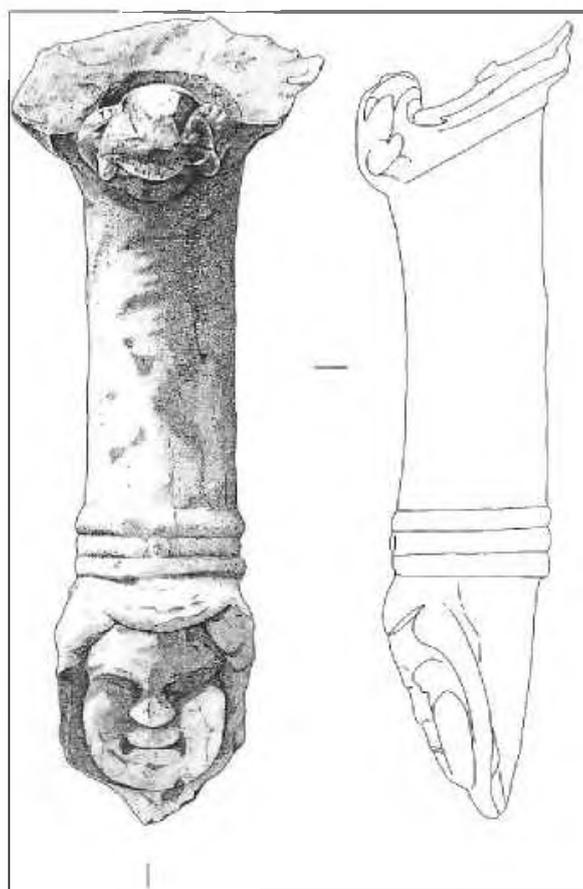


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with Jon Cane and Alex Jones

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Pentrehyling Fort and Brompton Camps, Shropshire: Excavations 1977–98

By John Allen, with Jon Cane and Alex Jones

with contributions by Justine Bayley, Lynne Bevan, Simon Esmonde Cleary, Kirstin Eckstein, Jane Evans,
Martin Henig, Catherine Johns, Donald Mackreth, Jennifer Price, Fiona Roe, Colin Rowe, Roger White
and Sally Worrell

Prepared for publication by Sonia Allen, John Halsted and Roger H. White

Cover photograph: Copper alloy patera handle

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ENGLISH, FRENCH AND GERMAN SUMMARIES

Summary

Excavations were conducted at Pentrehyling Fort on the Shropshire/Montgomeryshire border between 1977 and 1998 by John Allen and the Central Marches Archaeological Research Group (CMARG) based at University of Manchester. In the midst of these excavations, a road-widening scheme for the A489 was carried through by Shropshire County Council in 1989-91 who commissioned Birmingham University Field Archaeology Unit (BUFAU) to carry out the work. Investigation of the nearby Marching Camp and section of Offa's Dyke at the adjacent Brompton Farm was carried out by BUFAU at the same time.

A single pit with Neolithic pottery hinted at earlier activity on the site but this was an apparently isolated feature. Virtually all the remaining evidence relates to the Roman period.

The evaluation of the cropmarks of the Brompton Camps was successful demonstrating the existence of at least two camps although a third could not be confirmed. Evidence for Offa's Dyke was also observed. No date was obtained for the camps but they are surmised to be dated to the Flavian period in parallel with examples elsewhere in the region. Excavations in Pentrehyling fort, to the west of Brompton, demonstrated a conventional fort for a mounted or part-mounted unit of the Roman Army evidenced by combined barracks and stables. Other buildings were less readily identifiable. The fort was of conventional type with a turf and timber rampart with corner towers and double ditches on all but the south side. There was an annexe attached to the south side perhaps extending to the River Caebitra. Between Brompton Camp and Pentrehyling Fort was a *vicus* that was contemporary with the latter. Evidence was found in the *vicus* for lead smelting and iron working, activity which extended into the fort when it had apparently ceased to be garrisoned. The occurrence of litharge, a by-product of lead smelting, is rare and scientific analysis is reported upon here. Dating evidence provided by a small number of coins and quantities of pottery and glass indicated that the fort was established in the Flavian period and may have been abandoned by the end of the 1st century. The *vicus* appeared to have remained in occupation into the 2nd century but was seemingly abandoned by the Hadrianic period. Re-occupation of the site in the mid 4th century was evidenced by pottery, a coin and a silver spoon found in the fort ditch. The nature of this occupation remained undefined.

