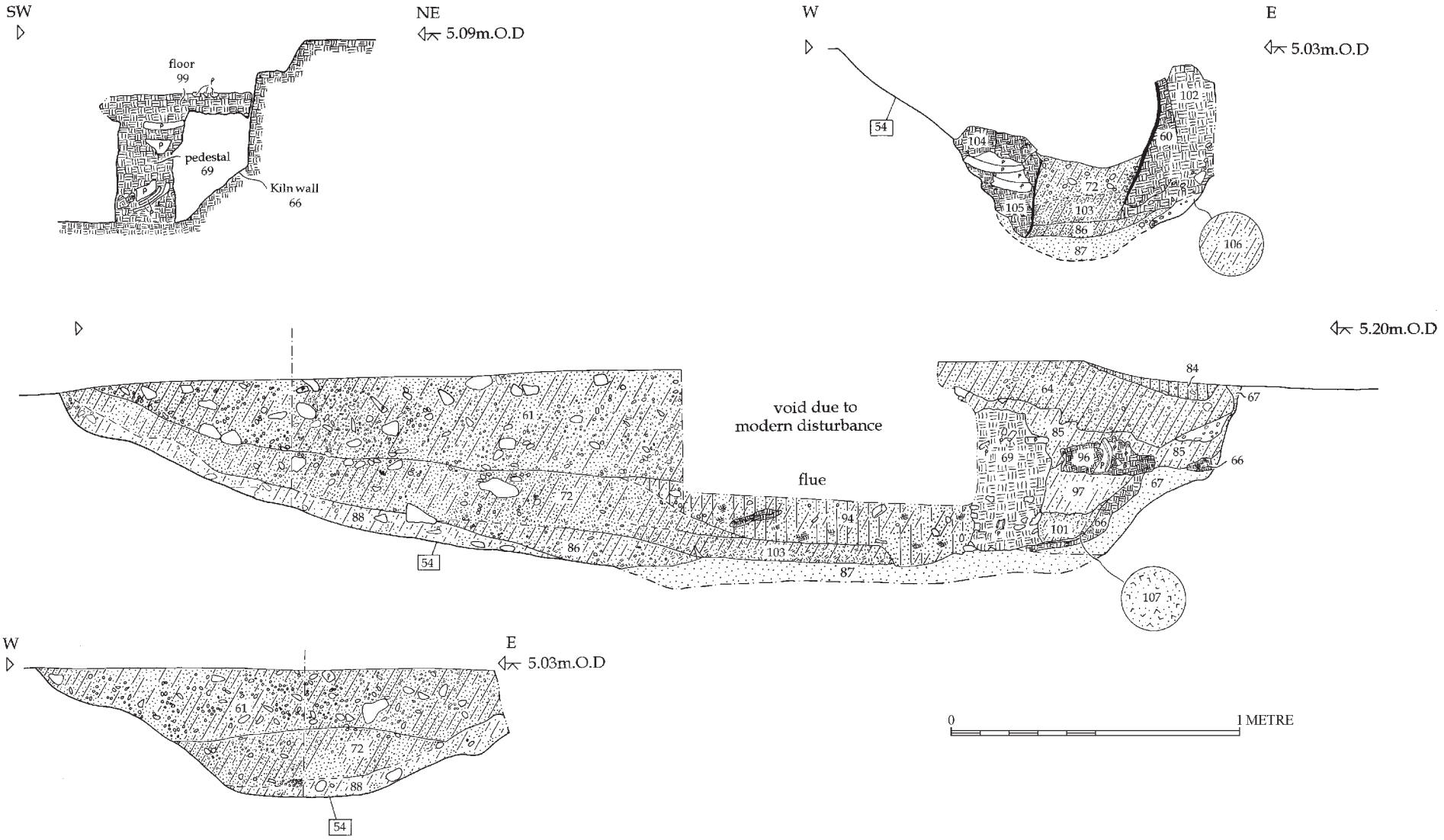


Figure 6 Sections through Kiln 2. Scale 1:20

to deposits *85* in the oven and *61* in the stokehole. This deposit continued into the flue, and the many large pieces of mortarium and fired clay within it suggested that it derived from the collapsed kiln. In the top of the oven chamber, dark grey/brown silt sand *64* and grey/brown and yellow sand loam *84* had accumulated within the abandoned structure.

Phase 4: post-kiln

Running north-to-south at the east side of the trench and cutting across the east side of the kiln was the modern pipe trench (Figs 4 and 5). Where it cut the kiln, this contained quantities of redeposited fired clay and pottery from that feature. Also of recent origin were a large sand-filled disturbance which contained nylon twine in the north-west corner of the site, and a small post-hole containing the remains of a wooden post in the south-east corner of the trench. These latter features were unexcavated.

Phase 5: unphased

Few other features were observed in the stripped area (Fig. 4). Just east of the kiln, part of a pit (*74*) was excavated; the rest of the feature lay outside the trench, probably beneath the adjacent barn. The steeply-sloping side of the pit suggested that it was fairly substantial. Its dark brown silt sand fill had been disturbed by roots or animals; irregularities in its sides were due to large flint nodules, which were quite common within the natural gravel in this area. A few pieces of grey ware and a single sherd of oxidised pottery recovered from its fills suggested the pit was of Roman date. However, it was not possible to say whether or not the feature related to the kiln or potting process. A shallow scoop (*76*), just to the south of pit *74*, also extended beyond the edge of the site; its fine silty sand fill suggested it was probably of natural origin, and perhaps a tree-hole. One other shallow scoop (*82*), which may have been a truncated pit, was excavated to the west of the kiln; its orangey brown sand silt fill produced no finds. It was cut by undated linear feature *80*, which may have been a heavily-truncated ditch or one of a series of ploughmarks that crossed the site roughly from north-to-south.

Archaeomagnetic dating

by Mark Noel

Samples from the oven wall, furnace floor and central pedestal were taken for archaeomagnetic dating (GeoQuest Associates 1996). Strong intensities of natural remanent magnetism were measured in all the samples. The resulting archaeomagnetic date ranges were AD 160–225 or AD 270–300. This ambiguity arises because of an overlap between the archaeomagnetic vector and a narrow 'loop' in the archaeomagnetic curve during the late Roman period.

Material	*Sherd count*	*Wt (g)*	*EVE*	*% of EVE*
Mortaria	647	35,382	24.23	63.51
Oxidised coarse wares	711	7584	10.21	26.76
Reduced coarse wares	202	2982	3.71	9.73
Total	**1560**	**45,948**	**38.50**	**100.00**

Table 1 Summary of pottery from Kiln 2

IV. The finds

Pottery

by Alice Lyons

(Plate III, Figs 7–13)

Introduction

Analysis of the mortaria and the oxidised and reduced coarse wares from the construction deposits and fills of Kiln 2 has enabled further development of the pottery type series begun for Kiln 1, and comparison of the material from both kilns has established a chronology for their construction and use. A total of 1560 sherds of Romano-British pottery, weighing 45.948kg, was recovered from the site in 1996. Most of this is mortarium (63.51% by EVE of the total pottery found). Smaller amounts of oxidised and reduced coarse wares, also manufactured on site, were recovered (Table 1). These consist mainly of cupped-rim white ware flagons and medium-mouthed grey ware jars.

Methodology

As far as possible, methodologies were chosen to ensure compatibility with the results of the analysis of the pottery from Kiln 1.

The pottery was processed and analysed following procedures described in the NAU Pottery Recording Manual (Shepherd 1999). Sherds were assigned to fabric types following macroscopic examination and the use of a (x20 power) hand lens. Thin-section analysis of samples from Kilns 1 and 2 confirmed the similar nature of the fabrics used, and showed that most of the pottery is made of the same fabric which has either been prepared slightly differently (*e.g.* to give a finer texture) or has been repeatedly fired within the structure of the kiln. As these differences were only discernible using the thin-section technique, the original fabric divisions were retained for the purpose of this report. Full descriptions of the newly-identified sub-divisions are included in David William's report (below) but the reader should be aware that only a small number of sample sherds were thin-sectioned, and that the pottery fabrics cannot be classified fully and accurately without thin-section analysis.

Each diagnostic sherd was assigned a form type and, where possible, the diameter and percentage of the rims present (EVE) were recorded. The mortarium form type series follows that created for Kiln 1 (Hartley and Gurney 1977, 10–21), with newly-identified types being given codes following in sequence from those assigned for Kiln 1. The presence of stamps, decoration, abrasion, sooting and wear marks were noted, and each mortarium sherd was separately numbered to enable easy rim recognition and help the recording of cross-context joins. The mortarium stamps have also been numbered according to Hartley's original series (Hartley and Gurney 1997, fig. 4) with the newly-identified stamp being added to this. All the stamps were recorded by rubbings (held in the site archive and by Kay Hartley's national archive). A record has been made of whether stamps were found singly or in pairs, whether they were from the left or right of the spout, and whether there were any cross-context joins between deposits. These factors were used to establish a minimum vessel count.

Stamp	*No. of individual stamps*	*Description*
trademark (8)	18	single x 14: double x 2
Regalis (1)	13	single x 11: double x 1
Lunaucis (6)	5	single x 5:
herringbone (5)	2	single x 2:
Lunaucis (7)	2	single x 2:
Nivalis (9)	1	single x 1:
Total	**41**	**single x 35: double x 3**

Table 2 Mortarium stamps from Kiln 2 (listed in descending order of frequency)

For both mortarium kilns it is important to distinguish between stamped, unstamped and 'never stamped' rims. The term 'unstamped' is used where insufficient rim survives to show whether the individual vessel was stamped or unstamped. All known stamps from Ellingham are applied to both sides of the spout, and the term 'never stamped' is only used where enough of the rim survives to establish that no stamps were used on a particular vessel (although other vessels of the same type may be stamped). In the case of Kiln 1, Hartley was able to establish minimum and maximum numbers of stamped, unstamped and 'never stamped' mortaria; the sherds from Kiln 2 are more abraded and considerably smaller. In the majority of cases it is only possible to say whether a vessel was stamped or unstamped. The term 'never stamped' is rarely applied to Kiln 2 mortaria. However the entire Kiln 2 assemblage was checked for cross-context joins, and a minimum vessel count was calculated. Ellingham was producing mortarium during the period when the practise of stamping was going out of fashion in East Anglia, and the number of stamped vessels itself has dating implications.

Because numbers of different rim types were grouped together in the Kiln 1 analysis (Hartley and Gurney 1997, 21–3), a new form type series has been established for the coarse wares from Kiln 2. The material from Kiln 2 has been cross-referenced to that from Kiln 1, and to pottery from Colchester, in an attempt to detect any external influences on the production of coarse wares at Ellingham.

Pottery has been assigned to the five phases used in the stratigraphic account above. All percentages unless otherwise stated are of weight.

List of abbreviations

EVE: estimated vessel equivalent
g: gram
HERR: herringbone
kg: kilogram
LUN: Lunaucis
NIV: Nivalis
Qty: quantity
REG: Regalis
TM: trademark
Wt: weight

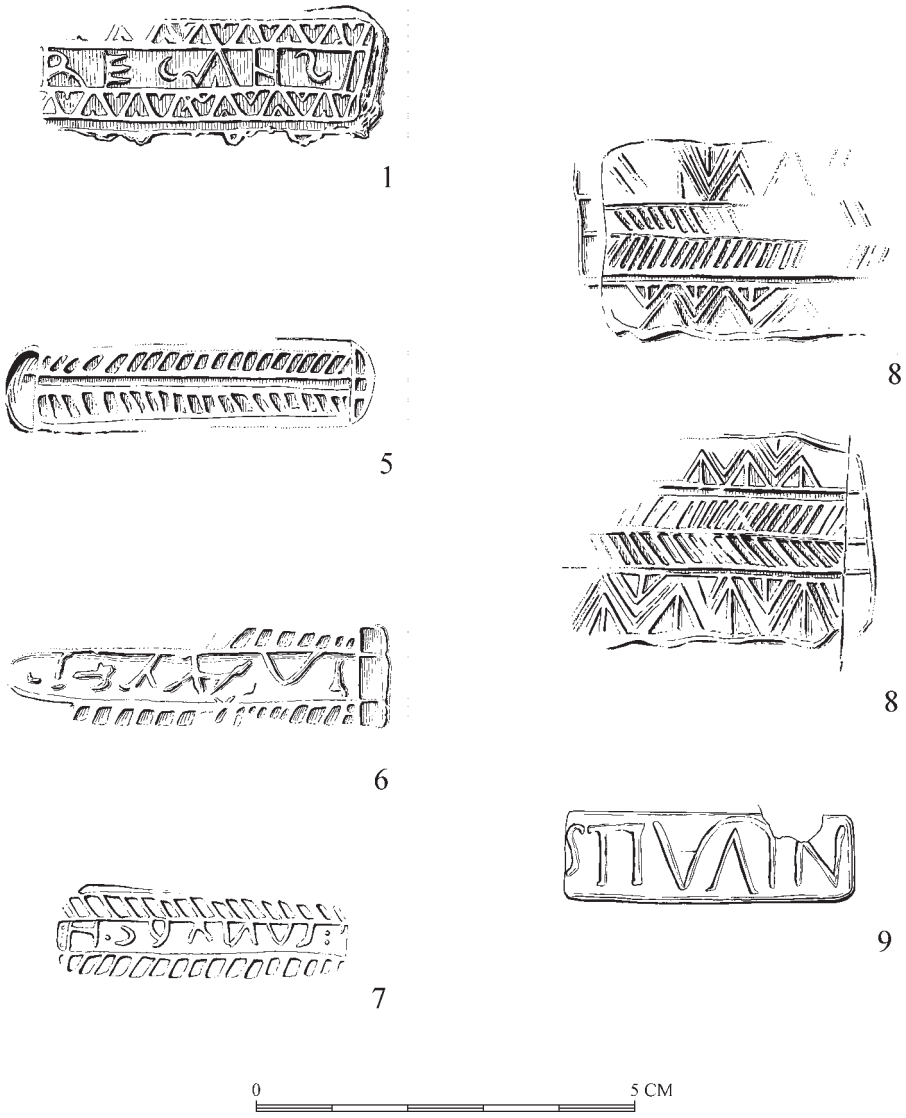
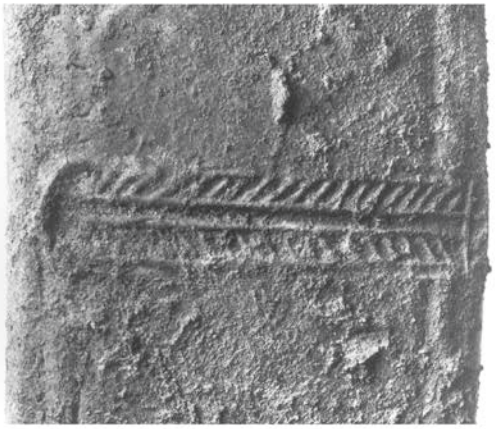


Figure 7 The mortarium stamps. 1) Regalis; 8) trademark; 5) herringbone; 6) Lunaucis; 7) Lunaucis; 9) Nivalis. Scale 1:1.
(With the exception of the 'new' Nivalis stamp, the numbers refer to Hartley 1997, fig.4.)

a

b



c

d

e

Plate III Mortarium stamps. a) Regalis; b) trademark; c) herringbone; d) Lunaucis; e) Nivalis. (David Wicks).

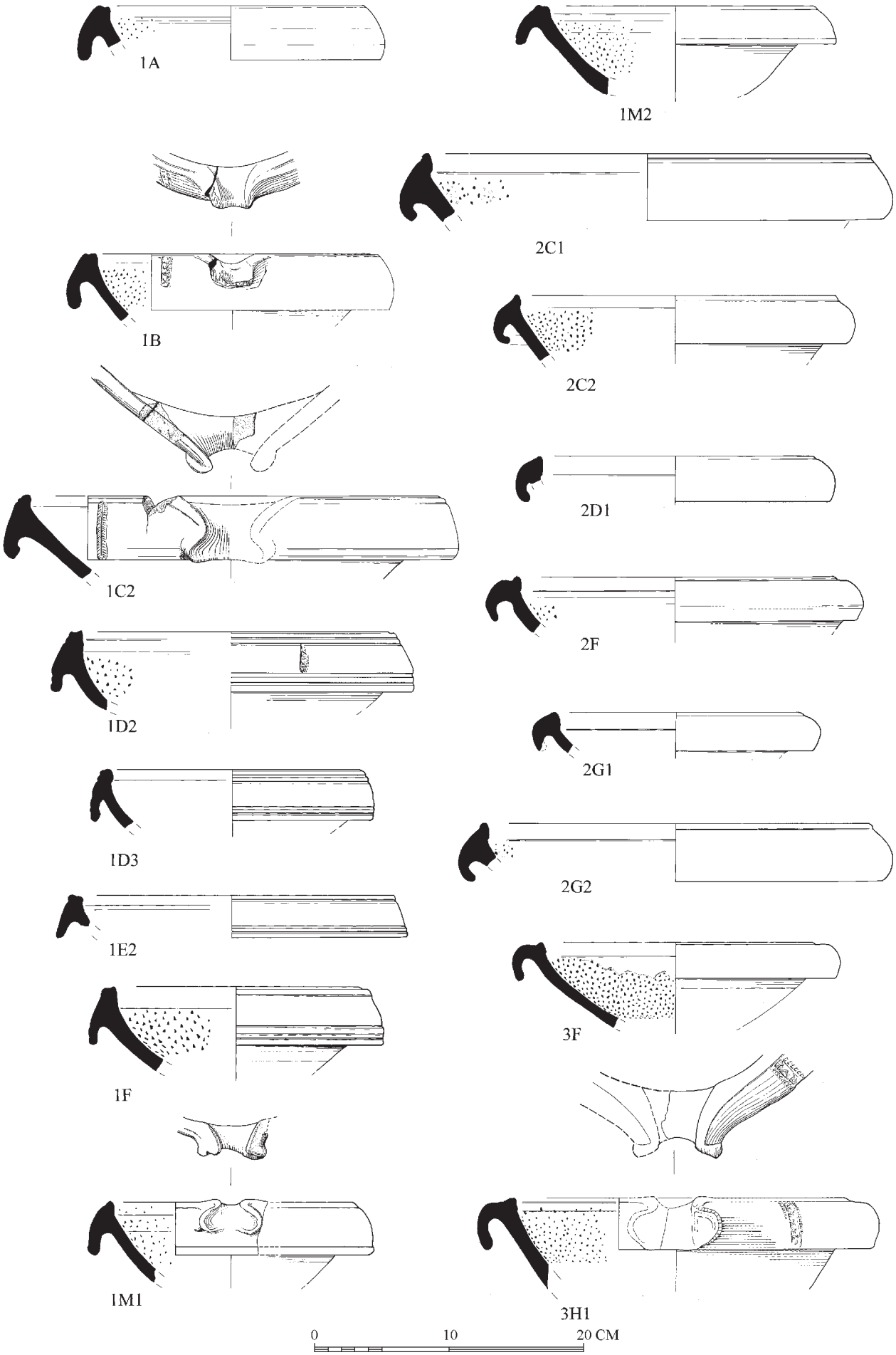


Figure 8 Mortarium Types 1–3H. Scale 1:4

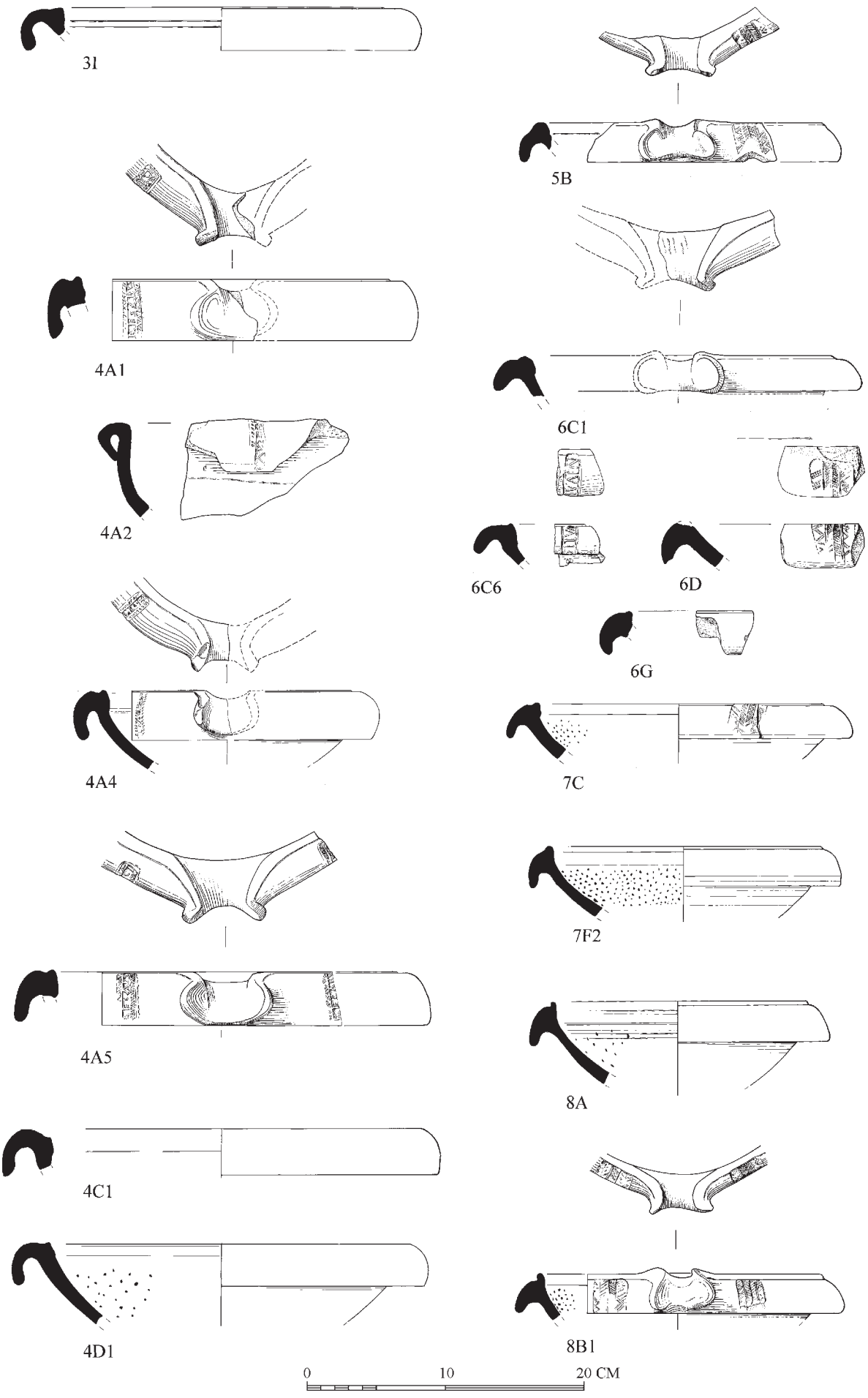


Figure 9 Mortarium Types 3I–8B1. Scale 1:4

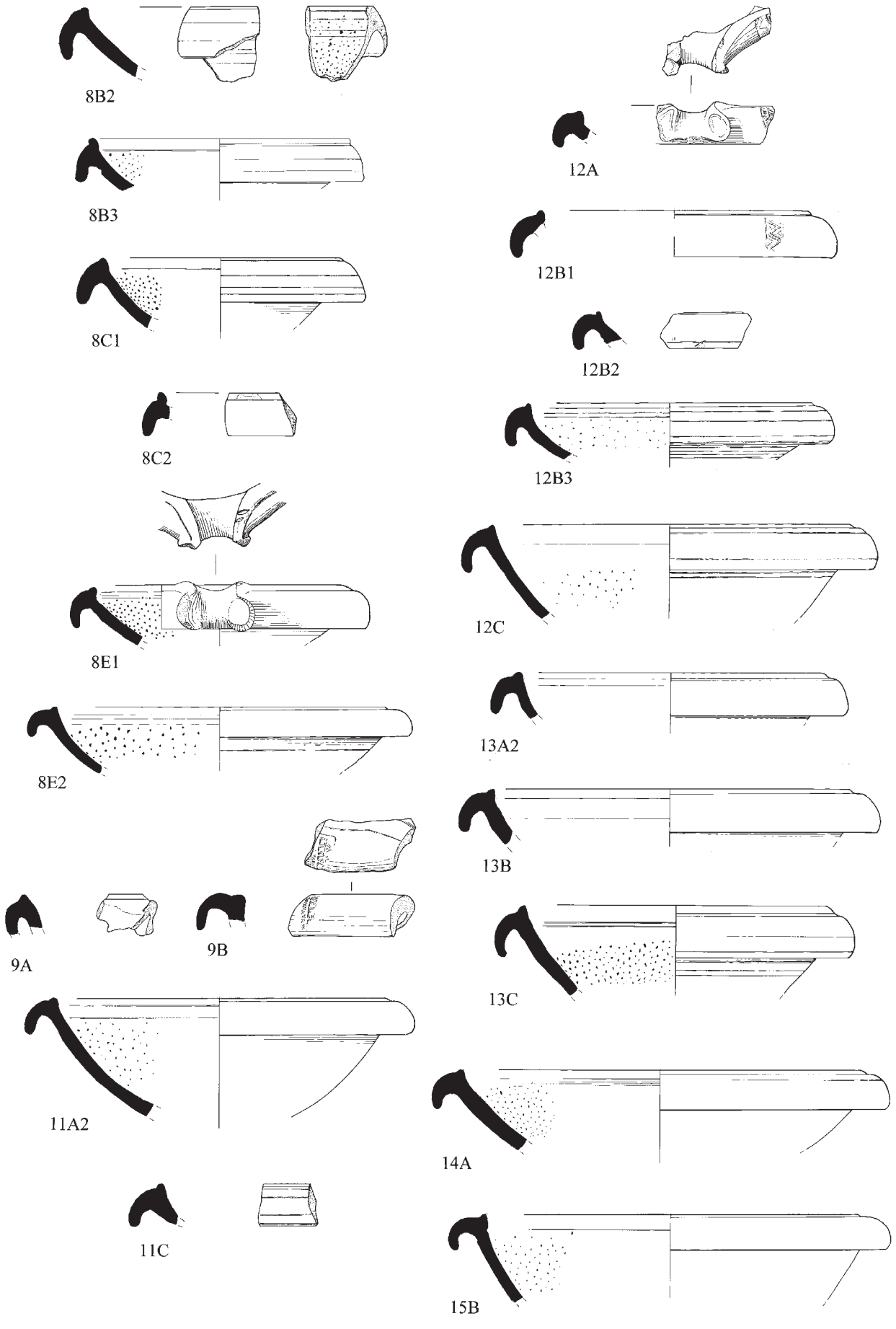


Figure 10 Mortarium Types 8B2–15B. Scale 1:4

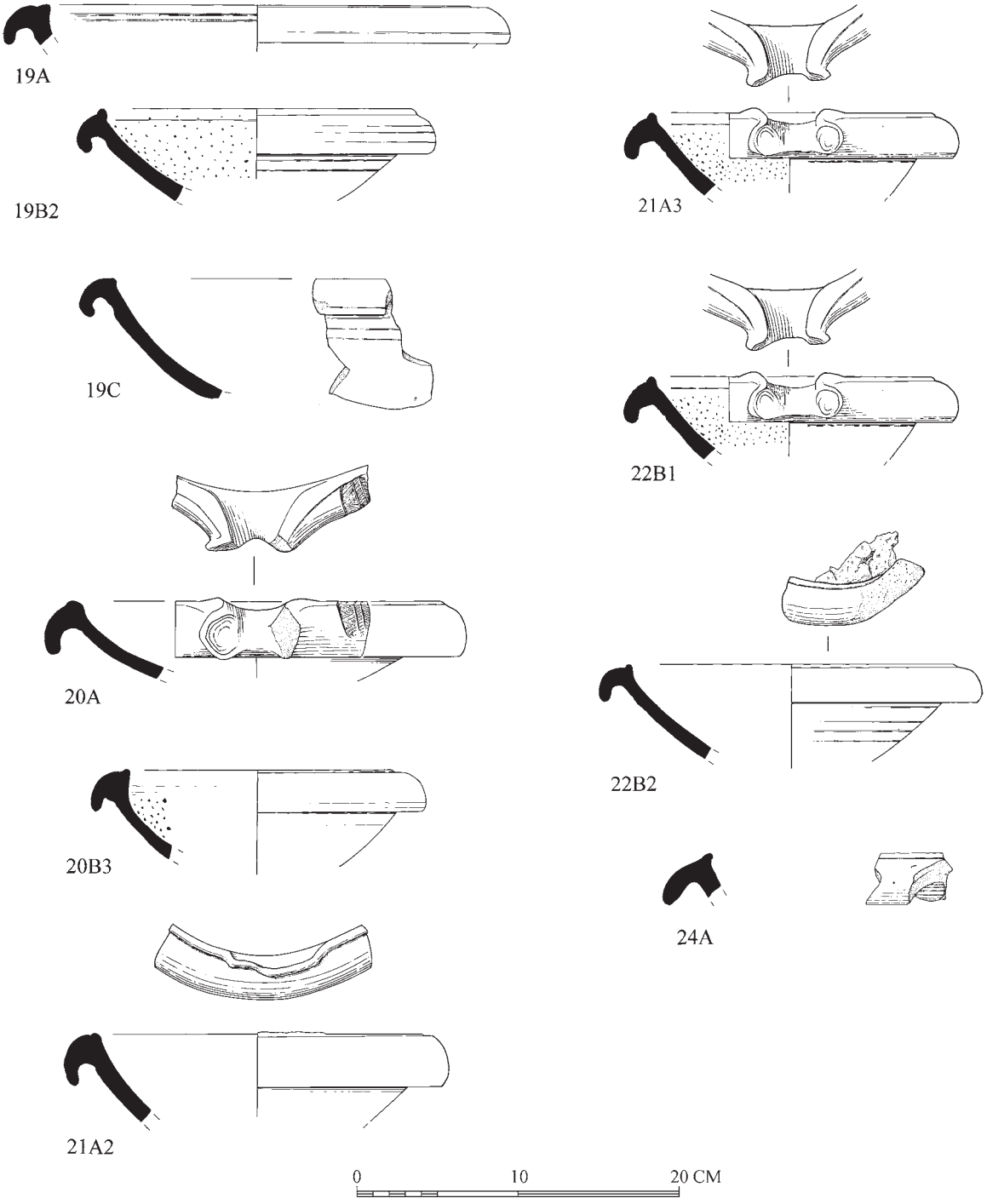


Figure 11 Mortarium Types 19A–24A. Scale 1:4

Mortarium

(Plate III; Figs 7–11)

A total of 647 mortarium sherds, weighing 35.382kg, was recovered from both the fabric and fill of Kiln 2 (see Table 28 for quantities of pottery recovered from the kiln fabric). This compares to the 837 sherds found in Kiln 1, where the pottery was heavily accreted and could not be weighed accurately.

The fabrics

Fabrics are listed as defined by Kay Hartley (Hartley and Gurney 1997, 10). All the mortaria are made from oxidised fabrics which vary in colour from light brown to a greenish cream, although the majority are simply cream.

Fabric A

Self-coloured, hard, very slightly micaceous and fine-textured fabric, slightly powdery to the touch. Light brown in colour (Munsell 7.5YR 7.5/6), with paler but distinctly brownish surface, sometimes with pink core. At x20 magnification few ill-sorted, sporadic quartz and red-brown inclusions are visible. The trituration grit consists of abundant and uniformly small, transparent, milky, pinkish, grey and black quartz; flint; soft orange sandstone; red/brown and black/red/brown haematite iron compound and opaque black material. The general effect is distinctly more colourful than that provided by the trituration grit within fabric B.

Fabric B

Hard, varying in colour from brownish-cream (Munsell 10YR 7/3), sometimes with pink core, to cream (Munsell 2.5YR 7.5/2), and to a distinctly greenish-cream (Munsell 5YR 7/3). Although the ill-sorted, quartz and black and red/brown iron slag inclusions are very moderate in quantity, the fabric is coarser than Fabric A. The trituration grit consists of abundant and uniformly small, transparent, white, grey and black quartz with some flint, rare black iron-slag and a rarer red/brown material.

The stamps

Six different potters' stamps were identified from the excavated kiln (Plate III; Fig. 7). Five of the six stamps found in Kiln 1 were also found in Kiln 2: Regalis (1), herringbone (5), Lunaucis (6) and (7), and the trademark (8) potter, were represented. Only Regalis (2) was not found in both kilns. In addition a previously unrecorded stamp, Nivalis (9), was found (Table 2).

As in Kiln 1, the trademark (8) stamp is the most common. It has been suggested that this may have been due to the smaller size of the vessels stamped with the trademark, since more would fit into the kiln at a single firing. However, analysis of the Kiln 2 mortaria has shown that trademark (8) vessels had an average diameter of 21.78cm while those of Regalis (1) had an average diameter of 21.60cm.

The type series

This is an updated version of the type series created for the mortaria from Kiln 1. All types are listed but only those found in Kiln 2 are illustrated (Figs 8–11). Types are defined as by Hartley for Kiln 1: letter/number codes of forms new to Kiln 2 are shown in bold and the forms described. Fabric, context and phase refer to the illustrated sherds only. Broad types and associated stamps from both kilns are summarised in Appendix 1.

Type 1

Vessels are 'collared' or 'wall-sided'; they can be plain but generally have one or two grooves at the top and bottom of the collar (Fig. 8).

Types 1A–1G (Hartley and Gurney 1997, 10–13) are identical to the late 2nd- and early 3rd-century vessels from Colchester (Hull 1963, fig. 107, type 501). Indeed types 1A–1D were stamped by Regalis and the herringbone potter, who both have Colchester connections. The remaining Type 1 vessels are stylistically similar to the Colchester types, but no stamps have been associated with them.

In Kiln 1 the type consisted largely of stamped mortaria, often associated with the construction phase, with Regalis the most common potter. This type is less common in Kiln 2, although six new variants were identified, found in all phases, some with herringbone (5) or Lunaucis (7) stamps.

A — No stamped sherds from Kiln 2. Fabric A. Context *104*. Phase 1.

B — Lunaucis (7) stamp from Kiln 2. Fabric B. Context joins *50* and *98*. Phases 1 and 5.

C1 — No sherds from Kiln 2.

C2 — Wall-sided mortarium, high rounded bead above slightly convex collar with two grooves at top and bottom and recurved at the distal end. This vessel is a waster, heavily cracked with moderate accretion. Herringbone (5). Fabric B. Context *96*. Phase 1.

D1 — No sherds from Kiln 2.

D2 — Wall-sided mortarium, grooved bead above slightly convex collar with two grooves at top and bottom. Lunaucis (7) stamp. Fabric B. Context *52*. Phase 5.

D3 — Wall-sided mortarium, grooved bead above slightly convex collar with two grooves at top and bottom. No stamped sherds. Fabric B. Context *85*. Phase 3.

E1 — No sherds from Kiln 2.

E2 — Wall-sided mortarium, miniature form, wide grooved bead above straight collar with two grooves at top and bottom. No stamped sherds. Fabric B. Context *52*. Phase 5.

F — No stamped sherds from either kiln. Fabric A. Context *72*. Phase 2.

G–L — No sherds from Kiln 2.

M1 — Wall-sided mortarium, high bead above slightly convex collar, distal end flares out slightly. This vessel has a small spout, and is a cracked and vitrified waster. No stamped sherds. Fabric B. Context *66*. Phase 1.

M2 — Wall-sided mortarium, miniature form, grooved bead above slightly convex collar, with shallow groove on bottom of the flange. No stamped sherds. Fabric B. Context *69*. Phase 1.

Phase	*1*	*2*	*3*	*4*	*5*
unstamped	5	1	1		11
Regalis (1)					
herringbone (5)	1		1		
Lunaucis (6)					
Lunaucis (7)					2
trademark (8)					
Nivalis (9)					

Table 3 Type 1 mortarium by phase (quantified by minimum vessel number)

Type 2

Vessels have a high bead above deep, very convex, collars that are distinctly recurved at the distal end (Fig. 8). They share some features with Hull type 499 (Hull 1963, Fig. 107), although the Ellingham vessels tend to be more recurved than the Colchester types. This type was found in small quantities in all phases of Kiln 2; significantly, no stamps survived. Type 2 vessels were very common in Kiln 1 where they were frequently associated with Regalis (1 and 2) and the herringbone (5) potter, particularly in the construction phase. This difference between the two kilns indicates that Kiln 1 was earlier in date than Kiln 2, as the practise of stamping pottery became less common during the 3rd century (Hartley and Gurney 1997, 27).

A–B — No sherds from Kiln 2.

C1 — No stamped vessels from Kiln 2. Fabric B. Context *99*. Phase 1.

C2 — No stamped vessels from Kiln 2. Fabric B. Context *62*. Phase 1.

D1 — No stamped vessels from Kiln 2. Fabric B. Context *72*. Phase 2.

D2–E — No sherds from Kiln 2.

F — No stamped vessels from either kiln. Fabric B. Context *50*. Phase 5.

G1 — No stamped sherds from Kiln 2. Fabric B. Context *85*. Phase 4.

G2 — No stamped sherds from Kiln 2 Fabric B. Context *61*. Phase 4.

G3 — No sherds from Kiln 2.

Phase	*1*	*2*	*3*	*4*	*5*
unstamped	3	1	4		1
Regalis (1)					
herringbone (5)					
Lunaucis (6)					
Lunaucis (7)					
trademark (8)					
Nivalis (9)					

Table 4 Type 2 mortarium by phase (quantified by minimum vessel number)

Type 3
Vessels have a high bead above a wide, very rounded, flange, with the lower part approximately parallel to the body. The flange is shorter and less curved than in Type 2 and the side is less thick at the junction with the bead (Figs 8 and 9).

This type was unusual in Kiln 2; those that were found are associated with Phases 1 and 5. Only one stamp, Lunaucis (6), was recovered. In Kiln 1, Type 3 forms were more common and, unusually, were stamped by all the known potters. As with Type 2, it is possible that the decrease in the level of stamping recorded between Kiln 1 and 2 indicates a later date for Kiln 2.

A–E	No sherds from Kiln 2.
F	No stamped sherds from Kiln 2. Fabric B. Context *69*. Phase 1.
G	No sherds from Kiln 2.
H1	Lunaucis (6) stamp from Kiln 2. Fabric B. Context *50*. Phase 5.
H2–H4	No sherds from Kiln 2.
I	No stamped sherds from Kiln 2. Fabric B. Context *69*. Phase 1.

Phase	*1*	*2*	*3*	*4*	*5*
unstamped	2				1
Regalis (1)					
herringbone (5)					
Lunaucis (6)					1
Lunaucis (7)					
trademark (8)					
Nivalis (9)					

Table 5 Type 3 mortarium by phase (quantified by minimum vessel number)

Type 4
Vessels have the bead above or below the flange, which is deeper than Type 3, with the distal end marginally inturned (Fig. 9).

This type consists mainly of unstamped rim sherds associated with the construction of Kiln 2 (Phase 1), although it is present in all phases. Type 4 is commonly associated with Regalis (1), although Lunaucis (6) and (7) were also found, (the Lunaucis (7) stamp is on a miniature vessel).

The Kiln 2 assemblage for Type 4 is similar to that from Kiln 1, where Regalis was common although Lunaucis was also identified. However, most mortaria in Kiln 1 were not assigned to a phase.

A1	Regalis (1) stamp from Kiln 2. Fabric B. Context *99*. Phase 1.
A2	Lunaucis (6) stamp from Kiln 2. Fabric B. Context *61*. Phase 3.
A3	No sherds from Kiln 2.
A4	Regalis (1) stamp from Kiln 2. An example of a Lunaucis (7) stamp was also found on a miniature vessel that is illustrated here. Fabric B. Context *111*. Phase 1.
A5	Regalis (1) stamp from Kiln 2. Fabric B. Context *66*. Phase 1.
C1	No stamped sherds from Kiln 2. Fabric B. Context *103*. Phase 2.
C2	No sherds from Kiln 2.
D1	No stamped sherds from Kiln 2. Fabric B. Context *66*. Phase 1.
D2	No sherds from Kiln 2.

Phase	*1*	*2*	*3*	*4*	*5*
unstamped	10	3	7		12
Regalis (1)	7		1		3
herringbone (5)					
Lunaucis (6)			2		
Lunaucis (7)	1				
trademark (8)					
Nivalis (9)					

Table 6 Type 4 mortarium by phase (quantified by minimum vessel number)

Type 5
Of the two Type 5 forms identified from Kiln 1, only Type B was identified from Kiln 2. This has a bead above a small, curved, thickish flange that tapers slightly towards the distal end (Fig. 9).

The small number of Type 5 vessels from Kiln 2 consist of unstamped rim fragments found in Phases 1 and 3, although a single trademark (8) stamp was retrieved from Phase 5. This is consistent with Type 5 vessels from Kiln 1; these were also commonly represented by unstamped sherds, although examples of the trademark and Regalis potters' stamps were found.

A	No sherds from Kiln 2.
B	Trademark (8) stamp from Kiln 2. Fabric B. Context *50*. Phase 'other'.

Phase	*1*	*2*	*3*	*4*	*5*
unstamped	1		1		
Regalis (1)					
herringbone (5)					
Lunaucis (6)					
Lunaucis (7)					
trademark (8)					1
Nivalis (9)					

Table 7 Type 5 mortarium by phase (quantified by minimum vessel number)

Type 6
Vessels cover a range of variations, and the individual letters could well be used as individual types. All, however, have the bead above a fairly thick flange (Fig. 9).

Type 6 vessels were uncommon in Kiln 2. Most were unstamped rims from Phase 3. However, one trademark (8) stamp was recovered from Phase 1, and the 'new' Nivalis (9) stamp was found in the disuse fills of the kiln (Phase 3). In Kiln 1, most Type 6 rim fragments were also unstamped and were found in both phases, although trademark (8) and Regalis (1) stamps were recorded.

A–B	No sherds from Kiln 2.
C1	No stamped sherds from Kiln 2. Fabric B. Context *94*. Phase 3.
C2–C5	No sherds from Kiln 2.
C6	Soft, fine-textured fabric, fired to a yellowish-cream (Munsell 2.5Y 7/2) at the surface with the rest of the fabric orange-brown (Munsell 2.5YR 6/6). Inclusions at x20 magnification: moderate, ill-sorted and randomly distributed pinkish transparent and white quartz. There is a small neatly-formed potter's stamp, impressed so that the name NIVALIS (9) reads outward from the inside of the rim. The vessel has a small bead above a well-rounded thickish flange, with distal end tending outwards. This is the only recorded example of the Nivalis stamp. Fabric A. Context *61*. Phase 1
D	Trademark (8) stamp from Kiln 2. Fabric B. Context *96*. Phase 1.
E–F	No sherds from Kiln 2.
G	No stamped sherds from either kiln. Fabric B. Context *90*. Phase 4.
H	No sherds from Kiln 2.

Phase	*1*	*2*	*3*	*4*	*5*
unstamped	1		3		1
Regalis (1)					
herringbone (5)					
Lunaucis (6)					
Lunaucis (7)					
trademark (8)	1				
Nivalis (9)			1		

Table 8 Type 6 mortarium by phase (quantified by minimum vessel number)

Type 7
Vessels have a very high bead and a small, sharply down-turned flange that is sometimes stubby. Apart from these common factors, the individual letters represent quite individual types (Fig. 9).

Type 7 forms are represented mostly by unstamped rims that occur in all phases, with one trademark (8) stamp in Phase 1. This is similar to the evidence from Kiln 1 where Type 7 pieces 'are unlikely to be stamped and only the trademark potter is associated with any of them' (Hartley and Gurney 1997, 16).

A–B No sherds from Kiln 2.
C Trademark (8) stamp from Kiln 2. Fabric B. Context *69*. Phase 1.
D–E2 No sherds from Kiln 2.
F1 No stamped sherds from Kiln 2. Fabric B. Context *64*. Phase 2. Unillustrated.
F2 No stamped sherds from either kiln. Fabric B. Context *98*. Phase 1.

Phase	*1*	*2*	*3*	*4*	*5*
unstamped	1	1	1		1
Regalis (1)					
herringbone (5)					
Lunaucis (6)					
Lunaucis (7)					
trademark (8)	1				
Nivalis (9)					

Table 9 Type 7 mortarium by phase (quantified by minimum vessel number)

Type 8
Vessel Types A, B and E have a very high bead and a narrow, deep flange, while Types C1 and C2 are stubby with a shorter flange. (Type D was not found in Kiln 2) (Figs 9 and 10).

Type 8 vessels are represented mostly by unstamped sherds. They are relatively common in all phases of Kiln 2, and only the trademark (8) die was associated with them. In Kiln 1 the trademark (8) die was also the only stamp associated with this form, and no Type 8 vessels were recovered from the construction deposits. This suggests that the type may not have been available as a building material for Kiln 1, but that it was for the construction of Kiln 2: further evidence for the slightly later date of Kiln 2.

A Trademark (8) stamp from Kiln 2. Fabric B. Context *98*. Phase 1.
B1 Trademark (8) stamp from Kiln 2. Fabric B. Context *50*. Phase 5.
B2 This vessel has a small high bead above a narrow deep flange that tapers towards a 'pinched' distal end; flange is distinct due to its angled nature. No stamped sherds. Fabric B. Context *61*. Phase3.
B3 This vessel has well defined high bead, heavily underscored, above slightly convex flange gently 'pinched' at distal end. No stamped sherds. This example is a miniature vessel. Fabric B. Context*50*. Phase 5.
C1 No stamped sherds from either kiln. The illustrated example is a miniature vessel. Fabric B. Context *111*. Phase 1.
C2 No stamped sherds from either kiln. Fabric B. Context *50*. Phase 5.
D No sherds from Kiln 2.
E1 (Rim form similar to Type E, Kiln 1, for which no stamped sherd was found.) Trademark (8) stamp from Kiln 2. Fabric B. Context joins *98* and *99*. Phase 1.
E2 Vessel has small high bead above well-rounded flange that tapers towards distal end; the trademark (8) stamp was associated with this form. Fabric B. Context *50*. Phase 5.

Phase	*1*	*2*	*3*	*4*	*5*
unstamped	10	1	9		7
Regalis (1)					
herringbone (5)					
Lunaucis (6)					
Lunaucis (7)					
trademark (8)			2		3
Nivalis (9)					

Table 10 Type 8 mortarium by phase (quantified by minimum vessel number)

Type 9
Vessels have a flange that sweeps out from the bead without any intervening groove. There is a raised 'saddle' on the upper part of the flange, which can be difficult to see on the illustrations (Fig. 10).

Although only a few sherds of Type 9 mortarium were recovered from Kiln 2, they included rims stamped by Regalis (1) and the trademark (8) potter. This is similar to Kiln 1, although there the herringbone (5) and not the trademark (8) stamp was associated with this type.

A Trademark (8) stamp from Kiln 2. Fabric B. Context *61*. Phase 3.
B Regalis (1) stamp from Kiln 2. Fabric B. Context *50*. Phase 5.

Phase	*1*	*2*	*3*	*4*	*5*
unstamped	10	1	9		7
Regalis (1)					
herringbone (5)					
Lunaucis (6)					
Lunaucis (7)					
trademark (8)			2		3
Nivalis (9)					

Table 11 Type 9 mortarium by phase (quantified by minimum vessel number)

Type 10 was not a product of Kiln 1, and was not found in Kiln 2.

Type 11
Vessel Types A and B have thick, well-rounded, fairly wide rims, while C is deeper and narrower (Fig. 10). Only unstamped rim fragments were recovered from Kiln 2; in Kiln 1 several examples of the trademark (8) stamp were found.

Phase	*1*	*2*	*3*	*4*	*5*
unstamped	1		1		1
Regalis (1)					
herringbone (5)					
Lunaucis (6)					
Lunaucis (7)					
trademark (8)					
Nivalis (9)					

Table 12 Type 11 mortarium by phase (quantified by minimum vessel number)

A1 Rim form as Type 11A, Kiln 1. No stamped sherds from either kiln. No example suitable for illustration was retrieved from Kiln 2.
A2 Vessel has rounded bead just above thick, well-rounded fairly wide flange that tapers slightly towards distal end. No stamped sherds. Fabric B. Context *62*. Phase 1.
B No sherds from Kiln 2.

C No stamped vessels from Kiln 2. Fabric B. Context *52*. Phase 5.

Type 12
Vessels have a bead above, or level with, a fairly deep, well-rounded flange that usually tapers towards the distal end (Fig. 10).

Type 12 vessels were present in all phases of Kiln 2 and, although sherds were mostly unstamped, the trademark (8) and Lunaucis (6) potters were both represented. In Kiln 1 most vessels were unstamped, although both the herringbone (5) and trademark (8) potters were identified.

A Trademark (8) stamp from Kiln 2. Fabric B. Context *96*. Phase 1.
B1 Lunaucis (6) and trademark (8) stamps from Kiln 2. Fabric B. Context joins *50* and *72*. Phases 5 and 2.
B2 Lunaucis (6) stamp from Kiln 2. Fabric B. Context *69*. Phase 1.
B3 Vessel has well-defined high bead above fairly deep, well-rounded flange that tapers slightly towards squared distal end. No stamped sherds. Fabric B. Context *93*. Phase 5.
C Trademark (8) stamp from Kiln 2. Fabric A. Context *52*. Phase 5.

Phase	*1*	*2*	*3*	*4*	*5*
unstamped	1		2		5
Regalis (1)					
herringbone (5)					
Lunaucis (6)	1		1		
Lunaucis (7)					
trademark (8)	2	1			1
Nivalis (9)					

Table 13 Type 12 mortarium by phase (quantified by minimum vessel number)

Type 13
Vessels have a bead above the flange, which begins almost horizontally before turning sharply downwards and tapering towards the distal end. The distal end is recurved in A–B, and in C it is tipped sharply inwards (Fig. 10).

Unstamped sherds of this vessel form were retrieved from all phases of Kiln 2. Mortarium of this type was also found in all phases of Kiln 1, mostly unstamped, although two trademark (8) stamps were identified.

A1 No sherds from Kiln 2.
A2 This vessel has fairly square high bead above the flange which begins almost horizontally, then turns sharply downwards. The flange tapers slightly to squared distal end. No stamped sherds. Fabric B. Contexts *50* and *52*. Phase 5.
B No stamped vessels from Kiln 2. Fabric B. Context *94*. Phase 3.
C No stamped sherds from either kiln. Fabric B. Context *111*. Phase 1.

Phase	*1*	*2*	*3*	*4*	*5*
unstamped	4	1	3		1
Regalis (1)					
herringbone (5)					
Lunaucis (6)					
Lunaucis (7)					
trademark (8)					
Nivalis (9)					

Table 14 Type 13 mortarium by phase (quantified by minimum vessel number)

Type 14
Vessels have a stubby rim in two planes, like Type 13 but remaining thick and tending outwards at the distal end (Fig. 10).

Not many examples of this vessel type were recovered from Kiln 2; those that were were mostly unstamped and recovered from Phases 3 and 5. The same vessel type in Kiln 1 was also uncommon, but where found was stamped with the die of Regalis (2).

A No stamped sherds from Kiln 2. Fabric B. Context *52*. Phase 5.

Phase	*1*	*2*	*3*	*4*	*5*
unstamped			1		4
Regalis (1)					
herringbone (5)					
Lunaucis (6)					
Lunaucis (7)					
trademark (8)					
Nivalis (9)					

Table 15 Type 14 mortarium by phase (quantified by minimum vessel number)

Type 15
Vessels have a high bead above a flange that curves out and down, then sharply down, with the distal end tapering (Fig. 10).

Only two unstamped rim fragments were found in Kiln 2, from Phases 3 and 5. Type 15 vessels from Kiln 1 were also represented mostly by unstamped sherds found in post-construction phases, although one trademark (8) stamp and three miniature forms were recorded.

A No stamped sherds from Kiln 2. No complete rim was retrieved; no illustration.
B Vessel has high bead above wide flange curving out, then down and finally sharply down. The distal end tapers and curves inwards. No stamped vessel found. Fabric B. Context *64*. Phase 3.

Phase	*1*	*2*	*3*	*4*	*5*
unstamped			1		1
Regalis (1)					
herringbone (5)					
Lunaucis (6)					
Lunaucis (7)					
trademark (8)					
Nivalis (9)					

Table 16 Type 15 mortarium by phase (quantified by minimum vessel number)

Types 16(12a)–18 were not found in Kiln 2

Type 19
Vessels have a bead above a humped flange that tapers towards the distal end (Fig. 11).

Unstamped rim fragments were retrieved from all phases of Kiln 2 except Phase 2. In Kiln 1 several trademark (8) stamps were recovered, although not from the construction deposits.

Phase	*1*	*2*	*3*	*4*	*5*
unstamped	1		1		3
Regalis (1)					
herringbone (5)					
Lunaucis (6)					
Lunaucis (7)					
trademark (8)					
Nivalis (9)					

Table 17 Type 19 mortarium by phase (quantified by minimum vessel number)

A No stamped sherds from either kiln. Fabric B. Context *94*. Phase 3.
B1 No complete example was retrieved from Kiln 2 and no stamps were found. Not illustrated.
B2 No stamped sherds from Kiln 2. Fabric B. Context joins *50* and *69*. Phases 5 and 1.

C No stamped sherds from Kiln 2. Fabric B. Context *50*. Phase 5.

Type 20
Vessels have a high bead above a well-rounded, relatively deep flange that tapers marginally towards the distal end. Type A includes the larger rims and Type B all the tiny rims (Fig. 11).

In Kiln 1 Type 20 was very common, and was strongly associated with the trademark (8) potter. In Kiln 2 this type was relatively rare. Although found in most phases (1, 3 and 5), nearly all the vessels were unstamped (two trademark (8) stamps were recorded).

A Trademark (8) stamp from Kiln 2. Fabric B. Context *69*. Phase 1.
B1–B2 No sherds from Kiln 2.
B3 Trademark (8) stamp from Kiln 2. Fabric B. Context *91*. Phase 5.

Phase	*1*	*2*	*3*	*4*	*5*
unstamped	1		3		1
Regalis (1)					
herringbone (5)					
Lunaucis (6)					
Lunaucis (7)					
trademark (8)	1				1
Nivalis (9)					

Table 18 Type 20 mortarium by phase (quantified by minimum vessel number)

Type 21
Of the two Type 21 forms identified in Kiln 1, only form A was found in Kiln 2. This has a high bead and a small, angled flange that is quite thick and rounded at the distal end (Fig. 11).

Pottery of this type recovered from Kiln 2 is mostly unstamped, although two trademark (8) stamps were identified. The trademark (8) stamp was also the only one associated with this type in Kiln 1.

A1 No sherds from Kiln 2.
A2 No stamped sherds from either kiln: the illustrated example is a waster. Fabric B. Context *69*. Phase 1.
A3 Trademark (8) stamp from Kiln 2. Fabric A. Context *59*. Phase 4.
B No sherds from Kiln 2.

Phase	*1*	*2*	*3*	*4*	*5*
unstamped	2		1		1
Regalis (1)					
herringbone (5)					
Lunaucis (6)					
Lunaucis (7)					
trademark (8)	1				1
Nivalis (9)					

Table 19 Type 21 mortarium by phase (quantified by minimum vessel number)

Type 22
This resembles Type 20 but with a lower bead, though this is never below the small, thick-ish, well-rounded flange. All mortaria of this type have small rims for the size of vessel: Type 22A have larger rims (not found in Kiln 2), and 22B the smallest (Fig. 11).

In Kiln 1, two mortaria stamped by the trademark (8) potter were associated with this form. However, this was an unusual form in Kiln 2 and only unstamped sherds were found in Phases 1 and 2.

A No sherds from Kiln 2.
B1 No stamped sherds from Kiln 2. Fabric B. Context *69*. Phase 1.
B2 No stamped sherds from Kiln 2. Fabric B. Context *69*. Phase 1.

Phase	*1*	*2*	*3*	*4*	*5*
unstamped	2	1			
Regalis (1)					
herringbone (5)					
Lunaucis (6)					
Lunaucis (7)					
trademark (8)					
Nivalis (9)					

Table 20 Type 22 mortarium by phase (quantified by minimum vessel number)

Type 23 does not form part of this type series (Gurney and Hartley 1997, 20–1, fig.11).

Type 24
This is a variation new to Kiln 2, one unstamped example being retrieved from Phase 2 (Fig. 11).

A Vessel has high rounded bead above very wide thick flange that tapers and turns down at distal end. No stamped sherds. Fabric B. Context *103*. Phase 2.

Phase	*1*	*2*	*3*	*4*	*5*
unstamped		1			
Regalis (1)					
herringbone (5)					
Lunaucis (6)					
Lunaucis (7)					
trademark (8)					
Nivalis (9)					

Table 21 Type 24 mortarium by phase (quantified by minimum vessel number)

Coarse wares
(Figs 12 and 13)
The coarse ware fabrics and forms are summarised in Table 24.

Oxidised coarse wares
A total of 711 sherds of oxidised wares other than mortarium, weighing 7.584kg, was recovered. They are the second most common of the three pottery types found, and represent 16.50% (by weight) and 26.76% (by EVE) of the material from the site. Two fabrics (C and E) were identified (Table 22). These are consistent with those identified by Tony Gregory for Kiln 1. Two other fabrics from the original kiln were not found in Kiln 2. These were Fabric D (with mica-gilding) and Fabric F (with a micaceous slip on both internal and external surfaces: Hartley and Gurney 1997, 21). Pottery surfaces treated with applied mica were not identified in Kiln 2: this is probably due to a high level of abrasion rather than being a clear indication that it was not used. If, however, Kiln 2 was (as suspected) slightly later in date then perhaps this method of decoration had become unfashionable.

Fabrics	*Qty*	*Wt(g)*	*EVE*	*%Wt*
C	660	6876	8.92	90.66
E	51	708	1.13	9.34
Total				**100.00**

Table 22 Oxidised wares quantified by fabric type

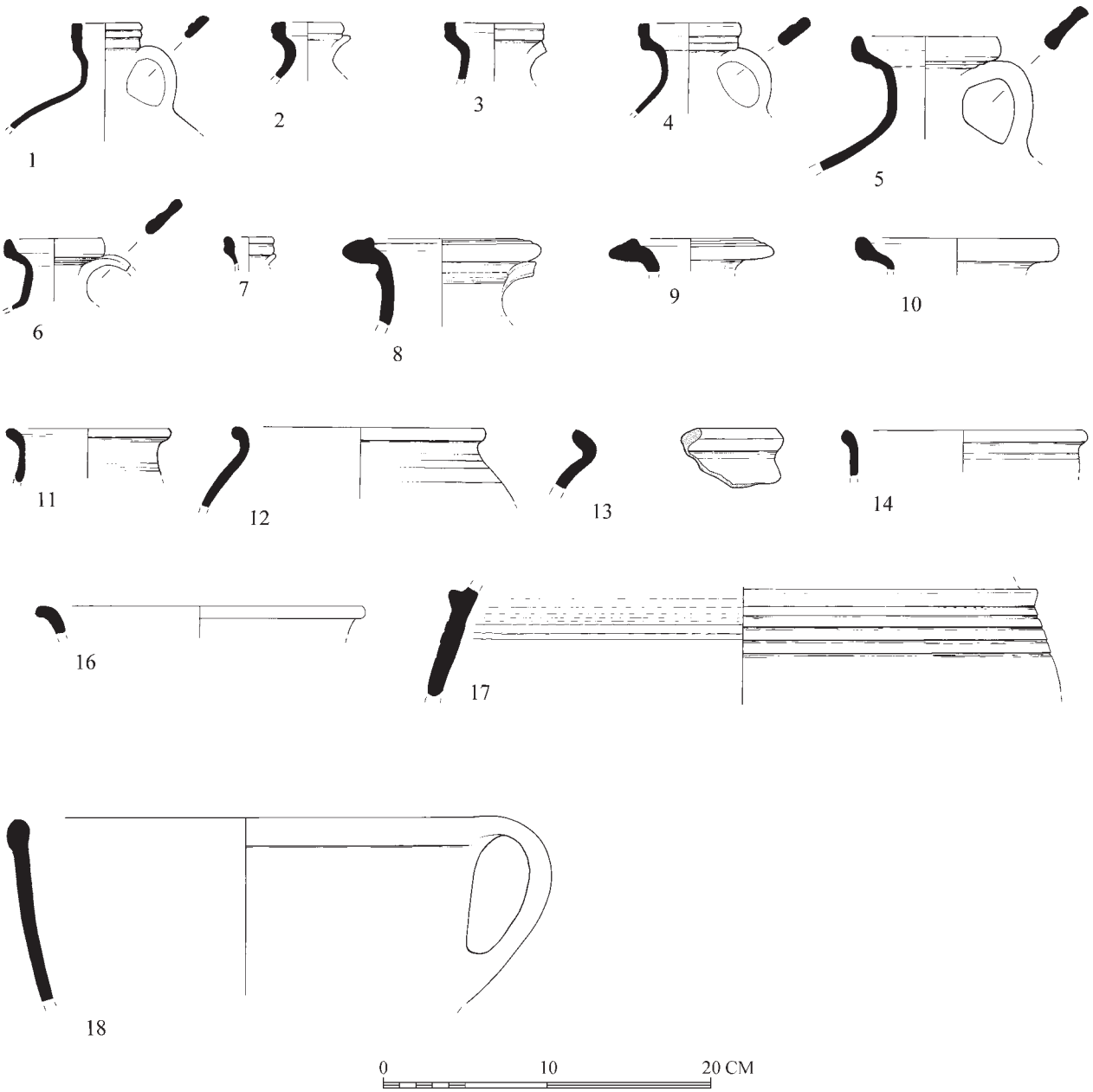


Figure 12 Coarse ware (oxidised), Types 1–18. Scale 1:4.