Sommaire

Les fouilles ont été effectuées au fort romain de Pentrehyling sur la frontière Shropshire/ Montgomeryshire entre 1977 et 1998 par John Allen et le Central Marches Archaeological Research Group (CMARG), basé à l'Université de Manchester. Au milieu de ces fouilles, un élargissement de la route de l'A489 a été mené à bien par Shropshire County Council en 1989-91 qui ont commandé Birmingham University Field Archaeology Unit (BUFAU) pour effectuer le travail. Enquête de la proximité 'Marching Camp' (camp de campagne) et un segment du fosse d'Offa adjacentes à Brompton ferme a été réalisée par BUFAU en même temps.

Une seule fosse avec poteries néolithiques fait allusion à d'activité précédente sur le site, mais c'était apparemment une fonction isolée. Pratiquement tous les éléments de preuve restants se rapporte à la période romaine.

L'évaluation des repères des camps de Brompton a réussi démontrant l'existence d'au moins deux camps bien qu'un tiers n'a pas pu être confirmé. Preuve du fosse d'Offa a également été observée. Aucune date n'a été obtenue pour les camps, mais ils sont supposé être daté de la période Flavian en parallèle avec des exemples ailleurs dans la région. Les fouilles de Pentrehyling fort, à l'ouest de Brompton, démontré un romain fort classiques peut-être occupé par un *ala equitata* ou *cohors equitata* de l'armée romaine attestée par combiné casernes et écuries. D'autres bâtiments ont été moins facilement identifiables. Le fort a été de type classique avec un rempart en gazon et des bois avec coin tours et double des fossés sur tous mais du côté sud. Il y avait une annexe jointe à la côté sud peut-être s'étendant à la rivière Caebitra. Entre le camp de Brompton et le fort de Pentrehyling était un *vicus*

contemporain avec ces derniers. On a constaté dans le *vicus* de fusion du plomb et travail du fer, activité qui s'est étendue dans le fort quand il avait apparemment cessé d'être en garnison. L'apparition de litharge et minium, un sous-produit de fusion du plomb, est rare et l'analyse scientifique est signalé ici. Datation preuves fournies par un petit nombre de pièces de monnaie et les quantités de poterie et verre a indiqué que le fort a été établi dans le période Flavien et peuvent avoir été abandonnés à la fin du 1er siècle. Le *vicus* semblait avoir demeuré à l'occupation dans le 2ème siècle mais a été apparemment abandonné par le période hadrianique. Réoccupation du site au milieu du 4ème siècle a été attestée par poterie, une pièce de monnaie et une cuillère d'argent trouvées dans le fort fossé. La nature de cette occupation restent indéfinis.

Traduction par Roger White et Pascale Otter

Zusammenfassung

Zwischen 1977 und 1998 führten John Allen und die Central Marches Archaeological Research Group (CMARG) an der Universität von Manchester Ausgrabungen im Kastell von Pentrehyling an der Grenze zwischen Shropshire und Montgomeryshire durch. Gleichzeitig mit diesen Ausgrabungen unternahm Shropshire County Council 1989-91 Strassenverbreiterungen an der A489, und beauftragte das Birmingham University Field Archaeology Unit (BUFAU) mit den baubegleitenden Ausgrabungen und Beobachtungen. Daneben führte BUFAU ebenfalls die Untersuchungen am nahegelegenen römischen Marschlager und an einem Abschnitt des frühmittelalterlichen Offa's Dyke bei der naheliegenden Brampton Farm durch.

Eine einzelne Grube mit jungsteinzeitlicher Keramik deutete auf frühere menschliche Aktivität im Untersuchungsgebiet hin, doch stellte dies anscheinend einen isolierten Befund dar. Fast alle sonstigen Funde und Befunde stammen aus römischer Zeit.

Die Auswertung der Bewuchsspuren in den Luftbildern ergab überzeugende Belege für mindestens zwei Marschlager, während ein postuliertes drittes sich nicht in den Ausgrabungen bestätigen ließ. Die Marschlager haben keine Datierungshinweise geliefert, doch ist eine flavische Zeitstellung aufgrund anderer Lager in der Region anzunehmen. Der Verlauf von Offa's Dyke ließ sich ebenfalls bestätigen. Die Ausgrabungen im Kastell von Pentrehyling, westlich von Brompton, brachten ein typisches Kastell für eine berittene oder teil-berittene Einheit der römischen Armee zu Tage, was anhand der Stallkasernen belegt werden kann. Andere Gebäude sind weniger klar zu identifizieren. Das Kastell hat eine typische Holz-Erde-Mauer mit Ecktürmen und Doppelgraben auf allen Seiten außer im Süden. Dort war ein Annex an die Südseite des Kastells angebaut, der sich möglicherweise bis zum Fluß Caebitra erstreckte. Zwischen Brampton und dem Kastell von Pentrehyling lag der Vicus, der sich als mit dem Standlager gleichzeitig erwies. Dort fanden sich archäologische Belege für Bleiproduktion und Eisenverarbeitung, die Werkstätten breiteten sich nach dessen Auffassung auf das Kastellgelände aus. Die Identifizierung von Bleiglätte, ein Nebenprodukt der Bleiverhüttung, im Fundgut ist ungewöhnlich und die wissenschaftliche Analyse ist daher diesem Bericht beigegeben.