The fabrics

These are listed as described by Tony Gregory (Hartley and Gurney 1997, 21).

Fabric C

Smooth, slightly sandy, very fine fabric with extremely sparse small sub-rounded quartzite inclusions. Occasionally contains a little mica, but never as much as Fabric G. Hard, ranging in colour from white (Munsell 2.5Y 8/2) to very pale brown (10YR 8/3). Flagons in this fabric tend to be harder and finer in texture than other forms.

Forms: flagon (type series 1–11), medium- (12–13) and wide- (14–16) mouthed jars; also a jug/bowl (18).

Fabric E

Smooth, slightly sandy fabric, with coarser texture and more quartzite inclusions than Fabric C, but otherwise very similar. Colour ranges from red (10YR 5/8) to grey-brown (10YR 5/1). Fabrics C and E, in reality, represent the two ends of a range of variation in fineness and density of inclusions.

Forms: flagon, medium- and wide-mouthed jars.

The type series

(Fig. 12)

See *Methodology*: type numbers new to Ellingham are shown in bold.

1 Ring necked flagon, three mouldings, single tripartite handle (*cf.* Hull 1963, fig. 102, no. 155A). Fabric C. Context *61*. Phase 3.

2 Cupped neck flagon, two mouldings, single tripartite handle (*cf.* Hartley and Gurney 1997, fig. 12, no. 24A and Hull 1963, fig. 102, no. 156A). Fabric C. Context *90*. Phase 4.

3 Cupped neck flagon, two mouldings, single tripartite handle. Vessel mouth slightly more 'splayed' than Type 2 (*cf.* Hartley and Gurney 1997, fig. 12, no. 24A and Hull 1963, fig. 102, no. 156A). Fabric C. Context *61*. Phase 3.

4 Cupped neck flagon, two mouldings, single tripartite handle. Well-defined mouldings with quite square lower edge (*cf.* Hartley and Gurney 1997, fig.12, no. 25A and Hull 1963, Fig. 102, no. 156A). Fabric C. Context *61*. Phase 3.

5 Cupped neck flagon, three mouldings, single tripartite handle. Upper moulding is thickened and angled inwards; some accretion on rim (*cf.* Hartley and Gurney 1997, Fig. 12, no. 25B but with only one handle). Fabric C. Context *68*. Phase 2.

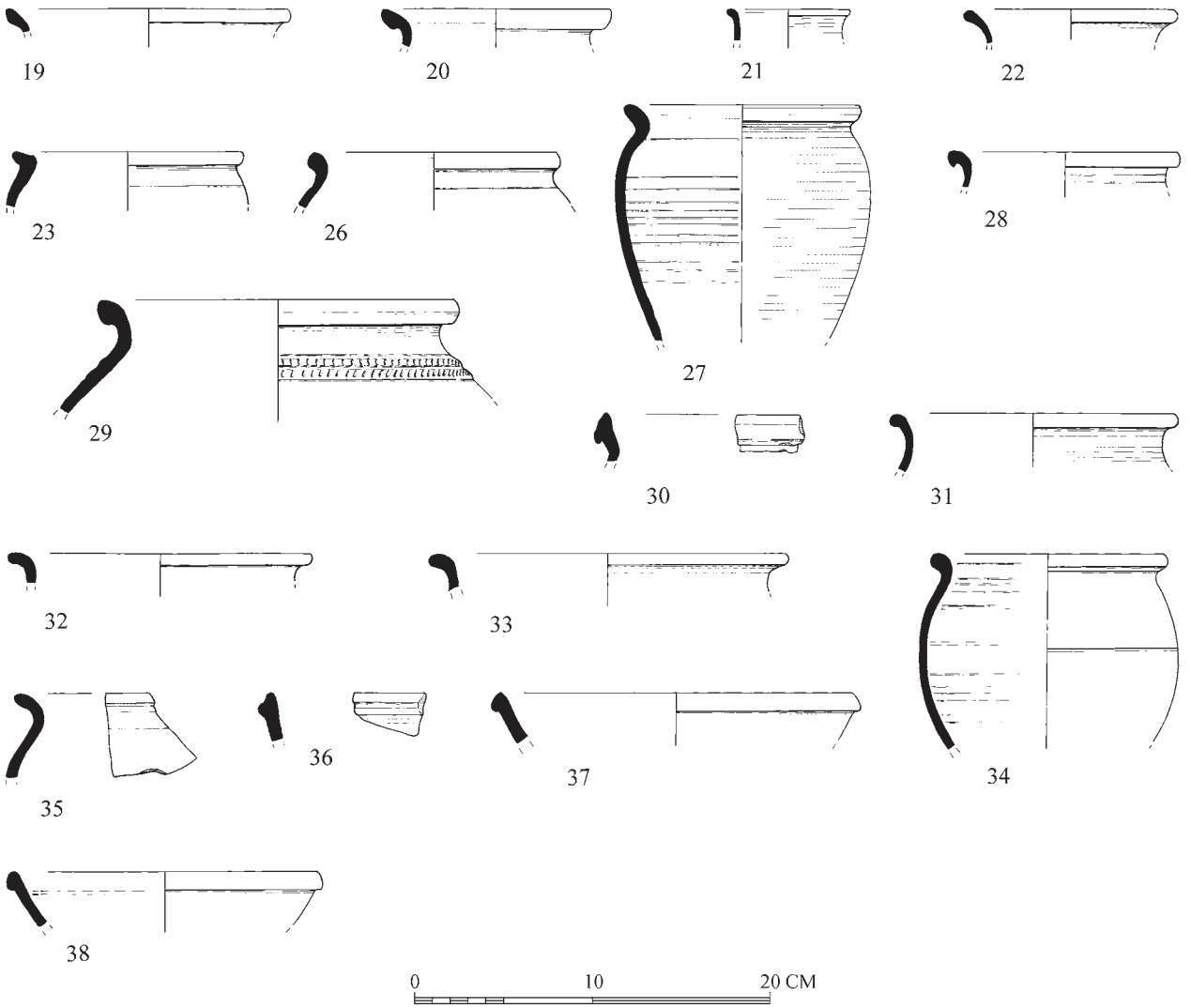


Figure 13 Coarse ware (reduced), Types 19–38. Scale 1:4.

6 Cupped neck flagon, five mouldings, single tripartite handle. Upper moulding thickened and angled inwards, similar to Type 5 (*cf.* Hartley and Gurney 1997, fig. 12, no. 25B but with only one handle). Fabric C. Context *101*. Phase 2.

7 Cupped neck flagon, plain rounded rim above slightly projecting moulding, scar of handle remains (*cf.* Hartley and Gurney 1997, fig. 12, no. 27A and Hull 1963, fig. 102, no. 160). Fabric C. Context *72*. Phase 2.

8 Flagon, inturned rim heavily underscored internally and reeded externally; at least one bipartite handle. Bead encircles neck directly below rim (*cf.* Hartley and Gurney 1997, fig. 12, no. 28A and Hull 1963, fig. 106, no. 370). Fabric C. Context *90*. Phase 4.

9 Flagon, inturned rim, heavily underscored internally and reeded externally. Similar to Type 8 (c*f.* Hartley and Gurney 1997, fig. 12, no. 29). Fabric E. Context *59*. Phase 4.

10 Cupped neck flagon, thickened rim well defined and quite square (c*f.* Hartley and Gurney 1997, fig. 12, no. 30 second drawing). Fabric C. Context *75*. Phase 5.

11 Flagon/narrow-mouthed jar, simple squared everted rim (*cf.* Hartley and Gurney 1997, fig. 12, no. 31). Fabric C. Context *61*. Phase 3.

12 Medium-mouthed jar, short neck, rolled rim, globular body. Fabric C. Context *72*. Phase: use.

13 Medium-mouthed jar, everted, gently tapering rim slightly undercut (*cf.* Hartley and Gurney 1997, fig. 12, no. 36). Fabric E. Context *90*. Phase 4.

14 Wide-mouthed jar/bowl with long grooved neck and rolled rim. Fabric C. Context *52*. Phase 5.

15 Wide-mouthed jar, lid-seated upstanding grooved rim. Too fragmentary to illustrate (*cf.* Hartley and Gurney 1997, fig. 12, no. 35). Fabric C. Context *59*. Phase 4.

16 Wide-mouthed jar, simple everted rim (*cf.* Hartley and Gurney 1997, fig. 12, no. 43 and Hull 1963, fig. 105, no. 299). Fabric E. Context *61*. Phase 3.

17 Body sherd, raised bead or small flange, coarse external rilling. Fabric C. Context *72*. Phase: use.

18 Large jug, straight sides, externally thickened and squared rim markedly concave on top, at least one bipartite handle (*cf.* West 1990, 84, Type 8, fig. 59, nos 263–4 and Hull 1963, fig. 106, no. 379) (*cf.* Hartley and Gurney 1997, fig. 12, no. 46). Fabric C. Context joins *50*, *61*, *72*. Phases 2, 3 and 5.

Reduced coarse wares
(Fig. 13)

A total of 202 sherds of reduced ware, weighing 2.982kg, was recovered during the excavation. This was the least common of the three pottery types from the site: reduced wares represent 6.49% (by weight) or 9.73% (by EVE) of the pottery found. Three fabrics were identified: G, H and I (Table 23). Fabric G is the same as that identified by Tony Gregory for Kiln 1, and constitutes the majority of reduced ware in this assemblage.

Fabrics	*Qty*	*Wt(g)*	*EVE*	*%Wt*
G	192	2904	3.60	97.38
H	2	18	0.11	0.61
I	8	60	0.00	2.01
Total	**202**	**2982**	**3.71**	**100.00**

Table 23 Reduced wares quantified by fabric type

	Fabrics				
Forms	*C*	*E*	*G*	*H*	*I*
1	0.53				
2	0.40				
3	0.30				
4	1.21	0.17			
5	2.12				
6	0.60				
7	0.02	0.30			
8	0.51				
9		0.09			
10	0.13				
11	0.11				
12	0.28				
13		1.06			
14	0.13				
15	0.04				
16	0.06	0.09			
17	0.70				
18	5.13		1.42		
19			0.06		
20			0.13		
21			0.04		
22			0.06		
23			0.34		
24			0.13		
25			0.06		
26			0.15		
27			1.51		
28			0.42		
29			0.93		
30			0.13		
31			0.19	0.15	
32			0.11		
33			0.19		
34			2.18		
35			0.17		
36			0.36		
37			0.21		
38			0.15		
Undiagnostic	52.92	4.85	18.55		0.59
Total	65.19	6.56	27.49	0.15	0.59

Numbers in bold indicate forms found in both Kilns 1 and 2

Table 24 Summary of coarse ware assemblage: fabrics and forms quantified by percentage of weight

The fabrics

Fabric G
As described by Tony Gregory (Hartley and Gurney 1997, 21). Hard, smooth fabric with profuse mica and sparse sub-rounded quartzite. Core and surfaces dark grey (2.5YR N4/0). Quite distinct from Fabrics C–F, and should be regarded as Ellingham reduced ware.

Forms: flagon (type series 19), narrow-mouthed jar (20–21), beaker (22), medium-mouthed jar (23–30), wide-mouthed jar (31–5), dish (36–8).

Fabric H
Black Surfaced Red Ware: This has a very similar matrix to Fabric G but is visually very different, with a red core and black surfaces: probably a misfired version of Fabric G.

Form: wide-mouthed jar.

Fabric I
As described in Andrews 1985, 92. Sandy Grey Ware: hard, fairly smooth fabric with characteristic orange core (5YR 4/6) and dark grey surfaces (10YR 4/1). Moderate quartz sand with an average size of 0.10mm, and a sparse scatter of larger grains up to 0.70mm across, together with flecks of mica.

Forms: none identified.

Type series
(Fig. 13)
See *Methodology*; type numbers new to Ellingham are shown in bold.

19 Flagon, expanded mouth, slightly cupped well-defined rim sooted on inside (*cf.* Hartley and Gurney 1997, fig. 12, no. 25). Fabric G. Context *72*. Phase 2.

20 Narrow-mouthed jar, rolled rim (*cf.* Hull 1963, fig. 104, no. 296). Fabric G. Context *61*. Phase 3.

21 Narrow-mouthed jar, squared everted rim, traces of burnished band decoration surviving on exterior (*cf.* Hull 1963, fig. 104, no. 281). Fabric G. Context *72*. Phase 2.

22 Beaker, 'cavetto' rim (*cf.* Hartley and Gurney 1997, fig. 12, no. 51 and Hull 1963, fig. 103, no. 123). Fabric G. Context *61*. Phase 3.

23 Medium-mouthed jar, short angular neck, lid-seated rim. Fabric G. Context joins *61* and *72*. Phases 2 and 3.

24 Medium-mouthed jar, short neck, rolled rim, globular body. Too fragmentary to illustrate. Fabric G. Context *61*. Phase 3.

25 Medium-mouthed jar, short neck and rolled, generally undercut, rim, globular body. A miniature vessel, too fragmentary to illustrate. Fabric G. Context *59*. Phase 4.

26 Medium-mouthed jar, short neck, large rolled rim, globular body. This example has accretion on the rim (*cf.* Hull 1963, fig. 103, no. 268). Fabric G. Context *101*. Phase 2.

27 Medium-mouthed jar, rounded body, simple everted rim, traces of external burnish (*cf.* Hartley and Gurney 1997, fig. 12, no. 36). Fabric G. Context *61*. Phase 3.

28 Medium-mouthed jar, short neck, rolled, heavily undercut rim, globular body (*cf.* Hartley and Gurney 1997, fig. 12, no. 37 and Hull 1963, fig. 103, no. 277). Fabric G. Context *61*. Phase 3.

29 Medium-mouthed jar, short neck, rolled, heavily undercut rim, globular body. This example has incised decoration on shoulder (*cf.* Hartley and Gurney 1997, fig. 12, no. 39). Fabric G. Context *61*. Phase 3.

30 Medium-mouthed jar, projection under rim (*cf.* Hartley and Gurney 1997, fig. 12, no. 41). Fabric G. Context *61*. Phase 3.

31 Wide-mouthed rounded jar, everted squared rim, highly burnished exterior (*cf.* Hartley and Gurney 1997, fig. 12, no. 40 and Hull 1963, fig. 105, no. 299). Fabric H. Context *61*. Phase 3.

32 Wide-mouthed jar, everted squared rim, grooves on neck, highly burnished exterior. Fabric G. Context *75*. Phase 5.

33 Wide-mouthed jar, plain 'S' profile. Fabric G. Context *61*. Phase 3.

34 Wide-mouthed jar, rolled everted rim, one groove mid-body (*cf.* Hartley and Gurney 1997, fig. 12, no. 42 and Hull 1963, fig. 105, no. 299). Fabric G. Context *50*. Phase 5.

35 Wide-mouthed jar, simple everted rim, one groove mid-body (*cf.* Hartley and Gurney 1997, fig. 12, no. 43 and Hull 1963, fig. 105, no. 299). Fabric G. Context *94*. Phase 3.

36 Straight-sided dish, small flange (*cf.* Hull 1963, fig. 105, no. 305). Fabric G. Context *61*. Phase 3.

37 Straight-sided dish, thickened everted 'triangular' rim, narrow horizontal burnished band decoration on exterior (*cf.* Hull 1963, fig. 102, no. 37, although with different decoration). Fabric G. Context *64*. Phase 3.

38 Dish with 'triangular' rim, rounded body, heavily accreted (*cf.* Hartley and Gurney 1997, fig. 13, no. 45 and Hull 1963, fig. 102, no. 37). Fabric G. Context *94*. Phase 3.

Hartley and Gurney, for Kiln 1, calculated the proportion of each group of forms, as percentages of the vessel equivalent total (Hartley and Gurney 1997, 23). The same has been done for the coarseware assemblage from Kiln 2. The results are shown in Table 25. While excavation of Kiln 2 produced a smaller assemblage of coarse wares than Kiln 1, it is clear that the proportions of flagons, jars and bowls are very similar.

	Kiln 1		*Kiln 2*	
Form	*EVE*	*% EVE*	*EVE*	*% EVE*
Flagon	54.00	58.13	8.68	67.44
Jar	21.60	23.25	3.02	23.47
Dish	9.70	10.44	0.24	1.86
Bowl	7.60	8.18	0.84	6.53
Beaker	0.00	0.00	0.09	0.70
Total	**92.90**	**100.00**	**12.87**	**100.00**

Table 25 Proportions of forms as percentages of vessel equivalent total

Discussion

Mortarium

Direct comparison between the two assemblages was not straightforward. The majority of pottery from Kiln 1 is heavily encrusted with fired and vitrified clay (from the kiln), which made weighing the sherds and measuring EVE impractical. Sherd count was the only method of quantification. A total of 837 sherds were examined from Kiln 1, while 647 were retrieved from Kiln 2. The levels of disturbance and abrasion are much higher for Kiln 2, however, resulting in a smaller average sherd size.

When the number of stamps from Kiln 1 and Kiln 2 are compared it can be seen that the Kiln 1 assemblage includes 42 vessels, with a full complement of stamps and 135 single stamps, while Kiln 2 has three complete sets of stamps and 35 single stamps. A lesser, though still exceptional, number of mortaria were recovered from Kiln 2.

It is possible that the Kiln 2 mortaria were slightly smaller than those from the first kiln. Comparison of the illustrated types certainly suggests this, although the Kiln 1 mortaria were not measured due to the high levels of accretion and distortion. However, the decline in stamping (see below) and in the size of vessels are interrelated, since smaller mortarium rims are more difficult to stamp. Thus, the decline in stamps and the reduced size of mortaria may have the same chronological significance.

Both assemblages were produced using the same clay types. Thin-section analysis has refined the fabric descriptions and confirms that most Ellingham mortaria were made of the same quartz/limestone fabric, with small amounts of a quartz-tempered fabric also being used. Repeated firing of some sherds — for example, those incorporated in the kiln structure — has led to an artificial subdivision of the main fabric. An attempt to establish whether the examples of mortaria from West Stow and Caistor St Edmund originated from Ellingham has only shown that they may have done. The problem of distinguishing East Anglian mortarium fabrics effectively (Hartley and Gurney 1997, 10) has not therefore been resolved.

Five of the six makers stamps found in Kiln 1 were also found in Kiln 2. In addition, Kiln 2 contained a completely 'new' stamp, Nivalis (9). This has the potential to illuminate local and national trade connections, as the Regalis stamp had done previously.

There are 24 basic rim forms listed in the mortarium type series, and within this there are 122 sub-divisions. When the mortarium forms are considered in detail it becomes apparent that most of the types are only found in Kiln 1 or in both kilns: only one is new to Kiln 2. The similarity of fabrics and forms between the two kilns suggests they were largely contemporary.

It has already been established (Hartley and Gurney 1997, 27) that Types 1, 2, 3, 4 and 9 are similar to mortaria found in Colchester, and are primarily associated with the Regalis (1 and 2), herringbone (5) and Lunaucis (6 and 7) stamps. Evidence from Kiln 2 supports this (with the exception of a trademark (8) stamp on the rim of a Type 9A mortarium: Table 26). It is worthy of note that both Type 9A, which has only been recognised as a waster, and 9B are atypical of the Ellingham assemblage. The evidence from Kiln 2 also reinforces other traits seen in the Kiln 1 assemblage: for example, the herringbone (5) and trademark (8) stamps are rarely found on the same rim types, and in both kilns Lunaucis (6 and 7) is primarily associated with Types 1, 3 and 4 (with the addition of Type 12 in Kiln 2).

A total of nine mortarium types (using the broad classifications in Appendix 1: 2F, 6D, 6G, 8A, 9B, 13C, 19A, 20B and 21A) are found in both kilns, and remain the same both in form and stamp. This emphasises the close chronological relationship between the kilns. All of these vessels were either unstamped or bear the trademark (8) stamp, with the exception of 9B which is stamped by Regalis (1) and may well be residual (assigned to Phase 5).

Thus, it can be seen that there are more similarities than differences between the two kiln assemblages, although there are a number of developments that suggest that Kiln 2 is slightly later in date. While the majority of mortarium types are found in similar phases in both kilns, some are not. For example, Type 3 (closely associated with the Colchester tradition) was found in all phases in Kiln 1, but only in Phase 1 in Kiln 2. This suggests that production of this form had ceased by the time Kiln 2 was built. Mortarium Type 20 may also relate to a specific phase. It is common in all post-construction phases of Kiln 1; while present in all phases of Kiln 2, it is much rarer there. This suggests that the form may not have been current when Kiln 1 was constructed. Further evidence for changes in production through time may be seen in Type 12 vessels, which in Kiln 1 are stamped by the herringbone (5) and trademark (8) potters, and in Kiln 2 by the trademark (8) and Lunaucis (6 and 7) potters. The herringbone (5) potter is thought to be slightly earlier in date than Lunaucis (Types 6 and 7) (Hartley and Gurney 1997, 7–9).

The trademark (8) is the most common stamp in both kilns. However, the frequency of the different stamp types in each phase is of greater interest than the overall number, as it is known that the practice of stamping declined during the later part of the 2nd century (Hartley and Gurney 1997, 27). Table 26 shows the sub-divided mortarium types

Type	*Phase 1*	*Phase 2*	*Phase 3*	*Other*
1A	0.22			0.14
1C2	0.13 HERR(5)		0.27 HERR(5)	
1F	0.06	0.52		0.24
1M1	0.48			0.06
1M2	0.32			0.09
2C1	0.10			
2C2	0.10		0.04	
3F	0.25			
3I	0.09			
4A1	0.75 REG(1)		0.14	0.60 REG(1)
4A4	1.95 REG(1) LUN(7)	0.06	0.23 REG(1)	0.30
4A5	0.31 REG(1)		0.11	0.17
4D1	0.17		0.09 LUN(6)	
5B	0.28		0.16	0.15 TM(8)
6C1	0.07		0.05	
6D	0TM(8)			
7C	0.15 TM(8)			
7F2	0.41			
8A	0.16		0.23TM(8)	0.21
8B1	0.28	0.09	0.30 TM(8)	0.47
8C1	0.25			
8E1	1.15	0.06	0.31 TM(8)	0.12
9A	0 TM(8)			
11A2	0.26			
12A	0 TM(8)		0.07	0.06
12B1	0.15 LUN(6)	0 TM(8)	0.07	0.12
12B2	0.06		0.11 LUN(6)	0 TM(8)
12C	0.13 TM(8)			0.11
13B	0.11		0.23	0.04
13C	0.32	0.08		
19B2	0.56			0.17
20A	0.15 TM(8)			0.10
21A2	0.21			
21A3	0.83 TM(8)		0.17	0.70 TM(8)

Type	*Phase 1*	*Phase 2*	*Phase 3*	*Other*
22B1	0.32	0.12		
22B2	0.35			
20B3	0.06		0.38	0.11 TM(8)
2D1		0.10		
4C1		0.06	0.04	0.17
7F1		0.12	0.30	0.39
24A		0.06		
1B			0.12	0.47 LUN(7)
1D3			0.14	
2G1			0.12	
2G2			0.08	
4A2			0.04 LUN(6)	
6C6			0 NIV(9)	
8B2			0.13	
8E2			0.08 TM(8)	0.11
11A1			0.05	
14A			0.06	0.21
15B			0.14	
19A			0.11	
1D2				0.10 LUN(7)
1E2				0.28
2F				0.14
3H1				0.28 LUN(6)
6G				0.04
8B3				0.16
8C2				0.09
9B				0.06 REG(1)
11C				0.00
12B3				0.11
13A2				0.19
15A				0.12
19B1				0.00
19C				0.00
Total	**11.19**	**1.27**	**4.37**	**6.88**

Table 26 Mortarium types and associated stamps from Kiln 2 by phase, quantified by EVE; shading indicates chronological shift

	Stamp Total				*Construction*				*All other contexts*			
Potter	*Kiln 1*		*Kiln 2*		*Kiln 1*		*Kiln 2*		*Kiln 1*		*Kiln 2*	
trademark	77	(35.16)	19	(44.19)	21	(24.42)	16	(47.06)	56	(42.11)	3	(33.33)
Lunaucis	33	(15.07)	8	(18.60)	4	(4.65)	5	(14.71)	29	(21.80)	3	(33.33)
herringbone	47	(21.46)	2	(4.65)	19	(22.09)	1	(2.94)	28	(21.05)	1	(11.11)
Regalis	62	(28.31)	13	(30.23)	42	(48.84)	12	(35.29)	20	(15.04)	1	(11.11)
Nivalis	0	(0.00)	1	(2.33)	0	(0.00)	0	(0.00)	0	(0.00)	1	(11.11)

Table 27 Mortarium stamps from Kiln 2 by phase, quantified by EVE

found in Kiln 2 by phase: it is clear that most stamps are associated with Phase 1 (construction).

Stamped mortaria from the construction phases of both kilns are compared in Table 27. In Kiln 1, Regalis (1 and 2) is most represented, followed by the trademark (8) and herringbone (5) potters, and by small numbers of pieces by Lunaucis (6 and 7). In Kiln 2, the percentage of Regalis (1) stamps has decreased, the trademark (8) stamp is more common and the herringbone (5) stamp has almost disappeared. It can be seen that, while stamps generally remain common in Kiln 1, only nine stamps were found in the post-construction deposits of Kiln 2 (Phases 2 and 3).

The decline in the occurrence of the Regalis and herringbone stamps (both types associated with Colchester mortarium) between the construction of Kiln 1 and the construction of Kiln 2 is clear. In addition, the percentage of Lunaucis and trademark stamps (the latter associated with vessels alien to the Colchester tradition) increases during this period. It is apparent that more mortarium types alien to the Colchester tradition are being produced in Kiln 2 than in Kiln 1, and that more vessels are either unstamped or stamped only by the trademark (8) potter.

A total of seventeen mortarium rim types (using the broad classifications as in Appendix 1: 1A, 2C, 2D, 2G, 3F, 3I, 4C, 4D, 7F, 11A, 11C, 13A, 13B, 14A, 15A, 19B and 19C) were found in both kilns, with the distinction that they were stamped in Kiln 1 and unstamped in Kiln 2. This suggests that there was quite a dramatic decline in the custom of stamping, across a broad range of forms. However, there are five vessel types (7C, 8B, 8E, 12C and 20A) that were unstamped in Kiln 1 and stamped in Kiln 2. These five types all bear the trademark (8) stamp, and not those (*i.e.* Regalis (1) and (2) and herringbone (5)) associated with the older Colchester tradition.

Although this is difficult to prove, it is thought that a minimum of 32 vessels from the Kiln 2 assemblage were 'never stamped', while only 22 vessels from the assemblage from Kiln 1 can be defined as such. Considering the larger vessel size of the Kiln 1 assemblage, this is a very significant change.

In conclusion, the evidence strongly suggests that Kiln 2 is slightly later in date than Kiln 1.

Coarse wares

Direct comparison between sherd count and weight for the coarse wares was possible since the material was less accreted than the mortarium. A total of 913 sherds weighing 10,566kg was recovered from Kiln 2, approximately a quarter of the material from Kiln 1 by weight (2692 sherds, weighing 46,060kg). Although Kiln 2 has a smaller assemblage of coarsewares, the relative proportions of vessel types found in both kilns are very similar.

Coarse wares were not common in the construction phase contexts of Kiln 2 (Table 28). This was probably because they were not substantial enough to provide useful building material. This means that it was possible to weigh the material, and also that the coarseware material does not pose the same residuality problems as the mortarium.

Although the coarse wares are not stamped, the influence of Colchester can be seen in the range of vessels produced at Ellingham. Eighteen of the thirty-eight forms identified are the same as, or similar to, Colchester types. It was also clear that West Stow, which had been suggested as a source of influence for the Ellingham potters (due to the trademark (8) stamp die), was not closely related to Ellingham in terms of coarse ware forms. The classic 'London Ware' West Stow types are certainly absent from the Ellingham assemblage, and while some similarity can be seen in flagon forms (West 1990, 77, fig. 57) there are no close parallels. This reinforces the view that the Ellingham workshop had a special relationship with Colchester (and the Regalis potter) rather than with more local potters.

The coarseware type series established for Kiln 2 provides the same relative dates as the mortarium, indicating the later 2nd–early 3rd century AD. Only one sherd does not conform with this overall date (Type 36): this flanged ditch would normally be dated to the later part of the 3rd century AD, and is considered to be an intrusive piece associated with the disuse phase of the kiln.

Comparing the Ellingham and Colchester mortaria
by Kay Hartley

Many forms that appear common at Ellingham can be parallelled with less common Colchester types. Types 1A–1G are exceptional in that they appear identical to forms commonly made at Colchester in the late 2nd century. All the types from 1H to 4C2 are very reminiscent of Colchester forms, but few of them can be closely matched to those published by Hull (Type 4D2 is an exception: see Hull 1963, fig. 63, no. 3). Symonds and Wade 1999 includes variants of Type 2 (notably nos 153, 157 and 272, the latter with a stamp of Martinus). Types 12C to 19B1 are less reminiscent of Colchester; although some of Types 65D to 18A might perhaps be parallelled at Colchester, they could equally be parallelled elsewhere because they lack the more unusual features associated with Colchester mortarium of AD 160–200. It should also be noted that some of the forms commonest at Colchester (*e.g.* Hull 1963, fig. 66, no. 1, commonly used with the earlier herringbone stamps) are rare at Ellingham.

Notes on the distribution of the individual potters' wares
by Kay Hartley

Nivalis: No other example of this stamp has ever been recorded. The rim profile is 2nd-century, although it is not itself closely datable. The mortarium is clearly attributable to an East Anglian source and it is fairly close to some of the mortaria known to have been produced at Ellingham (*e.g.* 6C3). However, its discovery at a kiln site where all of the mortaria found are likely, with only one exception (Hartley and Gurney 1997, Type 10A), to be wasters suggests that it was made on site.

Regalis: No change for any die (Hartley and Gurney 1997, 24–6).

Herringbone: No change for any die (Hartley and Gurney 1997, 26).

Lunaucis: No change for any die (Hartley and Gurney 1997, 26–27).

Trademark: (Hartley and Gurney 1997, 27).

One additional stamp has been recorded from Wallsend. This mortarium is typical of Ellingham material in every way. It suggests that the Ellingham potters were selling mortaria, and perhaps flagons and other pottery, in the north-east of England, even if only on a small scale.

Kiln construction material

by Alice Lyons

Pottery (oxidised and reduced wares and mortarium), tile and fired clay were used in the construction of the kiln (Table 28). Fragments of fired clay used during the construction of the kiln were also found in all other phases. It is possible, therefore, that some of the pottery from Phases 2, 3 and 5 was also originally used in the fabric of the kiln and is therefore residual.

Material	*Wt (g)*	*% Wt of total assemblage*
Fired Clay	34,226	N/A*
Mortaria	16,441	45.84
Tile	9809	79.96
Reduced ware	266	8.20
Oxidised ware	56	0.77
Total	**60,798**	**N/A**

Table 28 Kiln construction material

The fired clay used in the construction of the kiln had fused with the mortaria due to the high temperatures involved in firing the kiln, and some of the fired clay had become vitrified. Frequently the fired clay held finger-impressions of the person who had built the kiln, as well as impressions of the mortaria (including stamps) and tile used in the building process. Petrological fabric analysis (below) showed that the clay used to construct the kiln was derived from untreated local materials. No other information (such as withy impressions) that could inform on construction techniques was recorded in the assemblage.

Thin-section analysis of fired clay

by David Williams with Kay Hartley

Thin-section analysis of pottery and kiln debris from Ellingham aimed to characterise the main pottery fabrics produced there, and to ascertain whether the same fabrics were being produced in Kilns 1 and 2. The sample sherds were chosen to reflect the range of Fabrics A–G. They included the two oxidised mortarium fabrics, the oxidised white ware and the reduced grey ware ('Wainford-type' ware) from both kilns. Samples from the Kiln 2 construction debris were examined to see whether the same clay had been used for the kiln as for the pottery.

Sherds from four other (unpublished) vessels (three from Caistor St Edmund and one from West Stow, Suffolk) were also examined by thin section. These were considered possible products of the Ellingham kilns, the mortarium from West Stow bearing a trademark (8) stamp very similar to those from Ellingham (Hartley and Gurney 1997, 27). (It was intended the samples of the kiln material/furniture from the site at Wainford would be examined to enable comparison with that from Ellingham. Unfortunately the material from Wainford had been mislaid, and was not available for study.)

Petrology

Fabric A: Oxidised mortarium

Kiln 1, *4*: frequent ill-sorted sub-angular grains of quartz up to 0.60mm in size together with flecks of mica, a few clay pellets and some iron oxide.

Kiln 1, *22*; Kiln 2, *66*, *90*: frequent, generally small and well-rounded pieces of crystalline limestone, or voids with reaction rims where limestone has been dissolved out, together with only slightly less frequent well-sorted sub-angular quartz grains, mostly below 0.30mm in size but with a scatter of larger grains. Also present are flecks of mica, one or two small pieces of flint, clay pellets and some iron oxide.

Kiln 2: *50*: similar to *22* (above) but with a slightly larger-sized quartz component.

Fabric B: Oxidised mortarium

Kiln 1, *4*, *22*, *29*; Kiln 2, *59*, *61*,*98*: all similar to the quartz limestone fabric of context *50* (above).

Notes on the mortarium fabrics

by Kay Hartley

There is no doubt that Fabrics A and B are basically the same clay. Where pottery has been produced over a significant period of time, and clay sources have varied slightly, some discrepancies are inevitable. For example at Colchester, where pottery production took place from the reign of Claudius into the 4th century AD, there were slight variations in fabric at different periods. At Ellingham clay may also have been retrieved from slightly different areas, resulting in varying trace elements. Ellingham B is often indistinguishable from the Colchester fabric (AD 140–160/70); it differs only slightly in colour, while the trituration grits are identical.

Fabric A appeared at Ellingham with both the trituration grit described for it and, very rarely, with that described for Fabric B (Hartley and Gurney 1997, 10). The clay can be paralleled with that used to produce mortarium at Colchester in the period between AD 160–70 and the early 3rd century, and possibly later. What cannot be matched with Colchester is the trituration grit which is described for Fabric A, which is specific to Ellingham and other parts of East Anglia. Fabric A, and the multi-coloured trituration grit, are rare. It was only produced at Ellingham in association with certain forms (1A, 1F1, 4A1, ?4D, 6C6, 8A, 8B, 12C), and the distinctive grit never occurred with Fabric B. It is likely that the difference between these two fabrics is deliberate, and produced by levigation and production techniques rather than refiring.

Fabric C: Oxidised ware

Kiln 1, *5*, *6*; Kiln 2, *61*: frequent, generally well-sorted, sub-angular quartz grains below 0.30mm in size, with one or two slightly larger grains, flecks of mica, a small amount of flint, quartzite and some iron oxide.

Kiln 1, 29: moderate well-sorted subangular quartz grains normally under 0.30mm in size, with small and generally well-rounded pieces of cryptocrystalline limestone. One or two foraminifera present. This sherd is slightly finer-textured than most of the others.

Fabric G: Reduced ware

Kiln 1, *7*; Kiln 2, *61*, *72* (Wainford-type ware): similar to the quartz fabric from Kiln 1, *5* and *6*.

Kiln 1, *29*: similar to the quartz/limestone fabric of Kiln 2, *50*.

Kiln 1, *30*; Kiln 2, *103* (Wainford-type ware): similar to the quartz/limestone fabric of Kiln 1,*22*.

Kiln construction debris

One sample of this material was fairly fine-textured, with large inclusions of limestone, while another contained frequent grains of quartz and some flint.

Mortaria from Caistor St Edmund and West Stow

Three sherds sampled from Caistor St Edmund had a similar quartz/limestone fabric to the majority of the Ellingham oxidised mortarium Fabrics A and B. The sampled sherd from West Stow had a similar quartz fabric to the sherd from Ellingham Kiln 1, context*4*.

Discussion

Thin-sectioning suggests that two broad fabric types were used for a range of forms in each of the kilns. The results show that the original classification of Fabrics A–G was based partly on the effect of the firing of the pottery, rather than being a true indicator of the clay fabric. The non-plastic inclusions present in the first fabric examined (identified in Fabrics A, C and G) are dominated by frequent grains of quartz, mostly quite well-sorted, while the second fabric type (identified in Fabrics A, B, C and G) contains both quartz and limestone. Within the two main fabric types, the sub-groups are based on the texture and frequency of the inclusion types.

Ellingham, on the north bank of the River Waveney, lies in an area dominated by Pleistocene solid and glacial deposits (Geological Survey 1'' Map of England, Sheet 176). The former is mainly Norwich Crag, comprising beds of sand, laminated clays and pebbly gravels, some of them highly fossiliferous, overlaid to a large extent by Boulder Clays (Chatwin 1961). The trituration grits on the mortarium samples are largely of flint and large grains of quartz, both of which would have been readily available from local sources.

Samples of kiln construction debris showed that that clay was probably untreated but was also from local sources. One sample is quite fine-textured, with large inclusions of limestone. It is possibly from a clay deriving from the Norwich Crag. The other sample contains plentiful grains of quartz and some pieces of flint.

The stamped mortarium from West Stow has a similar fabric to a sherd from Ellingham Kiln 1, with inclusions mainly of quartz, while the sherds from Caistor St Edmund are comparable to the quartz/limestone fabrics from Ellingham. The inclusions identified in the sherds are all common in Roman pottery, so it is difficult to establish the source with certainty. However, the possibility of manufacture at West Stow and Colchester respectively is not disproved.

Other finds
by Alice Lyons

Iron objects
Three iron objects were all identified by x-ray as nails. They do not appear to be directly associated with the construction of the kiln. It is possible that they were attached to wood that was used as fuel, or that they were dumped into the kiln after its disuse.

Burnt flint
Three fragments of burnt flint were recovered. All were from the fills of the kiln or stokehole and probably resulted from the firing of the kiln.

V. Environmental evidence

Animal bone
by Trevor Ashwin
Twenty-one very small fragments of animal bone, weighing 113g, were recovered from the fills of Kiln 2. They were unworked and no signs of butchery were visible. It can only be said that they came from medium-sized animals such as sheep/goat or pig and probably represent domestic waste dumped into the kiln after its disuse. A few fragments of bone including a small mammal tooth were found in soil samples, but these were unburnt: despite having come from the charcoal-rich lower fills of the kiln, they must have entered the kiln after its last firing.

Plant macrofossils
by Peter Murphy and Rowena Gale
Samples were taken from eight contexts within the kiln, flue and stokehole for the assessment of charred plant remains, with the main aim of identifying the fuels used in the kiln. Methodologies are detailed in Appendix 2. Sub-samples were removed from the larger samples, while the smaller ones were fully processed.

Charred plant remains
by Peter Murphy
Charred plant remains other than charcoal were very sparse. There were a few wheat grains and nutlets of spike-rush (*Eleocharis*), which might relate to the use of crop residues for kindling or as a supplementary fuel source.

Charcoal
by Rowena Gale
Charcoal was most common in the four samples from the lower fills of the flue and stokehole. The taxa identified are listed below and are summarised with contextual data in Table 29. Classification is according to *Flora Europaea* (Tutin, Heywood *et al*. 1964–80).

Samples from the charcoal-rich lower fill of the stokehole *72* both contained *Quercus* (oak) and *Alnus* (alder). The oak was mostly sapwood but some heartwood was also identified. Charcoal from the lower fill of the flue and stokehole (Sample 3), was very sparse. *Quercus* (oak) was identified but the rest of the charcoal was too poorly preserved to allow definite identification. Salicaceae (willow/poplar) and Rosaceae (Pomoideae/Prunoideae) were tentatively named. Narrow fragments of charcoal, identified as *Quercus* (oak) and *Alnus* (alder), were also found in Sample 7 from the lower fill of the flue.

The samples indicated the use of wood, and possibly also of cereal waste and other herbaceous material. The condition and paucity of the charred fuel debris, particularly that of the cereal and other herbaceous material, suggested that full combustion had occurred in a well-aerated fire chamber. The fuelling of the kiln using a mixture of wood, cereal waste and probably other herbaceous material appears to have been similar to that seen in the kilns at Postwick and Two Mile Bottom, although at Ellingham it seems that oak and alder probably provided most of the wood fuel used. Local environmental conditions would almost certainly have influenced the selection of fuel wood. The river banks and flood plain close to the site at Dairy Farm would have provided an ideal habitat for alder, particularly where waterlogging or seasonal flooding occurred. Oaks also tolerate damp (although not waterlogged) soils and may have grown in mixed alder/oak woodlands.

Since it is likely that a third kiln, earlier than either of those excavated, existed at the site it would seem that fuel was plentiful. Although no evidence was found for the use of coppiced wood it is likely that woodlands would have been managed if pottery was being produced, and thus fuel was required, over a length of time. Both oak and alder coppice readily when young trunks are felled, and the regular cutting of material for fuel would have initiated coppice growth.

Cereal waste would have been processed in late summer, and may thus represent late summer firings of the kiln. Its presence could infer seasonal use of the kiln, or that chaff or straw were stored for later use.

Oak wood makes a long-lasting, high-energy fuel (Porter 1990), particularly when the denser heartwood is used. The onset of heartwood formation in oak is variable, and can occur from about 15 years of age onwards. Oak charcoal from the fuel residues was too fragmented to assess whether narrow roundwood or larger billets were used, although some pieces were mature enough to include heartwood. Alder burns more sluggishly and has a lower calorific value than oak (Porter 1990). The fragments of alder charcoal were very small and gave no indication of the dimensions of the wood used.

The fuel residues from the site included both wood and other materials with which it was frequently combined, maybe representing the most practical means of achieving the necessary temperatures for firing pottery. It is possible that specific fuels were used for particular firing techniques or pottery types, and the narrow range of woody taxa identified at Dairy Farm might relate to firing technique. It perhaps seems more likely, however, that the fuel used was that which was most conveniently available near the site.

Sample	*Ctxt*	*Description*	*Alnus*	*Quercus*	*Rosaceae*	*Salicaceae*
1	*72*	Stokehole	6	33 (sapwood and heartwood)		
2	*72*	Stokehole	18	27 (sapwood and heartwood)		
3	*86*	Stokehole and flue		1	?1	?2
7	*103*	Flue	16	4		

Table 29 Charcoal recovered from the kiln

VI. Discussion

The discovery of a second kiln at Ellingham came as no surprise, considering that numerous stamped and unstamped mortarium sherds — including many that had been incorporated into the kiln structure itself — were found during excavation of the first kiln in 1976 (Hartley and Gurney 1997). This had suggested that at least one other, earlier, mortarium kiln had probably existed at the site. It seems likely that past attempts at detecting other kilns by magnetometer survey had been hampered by the debris dumped alongside the farm buildings; the fact that both known kilns were probably protected by field headlands in the past may also have prevented dispersion of artefacts within the ploughsoil.

The recently-excavated kiln can be classified as Type F6 in terms of Swan's classification (Swan 1994, 177–8). This is the same general type as the kiln excavated in 1976. Both kilns were similarly constructed, with vent-holed floors and using a combination of clay, tile and pottery waster sherds. However, the kilns varied in their detailed internal arrangement. In Kiln 1, the floor was supported by a long 'tongue' projecting from the back wall of the kiln and integral pilasters along the side walls. In Kiln 2 there was no evidence for any side supports such as permanent pilasters or corbels, and the floor was supported by a single central pedestal standing free of the walls. The latter may have represented an improvement in design as it would have allowed hot air to circulate freely, whereas a tongue feature may have led to a 'cold spot' at the back of the kiln (Swan 1994, 100). It is difficult to find other examples of recorded kilns from the region that compare closely to Kiln 2 at Ellingham. Direct parallels were not found for Kiln 1 either (Hartley and Gurney 1997, 2–5), and there seems to be little in the way of Colchester influence on the form of the Ellingham kilns. Despite this, there are strong typological similarities between the pottery produced here and at Colchester.

In the report on the first Ellingham kiln, the most likely period for Regalis' activity at Ellingham was considered by Hartley, based on a comparison of the pottery types and stamps with those from Colchester, as AD 170–90 (Hartley and Gurney 1997, 26). Analysis of the pottery from the second kiln has provided considerable evidence that it is slightly later than Kiln 1. It yielded a greater number of forms alien to the Colchester tradition than did Kiln 1, as well as a larger number of unstamped mortaria. The archaeomagnetic date of AD 160–225 for Kiln 2, while not refining this sequence, supports this suggested chronology. This means that Kiln 2 cannot have produced the mortaria used in the construction of Kiln 1, and there must have been at least one other kiln at the site used by all four of the potters identified in Kiln 1. The new evidence, as well as adding to the number of recorded mortaria and potters associated with Ellingham, has therefore also shown that mortarium production at the site was on a larger scale than previously identified.

Mortarium is known to have been produced in Norfolk at Brampton (Knowles 1977) and Caistor St Edmund (Swan 1981). It has also been found associated with kilns at Morley St Peter and Hevingham, and on kiln sites at Shouldham and Snettisham (Swan 1984, fiche). Recent excavations at Ellingham, and also at Postwick (Part 2), have shown that mortarium production may have been more widespread during the 2nd and early 3rd centuries than was previously thought likely. Indeed, this would not contradict the general expansion in the numbers of pottery-producing sites, including specialist potteries, which took place during the 2nd century as people increasingly adopted a 'Romanised' way of life (Swan 1984, 19).

Without further evidence for other types of Romano-British activity at, or near, the site it is difficult to suggest why the kilns were built there, although it has been suggested that the bulk and weight of the finished vessels may have been one reason why kilns would have produced mortaria on a relatively small scale to meet local needs (Swan 1984, 8). Due to the need for a particular clay type for the manufacture of mortarium, it is possible that a kiln site would be chosen on account of its proximity to a clay source (Swan 1984, 6). It is not clear whether this was the case at Ellingham. Some disused pits to the north of Dairy Farm have been suggested as a possible clay source for Kiln 1 (Fig. 1; Hartley and Gurney 1997, 1), and it is possible that this clay was particularly suited to the needs of the potters working here. Certainly, the results of the thin-section analysis suggest that a local source for the clay, both for the construction of the kiln and for potting, is most likely. The other main resource needed — fuel — was probably plentiful. While alder, as well as better-quality oak, was utilised, there is no evidence for substantial use of other fuels.

With regard to transport to and from the site at Dairy Farm, the nearest main Roman road was that crossing the Waveney at Wainford. However, the site is only 350m from the banks of the river: its location at the edge of the flood plain probably meant that it was as near to the river as was possible without the constant threat of flooding. Finds of Roman pottery (although not mortarium) from the flood plain to the south of Dairy Farm attest to activity here dating to this period, and it seems likely that the river provided a convenient means of transporting the finished wares. Although most recorded mortaria recognised as having been made at Ellingham have been found in the East Anglian region, stamps from the Dairy Farm site have been found at South Shields (Hartley and Gurney 1997, 25) and Wallsend (see above). It is easy to see these as a result of river- and sea-borne trade from Ellingham. The newly-identified Nivalis stamp has some potential for illuminating trade connections between Ellingham and the wider Roman world. Military movements, too, may have played a part in dispersing the material.

While the 1996 excavation has shown that mortarium production at the site was on a larger scale than previously appreciated the operation probably remained modest, relatively speaking, and mainly served local markets. Regalis's move here from Colchester in the late 2nd century shows that a market existed for such products, and may reflect an already-observed trend for potters to migrate to local centres in the early 3rd century AD (Going 1987, 117).

No significant features have been identified other than the kilns themselves. While evidence for associated features is often sparse or absent on minor kiln sites buildings or other structures of some kind, possibly only of slight construction, were probably associated with the manufacture of pottery (Young 1977). Although previous survey has not revealed any such evidence the possibility remains that it survives unlocated, either in the field to the west of the excavated kilns or beneath the farmyard and buildings to the east. Maybe future trenching or construction work will uncover it.

Part 2 Excavations at Heath Farm, Postwick 1995–6

Site 31108

by Sarah Bates

I. Summary

Excavations at Postwick, 5km to the east of Norwich, revealed a few small pits and a number of ditches that probably dated to the Bronze Age. During the 2nd century AD three pottery kilns were constructed at the site. Pottery recovered from them included grey wares and oxidised wares. The latter fabric had been used for the production of specialist wares. Some large pits excavated close to two of the kilns may have been related to them, and a series of ditches of probable Roman date may have formed contemporary land boundaries.

II. Introduction

(Figs 14–16)

Location and circumstances of excavation

In the autumn of 1994 and early in 1995 a fieldwalking and metal-detector survey was carried out by the NAU at Heath Farm, Postwick (Fig. 14). The site was located on the east side of Green Lane, approximately 5km east-north-east of Norwich and 1.5km north-west of Postwick village. The area was bounded to the south by the old (pre-Bypass) A47 road and to the north by Smee Lane (Fig. 15). The work represented the initial archaeological evaluation of the area of the proposed business development of Broadland Park. It led to the recovery of pottery and other artefacts of several periods, most significantly a concentration of Romano-British pottery; this was investigated by trench evaluation, revealing a Romano-British pottery kiln. Subsequent geophysical survey suggested that other kilns and features probably existed at the site, and further excavation revealed two more kilns as well as linear and other features. The kiln site (SMR Site 31108) was situated at TG 286 093 in the northernmost of the fields that were originally surveyed.

Topography and geology

The site lies on a slight spur of relatively high ground, just above the 25m contour (Fig. 15). It overlooks the River Yare just over a kilometre to the south, and lies on the western edge of the Norwich Crag. This is composed of marine deposits of sands, laminated clays and pebbly gravels, some of which are fossiliferous. Deposits of alluvium, sandy silty clay loam, and glacial sands and gravels also occur nearby (Geological Survey Map of England Sheet no. 162, Chatwin 1961).

Archaeological background

Archaeological evidence for activity at the site prior to the present work consisted of one possible prehistoric site: a ring-ditch (Site 21766) recorded by air photography (Norfolk Air Photograph Library, TG 2808 B, C–D, Q–T, CUAP BUF 32, 33) on high ground within the southernmost field of the initial survey (Fig. 14). The photographs also showed a probable infilled water channel which runs south-west to north-east just to the north-west of the ring-ditch (Fig. 15). No Roman settlements are known in the vicinity of the present site: most of the finds from the immediate area that appear on the SMR were recovered during the initial field survey in 1994–5, or have been found by a local detectorist since then. These finds include a dolphin brooch (Site 32276) and part of a Colchester one-piece brooch (Site 30932), both of 1st-century date, and a 2nd-century tortoise or bow-type brooch (Site 25172). A Romano-British Crescent-type Aesica brooch was found, along with a decorated toilet article of probable Romano-British date. Roman coins, including a follis Constantinopolis (AD 330–5), a sestertius of Marcus Aurelius (AD 161–80), an antoninianus of Claudius II (AD 268–70) and an illegible 'AE3' type (AD 260–378), have all been found at Site 31109. Three coins from Site 31108 are detailed below by John Davies.

Sites and finds of Romano-British date from the wider vicinity recorded in the SMR are summarised below and in Figure 14.

One other kiln site is known in the area. This was discovered during quarrying in 1938, approximately one kilometre to the west of Green Lane at Thorpe St. Andrew (Site 9629, Gregory 1979; Fig. 14). Only part of this kiln survived: the remains of a fired clay flue and the stoke hole, which was filled with dark earth, ash and sherds, many of the latter under-fired or distorted. Although detailed records do not exist, and some of the pottery seems to have been discarded, surviving pottery held at Norwich Castle Museum includes material of probable mid 1st-century date. The Thorpe kiln is thought to date to the period AD 43–70. Other finds recorded in the SMR include sherds of pottery, and coins and brooches from metal-detecting (Fig. 14). It can be seen that many of these are from an area south-east of the present site, close to the river. They may represent settlement, perhaps at a river crossing or on a road leading eastwards.

Apart from that at Thorpe St. Andrew, the nearest known kiln site is at Brundall, 3.5km to the east (Fox 1889), where evidence for a kiln included a clay fire-bar, lumps of clay and charcoal, and wasters including a stamped mortarium rim sherd. The kiln probably dated to the early 2nd century AD. Three kilns, of probable mid–late 1st century date, are known 8km to the south-west at the Roman town of *Venta Icenorum* (Caistor St. Edmund). Evidence suggests that that they were probably in use before the main town plan was laid out, possibly to supply the early military establishment there

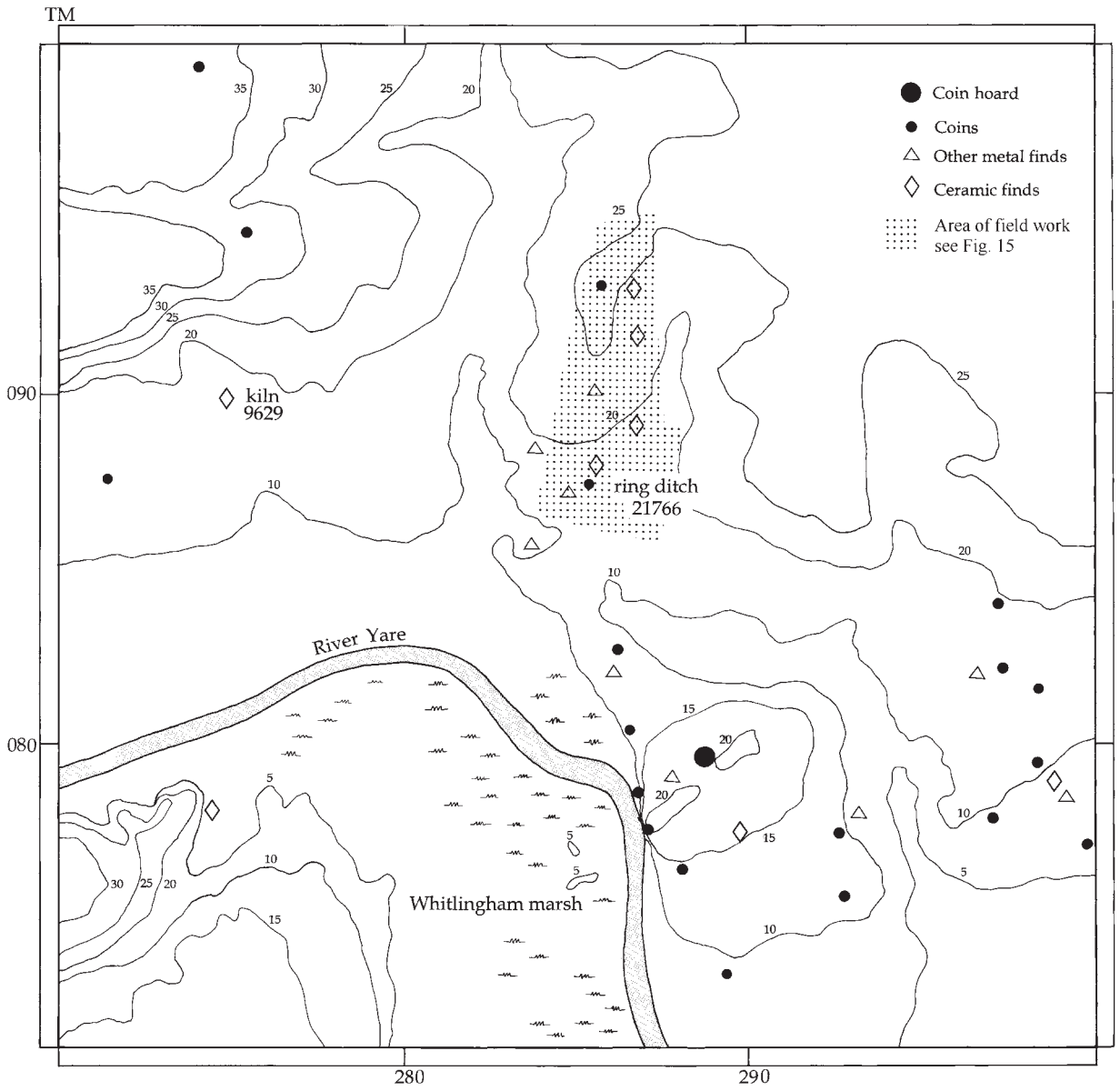


Figure 14 Location of site. Scale 1:20,000.

(Swan 1981, 132–3). The nature of the kilns themselves suggests that they were set up by potters who came either directly from the continent or via the Colchester region (Swan 1984, 120). Another Roman kiln, of uncertain date, is known from Markshall (Layton 1829), just to the north of the Roman town.

History of the project
(Figs 14 and 15)

The field survey
An area of 14.5 hectares of arable land was covered by the initial fieldwalking survey (Emery 1995). The work was carried out in two stages, subject to the different crops and fieldwalking conditions across the four fields constituting the survey area (SMR Sites 30931, 30932, 31108 and 31109; Fig. 15). A twenty-metre grid was imposed over the whole area and each grid square was walked in a double 'Z' pattern. In addition each square was searched in a single sweep by metal-detector for non-ferrous objects.

The only significant concentration of material identified during the field survey was 39 sherds of Roman pottery found in the south part of Site 31108. Only nine other sherds of Roman pottery were collected from the rest of the survey area, and it seemed likely that the pottery represented subsoil features that had been disturbed by deep ploughing.

Other finds recovered during the survey included burnt flint, found from across the whole area but with its main concentration in the south-east corner of Site 31108. Struck flint was also recovered from all four fields, and included part of an axe of probable Mesolithic date, an arrowhead, scrapers and other retouched pieces. A few sherds of pottery, fragments of tile and a medieval lead weight were all found in the south-east corner of the survey area, and may reflect the dumping of rubbish close to the main road from Norwich. Three Roman coins found during the field survey are listed above with the other metal-detector finds from the site.

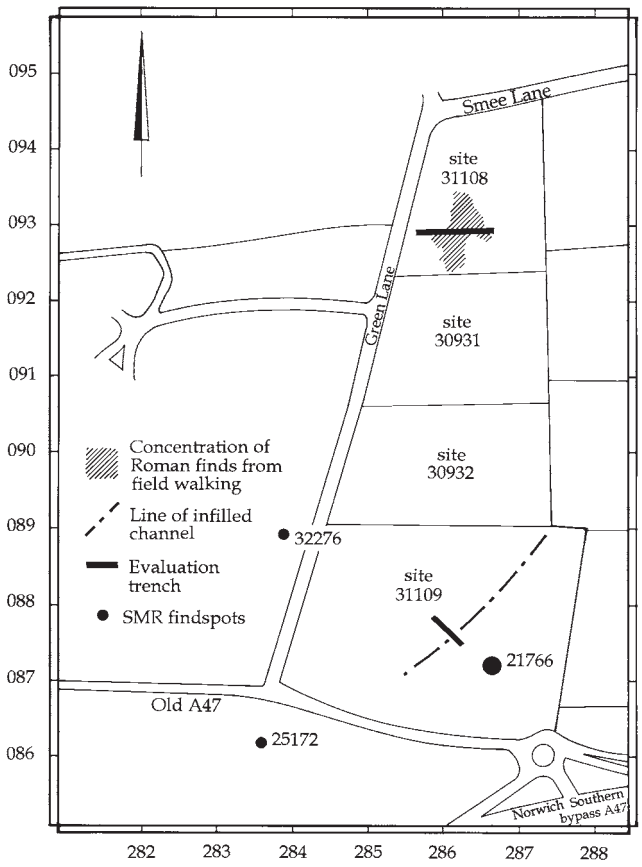


Figure 15 Area of field survey and evaluation. Scale 1:10,000.

Trench evaluation

Trench evaluation was carried out in December 1995 (Bates 1996; Fig. 15). The work involved the excavation of two trenches: one in the northernmost field to investigate the context of the pottery collected during the field survey, and another to the south at Site 31109 where it was thought that the infilled water channel (see above) may have preserved prehistoric features. A thick layer of subsoil, interpreted as inwash, was recorded in the latter trench, but the only features observed beneath it were of natural, and probably periglacial, origin.

At Site 31108, a trench 1.80m wide and 100m long was excavated east-to-west across the area where the pottery had been found. Topsoil and subsoil were removed by machine to a total depth of 0.40–0.50m along most of the trench. Approximately halfway along the trench a circular clay-lined kiln was identified cutting into the subsoil. Three ditches and some other small isolated features were also seen in the trench. None of these was identified until the subsoil had been removed, due to their fills being very similar to the subsoil, but some of them were subsequently recorded as cutting the subsoil (see below).

All of the features identified in the trench were sample-excavated and recorded, and full records are held in the site archive. The evidence is discussed in this report alongside that from the main excavation. Once recording was complete the kiln was protected with plastic sheets and backfilled with sand, in anticipation of full excavation of the feature. Where different context numbers were assigned to the same features *etc*. during different phases of the work, the numbers from the main excavation are cited in this report.