Die Datierung erfolgte aufgrund einer kleinen Anzahl von römischen Münzen, sowie von Keramik und Glasfunden. Alle sprechen für eine Belegung des Kastells in flavischer Zeit. Das Lager wurde wohl noch vor Ende des ersten Jahrhunderts aufgegeben. Der Kastellvicus scheint bis in das zweite Jahrhundert weiterbestanden zu haben, doch auch hier endete die Siedlungsaktivität in hadrianischer Zeit. Die Wiederbesiedlung erfolgte in der Mitte des vierten Jahrhunderts wie Keramik, Münzen und ein Silberlöffel aus dem Kastellgraben zeigen. Der Charakter dieser zweiten Siedlungsphase muß derzeit offen bleiben.

Uebersetzung: Birgitta Hoffmann

ACKNOWLEDGEMENTS

Many people have contributed much of their time and energy to the project and it is difficult to pay tribute to every individual. However, the late David Hill of the Extra-Mural Department at Manchester University is especially thanked for his help in initiating the project and also his many students of the *Methods in Archaeology* course, especially Janet Lawrenson and Paul Reynolds, who 'volunteered' to work on the site.

Firstly, I must thank my wife Sonia not only for her encouragement and support during the many seasons of excavation which began in 1979, but also for her assistance in the production of this report. The past and present members of Central Marches Archaeological Research Group (CMARG) are those to whom the greatest debt of gratitude is due. Several require special mention, headed by Mike Lappin, who has been working on the site for 15 years; Kate Brown for her meticulous planning; and Janet Berry, Wilf Cawthorne, Eunice Colclough, Peter and Sheila Eccles, Mike Edwards, Deborah Gee, Ian Haydock, Peter Price, Jacqui Renshaw, Dave Roby, Chris Shaw, Garry Tayler, Gordon Trappe, Chris Wood, George Wybron, and, for a period, local members, Patrick Cain and Trayton Holmes.

Local people have been unceasingly helpful in providing hospitality as well as giving ready permission to excavate upon their land; here particular mention must be made of the kindness and enthusiasm of Wyndham and Megan Beddoes and their sons, Brian and Paul, of Pentrehyling farm – upon whose land the majority of the excavations have taken place. Many thanks are also due to Mr. Evans of Brompton View who kindly allowed us two seasons' excavation. Helen Jones requires special mention for her ready agreement to excavate upon her land in the south-east sector and her support and generosity over the years. As proprietor of the Blue Bell Hotel she provided the group with their *ad hoc* HQ! Janet and Trevor of Bachelde Water Mill and campsite also furnished us with excellent accommodation and amenities close to the site. We are also grateful to Les Morgan who drove the mechanical excavator with such skill and precision on both the CMARG and Birmingham University Field Archaeology Unit (BUFAU) excavations.

Sincere thanks are also due to Colin Wallace, who not only worked on the excavations but gave us much needed initial advice on the pottery analysis. Recognition, too, needs be made of the contribution of Mike Watson, former County Archaeologist for Shropshire, who brought the various groups together to produce this combined report. Lastly, acknowledgement has to be made to the BUFAU team. To Jon Cane, who directed the evaluation in 1989; Iain Ferris, who directed work in 1990/91; Alex Jones, who supervised the excavations of the fort, *vicus* and marching camps, and to the members of the excavation team: Darwin Aitkins, Ed Dickinson, Sally Finter, Quentin Hutchinson, Laurence Jones, Martin Lightfoot and Ed Newton.

John Allen, 1998

John Allen died on 3 August 1999, just before that season's excavation was due to start.

In preparing this volume for publication I would like to acknowledge the patience of many who have enabled this work to continue. Specifically, I would like to thank Sonia Allen who made possible the transfer of the whole archive to me and who provided the initial draft of the site narrative. Former colleagues at BUFAU, notably Alex Jones, Lynne Bevan and Jane Evans, ensured that the post-excavation process took place promptly and efficiently, even if later circumstances led to great time slippages beyond my or anyone's control. Nigel Dodds oversaw the drawings, which were all on paper and had to be subsequently digitized. Dr. John Halstead did the initial editing of the draft site narrative, while I carried out the editing and final preparation of the specialist reports and overall final report. Throughout all this English Heritage (now Historic England) have been patiently waiting and assisting the process, not least through their generous funding of this printed volume. In particular Sara Reilly and Magnus

Alexander were responsible for the management of this project over the last decade and they, along with Kath Buxton, will be especially relieved to see this report finally completed. The patience of Canon William Price as the Hon. Editor of the *Transactions* of the Shropshire Historical and Archaeological Society has also been sorely tried, but at last this one, at least, can be ticked off his list of things to do. The deposition of the archive will be with the county archaeology service, administered by Emma-Kate Lanyon, but there is a possibility that some of the finds will be returned to the landowners at Pentrehyling. At the time of writing this is still being negotiated.

Roger White, 2014

PENTREHYLING FORT AND BROMPTON CAMPS, SHROPSHIRE: INTRODUCTION AND BACKGROUND

Location and topography

Pentrehyling Fort (centred on NGR SO 2493; Figure 1) is located 30km south-west of Shrewsbury and 4.5km south-east of Montgomery. The site is strategically placed on a plateau at the 150m contour and 1.5km west of the confluence of two rivers, to control access along the valley of the River Caebitra to the east, and along the River Camlad, south to the Stretton Gap. The River Severn lies further to the north. Located 150m to the east of the fort are the Roman marching camps of Brompton, named after Brompton Hall, which sits above both known camps. South of the fort the ground slopes gently to the River Caebitra, which flows eastwards to join the River Camlad at Church Stoke. The geology in the area of the site is composed of clay and silt lacustrine deposits over mudstone (Bromleymill shale formation; Cave and Hains 2001, 69–72).

(Note that on the Ordnance Survey sheets for this area the farm from which the site name is derived is invariably noted as Pentreheyling. The decision has been taken to stay with the spelling used here so as to connect the site with interim reports, which use the Pentrehyling spelling.)

Discovery

The Roman military remains at Brompton/Pentrehyling were first noted by Professor J. K. St. Joseph when he noted the presence of cropmarks in the area in 1969 (1969, 119–20) and again in 1973 (St. Joseph 1973, 235–6 Figure 19; CUCAP BNK 52–3). On the combined evidence of these reports he published a plan showing three possible marching camps and a fort 400m to the west. Camp 1, the largest, showed three sides and two rounded corners. Camp 2 showed two sides and two corners. Camp 3 consisted only of a linear feature. The fort was represented by two corners and two sides. A gap in the centre of the west side was interpreted as an entrance.

Of these only two marching camps and the fort can be postulated with a good degree of confidence (Figure 2; Welfare and Swan 1995, 154–5 fig. 130; Davies and Jones 2006, 154–5). Camp 1 (SA 1211) is the larger, with an area of greater than 15.2ha; and Camp 2 (SA1212), with an area greater than 5.3ha. St. Joseph's third camp was postulated on the basis of an east–west aligned linear to the north of Brompton Hall, but without sign of a rounded corner. Its alignment is affected by The Rossett, a still-prominent double-ring ditched presumed barrow (SA 1210), that lies within the north-east quadrant of Camp 1. A north–south linear north-east of Camp 1 and Brompton Hall is plotted by Welfare and Swan and noted by Davies and Jones as possible further evidence for a camp. This has not been investigated (*ibid*).

Surface evidence for these features is very limited. A low bank can be suggested on the western side of the fort which roughly follows the line of the rampart, but it must be emphasized that the feature is low and spread over a considerable width and most likely is the result of continuous ploughing building up a bank of soil over a more resistant area such as the rampart. The area of the fort was found to be 2.5 hectares (6.1 acres) with a breadth-to-length ratio of 15:19 and was calculated from the inside of the rampart (Jones 1975).

To the east of the fort two parallel crop marks were identified, starting at the boundary of Brompton View, and heading approximately east–west before being truncated by the A489 (Figure 2; SA4318). These crop marks were interpreted as possible side ditches of a road leading out from the east gate (J. Allen 1986; S. Allen, 1986).

A number of other cropmarks have been recorded through aerial photography (Figure 2). Semi-linear cropmarks were recorded on the west side of the fort, both inside and outside the defences and parallel to them. The possible ditches inside the fort area were unclear and appeared to be broken into sections. Other small circular

crop-marks inside the fort and outside the defences along the northern boundary could possibly be evidence of pits.