Geophysical survey

Following the trench evaluation, a geophysical survey was undertaken (Geophysical Surveys of Bradford 1996). Two hectares in the south-west part of the field were scanned and anomalies of archaeological potential were detected in the southern area (Fig. 16). Here one hectare was surveyed in detail and several strong 'kiln-like' anomalies — one of which represented the kiln already found during the evaluation — were recorded. Other weaker responses included linear and isolated anomalies, possibly of archaeological character.

The excavation

(Figs 16 and 17)

Excavation of the areas identified during the geophysical survey as being of potential interest was carried out during three weeks in February 1997. The results of that work are described and discussed below. The site archive and finds are held by the Norfolk Museums Service.

Excavation methodology

Three areas were excavated (Fig. 16). Area A measured 45m x 30m, with a 10m x 10m extension also opened from its north-west side. This trench was positioned to investigate the kiln already partly excavated during the evaluation, as well as another possible kiln. Linear features to the south and south-east of these, suggested by faint anomalies in the geophysical survey results, were also included in the area. Two other smaller trenches (Areas B and C), each approximately 10m square, were excavated to the east and north-east of Area A respectively. These were sited to look at the other possible kilns suggested by the geophysicists' results.

The areas chosen for excavation were stripped of overburden by machine under archaeological supervision. In the areas of each of the 'kiln-like' anomalies, a subcircular feature containing burnt material was seen cutting the subsoil. One or two other features also cut the subsoil, but most archaeological features were not observed at this level and the subsoil was removed by machine. The 'kilns' were thus left slightly upstanding from the rest of the site.

All potential archaeological features were investigated: small pits and post-holes were half-sectioned, while ditches and larger features were sample excavated. The kilns were excavated in quadrants to enable longitudinal and cross sections to be recorded. The published long sections of kilns *906* and *918* are composite drawings assembled from the recorded sections and profiles drawn along the fully-excavated kilns. The same sequence of context numbers was used for all phases of the work at the site: context numbers *1–758* refer to finds from the field survey, *800–839* to the evaluation and *840–1039* to the 1997 excavation. The excavated areas were planned at a scale of 1:50, with kilns being planned at 1:20. Sections through features were drawn at 1:10 and a photographic record of excavated features and of the progress of the excavation was made. Samples from the fills of the kilns were taken for the identification of fuel types. On completion of the recording of the kilns, samples of the fabric of each structure were taken for archaeomagnetic dating.

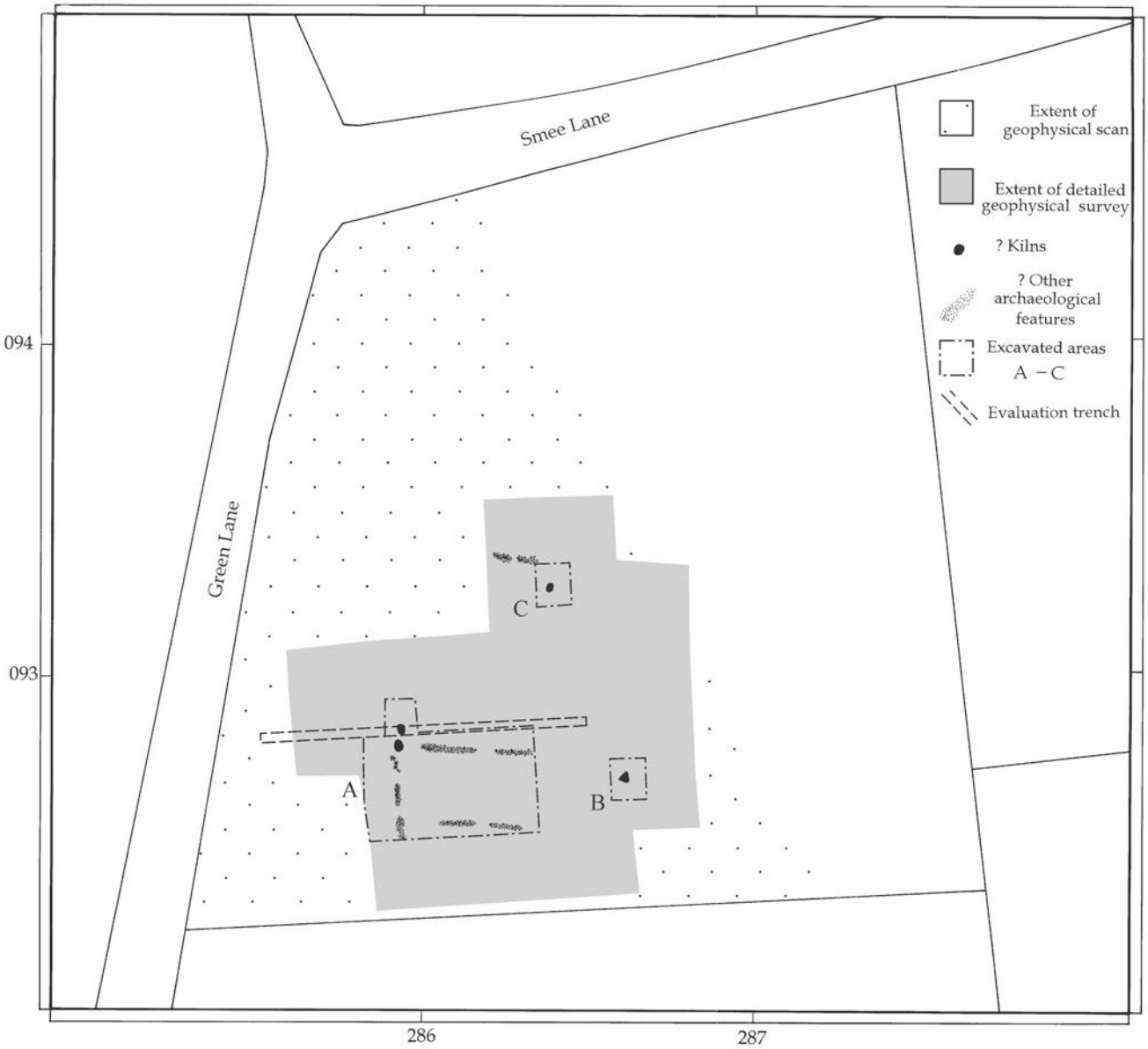


Figure 16 Area of geophysical survey and excavated trenches. Scale 1:2000.

III. Stratigraphic Evidence

(Plates IV–X; Figs 16–25)

Introduction

The undisturbed natural sand clay was overlain by a layer of mottled yellow brown sandy subsoil (*891*), between 0.10–0.20m in thickness. In most areas this deposit was removed by machine since, apart from in a small number of cases such as the kilns, it was not possible to see features cutting through it. In every case where a section was subsequently recorded against the side of the trench, archaeological features were seen to cut the subsoil. Sherds of pottery of Romano-British date were found in this layer.

Excavated features and contexts were assigned to broad phases, defined on the basis of recorded stratigraphic and spatial relationships and artefactual evidence. Excavated areas and features are shown on Figures 16 and 17.

Natural features

(Fig. 17)

A group of small features excavated in the north-east corner of Area A were probably caused by root or animal disturbance; a very large pit or hollow (*996*), partly excavated at the east edge of the trench, was almost certainly of natural origin and formed by the slumping of material into a subterranean hollow. It was learnt from a farm-worker that several such 'solution hollows' exist in the next field.

Prehistoric

(Figs 17 and 18)

A few features were interpreted as being of possible prehistoric date.

Pits

Two small pits, *1018* and *1020*, were located in the north-west corner of Area A (Figs 17 and 18). Both were ovate and contained brown silty sand fills. Prehistoric pottery was found in both pits; that from pit *1018* is of Bronze Age date.

Another possible prehistoric pit (*1021*) was cut by the south end of the stoke hole of Roman kiln *906*. It was heavily disturbed by animal

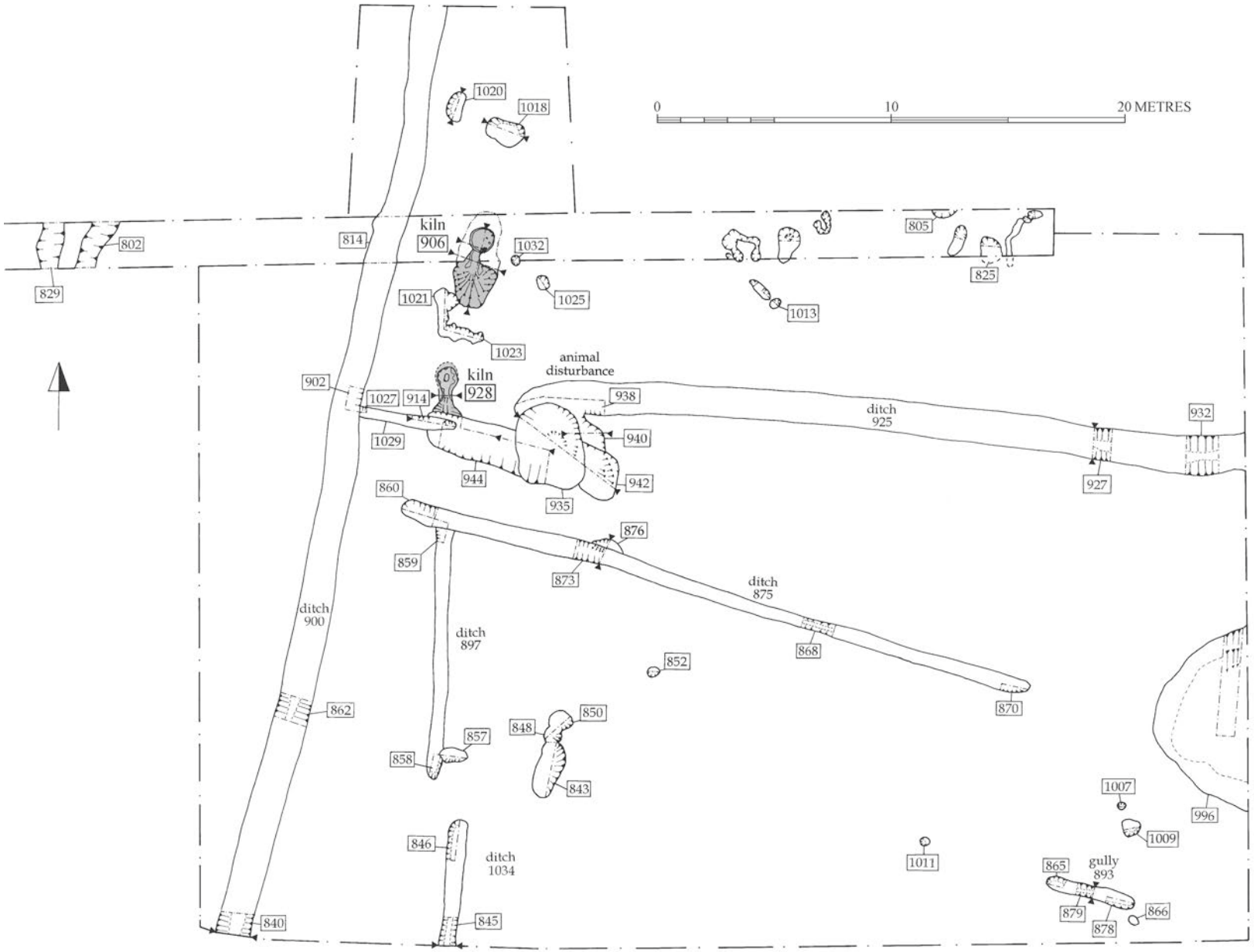


Figure 17 Trench A: plan of all features. Scale 1:200.

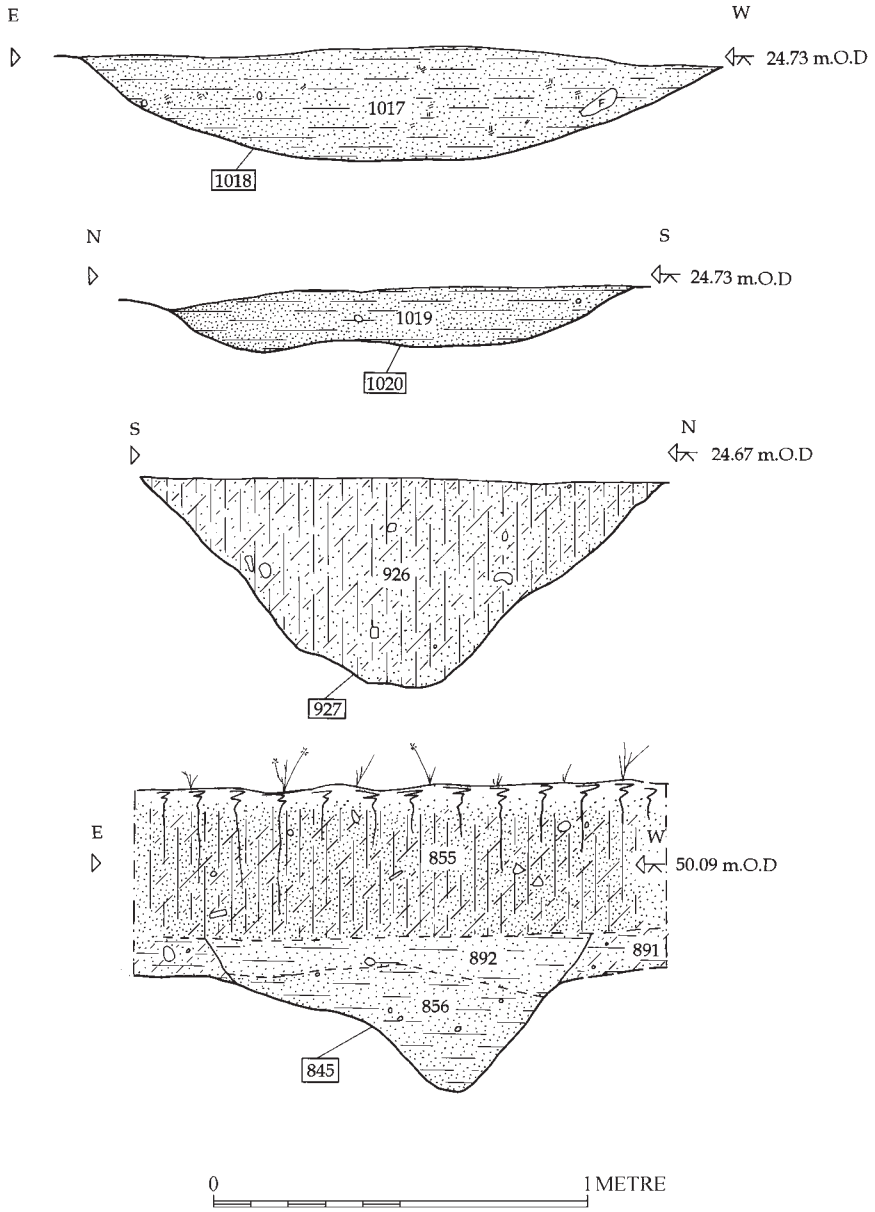


Figure 18 Sections through prehistoric features. Scale 1:20.

burrowing but contained a few pieces of struck flint, including a small scraper, in its fill.

Ditches

Ditch *925* ran across the north part of Area A, extending beyond the east edge of the excavated area and terminating approximately 15m from the west limit of the site. It was approximately 0.55m in depth and quite steep-sided, with a concave bottom (segment *927*, Fig. 18). It contained homogenous sandy loam fills. Two pieces of struck flint, a sherd of heavily abraded possible Mildenhall Ware of earlier Neolithic date, and a sherd of Romano-British pottery, almost certainly intrusive, were found in the fills of segment *938*. At the terminus of the ditch lay a series of pits. Although the relationship between the ditch and the earliest pit *940* was not established, the other pits were stratigraphically later than the ditch; it seems likely that the ditch was earlier than all of them.

To the south-west, ditches *897* and *1034* ran north-to-south. Ditch *897* was cut at its northern end by east-to-west ditch *875* (see below), and did not reappear to the north of that ditch. It seems likely that it terminated here. To the south, segment *858* was 0.27m in depth and formed a terminus. A gap 2m wide, interpreted as a possible entrance-way, occurred between this terminus and the north end of ditch *1034*. At the south edge of the site another segment of ditch *1034* (*845*) was excavated. This showed that the ditch cut the layer of subsoil (Fig. 18), and its depth suggested that truncation had occurred to a lesser degree here. The alignment of the two ditches at 90° to the larger east-to-west ditch suggested, despite their differing natures, that they might have formed parts of a contemporary system of land boundaries. Two sherds of Bronze Age pottery were recovered from the northern terminal segment of ditch *897*.

Plate IV Kiln *928*, looking E, showing withy impressions in wall of flue. Scale 1m (HNN 25, Sarah Bates).

Plate V Kiln *928*, looking N, collapsed roof of flue *in situ.* Scale 1m (HNM 15, Sarah Bates).

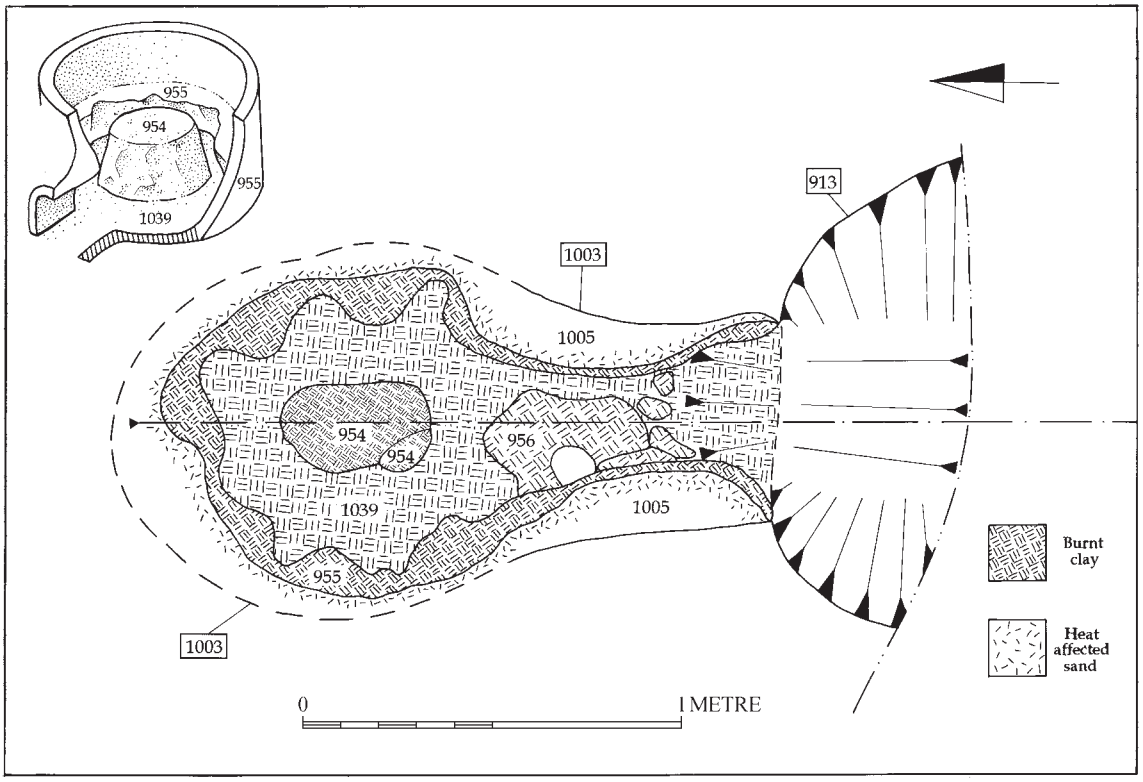


Figure 19 Plan of kiln *928*. Scale 1:20.

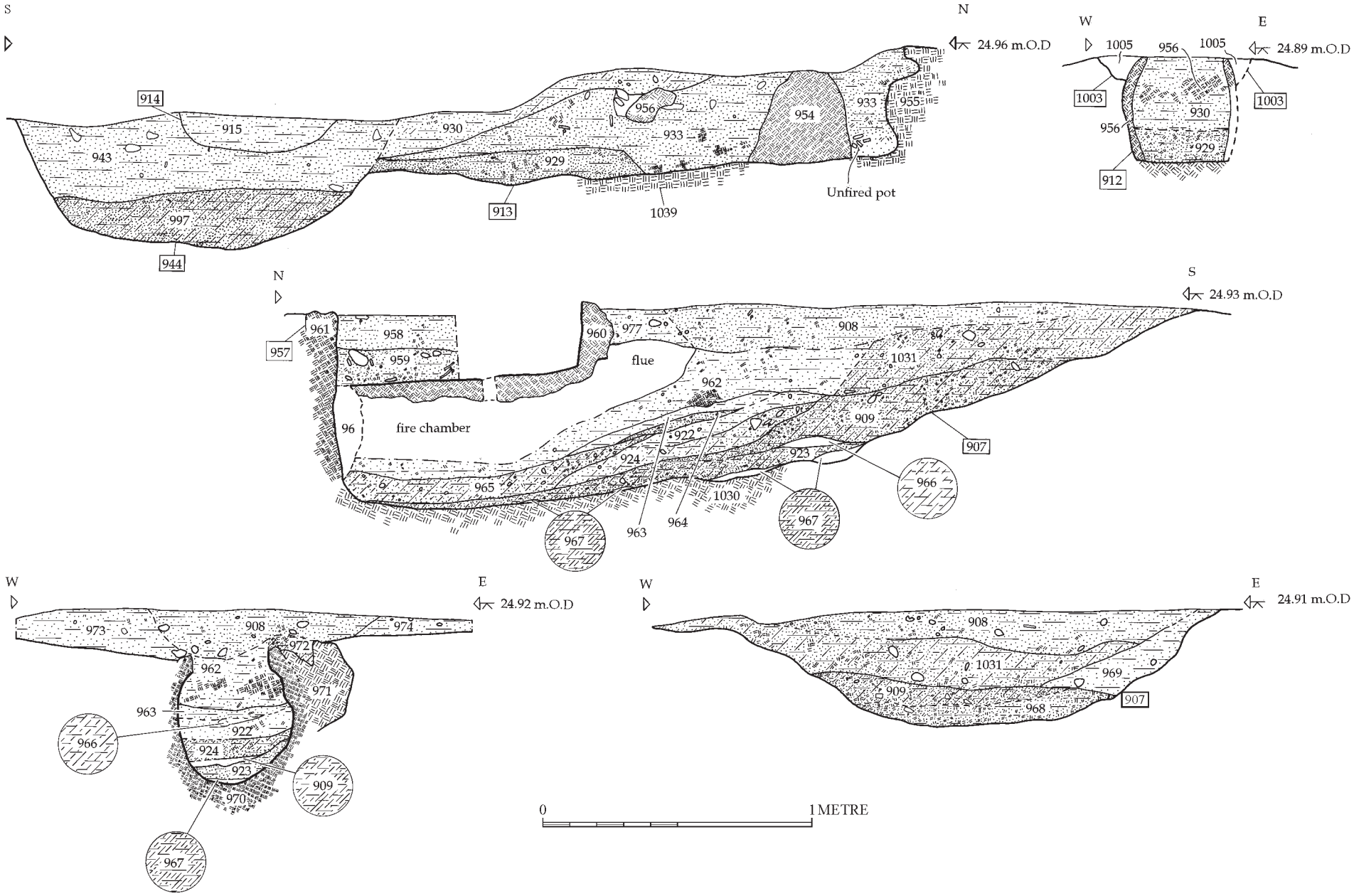


Figure 20 Sections through kilns *928* and *906*. Scale 1:20.

Plate VI Kiln *906*, from above, looking S. Scale 1m (HNP 14, Sarah Bates).

Plate VIII Kiln *918*, from above, looking S, showing scar of central pedestal; flue unexcavated. Scale 1m (HNN 33, Sarah Bates).

Plate VII Kin *906*, looking W, showing withy impressions beneath vented floor. Scale 300mm (HNP 17, Sarah Bates).

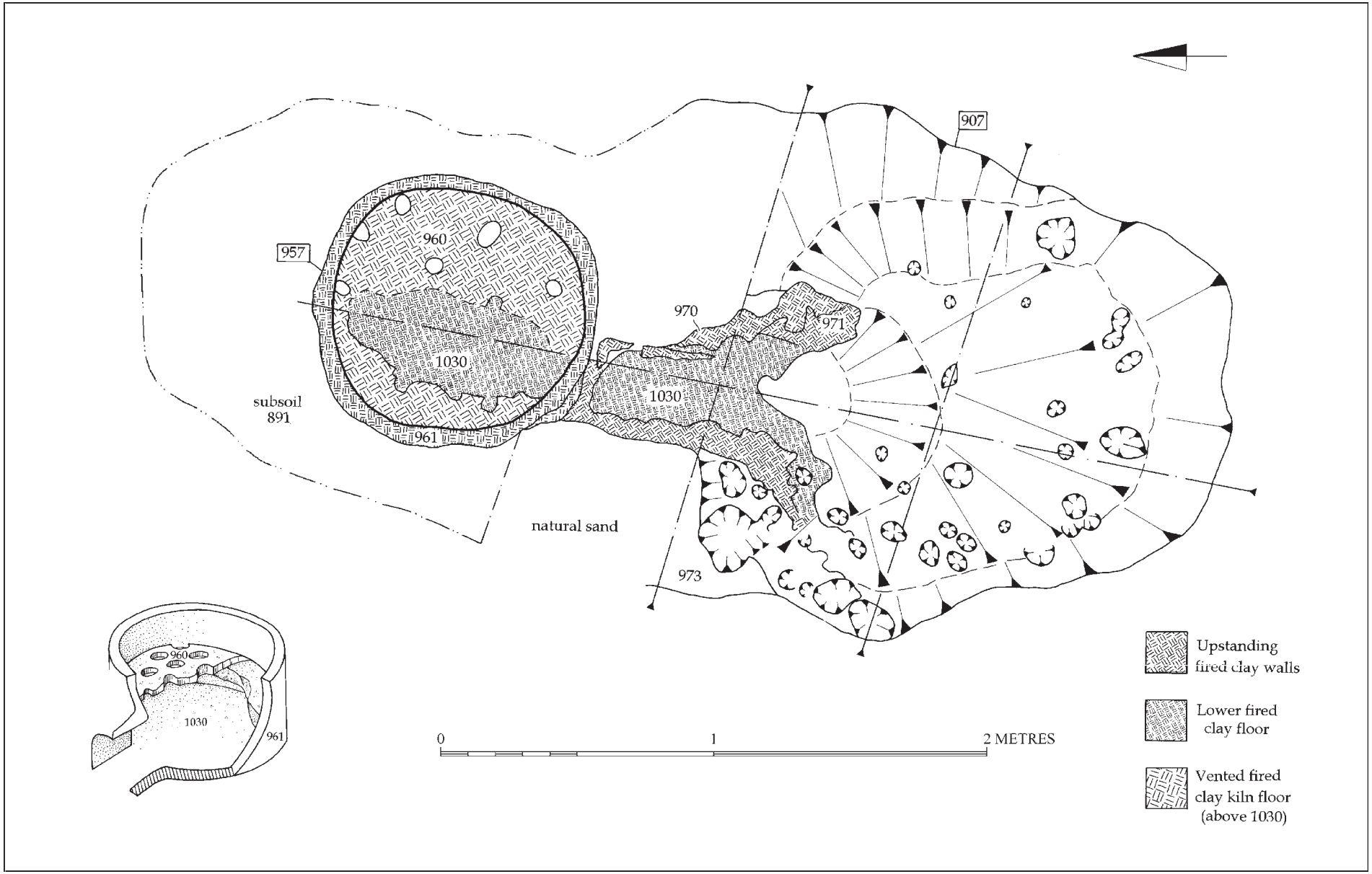


Figure 21 Plan of kiln *906*. Scale 1:20.

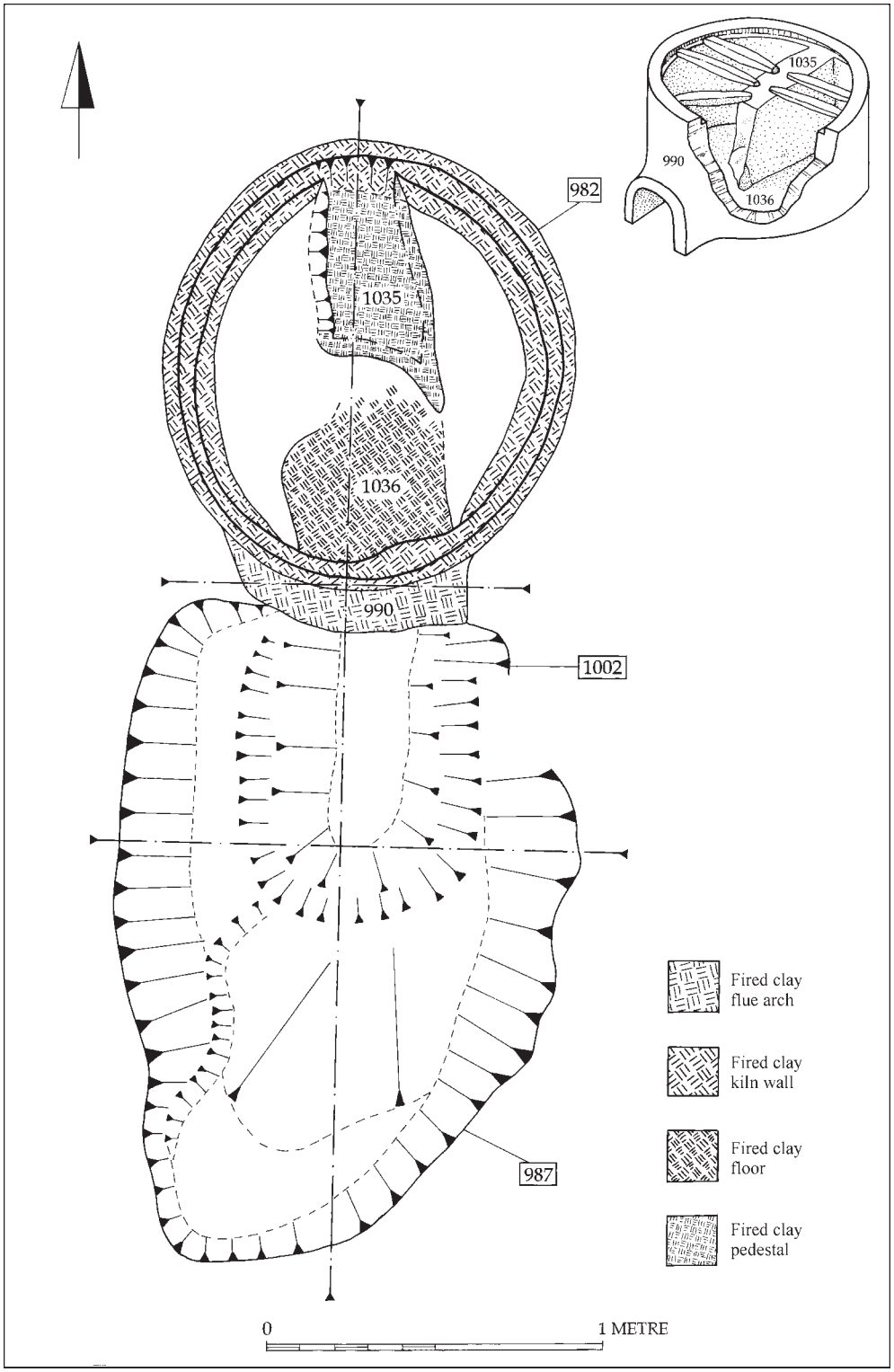


Figure 22 Plan of kiln *918*. Scale 1:20.

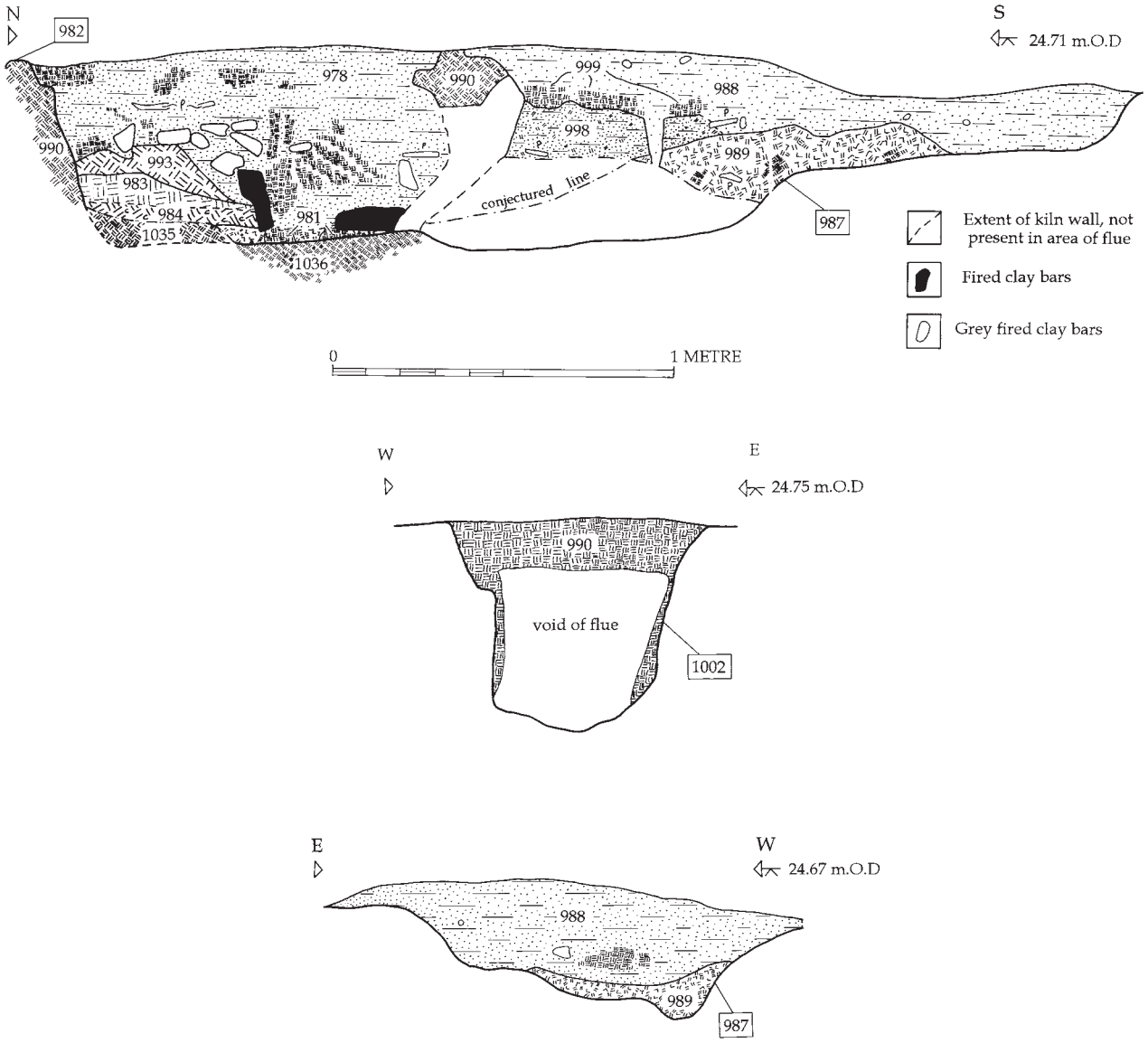


Figure 23 Sections through kiln *918*. Scale 1:20.

Plate IX Kiln *918*, looking E, partly excavated, showing kiln furniture in fill. Scale 1m (HNM 10, Sarah Bates).

Romano-British
(Plates IV–X; Figs 19–23)

Kilns

Kiln *928*
(Plates IV and V; Figs 19 and 20)

Kiln *928* was located towards the north-west corner of Area A. It was identified by the geophysical survey, and showed by excavation to consist of a circular clay-lined pit representing the lower or fire chamber, with a clay-lined flue leading from its south side into a stoke hole, *913* (Figs 19 and 20). Along either side of the flue and around the kiln chamber a shallow cut (*1003*) filled with silt sand represented the construction cut. At the south end of the stoke hole was a large pit, *944*, which probably cut the kiln.

The lower chamber was approximately 1m in diameter and up to 0.40m deep. The roughly circular pit had been lined with clay (*955*), the undulating inner face of which formed seven corbels projecting into the chamber (Plate IV; Fig. 19). This clay wall had fired to a dark grey colour and continued along the sides of the flue *956*. Here, some red patches showed where the clay had oxidised during firing. Impressions of withies, up to a centimetre in thickness, running vertically in the wall of the flue showed how the structure had been supported during its construction, the withies burning out as the kiln was fired (Plate IV). Although the walls of the flue were intact its roof had collapsed, and lumps of fired clay in the top of the flue probably originated from it. The height of the flue could be estimated as *c.* 0.50m, as part of the curve of the arch itself had survived (Plate V).

The floor of the fire chamber consisted of a thin layer of fired clay, *1039* (Figs 19 and 20), which extended from the chamber most of the way along the flue. Its red colour was consistent with oxidisation taking place as air was drawn along the flue during the firing of the kiln. At its south end the flue widened slightly, the clay lining continuing just into the stoke hole.

In the centre of the fire chamber was a free-standing pedestal of fired clay, *954* (Figs 19 and 20). This was ovate in shape and mainly black in colour, although patches of red clay suggested that firing conditions varied within the chamber. On its south-west side a separate lump of clay was stuck onto the side of the pedestal. This was probably part of the original pedestal, not a later addition; on its removal, the interface between the main pedestal and the slab showed that both had been fired to the same condition.

The surviving structure probably represents all of the lower part of the kiln. This is suggested by its depth relative to the height of the flue arch and by the form of the side corbels and central pedestal, neither of which appeared to have been heavily truncated. The upper surfaces of the corbels sloped down towards the centre of the kiln, rather than being flat as might have been expected if they had been sliced away by ploughing.

At the back (or north) edge of the kiln, a small projection from the wall was seen sloping inwards and slightly upwards towards the centre of the kiln above the top of the corbels there (Fig. 20). It continued for only a few centimetres, and its purpose is uncertain. Possibly the niche formed between it and the top of the corbel held the kiln floor or fire bars in place, or perhaps it held a support to help stabilise the kiln load. The estimated internal diameter of the oven chamber was 0.80m.

The stoke hole (*913*) was small. It had quite steeply-sloping sides and a roughly flat bottom (Fig. 20). In its lower part was a dark grey, charcoal-rich ashy sand deposit (*929*) that extended along the bottom of the flue but not across the fire chamber. It was the only deposit within the kiln to contain significant amounts of charcoal, and is interpreted as rake-out material. Two residual sherds of prehistoric pottery, a few sherds of poorly or underfired grey ware and some lumps of fired clay were found in this deposit. Above it was a mid-brown silt sand which contained flecks of charcoal and fragments of fired clay (*933*). This filled the fire chamber and flue, becoming thinner in the stoke hole. It probably represented material that accumulated in the kiln after its disuse but before its collapse. No identifiable structural fragments or fire bars were found, but broken fragments of fired clay were found in the tops of the fills in the area of the flue. Above these broken fragments in the top of the flue, and running down into the stoke hole, deposit *930* was an orange/brown silt sand, which contained charcoal and fired clay. It represented the disuse and abandonment of the kiln, having accumulated in the feature after the build-up of deposit *933* and the collapse of the flue. Quantities of pottery were found in both of the disuse fills: the majority was poorly-fired or underfired grey ware, suggesting that waste material was dumped into the abandoned feature.

The relationship between kiln *928* and the large linear pit *944* at its south end is not completely clear. During excavation it was thought that the kiln cut the pit, but analysis suggests that the reverse seems more likely. This is partly due to the very small, 'truncated' nature of the stoke hole. It seems likely that the original stoke hole was larger than the small part excavated (Fig. 19); in fact, in the recorded section and in photographs the dark fills of the stoke hole appear to have been truncated by the pit.

Kiln *906*
(Plates VI and VII; Figs 20 and 21)

This was located just to the north of kiln *928.* It consisted of a circular clay-lined chamber *(957*) with a vented clay floor (*960*) and a clay-lined flue leading southwards into ovate stoke hole *907* to the south (Fig. 21). It was the best preserved of the kilns excavated at the site, and its stoke hole was also considerably larger than those of the other two kilns. This kiln was partly excavated during the evaluation of the site. Then, the kiln chamber had been half-sectioned and its floor partly removed. The flue had been identified, but it had not been possible to investigate it, or to ascertain whether a stoke hole survived, since these features lay beyond the edge of the trench.

The kiln chamber was approximately 1.0m in diameter. The fire chamber was 0.40m deep; its clay walls *961* were thick and irregular, with protrusions lying between the vents at the edges of the floor (west half of kiln: Plate VI; Fig. 21). The vented solid clay floor *960* divided the lower and upper chambers of the kiln (east half of kiln: Fig. 21) and would have allowed heat into the kiln chamber during the firing process. The floor was very irregular in thickness, and numerous impressions on its underside showed how it had been supported by flexible twigs during its construction (see below, *Kiln construction material*) (Plate VII).

Above the vented floor the clay wall to the upper chamber survived to a height of 0.25m, its upper edges having been broken. The wall was quite regular in thickness (approximately 0.08m: see below, *Kiln construction material*) with the clay being fired hard and its inner surface grey in colour. At its outer edge, further from the heat source, the clay was more crumbly and was a reddish colour. There was no evidence for the kiln wall having been patched or repaired in any way. The internal diameter of the oven chamber was 0.90m.

A clay-lined flue led southwards from the fire chamber (Fig. 21). Its inner surface (*970*) was fired hard and was red in colour. The flue was approximately 0.90m in length and less than 0.50m high. It was rounded in profile with a slightly concave floor (*1030*), also of fired clay, sloping gently up from the fire chamber into the stoke hole. The flue arch leading from the fire chamber survived intact, as did a short length of the flue roof. Although most of the roof had collapsed, the broken fragments found in the top of the flue showed that collapse had occurred after the abandonment of the feature. Vertical impressions were seen in the inner face of the flue wall. These represented withies, approximately 10mm in diameter, which had been used to form the flue arch. Above the flue at its north end lay a deposit of pinkish brown silt sand (*977*), this seemed to rest up against the wall of the kiln chamber (Fig. 20). Its colour suggested that it had been affected by the heat from the kiln, and was therefore probably in its original position. It is interpreted as a construction deposit: soil placed around the clay kiln and flue to provide support and insulation during firing.

The flue widened out slightly, and the clay lining became thicker and more irregular, where it opened into the stoke hole. The clay was pinkish-red in colour and quite hard. It had been fired to some degree, but less than the inner walls of the kiln.

The stoke hole had a deeper, almost 'stepped', hollow immediately in front of the flue and sloped more gently up to its south end (Figs 20 and 21). Around the sides and upper edges of the stoke hole were excavated numerous small subcircular holes. Most of them were less than 50mm in diameter, although a few were larger (0.10m). These holes may have been irregular hollows in the mottled natural sand. Many of them were very well-defined, however, and it is possible that some at least may have been deliberately formed. The largest holes were all situated around the upper edge of the stoke hole at about the same level, and several of the smaller holes can be seen to form rows. The holes are tentatively interpreted as stake-holes which may represent screens erected, probably on a temporary basis, during the firing process. These may have been to provide shelter for the potter, or (perhaps more likely) either to prevent gusts of wind entering the flue or to direct the draught into the kiln.

The deposits filling the kiln related to two main phases: those connected with its use and those that had accumulated after its abandonment (Fig. 20). The earliest surviving deposit was an intermittent layer of very dark brown silt clay, *967*, on the floor of the fire chamber and flue and in the stoke hole just outside the flue. It contained many flecks of charcoal and was compacted, despite its sticky/clayey consistency. It is interpreted as a mixture of charcoal from the firing process and clay that had dropped or washed down into the bottom of the kiln. The intermittent and compacted nature of this deposit suggests that it represents material that was left accidentally when the kiln was raked out. It may thus represent material that accumulated prior to the final firing of the kiln. A deposit of dark grey/brown slightly clayey silt sand above it (*923*) contained quite large amounts of charcoal, and also seems to relate to the use of the kiln. It ran down from the stoke hole into the fire chamber and was overlaid by another very similar deposit (*909*); the two were indistinguishable in the deepest part of the flue, but were separated to the south by a lens of pinkish red soft silty clay (*966*), possibly a collapse of material from the wall of the flue. At the south end, or back, of the stoke hole, a more charcoal-rich deposit (*968*) occurred on the base of the stoke hole (identified only in cross-section: Fig. 20). Possibly this material had been raked out from the kiln but not removed from the stoke hole. Patches of sand were mixed within deposit *909* on the slope at the south end of the stoke hole. They may represent trampling of the natural sand during use of the stoke hole. Similar sandy patches occurred in the stoke hole at Ellingham (p.5). The deposits so far described may relate to early firing(s) of the kiln. Above them, pale grey/cream silt sands *924* and *922* are interpreted as inwash, occurring after the initial firing(s) represented by the lower fills.

The main use-related deposit within the fire chamber was charcoal-rich brown grey silt clay sand layer *965* (Fig 20). This deposit, unlike lower fill *967*, was uncompacted: it was probably material related to the final firing of the kiln that was never raked out when it was abandoned. An overlying thin lens of charcoal-rich silt sand (*964*) in the flue area was interpreted as the uppermost fill relating to the use of the kiln.

In the upper part of the stoke hole and running down through the flue into the fire chamber was a series of deposits that had accumulated after the kiln had gone out of use (Figs 20). These included an inwash of pale brown sand (*963*) that contained some fragments of fired clay, probably from the walls of the flue and deposits *962* and *1031*. When excavated these deposits were quite similar in appearance but layer *1031*, once weathered, was seen to contain more charcoal, stones and fragments of fired clay. The finer deposit *962* may have washed down more easily into the lower part of the feature. Within the flue were several large fragments of fired clay, probably from the collapsed roof. A grey/brown silt sand (*908*) had accumulated in the disused stoke hole.

Much pottery was recovered from the both the use and disuse fills of the kiln. It consisted mostly of sherds of reduced ware, in both finished and misfired forms. The relatively large amounts of charcoal in this kiln are consistent with a fire in a reducing atmosphere (Bryant 1971, 18).

Kiln *918*

(Plates VIII–X; Figs 22 and 23)

This was identified during the geophysical survey approximately 60m to the north-east of the other two kilns (Fig. 16, Area C). Once the topsoil was stripped by machine the clay wall of the kiln, and charcoal and burnt clay within it, were clearly visible in the subsoil surface. The stoke hole, the upper fill of which was a paler brown colour, was not so easily seen and had been slightly truncated by the machine.

The kiln consisted of a circular, clay-lined pit, *982*, with a flue arch at its south side leading into stoke hole *987* (Fig. 22). The sides of the clay-lined pit sloped steeply inwards towards its bottom. Approximately 0.05m below the truncated upper edge of the clay wall, a ledge ran round its inner face (Fig. 23). This was continuous around the circumference of the kiln, apart from at the northern side where a break of around 0.20m represented the scar from which a tongue pedestal had formerly projected. The scar of the pedestal (*1035*) was also observed on the floor of the kiln chamber, where it extended approximately 0.50m into the centre of the kiln (Plate VIII). The position of the ledge and pedestal show that almost all the surviving kiln structure represented the lower (or fire) chamber, and that this chamber had been 0.45m deep. Bars supported by the ledge and pedestal would have held the pots being fired in the kiln. The oven chamber measured 0.10m x 1.20m in diameter.

A clay arch (*990*), square in profile, led directly from the furnace chamber into a steep-sided, flat-bottomed hollow in the bottom of the stoke hole (Figs 22 and 23). The stoke hole was quite small and shallow, possibly partly due to truncation.

One deposit that probably related to the use of the kiln was identified. This was layer *981*, consisting of a black charcoal-rich ashy layer that lay on the burnt clay floor of the fire chamber and around the scar of the pedestal (Fig. 23). Its southern extent was uncertain, due to the small area revealed and the large amount of broken kiln material that obscured much of the recorded section. In the stoke hole lay further dark grey or black charcoal-rich ashy material (*989*): it is likely that the two layers were part of the same general layer of fire debris and raked-out material from the kiln. The conjectured upper extent of this layer is shown in Figure 23.

Above layer *981*, quantities of fired clay were recovered from the fills of the fire chamber (Plate IX). In the northern part of the kiln separate layers of material were distinguished. Reddish, mainly poorly fired, clay *984* was overlain by a deposit of harder fired clay (*983*) and a large lump of fired clay (*993*): it is likely that all three were part of the pedestal, which had collapsed but remained largely *in situ*. The rest of the fire chamber was filled with brown sandy silt *978*, which contained numerous fragments of red fired clay, presumably from the collapsed upper part of the kiln. The fired clay occurred in greater concentrations in the lower part of this deposit (Fig. 23). In addition to the fragmented fired clay kiln debris, several very hard dark grey fired clay bars, including one complete bar, were recovered from the kiln (Plate X) (see below, *Kiln construction material*). Large amounts of pottery, mostly oxidised mortarium and white coarse wares, were recovered from the kiln fills.

A 'layer' of fired clay which contained a high volume of hard grey material ran across the kiln at a depth of approximately 0.20m. This may represent an interface between two phases of collapse or infill into the kiln; it was noted that it occurred at roughly the same level as some flat fragments of fired clay *999* found just outside the flue arch. It was thought possible that these represented the roof of the flue. There was no other indication of a clay flue, however, and it seems more likely that they are fragments of the collapsed kiln wall. The fill (*998*) beneath these pieces of clay contained noticeably more charcoal, and may represent the accumulation of material after the kiln had gone out of use but before it had completely collapsed. If this is the case, it is possible that the same sequence of infill and kiln collapse can be assigned to the upper and lower parts of deposit *978* within the kiln chamber. Above the collapsed kiln material in the stoke hole was a mid-brown sandy silt, *988*. It contained relatively few inclusions and was probably equivalent to the

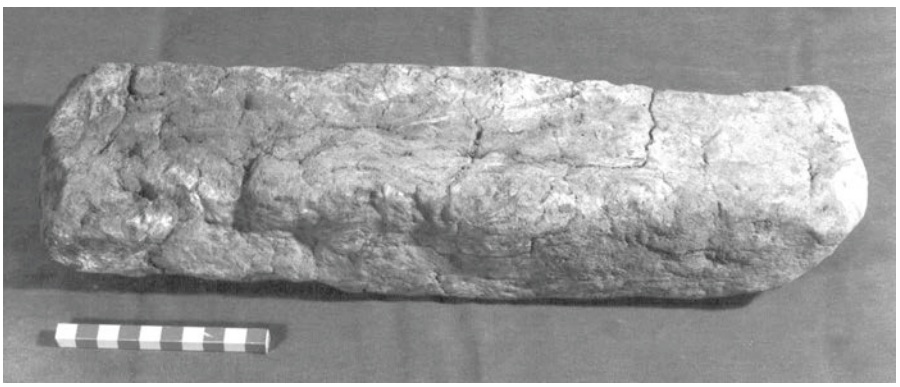


Plate X Clay bar from kiln *918*. Scale 100mm (KBP 9, Jason Dawson).

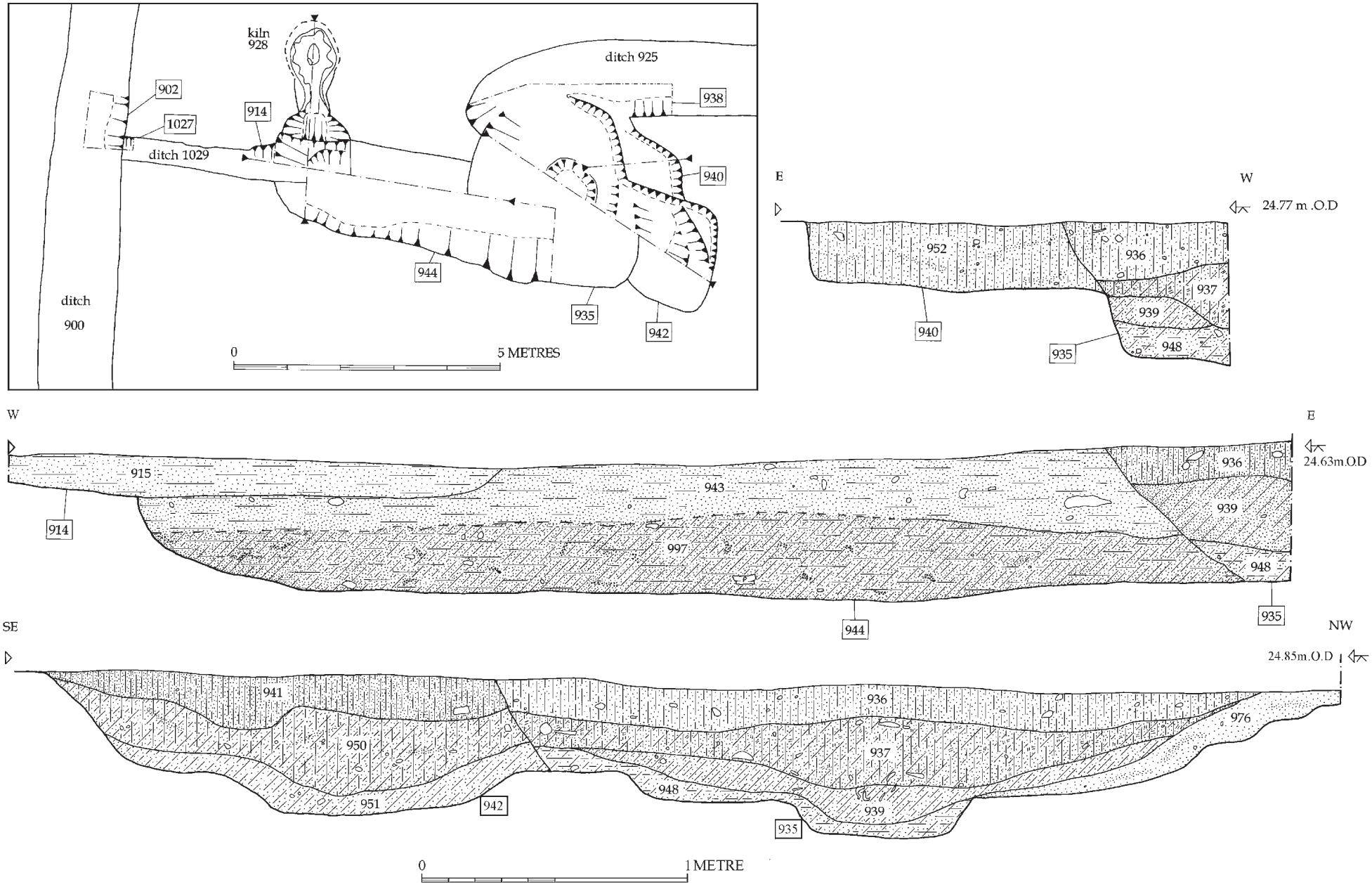


Figure 24 Plan and sections of large pits in north-west Area A. Scale 1:100 and 1:20.

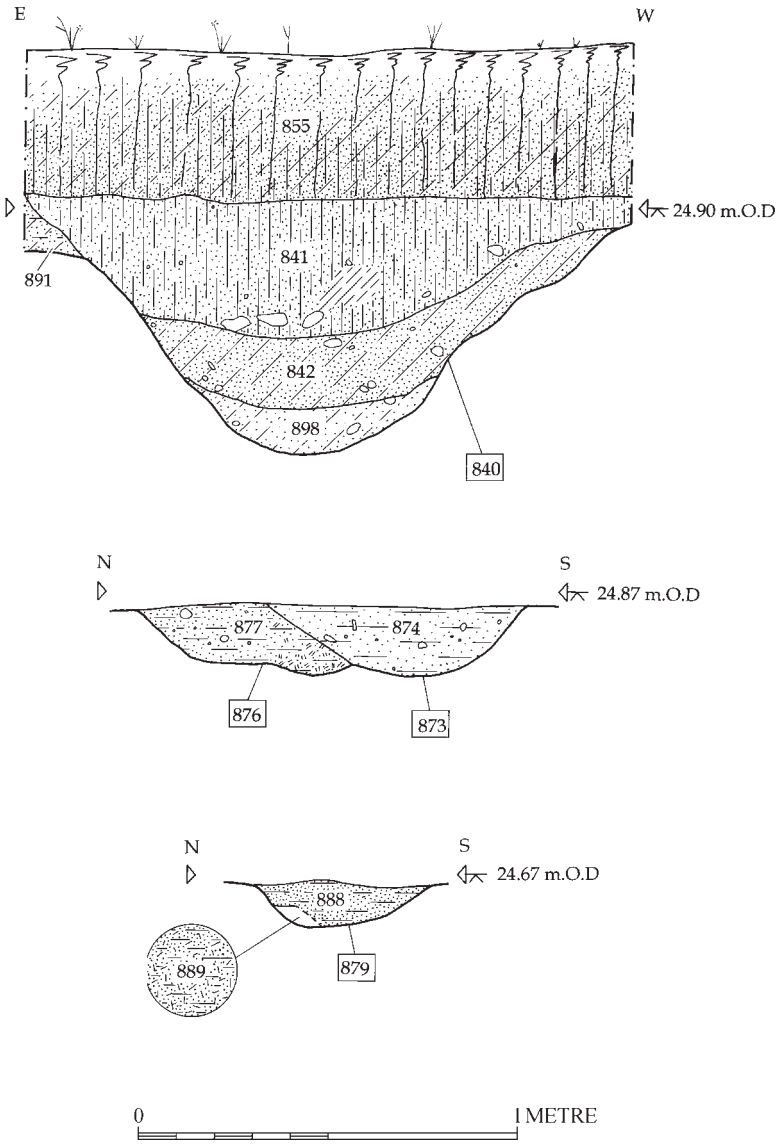


Figure 25 Sections through Romano-British ditches. Scale 1:20.

upper part of deposit *978*, both deposits representing the ultimate silting-up of the feature following its abandonment and collapse.

Archaeomagnetic dating
by Mark Noel

Samples were taken from each of the three kilns for the purpose of archaeomagnetc dating (GeoQuest Associates 1997). They were found to contain a moderate to strong natural remanent magnetism, due to the presence of thermoremanence (TRM) in iron oxides within the clay. The results of demagnetisation tests on one sample indicated that the TRM was of exceptional stability. The dates obtained, which refer to the last firing of each kiln, were as follows:

Kiln *928* AD 100–160;
Kiln *906* AD 135–160;
Kiln *918* AD 130–170.

The mean archaeomagnetic directions in the three features (and hence the last firing dates) are indistinguishable at the 95% confidence level: thus on the basis of the archaeomagnetic evidence the kilns' use ended at the same time. When the concordance between the sequence of pottery and that of the vectors of the kilns along the archaeomagnetic curve is considered, however, it can be suggested that the last firings of the three kilns occurred in the sequence shown above.

Other features
(Figs 24 and 25)

Pits

A group of four large intercutting pits post-dating kiln *928* were excavated in the north-west part of Area A (Fig. 24). The earliest of these were pits *940* and *944*. Pit *940*, to the north-east, had a flat bottom and contained a yellowish-brown loamy sand which may have been a deliberate backfill (Fig. 24). The pit was cut to the south and west by the later features but its relationship with ditch *925* was uncertain. However, the ditch is thought to be prehistoric and almost certainly pre-dates the whole group of pits. It was cut to its south by pit *942*, an ovate feature with an irregular stepped base and sides (Fig. 24). It contained a primary deposit of grey yellow clay sand (*951*), probably mainly composed of redeposited natural material. Its main fill *950* also consisted of redeposited natural sand containing pottery and charcoal representing debris dumped into the pit, possibly from the nearby kiln. In the top of the pit, a deposit of dark brown loamy sand (*941*) had probably accumulated gradually.

Pit *944*, located to the west (Fig. 24), was a long sub-rectangular feature with steeply-sloping sides and a flat base. Its west end probably truncated the stoke hole of kiln *928*. The primary fill of the pit was a mottled mid/dark brown silt clay sand (*997*), while the upper fill was a paler yellowish brown silt sand (*943*). At the base of the pit was a distinctive very fine pale grey silt (not illustrated), flecks of which also occurred in the primary fill of the pit.

Pits *942* and *944* were both cut by pit *935*, which was a sub-rectangular feature with its sides 'stepped' to a flat bottom (Fig. 24). The primary fills of the pit were yellow/brown mottled clay silt sands, *948* and *976*, on the north-east and north-west sides respectively. Large amounts of pottery were recovered from the former, though none was found in the latter deposit. In the upper part of the pit, mottled brown loamy sands *939*, *937* and *936* contained pottery and charcoal that may have originated from the nearby kilns. These layers were thought to consist partly of deliberate backfill.

Ditches

Ditch *900* ran north-north-east to south-south-west across the west side of Area A (Fig. 17). Two segments excavated towards its south end showed it to be a substantial feature with steeply sloping sides and a concave base (*e.g.* segment *840*, Fig. 25). The ditch had a primary fill of yellow/brown sand clay (*898*), and a main lower fill of reddish brown sand clay (*842*) which seems to have entered from the west side of the ditch. The upper fill *841* probably included deliberately backfilled material: this was a loamy sand with yellow sand clay lenses that may have filled a recut to the ditch. To the north, segments *902* and *814* were less deep: this may have been due to truncation, which appears to have been heavier on the north side of the site. Neither segment showed any evidence for recutting of the ditch; perhaps these more shallow segments represent the later cut only, and an earlier more substantial feature never existed in this area. Segments *814* and *840*, both excavated against edges of the trench, were seen to have been cut through the subsoil.

A short length of ditch (*1029*) ran west-north-west to east-south-east in the north-west part of Area A. This was very shallow (0.15m). It was cut by ditch *900*, and it did not extend beyond that feature to its west. Its east end appeared to cut the large pit *944*, terminating about 1.5m from its western edge. About 3m to the south of ditch *1029*, another shallow ditch (*875*) continued eastwards for approximately 28m on the same alignment. Four segments were excavated; all contained silt sand fills and showed the feature to be very shallow (<0.15m). However, the termini of the ditch did seem to be 'real' rather than products of truncation. The west end of the ditch cut the north-to-south ditch *897* and, part way along, small pit *876* (Fig. 25).

In the south-east corner of Area A, a short gully *893* shared the same alignment as ditches *1029* and *875*. It was 4m long and up to 0.25m deep, with distinct termini (Fig.17). Quantities of red burnt sand/clay and charcoal (*889*) were found within it (Fig. 25). The upper part of the gully was filled with a series of grey/brown silt sands.

The three shallow east-to-west features shared the same alignment and were at right-angles to ditch *900*, suggesting that, despite their different natures, they may have been contemporary boundaries. Although ditch *900* cut one of the smaller east-to-west ditches it might represent a reinstatement of an earlier boundary. Ditches *900*, *1029* and *875* may have formed elements of an enclosure, perhaps with an entrance between the latter two. The function of the short gully to the south-east is unknown.

Two other ditches, *802* and *829*, were excavated in the evaluation trench to the west of the subsequent Area A. Both were seen to cut the subsoil. The former was 1.00m wide and 0.35m deep. Its alignment appeared to be the same as that of ditch *900*, although it may have curved slightly; the narrow width of the trench made this uncertain. The primary fill of the ditch was a mottled pale brown sand silt, and its upper fill an orange/brown sand silt. Ditch *829* ran north to south and thus shared the same alignment as the possible prehistoric ditches, although its size (1.20m wide and 0.32m in depth) and 'truncated' concave profile suggest that it was originally more substantial than these. The fills of this ditch were almost identical to those of ditch *802*.

Unphased and modern

(Fig. 17)

Unphased features

A number of other small undatable features were excavated. These included four small features in the south-east corner of Area A, three of which (*866*, *1007* and *1011*) may have been truncated post-holes. A small truncated pit (*1009*) was located close to the northernmost post-hole.

Two small features were excavated in the north-west part of Area A, just east of kiln *906*. Feature *1025* was probably a truncated pit while *1032* may have been a post-hole. However, no other features existed in the area around the kiln to suggest that these features were part of any structure relating to it.

Three small intercutting pits were excavated in the south-west part of the site. A small fragment of flint that had been used as a core was found in the laminated silt sand fill of pit *843*, and two sherds of Roman pottery were found in the fill of feature *848*. An isolated post-hole a few metres to the north-east (*852*) was also excavated; it contained grey/brown laminated sand but no finds.

On the north side of Area A, feature *805* projected just into the area of the trench. It contained charcoal and reddish sand silt clay. The sand into which it was cut was red, suggesting that burning had occurred within the pit. The pit may possibly relate to the kilns. Two other small possible features, *825* and *1013*, were also excavated in this area.

Modern

Area B was excavated to investigate a fourth possible kiln suggested by the results of the geophysical survey. A sub-circular feature containing burnt material was discovered beneath the topsoil, but this was of modern date; it contained rusted fragments of iron and degraded ceramic battery cells. Its position was recorded and it was backfilled.

One shallow feature that cut the east side of ditch *897* in Area A, *857*, contained a black charcoal sand fill, the loose nature of which suggested a recent origin.

IV. The finds

(Figs 26–29)

Prehistoric pottery

by Sarah Percival

Eighteen small abraded sherds of prehistoric pottery weighing 41g were recovered from the fills of pits, ditches, kilns and a natural feature, and included material of Neolithic, Bronze Age and Iron Age date as well as a few indeterminate sherds.

Analysis methodology is presented in Appendix 3. A single sherd of possible Mildenhall Ware of earlier Neolithic date (*c*. 3900–2900 BC: Healy 1996, 113) was found in the fill of ditch *925*. It is made of flint-gritted fabric and may be from a 'T'-shaped vessel rim. There is possible impressed decoration on the top of the rim and a small pinched cordon just below it. The abraded condition of the prehistoric pottery from the ditch suggests that it was redeposited there.

Bronze Age pottery was distinguished by the presence of grog within its fabric. No diagnostic characteristics of form or decoration were present. Three sherds of Bronze Age pottery were found in pit *1018* (along with other indeterminate prehistoric sherds), and two small abraded sherds were recovered from the fills of ditch *897* (segment *859*). One of these had a distinctive pale orange colouring, suggestive of an Earlier Bronze Age date. Both these features may indeed be of Bronze Age date.

Four possible Iron Age sherds were identified on the basis of their characteristic flint-tempered fabric. All were undecorated body sherds. Two sherds were found residually in Romano-British features. Single sherds were found in possible prehistoric ditch *829* and in a tree-hole. The material cannot be closely dated.

Eight sherds were assigned a general prehistoric date. Six of these were found, along with the Bronze Age sherds, in pit *1018*; a single sherd was found in the adjacent, similar, pit *1020*. The remaining sherd was found in the fills of kiln *918*.

Roman pottery

by Alice Lyons

(Plate XI; Figs 26–28)

Introduction

A total of 2408 sherds of Roman pottery, weighing 32.322kg, was recovered during the evaluation and excavation of the site. (These figures do not include the pottery from fieldwalking, which was not included in the analysis.) The assemblage consists mainly of moderately abraded sherds, most of which (70.34% by weight) were retrieved from the three kilns. Most of the pottery appears

Fabric name, abbreviation and numerical code			*Qty*	*Wt (g)*	*EVE*	*% (Wt)*
Visible Clay Relict Grey Ware	**VGW**	**89**	**1018**	**15,298**	**22.54**	**47.42**
Red coarse ware	**RCW**	**72**	**444**	**3989**	**8.04**	**12.37**
Sandy grey ware	SGW	97	237	3556	5.22	11.02
Postwick Oxidised Mortarium	**POM**	**506**	**68**	**3034**	**1.73**	**9.41**
Black surfaced red ware	**BSRW**	**96**	**244**	**2294**	**3.58**	**7.10**
Postwick white coarse ware	**PWCW**	**51**	**270**	**1895**	**2.14**	**5.87**
Organic-tempered ware	RWfo	9	65	952	1.75	2.95
Samian	SAM	60	14	534	0.72	1.66
Amphora	AMP	61	5	452	0.00	1.40
Red colour coat	**RedCC**	**70**	**26**	**84**	**0.21**	**0.26**
Micaceous reduced wares	MRW	27	9	70	0.10	0.22
Nene Valley White Ware	NVWW	77	1	66	0.00	0.21
Unspecified black burnished ware	UBB	18	1	12	0.00	0.04
Miscellaneous oxidised ware	MOW	50	2	8	0.00	0.03
Nene Valley Colour Coat	NVCC	24	1	6	0.00	0.02
Miscellaneous colour coats	MCC	58	2	4	0.00	0.01
Grey colour coat	GCC	80	1	4	0.00	0.01
Total			**2408**	**32,258**	**46.03**	**100.00**

Table 30 Roman pottery fabrics listed in descending order of percentage of weight (for full fabric descriptions see Appendix 4). Records in bold indicate manufacture at Postwick.

Vessel Category	*Qty*	*Wt (g)*	*% Wt*	*EVE*
Medium-mouthed jar	168	4600	14.26	21.04
Beaker	67	664	2.05	3.25
Wide-mouthed jar	57	878	2.72	2.92
Bowl	33	794	2.45	2.25
Flagon	39	466	1.45	2.10
Dish	21	392	1.22	1.74
Mortarium	68	3034	9.41	1.73
Lid	8	58	0.18	0.69
Narrow-mouthed jar	4	47	0.15	0.52
Undiagnostic	1942	21,257	65.90	0.00
Amphora	1	68	0.21	0.00

Table 31 Vessel forms, in descending order of percentage of EVE

to have been fired at the site. Each kiln was structurally different and contained distinct types of vessels. Analysis of the pottery, in conjunction with the archaeomagnetic dates from the three kilns, suggests a sequence for the use of the kilns.

Methodology is described in Appendix 3. The Roman pottery fabrics and forms from the site are described below, and detailed in Appendices 4 and 5. Significant assemblages from individual features are discussed as appropriate. Percentages refer to the Roman assemblage only unless otherwise stated. Pottery from the kilns is discussed with reference to use- or disuse-related deposits.

The fabrics

Seventeen Roman pottery fabrics were identified. Six of these were fired in the Postwick kilns (Table 30). These six are some of the most commonly found fabrics, and together represent 82.46% of the Roman assemblage.

Visible Clay Relict Grey Ware (VGW) was the most common Roman pottery fabric. Macroscopic analysis and petrological examination shows that it has the same clay matrix as the red coarse ware (RCW) and black-surfaced red ware (BSRW) (Williams, below) although each is visually different. The different types represent the same fabric at different stages of firing. RCW represents the clay in its unfired or leather-hard state, BSRW when the clay has been partly fired, and VGW the fully-fired material. The different types have been recorded and discussed (below) but, where appropriate, all are referred to as Postwick Reduced Ware (PRW). Together the three variations represent 66.89% of the Roman assemblage and constitute most of the pottery from kilns *906* and *928*.

Also found in kiln *906* was a soft red fabric with a grey colour coat (RedCC). Its poor quality suggests that its firing was incomplete, and therefore is likely to have occurred on site. The third kiln, *918*, contained oxidised mortarium (POM) and white coarse wares (PWCW), which together made up 90.95% of material found in it. It seems that grey and white coarse wares, oxidised mortarium and possibly colour-coated vessels were being made at the site.

With regard to imported fabrics, small amounts of south Norfolk micaceous reduced wares (MRW) were identified, along with a single sherd of unspecified Black Burnished Ware material (UBB). Both these fabrics are known to have been produced in south Norfolk and north Suffolk at the Wattisfield (Moore 1936) and Brockdish (unpublished) kilns respectively. A single sherd of Nene Valley White Ware (NVWW) mortarium, from the far west of East Anglia, was found.

The remaining three fabrics are all colour-coated wares, consisting of Nene Valley, miscellaneous and grey colour coats (NVCC, MCC and GCC). These fabrics together account for only four sherds, and 0.04% (by weight) of the total assemblage.

Sherds of Gaulish Samian (SAM) and Spanish Amphora (AMP) were also recovered.

The forms

A wide range of vessel types was recovered from the kilns (Table 31), and 56 individual types were identified (Appendices 4 and 5). They include jars, flagons, beakers, dishes, bowls and mortaria, all of which were manufactured on site. Medium-mouthed jars were prevalent, although beakers, dishes and wide-mouthed jars were also common. Mortaria form 9.41% of the total assemblage (by weight) although, unsurprisingly, they are less well

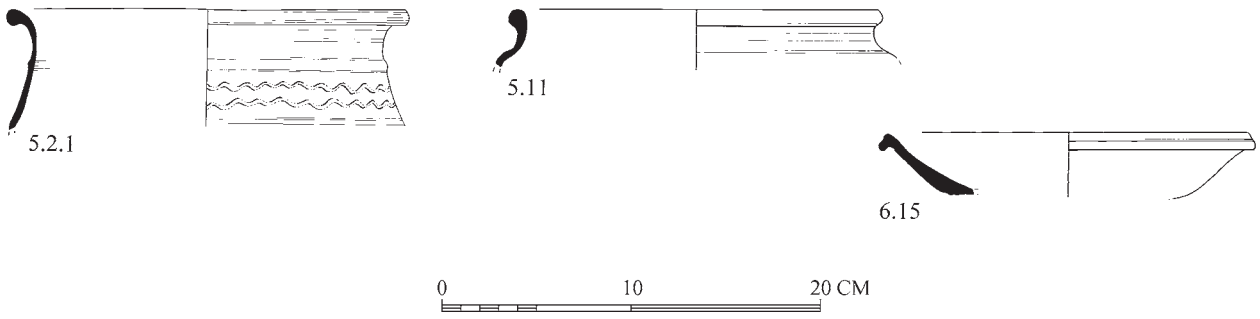


Figure 26 Pottery from kiln *928*. Scale 1:4.

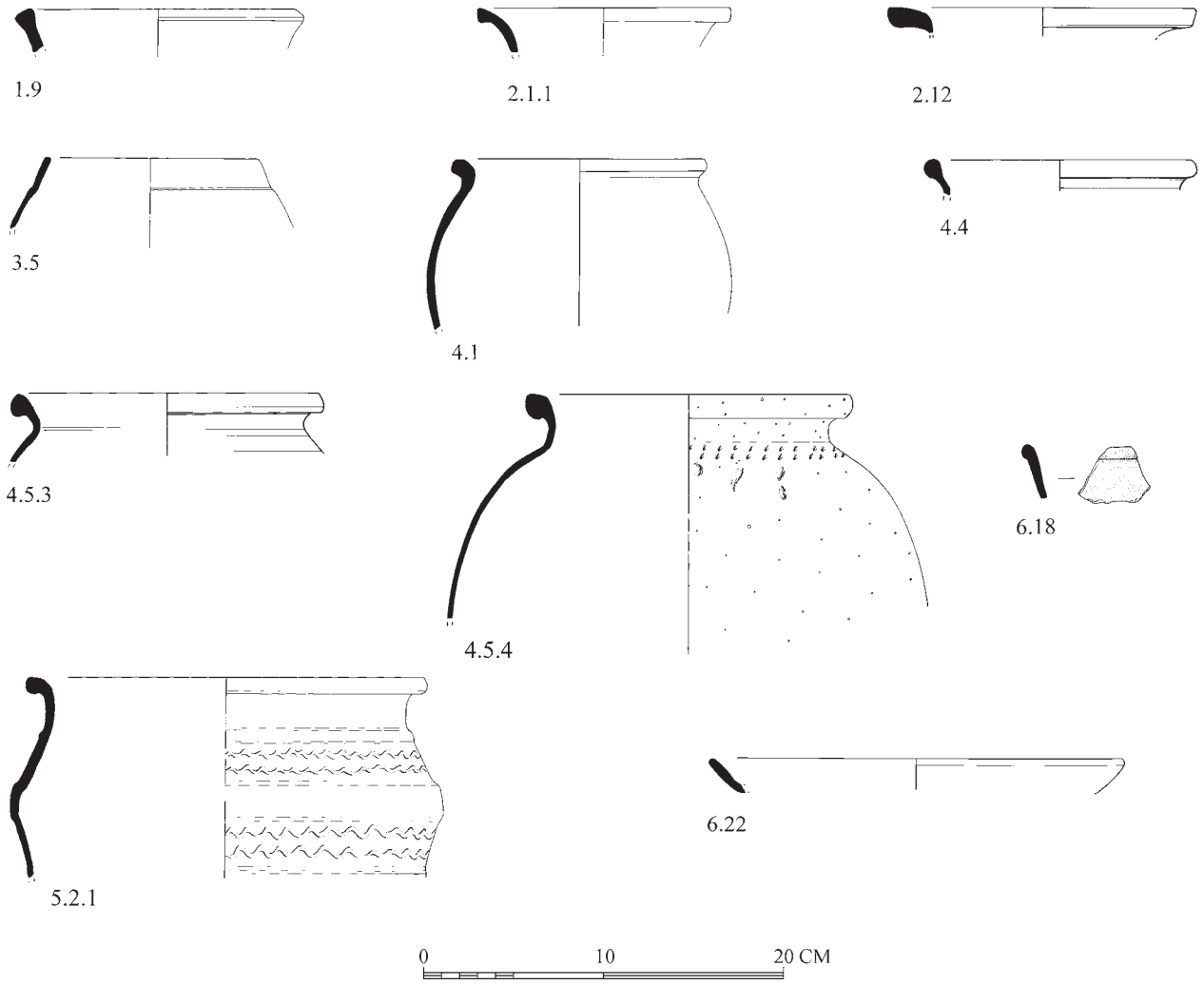


Figure 27 Pottery from kiln *906*. Scale 1:4.

represented by EVE (only 1.73% of a vessel was found). Pottery from the three kilns is listed below and illustrated in Figs 26–28.

Pottery by context
(Figs 26–28)

Kiln *928*
Pottery from the oven and stokehole of this kiln represents 6.64% (by weight) of the Roman assemblage from the site. The small amount of pottery from this feature may reflect severe truncation.

Ten sherds weighing 0.084kg were recovered from the use-related fills. The material included RCW and BSRW, although no vessel types

Fabric	*Qty*	*Wt (g)*	*EVE*	*% Wt*	*Type of vessel*
Prehist.	2	8	0.00	8.70	none identified
Roman RCW	**9**	**80**	**0.00**	**86.95**	none identified
BSRW	**1**	**4**	**0.00**	**4.35**	none identified
Total			**0**	**100.00**	

Table 32 Pottery from use-related fills in kiln *928*, in descending order of percentage of weight

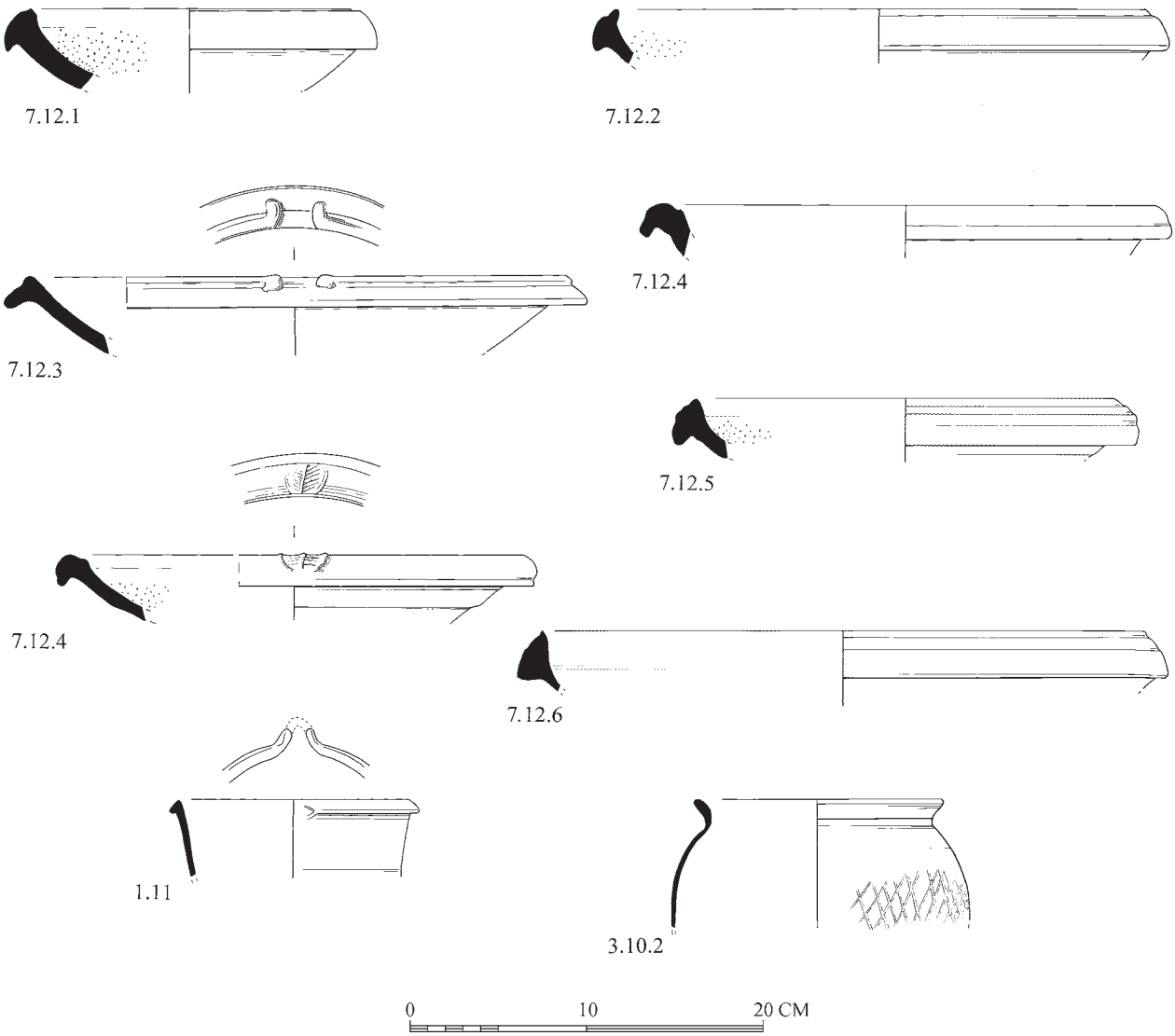


Figure 28 Pottery from kiln *918*. Scale 1:4.

were identified (Table 32). Two residual sherds of prehistoric pottery were also found.

The pottery from the deposits relating to the disuse of kiln *928* was all of Roman date and represents 6.38% of the entire assemblage (Table 33). The presence and frequency of BSRW and VGW (PRW) wasters, and of RCW sherds which are very soft and in a leather-hard or unfired state, strongly suggest that this pottery was fired in the kiln. Five vessel types were identified in BSRW. These included wide-mouthed jars and bowls.

RW(fo) was found in the form of a carinated wide-mouthed jar (not illustrated), and a sherd from a PWCW narrow-mouthed jar was also recovered. The small size and abraded nature of the SGW sherds suggests that they were residual in this feature.

Fabric	*Qty*	*Wt (g)*	*EVE*	*% Wt*	*Type of vessel*
BSRW	**107**	**998**	**1.21**	**48.52**	**5.2.1,5.3, 5.11,6.4, 6.15**
VGW	**10**	**570**	**0.00**	**27.71**	**none identified**
RCW	**21**	**218**	**0.00**	**10.60**	**none identified**
RW(fo)	5	166	0.19	8.07	5.2.1
SGW	17	84	0.00	4.08	none identified
PWCW	1	21	0.28	1.02	2.1.0
Total	**161**	**2057**	**1.69**	**100.00**	

Table 33 Pottery from the disuse fills in kiln *928*, in descending order of percentage of weight

The archaeomagnetic date for this kiln is AD 100–160, suggesting that it was the earliest of the three excavated at the site. A relatively early date is also suggested by the pottery, which includes a high proportion of carinated vessels. These, together with the slightly later bowl forms, indicate an early to mid-2nd century date.

Kiln *906*

A total of 1265 sherds weighing 15.491kg was recovered from this kiln, and represents 48.02% (by weight) of the Roman assemblage from the site. Together, the three fabrics constituting PRW represent 92.18% (by weight) of the pottery from the kiln, suggesting that it was used to fire reduced wares.

A total of 263 sherds weighing 2.877kg (18.57% of the kiln assemblage) was recovered from deposits associated with the use of the kiln (Table 34). Nine fabrics were identified: the most common was VGW, which was identified as a flagon, a narrow-mouthed jar, a beaker, medium-mouthed jars, a bowl, a dish, and a platter. Single examples of each vessel type were found other than medium-mouthed jar, which occurred more frequently. Of these, Types 4.1, 4.4, 4.5.3 and 4.5.4 were the most common; nearly all were plain but Type 4.5.4 was decorated with stabbed comb marks just below the neck and applied rustication on the shoulder.

RCW was the second most common fabric found in the use-related fills of kiln *906*. Vessel types identified included a narrow-mouthed jar, a beaker, medium-mouthed jars, a wide-mouthed jar and a dish. Single examples of each vessel type were found, with the exception of the medium-mouthed jars. Of these, Type 4.4 was the most common; no decoration was recorded.

BSRW was identified in three vessel types: a beaker, a bowl and a dish.

As well as the PRW fabrics, which were probably fired in this kiln, other fabrics thought to have been produced on site were also found in small quantities. RedCC was represented by a single sherd for which no type could be established, and two undiagnostic sherds of MOW was recovered. The locally produced SGW and RW(fo) were recovered in small quantities from the use-related deposits, as well as a single sherd of Dressel 20 amphora imported from southern Spain.

Fabric	*Qty*	*Wt (g)*	*EVE*	*% Wt*	*Type of vessel*
VGW	**139**	**1706**	**3.56**	**59.30**	**1.9, 2.1.0, 3.1, 4.1, 4.4, 4.5.2, 4.5.3, 4.5.4, 4.6, 6, 6.4, 6.18, 6.22**
RCW	**73**	**630**	**1.58**	**21.90**	**2.1.1, 3.11, 4.4, 4.5.2, 4.5.4, 4.6, 5.3, 6.18**
BSRW	**33**	**322**	**0.26**	**11.18**	**3.10, 6.15, 6.18**
SGW	9	102	0.09	3.55	4.5.4
RW(fo)	5	92	0.32	3.20	2.12, 4.4
AMP	1	16	0.00	0.56	
MOW	2	8	0.00	0.28	
RedCC	1	1	0.00	0.03	
Total	**263**	**2877**	**5.81**	**100.00**	

Table 34 The pottery from use-related deposits in kiln *906*, in descending order of percentage of weight

A total of 1002 sherds, weighing 12.614kg and representing 81.43% of the kiln assemblage, was found in the disuse deposits of kiln *906* (Table 35). Twelve fabrics were identified. As in the use-related fills, VGW was the most common fabric. Eighteen vessel types were recognised. These are beakers, medium-mouthed jars, wide-mouthed jars, dishes, a lid and a perforated vessel (a sieve or cheese press). The most common vessel types were medium-mouthed jars Types 4.1, 4.4 and 5.4: the same as from the use-related fills

RCW was identified in the form of a beaker, medium-mouthed jars, a cup, a dish, and a lid. Medium-mouthed jar Type 4.5.4 was the most frequently found form.

BSRW was recognised as medium-mouthed jars, a bowl, a dish, a platter and a lid.

Fabric	*Qty*	*Wt (g)*	*EVE*	*% Wt*	*Type of vessel*
VGW	519	8120	10.05	64.37	3.1, 3.5, 3.11, 4, 4.1, 4.4, 4.5.1, 4.5.2, 4.5.3, 4.5.4, 4.15, 5.2.1, 5.3, 5.6, 6, 6.19.4
RCW	322	2876	1.52	22.80	3.1, 4.5.1, 4.5.2, 4.5.4, 6.13, 6.18, 8.1
BSRW	80	626	1.04	4.96	4.1, 4.4, 6, 6.18
SGW	40	346	0.29	2.74	4.1, 4.5.4, 6.22
RW(fo)	20	316	0.38	2.51	3.10, 4.5.2, 6.19.3
AMP	1	104	0.00	0.82	
POM	1	72	0.00	0.57	7
NVWW	1	66	0.00	0.52	
MRW	6	46	0.00	0.37	
RedCC	5	18	0.00	0.14	
PWCW	6	12	0.06	0.10	4.5, 5.6
UBB	1	12	0.00	0.10	
Total	**1002**	**12,614**	**13.34**	**100.00**	

Table 35 The pottery from disuse deposits in kiln *906* in descending order of percentage of weight

The three PRW fabrics (VGW, RCW and BSRW) were retrieved from both the 'use' and 'disuse' phases of the kiln in relatively large quantities. Although there is a slight variation in the range of vessel types, the data suggests that medium-mouthed jars, especially the lid-seated (Type 4.4) and the short neck, rolled rim and globular body (Type 4.5.4) forms, were the main products of the kiln.

The other fabric that may have been produced in the kiln was the RedCC fabric. No vessel types were recognised, but barbotine scroll and rouletted decoration was identified.

Other fabrics were recovered from the 'disuse' fills of the kiln, some of them in fairly large amounts. One of these was SGW: probably produced locally (although not actually on site), it commonly appears at Postwick. The sherds are severely abraded and quite small. Two types of medium-mouthed jar and a platter were recognised. The other fabric found in significant quantities was RW(fo): a beaker, a medium-mouthed jar and a dish were recognised.

Several other fabrics were identified, including sherds of PWCW and POM: these were interpreted as intrusive pieces, possibly originating from kiln *918* (see below). Two fabrics from elsewhere in the Iceni region (south Norfolk/north Suffolk), UBB and MRW, were identified; NVWW, from the Nene Valley to the west of Norfolk, and AMP (the only foreign import) from southern Spain, were also present.

Archaeomagnetic dating of the fired clay wall of the kiln has produced a date of AD 135–160, and a date somewhere in the second half of the 2nd century is suggested by the pottery itself. The assemblage contained early-type wide-mouthed jars with grooved cordons on the shoulder (Type 5.3) and platters (Type 6.22), alongside later forms such as the straight-sided dish with a triangular rim (Type 6.18), the medium-mouthed jar with short neck and rolled undercut rim (Type 4.5.3), and some medium-mouthed jars decorated with applied rustication. RedCC with barbotine decoration, particularly indicative of later style vessels, was also recorded.

The ceramic and archaeomagnetic dating evidence suggest that kiln *906* was in use around the middle of the 2nd century AD. The excavated evidence suggests that the kiln saw more than one episode of use: this may help explain the presence of both earlier and later 2nd-century fabrics and forms. However, this evidence could also indicate the kiln's use by two potters, each working in a different style, or that the market in this part of Norfolk still demanded platters, a relatively early and short-lived form (Going 1987, 13) after they had ceased to be fashionable elsewhere.

Kiln *918*

A total of 388 sherds of Roman pottery, weighing 5.058kg, was recovered from the oven and stoke hole associated with this kiln. This represents 15.68% of the Roman assemblage from the site. The kiln appeared to have been used predominantly for producing oxidised mortarium (POM) and coarse white ware (PWCW) flagons and jugs. The combined production of these is not unusual, as both utilised the same white clays.

The most common fabric from the 'use' fills of the kiln was PWCW. This was identified as a pinched-neck jug and a bowl. Several tripartite handles were also recovered.

Found in smaller quantities, but perhaps more significant, was POM. Three forms were identified, all of which have a relatively small diameter for this type of vessel (18–22cm) and are thick-walled, flat-based (often with cheese-wire and knife marks on the base) and of the bead-and-flange type (Appendices 4 and 5). The evidence that the mortaria were produced within the kiln itself is strong: many of the sherds are from wasters, and a significant amount (10.34%) of the material was retrieved from the primary, use-related, fills of the kiln and from stoke hole deposits *981* and *989*. One rim sherd, unfortunately too damaged to assign to type, was stamped with a herringbone or feather motif (see below and Fig. 28).

Fabric	*Qty*	*Wt (g)*	*EVE*	*% Wt*	*Type of vessel*
POM	**26**	**484**	**0.26**	**39.80**	**7, 7.12.2, 7.12.4, 7.12.6**
PWCW	**117**	**732**	**1.20**	**60.20**	**1.11, 6.15.1**
Total	**143**	**1216**	**1.46**	**100.00**	

Table 36 The pottery from use-related deposits in kiln *918*, in descending order of percentage of weight

As with the other two Postwick kilns, more pottery was retrieved from 'disuse' than from use-related deposits (Table 37). Although PWCW was the most common ware by sherd count, by weight the majority consisted of POM. Three vessel types were recognised. Two more examples of the herringbone (or feather) stamp were recorded (Plate XI), one associated with vessel Type 7.12.4.

Plate XI Herringbone or feather mortarium stamp

Fabric	*Qty*	*Wt (g)*	*EVE*	*% Wt*	*Type of vessel*
Prehistoric	1	4	0.00	0.12	
Roman					
POM	**33**	**2124**	**1.27**	**65.68**	**7.12.1, 7.12.4, 7.12.5**
PWCW	**107**	**716**	**0.31**	**22.14**	**1.10/11, 4.5.1, 6, 6.17, 8.1**
VGW	47	368	0.45	11.38	3.10.2
BSRW	3	12	0.00	0.37	
SGW	4	10	0.09	0.31	4
Total	**195**	**3234**	**2.12**		

Table 37 The pottery from disuse deposits in kiln *918*, in descending order of era and percentage of weight

The presence of a maker's stamp is of particular significance, as it is very unusual to find a stamp on mortaria of this small size. The stamp is similar to others known from Caistor St. Edmund (Kay Hartley, *pers. comm*.) but comparison of the stamps from the two sites showed that they are not exactly the same.

PWCW was the second most common fabric retrieved from 'use'-associated fills. Several forms were identified, including a carinated and/or pinched-neck jug, a medium-mouthed jar, a flanged straight-sided dish, a lid and several tripartite handles.

The only other fabric found within these deposits in significant quantities was VGW. Only one form, a beaker, was identified. The material is consistent with that produced in kiln *906*, where a similar vessel type was found in the same fabric.

Minimal amounts of BSRW and SGW, and one sherd of residual prehistoric material, were also retrieved from the use-related fills of the kiln.

This kiln has an archaeomagnetic date of AD 130–170. The pottery itself suggests a date in the late 2nd century AD. The latter date is based on the mortaria, as the other vessels have a broad date-range between the mid-2nd and 3rd centuries AD. Thus the archaeomagnetic and pottery dates are broadly compatible, and suggest that kiln *918* is the latest of the three excavated at Postwick.

Illustration catalogue

Kiln 928
(Fig. 26)

Type	*Fabric*	*Description*	*Context*
5.2.1	BSRW	Orange/brown core with dark grey surfaces and burnished decoration**.**	*933*
5.11	BSRW	Orange/red core with dark grey surfaces. This example is cracked and probably a waster.	*933*
6.15	BSRW	Orange/brown with a black outer surface. Very soft as under-fired**.**	*930*

Kiln 906
(Fig. 27)

Type	*Fabric*	*Description*	*Context*
1.9	VGW	Orange/grey with a powdery surface. Very soft and abraded.	*947*
2.1.1	RCW	Mid-orange, very soft and abraded.	*909*
2.12	VGW	Mid-grey with a powdery surface.	*909*
3.5	VGW	Mid-grey with a powdery surface, abraded.	*818*
4.1	VGW	Mid-grey with a powdery surface. The vessel body is cracked and therefore a waster.	*818*
4.4	VGW	Mid-grey core with orange/brown surfaces, fumed in patches.	*818*
4.5.3	VGW	Orange/grey core with dark grey powdery surfaces. Quite soft.	*947*
4.5.4	VGW	Mid-grey with a powdery surface. The vessel is cracked and dented and the decoration incomplete, suggesting abandonment before completion.	*959*
5.2.1	VGW	Mid-grey with a powdery surface.	*818*
6.18	BSRW	Dark orange core with black surfaces and burnished decoration.	*909*
6.22	SGW	Dark grey with a powdery surface.	*818*

Kiln 918
(Fig. 28)

Type	*Fabric*	*Description*	*Context*
7.12.1	POM	Pale grey core with pale orange powdery surfaces, exterior surface crazed.	*918*
7.12.2	POM	Pale grey, with grey flint trituration grits. There are air bubbles in the vessel wall, making this example a waster.	*981*
7.12.3	POM	Mid blue/grey with a powdery surface and slag trituration grits. This example is more micaceous than the others. Is this a deliberately fired grey ware or a misfired oxidised mortarium?	*936*
7.12.4	POM	Yellowish-cream with common orange grog inclusions and a powdery surface.	*949*
7.12.4	POM	Yellowish-cream with grey flint trituration grits. Unusually for such a small rim, this mortarium bears a makers stamp, with a herringbone design that resembles a feather.	*949*
7.12.5	POM	Pale grey core with powdery pale orange surfaces and common orange grog inclusions.	*949*
7.12.6	POM	Pale grey core with powdery yellowish-cream surfaces.	*1000*
1.11	PWCW	Pale grey to orange core and powdery cream surfaces.	*981*
3.10.2	VGW	Pale grey core with dark grey surfaces and burnished exterior decoration.	*949*

Fabric name	*Code*	*Qty*	*Wt (g)*	*% Wt*
Visible Clay Relict Grey Ware	VGW	211	3196	40.30
Sandy grey ware	SGW	142	2838	35.79
Samian	SAM	14	534	6.73
Organic tempered ware	RWfo	32	366	4.62
Amphora	AMP	3	332	4.19
Black Surfaced Red Ware	BSRW	9	266	3.36
Postwick Oxidised Mortarium	POM	5	214	2.70
Red coarse ware	RCW	11	77	0.97
Red colour coat	RedCC	19	63	0.80
Micaceous reduced wares	MRW	2	16	0.20
Prehistoric pottery	PRE	2	10	0.13
Postwick White Coarse Ware	PWCW	1	6	0.08
Nene Valley Colour Coat	NVCC	1	6	0.08
Miscellaneous colour coats	MCC	2	4	0.05
Total		**454**	**7928**	**100.00**

Table 38 Pottery from large intercutting pits, in descending order of percentage of weight

Pottery from intercutting pits

A group of four large intercutting pits was excavated in the north-west part of Area A. One of these (*944*) had cut away part of the stoke hole of kiln *928*, therefore post-dating it, but these features could relate to other (later) kilns at the site.

A total of 454 pottery sherds, weighing 7.928kg, was recovered from this sequence of features (Table 38). It represents 24.52% of the site assemblage.

Fourteen fabrics were recovered. All of the six fabrics thought to have been produced at Postwick are among them.

PRW fabrics account for the majority of material from the pits (44.63%) and are identified in a number of forms. including medium-mouthed and wide-mouthed jars, beakers, dishes, bowls and lids (Type 8.1). Only the medium-mouthed jar (Type 4.10.1), the wide-mouthed jar (Type 5.4) and the straight-sided dish (Type 6.18) were found in significant numbers.

SGW was the second most common fabric, and again a wide selection of vessel types was found. Medium-mouthed and wide-mouthed jars, beakers and bowls were identified, but only medium-mouthed jars (Types 4.4 and 4.5.1) were seen in relatively large numbers. Unlike the SGW from the kiln groups this material is unabraded, and is interpreted as contemporary with the pits.

POM was not found in large amounts, but the fact that it is present at all indicates that the disuse of kiln *918* and the backfilling of this series of pits may have been contemporary.

Samian is only found at Postwick within this group of features. Four forms were identified, all the sherds being very powdery and abraded. The material originates from central and east Gaul, and dates from the mid-2nd to mid-3rd centuries AD. However — and significantly for the dating of this feature group — some of the material cannot post-date the late 2nd century.

Several other fabrics were associated with only one vessel type: RW(fo) was only recognised as a cupped neck flagon and RedCC was only identified as a beaker. NVCC, MRW, PWCW, MCC and AMP were all found in small quantities, as body sherds only.

With regard to dating, this group of features consists of four stratigraphically-related pits. Pits *940*, *942* and *944* (stratigraphically later than kiln *928*) contain fabrics and forms consistent with a mid–late 2nd century date; pit *935*, which contains 81.53% of the pottery from this pit sequence and is stratigraphically the latest in the group, contains fabrics and forms consistent with a date between the late 2nd and mid 3rd centuries AD.

Pottery from ditches

The ditches have been grouped on the basis of their alignment and the artefacts found in them. Ditches *897*, *925* and *1034* contained a total of only five sherds of pottery weighing 0.017kg. Three of these sherds are prehistoric, and two small undiagnostic pieces of Roman pottery may be intrusive. The features may date to the prehistoric or early Roman period.

Ditches *875*, *900* and *1029* contained a total of 64 sherds weighing 1.238kg. The material includes very little of prehistoric date but a significant number of Roman fabrics (BSRW, RWfo, RCW, SGW, and VGW) were found, and vessel types (4.5.1, 4.5.3 and 4.5.4), datable to the later 2nd century AD were identified.

Discussion

The assemblage is characterised by the fact that the majority of pottery (82.46%) was manufactured at the site. So little of the pottery recovered was manufactured elsewhere that a discussion of its sources of supply is of limited value. Several fabrics are unsourced but are believed to be of local manufacture (*i.e.* SGW and RW(fo)). Others were made at the larger regional production centres, such as Wattisfield in north Suffolk (MRW) and in the Nene Valley (NVCC and NVWW). Only two foreign imports were identified: the south Spanish Dressel 20 globular olive oil amphora body sherds, and Samian originating from central and eastern Gaul. The earliest Samian is of Hadrianic date (AD 117–38), and the latest dates to the 2nd to mid-3rd centuries: it may be relevant that no Samian was retrieved from any of the three excavated kilns.

Analysis of the pottery suggests that it was probably manufactured at the site over a span of at least 50 years, although production may not have been continuous. The two earliest kilns, *928* and *906*, both appear mainly to have fired reduced ware jars. These two kilns are closer in date and function than the later specialist mortarium and flagon kiln *918*. Although the two earlier kilns are each of a different structural design, the vessel types identified from them suggest that kiln *906* may have been a replacement for kiln *928*.

The third kiln, *918*, was used to fire flagon and mortarium vessels, the production of which would have required specialist skills. It was significantly later in date than the other two kilns and was of a different design. The presence of a maker's stamp suggests a level of professionalism not seen in the other two kilns. The similarity of the herringbone (or feather) stamp to one from Caistor St. Edmund (*Venta Icenorum*) suggests that the potters at Postwick may have been influenced by the Caistor material. Although the Caistor pottery is of earlier date (mid 2nd century AD) and different design, the

distance between the two sites is only 6km and some examples may have survived to inspire the Postwick potter. Indeed, the type of kiln constructed at Postwick (integral tongue, with ledge support for portable fire bars) finds a close parallel with one used at Caistor (Swan 1981, 128, fig. 8.2). Kiln design probably changed more slowly than pottery forms, so perhaps this does suggest a relationship between the two sites.

No evidence for a major ceramic industry was discovered at Postwick. It is possible, however, that the two earlier kilns represent seasonal use of the site by local people who were employed elsewhere for the rest of the year (Greene 1992, 56). Reduced ware pots for domestic use may have been produced on a small scale over a long period, perhaps over several decades. However, to allow even small-scale production the local environment must have been quite different to the landscape we see today. Wood, water and clay must all have been available within easy reach to make the manufacture of pottery feasible (Swan 1984, 43–5).

The third kiln, *918*, is different both in its design and its products, and may represent a more professional attempt to harness the resources available at the site and the skills of the people working there. For this theory to be proved or disproved, either more kilns must be discovered at Postwick or examples of stamped POM need to be identified in assemblages beyond the local market area of central/east Norfolk.

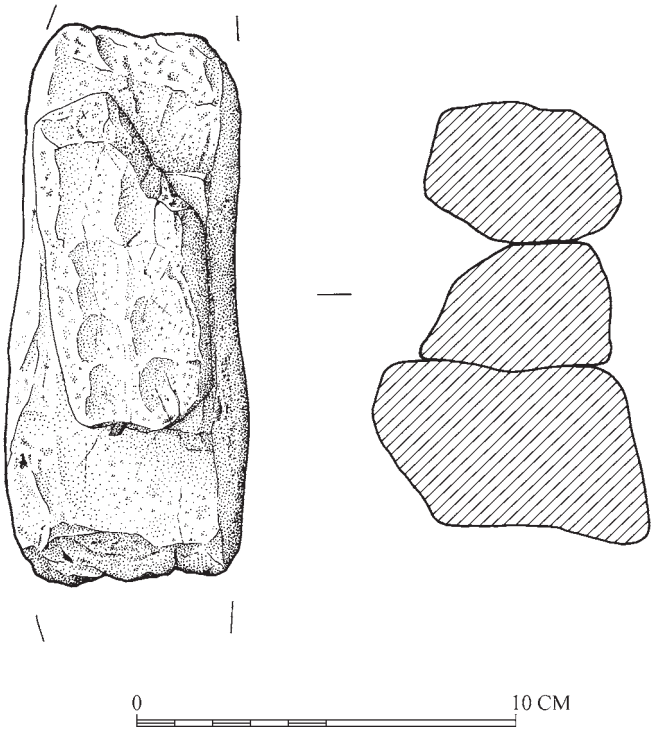


Figure 29 Fired clay from wall of kiln *906*. Scale 1:2.

Kiln construction material

by Alice Lyons

(Plate X; Fig. 29)

Samples of fired clay with an estimated total weight of 50kg was recovered from the kiln structures, or as kiln furniture or fragments of fired clay from the fills of these kilns. Only potentially identifiable pieces were retained. Kilns *906* and *928* (which are closest to each other in date and function) were built using the same clay fabric, while kiln *918* was made from a clay with more chalk inclusions. The fired clay assemblage provides evidence for methods of kiln construction and pottery production. Samples of fired clay from kiln *918* were examined by thin-section analysis for comparison with the pottery fabrics used at the site (see below).

Kiln *928*

The fired clay in this kiln was dark red in colour (Munsell 10R 3/6) with sparse small flint pebble inclusions. Fired clay was recovered from only one context (*956*). Faint impressions of the wattle used in the construction of the kiln and some kiln lining has survived. No other diagnostic pieces were found. This suggests that the kiln may have been deliberately demolished: a collapse would surely have left some evidence of the kiln floor and walls within the surviving chamber.

Kiln *906*

The fired clay is reddish yellow in colour (10YR 6/8), with sparse small flint pebble inclusions. The material was recovered from five contexts (*945*, *946*, *958*, *961* and *962*).

Fragments from the kiln superstructure consist mostly of curved wall fragments. Of special interest is a probable fragment from the upper lip of the wall. It is 190mm in length and varies in thickness between 28mm and 35mm. It has grey patches where it has been exposed to the reducing atmosphere of the kiln. A similar fragment from Spong Hill has been illustrated (Gurney 1995a, fig. 133, no. 12). Part of the clay wall of the oven was dismantled: it was seen that it had been built using sausage-like pieces of clay that had been laid and squashed on top of one another in coil fashion. The inner face was smoothed flat, probably by hand (Fig. 29). The floor of the kiln was 120mm at its thickest and was punctuated with ventilation holes with a diameter of *c.* 40mm. In the underside of the floor, numerous wattle impressions with an average diameter of 18mm were seen. The wattles would have supported the kiln floor during its construction and burnt away when it was fired. Some of the clay is vitrified due to the very high temperatures (700–950ºC) to which it has been exposed.

Kiln *918*

The fired clay is reddish yellow (5YR 7/6) and contains common large chalk inclusions (some up to 35mm across) and sparse large flint pebbles. This material was recovered from five contexts (*949*, *978*, *981*, *998* and *1000*).

The remains of the kiln superstructure are mostly formless, although some pieces have finger impressions. A total of 47 kiln-bar fragments were found in the kiln, with one complete example measuring 395mm x 100mm x 70mm and weighing 3kg (Plate X). The bars are all quite hard and well-fired, with no visible inclusions. Most of them are olive green in colour (5Y 5/2), although six are more orange/yellow (10YR 7/6). The sides of the bars are smoothed, the edges rounded, and the section at their centre quite square. The bars taper to flattened rectangular ends which often bear finger impressions: the person who constructed them either had huge hands or wore gloves during the manufacturing process.

The size of the bars varies: one (unknown length x 105mm x 85mm, weighing 1.770kg) is estimated to have weighed *c*. 4kg when complete. However, some surviving examples are small in comparison (*e.g.* unknown length x 50mm x 60mm, with an estimated weight of only 1kg). Different-sized bars were required to produce a stable surface for the pottery (Swan 1984, 63) and complete kiln-bars should not be used to estimate the kiln size: it is possible that a bar may have been used in several kilns, of various dimensions, during its lifetime.

Thin-section analysis of fired clay

by David Williams

Thin-section analysis was undertaken on samples from two groups of pottery fabrics and from kiln construction debris from the site. The first group included sherds of oxidised mortarium (all from kiln *918*) and white coarse ware, almost all from the same kiln. These two pottery types are often found in association at kiln sites, and it was hoped that petrological analysis of the fabrics would show whether clay from the same source was being used to produce them.

The second group to be examined consisted of three types that had been tentatively identified as one grey ware fabric affected by different degrees of firing. It was hoped that thin-sectioning samples of the three different varieties would confirm or refute this.

Kiln construction debris from kiln *918* was examined in order to compare it with the clay used to manufacture the oxidised pottery found within it.

Petrology

Oxidised mortarium: Fabric POM/506
Contexts *949*, *1000*, *981:* moderately frequent silt-sized quartz grains with some larger ill-sorted grains of quartz, some polycrystalline, up to 0.60mm in size. Also present are sherds of mica, a few small pieces of flint, some rounded orange-coloured clay pellets and red iron oxide. Trituration grits are mainly large quartz grains and pieces of crushed angular flint.

White ware: Fabric PWCW/51
Contexts *949*, *981*, *1000:* a hard-fired fabric containing moderately frequent silt-sized quartz grains and a scatter of larger quartz grains ranging up to about 0.60mm across. Also present are flecks of mica and some small pieces of cryptocrystalline limestone.

Grey ware: Fabric VGW/89
Contexts *937*, *939*, *941:* a fairly fine-textured fabric, the clay matrix contains frequent well-sorted quartz grains below 0.20mm in size, together with a few slightly larger quartz grains. Also present are flecks of mica and a little opaque iron oxide.

Black Surfaced Red Ware: Fabric BSRW/96
Contexts *383*, *818*, *959:* broadly similar fabric to grey ware VGW/89.

Red Coarse Ware: Fabric RCW/72
Contexts *813*, *383:* broadly similar to Fabrics VGW/89 and BSRW/96. Context *909:* a fairly fine-textured fabric with frequent silt-sized quartz grains, a few larger grains of quartz, flecks of mica, clay pellets and a little opaque iron oxide.

Kiln construction debris
Kiln *918*, context *949:* frequent ill-sorted grains of quartz up to 0.80mm across, although most are less than 0.40mm in size. Also present are rounded fragments of cryptocrystalline limestone, some small fragments of shell, pieces of flint, flecks of mica and some opaque iron oxide.

Discussion

The site lies on the Norwich Crag Series, with alluvium, loam and glacial drift sand and gravel nearby (Geological Survey Map of England Sheet no. 162). The Norwich Crag consists of sand, laminated clays and pebbly gravels. The local loam is a sandy, silty clay (Chatwin 1961). It seems quite likely that the clay used at the site was obtained from nearby, utilising some of the silty lenses of the Norwich Crag Series or the local loam deposits.

The petrological results suggest that two broad fabric groups were produced at Postwick, with subdivisions based on the texture and frequency of the inclusions. These were a basically sandy fabric, slightly coarse-textured for the mortaria and finer for the grey wares, Black Surfaced Red Ware and red coarse ware, and a sandy/calcareous fabric that seems to be confined to the white wares.

The white wares seem to be the only pottery type at Postwick to include calcareous material in their fabrics, although large fragments of limestone are commonly present in the debris from the kiln construction material. This may have been a deliberate addition to the clay or represent choice, by the potter, of a particular clay type. Some deposits of the Norwich Crag Series contain calcareous material.

Coins and jetton

by John A. Davies

1. Trajan/Hadrian, sestertius, AD 98–138
2. Faustina II, dupondius, AD 161–76
3. Tetricus I, antoninianus, AD 270–4, Elmer 771
4. O -TRIC-
R [PA]X AVG
Cologne

The coins were all found by metal-detector during, or following, the excavation. They were all from the topsoil. No patterning in their chronological or spatial distribution was observed, and the finds probably represent casual losses that may or may not relate to any occupation of the site.

Other finds

by Julia Huddle and Sarah Bates

Other metal finds

by Julia Huddle

A total of thirteen metal finds (apart from the coins and jetton described above) were recovered during metal-detecting of spoil from the site. All were almost certainly from the topsoil. They included lead, iron and copper alloy objects and fragments, including metalworking waste. A lead plumb-bob with a pinched stem, flaring slightly at its ?broken top and with two deeply cut horizontal lines on opposite sides, had iron staining at each end which may represent an iron axial rod and loop. It appears to be very similar to a plumb-bob of Roman date found at Brancaster (Sparey Green and Gregory 1985). A copper alloy leg from a cooking vessel of medieval or early post-medieval date was also found.

Lithics

by Sarah Bates

Eighty-seven pieces of struck flint were recovered. The material is mostly mid to dark grey in colour, while a few pieces are brownish grey or opaque pale grey. Thin pebble cortex and a thicker creamy brown cortex from nodules are present, and many pieces are small and irregular. These factors all point to the use of surface-collected flint. Apart from that from the ploughsoil, most of the flint is fairly sharp. Very few pieces are patinated but a few are stained reddish or gingery green, probably by the clayey subsoil.

Twenty pieces of flint were from the topsoil and three were from the subsoil. Two bifacially-struck flakes were probably used as cores. A scraper and two small irregular flakes, retouched to form piercers, were also found.

The remaining flint was from the fills of features. Flint from probable prehistoric features included two small sharp flakes from pit *1020*, and four pieces, including a rounded end scraper, from pit *1021*. Two small sharp flakes were found in ditch *925*, and a small nodular fragment used as a core and a small flake were found in pits *843* and *850* respectively.

The greatest quantity of flint from features was found residually in the group of large Romano-British pits in the north-west part of the site. All of it is small and irregular in nature. However, the material is fairly sharp and had probably suffered little abrasion before deposition. Included were a small retouched tool from pit *944* and a small scraper from pit *942*. Another scraper was found in kiln *906*.

The irregular nature of most of the flint, including that used for tools, suggests a later prehistoric, probably Bronze Age, date. Bronze Age pottery was also found in two small pits: the flint found in the Romano-British features may represent contemporary prehistoric material, from truncated features or from soil layers, which was incorporated within the large open features.

Sample No.	*1*	*2*	*6*	*8*	*9*	*3*	*4*	*10*	*11*	*5*	*7*
Context No.	*909*	*923*	*923*	*923*	*965*	*919*	*975*	*981*	*1000*	*929*	*933*
Kiln No.	*906*	*906*	*906*	*906*	*906*	*918*	*918*	*918*	*918*	*928*	*928*
Context	*SH (middle)*	*SH (lower)*	*SH (lower)*	*F (lower)*	*F (lower)*	*SH (lower)*	*K (lower)*	*K (lower)*	*F (lower)*	*K (lower)*	*F (lower)*
Cereals and other crop plants											
Avena sp. (grains)				x?		x					
Cereal indet. (grains)			x			xx	x	x			
(awn frags)						x					
(detached embryos)								x			
(basal rachis nodes)									x	x	
Triticum sp.(grains)					x	xxx					
(glume bases)		x	x			x	xx	xx	xx		
(rachis internodes)						xx	xx	xx	xx		
(spikelet bases)			x			xx	xx	xx	xx		
T. aestivum/compactum-type (rachis nodes)						x?					
T. dicoccum Schubl.(glume bases)		x		x?		x		x?	x?		
T. spelta L. (glume bases)		x	x	x		xxx	xx	xxx	xxx		x
(rachis internodes)				x		x					
(spikelet forks)						xx		x	x		
Linum usitatissimum L.								x			
Herbs (weeds/grassland plants)											
Arrhenatherum elatius(tubers)					x						
Brassicaceae indet.				x							
Bromus sp	x		x			x					
Chenopodium album L.					x					fr	x
Fallopia convolvulus (L.)A.Love	x		x						fr		
Galium aparine L.			x								
Galium sp.								x			
Medicago/Trifolium/Lotus sp.	x			x	x	x					
Plantago lanceolata L.						x					
Poaceae indet.	x		x	x	x						
Polygonum aviculare L.	x			x	x						
Polygonaceae indet.	x				x						
Potentilla sp.				x	x				x?		
Rumex sp.	x	x	x	x	x				x		
R. acetosella L.	x			x							
Sherardia arvensis L				x?							
Silene sp.	x										
Vicia/Lathyrus sp.			x	x	x						
Viola sp.											x?
Wetland plants											
Eleocharis sp.						x			x		
Trees/shrubs											
Sambucus nigra L.					x						
Other plant macrofossils											
Charcoal >2mm	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx
Charcoal <2mm	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx	xxx
Charred root/rhizome/stem	x	xx	xx	xx	xxx	x	x	xx	xx	x	x
Cereal/grass (culm frag-ments/nodes)	x	x	x	x	xxx						
Indet. buds					x						
Indet. inflorescence frags.	x				x	x	xx	xx	xx		
Indet. seeds	x	x	x	x	x		x		x		
Indet. thorns	x	x									
Other											
Black porous 'cokey' material	x	xx	x	x			xx	x	x		
Burnt/fired clay		x			x	x	xx	x	x	x	xxx
Burnt stone		x		x			x				
Small ?coal frags.	x			x			x				
Siliceous globules										x	
Vitrified material			xx								
Sample volume (litres)	**12**	**5**	**10.5**	**5.5**	**3.5**	**4.5**	**6**	**8**	**9**	**8**	**8.8**
Volume of flot (litres)	**0.4**	**0.3**	**0.3**	**0.2**	**0.1**	**0.3**	**0.3**	**0.2**	**0.4**	**0.4**	**0.1**
% flot sorted	**25%**	**50%**	**50%**	**50%**	**100%**	**25%**	**50%**	**50%**	**25%**	**50%**	**100%**

Table 39 Charred plant macrofossils and other materials from kilns *906*, *918* and *928*

V. Environmental evidence

Plant macrofossils
by Peter Murphy

Samples were collected from all the kilns for assessment of charred plant remains. Details of sample locations and volumes are given in Table 39, and the methods used are described in Appendix 2. As at Two Mile Bottom (Part 3, this volume) the samples were not analysed quantitatively, but both a species list and a reliable indication of the relative abundance of macrofossil types were obtained.

Results
The results are presented in Table 39. Charcoal was the predominant component of all the flots (Gale, below). Cereal remains, principally chaff but also some grains, were also common. The main crop represented was *Triticum spelta* (spelt wheat), with traces of *T. aestivum/compactum*-type (bread-type wheat), *T. dicoccum* (emmer) and *Avena* sp (wild or cultivated oats). Cereal-type culm nodes and fragments (straw) were present only in kiln *906*. A single seed of *Linum usitatissimum* (flax/linseed) came from kiln *918*. Fruits and seeds of weeds and grassland plants were frequent, though not common, and a 'tuber' (basal internode) of *Arrhenatherum elatius* (onion couch grass) came from kiln *906*. Nutlets of *Eleocharis* sp (spike-rush) were present in kiln *918*, and a single charred seed of *Sambucus nigra* (elder) in kiln *906*. Unidentified vegetative plant material (stem, rhizome and root fragments) was consistently present.

Discussion
The results from Postwick are discussed below in the report on the Two Mile Bottom kiln samples (p91). In summary, it is clear that crop by-products, principally chaff and straw, formed a significant part of the fuel, supplementing higher-quality fuels such as oak wood. These by-products should not simply be regarded as waste, but rather as an actively-traded economic resource (van der Veen forthcoming).

Charcoal
by Rowena Gale

Charcoal from fuel residues was present in the stoke holes and flues of each of the three excavated kilns; some samples have been attributed to fuel from the final firings. Identification of the charcoal was undertaken to indicate the character of the fuel and characterise the use of woodland resources.

The methods are summarised in Appendix 2. Samples which contained very large quantities of material were subsampled as follows (sample numbers in angled brackets):

Kiln *906* <1> *909*, 25%; <2> *923*, 50%; *923*, <6> 50%
Kiln *928* <5> *929*, 25%
Kiln *918* <4> *975*, 50%; <11> *1000*, 50%

Some charcoal, particularly that from kilns *907* and *912*, was friable, compressed and poorly preserved.

Results
The results are summarised in Table 40. The anatomical structure of the charcoal was consistent with the taxa (or groups of taxa) given below. The similarity of some related species and/or genera makes it difficult to distinguish between them with certainty. Classification is according to *Flora Europaea* (Tutin, Heywood *et al.* 1964–80).

Broadleaf taxa:
Aceraceae. *Acer* sp., maple
Aquifoliaceae. *Ilex* sp., holly
Celastraceae. *Euonymus* sp., spindle
Corylaceae. *Corylus* sp., hazel
Fagaceae. *Quercus* sp., oak
Leguminosae. *Ulex* sp., gorse and/ or *Cytisus* sp., broom. These genera are anatomically similar.
Oleaceae. *Fraxinus* sp., ash
Rosaceae.
Pomoideae: *Crataegus* sp., hawthorn; *Malus* sp., apple; *Pyrus* sp., pear; *Sorbus* spp., rowan, service tree and whitebeam. These genera are anatomically similar.
Prunoideae: *Prunus* spp., which includes *P. avium*, wild cherry; *P. padus*, bird cherry; *P. spinosa*, blackthorn. It is sometimes difficult or impossible to differentiate between the species.
Salicaceae. *Salix* sp., willow; *Populus* sp., poplar. These genera are anatomically similar.
Tiliaceae. *Tilia* sp., lime
Ulmaceae. *Ulmus* sp., elm

Kiln 906
Fills included large quantities of charcoal, particularly in the stoke hole (samples 1, 2 and 6). Charcoal from the lower fills of the flue (sample 8) and kiln/flue (sample 9) was also examined. The latter may have resulted from the final firing of the kiln. The charcoal included a wide range of taxa: *Acer* (maple), *Corylus* (hazel), *Euonymus* (spindle), *Fraxinus* (ash), *Ulex/Cytisus* (gorse/ broom), *Prunus* (blackthorn/cherry), *Quercus* (oak), *Salix/Populus* (willow/poplar) and *Tilia* (lime). In most samples gorse/broom, willow/poplar and lime occurred more frequently than other taxa, although in sample 9 (from the ?final firing) gorse/broom was (apparently) absent, and hazel was more abundant than in other samples.

Charcoal from most samples was too comminuted to assess the maturity of the wood used, although in sample 1 stems from gorse/broom and cherry/blackthorn measured from about 3mm in diameter, and the oak included sap- and heartwood; in sample 6, it included narrow roundwood.

Sample	*Ctxt*	*Description and weight*	*Ac.*	*Cor*	*Euon*	*Frax*	*Il*	*Leg*	*Pom*	*Prun*	*Querc*	*Sal*	*Til*
Kiln *906*													
1	*909*	Stoke hole (middle fill) 74g	-	-	-	-	-	32r	-	2	6sh	26	16
2	*923*	Stoke hole (lower fill) 49g	-	-	-	-	-	32	-	-	1s	35	3
6	*923*	Stoke hole (lower fill) 48g	2	1	3	2		25	-	-	2r	46	32
8	*923*	Flue (lower fill) 25g	-	1	-	1	-	31	-	1	-	38	2
8	*965*	Kiln/flue (lower fill)* 20g		15	-	-	-	-	-	-	2	25	8
Kiln *928*													
5	*929*	Kiln/stoke hole (lower fill) 75g	-	-	-	2	-	1	-	-	-	-	76s
7	*933*	Flue (lower fill) 12g	-	-	-	7	-	-	-	-	-	-	21
Kiln *918*													
3	*919*	Stoke hole (lower fill) 5g	1	-	-	-	-	-	-	-	4r	-	6r
4	*975*	Kiln (lower fill) 35g	-	1	-	-	-	-	-	-	64s	-	-
10	*981*	Kiln (lower fill)* 14g	-	-	-	-	-	-	-	1	16r	-	8
11	*1000*	Flue (lower fill) 38g	12	1	-	-	2	17r	1	-	4r	-	22

The number of fragments identified is indicated.
Ac: *Acer*; *Cor*: *Corylus*; *Euon*: *Euonymus*; *Frax*: *Fraxinus*; *Il*: *Ilex*; Leg: Leguminosae; Pom: Pomoideae; *Prun*: *Prunus*; *Querc*: *Quercus*; Sal: Salicaceae; *Til*: *Tilia*.
r: narrow roundwood (diameter <20mm); s: sapwood; h: heartwood.
* ?final firing

Table 40 Charcoal from kilns *906*, *928* and *918*

Kiln 928
Sample 5 from the lower fill of the kiln or stokehole consisted mainly of *Tilia* (lime) but also small quantities of *Fraxinus* (ash) and *Ulex/Cytisus* (gorse/ broom). Some of the larger fragments of lime indicated the use of roundwood with an estimated charred diameter of 60mm. Charcoal from the lower fill of the flue (sample 7) was less abundant and very friable; *Fraxinus* (ash) and *Tilia* (lime) were identified.

Kiln 918
Sample 3 from the lower fill of the stokehole consisted of *Quercus* (oak), *Tilia* (lime) and *Acer* (maple). Pieces of oak and lime roundwood measured between 8mm and 10mm in diameter. Sample 4 from the lower fill of the kiln included a large quantity of slivers from *Quercus* (oak) roundwood. None of the latter included a complete cross-section but a rough estimate suggested charred stem diameters of about 25mm; the growth pattern (wide innermost rings) suggested a possible origin as coppice wood. A small quantity of *Corylus* (hazel) was also present.

Sample 10, possibly from the final firing of the kiln, included narrow roundwood from *Quercus* (oak), and also *Tilia* (lime) and *Prunus* (blackthorn/cherry). The lower fill of the flue (sample 11) included a broader range of taxa: *Acer* (maple), *Corylus* (hazel), *Ilex* (holly), *Ulex/Cytisus* (gorse/broom) roundwood, Pomoideae (hawthorn group), *Quercus* (oak) roundwood, and *Tilia* (lime).

Discussion
Fuel residues found *in situ* in stoke holes, kilns and flues were abundant and contained a mixture of charred wood, cereal grains, straw and chaff, seeds and vegetative parts from other herbaceous plants. Cereal chaff provides fast-burning kindling. It burns fiercely and, when used as a fuel, could have rapidly raised or boosted temperatures in the kilns.

The results of charcoal identification indicated some possible differences between the types of wood fuel used in the three kilns (Table 40). The significance (if any) of this is difficult to interpret without knowing the operational relationship of the kilns. In kilns *906* and *928 Quercus* (oak) seems to have been used either sparingly or not at all, whereas in kiln *918* oak was considerably more important. *Lex/Cytisus* (gorse/broom), *Salix/Populus* (willow/ poplar) and *Tilia* (lime) appear to have provided the bulk of the fuel used in kiln *906*, but the charcoal residues in kiln *928* suggested a preference for lime, and there was little or no evidence of gorse/broom or willow/poplar.

Differences were also evident between charcoal samples recovered from related areas within the same kiln, *e.g.* the stoke hole in kiln *906* (samples 1, 2 and 6: Table 40). Here, the predominance of gorse/broom, willow/poplar and lime was common to all contexts; however, gorse/broom was not identified from the lower fill of the kiln/flue (sample 9).

Although fewer samples were examined from kiln *928* the results suggested that *Tilia* (lime) was the preferred fuel, and that this was supplemented with *Fraxinus* (ash) and *Ulex/Cytisus* (gorse/broom).

Various factors may have influenced the apparent fluctuations in use of particular species in the three kilns:

1. The control of the heat source through the use of different types of wood fuel, *i.e.* hot, fast-burning or cooler, slower-burning woods.
2. The control of heat through the use of roundwood of different diameters (by increasing/decreasing the ratio of wood surface to atmospheric oxygen). This traditional method of firing kilns is still practised by a clay brick-making industry in Italy, where the temperature in the wood-fired kilns is boosted towards the end of firing by the addition of brushwood (Freestone, *pers. comm.*).
3. The depletion of woodland resources or particular taxa through overuse or clearance.
4. Operational preferences for the use of certain taxa for firing specific types of clay or pottery.

Fuel values and woodland resources
The calorific value of wood is strongly influenced by the density or weight of the material and its volatile constituents (natural resins and gums *etc*.). Hard, close-grained wood such as gorse burns with immense heat and has traditionally been used to fire kilns and ovens (Edlin 1949). Oak wood, in particular the heartwood, makes a high-energy wood fuel; ash is also excellent and burns fast when contained in kilns and stoves; lime is less efficient in terms of heat produced but, nonetheless, makes a reasonable fuel (Porter 1990). By comparison, lighter-weight woods such as willow and poplar emit less heat and tend to smoulder (Porter 1990).

The output of pottery from these kilns is unknown. If it was fairly continuous then fuel requirements would have been high, and pressure on the neighbouring woodlands would have been considerable. Fuel supplies to what may have been an important local industry would probably have been sustained by woodland management; some slight evidence of coppicing was suggested by growth patterns in oak charcoal from kiln *928*. If the fuel was gathered from natural woodland, persistent wood-cutting for a large industry might have depleted local resources to unsustainable levels fairly quickly.

Fuel residues from the contemporary pottery kilns in Norfolk at Ellingham and Two Mile Bottom, Thetford (this volume) indicated the use of a similar combination of wood fuel, cereal-processing waste and other herbaceous materials (identified by P. Murphy). The dominant woody taxa varied at each site, and probably reflected local differences in distribution. The practice of using both wood and cereal waste may be indicative of regional preferences and/or methods of firing similar types of ware. Further research arising from future excavations may provide the necessary key to interpretation.

Conclusion
Charcoal from fuel residues from the three kilns indicated that they were fired using a combination of wood and large amounts of cereal waste and other plant material. A mixture of wood species was used in each instance but different species appeared to be dominant in each kiln. Various possible explanations for these differences have been considered, but until secure information on local potting techniques in the Roman Period is available these remain unresolved.

The results of the charcoal analysis were compared to studies on fuels from Romano-British pottery kilns from elsewhere in Norfolk (Murphy, below). It was evident that the basic practice of using wood and cereal waste to fire the pottery kilns was employed at each site, although the woods used varied and probably reflect local differences in the distribution of taxa.

VI. Discussion

Prior to the evaluation of the area at Green Lane, there was no evidence for any significant activity at the site during the Roman period, and none that pottery production had occurred there. However, the site at Heath Farm does not lie far from the possible junction of two Roman roads. The line of a west-to-east road passing through the later city of Norwich is uncertain but is thought to run from Bawburgh, to the west of Norwich, to Postwick (Wade-Martins ed. 1994) and may in part be represented by the 'Yermouthe Way' (Rye 1907). It is joined at Thorpe St. Andrew by a road from the Roman town at Brampton in north-east Norfolk, where field survey and excavations have revealed more than 140 kilns dating from the late 1st to the early 3rd centuries AD (Green 1977; Knowles 1977). It is possible that the line of this road influenced the location of the kilns at Postwick, as well as that of one at Thorpe a kilometre to the west (above). The presence of the vent-floored pilastered kiln at Heath Farm certainly suggests Brampton's influence (Swan 1984, 121); maybe the kilns were built here by potters from, or influenced by, Brampton. Moreover, the influence of potting at *Venta Icenorum* — the Icenian capital, only a few kilometers to the south-west — may be evidenced by the 'feather/fish-bone' mortarium stamps found at both sites. The line of the north-to-south road continues to the River Yare just to the south of the present site; a settlement of Roman date is known on the south side of the river (Wade-Martins ed. 1994), but whether or not there was a river crossing here is uncertain. There is no evidence for the line of the road further to the east but it seems likely that it continued through Brundall, ultimately leading to Caister-on-Sea (the coastal supply base for *Venta Icenorum*).

Archaeomagnetic dating of the excavated kilns showed that the site was active during the 2nd century and suggested that the three kilns might have been used in sequence, with grey ware being produced in the two earlier kilns and oxidised wares, including flagons and mortaria, being fired in the third. The kilns were all quite different in type, with the smallest (and probably the

earliest) having permanent integral supports and being classified (according to Swan 1984) as Type F5 or 6: the ambiguity reflects the unknown nature of the floor or supports for the kiln load. The second kiln had a permanent vented floor and is clearly of Type F6. The third, and probably the latest, kiln had permanent supports but utilised temporary fired clay bars, and thus can be classified as Type F5. There are no obvious repairs to any of the kilns although repeated use of kiln *906*, for example, seems likely.

The kilns excavated at Heath Farm probably represent pottery production on a fairly small scale. At some sites, very large numbers of kilns and many other associated features have been found. Despite extensive stripping of topsoil, the relatively small number of kilns recorded at Postwick and the apparent absence of associated buildings or many other features suggest a small-scale craft activity, with potters possibly working on a temporary or seasonal basis.

It is possible that a series of large pits excavated close to two of the kilns relate to potting at the site. A thin layer of pale grey sediment across the floor of one long flat-bottomed pit may be a residue left after the treatment of clay there, but there is no definite evidence for this. Generally the excavated features are dissimilar to the pits, gullies and surfaces used for levigating and puddling clay at other sites (Swan 1984, 44–5).

The other main features that are probably of Roman date are the later of the excavated ditches. Their shared alignment suggests that they formed an enclosure or other boundary, and the location of two of the kilns within a 'corner' may not be accidental. At Mucking, Essex, five out of six excavated Roman kilns were situated in or beside field boundary ditches and it was suggested that itinerant potters had set up kilns, probably on a seasonal basis, to supply a nearby villa (Jones and Rodwell 1973, 14–15). The development of the landscape at Heath Farm might be illustrated by the fact that what was probably the earliest of the three kilns was truncated not only by the series of large pits (which may possibly have been associated with one of the later kilns) but also by a small ditch that may have represented an addition to the existing boundary system.

All three of the Postwick kilns are orientated with the oven chamber on the north side. This may have been deliberate, to make best use of a particular wind direction. At Rettendon, Essex, excavated kilns were aligned to face not the prevailing wind, but that which was reported by a local farmer to be best when lighting a fire (Tildesley 1971). At some other sites (Two Mile Bottom, for example) the orientation of the kilns appears to have been less important. Perhaps the exposed position of the site at Green Lane made this factor more of an issue here.

The frequent siting of Roman kiln sites in river valleys, due to the presence of raw materials and relatively easy access to potential markets for the finished products, is discussed by Swan (Swan 1984, 3). Of the three sites included in this Occasional Paper, that at Heath Farm is located furthest from an existing watercourse. However, raw materials for the manufacture of pottery were probably all available in its vicinity. The possible water channel identified during field survey to the south would have been some distance from the site but a stream may have run from this channel, or another water-source may have lain nearby. Laminated clays occur in the Norwich Crag deposits, and it seems likely that clay from these deposits could have been utilised at the site. Fuel residues from the three excavated kilns contained a mixture of materials including various types of wood, cereal grains, chaff and straw. The latter two materials may have been used as kindling, or to raise the temperature of the kilns rapidly during firing.

The evidence suggests that potting was carried out on a small scale at Postwick but nevertheless was fairly well-established there, with people returning to the site over some length of time during the 2nd century, possibly following a pattern that was already established in the 1st century and was represented by the kiln at Thorpe. There is no evidence for settlement in the immediate vicinity and the reason for the construction of the kilns here is uncertain, as is the intended market for the kiln products. However, the raw materials for pottery production were clearly available at the site, and already-established communication routes may have been responsible for the original siting of the kilns that produced grey wares for a very local market. The later production of specialist wares may have arisen with a growing perception that the area was suitable for potting, and because of the suitability of the site for the reasons already cited.

Part 3 Excavations at Two Mile Bottom, Thetford, 1995–6

Site 5738

by Sarah Bates

I. Summary

Excavations carried out in advance of the construction of a power station at Two Mile Bottom, near Thetford, revealed evidence from several different periods. Flint-knapping debris dating to the later Mesolithic period was found *in situ* for the first time at this well-known prehistoric site. Romano-British features included at least three pottery kilns, as well as pits and post-holes. Pottery from one of the kilns included quantities of 'wasters' of painted white wares, of late 3rd–early 4th century date and of a type not previously known to have been made in Norfolk. Numerous Early Saxon date features, including a series of pits and a possible sunken-featured building, were also excavated. These were of significance for two reasons. Firstly, no remains of this date were previously known from the site or its vicinity; secondly, the presence of late Roman and Early Saxon pottery together in a few features suggested possible continuity of occupation at the site.

II. Introduction

(Figs 30 and 31)

Location and circumstances of excavation

Two Mile Bottom (Fig. 30), on the east bank of the Little Ouse river approximately 4km north-west of Thetford, is known for its many finds of prehistoric date (specifically of later Mesolithic flint) and also for a Romano-British pottery kiln discovered there late in the 19th century. Proposals by Fibrowatt Ltd early in 1995 to construct a biomass-fuelled power station at the site therefore led to an archaeological evaluation. The area of the proposed development consisted of about 3.6 hectares located between the Little Ouse river and the Thetford to Ely railway line. The southern part of the development area included the Two Mile Bottom Works: originally Fison's fertiliser works, subsequently a thermalite block factory and most recently a building materials depot. It was considered that this area was likely to have been heavily disturbed by industrial buildings and hard-standings, and that archaeological remains would probably not have survived. Its archaeological investigation was not therefore considered worthwhile.

Trench evaluation of the northern part of the proposed development area was carried out in July 1995, leading to the discovery of archaeological features that would clearly be threatened by the power station development. As a result, two areas were opened up the following year to permit more extensive excavation. The evaluation, excavation and post-excavation work was undertaken by the NAU according to a brief issued by the Landscape Archaeology Section of the Norfolk Museums Service. The work was funded by Fibrowatt Ltd.

Topography and geology

The site (SMR Site 5738) lies on well-drained gravels of the Freckenham Series, with sand overlying stony sand. The local soils are brown earths (Corbett 1973). The site lies on the east bank of the Little Ouse at TL 852 868 (Fig. 30), just above the 10m contour on the slope of a low hill overlooking the river immediately to its west. At the time of the evaluation and excavation the area of the site to the south of the Two Mile Bottom Works was known to be buried beneath a thick deposit of dumped material, including general landfill and large amounts of waste from the manufacture of thermalite at the site in the 1970s and 80s.

Archaeological background

A study of the Norfolk Sites and Monuments Record shows that the area along the bank of the Little Ouse river in the vicinity of the site at Two Mile Bottom is rich in archaeological finds and sites. Field survey and the casual collection of material since the early 20th century has led to the recovery of large amounts of struck flint, mostly from an area just to the south of the Two Mile Bottom Works, and consisting largely of material of later Mesolithic date (*c.* 7000–5000 BC: Jacobi 1984, 53–7). The evidence for the various 'sites' identified during different phases of artefact collection in the area, including the material from Site 5738, is discussed in Robins 1998.

The other previously recorded archaeological finds in the immediate vicinity of Site 5738 are of Romano-British date. The most significant of these was a pottery kiln (Site 5730) discovered during the construction of a branch line from the main railway to Fison's works in 1892 (Frere and Clarke 1942). The kiln was about six metres from the river bank at TL 5511 8689. It was probably built in a pit, and pottery was recorded as being found up to eight feet below the surface. The kiln was about 1.70m in diameter, with a flue represented by two upright pillars of fired clay 0.75m high and a possible flue arch. It had a floor of chalk marl 0.08m in thickness. Sherds of pottery, fragments of animal bone and fired clay, some with impressions of fingers and grass or straw, were found within the feature. The pottery recovered was described as black, grey, red or yellow, the latter being most common. The only recorded decoration consisted of 'chevron-like stabs between incised cordons'. No other features of Romano-British date have ever been discovered in the area of the site, but Roman artefacts have been found close by (Fig. 30). These include sherds of pottery, including Samian, coins and a

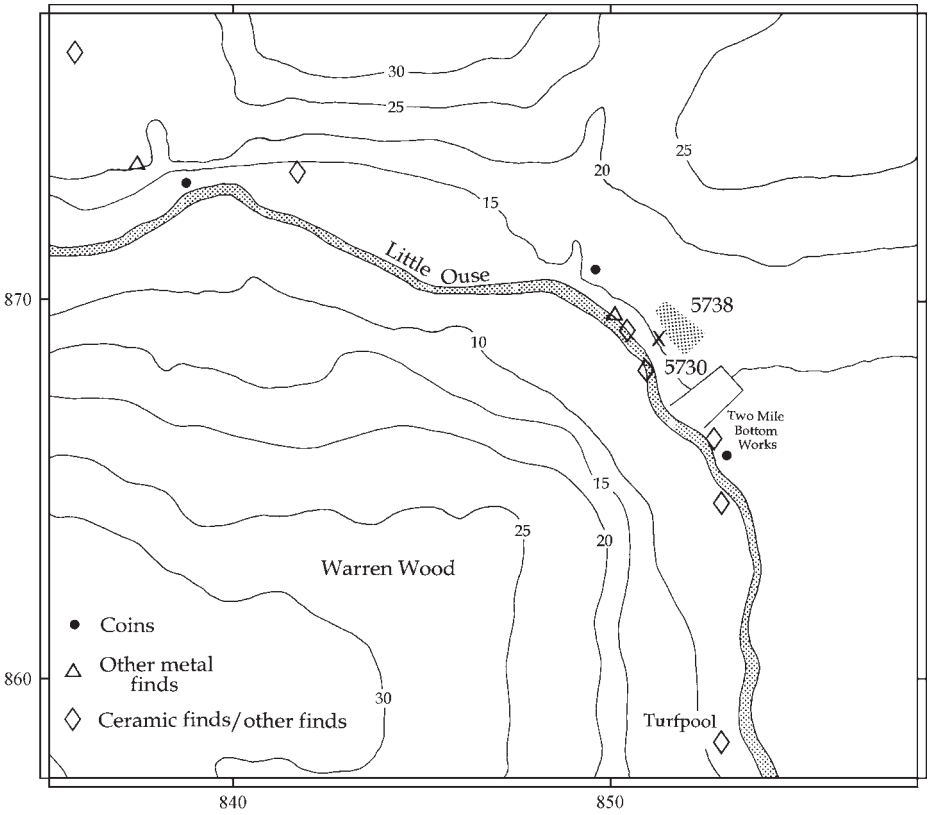


Figure 30 Location of site. Scale 1:20,000.

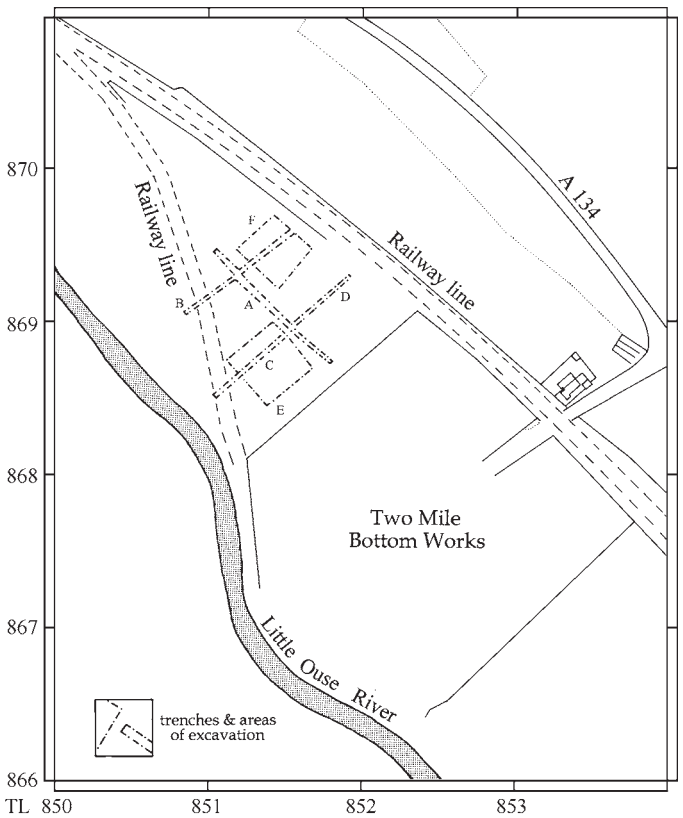


Figure 31 Location of evaluation and excavated trenches. Scale 1:5000.

bronze ring dredged from the river. A fragment of millstone grit quernstone is also possibly of Roman date.

Also of significance is a site at nearby 'Turfpool', in Warren Woods just over a kilometre to the south. There fragments of tile (including a flue tile), millstone grit quernstone and over 600 sherds of pottery of Romano-British date were discovered during field survey of areas of replanted pine forestry compartments (Brooker 1997). The pottery includes grey wares, grog and shell-tempered wares, mortarium, Much Hadham, East Anglian colour coated, oxidised Hadham, pale oxidised, coarse oxidised and Nene Valley colour coated wares. The finds are interpreted as representing a settlement of late 3rd–4th century date.

No evidence dating to the Early Saxon period is recorded from the vicinity. Early Saxon settlement has been recorded in Thetford itself at Redcastle Furze (Andrews 1995) and Brandon Road (Dallas 1993), while excavations at Melford Meadows, Brettenham, just to the south-east of Thetford, revealed 5th–7th century occupation following Roman activity there (Mudd 2002).

There are no recorded archaeological sites to the south and west of the river in the vicinity of Two Mile Bottom. This may be due in part to the forested nature of that area, while the absence of any roads or easy access has probably discouraged organised or casual searching of the area.

Fison's Vitriol and Manure Works was established at Two Mile Bottom in 1853, and was only the second such establishment in Britain (site archive; Norfolk Industrial Archaeology Society). Buildings, kilns and a network of railway tracks once existed here, along with a timber quay on the bank of the river which was then navigable from King's Lynn to Thetford. Production of fertiliser at the site ceased in 1954 and the site was used by Fison's as a store until 1972. The works were demolished in 1975 after 'rescue' survey by members of the Norfolk Industrial Archaeological Society and Norfolk Archaeological Rescue Group. The site was then used for the manufacture of thermalite building blocks and, until the late 1990s, for the storage and distribution of building materials.

History of the project

The thick layer of waste thermalite and other 'landfill' material dumped across the area of the site prevented any fieldwalking or geophysical probing, which may have been particularly appropriate to the identification of prehistoric finds scatters and kiln-related features. The initial evaluation of the site was by trenching. The archaeological brief required the investigation of two percent of the total area of the site, and trenches totalling just over 300m in length and 1.8m wide were excavated during July 1995 (Fig. 31; Ashwin 1995).

The dumped material was up to 2m thick and consisted of a largely solid layer of thermalite waste overlying a mixed deposit of sandy soil and miscellaneous rubbish. Beneath this dumped material, a layer of dark 'purple' brown sand represented the buried topsoil. Beneath that, layers of sand that varied in thickness and complexity across the site represented the podzolised profile of the buried soil. Sample sieving of this deposit revealed few finds, although a concentration of burnt flint was seen in the south-west part of the site. Small amounts of worked flint and Roman pottery were found, with a single larger assemblage of pottery being recovered from a feature that was partly excavated in the south-western part of the site.

Natural sand lay beneath the buried soil, at a depth of 1.8–2.3m below the modern ground surface. It was clear in 1995 that much of the site (35% of the total length of the evaluation trenches) had been disturbed by very large deep pits: most of these contained modern rubbish, although some were apparently backfilled with natural sand and gravel. One of these disturbances, at the north-west end of Trench A, was large enough to contain a substantial part of a 1970s lorry; the base of another pit at the south-east end of the same trench was not found even during localised excavation to a depth of 4.5m.

The evaluation exposed a small number of archaeological features cutting the natural sand in undisturbed areas of the site. A few small features were excavated in Trench A, three ditches were partly excavated in Trench B and a larger feature was revealed in Trench C (Fig. 31). The results of the evaluation led to the definition of two areas of potential interest by curatorial archaeologists; these were investigated during the main excavation, which took place in September and October 1996.

Excavation methodology

(Fig. 31)

The two areas chosen for full excavation each measured about 40m square (Fig. 31). Area E was sited to investigate the features revealed in evaluation Trench C. Area F aimed to trace the extent of the ditches that had been discovered in Trench B.

The areas were stripped of overburden by machine. This involved the breaking and removal of the thermalite layer and the removal of dumped modern material up to 2.0m thick. The buried soil layer and sand beneath it were also removed, although blocks of this material were left *in situ* to allow sample sieving for artefacts. In some areas disturbance caused by the modern pits and dumping had encroached into the natural sand beneath the buried soil layer. These disturbances were surprisingly few and small in size, however, considering the scale of those that had been seen in the evaluation trenches. Numerous archaeological features were observed cutting into the natural sand across both of the stripped areas.

The density of features varied across the site. The ditches and larger 'pits' that had been seen during the evaluation were identified, but by far the greatest concentration of features was in the southern part of the site beyond the area of evaluation Trenches A and C. Numerous pits and other features were seen here. Some of these had been cut through a dark layer of soil; elsewhere features appeared to be sealed by this layer, however, and could only be seen once it had been removed. In the southern corner of Area E, two kilns were immediately recognisable due to their distinctive shape, structure and contents.

Due to the limited time available, the site was not hand-cleaned in its entirety. Archaeological features could be seen clearly in the freshly-machined areas but the very soft sand into which they were cut, and the extremely dry conditions prevalent for most of the excavation period, meant that no sooner was an area cleaned than it almost immediately became covered in loose sand. Despite taking care to confine walkways to the edges of the site whenever possible, whole areas soon came to resemble large sand-pits. Hence, specific areas were hand-cleaned as necessary in advance of the excavation of features.

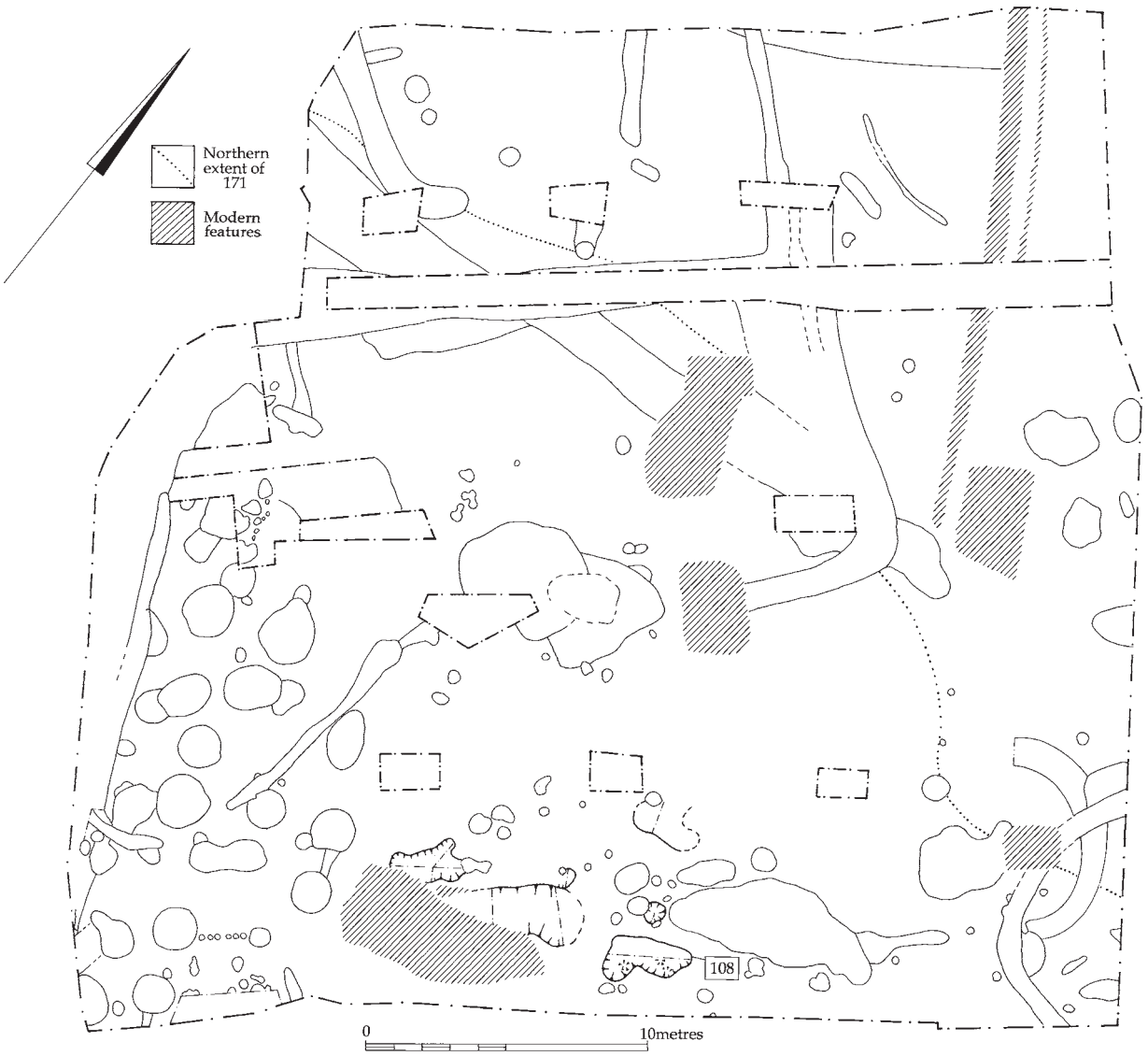


Figure 32 Area E: Plan of Phase 1 features. Scale 1:250.

Pits and smaller features were usually half-sectioned, a few larger features being excavated by quadrant. Ditches were excavated on the basis of a 10% sampling policy. All archaeological deposits and cut features were recorded on NAU proforma recording sheets with context numbers in a single sequence: numbers *2–93* refer to the 1995 evaluation, *100–767* to the 1996 excavation of Area E, and *1000–1124* to the excavation of Area F. The excavated areas were planned at a scale of 1:50, and the kilns at a scale of 1:20. Sections through features were drawn at 1:10 and a photographic record of excavated features and of the excavation generally was kept. Samples were taken from the fills of features for the identification and analysis of plant macrofossils and other remains.

When recording had been completed, one of the kilns was lifted whole from the site. This was carried out by Conservation Services, Farnham, and involved the consolidation of the kiln and the sand around it, the encapsulation of the feature in foam and the construction of a sturdy wooden crate around the kiln. It is hoped that the kiln will ultimately be displayed at the Fibrowatt visitor centre at Two Mile Bottom.

Excavated features and contexts were assigned to broad phases on the basis of stratigraphic and spatial relationships and artefactual evidence. The many large ditches excavated at the site were difficult to phase: in many cases no datable finds were recovered from their fills, and often the small number that were recovered were potentially residual or intrusive. The phasing of the ditches has thus relied heavily on the analysis of stratigraphic and spatial relationships.

III. Stratigraphic evidence

(Plates XII–XVIII, Figs 32–53)

Introduction

Excavated features and deposits in Area E have, where possible, been assigned to phases as follows:

Phase 1	Mesolithic;
Phase 2	other pre-Roman;
Phase 3	Roman;
Phase 4	Early Saxon.

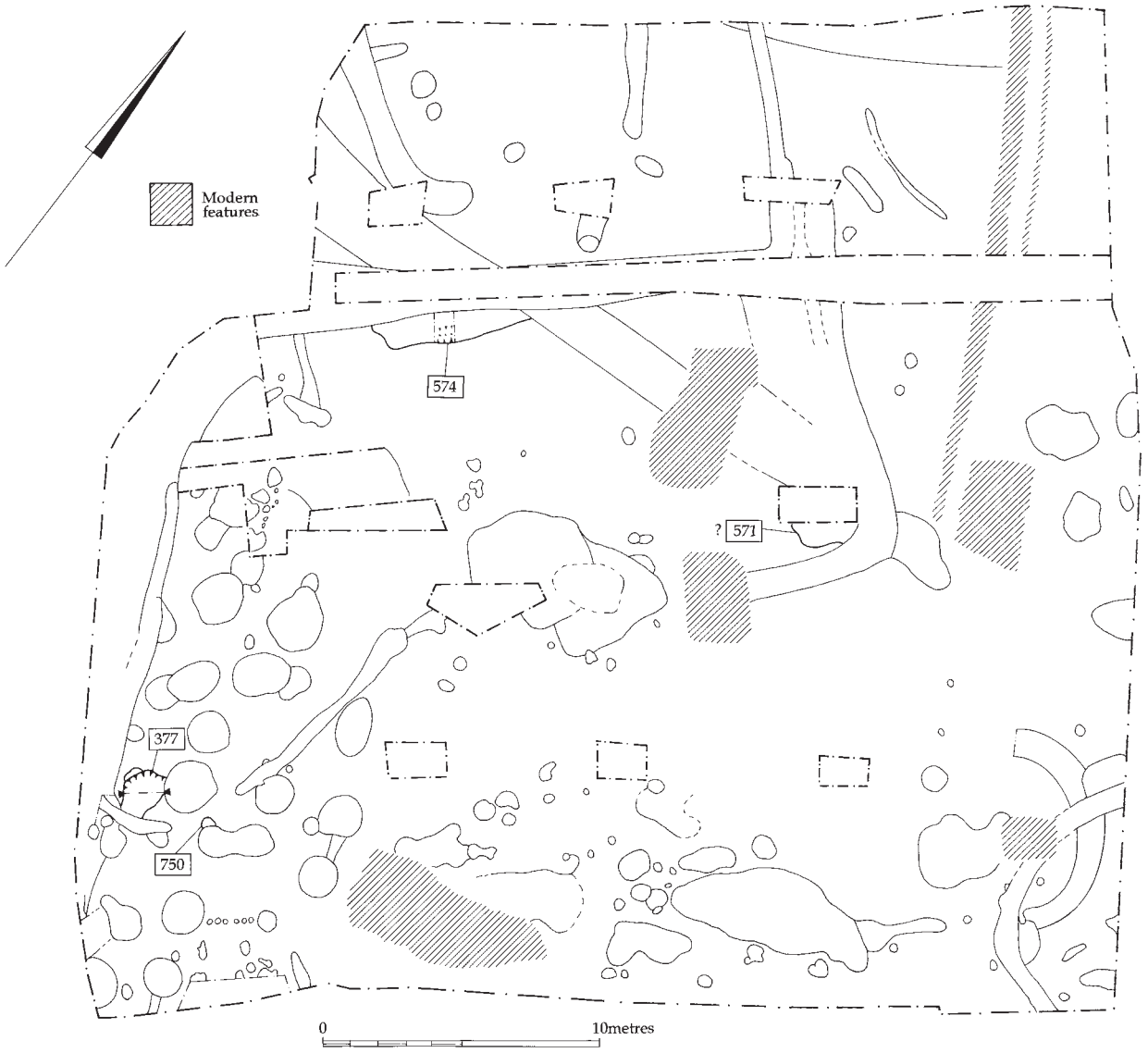


Fig. 33 Area E: Plan of Phase 2 features. Scale 1:250.

Many features remained undated at the conclusion of analysis.

Important discoveries of Mesolithic date were made. They are published in full elsewhere (Robins 1998) but the results are summarised here, as is the small amount of evidence for later prehistoric activity at the site.

A number of features in Area F could be grouped together or related to each other stratigraphically but most contained no datable finds, and it was difficult to assign a phasing scheme to them or relate the activity to that in Area E.

Natural features

A few small features in Area E were of natural origin. They were disturbed by — and may have resulted from — animal burrowing. Five probable tree holes were identified in Area F; these were irregular in shape and contained dark reddish-brown fills with lenses of mineral staining. (Natural features are included on Figs 51 and 52.)

Area E

Phase 1: Mesolithic

(Fig. 32)

In the south part of Area E the natural sand was overlaid by a layer of 'pinkish' brown sand (*171*) which was up to 0.15m thick. The frequency of struck flint finds from this deposit was remarked upon, especially within occasional silty patches which were sampled and sieved to assess artefact content (details in archive). The silty material often merged into the natural sand, but one or two better-defined 'features' were excavated (Fig. 32). These contained large quantities of struck flint: *108*, interpreted as a probable tree hollow, contained over 4500 pieces, mainly tiny spalls. The flint from the extensive layer *171* and associated features included large numbers of blades and blade-like forms. Core rejuvenation pieces and crested blades indicative of a blade-producing industry were also found, as well as microliths and numerous flakes, some of them retouched or utilised. The assemblage is characteristic of a later Mesolithic industry.

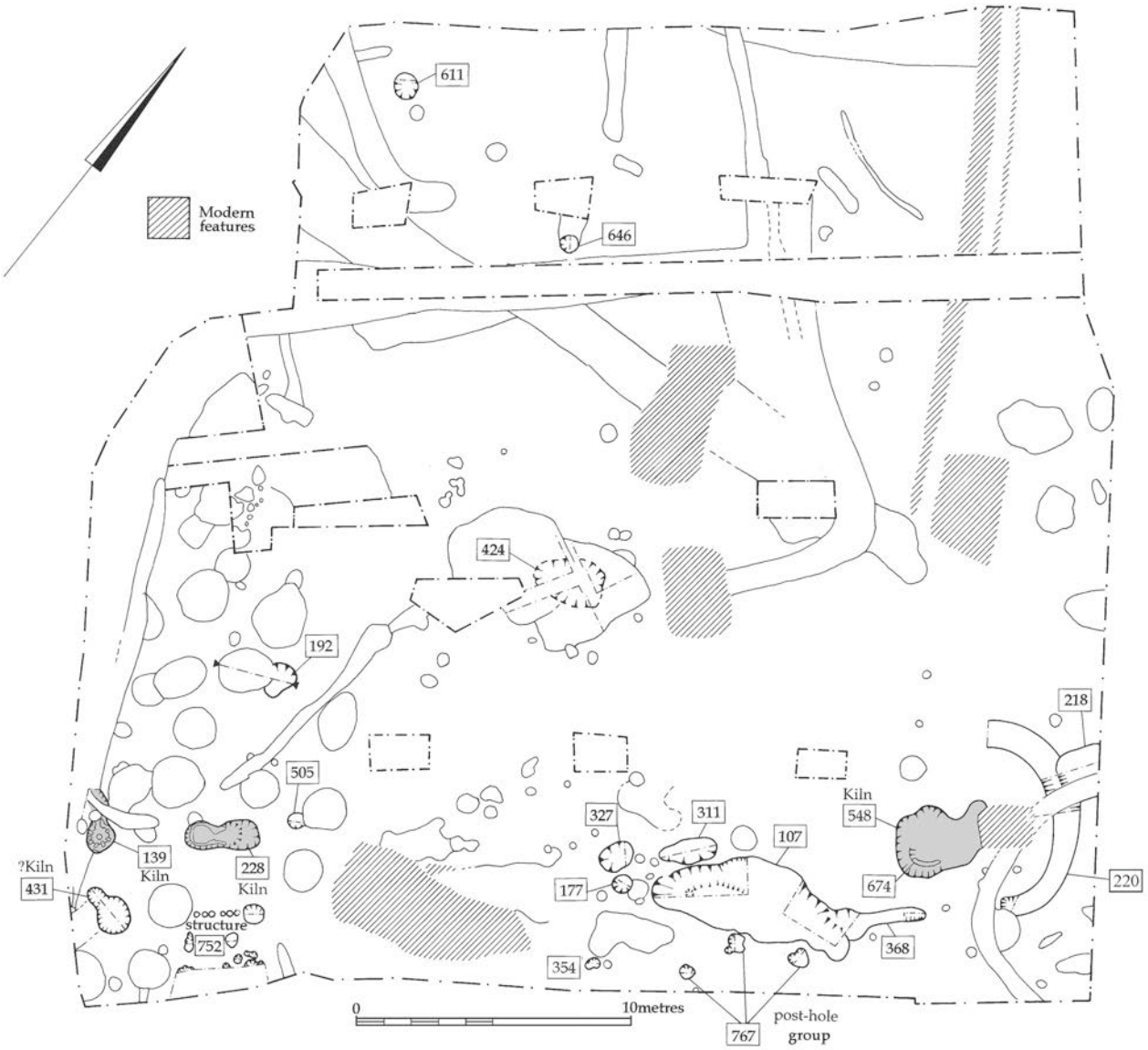


Figure 34 Area E: Plan of Phase 3 features. Scale 1:250.

Deposit *171* was interpreted as an eroded soil layer of Mesolithic date. Activity during that period resulted in the deposition of a lithic scatter; this was particularly dense in slight depressions that may have been used as shelters for knapping or for the disposal of knapping waste. The eroded topsoil eventually became covered with redeposited sand.

Phase 2: Other pre-Roman activity
(Fig. 33)
A few sherds of later prehistoric pottery were found residually in features of later date.

A linear feature (*574*) was partly excavated in the north-west part of Area E. It had a steep-sided 'U'-shaped profile and had been truncated by a series of ditches. Thirty-four pieces of struck flint, including three cores, were found in its lower fill. The flint was irregular and of fairly poor quality, very different in nature to the Mesolithic material described above. The feature probably dates to the later prehistoric period. Another, possibly similar, feature (*571*) was located further to the east. This was partly cut away by later features. It remained unexcavated, but a flint flake was recovered from its upper fill.

A few other features may also date to the pre-Roman period, although no datable finds were recovered from them. Two pits (*377* and *750*) contained quantities of burnt flint, although there was no evidence of *in situ* burning within them. Another feature (*702*) had been largely destroyed by the construction of the kiln in the south-east corner of Area E. It must originally have been quite deep, however, as it was seen in the bottom of the stoke hole (Fig. 39).

Phase 3: Romano-British
(Fig. 34)
Three kilns, one of them apparently a replacement for an earlier one on the same spot, were excavated along with an unfired kiln-like feature. A few other features dated to the same period and may have related to the kilns and their operation.

Kiln *139*
(Plate XII; Figs 35 and 36)
Kiln *139*, near the south corner of Area E, was orientated north-west to south-east. The circular clay-lined chamber recorded was approximately 1.00m in diameter, and represented the lower, or furnace, chamber. Its thick clay wall, which sloped inwards towards the base at an angle of

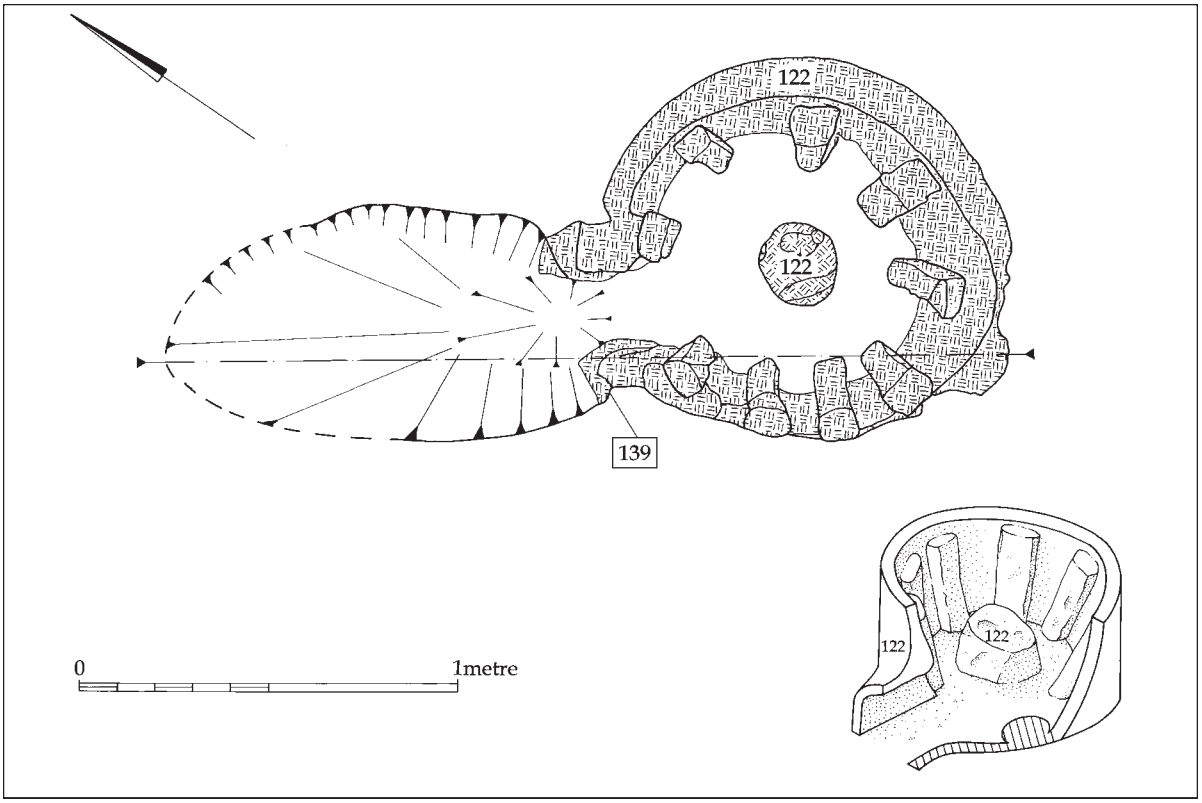


Figure 35 Plan of kiln *139*. Scale 1:20.

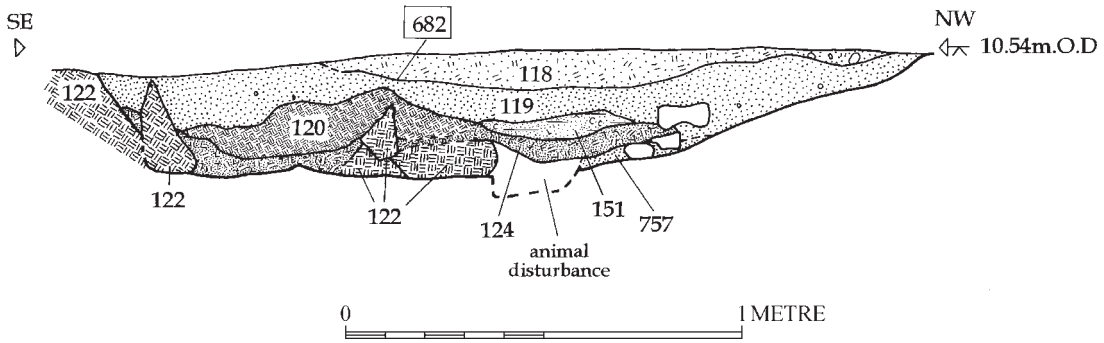


Figure 36 Section through kiln *139*. Scale 1:20.

Plate XII Kiln *139*, looking NE. Scale 1m (HMB 5, Sarah Bates).

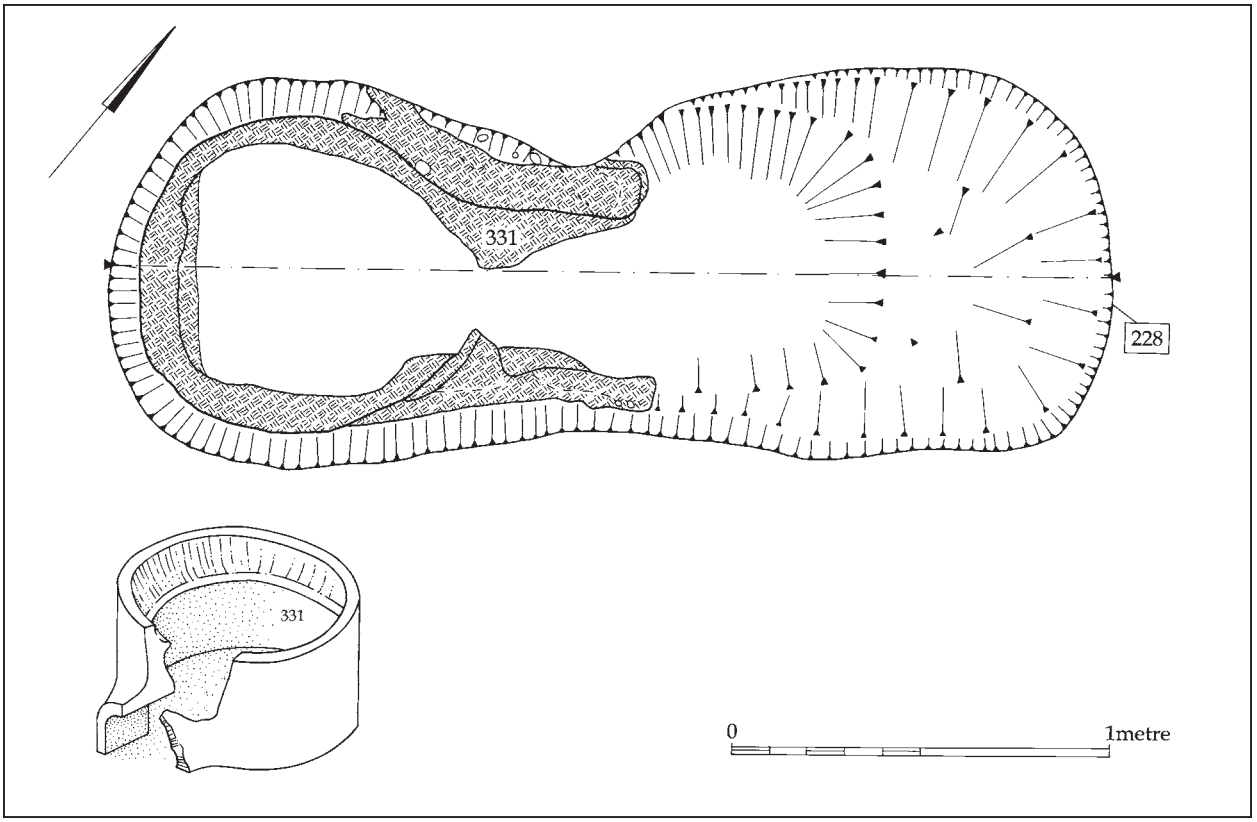


Figure 37 Plan of kiln *228*. Scale 1:20.

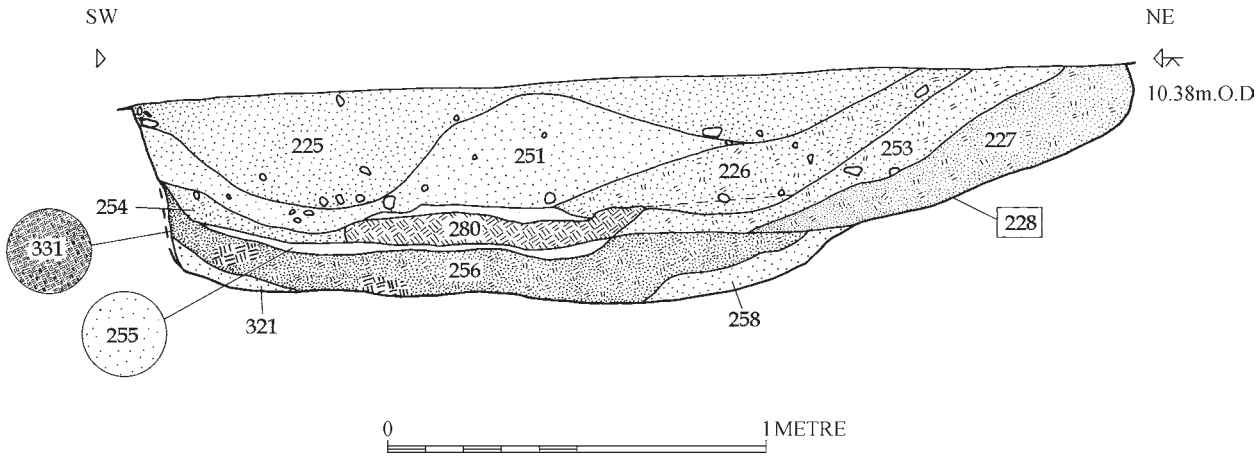


Figure 38 Section through kiln *228*. Scale 1:20.

Plate XIII Fragment of vitrified curved clay bar from kiln *228*. Scale 100mm (KBP 30, Jason Dawson).

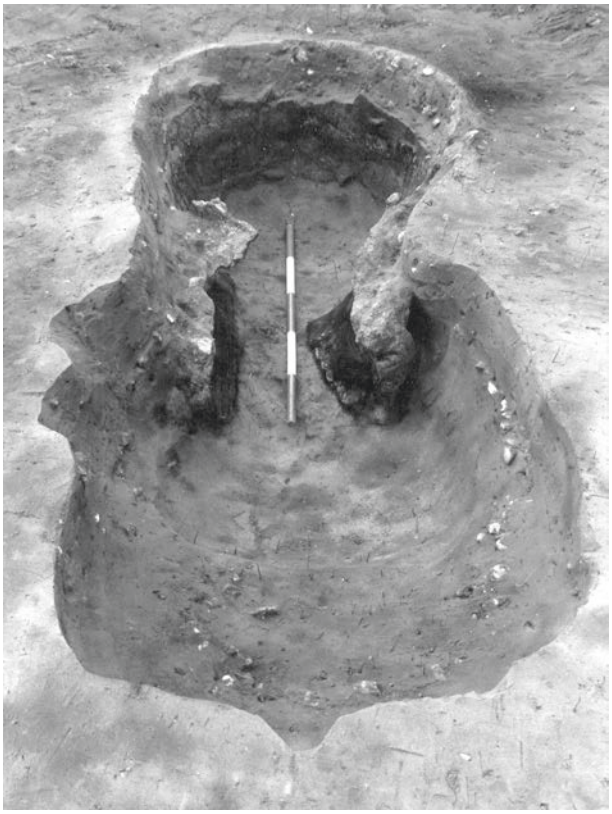


Plate XIV Kiln *228*, looking SW. Scale 1m (HMC 20, Sarah Bates).

about 80°, was red in colour on its inner and outer edges and dark grey at its centre.

Nine corbels, rectangular in profile and tapering towards the bottom, had been applied around the inner face of the chamber wall; in the centre was a free-standing clay pedestal 0.15m high (not visible in section on Fig. 36). Its upper surface, which did not seem to have been truncated, was 50–100mm lower than those of the corbels; an additional support may have been needed to provide a level floor for the kiln load, and this may have been represented by a fragment of fired clay found in the kiln (*Fired clay*, below). The wall, corbels and central pedestal (all recorded as context *122*) rested on the natural sand, which was burnt to a pinkish colour. The kiln wall survived for a few centimetres above the top of the corbels. A short flue, with some of its clay wall surviving, led into an ovate stoke hole to the north-west. This was quite small and shallow but featured a deeper hollow immediately in front of the flue. Other than at its north-west end, the sides of the stoke hole were steeply sloping.

Kiln *139* was removed from the site at the end of the excavation for intended eventual display.

In the bottom of the furnace chamber and flue, and filling the deeper hollow in the stoke hole, was a black, charcoal-rich silty ash (*124*); this was the remains of fire debris, possibly from the kiln's final firing. The fills above this probably represented the collapse and infilling of the kiln; the main part of the furnace chamber contained numerous fragments of fired clay (*120*), and an ashy silt sand in the stoke hole (*151*) lay on top of the collapsed material. Grey/brown sand layer *119* had infilled the top of the feature, probably after its abandonment.

A few sherds of Roman pottery were recovered from the kiln but there is no evidence that any of them were fired there.

Kiln *228*

(Plates XIII–XV; Figs 37 and 38)

This was located 3.00m to the east of kiln *139*, and was orientated at roughly 90º to that kiln. It consisted of a circular chamber 1.00m in diameter and 0.50m in depth, with a flue leading into a stoke hole to its north-east.

The kiln chamber was lined with a layer of fired sandy clay (*331*), 30mm thick, behind which the natural sand was heat-affected and pinkish in colour. The kiln wall was 0.40m deep; a broken edge protruding slightly inwards approximately 0.25m from the bottom indicated the former presence of a floor, or of a ledge for supports of some kind. The clay wall was reddish in colour above this ledge, and a dark grey below the ledge in the former furnace chamber. Scorched natural sand formed the floor to the lower chamber. Fired clay walls continued along the flue, which stood to a height of approximately 0.30m and ran for *c.* 0.50m. Part of its arch survived, although the roof itself had collapsed. Finger impressions on the inner face of the flue wall showed how the clay had been smoothed into shape by hand. The flue widened slightly as it opened into the stoke hole. The latter had almost-vertical sides except at its north-east end where it sloped down more gently, probably to facilitate access. A pronounced hollow, about 0.20m in depth, occurred in the bottom of the stoke hole in front of the flue.

Overlying the scorched natural sand in the kiln chamber was a deposit of clean sand (*321*). Another deposit of sand on the sloping end of the stoke hole, *258*, was slightly greyish yellow, and contained a few flecks of charcoal. Possibly the latter had been stained by leaching from the charcoal-rich deposit above it. The cleanness of sand *321* and the unburnt nature of both deposits suggested that they post-dated the firing of the kiln. A thick layer of black charcoal and sand, *256*, spread across the base of the furnace chamber and flue and into the deeper part of the stoke hole. It overlay the deposits of sand and must, therefore, have been dumped into the disused kiln. Fired kiln clay within this deposit included pieces of fire bar and a fragment of a perforated plate (Plates XIII and XV).

Above deposit *256*, at the north-east end of the stoke hole, were two deposits of grey sand and charcoal, *227* and *253*. A thin layer of yellow sand in the furnace chamber (*255*) overlay the lower deposits; this had probably washed into the lower chamber after the initial phase of dumping into the disused kiln. Above it was a grey sandy fill (*254*) and fragments of fired clay (*280*), probably representing the final collapse of the kiln. Some of the fired clay held impressions of withies, showing how the kiln superstructure had been constructed. In the flue area, fragments of tile were mixed in with the fired clay, and these may have been used as roofing for the flue. In the upper part of the kiln and stokehole a series of deposits (*226*, *251* and *225*) contained progressively smaller amounts of kiln debris, representing the more gradual infilling of the feature after abandonment.

Six sherds of pottery were recovered from the disuse fills of the kiln. Two sherds of painted white ware were probably from vessels made at the site and suggest, at the earliest, a late 3rd- or early 4th-century date for its disuse.

Kiln *674*

(Plates XVI and XVII; Fig. 39)

A short length of fired clay wall (*672*) lined the vertical side of a cut, *674*. The wall was identified when the fills of the stoke hole *548* were removed. It appeared to represent a predecessor to that kiln, the clay wall having been utilised to form part of the later stoke hole.

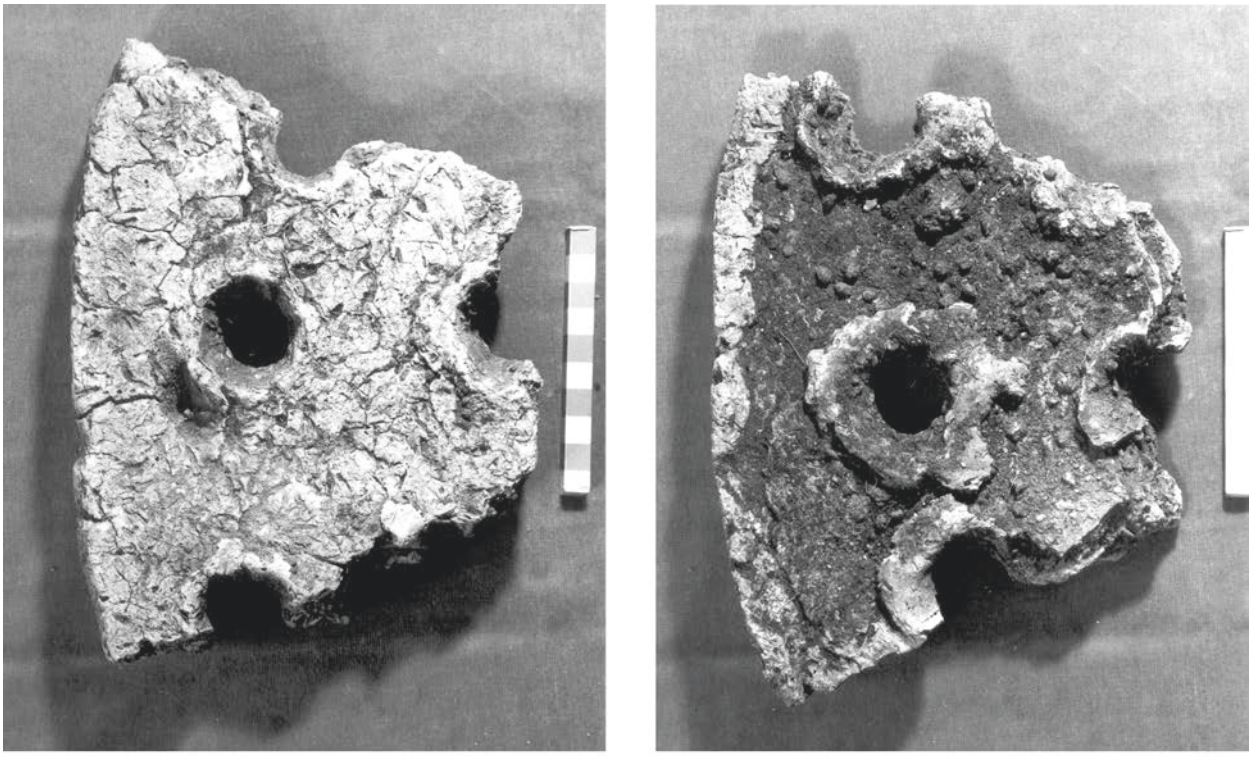
A row of small regularly-spaced holes were discovered approximately halfway down the opposite side of the later stoke hole (not shown on Fig. 39). These were 30–40mm in diameter, and ran horizontally into the natural sand for a length of up to 50mm (Plate XVI). It is unlikely that the holes were associated with the stoke hole; they may instead have related to the earlier kiln, perhaps holding supports for its floor. Such features have been seen at other sites, for example at Spong Hill (Rickett 1995, 17) and Upper Sheringham (Howlett 1960), Norfolk, and at Northwich, Cheshire (Curzon and Hanson 1971). Thus, the evidence suggests that an earlier kiln may have been built on roughly the same alignment as the later one but was orientated at 180° to it.

Kiln *548*

(Plates XVI–XVIII; Fig. 39)

This was the largest and best-preserved of the kilns and was apparently a replacement for kiln *674*. Although the oven may have been partly truncated by modern disturbance, the full extent of the kiln was clear.

A circular chamber 1.40m in diameter (*666*) had a vertical wall (*667*), floor (*678*) and a large free-standing central pedestal of fired clay (*676*). The wall survived in places to a height of 0.55m, and had a continuous ledge running internally around its circumference 0.35m above the floor of the lower chamber. On the south-west side a flue ran from the furnace chamber into the stoke hole. The north-west wall of the flue was made of solid fired clay; its south-east side was built of fired clay blocks (*707*), with several large flints forming part of the wall at its outer end.



a b

Plate XV Fragment of vented clay floor from kiln *228*: a) upper and b) lower surfaces. Scale 100mm.

Plate XVI Kiln *674/548*, looking N, showing horizontal row of holes for ?floor support. Scale 1m (5738 THD 195, Sarah Bates).

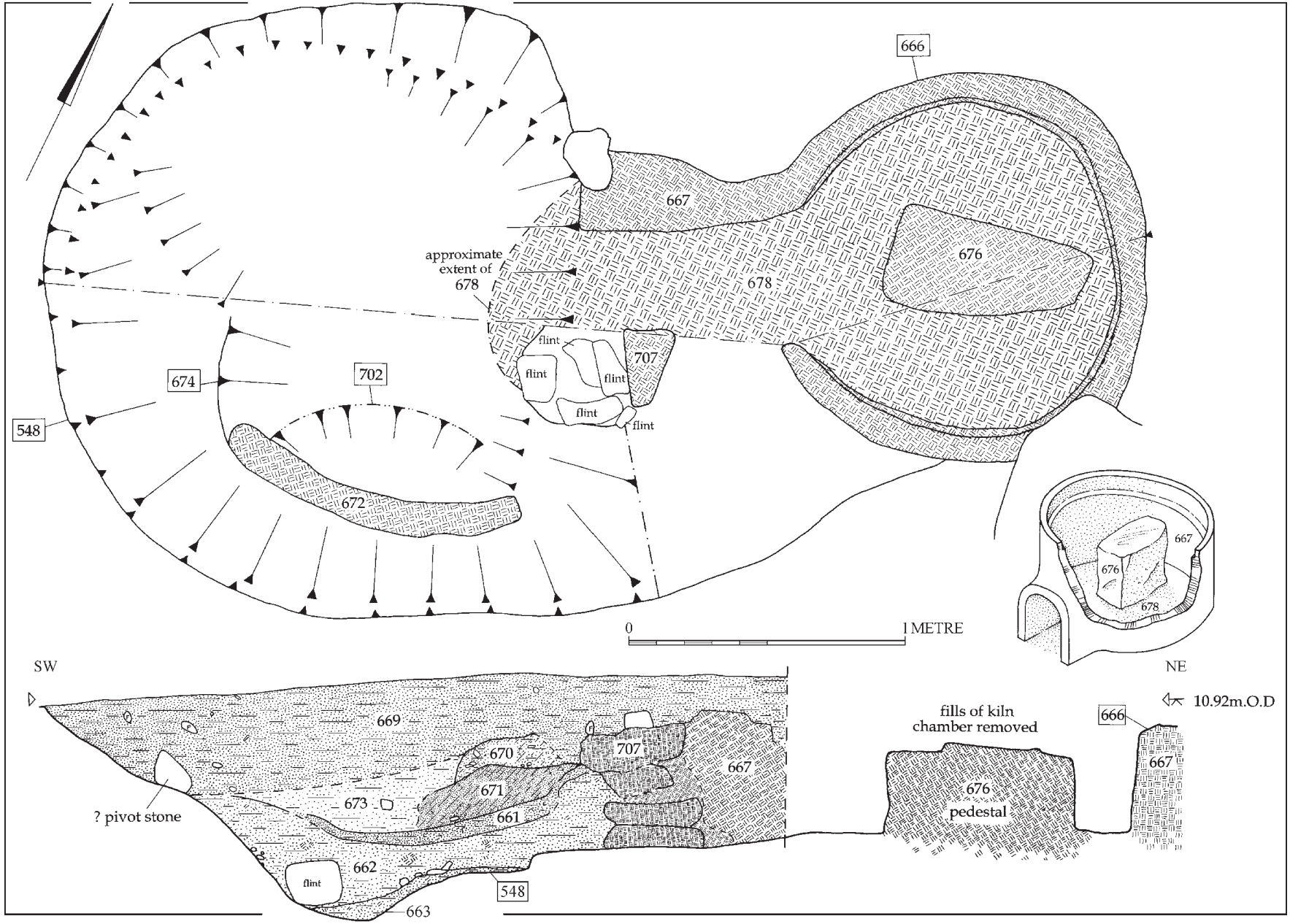


Figure 39 Plan and section of kiln *674/548*. Scale 1:20.

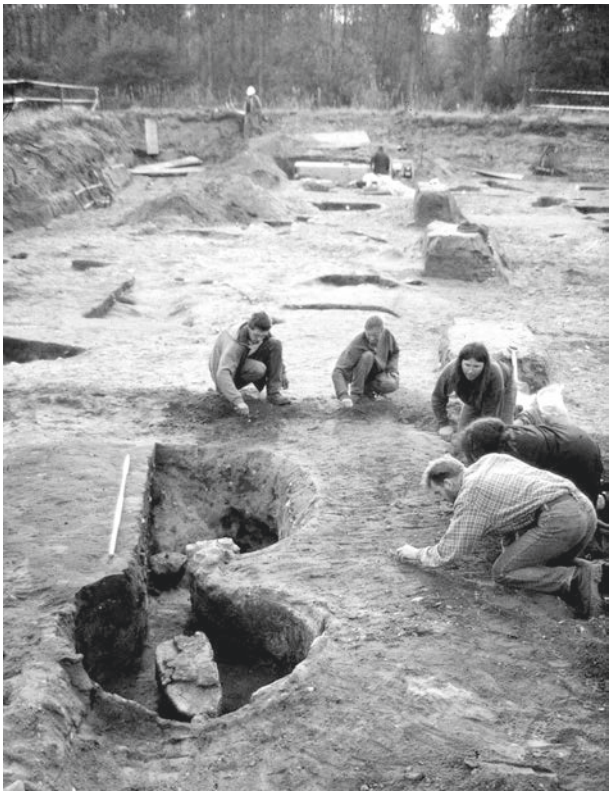


Plate XVII Hand-cleaning around kiln *674/548*, looking SW, kiln *139* boxed and awaiting lifting behind; scale 2m. Little Ouse River flows in front of the trees beyond site (5738 THD 182, Sarah Bates).

Here, away from direct heat source, flint would have been less susceptible to shattering.

The sides of the stoke hole (*548*) were steeply sloping, apart from at the south-west end. Here, a 'step' in the natural sand suggested more than one episode of digging, and supports the interpretation of the stoke hole as a re-cut of the earlier kiln.

All the fills within stoke hole *548* are interpreted as relating to the later kiln; presumably the earlier one had been cleaned out prior to its reconstruction. In the bottom of the stoke hole a charcoal-rich silt sand, *663*, was probably rake-out from the kiln. Above it was layer of grey/brown silt sand *662*, the depth of which, in relation to the height of the flue, suggested that its deposition probably post-dated the use of the kiln. Both deposits contained charcoal and fragments of fired clay kiln material, as well as quantities of pottery. Charcoal, fired clay and pottery were also included in deposits *661*, *670* and *671*, which represented material dumped into the disused stoke hole, and numerous fragments of kiln superstructure were also found in the oven chamber. In the top of the stoke hole, deposits *669* and *673* represented material that had infilled the abandoned feature.

The pottery recovered from this kiln included 78 sherds from use-related deposit and 917 sherds from deposits that had accumulated in the disused feature. All of this was of Romano-British date. Only three fabrics were present in the use-related fills, and by far the majority of sherds were of a painted white ware of a type previously unknown from either Norfolk or Suffolk. Although fourteen different fabrics were identified from the disuse fills over half of the material was painted white ware, and its quantity and nature (numerous sherds were from 'wasters') indicated that this ware was being produced at the site. The vessel types date this production to the late 3rd to early 4th centuries.

Some of the material within the disuse deposits was extremely concreted and vitrified, and might have been dumped while still hot. Conceivably broken pots and wasters, fired in the kiln, were dumped nearby and then put into the stoke hole when the kiln went out of use. Alternatively, the pottery may have been made in another kiln.

A curving gully, *220*, described a semi-circle around the chamber of kiln *548* at a distance of *c*. 3m (Fig. 34). One end of the shallow gully was truncated during the machine-stripping of the site, but it is unlikely that much of the feature was lost. Quantities of Romano-British pottery were recovered from the gully, as well as three Early Saxon sherds from its upper fill. The Roman pottery was similar to that from kiln *548*, and painted white ware was again common. The position of the gully, and the pottery within it, suggest strongly that it was associated with the kiln. Perhaps it represented a shelter or wind break, or acted as a drain.

Plate XVIII Kiln *548*, looking NNW, scales 1m (5738 THD 186, Sarah Bates).

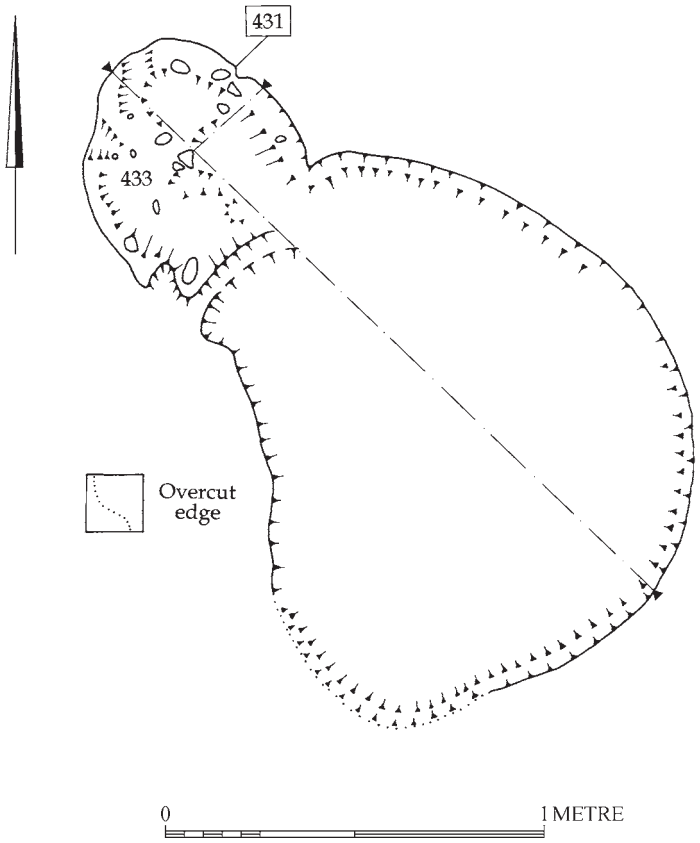


Figure 40 Plan of feature *431*. Scale 1:20.

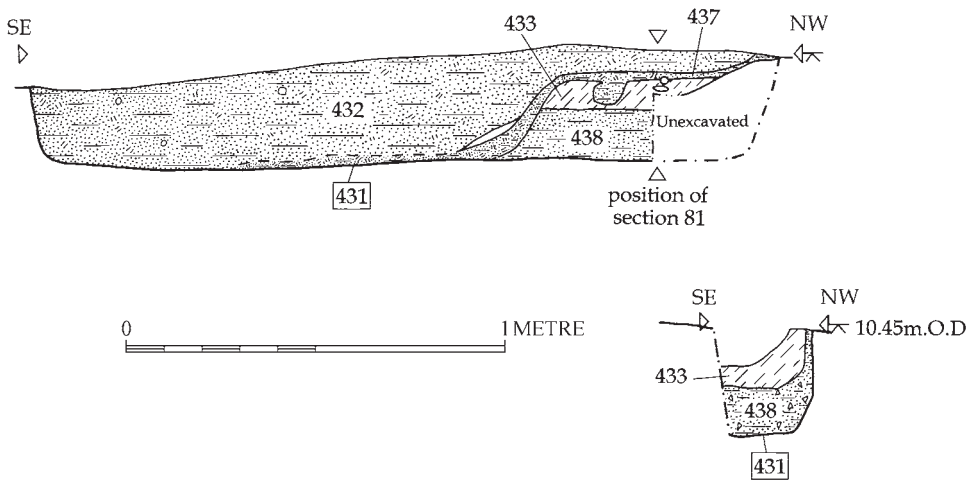


Figure 41 Section through feature *431*. Scale 1:20.

?Kiln-related features
(Figs 34, 40–44)
In the south corner of Area E another kiln-like feature, *431*, was excavated. A small circular pit, approximately 0.50m in diameter, this contained a primary fill of dark brown silt sand (*438*) overlaid by a layer of clay (*433*) that appeared to line the upper part of the feature. The clay was irregular in thickness, with possible perforations through it and several smooth burnt flint pebbles contained within it. On top of the clay and running down into a larger ovate pit to east, was a grey silty deposit (*437*) which contained some charcoal. Above that, mottled grey and brown silt sand deposit *432* had infilled the feature. A few lumps of clay, the same as that in the small pit, occurred on the base of the larger pit. The function of this feature is unclear. Its overall shape, and the presence of the clay, resembled a kiln but the putative kiln 'chamber' was very small and (more significantly) showed no sign of having been fired. The only evidence of burning was the presence of occasional flecks of charcoal in the fills of the pit and the burnt pebbles. Deliberate inclusion of the latter in a structure intended for firing seems unlikely, since they may have shattered when heated.

In north-west Area E, two small circular pits (*611* and *664*) contained green clay. Although some distance from the excavated kilns, perhaps they were related to the potting activity taking place at the site.

Pit *107*
(Fig. 34)
Large elongated pit *107* was located in the south-eastern part of the site just to the south-west of the large kiln *548*. Two segments were excavated, totalling approximately a third of the area of the pit. At both ends of the pit the edges sloped down gently, but a deeper hollow (0.52m in depth) occurred in the centre near its north-east edge. The pit contained a dark brown silty sand fill from which 380 sherds of Roman pottery were recovered, mostly from the deeper area. The range of fabrics was similar to those from the nearby kiln, although there was no evidence to suggest that the pit had ever contained another kiln. Several sherds of Early Saxon pottery were also found. A small gully (*368*) at the east end of the pit may have been contemporary with, or cut by, it.

Post-hole group *767*
(Figs 34 and 43)
Immediately to the south of pit *107*, a possible building or small structure was represented by four post-holes: the east side of the putative structure would have lain outside the excavated area. Post-holes *351*, *445* and *414* were deep and steep-sided, with shallower, stepped upper parts. All contained large flints, which probably acted as packing for posts. Another post-hole just to the south-west (*354*) also had steeply-sloping sides and contained some large flints. A few sherds of pottery from the features suggested a 4th-century date; the unusual hand-made nature of some pieces suggests that it may have been Roman/Early Saxon transitional material.

Structure *752*
(Figs 34, 42 and 44)
In the south corner of Area E two rows of post- or stake-holes, *510* and *511*, and several other post-holes (*478*, *483* and *481*) may have represented a small structure. Post-hole *478* contained evidence for a post-pipe (*479*) and may have been a corner post. Single sherds of Roman pottery were found in two of the post-holes. The 'rows' of stake-holes were very shallow (less than 0.10m in depth), and the material filling them could not be distinguished from the overlying layer *485* (see below, *265* and *485*). The fact that all of the pottery recovered from the overlying layer in this area was of Roman date may indicate that it originated from these truncated features.

Other features
(Fig. 34)
Pit *218*, located at the south-east edge of Area E and cutting the kiln-related gully *220*, had steeply-sloping sides, was approximately 0.65m deep and extended beyond the edge of the site. Irregularities in its base and fill were probably caused by burrowing. Quantities of 3rd–4th century pottery were found in the pit but may have originated from the earlier features nearby. The pit's stratigraphic position suggests that it was slightly later in date.

In the central part of Area E a large pit (*424*) was truncated by later features and survived only as a flat-bottomed hollow. It contained a primary fill of weathered sand and a greyer-brown sand silt representing gradual infill. Both fills contained occasional flecks of charcoal.

Very few other features have been assigned to the Roman period, although it is possible that some of the small features excavated across the site may date to the period. A few of them contained sherds of Roman pottery.

Phase 4: Early Saxon
(Fig. 45)
Excavation suggested that activity during this period occurred over an extended period; a layer of dark soil in the south corner of Area E appeared to overlie certain features and be cut by others. It was impossible to assign features outside this area to either group. The evidence is described stratigraphically in relation to this layer: the possible relationships between the different Area E feature groups and the features excavated in Area F is also considered.

Features below dark soil layer *265*/*485*
(Figs 45–47)

Pits
(Figs 45, 46 and 47)
Some of the earliest Anglo-Saxon features appear to have been a group of pits in the south corner of Area E. They were distinctive on account of their circular or near-circular shape, steeply-sloping or vertical sides and

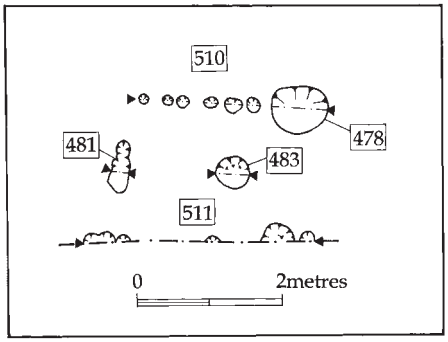


Figure 42 Plan of ?structure *752*. Scale 1:100.

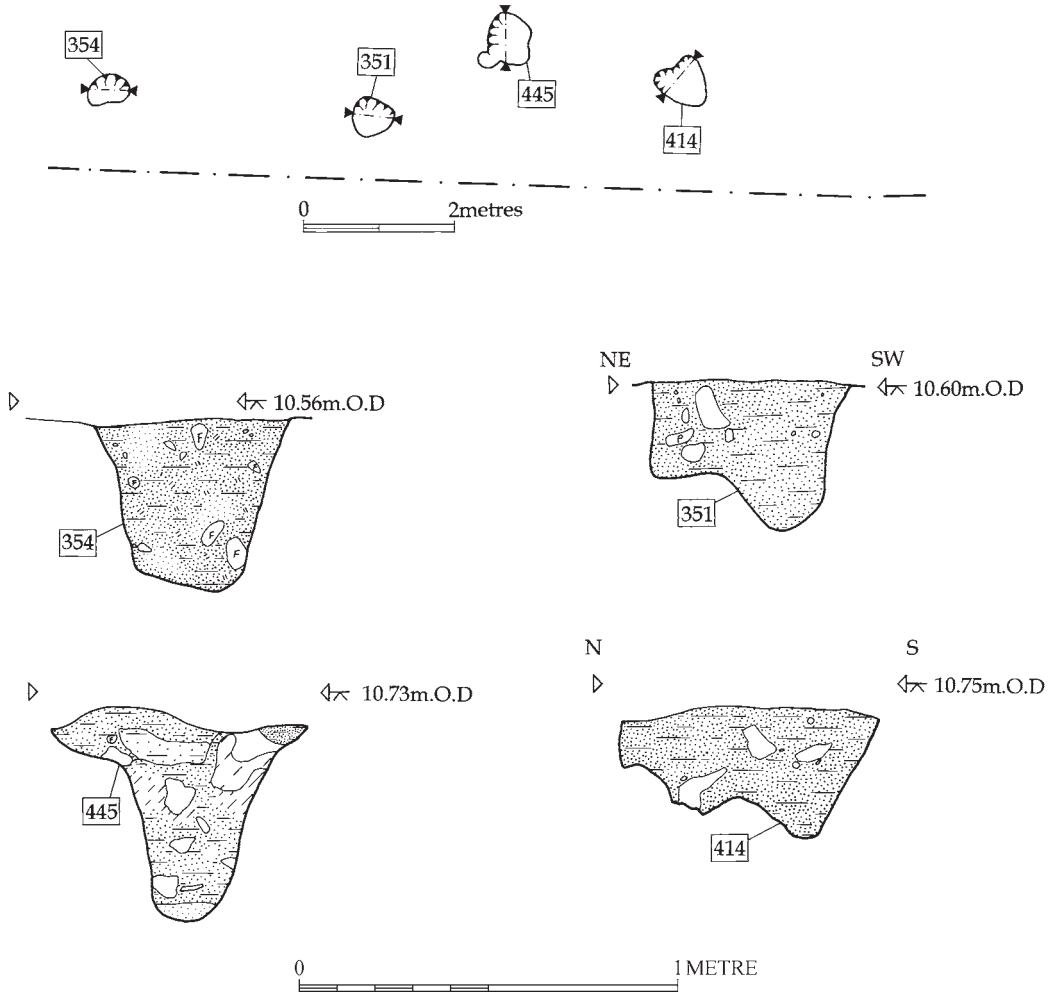


Figure 43 Plan and sections of post-hole group *767*. Scale 1:100 and 1:20.

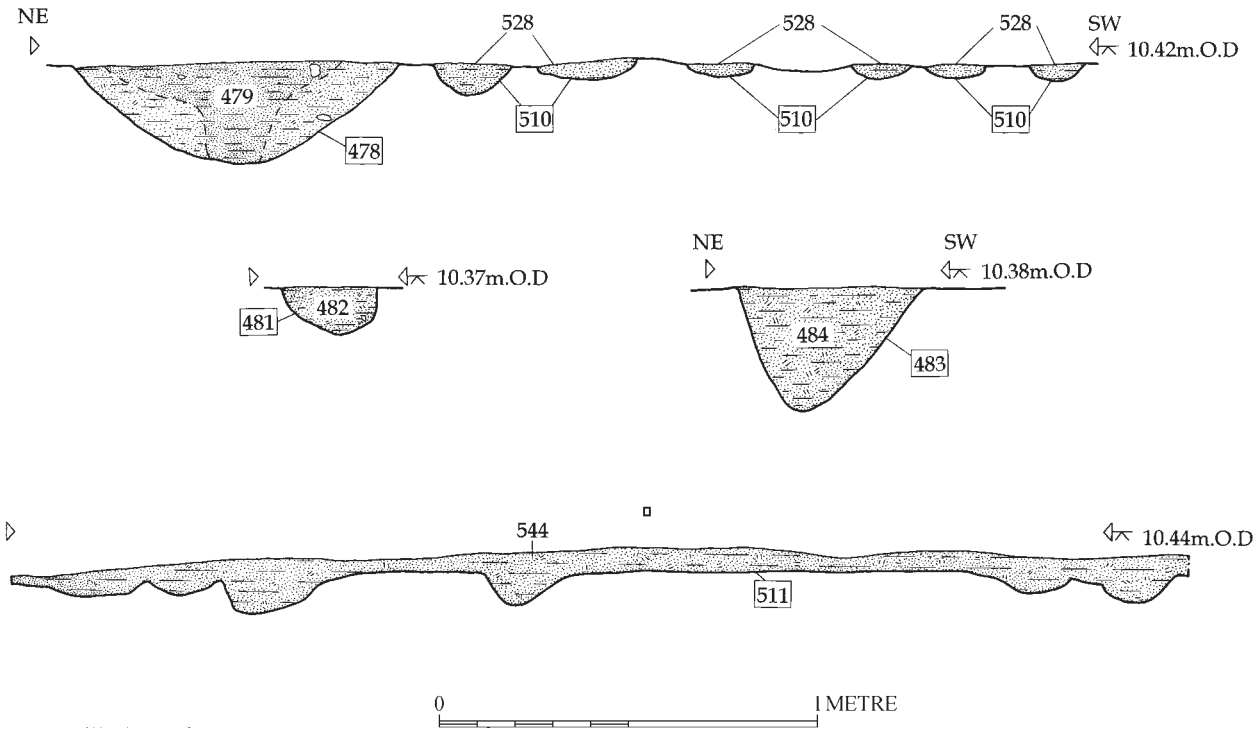


Figure 44 Sections through ?structure *752*. Scale 1:20.

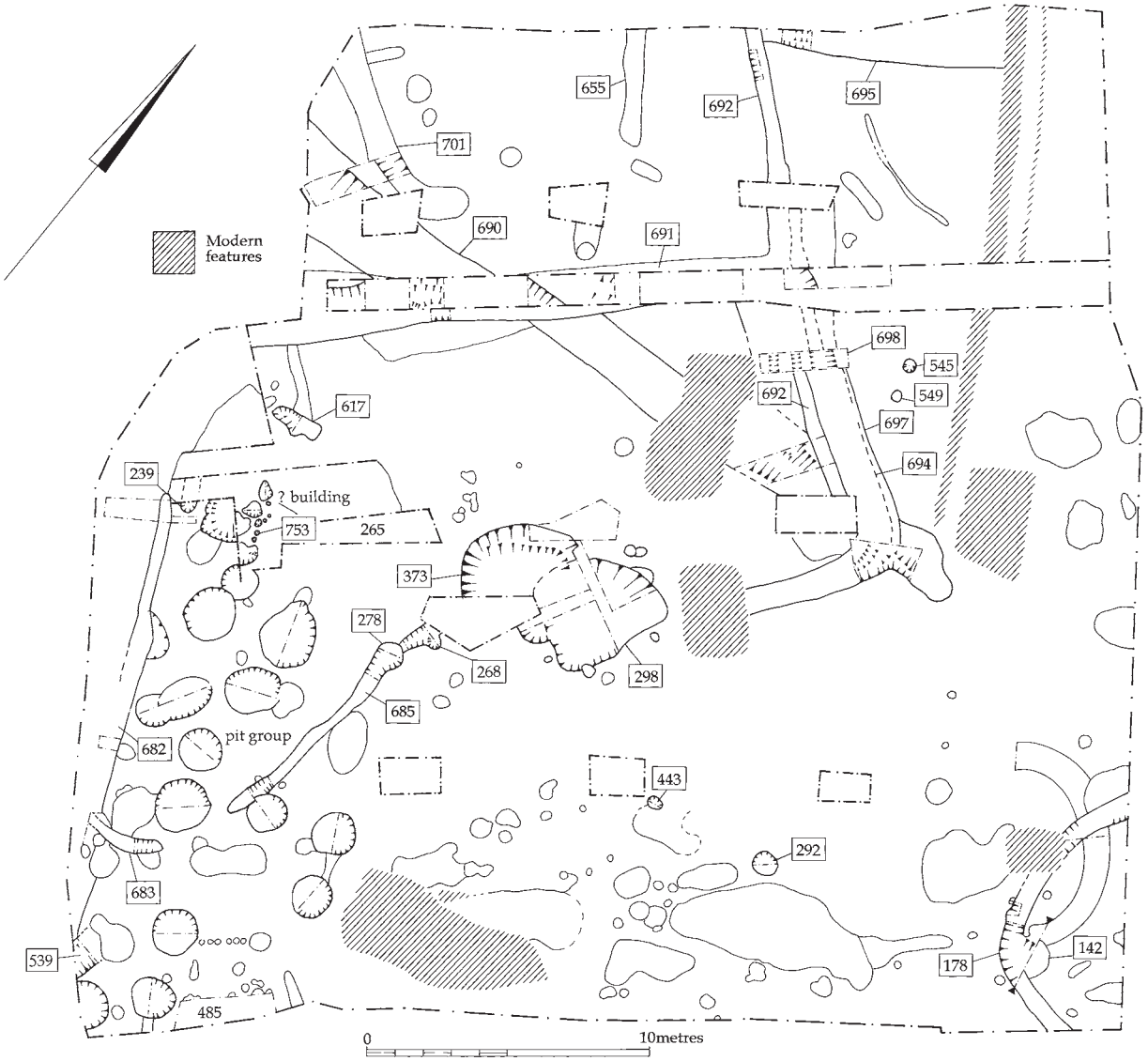


Figure 45 Area E: Plan of Phase 4 features. Scale 1:250.

flat bottoms. They ranged in size from 1.20m to 2.00m in diameter and 0.50m to 1.20m in depth (apart from pit *417* which was only 0.35m deep). The similar nature of the pits and many of their fills suggested that they were contemporary, and most of the pottery found in their fills is of Early Saxon date. However, a few pieces of Iron Age pottery (including nine sherds from pit *146*, the largest Iron Age assemblage from the site), and a smaller number of Roman sherds, were also found. With one or two exceptions the features were regularly spaced and did not intercut; it seems likely that they were open or in use at the same time. It is possible that more pits existed beyond the limit of the site.

The purpose or function of the pits is unclear; their regular nature does not suggest that they were quarry pits. Most of them contained dumped material, with varying amounts of charcoal, burnt flint, pottery and flecks of fired clay alternating with cleaner sand silts which had presumably washed or blown into the pits. Several contained large amounts of burnt debris. For example, pit *115* (Fig. 47) contained a primary deposit of sand *114*, along with dumped charcoal and sand layer *113* which included burnt flint, fired clay, pottery, and charcoal-flecked sand concretions *111*, *112* and *214*. These were interleaved/overlaid by sand silts *212*, *213*, *679*, *680* and *681*. The upper part of the pit was infilled with silty sand *116*. Thick layers of burnt flint and charcoal in pit *353*, and charcoal on the base of pit *388* (Fig. 47), offered further evidence for the dumping of burnt debris in the pits. A layer of charcoal and ashy silt sand also occurred as a dump in pit *191*. There was no sign that *in situ* burning had occurred in any of the pits. Other pits *370*, *350* (Fig. 47), *375* and *417* did not show such conclusive evidence for deliberate dumping or burning, although occasional flecks of charcoal were observed in most features.

Two pairs of intercutting pits were seen. In the northern part of the area, pit *393* cut infilled pit *388*. Pit *169* was cut by pit *166*, which itself appeared to have been recut (as *756*) (Fig. 47: not visible in plan). A similar pit (*142*) was excavated *c*. 30m away, near the south-east edge of Area E (Fig. 47). Its position made it impossible to tell whether it was an isolated feature or an outlier to another group. Black charcoal-rich sand and burnt flint in its base were separated by thin lenses of pinkish-brown sand. The upper part of the pit was filled with a grey/brown sand silt. Once again there was no evidence for *in situ* burning, and the burnt debris must represent dumping. Sherds of Early Saxon pottery were recovered from the lower fills. The pit was cut by gully *178*. Its relationship with the earlier kiln-related gully *220* could not be seen clearly in section.

The near-vertical sides of the pits, along with the nature of their fills, suggest that were not left open for long but that they were dug, possibly kept clean during use, and then filled rapidly with a combination of dumped and naturally accumulating material.

Linear features

(Fig. 45)

Apparently dating to a slightly later period of activity, but still beneath the dark soil layer in the south corner of the site, were two curvilinear gullies (*683* and *685*). Each gully cut one of the circular pits described above. Their position suggested that they were associated with each other and represented an enclosure of some kind. A gap of about three metres separating them may have formed an entrance.

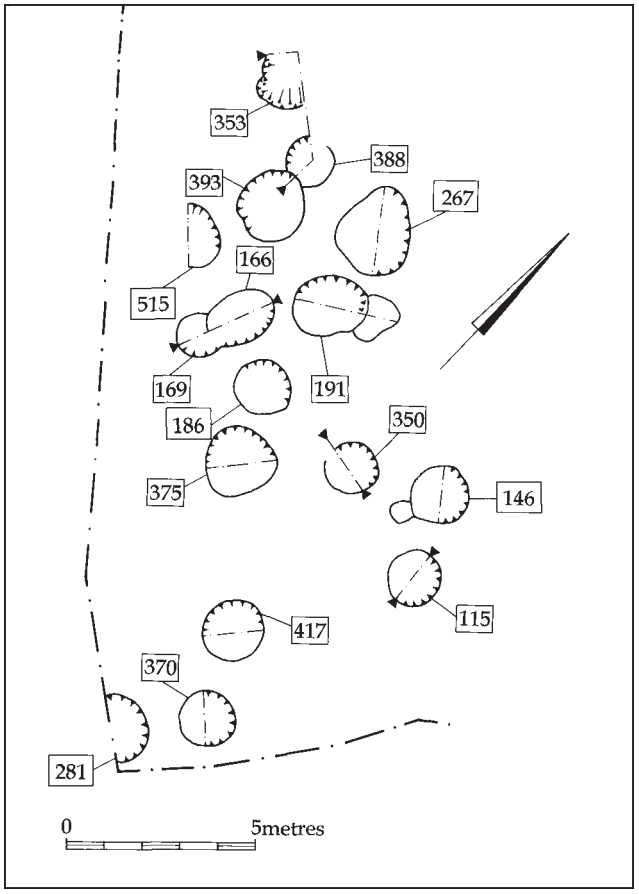


Figure 46 Plan of Phase 4 pit group. Scale 1:200.

Another curving gully in the south-east corner of Area E, *178*, cut pit *142*. Both ends continued beyond the excavated area. Its similarity with the other gullies *683* and *685*, and its stratigraphic position, suggest that all three boundaries might have been contemporary.

Ditch *682*, at the south-west limit of Area E, post-dated both the group of pits and gully *683*. A segment excavated halfway along its length showed the ditch to be fairly wide and containing a possible recut; another, close to an apparent north terminus, revealed a narrower steep-sided feature. Two sherds each of Roman and Early Saxon pottery were found in the ditch.

Dark soil layer *265*/*485*

A buried soil layer *c.* 0.15m thick extended about 10m into the excavated area from the south corner of Area E to approximately halfway along its south-west side. It was a dark grey/brown sandy deposit containing pottery, charcoal and other debris. It was removed by machine, except for a small sample area (*485*) left against the south-east edge of the trench, and another area (*265*) near its north edge, which was left upstanding since several features cut it. Elsewhere, features were only observed after the layer had been removed. The soil profile, seen in section at the edge of the trench, showed the layer to have a very sharp interface with an underlying sand, and this suggested that the area may have been cultivated at some stage after the features in the area had infilled (report by Peter Murphy in archive). Cultivation would have led to the formation of a soil that incorporated material from the fills of truncated features: it is possible that the fact that this soil layer was confined to this corner of the site reflected a concentration of features that contained charcoal- and finds-rich fills. The retrieval of pottery of exclusively Roman date from the area of a putative Roman structure (*752*, above) supports this contention.

Features cutting dark soil layer *265*/*485* (Figs 45, 48–50)

?Structure *753*

(Figs 45 and 48)

Several features were interpreted as representing a possible building. Eight stake-holes contained pale coloured chalky clay; features *244* and *475*, on the same alignment, were interpreted as settings for larger posts. Feature *244* contained a layer of flint between two deposits of compact clayey chalk. Feature *475* contained clay and chalk above a hard layer of iron-panned sand. Feature *244* post-dated the two southernmost of the smaller post- or stake-holes; perhaps larger posts replaced less substantial ones. Feature *245*, slightly to the west, also contained a clayey chalk and was probably related to the other features. No datable finds were recovered from any of these features.

Another shallow pit (*472*) also cut layer *265* in this area (Fig. 48). However, its brown silt sand fill contained 26 sherds of pottery, almost all of them of probable late 1st–2nd century date. The sherds were large and unabraded, and their presence here is hard to explain. This is the only feature excavated at the site producing ceramic evidence suggesting such a relatively early date.

About three metres to the west of the group of post-holes, and roughly parallel with it, three short linear features were excavated. Their relationship to layer *265*, the other features in the area, and each other was unclear and not all of the features appear on Fig. 45. A similar feature (*617*) was excavated to the north, beyond the extent of layer *265* and orientated roughly at 90º to the others. Features *239* and *617* contained large flints and were interpreted as possibly structural in nature. Several large, unabraded sherds of Early Saxon pottery were found in the features.

Pit *373* and building *755*

(Figs 45, 49 and 50)

In the centre of the site, truncating pit *424*, was a very large pit, *373*. It contained numerous fills; for the purpose of interpretation, these have been assigned to three main groups (full details of the deposits shown on Fig. 49 are held in the site archive). The primary fills (*372*) consisted of pale yellowish and greyish brown silt sands that had probably washed or blown into the open feature. A second phase of infilling (*363*) consisted of darker brown and grey brown deposits; at least one lens of charcoal suggested that some deliberate dumping of material had occurred. In the top part of the pit, context *513* incorporated deposits of grey brown loamy sands. All the fills contained occasional flecks of charcoal. The upper part of the pit was seen in an upstanding baulk at a height of 0.50m above the machine-stripped surface. This suggested a relatively late date for the feature (*i.e.* possibly contemporary with the features that cut layer *265*). The pottery recovered from the pit was mostly of Roman date; sherds from an Oxfordshire red colour coat bowl showed signs of extensive wear before deposition, however, and a few sherds of Early Saxon material were also present in the primary pit fill.

Another large feature, *298*, truncated pits *424* and *373*. Its eastern edge was well defined, with almost right-angled corners. The excavated south-east quadrant had steeply-sloping sides and a flat bottom and was about 0.10m deep. The west quadrant was less clearly defined, possibly because it cut the fills of the earlier pits rather than undisturbed sand. The north-west part of the feature had a curving edge and a gentler concave profile. A number of post-holes were excavated along the east and west sides of the pit, and were probably contemporary with it. Of those post-holes with a physical relationship with the pit, three were identified after the removal of its fill; a fourth was only seen, cutting the undisturbed sand, after the removal of the fill of the earlier pit *373*. Pit *298* and the post-holes are interpreted as representing a sunken-featured building, *755*. It seems likely that the pit was originally much deeper (0.50–0.60m) as it was probably cut from at least the same level as the earlier pit *373*.

The post-holes were deepest at the south end of the building: possibly due to differential truncation, which may also have accounted partly for the pit's shape. At the north corner evidence for the possible replacement of a post was seen (*521*/*523*). Two post-holes, *542* and *364*, contained dark fills that probably represented rotted posts, suggesting that the building may have stood derelict for some time; the others contained grey-brown sand silts which had probably filled the holes once the posts had been removed. The pit was filled by a dark brown grey sand silt which contained some charcoal and fragments of daub, and probably represented refuse and demolition debris post-dating the use of the building.

Single sherds of Roman pottery were found in two post-holes, and 34 sherds from the fills of pit *298* included abraded sherds from the same Oxfordshire red colour coat bowl found in pit *373*. Thirty-one sherds of Early Saxon pottery were also found in deposits associated with the

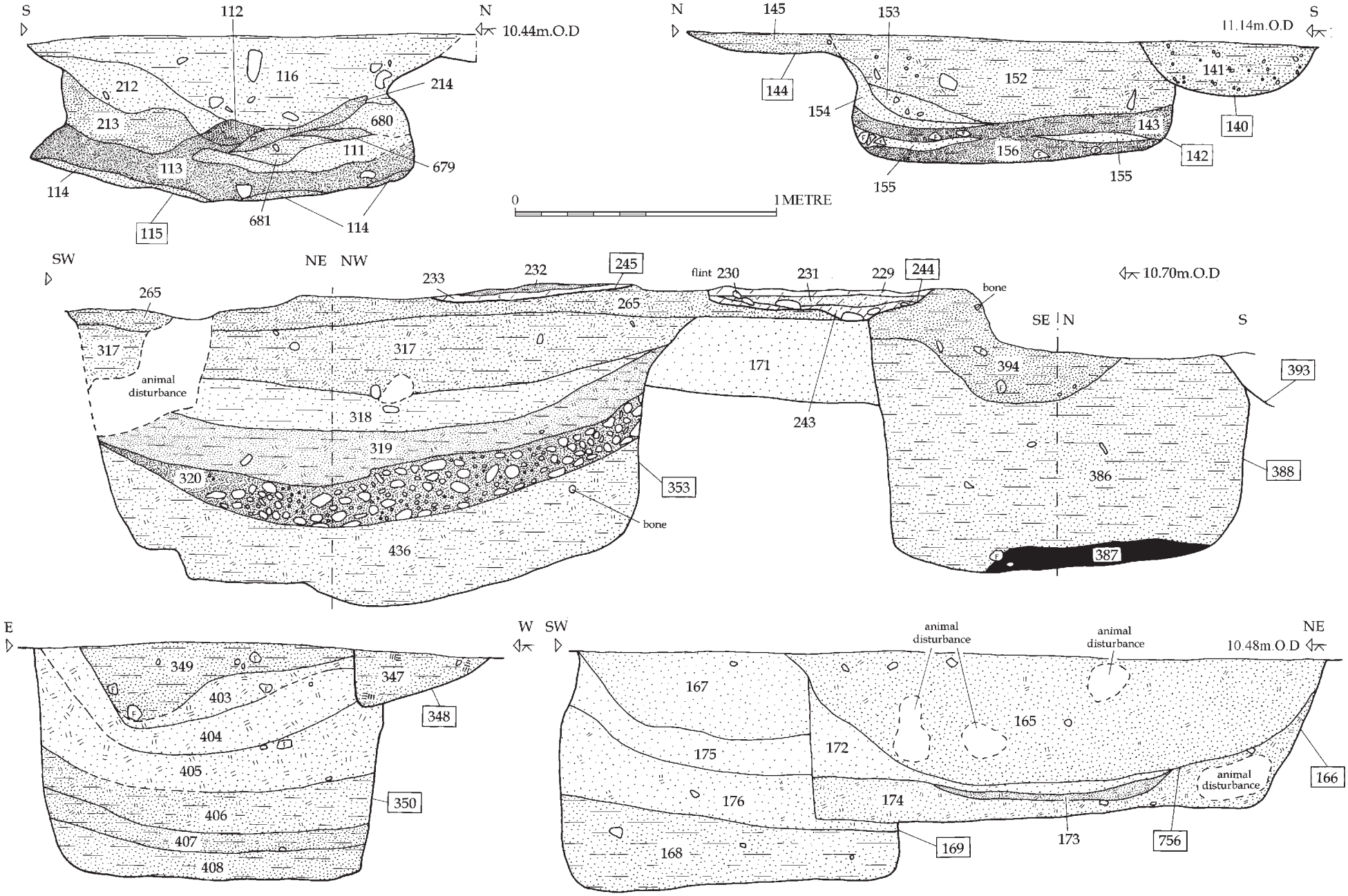


Figure 47 Sections through Phase 4 pits. Scale 1:20.

building, however. The latter were fairly large and unabraded, and clearly suggest an Early Saxon date for the feature.

Ditches
(Fig. 45)
A number of ditches in the north part of Area E have been dated to the Early Saxon period, due to their stratigraphic and spatial distribution and the small number of datable finds that they contain.

Ditch *690*
This was the earliest of the ditches and the only one to be aligned east-to-west. It was a substantial feature with a wide flat bottom. Its primary fill was weathered natural sand; the rest of the ditch was infilled with brown sands and silts. A few sherds of pottery were recovered; they included five sherds of Early Saxon date, two of them from a lower fill.

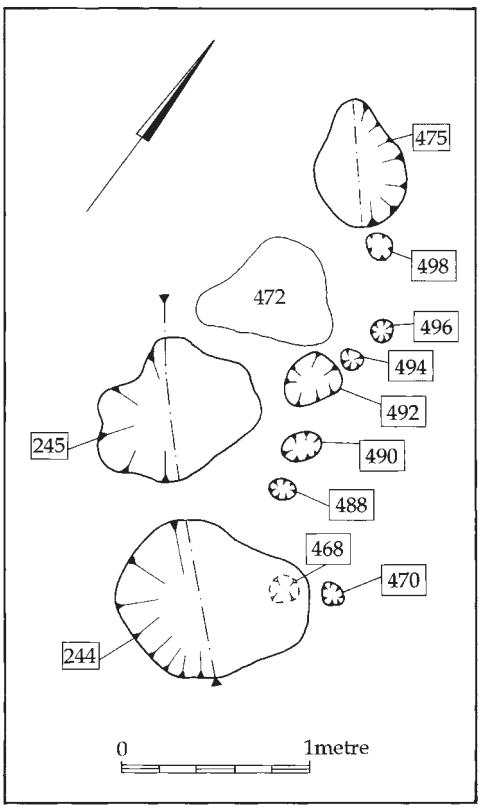


Figure 48 Plan of ?building *753*. Scale 1:40.

Ditch *695*
This ditch was located in the north-west corner of Area E and extended beyond the excavated area. It was relatively early, being cut by ditch *692* (see below). One small segment was excavated, yielding no finds.

Re-cut ditches and rectangular ditched enclosure
In the central part of Area E a series of ditches was excavated. The earliest (*692*) ran south-east to north-west, cutting ditch *690* and extending beyond the excavated area to the north-west. Excavation showed it to be quite narrow and steep-sided. It contained pale brown and grey brown sand silts, within which one sherd of residual Bronze Age pottery was found. It was re-cut on its south-west side by ditch *698* (although this latter feature was only identified in one excavated segment), and to the north-east by ditch *694*. A fourth redefinition (*697*) turned through a right-angle to the south-east and could be traced over about 5m, beyond which it was truncated by modern disturbance. It must have terminated just to the east of 'building' *298*.

To the north-west a single-phase ditch (*691*) also ran south-west to north-east, cutting ditch *690* and forming a right-angle with the series of re-cut ditches. Thus, it seems that a series of linear boundaries may have been replaced by a rectangular enclosure (*691* and *697*), and that the terminus in the south-east side of the enclosure respected either the sunken featured building or one of the large pits which pre-dated that feature.

Two other ditches share the same alignment as those just described, and may relate to them. Ditch *701*, in the north-west corner of Area E, terminated with a curved south-east end. Excavation showed that it may have been re-cut during its history. Ditch *655*, which extended beyond the north-west edge of the trench, was left unexcavated.

Other features
(Fig. 45)
A small number of miscellaneous features were dated to the Early Saxon period.

Post-holes *545* and *549* in the north part of Area E were very similar to each other in appearance. Only one of them was excavated; this contained four sherds of Early Saxon pottery.

Two small circular pits (*292* and *443*) were excavated in the south-west part of Area E. Both contained charcoal and burnt flint and the former, in which burning appeared to have occurred, contained a piece of Roman pottery and two Early Saxon sherds.

A small pit (*278*) and a post-hole (*268*) cut the north end of gully *685*. A sherd of Early Saxon pottery was found in the pit. Two other (undated) post-holes close by may have also related to these. A larger feature that cut ditch *682* close to the south corner of the trench contained no finds, and extended beyond the edge of the excavated area.

Unphased
(Fig. 51)
Many features excavated in Area E remained undated. They included more than twenty small post-hole like features in the south-east part of the area. A few probable pits at the south-east edge of Area E remained unexcavated. They may have been similar to features of either Roman or Early Saxon date nearby.

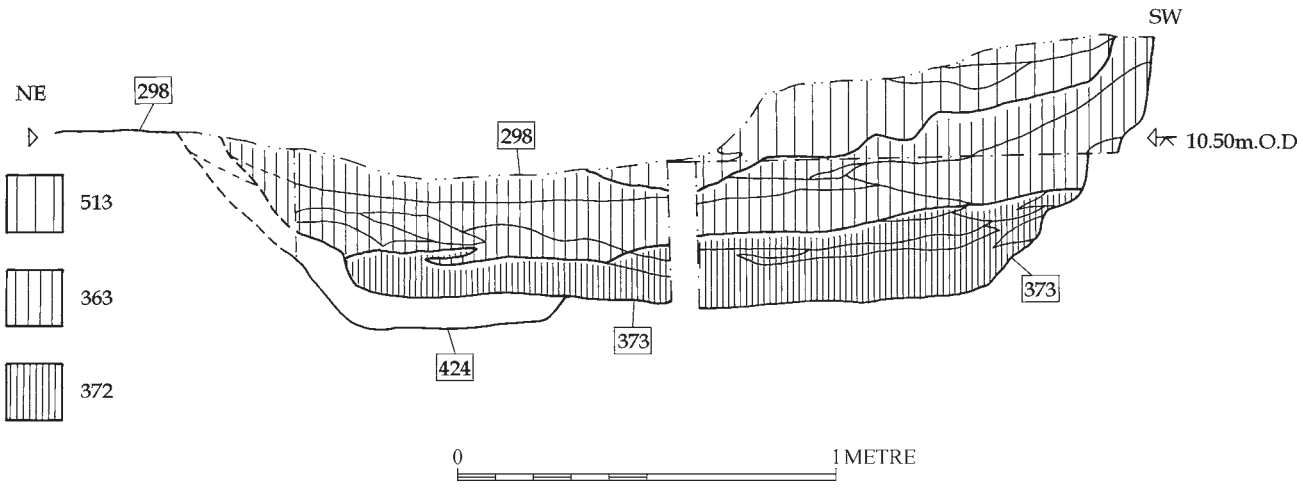


Figure 49 Composite section through pits *424* and *373* and building *298*. Scale 1:20.

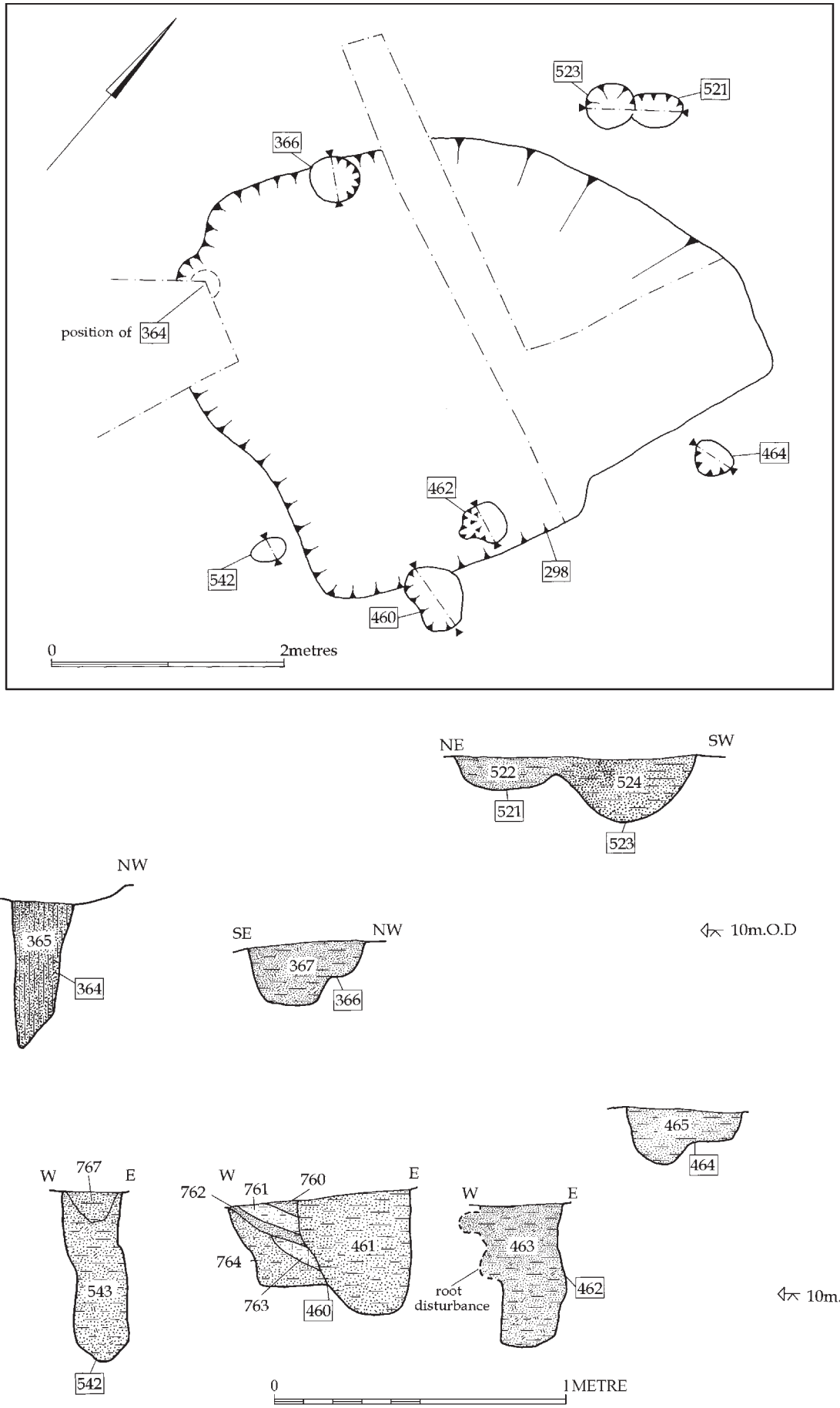


Figure 50 Plan and sections of building *298*. Scale 1:50 and 1:20.

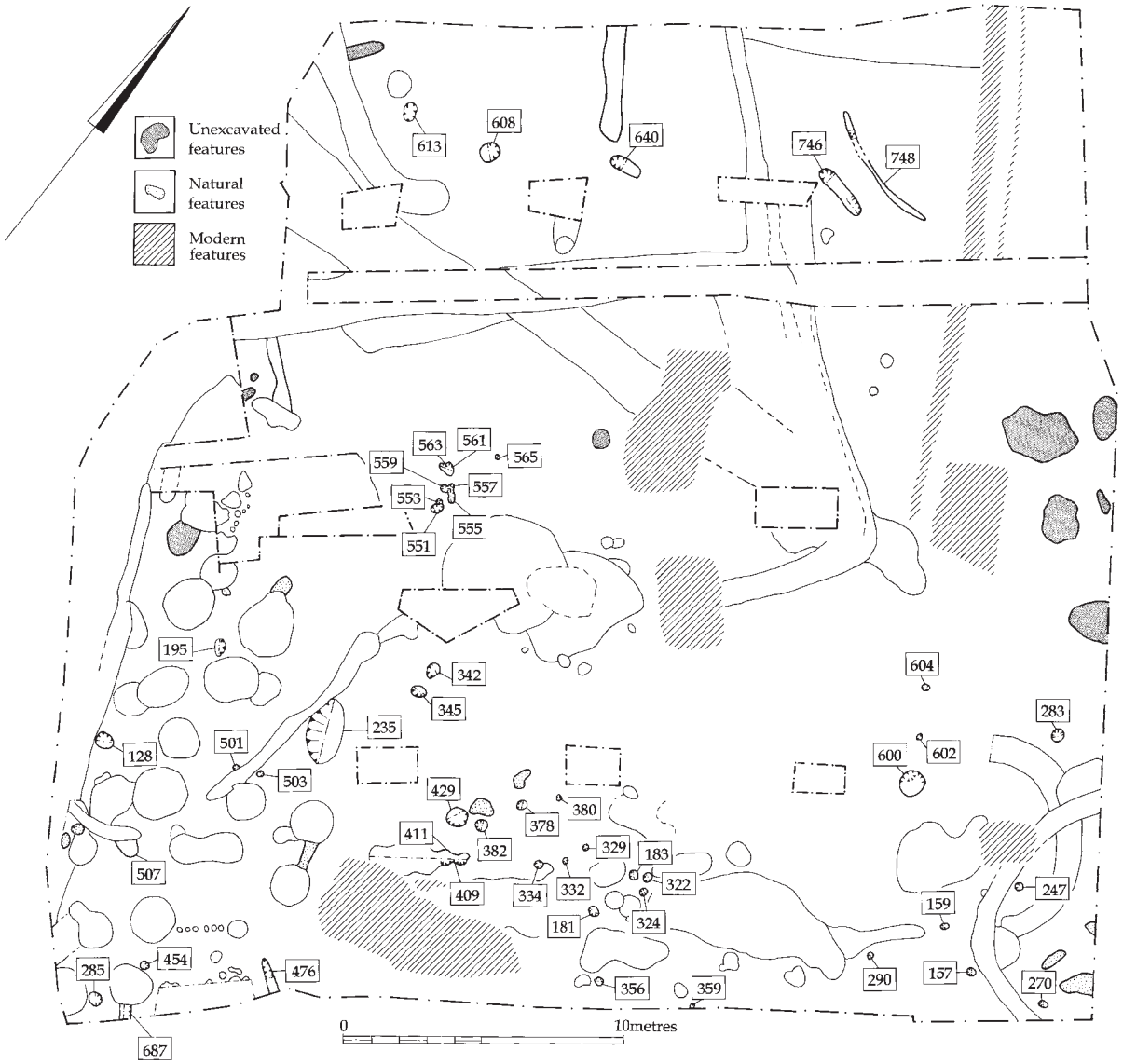


Figure 51 Area E: Plan of unphased and natural features. Scale 1:250.

Area F

Pre-ditch features

(Fig. 52)

A group of six post-holes (*1080*, *1082*, *1084* (not illustrated), *1086*, *1088* and *1101*) and another small feature (*1040*) were excavated just west of the main ditch intersection in the south part of Area F. The post-holes were well defined and one displayed a possible post-pipe. Two of them were stratified beneath the earliest ditch in the area; a broken flint blade and a fragment of a flake found in one post-hole hinted that the features were of prehistoric date.

Another pit, *1032*, had been cut by the north-west end of ditch *1070*. Its sandy fill contained flecks of charcoal and its shape suggested that it may have been deliberately dug. It contained no finds.

Ditches

(Fig. 52)

The dominant feature identified in Area F was a series of ditches. Most were quite narrow, steep-sided features with narrow bases and containing brown or grey brown sand silt fills. A single sherd of pottery from one ditch and a few struck flint flakes from several others were the only finds recovered. The ditches were all aligned roughly north-west to south-east, or at approximate right-angles to this. They may represent an evolving series of land boundaries.

Ditch *1008* was almost certainly the earliest in the series. It ran south-east to north-west across the south part of Area F and was represented by evaluation trench segment *31* and (probably) by a short length of truncated ditch *1103*, further to the north. It had been cut by ditch *1123*/*1047*, represented in the evaluation trench by segment *33*. Ditch *1123* terminated approximately 4m from the south-east limit of the excavated area. It was cut by ditch *1067* which formed a right angle in the south corner of the area, extending beyond the limit of excavation at both ends. Ditch *1067* was cut by two parallel ditches, *1068* and *1122*.

Ditch *1068* crossed Area F from north-west to south-east. It was heavily truncated in its north-western part, and a narrow gully (*1053*) extending from its north side may have represented its former line. At its south-east end the ditch appears to have been a re-cut of ditch *1067*, in effect extending that boundary to the north-west. Ditch *1122* ran for about 5m from the south-east side of the site, terminating at its intersection with ditch *1067*.

Towards the east side of the area, ditch *1070* was unrelated stratigraphically to those described above but was a re-cut of ditch *1069*. Excavation showed the earlier ditch to be deeper than the re-cut. Both turned at almost 90° and extended beyond the east corner of the site. At the north-west end only one ditch could be seen, but a shallow 'step' on the south-east side may have represented the re-cut observed further south. The ditch continued beyond the edge of the trench to the north-west. A sherd of Early Saxon pottery was recovered from near the

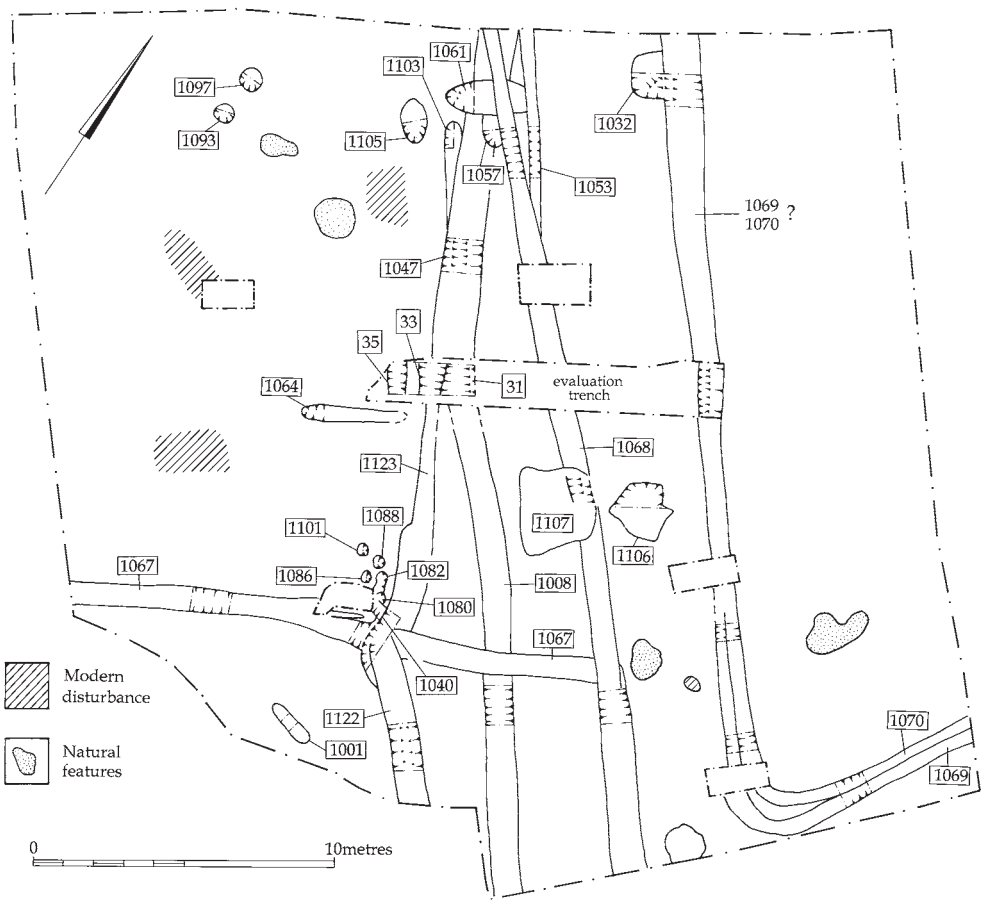


Figure 52 Area F: Plan of all features. Scale 1:250.

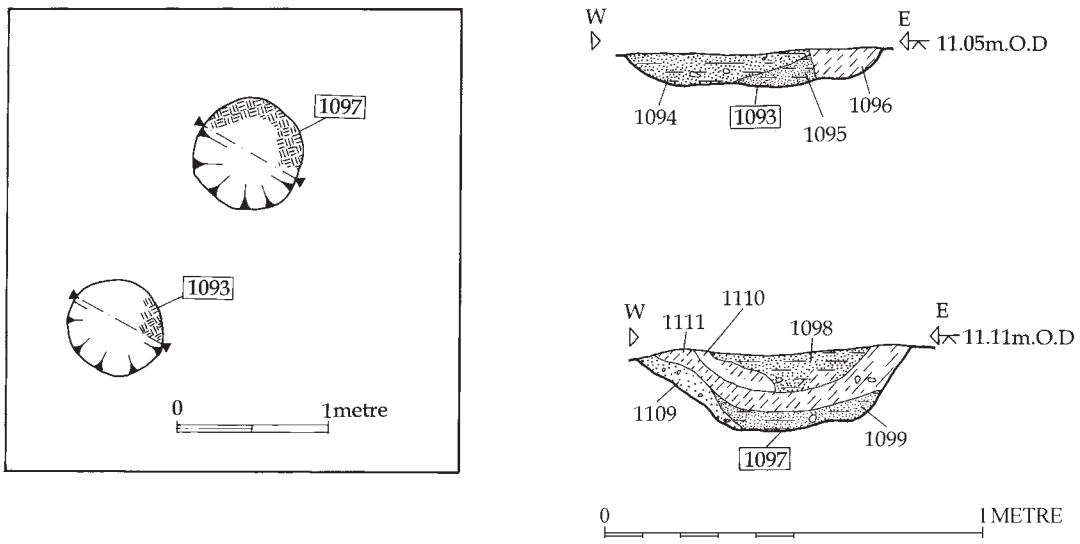


Figure 53 Plan and sections of small clay-lined pits. Scale 1:50 and 1:20.

south end of ditch *1070*, and ten more sherds were found during sieving of the soil from a baulk which overlaid the ditches there.

Two other short lengths of shallow ditch (*35* and *1064*) were excavated in the central part of the trench. Both were truncated, although it was clear that the latter's south-west end represented a terminus. The only finds from either ditch were a few struck flints.

Other features
(Figs 52 and 53)
In the north-west corner of Area F were two small flat-bottomed pits. Both, although probably truncated, contained evidence of clay linings. In pit *1093* a small area of clay was seen on one side, with a dark silty fill on top of the clay and a grey/brown silt sand in the top of the pit. Pit *1097* survived to a slightly greater depth; a primary deposit of dark grey silt sand was overlaid by a pale grey clay which formed a lining to the pit and was up to 0.06m thick. Grey/brown silt sand and some lumps of clay that probably originated from the 'lining' filled the hollow formed by this clay. A few large unabraded sherds of Early Saxon pottery were found in each pit.

A small number of other features were excavated in Area F: these included three medium-sized oval pits near the north-west edge. Two of them, *1057* and *1061*, were intercutting, were cut into ditch *1123*, and had been cut in turn by ditch *1068*. Both contained burnt debris (charcoal, ashy sand and occasional pieces of burnt flint), although there was no evidence for burning having taken place *in situ*. Pit *1105* was heavily truncated but its regular shape suggested it had been deliberately dug. A broken flint blade and a flake fragment were found in its fills. Towards the centre of Area F, pit *1106* was *c.* 1.0m deep and appeared to have filled in gradually. To its west a larger, much shallower feature (*1107*) cut ditch *1068*. The function and relationship of the latter two pits was unknown. Near the south side of the trench a shallow grave-like feature (*1001*) was excavated, but no finds or staining were recorded in its sandy fill to support this interpretation.

Modern disturbances
(Figs 51 and 52)
A number of recent disturbances were observed in both of the excavated areas. Most of these were filled with thermalite and other modern debris. Two parallel features in the north corner of Area E were thought to relate to machine activity during the use of the site for dumping. A single post-hole in the south-east part of Area F was probably of recent date.

Discussion of the excavated evidence
The excavated evidence for activity at the site during the Roman and Early Saxon periods is discussed here: evidence for Mesolithic activity is considered fully elsewhere (Robins 1998). The few sherds of prehistoric pottery and struck flint of later prehistoric date from across the site (details in archive) attest to pre-Roman activity in the vicinity, and a small number of features may also date to the later prehistoric period.

Excavated features that could be clearly dated to the Roman period were confined to the southern part of Area E. Apart from one small pit which contained 1st-century pottery, and whose relationship to the other excavated features is hard to explain, the pottery dated Romano-British activity at the site, including the kilns and a few other features related to them, to the 3rd and 4th centuries.

The excavated kilns can be defined, in terms of Swan's classification (Swan 1994, 177–8) as follows:

Kiln	*Type*	*Detailed internal arrangement*
674	F ?	k
548	F5	c,h
228	F5 or 6	(unknown)
139	F5	f (type of floor unknown)

Table 41 The Two Mile Bottom kilns

As in the case with most excavated kilns, no evidence for superstructures was seen. It appears that none of the kilns had permanent floors, and that their loads were borne by some arrangement of temporary bars or plates supported by the kiln walls and associated corbels and/or pedestals. In the cases of two of the surviving kilns, there was no clear evidence for the type of flue construction employed. Experimental work has shown this to be the most difficult part of a kiln to build (Bryant 1970, 3) and they may have been periodically rebuilt, possibly even for each firing. At Mucking (Essex) the discovery of tegula in flue areas was interpreted as evidence for temporary flue roofs (Jones and Rodwell 1973, 17). Tiles found in the flue of kiln *228* at the present site may have served such a purpose.

Unlike at Ellingham and Postwick, no scientific dating of the kilns from this site was undertaken and the sequence of the kilns and period of their use is unknown. The pottery from the site suggests that they date to the late 3rd or early 4th century. It appears that one of the kilns was a replacement for an earlier one; this re-use may have been intended to save space, or perhaps more plausibly to save the effort of digging a new pit. A similar replacement kiln was built in the stoke hole of Kiln II at Mucking, and was seen there as evidence that the orientation of kilns was not of critical importance (Jones and Rodwell 1973). Certainly there seemed to be little evidence for preferential orientation of kilns at Two Mile Bottom, although this may not be surprising since all the kilns are of different types and it is unknown whether or not they are contemporary.

No settlement site of Roman date is known from the vicinity of Two Mile Bottom, nor was conclusive evidence for settlement at the site revealed during the present work. Animal bone, including butchered material, was recovered from deposits which dated to the late Roman period, mostly from the fills of the largest kiln and the large pit close to it. The small putative buildings may have been associated with the pottery manufacturing process, rather than representing domestic occupation.

The only type of pottery that was clearly made at the site is painted white ware. This constitutes most of the pottery from the use-related fills of kiln *548*, and half of that from the fills related to its disuse. It is dated to the late 3rd or early 4th century. Although the period of use of the other kilns, like the type of pottery produced in them, remains unknown, two sherds of painted white ware were found in a disuse fill of kiln *228*. Possibly the other kilns were slightly earlier, with the larger kiln (which replaced an earlier one on the same spot) being constructed specifically for the production of the painted wares.

Painted white ware was also found in the large pit close to kiln *548*, and in the gully that curved around the end of the kiln, although it represented a much smaller percentage of the material from these features. The similarity of the pottery to that from the later fills of the kiln suggest that all the features were used for dumping waste material after the kiln went out of use. A few sherds of Early Saxon pottery were also found in the pit, and their presence may suggest that the pit remained open for some time.

The only other significant feature for which a late Roman date seems likely is the group of post-holes near the south-east edge of the site, which may represent a small structure. A few sherds of distinctive hand-made

pottery recovered from some of these post-holes may date to the transitional late Roman/Early Saxon period.

Other features that might relate to the pottery industry at the site are the possible post building and the unfired kiln-like pit near the south corner of Area E, and two small pits that contained unfired clay in the north part. The latter were situated some distance from the excavated kilns. However, the kiln found at Two Mile Bottom at the end of the 19th century was located still further to the north-west, indicating that potting occurred over a wider area than that studied by the present excavation. It is possible, therefore, that some of the undated features excavated in the northern part of the site may also be of Roman date. The later activity at the site is discussed below: it is clear that this was instrumental in the erosion or destruction of pre-existing features, although in another sense it may have helped to preserve the archaeological remains. The recovery of Roman pottery from later features represents one aspect of this continuing process, and the numerous small features excavated across the site that cannot be assigned to any particular period may represent elements of structures or features which now lie beyond interpretation. It may be significant that the only dating evidence from any of the small post-hole like features in the south part of Area E was a sherd of Roman pottery.

The discovery of Early Saxon evidence at Two Mile Bottom was unexpected: none was previously known from the site or its vicinity, or had been identified during the evaluation. In many cases Early Saxon pottery was recovered from features alongside pottery of Roman date. This may indicate that the earlier material is residual, or that small amounts of Saxon material in the tops of Roman features are intrusive. One feature — pit *373*, from which 95% of the pottery is of Roman date — seems nevertheless to be of later date since it was cut from a relatively high level. Some of the Roman pottery that it contains is heavily abraded, and a single sherd of Early Saxon date was recovered from its primary fill. Both these factors support the suggestion that the pit may have been open for a prolonged period, and may be of transitional Romano-British–Early Saxon date.

Most of the Early Saxon pottery was retrieved from the fills of pits, especially the circular pits in the south corner of Area E (whose purpose is unknown) and from the possible large sunken-featured building. It was noticeable that most sherds from these contexts, as well as those from the two small clay-lined pits in Area F, were large and unabraded. A lesser number of small, abraded sherds were recovered from other features, including the ditches, in both of the excavated areas. The condition of the pottery may partly reflect the type of feature within which it was: a ditch would probably infill gradually after it had gone out of use, whereas a pit may have been filled deliberately with dumped material.

In several instances it was clear that the curvilinear gullies in the southern part of the site post-dated other Early Saxon features; it was also shown that they were sealed in turn by the layer of dark soil. No direct relationship between the gullies, the large sunken-featured building and the series of ditches to the north was seen, but the level from which the building was cut suggests that it post-dated the soil layer. Although the relationship between the building and the soil layer was uncertain, another possible building (*753*) was seen to cut the layer.

Any association between the ditches excavated in the north part of Area E and in Area F and the other features remains conjectural. However, since no pottery of a later date was found from the ditches, or from any other context excavated at the site, it seems most likely that the ditches date broadly to the Early Saxon period. The ditches' alignment may indicate their contemporaneity. Apart from the east-to-west ditch in Area E, all of the main linear features are aligned roughly north-west to south-east or south-west to north-east. As such they could represent land boundaries or enclosures that were re-cut, moved slightly or extended over time, thus reinforcing the same basic pattern of land-use. The position of the sunken-featured building close to a probable terminus to the rectangular enclosure, sharing its alignment, suggests that they were contemporary. Further north, in Area F, the preponderance of ditches and the virtual absence of any other features suggests that larger enclosures or fields may have existed at this distance from the main area of activity.

IV. The finds

(Plate IX; Figs 54–60)

Roman pottery

by Alice Lyons

(Figs 54–57)

The Roman pottery fabrics and forms from the site are described below, and in Appendices 4 and 5. Significant assemblages from individual features are discussed. Percentages of pottery refer the Roman assemblage only unless otherwise stated. Pottery from the kilns is discussed with reference to use or disuse-related deposits. For an account of methodology, see Appendix 3.

The fabrics

Twenty-two Roman pottery fabrics were identified, the most common of which — painted white ware PWW — had certainly been fired at the site (Table 42). This fabric appears as a plain white ware, a painted white ware, and sometimes as a poor-quality colour coat. It has not been previously identified in Norfolk: perhaps it has been misidentified due to its source of manufacture being unknown, or because its distribution was limited to the immediate vicinity of Two Mile Bottom. For full fabric descriptions see Appendix 4.

The forms

Fifty-four individual vessel types were identified (Appendices 4 and 5). The frequency of different forms is shown by EVE in Table 43. It can be seen that medium-, wide- and narrow-mouthed jars — *i.e.* the utilitarian forms — are the most common, although beakers are also fairly well represented.

The kilns

Kiln 548

Pottery from the use-related fills represents 9.01% of the Roman pottery from the site (Table 44). This material was recovered from one deposit at the bottom of the kiln. The frequency with which PWW was found, and the large number of sherds from cracked, bubbled or misshapen vessels, suggests it was the main product of the kiln. The vessel types identified are narrow-mouthed and medium-mouthed jars (Fig. 55, 2.3, 4.6.1 and 4.10.1). These forms are relatively common in the region during this period (Rogerson 1977) but here, unusually, they are made in an oxidised fabric and are decorated using a wide range of techniques. There was no evidence for the firing of GCW and STW vessels in this kiln.

Fabric name, abbreviation and numerical code			*Qty*	*Wt (g)*	*EVE*	*% Wt (of Roman pottery)*
Painted white ware	**PWW**	**22**	**693**	**10,968**	**8.99**	**37.29**
Storage jar ware	SJW	4	77	3778	0.00	12.85
Grey coarse ware	GCW	82	300	3558	2.14	12.10
Shell-tempered ware	STW	26	105	2748	1.46	9.34
Pakenham Colour Coated Ware	PCCW	73	265	1636	7.82	5.56
Micaceous reduced ware	MRW	27	107	1402	1.36	4.77
Miscellaneous oxidised Mortaria	MOM	500	26	1050	6.90	3.57
Reduced ware with mica and sand inclusions	RW(ms)	99	49	1050	5.60	3.57
Fine grog grey ware	VGW	89	26	793	3.60	2.70
Nar Valley Grey Ware	NVGW	17	68	392	0.23	1.33
Samian	SAM	60	14	300	1.40	1.02
Hadham Oxidised Red Ware	HORW	23	11	238	0.00	0.81
Miscellaneous oxidised wares	MOW	50	16	228	3.50	0.78
Horningsea Ware	HORN	98	8	230	0.00	0.78
Black surfaced red ware	BSRW	96	17	238	2.90	0.81
Nene Valley White Wares	NVWW	77	4	186	2.40	0.63
Sandy grey ware	SGW	97	17	168	1.10	0.57
Unspecified black burnished ware	UBB	18	7	142	0.21	0.48
Red coarse ware	RCW	72	18	135	0.05	0.46
Oxfordshire Red Colour Coat	ORCC	30	10	119	7.00	0.41
Reduced ware with flint inclusions	RW(f)	95	3	45	0.00	0.15
White colour coat	WCC	75	1	6	0.00	0.02
Total			**1842**	**29,410**	**56.66**	**100.00**

Table 42 Roman pottery fabrics, in descending percentage order of weight. Wares in bold were manufactured at Two Mile Bottom

Vessel Category	*Quantity*	*Wt (g)*	*% Wt*	*EVE*
Medium-mouthed jar	72	1307	4.44	5.65
Wide-mouthed jar	39	1200	4.08	3.24
Narrow-mouthed jar	24	355	1.21	3.18
Beaker	16	79	0.27	2.06
Dish	32	522	1.77	1.54
Castor Box	25	149	0.51	1.16
Mortarium	28	1212	4.12	0.93
Bowl	12	191	0.65	0.69
Miscellaneous jar	6	114	0.39	0.60
Flagon	46	2274	7.73	0.51
Lid	6	72	0.25	0.24
Storage jar	46	2961	10.07	0.15
Platter	2	80	0.27	0.03
Undiagnostic	1484	18,773	63.83	0.00
Flanged bowl	2	104	0.35	0.00
Cup	2	17	0.06	0.00
Total	**1842**	**29,410**	**100.00**	**19.98**

Table 43 Vessel forms, in descending percentage order of EVE

Fabric	*Qty*	*Wt*	*EVE*	*% of Wt(g)*	*Type of vessel*
PWW	74	2490	2.06	93.96	2.3, 4.6.1, 4.10.1
GCW	3	134	0.00	5.06	
STW	1	26	0.00	0.98	
Total	**78**	**2650**	**2.06**	**100.00**	

Table 44 Pottery from use-related fill of kiln *548*

The deposits that post-dated the use of kiln *548* contained the largest assemblage (49.57% of the site total) of Roman pottery from the site (Table 45). Fourteen fabrics were identified. Again, PWW was the most common fabric but here, in the disuse-related deposits, it was even more prolific and a wider range of forms was identified. These included a very unusual (?unique) amphora-class flagon (Fig. 54 1.12), narrow-mouthed, medium-mouthed and wide-mouthed jars (Fig. 54 2.2, Fig. 55 2.2, 2.3, 4.6.1, 4.6.2, 4.10.1, 5.3 and 5.4), a beaker (Fig. 55 3.11), and a Castor box (Fig.55 6.2.1). Again, a large number of sherds were from wasters, and the oxidised fabric was used for the production of vessels more usually seen in grey ware as well as for those common to white wares. Occasionally, the fabric is also used to imitate an unsophisticated colour coat ware. All the identified forms are consistent with a 3rd-century date.

Fabric	*Qty*	*Wt*	*EVE*	*% of Wt(g)*	*Type of vessel*
PWW	485	7265	4.18	49.81	1.12, 2.1, 2.3, 2.4, 3.11, 4.1, 4.6.1, 4.6.2, 4.10.1, 5.3, 5.4, 6.2.2
GCW	140	2332	1.03	15.99	2.1, 4.1, 4.5.4, 4.15, 5.3, 5.4, 6.18, 8.1
PCCW	132	1032	2.12	7.08	3.1, 3.6.2, 3.6.3, 4.5.1, 6.19.2, 6.19.3, 6.2.1, 6.2.2
STW	47	1023	0.61	7.02	4/5, 4.5.2, 4.5.4
NVW W	17	984	0.69	6.75	7.9.1
MRW	40	700	0.79	4.80	2/4, 4/5, 4.5.1, 5.3, 5.4, 6.18, 8.1
SJW	10	606	0.00	4.16	
MOW	10	196	0.35	1.34	1.9.1
BSRW	4	160	0.00	1.10	
SAM	6	102	0.03	0.70	Dr 18/31 31, Dr 31, W79
RCW	8	96	0.05	0.66	5.3
NVRW	15	70	0.00	0.48	
VGW	2	14	0.08	0.10	4/5
UBB	1	2	0.07	0.01	4.5.1
Total	**917**	**14.582**	**10.00**	**100.00**	

Table 45 Pottery from disuse fills of kiln *548*, in descending order of percentage of weight.

There is no evidence that the other fabrics recovered from the disuse-related deposits were fired in the kiln. Rather, they were in use at the site and entered the kiln after its abandonment.

GCW was found in several of the same forms as PWW. It was also identified as a dish (Fig. 54 6.8) and a lid for a medium-mouthed jar (Fig. 54 8.1). Many of the sherds retained traces of an exterior burnish (with a moderate level of abrasion), and several were sooted. No limescaled examples were present. The fabric is an unsourced (probably local) utilitarian ware that was used mostly for cooking and small-scale food and drink storage. The forms are consistent with a mid-2nd to mid-3rd century date.

PCCW was the third most common fabric by percentage of weight (although by EVE, which may be more meaningful for this lightweight material, it was more common). Apart from a Castor box, the forms found differ from those of PWW. They include beakers (Fig. 55 3.1), bag-shaped beakers (Fig. 55 3.6.2 and 3.6.3) and straight-sided dishes (Fig. 55 6.19.2 and 6.19.3). The two main forms of decoration are rouletting and barbotine scale. This ware has been imported from Pakenham, Suffolk, approximately 22km to the south-east. The straight-sided dishes date the material — and therefore the abandonment of the kiln — to the 4th century AD.

The STW fabric recovered from this kiln differs from the typical South Midland shell tempered ware associated with the Harrold kilns (Brown 1994), whence the majority of late Roman shell tempered products in Norfolk originate (Tyers 1996, 77). Neither is it Dales ware, more unusual but also found in Norfolk (Loughlin 1977). Rather, it is a very soft red shell-tempered ware, probably made at Lakenheath approximately 15km to the south-west (Cathy Tester *pers. comm*.). The identified vessel types are all jar forms.

The remaining ten fabrics were found in small quantities and the sherds are more abraded than the more common wares, suggesting that they are residual to the main body of pottery from the deposits. The few sherds of Samian are of Antonine date (AD 138–192) and support this suggestion: the pottery assemblage as a whole dates the disuse of kiln *548* to the 4th century AD, and probably to the earlier part of that century.

The relatively small amount of pottery from the use-related fill of the kiln (compared to that from its disuse-related deposits) probably reflects its cleaning-out after each firing. Evidence for the production of PWW at Two Mile Bottom is strong, however, and the forms encountered date this production to the latter 3rd and earlier 4th century AD. The other material from the kiln shows that pottery from several local sources was used at the site and that imported Samian, although no longer in use, was also present. The PWW exhibits an unusual combination of fabrics and forms, used in an attempt to imitate colour-coated ware. The innovative flair of the potters at Two Mile Bottom is also reflected in the presence of the amphora-class flagon, for which no parallels can be found. The material as a whole dates the use of the kiln to the late 3rd and 4th centuries AD.

Kiln 139

A single abraded body sherd of MRW was recovered from an ashy use-related deposit in the bottom of the kiln. It is not closely datable.

Nine sherds, weighing 0.636kg (2.16%) were recovered from disuse-related deposits in this kiln. A large base sherd (0.602kg) from a VGW storage jar has distinctive combed vertical decoration. The remaining eight MRW body sherds are very small. The pottery is unlikely to have been fired in the kiln. It is remarkably clean, with no apparent imperfections, and there is no evidence for function or for abrasion.

There is no surviving evidence to suggest either what type of pottery was fired in this kiln or the date of its use.

Kiln 228

Six sherds of Roman pottery weighing 0.190kg (0.65%) were recovered from the disuse-related deposits in this kiln. These included two thick undiagnostic sherds of PWW. It is uncertain whether they are from vessels fired in the kiln, although a blueish residue on one of them suggests that it may have been misfired and was therefore from a vessel made at the site. Also found were four MRW sherds, one identified as coming from a bowl (Type 6.15.2). It is unlikely that the material was fired in this kiln. The type is known to have been produced at Wattisfield, Suffolk, 20km to the south-east (Moore 1936). In view of the evidence from kiln *548*, the presence of PWW gives a date for the disuse of kiln *228* some time after the late 3rd or early 4th centuries AD.

One prehistoric sherd (6g) and two Early Saxon sherds (6g) were also found in kiln *228*.

Other features

Pit 107

A total of 380 sherds of Roman pottery weighing 3.695kg (12.56%) was recovered from this pit. Ten sherds of Early Saxon pottery were also recovered.

RW(ms) was the most common fabric (by weight) recovered. No vessel types were identified but the large body sherds all exhibited burnished decoration, including looped and diagonal lines, cross-hatching and total surface burnish. One sherd was externally sooted, indicating that the vessel from which it came had probably been used for cooking. PWW was the second most common fabric. Two narrow-mouthed jars (Fig. 54 2.1.2 and 2.2) and a bowl (Fig. 55 6.15.1) were identified. The vessels were almost certainly made at Two Mile Bottom, although the sherds were all from successfully fired examples. Some sherds have been burnt after they were broken, possibly indicating the burning of rubbish before final deposition.

GCW was the most prolific fabric, by sherd count and EVE (although not by weight). Eight types of vessel were identified: a narrow-mouthed jar (Fig. 54 2.1.2), medium-mouthed jars (Fig. 54 4.5.1, 4.8, 4.13 and 4.5.3), a bowl (Fig. 55 6.15.1), a straight-sided dish (Type 6.19.4, unillustrated) and a lid for a medium-mouthed jar (Fig. 54 8.1). There was evidence for fuming and sooting; this local, although unsourced, utilitarian ware was used for cooking.

The remaining twelve Roman fabrics are mostly the same as those from the disuse fills of kiln *548*. Some are clearly residual: these include the largest assemblage of Samian from the site, all of it Antonine (AD 138–192). The other pottery is of particular interest as it suggests some degree of continuity between the late Roman period and the Early Saxon one. Late Roman fabrics (STW and HORW), a late Roman/Early Saxon transitional fabric (SJW) and an Early Saxon fabric (Fabric 200) are all present. This kind of ceramic evidence is very rare (Tyers 1996, 77–80) and gives an unusual insight to the site at Two Mile Bottom. It suggests that the pit remained open, and that domestic activity continued at the site after the kilns went out of use.

Post-hole group 767
A total of 23 Roman sherds, weighing 0.278kg (0.14%), was recovered from four post-holes that are interpreted as part of a small structure or building. Eight Roman fabrics were found, all in very small quantities. Only two vessel forms (5.3 and 6.19) were recognised. A few sherds of STW are of interest; this fabric dates to the 4th century AD and the unusual handmade nature of two sherds suggests that it is transitional Roman/Early Saxon material.

Pit 373
A total of 41 Roman sherds, weighing 0.860kg (2.92%), was recovered from this feature. Three early Saxon sherds were also found. Eight fabrics were recorded, all in small quantities. The datable ones suggest a 4th-century date for the feature: STW, ORCC and PCCW are all late Roman in date. Sherds from a miniature ORCC bowl (C113) that show signs of extensive wear before deposition, as well as the presence of early Saxon pottery from the lower fill of the pit, suggest that it remained open into the early 5th century AD.

Sunken-featured building 755
A total of 36 sherds, weighing 0.482kg (1.64%), was found in the fills of the pit and associated post-holes. Thirty-one Early Saxon sherds were also found.

Although fourteen Roman fabrics were identified, they were all found in relatively small quantities. Three late Roman fabrics (STW, HORW and ORCC) are present, two of which (HORW and ORCC) show signs of significant wear before deposition (the ORRC sherds are from the same vessel as sherds from the earlier pit *373*, and are therefore residual in this feature). The pottery from the building is significant for the large proportion of Early Saxon pottery (*Non-Roman pottery*, below). This is the only feature excavated at the site where significant amounts of Roman and Early Saxon pottery are found together. A 5th-century date for it seems likely.

Gully 220
A total of 87 Roman sherds weighing 1.397kg (4.75%) was recovered from this gully, which was probably associated with kiln *548*. In addition, three early Saxon sherds were retrieved from the unexcavated upper fill of the gully. Fourteen Roman fabrics were identified, most of them the same as those from the nearby kiln.

Thick STW sherds (from Lakenheath) were most common by weight. No vessel types were identified. The sherds were fumed from exposure to smoke. PWW sherds were the second most frequently found by weight (although by sherd count and EVE they were the most common). Narrow-mouthed jars (Fig. 54 2.1.0 and 2.2 and Fig. 55 2.2) and a medium-mouthed jar (Fig. 55 4.10.1) were identified. The pottery was decorated with rouletting, rustication and fingernail impressions. No sooting or fuming was recorded, but the material was abraded. The third fabric found in significant quantities in this feature was PCCW. A beaker (Fig. 55 3.61), a Castor box lid (Fig. 55 6.2.1) and a straight-sided dish (Fig. 55 6.19.3) were identified. Decoration included folding and rouletting. These fabrics and forms are all of late 3rd–4th century date, which accords with that for the associated kiln. The other Roman fabrics were all present in small quantities and do not contradict this date.

Pit 472
A total of 26 sherds weighing 0.678kg (2.31%) was recovered from this small pit. Twenty sherds of distinctive SJW were found: these were substantial, and were decorated with both fine and coarse combing motifs. Although this type of decoration was used over a long period, a similar example from the Harrold kilns dates to the late 1st–2nd centuries AD (Brown 1994, fig. 23, 16). Four sherds from a MRW bowl were found (Fig. 54 6.15.1), an imitation of Samian form Dr 27 which dates from the mid–late 1st century AD. Single sherds of GCW and SGW are undatable.

Although the pottery assemblage from this feature is limited, most of the material could date to the early 2nd century AD, thus providing possible evidence for activity at the site that pre-dates the kilns and other excavated features. It was seen to cut a relatively late deposit, however, and the pottery must be considered residual.

Pit 218
A total of 119 sherds weighing 3.025kg (10.28%) was recovered. Eleven fabrics were identified. A single Early Saxon sherd, probably intrusive, was also found. The assemblage is dominated by SJW sherds, which are probably from a single vessel and represent nearly 75% of all the pottery found (by weight). The pottery was decorated with a coarse rouletting; otherwise no diagnostic characteristics were seen. GCW, PWW, HORW and PCCW form most of the rest of the assemblage. A Castor box lid (Fig. 55 6.2.1) indicates a late 3rd–early 4th century date, although fabrics PWW, HORW and PCCW are also all late Roman in date. The remaining six Roman fabrics were all found in very small quantities, and are either not closely datable (SGW, RCW) or are compatible with a late Roman date (STW).

Discussion

The Roman pottery assemblage is significant for two reasons. Firstly, it throws new light on pottery production at the site during the Roman period; secondly, it provides evidence for the likely continuity of activity at the site from the late Roman into the Early Saxon period.

The painted white ware fabric accounts for 33.43% of the Roman assemblage by weight. Material of this type has not been previously identified in Norfolk. While it is recognised that the pottery recovered from kilns sites — where misfiring was bound to occur — is not always an accurate representation of what was marketed to the wider community, it seems fairly certain that this material was the most important product of at least one of the kilns. The main forms produced were various narrow-mouthed jars, a medium-mouthed jar with slashed decoration of the shoulder, and a wide-mouthed jar with a reverse 'S' profile. Also produced was one example of an amphora-class flagon, which may represent an innovation by the Two Mile Bottom potters. The assembage is particularly unusual because an oxidised fabric was used for the production of both the usual white ware forms, as well as of vessels more common to the grey ware family. The fabric was also used to make a poor-quality colour coated ware which may have been an imitation of products of the nearby Pakenham kilns (whose operators were themselves copying the products of the Nene Valley kilns to the north-west).

It is clear that the PWW fabric was intended to be white, because the decorative red paint designs used would not have shown up on a darker fabric. Other decorative techniques used include grooving, burnishing, rouletting, rustication and combing. The PWW produced at Two Mile Bottom can be dated, by association with late Roman fabrics (ORCC, HORW and STW) and forms (the PCCW straight-sides dishes and BSRW flanged dishes), to the late 3rd to early 4th centuries AD. Analysis of the pottery from pit *472* revealed limited evidence for activity dating to the early 2nd century, although it is likely that this material is residual in this feature. However, the rest of the Roman pottery from the site dates to the 3rd–4th centuries AD, or even the 5th century: the likely transitional nature of the assemblage is further suggested by its association with Early Saxon sherds, and by the abraded state of some of the material.

The assemblage also contains evidence of the trade that existed between other communities and areas in the Roman period. Pottery from the nearby sites of Lakenheath (STW), Pakenham (PCCW) and Wattisfield (VGW and MRW) was in use at Two Mile Bottom, as well as wares from further afield: the Nar Valley (NVGW), the

Nene Valley (NVWW), Hadham (HORW), Horningsea (HORN) and Oxfordshire (ORCC). A small amount of also came from the Samian kilns of central Gaul.

Illustrated Roman pottery
(Figs 54–57)
Vessel types found at Two Mile Bottom and parallel examples can be found in Appendix 4. *Those without type numbers illustrate decorative techniques.

Type/description	*Fabric*	*Context/group*
Type 8.1	BB1	*106*, group 17
Type 2.1.1	VGW	*485*, group 37
Type 2.1.2	GCW	*219*, group 45
Type 4.5.1	GCW	*106*, group 17
Type 4.5.4	GCW	*669*, group 10
Type 4.8	GCW	*106*, group 17
Type 4.13	GCW	*106*, group 17
Type 6.11	MRW	*471*, group 38
Type 6.15.1	MRW	*225*, group 14
Type 6.19	GCW	*448*, group 19
Type 6.18	MRW	*547*, group 9
Type 6.19.1	MRW	*106*, group 17
Type 2.1.0	NVGW	*106*, group 17
A: rusticated sherd	NVGW	*106*, group 17
B: coarse rouletting	NVGW	*106*, group 17
Type 5.3	RW(ms)	*363*, group 25
Type 4.14	RW(ms)	*338*, group 1
Type 4.5.3	SMSTW	*363*, group 25
Type 4.5.2	SMSTW	*662*, group 10
Type 4.14	SMSTW	*102*, group 40
C: fine comb decoration	SJW	*471*, group 38
D: coarse comb decoration	SJW	*471*, group 38
Type 1.9.1	MOW	*661*, group 10
Type 1.12 amphora class flagon with orange paint	PWW	*662*, group 10
Type 2.2	PWW	*224*, group 29
Type 2.2	PWW	*547*, group 9
Type 2.3	PWW	*106*, group 17
Type 2.4: orange colour coat	PWW	*662*, group 10
Type 3.6.2: orange colour coat	PWW	*547*, group 9
Type 3.11: orange colour coat	PWW	*547*, group 9
Type 4.11	PWW	*669*, group 10
Type 4.6.1: dark brown colour coat	PWW	*662*, group 10
Type 4.6.2: dark brown colour coat	PWW	*547*, group 9
Type 4.10.1	PWW	*547*, group 9
Type 5.4	PWW	*662*, group 10
Type 5.3: waster	PWW	*547*, group 9
Type 6.2.2: orange-brown colour coat	PWW	*662*, group 10
Type 6.15.1: orange-brown paint	PWW	*485*, group 37
a: mid-brown painted horizontal band	PWW	*219*, group 45
b: mid-brown open circle and horizontal band decoration	PWW	*547*, group 9
c: orange closed circle decoration	PWW	*547*, group 9
d: dark brown paint lattice	PWW	*547*, group 9
e: mid-brown wavy lines enclosed by horizontal bands	PWW	*547*, group 9.
f: applied fingertip frill	PWW	*547*, group 9
g: applied decoration	PWW	*547*, group 9
h, i: rouletted	PWW	*547*, group 9
j: incised horizontal grooves	PWW	*547*, group 9
Type C113	ORCC	*338* group 26 and *363* group 25
Type 3.1	PCCW	*547*, group 9
Type 3.1.1	PCCW	*106*, group 17
Type 3.6.1	PCCW	*224*, group 29
Type 3.6.2	PCCW	*547*, group 9
Type 3.6.3	PCCW	*547*, group 9
Type 6.2.1	PCCW	*217*, group 29
Type 6.19.2	PCCW	*547*, group 9
Type 6.19.3	PCCW	*224*, group 29
Type Dr 37	Samian	*106*, group 17
Type Dr 37 decorated sherd	Samian	*106*, group 17
Type W79	Samian	burnt, *547*, group 9
Type 7.1.4	Mortarium	*547*, group 9
Type 7.9.1	Mortarium	*547*, group 9
Type 7.9.1	Mortarium	*106*, group 17

Non-Roman pottery
by Sarah Percival
(Fig. 58)
A total of 211 sherds of non-Roman pottery, weighing 3.444kg, was recovered. These included 194 Early Saxon sherds (2.685kg), which were generally in good condition, and pre-Roman ones (786g), most of which were small and abraded.

The Iron Age and Early Saxon pottery were differentiated with some difficulty, the two being very similar in fabric, form and manufacture (Gregory 1991). The Iron Age pottery was distinguished by the predominance of calcined flint temper within the fabric (Fabrics F1 and F2) and by the use of fingertip-impressed decoration to the top of the rim. Neither of these characteristics occurs within Early Saxon assemblages.

Prehistoric pottery
Two pieces of grog-and-sand tempered Bronze Age pottery were recovered. The sherds cannot be closely dated, and both were found residually in later features.

Fourteen sherds of Iron Age pottery (760g), in two flint-tempered fabrics, were found. The diagnostic form was recorded within the Iron Age assemblage was a large coarseware jar rim (Fig. 58, P1), decorated with fingertip impressions applied to the rim top. This form of decoration is highly characteristic of Middle–Late Iron Age pottery (4th–1st centuries BC). One sherd has scored decoration, which is also characteristic of this period.

Fabric	*Description*	*Quantity*	*Weight (g)*
Q1	Common, fine to medium sized, sub-rounded quartz sand; sparse, coarse sub-angular flint (uncalcined); moderate, fine to course irregular organic voids.	34	553
Q2	Moderate, fine, rounded quartz sand; moderate, fine, angular (sieved) calcined flint.	106	1260
Q3	Common, fine, sub-rounded quartz sand; occasional platey shell voids; occasional black circular ?iron ore.	42	701
Q4	Common, fine, sub-rounded quartz sand; occasional organic voids.	1	14

Table 46 Early Saxon pottery fabrics

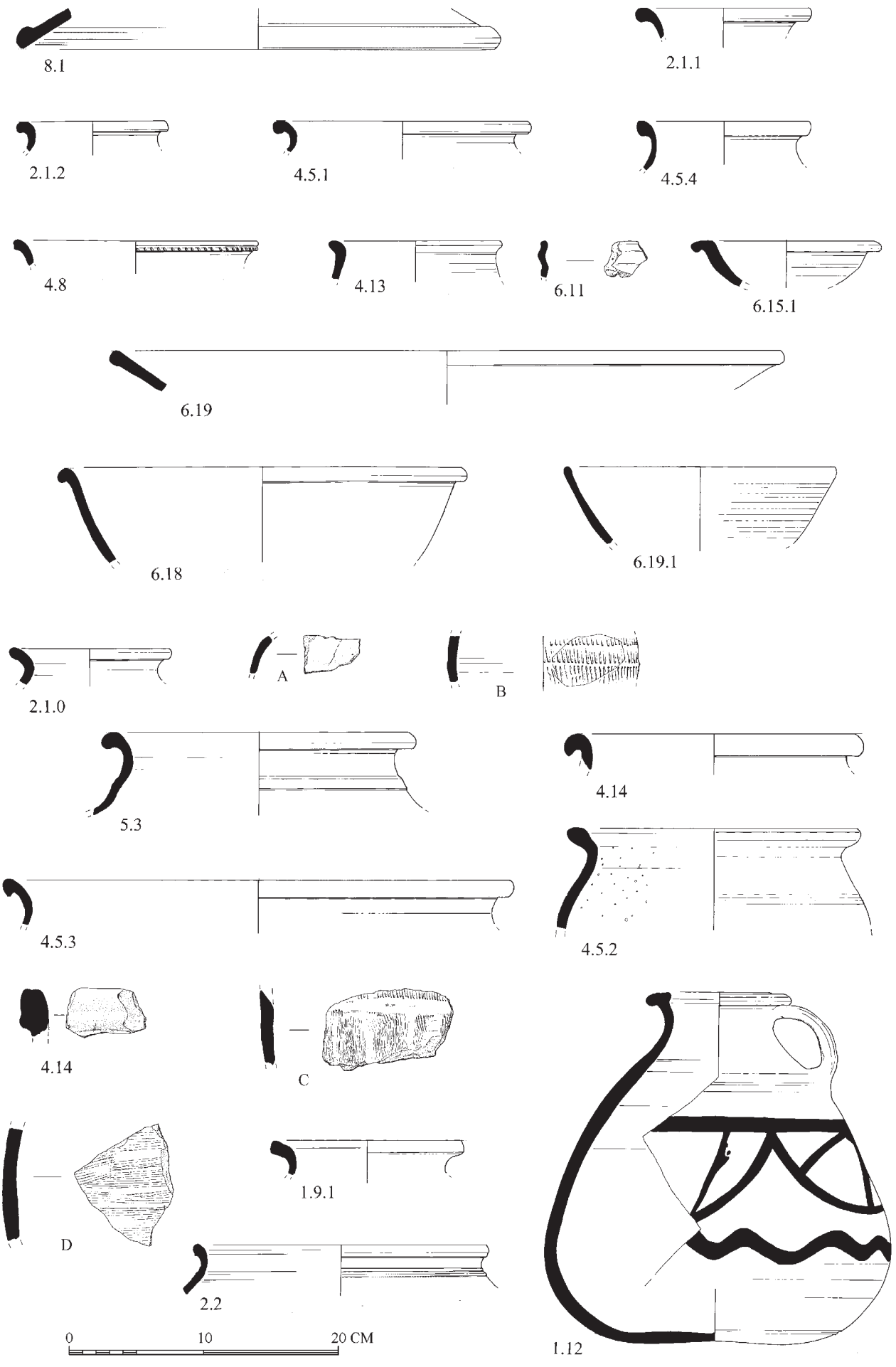


Figure 54 Roman pottery. Scale 1:4.

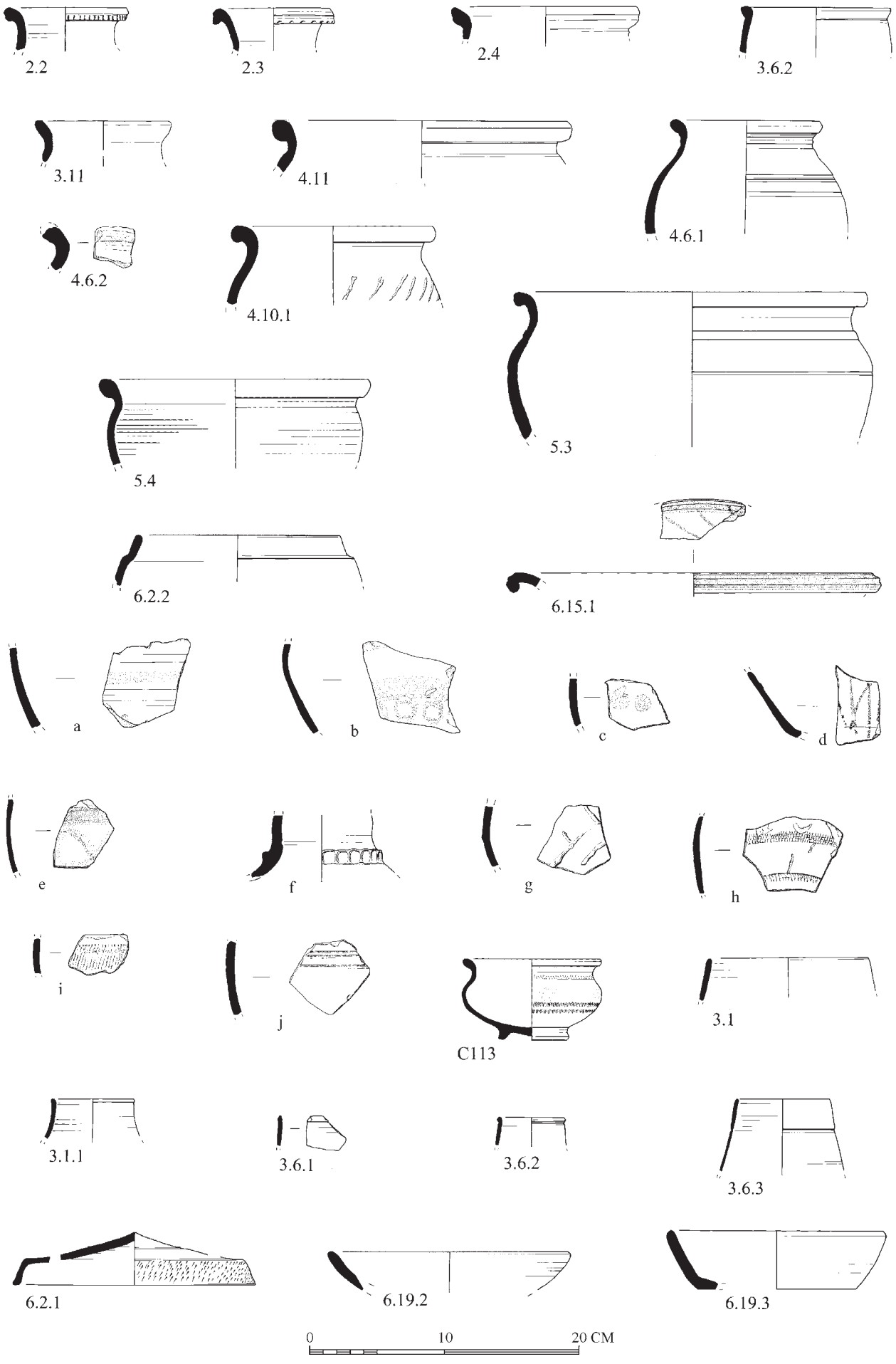


Figure 55 Roman pottery. Scale 1:4.

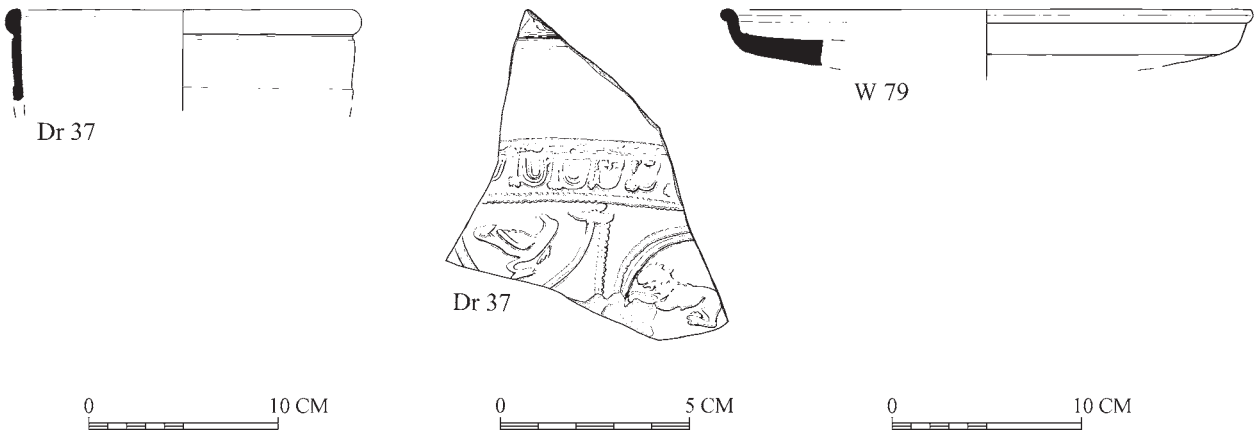


Figure 56 Roman pottery. Scale 1:4.

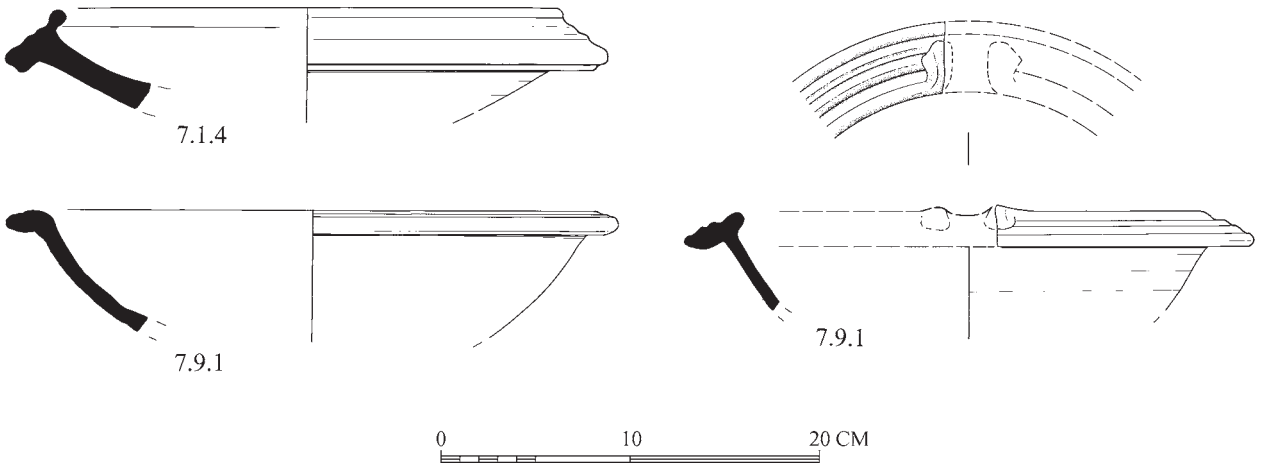


Figure 57 Roman pottery. Scale 1:4.

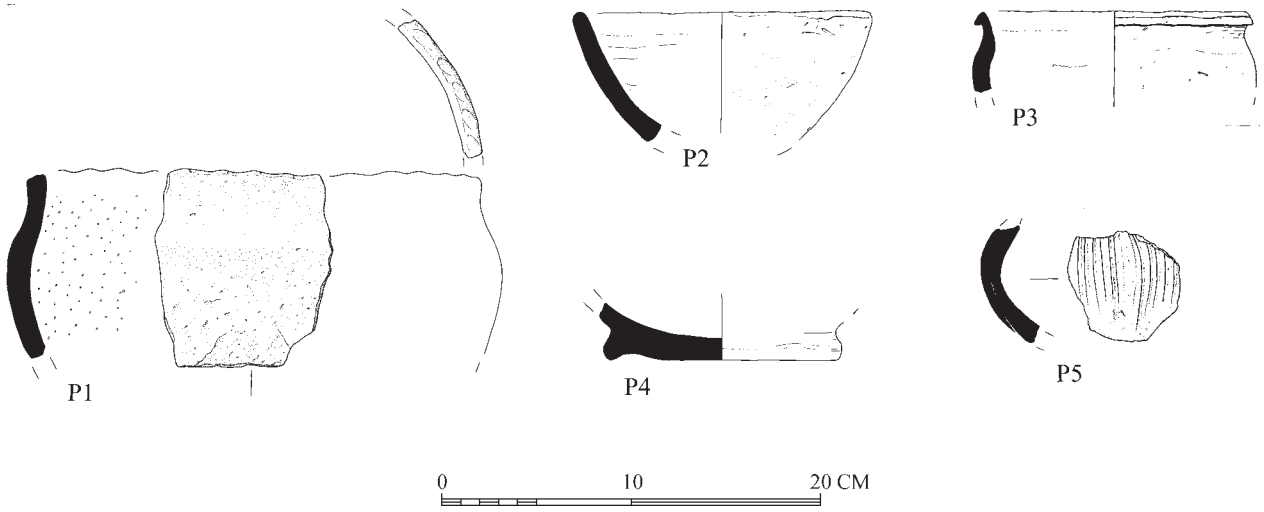


Figure 58 Non-Roman pottery. Scale 1:4 (P1–P4); 1:2 (P5).

The Iron Age pottery was all residual material collected from Early Saxon features. Nine of the sherds were from one feature, pit *146*.

A single undiagnostic sherd weighing 10g was also believed to be prehistoric, but could not be closely dated.

Early Saxon pottery

The Early Saxon pottery collection consists of 195 sherds weighing 2.658kg. The sherds are mainly large, well-preserved undiagnostic body sherds; no complete profiles were recorded.

Fabrics

Four Early Saxon fabrics were identified. All contain quartz sand along with varying quantities of other inclusions, such as flint, shell and voids from organic temper (Table 46).

The range of inclusions is comparable with that seen in contemporary assemblages from West Stow, Suffolk, and from Spong Hill, Brettenham and Thetford Brunel Way, Norfolk. This may reflect either practical/cultural influences on the potters or the range of inclusions naturally occurring within the local glacial deposits that provided the clay for potting (Friedenson, Friedenson and Rickett 1995, 126).

Forms

No complete profiles are present. Three rim forms are from jars (*e.g.* Fig. 58, P3) and two from bowls (*e.g.* Fig. 58, P2). The jars are shouldered forms with upright rims (*cf.* West 1985, fig. 51.1, 32.5; Rickett 1995, fig. 127. 85, fig. 128.115). One bowl is sub-globular with an upright rim (*cf.* West 1985, fig. 58.3; Rickett 1995, fig. 126.9c), the other is sub-globular and wide-mouthed with an everted rim (Fig. 58, P3: *cf.* West 1985, fig. 51.1). Base forms are plain, and mostly suggestive of globular forms; one has an applied foot-ring (Fig. 58, P4).

Decoration and surface treatment

Forty-four sherds (939g) exhibit some decoration or surface treatment. The most common decorative finishes are burnishing/smoothing and wiping. The latter produced a slightly striated finish, the former a smooth, closely-compacted surface with a dull shine. Both are commonly found within domestic assemblages such as those from West Stow (West 1985, 129) and Spong Hill (Rickett 1995).

Six sherds (36g) bear vertical, burnished lines; five of these appear to be from the same vessel, and have parallel vertical lines running in a band around the girth of the pot (Fig. 58). Four sherds bear deeper marks scored randomly at angles over the pot (Fig. 58, *cf.* Rickett 1995, fig. 126). One sherd (Fig. 58, P5) has parallel vertical scores outlining an applied elongated boss. The vessel is incomplete but is similar to urns excavated from the Early Saxon cemetery at Caistor St Edmund and at Loveden Hill, Lincs. (Myers 1977, fig. 166, II.3; fig. 186, II.4). No stamp-impressed sherds are present. All the decorated sherds bear motifs and surface finishes that are characteristic of domestic assemblages.

Distribution

The majority of the sherds were recovered from pit fills (nineteen pits: 108 sherds/1.689kg), and especially from the series of circular pits along the western edge of the site. Five sherds (36g) were recovered from linear pits *239* and *249*. These sherds are large (average weight 15g) and well-preserved, suggesting that they were incorporated while the pits were in use. Small numbers of sherds were collected from ditches (nine sherds/41g) and gullies (eight sherds/102g), but these are smaller and more abraded and may have been redeposited or residual items. Two small intrusive sherds were found within the fills of Roman kiln *228*. One post-hole (*545*) contained four Early Saxon sherds, while another (*101*) contained a single sherd. Small quantities of pottery were also found in layers and hollows *265*, *643* and *108*.

The most significant assemblage from a single feature came from building *298,* and was unusual in terms of both the quantity and quality of the pottery found. The building produced thirty-one sherds (602g) of pottery, which are all large and well-preserved. They include rim sherds from a minimum of three vessels (Fig. 58, P2 and P3), the foot-ring base (P4), the bossed fragment (P5), and sherds from a second highly-decorated vessel featuring burnished vertical lines (not illus.). The quantity and size of the sherds, and their lack of abrasion, suggest that the building with which they were associated was of Early Saxon date. Comparable assemblages have been excavated at Spong Hill (*cf.* Rickett 1995, fig. 126, SFB 128).

Illustrated non-Roman pottery

(Fig. 58)

P1 Iron Age. Fabric F2, form R3, fingertip impressions to rim top. *148.*
P2 Early Saxon. Fabric Q3, form R7. *299*.
P3 Early Saxon. Fabric Q1, form R5. *201*.
P4 Early Saxon. Fabric Q2, base with foot-ring. *337*.
P5 Early Saxon. Fabric Q1, boss. *338*.

Discussion

The similarity between Early Saxon and Iron Age ceramics found in the region must be taken into account when considering pottery assigned to either of these periods. The assemblage from Two Mile Bottom contains a number of characteristic forms confirming its Early Saxon date, including the biconical urn with applied boss and the foot-ring base found within structure *298*. Neither of these forms occurs within Iron Age assemblages. The remainder of the pottery can be regarded as contemporary with the Early Saxon forms on the basis of the common fabrics recorded. The assemblage may be considered domestic as it is very similar to those found at Early Saxon settlements at both Spong Hill (Rickett 1995) and West Stow (West 1985).

Fired clay

by Alice Lyons

(Plates XIV and XV; Fig. 59)

A total of 545 pieces of fired clay (54.180kg) were retained as samples from the excavated features. This includes fragments and furniture from the three kilns as well as domestic fired clay remains. Only potentially diagnostic fragments were retained for analysis. Kiln *139* was preserved complete for display, and fabric analysis of fragments from its body undertaken.

Fabrics

Kiln superstructure and most kiln furniture (including the 'dome plates') and miscellaneous daub are reddish yellow, Munsell 5YR 6/8 or 7.5YR 7/8, with common large chalk inclusions (up to 20mm in length) and sparse large flint inclusions (up to 15mm). The kiln-bars are of a different fabric; this is very pale brown, 10YR 7/3, with sparse large chalk inclusions (up to 17mm) and very sparse large flint inclusions (up to 14mm).

Kiln *139*

An incomplete circular artefact, with one flat and one curved surface, was recovered from deposit *120*. It has a length of 220mm and a depth of 80mm (Fig. 59). No parallels for it have been identified. Possibly it was a 'cap' for the central pedestal of the kiln. Other incomplete miscellaneous fired clay artefacts, interpreted as kiln props, were retrieved from this deposit.

Thin pieces of fired clay (10–25mm in thickness) with vegetation impressions on one or both surfaces were recovered from deposit *123*. The most complete example has a curved exterior edge (suggesting that the complete artefact was circular) and the remains of a central perforation. The estimated diameter for the complete artefact is about 300mm. Such artefacts are usually referred to as 'dome plates' (Swan 1984, 41, 64, plate 21) and their function is unclear. Occasionally they have been found resting on the central pedestal of a kiln to level it to support fire-bars or plates (Bunch and Corder 1954). Smaller examples are thought to represent setters or spacers for the kiln load, while larger unperforated ones may have been used as foundations for the temporary turf-stack kiln roof. Straw-tempered clay plates have been used successfully to roof kilns in experimental firings (Bryant 1971). 'Dome plates' are not found in all kilns (even those within the same industry) but are associated with the 4th-century industry at Oxford (Swan 1984, 101), with which the Two Mile Bottom pottery assemblage has some parallels (*e.g.* the miniature Wjar: Fig. 35 Type C113).

No evidence survived for the floor of kiln *139*. It may have consisted of a solid vented floor or of sections of clay 'plate' supported on the corbels and central pedestal: kiln-bars would probably have been unstable on such supports.

Kiln *228*

Fired clay was recovered from various fills within the kiln. Some fragments have impressions of wattles or withies, which would have supported the clay during construction of the kiln and burnt away during its first firing (Swan 1984, 35). Some were so well-fired that they had an almost tile-like finish; others were covered with a black crystalline accretion.

A single fragment of a kiln-bar (Plate XIV) was recovered. Measuring 60 x 52mm, it is slightly curved longitudinally and may have been deliberately shaped: for example, to fit against the wall of the kiln. Alternatively, its form may have been a result of re-firing. It is heavily vitrified, including on its broken edges: this suggests either that it was re-used in its incomplete state (perhaps as a kiln prop), or that the broken fragment was accidentally re-fired in the bottom of the kiln. Curved clay bars have occasionally been found at other sites, and may in some cases have formed part of the flue arch (Swan 1984, 64).

In addition, a large fragment of a vented kiln floor 44mm thick was retrieved (Plate XV). Five vent-holes were present, one of them complete (35mm diam.). The piece has a black crystalline or vitrified under-surface. Grain and chaff impressions on its surface and within its matrix show that the clay was tempered with cereal waste (*Charred plant macrofossils*, below). The unbroken edge of the fragment is smooth, suggesting that it was not an integral part of the kiln but may have been a portable floor plate (Swan 1984, 65).

The other recognisable pieces from this kiln are fragments of 'dome plate'. The most complete piece has a rounded exterior edge and a central hole, giving an estimated complete diameter of 320mm.

Kiln *548*

The form of the oven, and the retrieval of fired clay bars from its fills, show how the kiln was constructed. Fired clay was recovered from various fills of the kiln and samples were taken from the internal ledge of the oven *667*, the central pedestal *676* and the flue *678*. The only distinguishing features that it bore were some fingerprints on the central pedestal (frontispiece).

Most of the fired clay associated with this kiln was recovered from its stoke hole. It almost certainly originated from kiln *548* rather than to the earlier kiln *674*, and included neatly-finished kiln wall and floor pieces as well as flue fragments. Ten kiln-bar fragments were found. These had square or rectangular central sections, tapering to a squared end. Finger impressions were present. No complete examples were retrieved but all the fragments were quite large (62–65mm x 105mm) with an estimated weight when complete of 5kg.

Pieces of 'dome plates' were also retrieved; these are thin, with vegetation impressions on both surfaces. Their size when complete is unknown and no evidence for perforations survived. A sherd of colour-coated and rouletted pottery (Pakenham colour coated ware, dated to the 3rd century AD) was included within the fabric of one fragment. This sherd was probably a residual piece that became incorporated into the fabric of the clay; alternatively the dome plate may have been associated with the earlier kiln.

Evidence from other features

Fired clay was recovered from a variety of other features, including building *298*, gully *220* and several post-holes and pits. Some of it may have originated from the kilns and occured residually in later features. Alternatively, it could have been fired for other reasons. Features *298*, *107*, *108* and *472* contained daub, several pieces of which bear wattle impressions but mostly with no diagnostic features, as well as fired clay. Fragments of 'dome plate' were found in gully *220*, which was probably related to kiln *548*.

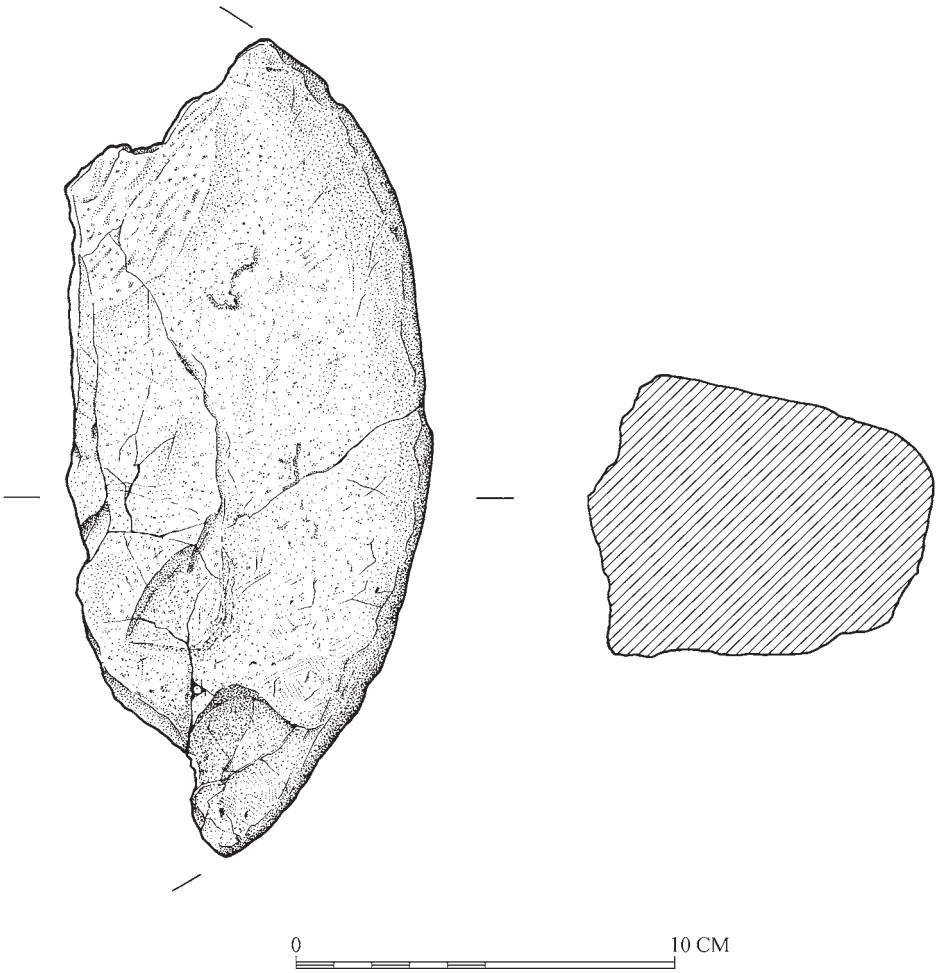


Fig. 59 Fired clay from kiln *139*. Scale 1:2.

Worked bone
by Julia Huddle
(Fig. 60)

Roe deer antler beam with two forked tines
An antler beam from the fill of pit *107* had been cut off at its base with six oblique cuts to form a point (Fig. 55). The brow tine has been sawn, and (?)finally broken off, at the junction of the beam. The saw-mark on the beam measures 1mm. There appears to be no wear at the base of the pointed beam to suggest that this end was used as a point. The cuts may therefore simply represent the method used to remove the antler from the skull. Objects of antler are well known from the Roman period, however, and it has been noted that the piece fits neatly into the hand. It is possible that the antler could have been used during the potting process as a scribe.

Sawn cattle horn-core
A horn-core from the fill of ?sunken featured building *298* had been sawn (and ?cut) off at the base. The tip is damaged and there is a small indentation near the tip, possibly a saw or knife trace. Horn-cores found detached from the skull by sawing or cutting indicate the intention to remove the keratinous horn sheath for use (MacGregor 1985).

Socket stone
by Alice Lyons
(Plate XVIII)
A large stone was found in the fill of the stoke hole of kiln *548* (Fig. 39, deposit *669*). Roughly kidney-shaped, it measures 130mm x 290mm x 520mm and is of non-local sandstone (Plate XIX). At its narrower end is a drilled hole with a diameter of 35mm, although the neck of the hole is wider (60mm) and shows wear marks consistent with a repeated revolving action.

The stone is interpreted as a pivot stone for a potters wheel. Such artefacts are very rare, and only a few have been identified (Swan 1984, 50, plate 13). Its presence in the stoke hole suggests that this kiln may have been backfilled as soon as potting ceased. It also suggests that potting took place nearby: the stone can only be lifted easily by two people, and it seems unlikely that it would have been carried far for disposal.

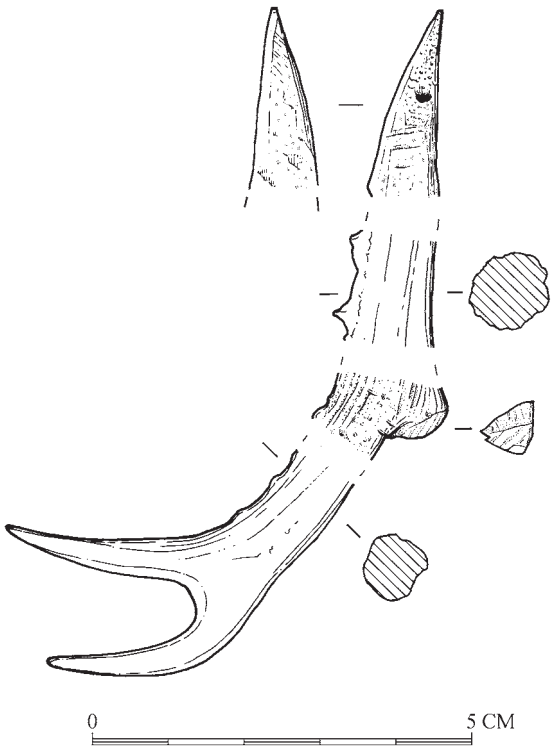


Fig. 60 Worked antler from pit *107*. Scale 1:1.

V. Environmental evidence

Animal bone
by Trevor Ashwin
Animal bone weighing 6.90kg was recovered from 54 contexts, all from Area E. Bones of cattle were identified from 26 contexts, sheep/goat from fifteen contexts, horse from five contexts, and pig, dog, red deer and roe deer from one context each. The relatively large quantity of bone was surprising considering the acidic sandy soil. Most of it was in a poor condition, however, with eroded surfaces and often a distinctive 'chalky' consistency. Very few smaller bones of mammals or bird bones were collected. Individual assemblages were small, but those from the following features and feature groups deserve comment.

Kilns and stoke holes
These produced a total of 1.508kg of animal bone; 1.23kg was from the fills of the stoke hole of kiln *548*. This included a large assemblage of poor-quality bone from a dump of material (*671*) in the upper part of the stoke hole, which contrasted with exceptionally well-preserved bone from a lower deposit (*662*). This latter collection is quite uncharacteristic of the material from the rest of the site, and may owe its near-pristine condition to the abundance of vitrified pottery and kiln-waste material in this deposit. Evidence for canid gnawing was recorded, as well as for butchery practises involving the splitting of cattle bones for marrow extraction.

Plate XIX Socket stone from kiln *548*. Scale 100mm (David Wicks).

Pit *107*
This contained the largest bone assemblage from the site (1.674kg). Some butchered bone was recorded along with a complete cattle radius and a femur, a metapodial and a piece of worked antler (*Worked bone*, above) of roe deer.

Structure *755*; pits *424* and *373*
A total of 1.96kg of bone was recovered from this group of features. It included some butchered material, a complete horse metapodial and a sheep horn-core still attached to part of the skull. Pit *298* produced 0.424kg of bone; this was generally in poor condition but many sheep/goat teeth and a mandible from a large dog were noted, as well as a sawn piece of cattle horn (*Worked bone*, above).

Early Saxon circular pits
Twelve of these pits produced a total of 1.184kg of animal bone. Sixty-two percent of this was from one pit, *353*; this assemblage included a foetal cow radius and at least three complete or near-complete sheep/goat mandibles. Some burnt and butchered pieces were noted, especially from a layer of burnt flint and charcoal *320*. Finds from the fills of other pits included cattle scapulae, a cattle metacarpal, and horse metapodials and phalanges.

Plant macrofossils

by Peter Murphy

Samples were collected from kilns *139*, *228*, *548* and the possible kiln *431* for assessment of charred plant remains. Details of sample locations and volumes are given in Table 47, and the methods used are described in Appendix 2. Full quantitative analysis of the samples was not undertaken, but sufficient material was examined to give a species list, and a reliable indication of the relative abundance of different categories of charred macrofossils. A three-point scale of abundance from 'x' (<5 specimens) to 'xxx' (>100 specimens) was employed during assessment.

A slab of perforated fired clay kiln furniture from context *257* was also examined. Results from samples relating to Mesolithic and Anglo-Saxon activity at the site are included in the site archive, and a summary is presented below.

Results
Results are given in Table 47. Samples from *139*, *228* and *548* included abundant charcoal (Gale, below). Cereal remains were also common, mainly chaff with some grains. *Triticum spelta* (spelt wheat) was the main cereal represented, with lesser amounts of *T. aestivum/compactum*-type (bread-type wheat), *Hordeum* sp (barley) and *Avena* sp (wild or cultivated oats). Seeds and fruits of weeds and grassland plants occurred consistently, and in some samples were abundant (*e.g. Bromus* sp (brome grass) in kiln *548*). *Carex* sp (sedge) nutlets were noted, as well as a few scraps of charred nutshell of *Corylus avellana* (hazel). Unidentified vegetative plant material (stem, rhizome and root fragments) was present in all samples, but cereal-type culm fragments and nodes were rare.

The possible kiln structure *431* produced few charred macrofossils and little charcoal. Its clay lining was unfired, and it is possible that the charred plant material present in its fill was unrelated to its function.

Discussion

Examination of samples from kilns at this site, and those from Heath Farm, Postwick and Ellingham (above, pp. 26 and pp. 54–5) has demonstrated marked variations in sample composition, most conveniently summarised in tabular form (Table 48).

Van der Veen (forthcoming) has drawn attention to the role of cereal chaff and straw as a fuel source in the Roman period. She proposes that these products should not be seen as simply waste by-products but in some situations as an actively-traded economic resource, notably in areas where supplies of wood were limited. Examples include the presence of chaff and straw associated with structures unrelated to agriculture, such as salterns (Murphy forthcoming; Wilkinson and Murphy 1995, 180–1) or pottery kilns (Murphy 1989). The abundance of charcoal of Ericaceae (ling/heather) at Two Mile Bottom implies proximity to heathland, and may suggest that local woodland resources were limited. Importation of cereal by-products was evidently needed to supplement fuel supplies from woodland and heathland.

The relative abundance of charred cereal grains in some samples from kilns *139* and *548* is almost certainly a consequence of differential preservation. All batches of crop-processing by-products will include some incompletely-threshed ears including grain: grains, being dense bodies, survive better than chaff and straw in well-oxygenated conditions of combustion (Boardman and Jones 1990). Having said this, it is clear that some samples (notably those from Postwick, kiln *906*) included abundant 'straw' but little chaff, whereas others (*e.g.* Two Mile Bottom, kilns *228* and *548*) produced large amounts of chaff, but little or no 'straw'. This does seem to be a real difference, indicating the use of different types of processing by-products. Whether this represents intentional selection, or simply reflects what was available at any point in time, is unclear.

It is difficult to distinguish any intentional selection of different fuel types for the production of different types of pottery (Table 48). Where available, large pieces of dense timber, such as oak, would no doubt have been preferred. However, high-quality fuel of this type may have been in short supply, and the use of poorer fuels might have been necessary. As Gale (*Charcoal*, below) notes, thin woody stems such as Ericaceae, and also cereal by-products, would generate an intense heat because of their large surface area:volume ratios but would be consumed rapidly for the same reason. Frequent replenishment would have been necessary to maintain adequate temperatures.

The fired clay slab from context *257* had an abraded surface, showing indistinct impressions of cereal inflorescence bracts. Examination of fractured surfaces showed that it was oxidised throughout, and that silica of plant origin had fused and re-crystallised. Impressions of cereal bracts, including some *Triticum spelta* glumes, within the matrix of the clay had a coating of small silica crystals. Melting points of 1550–1713ºC for crystalline forms of silica, and of *c.* 1500ºC for vitreous forms, are quoted by Trotman-Dickenson (1973, 1393), although data for opaline biogenic silica do not seem to be available. However, it is clear that cereal chaff had been used for tempering the clay, which had been fired at a high temperature (about 1500ºC +) and in oxidising conditions.

Samples were also examined from other site phases at Two Mile Bottom (archive). Seven samples were assessed from Mesolithic contexts. With the exception of small charcoal fragments, plant macrofossils were extremely rare but included fragments of *Corylus avellana* (hazel) nutshell, indeterminate Ericaceae (heather) stem and a cotyledon of a small leguminous seed. Two samples produced intrusive cereal remains derived from overlying Roman layers: a glume base of *Triticum spelta* (spelt) and an indeterminate cereal grain. In view of the evidence for contamination, further work was not thought appropriate.

A further nine samples from Anglo-Saxon pits were also assessed (archive). They contained very low densities of charred cereal grains and chaff, including *Hordeum* sp (barley) grains and rachis nodes, *Hordeum/Secale* (barley/rye) rachis nodes, *Triticum* (wheat) grains, and

Sample No.	*1*	*2*	*4*	*5*	*14*	*29*	*30*
Context No.	*124*	*124*	*227*	*256*	*437*	*661*	*663*
Kiln No.	*139*	*139*	*228*	*228*	*431*	*548*	*548*
Context	*SH (lower)*	*K (lower)*	*SH (lower)*	*F (lower)*	*K?*	*SH*	*SH (lower)*
Cereals							
Avena sp. (grains)			x			xx	
Cereal indet. (grains)	xx		x	x		xx	xx
(detached embryos)			x				
(detached plumules/radicles)						xx	
Hordeum sp. (grains)			x			x	
(rachis nodes)			x			x	x?
Triticum sp.(grains)			x			xx	x
(glume bases)	x	x	xx	x		xxx	xx
(rachis internodes)			xx			xx	x
(spikelet bases)	x		xx			xxx	x
T. aestivum/compactum-type (rachis nodes)						x?	
T. spelta L. (glume bases)	x	x	xxx	x		xxx	xx
(spikelet forks)			x			xx	
Herbs (weeds/grassland plants)							
Agrostemma githago L.			x?				
Arrhenatherum elatius(tubers)				x			
Asteraceae indet.			x			x	
Atriplex sp.	xx	x	x		fr	xx	x
Brassicaceae indet.			x?				x
Bromus sp			x			xxx	x
Caryophyllaceae indet.							x
Chenopodium album L.			xx	x		xx	x
Chenopodiaceae indet.	xx (fr)		xx	x		x	
Fabaceae indet. (small)						x	
Fallopia convolvulus (L.) A.Love		fr	xx	x		xx	xx
Leucanthemum vulgare L.						x?	
Lithospermum arvense L.							x
Medicago/Trifolium/Lotus sp.							x?
Mentha sp.						x?	
Plantago lanceolata L.					x	x	x
Poaceae indet.			x	xx			
Polygonum aviculare L.				x		x	
Polygonaceae indet.		x	x			x	
Raphanus raphanistrum L.			xx				
Rumex sp.		x	xx	x		x	
R. acetosella L.			x		x	x	x
Silene sp.			xx			x	
Stellaria sp.				x?			
Wetland plants							
Carex sp.	x		x	xx			
Trees/shrubs							
Corylus avellana L.				x		x	
Other plant macrofossils							
Charcoal	xxx	xx	xxx	xxx	xx	xxx	xxx
Charred root/rhizome/stem	x	x	xxx	xxx	x	xxx	xxx
Cereal/grass (culm fragments/nodes)						x	
Indet. fruitstone frags.						x	
Indet. inflorescence frags.	x		x			x	
Indet. seeds	x	x	x	x		x	x
Other							
Black porous ‘cokey’ material			x				xx
Black tarry residues		x			x		x
Burnt/fired clay			xxx	xx	xx	x	x
Coal fragments	x						
Siliceous globules						xx	
Bone frags. (some burnt)			x	x	x	x	x
Fish bone						x	x
Small mammal/amphibian bone (some burnt)			x			x	x
Sample volume (litres)	**1.5**	**0.3**	**7**	**7**	**2**	**7.5**	**9**
Volume of flot (litres)	**<0.1**	**<0.1**	**0.2**	**0.3**	**<0.1**	**0.2**	**0.2**
% flot sorted	**100%**	**100%**	**50%**	**50%**	**100%**	**50%**	**50%**

Table 47 Charred plant macrofossils and other materials from kilns *139*, *228*, *431* and *548*

glume bases of *T. spelta* and *T. dicoccum*. Other charred macrofossils included fruits and seeds of weeds and grassland plants, a capsule of *Calluna vulgaris* (ling), and indeterminate Ericaceae stem fragments. The samples were too sparse to be interpretable, and could well have included residual material from Roman activity at the site: hence they were not analysed.

Charcoal

by Rowena Gale

The methods used are summarised in Appendix 2, and the results summarised in Table 48. The anatomical structure of the charcoal was consistent with the taxa (or groups of taxa) given below; it is not usually possible to differentiate to species level. Classification is according to *Flora Europaea* (Tutin, Heywood *et al.* 1964–80).

Broadleaf taxa:
Betulaceae. *Alnus* sp. (alder)
Corylaceae. *Corylus* sp. (hazel)
Ericaceae. *Calluna vulgaris* (L.) Hull, ling and/or *Erica* sp., heather
Fagaceae. *Quercus* sp. (oak)
Oleaceae. *Fraxinus* sp. (ash)
Rhamnaceae. *Frangula alnus* L. (alder buckthorn)
Rosaceae.
Pomoideae: *Crataegus* sp. (hawthorn); *Malus* sp. apple; *Pyrus* sp. (pear); *Sorbus* spp. (rowan, service tree and whitebeam)
Rosoideae: *Rosa* sp. (briar rose); *Rubus* sp. (blackberry, bramble)
Salicaceae. *Salix* sp. (willow); *Populus* sp. (poplar)

Kiln *228*

Fuel debris was present in the lower fills of the stoke hole *227* and flue *256*. The charcoal consisted mainly of *Calluna/Erica* (heather) stems and twiggy sprigs ranging from <2–5mm in diameter. Sample 4 (*227*) also included very small poorly-preserved pieces of *Quercus* (oak), *Corylus* (hazel) and a member of the Pomoideae (hawthorn group).

Kiln *548*

Fuel residues including charcoal were present in the stoke hole (samples 29 and 30). The charcoal was mostly rather comminuted but included a much wider range of taxa than from kiln *228*, particularly in sample 30 from the lower fill of the stoke hole. Ericaceous material was present in both samples but *Quercus* (oak) was also fairly abundant. In sample 29 a fragment from the incomplete radius of an oak stem measured 16mm and included 21 growth rings of average width. Although both inner and outer areas of the wood were absent, the minimum diameter of the charred stem was estimated at roughly 40mm (*i.e.* perhaps 50mm when living). Charcoal was also identified from *Alnus* (alder), *Corylus* (hazel), *Frangula alnus* (alder buckthorn), *Fraxinus* (ash), *Rosoideae* (bramble or briar rose) and *Salicaceae* (willow or poplar). Some of the willow/poplar stems were very narrow in diameter and retained their bark.

Discussion

The wood fuel used in kiln *228* was largely *Calluna/Erica* (heather), supplemented by small quantities of *Corylus* (hazel), *Quercus* (oak) and Pomoideae (hawthorn/rowan group). The adjacent heathland would have provided a ready source of heather and probably stands of open woodland composed of oak, hazel and possibly rowan. Heather burns fast and has traditionally been used to fuel ovens (Mabey 1996). The narrow diameters of the stems would have allowed a high surface area:atmospheric oxygen ratio, which would have encouraged a fiercely-burning but probably short-lived heat source that would have required frequent replenishment to sustain the consistently high temperatures required for firing pottery. Chaff and straw from cereal-processing waste have similar properties of combustion and may have been used either as kindling or fuel, together with other herbaceous material. As a fuel cereal waste would have had the capacity to provide a quick boost to the temperature of the kiln. Heather may also have been used, as it was traditionally in other localities (Mabey 1996), as packing material for transporting pots.

The charcoal from kiln *548* was rather different in character to that from kiln *228*; although ericaceous (heather) material was used, a much wider range of wood from trees and shrubs was also seen. *Quercus* (oak) stems

Site	*Kiln*	*Main pottery type*	*Grains*	*Chaff*	*'Straw'*	*Weed seeds etc.*	*Main charcoals*
Two Mile Bottom	*139*	reduced	xx	x		x	not identified
	228	?	x	xxx		xx	*Ericaceae*
	548	oxidised	xx	xxx	x	xxx	*Quercus*, *Ericaceae*
Ellingham	2	oxidised	x			x	*Quercus*, *Alnus*
Postwick	*906*	reduced	x	x	xxx	x	*Ulex*/*Cytisus*, *Salicaceae*, *Tilia*
	918	oxidised	xxx	xxx		x	*Quercus*, *Tilia*
	928	reduced		x		x	*Tilia*

Table 48 Charred plant remains from kilns at Two Mile Bottom, Ellingham and Postwick

Sample	*Ctxt*	*Description*	*Aln.*	*Cor.*	*Eric.*	*Fran.*	*Frax.*	*Pom.*	*Querc.*	*Rosoid.*	*Sal.*
Kiln *228*											
4	*227*	Stoke hole	-	1	21r	-	-	1	1	-	-
5	*256*	Flue	-	-	83r	-	-	-	-	-	-
Kiln *548*											
29	*661*	Stoke hole	-	1	9r	-	-	-	12s	-	2
30	*663*	Stoke hole	1	1	12r	1	2	-	34s	1	2r

Table 49 Charcoal from kilns *228* and *548*

or branches, some with estimated diameters of 50mm and 21+ growth rings, was used fairly extensively; and in addition, but less frequently, wood from *Fraxinus* (ash) *Corylus* (hazel), *Alnus* (alder), *Frangula alnus* (alder buckthorn), *Rosa*/*Rubus* (briar/bramble) and *Salix/Populus* (willow/poplar). A more or less similar range of herbaceous material to that from kiln *228* was also used, including cereal waste. Oak wood provides a long-lasting fuel with a high calorific value, and its use would have sustained high temperatures for relatively long periods. The other woods appear to have been used more sporadically; although variable in efficiency, they would have made a useful contribution to the stack of firewood. Alder, alder buckthorn, and willow and poplar are characteristic of damp or waterlogged soils, but ash prefers neutral or more calcareous soils than those offered by heathland and may not have been common.

Fuel residues from the Romano-British pottery kilns at Ellingham and Postwick, Norfolk, are reported on elsewhere in this report (pp. 26 and 54–5), and there too the use of wood fuel in combination with cereal-processing waste and other herbaceous material has been demonstrated. Although the materials used at each site were roughly similar (apart from differences in wood species, which probably denoted local ecological variations) the techniques employed in the firing processes may have been ordered by local tradition or design. The kiln structures themselves varied from site to site, and even at the same site.

Conclusion

The identification of fuel residues from two kilns indicated the combined use of wood, cereal processing waste and other plant material. Abundant pottery was present in kiln *548* but the function of the second kiln *228* was less certain, and differences between the wood species used in the two kilns implied possible alternative uses. Wood fuel was gathered from the adjacent heathland, with heather providing a major contribution.

Comparison between the fuel from kilns at this site and the Romano-British pottery kilns at Ellingham and Postwick indicated the common use of wood/cereal chaff for firing pottery. As data from future excavations of pottery kilns become available, emerging differences may signify local or regional variations.

VI. Discussion

There is a relatively high density of small rural settlements dating to the Roman period known from along the Little Ouse valley (Gurney 1996, 1; Andrews and Penn 1999, 89, fig. 24). Their location enabled the exploitation of a range of resources, and it seems likely that small settlements developed individually and for differing reasons, with small-scale 'industrial' activity occasionally taking place. In Thetford itself, occupation dating to the 3rd–4th centuries is known from St Nicholas' Street where a number of small features, including two probable corn-driers, were excavated (Andrews and Penn 1999). Circular post-built structures and other features of likely 1st-century date recorded at Brandon Road and Redcastle Furze suggest that small riverside settlements existed at this time (Dallas 1993, Andrews 1995).

Although a kiln was known to have existed at Two Mile Bottom prior to the 1995–6 fieldwork, the trench evaluation of the site revealed no further evidence for the manufacture of pottery, and the discovery of the kilns and numerous other features when a larger area was opened was unexpected. During the late Roman period the site seems to have been used for pottery manufacture, probably on a fairly small scale but with specialist production taking place nonetheless. Buildings and other features of the kind that might be expected at a large industrial production centre were not discovered. Butchered animal bone was found that suggests food was being processed and eaten at the site; one or two small possible structures may be associated with the potting activity. However, no evidence for a major settlement was revealed by excavation. The reason the site was selected for potting is unclear.

Two Mile Bottom may not be far from a significant east-to-west Roman routeway. A trackway that runs approximately 2km to the north of Two Mile Bottom, from Roudham Heath to Hockwold, has been considered as of Roman origin (Margary 1973), although more recently it has been suggested that that route is of later date, and that a course slightly to the south and nearer the river may be more likely (Gurney 1986, 50). Such a route could have run quite close to the present site. However, the Little Ouse itself would have provided an excellent means of communication, providing a link to the Wash and the North Sea. As well as as a source of water, it was probably used for transporting both raw materials and finished goods. A local source of clay is unknown. Suitable material may have been exposed by the river but it seems more likely that clay was brought to the site, either from the till deposits to the west or from the fen edge to the east. Once pottery making was established at the site it may have followed as a matter of course that replacement kilns were built and the 'industry' or craft was perpetuated there.

The painted white ware found at Two Mile Bottom was clearly associated with the large kiln, and is very distinctive. However, it is not known from other sites, although it might have been mistaken elsewhere for similar material from better-known production sites: for example at Hadham (Swan 1988) and Pakenham (Smedley and Owles 1960, 1962). In an attempt to locate more of the pottery from Two Mile Bottom, material from the site discovered at Turfpool in the forest to the south-east was cursorily examined by Alice Lyons. However, although a 4th-century date is most likely for that assemblage none of the decorated pottery made at Two Mile Bottom was present, and it is likely that the latter site is slightly later in date. Pottery produced in the kiln at Two Mile Bottom has therefore yet to be identified elsewhere. (It is possible that an unspecified colour coat sherd found at Icklingham, Suffolk, in 2001 might be the same as the material from Two Mile Bottom: Cathy Tester/Alice Lyons, *pers. comm.*)

As well as the evidence for the manufacture of pottery at the site, the other significant discovery was the evidence for Early Saxon activity and the possibility that occupation at the site continued from the Late Roman period into the Early Saxon period. No previous evidence of this latter period was known from the vicinity previously. However, the river terrace location of the site is typical of many small sites of this period and Roman pottery has increasingly been noted on Early Saxon sites, suggesting that much of the infrastructure of

Romano-British rural settlement and economy remained in place (Mackreth 1996). It seems likely that in many cases in Norfolk, Early Saxon settlement relates quite closely to Roman occupation (Williamson 1993, 90–1). A site at Melford Meadows, Brettenham, to the east of Thetford on the bank of the River Thet, seems to have first been occupied in the late 1st century, with more intensive activity, including the establishment of a small cemetery, occurring in the late 3rd–4th centuries. Early Saxon occupation occurs at the site from the (?later) 5th century through to the 7th century (Mudd 2002). The extent of the settlement is uncertain but a number of sunken-featured buildings, pits and hearths were excavated, and evidence for weaving and iron smelting recovered. It is thought that occupation at the site may well have been continuous through this period, if shifting slightly to the south over time.

The stratigraphic and dating evidence at Two Mile Bottom suggests that the kilns and associated Roman features may have been closely followed by the series of circular pits, whose original function is unknown but which often included quantities of burnt debris in their fills. A layer of dark soil in the south corner of the site then developed, perhaps caused partly by cultivation and the resulting truncation of the infilled features. The evidence shows that a number of features were then cut through this layer of soil, along with other features also shown to date to a later phase of activity either by association or by their physical position relative to those earlier features. It is notable that activity during both the Roman and Saxon periods appears to be concentrated in the south part of the site. Of course, this pattern may be exaggerated by the area of the excavation itself: for instance, it is known that at least one other kiln existed to the north of Area E and the 'group' of circular pits may well extend beyond the south edge of that trench. However, the relative absence of features other than ditches in the north part of the site suggests that this area was used less for occupation and 'industry', and may well have consisted of small fields or enclosures extending northwards at some distance from the river.

The site at Two Mile Bottom attracted human activity from an early period, evidenced by the finds of Mesolithic date. Although no major settlement of any period is known from the vicinity of the site the kilns represent industrial activity, probably on quite a small scale, in keeping with the scale of the small rural settlements and industrial sites dotted along the Little Ouse valley. Occupation continued into the Saxon period, and the riverside location of the site continued to be an important factor in its industrial development into the modern period.

Part 4 General Discussion

by Sarah Bates

This publication brings the results of excavations at three sites, all of which feature evidence for pottery manufacture during the Romano-British period, into the public domain. It is hoped that it goes some way to addressing recent research aims regarding the identification and analysis of local pottery production centres (Going 1997, Going and Plouviez 2000).

Excavation at Ellingham showed the existence of a second, and by implication a third, mortarium kiln there. Work at Postwick led to the discovery of three previously unknown kilns, one of which had been used for mortarium production. At Two Mile Bottom, where a single kiln was previously known, four 'new' kilns were revealed, one of them having been used to produce a specialist colour-coated ware. The latter site was also shown to have been occupied into the early Saxon period.

At each of the three sites potting appears to have occurred on a relatively small scale: work at none of the sites revealed significant evidence for contemporary settlement. However, specialist wares of some kind were being manufactured at all three sites. This suggests that potting skills and innovation were not restricted to the major potteries, but rather that production occurred on *ad hoc* basis perhaps as needs — or a market — arose, and where raw materials and/or a good means of communication existed to facilitate transport. The identification of new kiln sites, whatever their relative size and production capacity, will help complete the picture of production, distribution and use of the kiln products, and will help in turn in interpreting and understanding the local and regional economy.

Clearly the identification of the markets for the kiln products is also of great importance. With the identification of production sites of specialist, or of other recognisable, wares the sourcing and recovery of pottery from other sites should help make these markets easier to clarify in future. It should be taken into account that analysis of the pottery from many of the larger Romano-British sites in Norfolk took place some time ago: for example, study of that from the 1970s excavations at Scole (Rogerson 1977) occurred prior even to the discovery of the first kiln at Ellingham.

The primary aim of the present report is to make available the results of the recent excavations. In accordance with Swan (1984), every effort was made to record in detail the stratigraphic sequence of the kilns and to obtain palaeoenvironmental information regarding their use. The information is presented and interpreted and some attempt has been made to place the individual sites in their wider settlement and economic context. The report is not intended as a regional survey and synthesis of pottery production during the Roman period; rather, the authors hope that it provides a useful resource that will enhance understanding of the regional background, especially for ceramic studies, and help to forward future work.

Appendix 1. Mortarium types and associated stamps from Ellingham (Site 11843)

Type	*Kiln 1*	*Kiln 2*
1A	Lunaucis (7)	no stamped sherds found
1B	Regalis (1)	Lunaucis (7)
1C	Regalis (1) and herringbone (5)	herringbone (5)
1D	Regalis (1)	Lunaucis (7)
1E	no stamped sherds found	no stamped sherds found
1F	no stamped sherds found	no stamped sherds found
1G	no stamped sherds found	no example found
1H	no stamped sherds found	no example found
1I	no stamped sherds found	no example found
1J	trademark (8)	no example found
1K	no stamped sherds found	no example found
1L	no stamped sherds found	no example found
1M	not found in Kiln 1	no stamped sherds found
2A	herringbone (5)	no example found
2B	herringbone (5)	no example found
2C	Herringbone (5) and trademark (8)	no stamped sherds found
2D	Regalis (1), herringbone (5) and trademark (8)	no stamped sherds found
2E	Regalis (2) and herringbone (5)	no example found
2F	no stamped sherds found	no stamped sherds found
2G	Regalis (2), herringbone (5) and trademark (8)	no stamped sherds found
3A	herringbone (5)	no example found
3B	Regalis (1) and trademark (8)	no example found
3C	no stamped sherds found	no example found
3D	no stamped sherds found	no example found
3E	Regalis (1) and ?Lunaucis (6)	no example found
3F	Regalis (1) and Lunaucis (6)	no stamped sherds found
3G	no stamped sherds found	no example found
3H	Regalis (1), Lunaucis (6) and (7)	Lunaucis (6)
3I	Lunaucis (6)	no stamped sherds found
4A	Regalis (1) and Lunaucis (7)	Regalis (1), Lunaucis (6) and (7)
4B	(Amalgamated with 4A)	(Amalgamated with 4A)
4C	Regalis (1), herringbone (5) and Lunaucis (6)	no stamped sherds found
4D	Lunaucis (7)	no stamped sherds found
5A	trademark (8)	no example found
5B	Regalis (2) and trademark (8)	trademark (8)
6A	trademark (8)	no example found
6B	Regalis (1) and (2)	no example found
6C	trademark (8)	Nivalis (9)
6D	trademark (8)	trademark (8)
6E	no stamped sherds found	no example found
6F	no stamped sherds found	no example found
6G	no stamped sherds found	no stamped examples found
6H	no stamped sherds found.	no example found
7A	no stamped sherds found	no example found
7B	no stamped sherds found	no example found
7C	no stamped sherds found	trademark (8)
7D	trademark (8)	no example found
7E	trademark (8)	no example found
7F	trademark (8)	no stamped sherds found
8A	trademark (8)	trademark (8)
8B	no stamped sherds found	trademark (8)
8C	no stamped sherds found	no stamped sherds found
8D	trademark (8)	no example found
8E	no stamped sherds found	trademark (8)
9A	herringbone (5)	trademark (8)
9B	Regalis (1)	Regalis (1)
10A	import, not part of the type series	no example found
11A	trademark (8)	no stamped sherds found
11B	trademark (8)	no example found
11C	trademark (8)	no stamped sherds found
12A	herringbone (5)	trademark (8)
12B	trademark (8)	Lunaucis (6) and trademark (8)
12C	no stamped sherds found	trademark (8)
13A	trademark (8)	no stamped sherds found
13B	trademark (8)	no stamped sherds found
13C	no stamped sherds found	no stamped sherds found
14A	Regalis (2)	no stamped sherds found
15A	trademark (8)	no stamped sherds found
15B	no example found	no stamped sherds found
17A	no stamped sherds found	no example found
18A	no stamped sherds found	no example found
19A	no stamped sherds found	no stamped sherds found
19B	trademark (8)	no stamped sherds found
19C	trademark (8)	no stamped sherds found
20A	no stamped sherds found	trademark (8)
20B	trademark (8)	trademark (8)
21A	trademark (8)	trademark (8)
21B	trademark (8)	no example found
22A	trademark (8)	no example found
22B	trademark (8)	no stamped sherds found
23	not part of the type series	Not part of the type series
24A	no example found	no stamped sherds found

Appendix 2. Environmental analysis methodologies

Charred plant macrofossils

by Peter Murphy

Bulk samples from the stoke holes, flues and fills of Roman kilns (and, at Two Mile Bottom, from Mesolithic and Anglo-Saxon contexts) were processed by manual water flotation, collecting the flots on a 0.5mm mesh. The dried flots, or sub-samples of them, were then inspected under a binocular microscope at low power (x10–x20), and the distribution and abundance of charred macrofossils and other inclusions were noted. Identifications were confirmed by comparison with modern reference specimens. The non-floating residues were wet-sieved on a 1mm mesh, dried, and sorted without magnification, extracting bone, fired clay and other inclusions.

Charcoal

by Rowena Gale

Bulk soil samples were processed by flotation, washing and sieving, and were scanned to separate the charcoal from the seed and plant macrofossils. The charcoal was prepared for examination using standard methods (Gale 1991). The fragments from each sample were fractured to expose fresh transverse surfaces and sorted into groups based on the anatomical features observed using a x20 hand lens. Representative fragments from each group were selected for further examination under high magnification. Freshly fractured surfaces were prepared in the transverse, tangential and radial planes. The fragments were supported in sand and examined using a Nikon Labophot incident-light microscope at magnifications of up to x400. The anatomical structure was matched to reference material. Where appropriate the maturity (*i.e.* sapwood/heartwood) of the wood was assessed, and the number of growth rings recorded. Living stem diameters may have been up to 40% wider than indicated by measurements taken from charred material.

Appendix 3. Pottery analysis methodology and abbreviations: Heath Farm, Postwick (Site 31108) and Two Mile Bottom, Thetford (Site 5738)

Methodology

All the pottery was collected by hand and was processed off-site. It was cleaned by washing or dry brushing as appropriate and, where possible, was marked with the site code and context number.

The pottery was analysed using the procedure described in the Norfolk Archaeological Unit Pottery Recording Manual (Shepherd 1999) and following, where appropriate, the guidelines of the Study Group for Roman Pottery. All sherds were assigned a fabric type following macroscopic examination and the use of a (x20 power) hand lens. In the archive each fabric is identified by a number, but common names and their abbreviations have been used in the publication text. The sherds were counted and weighed to the nearest whole gram and catalogued by context. Each diagnostic sherd was assigned a form type and, where possible, the diameter and percentage of the rims were recorded. The presence of decoration and abrasion were also noted. All percentages, unless otherwise stated, are of weight. The pottery and archive are curated by Norfolk Museums Service.

Abbreviations

(Table 2 serves as a key for the pottery fabric code abbreviations.)

EVE	Estimated Vessel Equivalent
Qty	Quantity
Wt	Weight

Appendix 4. Roman pottery fabrics and forms identified at Two Mile Bottom (Site 5738) and Postwick (Site 31108)

This listing follows the alphabetical order of fabric code abbreviations. For full fabric names see Tables 30 and 42. Not all fabric types were identified at both sites, and in some cases no vessel types were identified.

For vessel types and a list of comparable forms, see Appendix 5.

AMP	Description: Peacock and Williams 1986 This fabric was only found at Postwick Vessel types recovered: Dressel 20
BSRW	Description: Lyons and Tester forthcoming Leather-hard, or misfired, VGW Vessel types recovered from Two Mile Bottom: 4.5.1, 4.5.4, 6.17.1, 6.18, 6.19.3, 6.19.4 Vessel types recovered from Postwick: 3.10, 4.1, 4.4, 5.2.1, 5.3, 5.11, 6, 6.4, 6.15, 6.18, 6.22, 8.1
GCC	This fabric number is a general identifier for all colour coated fine grey ware material This fabric was only found at Postwick and no vessel types were recovered
GCW	Description: Lyons and Tester forthcoming This fabric was only recovered from Two Mile Bottom Vessel types recovered: 2.1.0, 2.1.2, 4.1, 4.5.1, 4.5.3, 4.5.4, 4.8, 4.13, 4/5, 5.3, 5.4, 6.15, 6.15.1, 6.18, 6.19, 6.19.4, 8.1
HORN	Description: Evans 1991, 35 This fabric was only found only at Two Mile Bottom and no vessel types were recovered
HORW	Description: Harden and Green 1978, 170, 174, n33 This fabric was only found only at Two Mile Bottom and no vessel types were recovered
MCC	Any miscellaneous colour coated fabric This fabric was only found at Postwick and no vessel types were recovered
MOW	Description: Lyons and Tester forthcoming Quite hard pinkish-white (7.5YR 8/2) wheelthrown fabric with a smooth texture and fine fracture. It contains occasional sparse grog inclusions and also abundant mica inclusions. The latter are probably naturally-occurring contaminants within the clay, although fabrics vary and are probably locally made. Vessel types recovered from Two Mile Bottom: 1.9.1, 6.19.3 Vessel types recovered from Postwick: none
MRW	Description: Gurney 1995b, 102; Vince forthcoming Vessel types recovered from Two Mile Bottom: 2.1.1, 2/4, 4.5.1, 4.5.2, 4/5, 5.3, 5.4, 6.11, 6.15.2, 6.18, 6.19.1, 8.1 Vessel types recovered from Postwick: none
NVCC	Description: Anderson 1980, 38; Howe *et al.* 1981 This fabric was only found at Postwick and no vessel types were recovered
NVGW	Description: Andrews 1985, 89–90 This fabric was only recovered from Two Mile Bottom Vessel types recovered: 2.1.0, 4.13, 5
NVWW	Description: Anderson 1980, 38; Howe *et al.* 1981 Vessel types recovered from Two Mile Bottom: 7.9.1 Vessel types recovered from Postwick: none
ORCC	Description: Young 1977, 123 This fabric was only recovered from Two Mile Bottom Vessel types recovered: C113
PCCW	Description: Lyons and Tester forthcoming This fabric was only recovered from Two Mile Bottom

Vessel types recovered: 3.1, 3.1.1, 3.6, 3.6.1, 3.6.2, 3.6.3, 4.5.1, 6.2.1, 6.2.2, 6.19.2 and 6.19.3

POM Similar to PWCW except thicker, which has led to slight colour variations; some examples contain common orange grog inclusions. Abundant small well-sorted flint trituration grits varying from white, through grey, to black are present on internal surfaces below the rim. This fabric, produced at Postwick, has not been identified elsewhere.
Vessel types recovered: 7, 7.12.1, 7.12.2, 7.12.3, 7.12.4, 7.12.5, 7.12.6

PWCW A quite soft cream or very pale brown (10YR 8/3) to pinkish white (5YR 8/3)/reddish yellow (5YR 7/8) fabric. It has a powdery surface texture and a regular fracture. Abundant ill-sorted and sub-rounded quartz inclusions. Many examples have a pitted surface where quartz grains have fallen out during firing. This fabric was produced at Postwick and has not been identified elsewhere.
Vessel types recovered: 1.10, 1.11, 2.1.0, 4.5, 4.5.1, 5.6, 6, 6.15.1, 6.17, 6.18, 8.1

PWW This is a hard typically white (or off-white) to pinky-orange (2.5YR 9/0–5/0 to 10YR 9/1) wheel thrown fabric with a quite harsh texture and irregular fracture. It contains common medium (0.25–0.50mm) rounded sand and sparse medium quartz; also occasional coarse chalk inclusions, which have a range of 0.25–1.00mm. The fabric has common mica, which is probably a natural constituent of the clay. This material (especially the darker examples) can have a white slip that is often painted, but paint is also applied directly to the bare fabric. Other decorative techniques include rustication, rouletting, grooving, burnishing, frilling and colour-coating (of a poor standard). This fabric was produced at Two Mile Bottom and has not been identified elsewhere.
Vessel types recovered: 1.12, 2.1, 2.1.2, 2.2, 2.3, 2.4, 3.11, 4.1, 4.6.1, 4.6.2, 4.10.1, 5.3, 5.4, 6.2.2, 6.15.1.

RedCC Miscellaneous products, usually originating from the Pakenham or Colchester ceramic industries but in this case probably manufactured at Postwick. This fabric was only recovered from Postwick.
Vessel types recovered: 3.6.2

RCW Description: Lyons and Tester forthcoming
This is an unfired, leather-hard or misfired version of VGW
Vessel types recovered from Two Mile Bottom:5.3
Vessel types recovered from Postwick: 2.1.1, 3.1, 3.11, 4.4, 4.5.1, 4.5.2, 4.5.4, 5.3, 6.13, 6.18, 6.21, 8.1

RW(f) This is a hard, very dark greyish brown (10YR 4/2) wheelthrown fabric with a harsh texture and irregular fracture. It contains abundant medium (0.25–0.50mm) rounded sand, and sparse coarse and very coarse (larger than 1.00mm) angular flint inclusions. Occasional sherds contain some very coarse white flint inclusions, which have a range of 3.00–5.00mm. This fabric also has abundant mica, which is probably a natural constituent of the clay.
This fabric was only recovered from Two Mile Bottom and no vessel types were recovered.

RW(fo) A soft yellowish red (5YR 5/8) fabric with a very dark grey (10YR 3/1) core, a smooth powdery texture and an irregular fracture. It contains abundant vegetation impressions and voids where organic inclusions have burnt out during firing. Possibly dung tempered; probably made on a slow wheel as vessel body thickness and finishes vary.
This fabric was only recovered from Postwick
Vessel types recovered: 1.9, 2.12, 3.10, 4.4, 4.5.2, 5.2.1, 6.19.3

RW(ms) This is a soft, very dark greyish brown (10YR 4/2) wheelthrown fabric with a harsh texture and irregular fracture. It contains abundant medium (0.25–0.50mm) rounded sand, and sparse coarse and very coarse (larger than 1mm) angular flint inclusions. Occasional sherds contain very coarse white flint inclusions, which have a range of 3.00–5.00mm. This fabric also has abundant amounts of mica, which is probably a natural constituent of the clay.
This fabric was only recovered from Two Mile Bottom.
Vessel types recovered: 4.5.4, 4.14, 5.3

SAM Description: Webster 1983, 7
Vessel types recovered from Two Mile Bottom: Dr 18/31 31, Dr 31, Dr 33, Dr 37, Dr 38, W79
Vessel types recovered from Postwick: Dr 18/31 and 18/31R, Dr31 and 31R and Dr 36

SGW Description: Andrews 1985, 92
Vessel types recovered from Two Mile Bottom: 4.5.4, 5, 5.2.2
Vessel types recovered from Postwick: 3.1, 3.10, 4, 4.1, 4.4, 4.5.1, 4.5.2, 4.5.3, 4.5.4, 4.8.1, 4.11, 5.3, 6.4, 6.22, 8.1

SJW Description: Gurney 1995b, 101
This fabric was only recovered from Two Mile Bottom, and no vessel types were recorded.

STW This is a very soft, typically orange (2.5YR 7/6–6/6), slow-wheelmade fabric with a soapy texture and very irregular fracture. It contains abundant large shell fragments of 0.50–2.00mm. (It is not clear at present whether the shell is a natural constituent of the clay or was deliberately added as a temper.) This fabric is likely to have originated from the shell-tempered ware kilns at Lakenheath, Suffolk (excavations unpublished: Cathy Tester *pers comm.*), which is only 15km south-west of Two Mile Bottom. This fabric was only recovered from Two Mile Bottom.
Vessel types recovered: 2.1.0, 4/5, 4.5.2, 4.5.3, 4.14

UBB Descriptions: Gurney 1995, 101; Andrews 1985, 93
Possibly originating from an unpublished kiln at Brockdish
Vessel types recovered from Two Mile Bottom: 4.5.1, 5
Vessel types recovered from Postwick: none

VGW Description: Lyons and Tester forthcoming
Vessel types recovered from Two Mile Bottom: 2.1.1, 4/5, 6.18
Vessel types recovered from Postwick: 1.9, 1.11, 2.12, 2.1.0, 3.1, 3.4, 3.5, 3.10.2, 3.11, 4, 4.1, 4.4, 4.5.1, 4.5.2, 4.5.3, 4.5.4, 4.6, 4.8, 4.10.1, 4.15, 5.3, 5.4, 5.6, 5.11, 6, 6.4, 6.18, 6.19.3, 6.19.4, 6.20, 6.22, 8.1

WCC Description: Lyons and Tester forthcoming
This fabric was only recovered at Two Mile Bottom and no vessel types were recovered

Appendix 5. Pottery form descriptions and codes used at Two Mile Bottom (Site 5738) and Postwick (Site 31108)

1. Flagons and jugs

Miscellaneous or indeterminate

1.9 Cupped rim flagon, plain rim
WS: 202

1.9.1 Cupped rim flagon, with square lower rim
Scole 1993

1.10 Carinated Jug
WS: 263, 264

1.11 Pinched-neck jugs
NV: 65; Brancaster: 431, 432.

1.12 Amphora class flagon
(Fig. 54 1.2)

2. Narrow-mouthed jars and bottles

Miscellaneous or indeterminate

2.1.0 Bottle with rolled everted rim, rounded body and various cordons with decoration on the neck, body and base of the vessel
Scole: 63; 114, 183. WS: 222; BUG: 175, 176

2.1.1 Bottle with out-turned rim with flat upper surface
WSF: 004 (unpublished)

2.1.2 Bottle with out turned rim with pointed lower rim
WSF: 003, 004 (unpublished)

2.2.0 Bottle/narrow mouthed jar: slim, pear-shaped. Sometimes painted with horizontal stripes, while rim and neck cordons may be frilled

2.2.1 PKM products: the pear shape is 'top-heavy'
PKM: 0245/74 0913/19, 20; WSF: 003 (unpublished)

2.3.0 Narrow mouthed jar: broader, globular, thickened everted rim and frilled cordons around neck and rim
IKL: 37, 48. Scole: 166

2.4.0 Narrow-mouthed jar, neckless and globular
PKM: 0781/12

2.12 Narrow-mouthed jar, with thick, everted triangular rim
(Fig. 27 2.12)

3. Beakers

Miscellaneous

3.1.0 Beaker with tall, straight neck and rounded body
IKL: 28; NV: 50, 54-57; Scole: 110

3.1.1 Beaker with tall, curved neck and rounded body
Scole 1993

3.4.0 Beaker, straight neck, corrugated body
NV: 35; PKM: 0245/64

3.5.0 Beaker, inturned rim, rounded body
BUG: 247, 248, gb20, 21

3.6.0 Bag-shaped beakers, misc. or indeterminate

3.6.1
Plain rim

3.6.2
Cornice rim
NV: 46

3.6.3 Grooved beaker
NV: 44, 45

3.10.0 Beaker/jar with high shoulder and simple everted rim

3.10.2 Cross-hatched burnished lines
Scole: 189

3.11 Beaker/jar with 'cavetto' rim
Brancaster: 105. Burgh Castle: 142. BUG: 217

4. Medium-mouthed jars

Miscellaneous or indeterminate

4.1 Medium-mouthed jar with high shouldered profile
Scole: 1, 2, 19, 22, 44, 107; WS: 209

4.4.0 Jar with short angular neck, lid-seated or flattened rim
HCH: 001 (unpublished)

4.5.0 Medium-mouthed jar, short neck; rolled, generally undercut, rim and globular body
Scole: 43, 93, 115, 202

4.5.1 Rolled rim
WSF: 003, 004 (unpublished). Scole 1993

4.5.2 Squared rim
WSF: 004, 007 (unpublished); RKS: 017 (unpublished); Scole 1993

4.5.3 Pointed lower rim edge
WSF: 003, 004, 007 (unpublished). Scole 1993

4.5.4 Rolled to form large bead
WSF: 003 (unpublished); HNY: 005 (unpublished)

4.6.0 Medium-/wide-mouthed jar, short neck, globular body, rolled undercut rim with grooves at base of neck (same as Type 4.5 except for grooves)

4.6.1 Grooves at base of neck
Scole: 127, 186, 198. WSF: 004 (unpublished); Scole 1993

4.6.2 Incised lines at base of neck
PKM: 0249/2, 40

4.8.0 Medium-mouthed jar, everted rim either hollowed or with projection underneath, globular body. IKL: 56; Scole: 199-201, 134; WSF: 003 (unpublished)

4.8.1 Small bead and flanged jar
Scole 1993

4.10.1 Medium-mouthed jar; globular body, with slashed decoration on shoulder and some grooving
Scole: 162; WSF: 003 (unpublished)

4.11 Medium-mouthed jar, globular body, with rusticated decoration on shoulder
PW: forthcoming

4.13.0 Medium-mouthed jar, rounded body, simple everted rim
Scole: 5. BUG: 250, 251

4.14 Large storage vessels: misc. or indeterminate sherds
PKM 0781/13 0163/64

4.15 Large storage jar: high-shouldered, same as 4.2 but plain
PKM: 4131/35

5. Wide-mouthed jars

Miscellaneous

5.2.1 Carinated jars, with grooved cordons
Scole: 21. WS: 221; WSF: 003 (unpublished)

5.2.2 Grooved bead/cordon on neck and above carination point
PKM 0828/14 0827/3 4165/12 4147/1 0764/20 0768/9

5.3 Rounded jar with reverse 'S'-profile grooves on neck and body
Scole: 39, 46, 94. WSF: 003, 007 (unpublished); HNY: 005 (unpublished)

5.4 Rounded jar, reverse 'S' profile, one or two grooves mid body
Scole: 6, 40, 62, 66, 73, 92, 122; WS: 211, 212, 213; WSF: 003 and 007 (unpublished); RKS: 017 (unpublished)

5.6 Wide-mouthed jar, with a plain 'S' profile
Scole: 75. IKL: 41; WS: 240.

5.11 Wide-mouthed jar with high shoulder and everted rim
Scole: 221, 223; BUG: 300, 303, 304.

5.12 Wide-mouthed jar with straight sides, decorated bands and an everted rim

6. Bowl, cup, dish, platter; other open forms

Miscellaneous or indeterminate

6.2.1 Castor box lid
NV 89

6.2.2 Castor box container
NV 89

6.4.0 Hemispherical bowl
BUG: 269, 270, 273–5

6.11 Campanulate bowl, copy of Samian form 27
Scole: 4, 15, 53, 108

6.13 Conical cup, copy of Samian form 33
WS: 265, 266; GE: fig. 41(i). Scole 1993

6.15.0 Bowl with curving sides and out-turned rim, flanged and unflanged, footring base

6.15.1 Unflanged
Scole: 74, 76, 97, ?98, 112; GE: fig. 38(d), (e)

6.15.2 Flanged: 'bead and flange' type rim
WS: 228, 230, 231

6.17.0 Flanged rim bowls, straight-sided, flat base, miscellaneous or indeterminate

6.17.1 Flanged rim bowls, straight-sided, flat base and a slight bead
IKL: 16, 25; WSF: 003 (unpublished).

6.18.0 Bowl, straight-sided, flat-based, thickened everted 'triangular' rim
Scole: 123, 129, 148, 175, 222; RKS: 017 (unpublished); WSF: 003 + 004 (unpublished)

6.19.0 Bowl with straight sides, which may be upright or angled; rim plain or with external groove just below

6.19.1 Plain rim, nearly upright
IKL: 20, 39, 67; Brancaster: 71

6.19.2 Plain rim, angled sides
Brancaster: 157.1–7

6.19.3 Upright with external groove below rim
IKL: 34; Brancaster: 153.1, 2, 10

6.19.4 Angled sides with external groove below rim
Scole: 119, 128.177; Brancaster: 70, 153.6, 7

6.20 Gallo-Belgic cup with angular rim
BUG: 278, 279; BUG: gb12 a.b.

6.21.0 Open bowl with internal angle, in-curving rim, flat or footring base

6.22 Platters, Gallo-Belgic type
BUG: GB1–9

7. Mortarium

All miscellaneous fabrics

7.9.0 All Nene Valley mortaria

7.9.1 Mortarium with slightly angled, reeded rim, (usually with three grooves); the bead is substantial and often square in section
NV: 102; RC: 500; COS: 728.

7.12 *All Postwick oxidised mortarium* (Fig. 28)

7.12.1 This vessel has a high bead and a well-rounded flange, tapering slightly towards the distal end. The rim is shallow and quite small considering the size of the vessel

7.12.2 Similar to Type 7A but with a more substantial bead, while the distal end of the flange has a more pronounced taper

7.12.3 This vessel has no visible bead, and a short everted rim that is slightly rounded at the distal end. This form has a spout that is not very well defined and perhaps indicates a late 2nd- to early 3rd-century date.

7.12.4 This vessel has a bead above or level with the flange. It is relatively shallow and well-rounded; after a significant concavity, it tapers slightly to an angle at the distal end.

7.12.5 This vessel has a high bead with a shallow, slightly reeded flange that tapers to a point at the distal end

7.12.6 This vessel has a high bead, and a deep, short, well-rounded flange that tapers towards the distal end. The vessel wall is thin considering the weight of the flange

8. Lids

Miscellaneous or indeterminate

8.1 Lid of standard type to fit cooking/storage pot, inturned or out-turned; can have terminal grip
PKM: 4106/22–24 0113/152, 235 0180/37 0267/54, 55

Samian

Dr18/31 A shallow bowl with a very slightly curved wall; division between wall and floor is distinct, while the floor rises noticeably in the centre

Dr31 A shallow bowl with a curved wall and beaded rim; division between wall and floor is clear

Dr33 A conical cup with footring; often there are grooves (or a groove) on the external vessel wall

Dr37 A deep bowl with slightly curved sides; wall of vessel usually divided into two (approximately) equal zones, with the lower half decorated

Dr38 A hemispherical bowl with a plain hooked flange below the mid-way point on the wall; rim can be beaded or plain

W79 Dish with strongly curving walls and beaded rim; there is a groove below the rim internally, and often a slight offset at the junction of wall and floor

Oxfordshire Red Colour Coat forms

C113 A deep bowl with slightly curved sides; the wall of the vessel is usually divided into two equal zones, with the lower decorated

Key to Sites abbreviated in pottery type series

Site Abbreviation	*Site name*	*Publication reference*
BUG	Burgh, Norfolk	Martin 1988
Burgh Castle	Burgh Castle	Johnson 1983
BRANCASTER	Brancaster, Norfolk	Andrews 1985
COS	Caister on Sea	Darling and Gurney 1993
EL	Ellingham, Norfolk	Hartley and Gurney 1997
GE	Grimstone End, Suffolk	unpublished, available through the Suffolk Archaeological Unit SMR
HNY	Hinderclay, Suffolk	unpublished, available through the Suffolk Archaeological Unit SMR
IKL	Icklingham, Suffolk	Plouviez 1976
NV	Nene Valley, Cambridgeshire	Howe *et al.* 1980
Pakenham	Pakenham, Suffolk	unpublished, available through the Suffolk Archaeological Unit SMR
RKS	Rickinghall Superior, Suffolk	unpublished, available through the Suffolk Archaeological Unit SMR
RC	Roman Colchester	Hull 1963
Scole	Scole, Norfolk	Rogerson 1977
Scole 1993	Scole, Norfolk	Lyons and Tester forthcoming
WS	West Stow, Suffolk	West 1990
WSF	Wattisfield, Suffolk	unpublished, available through the Suffolk Archaeological Unit SMR

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