Two parallel ditch-like features were recorded to the north-west of the fort and aligned north-south. Their relationship with the fort is uncertain and the possibility that they may be part of an earlier and longer feature such as a Neolithic cursus monument cannot be ruled out. Inside the south-west corner of the fort a perfectly circular crop-mark suggested the possibility of a prehistoric ring-ditch, such as the one at Brompton Hall (Figure 2; SA1210).

Excavation background

The excavations covered by this report were begun in 1977 and carried out over a period of 21 years, undertaken initially by students of the Extra-Mural Department of the University of Manchester, organised by the Staff Tutor in Archaeology, Dr. David Hill. Over the years, work on the fort pulled together a number of enthusiastic volunteers whose keen interest in this site led, in 1985, to the formation of an independent group, calling itself the Central Marches Archaeological Research Group (CMARG; Plate 1) with the author as its Director; thereafter, this group continued to work on the fort every year up to and including 1998 (Allen J., 1988; 1991a; 1991b). The CMARG work was carried out purely by volunteers, whose free time was limited. The digging season fell between Easter and September and work was undertaken at weekends, Bank Holidays and for a longer continuous period of up to three weeks during the summer. Further excavations were undertaken by Birmingham University Field Archaeological Unit (BUFAU) in 1989 and 1990/ 1991 in advance of a proposed road widening programme. The results of all programmes of work are included within this report.

The excavations of Pentrehyling fort were undertaken from 1978 as part of a two-week field work and excavation programme for Extra-Mural students. The purpose of this, and all further work up to 1984, was to determine the position of the defences and, if possible, to obtain dating evidence.

In 1984 CMARG became aware of Shropshire County Council's road-widening scheme. Stage 1 of the scheme involved digging a linear pipe-trench for a new road drain parallel to, and south of, the A489. The intended line of cut passed through the south-east corner of the fort. The pipeline also included spur-trenches at intervals which ran from the main drain to grids beside the road. The Council arranged for this work to coincide with a two week period of Extra-Mural excavation, so that any features showing in the pipe trench could be recorded.

The proposed road widening scheme had, in its early days, no provision for an archaeological investigation, neither was the route of any new road alignment finalised. As there was a real possibility of the County Council cutting new road sections adjacent to the A489 alongside its southern boundary, thereby causing considerable damage to the site, new excavations were planned. The objectives of subsequent excavations were extended and aimed at recovering as much information as was possible in the unknown amount of time available before the



Plate 1 CMARG excavation team members, site photograph.



Plate 2 BUFAU Trench 1 alongside the A489, looking east.

Council's work started. Trenches 30 and 33 were, therefore, dug close to the hedge bordering the south side of the threatened area.

In the summer of 1989, CMARG and Birmingham University Field Archaeological Unit (BUFAU) undertook a joint evaluation of Pentrehyling Fort, the marching camps and the surrounding area to determine the presence, survival and significance of any archaeological remains within the areas of the proposed road widening scheme (Cane and Allen 1989). The results of the evaluation in combination with the evidence from previous excavations by CMARG led the County Council to commission BUFAU to undertake excavations in the winter of 1990/91 along a 3–4 metre wide corridor north and south of the existing carriageway, covering not only the areas inside the fort but also the *vicus* to the east and the marching camps nearer to Brompton (Plate 2).

One of the results of BUFAU's work was to reveal the presence of a building south of the A489 in the area of the *vicus*. In 1991, CMARG carried out further work in the *vicus* to extend BUFAU's excavations southwards with the objective of gaining more information on the Roman industrial activity and any associated buildings.

At the close of 1991 a series of trial trenches was cut, outside the defences, in the north-west area of the site. The short term objective was to determine whether the small ditch running east–west, parallel and close to the northern defences, continued westward. In the event, the excavation revealed a complex of ditches and gullies. CMARG continued to excavate this area until 1994 and further trenches were excavated in the northern part of the fort in subsequent years. The last trench, 53, was excavated in 1998.

Excavation and recording methods

Excavation was initially carried out totally by hand, but from Trench 30 onwards ploughsoil was machined off using a toothless bucket attached to a digger. As far as possible, the aim was to excavate completely all identified features.

BUFAU also used a mechanical excavator to remove top soil, and in some areas the machine was also used to remove the road hedges and clean up the disturbed ground below. The excavation strategy differed from that of CMARG in that the archaeological features were sampled and generally only half-sectioned.

Trenches excavated by CMARG have been numbered in sequence from 1 to 53 (Figure 3). Those excavated by BUFAU have Roman numerals from I to IV (Figure 2). Trenches which were later covered by larger excavation

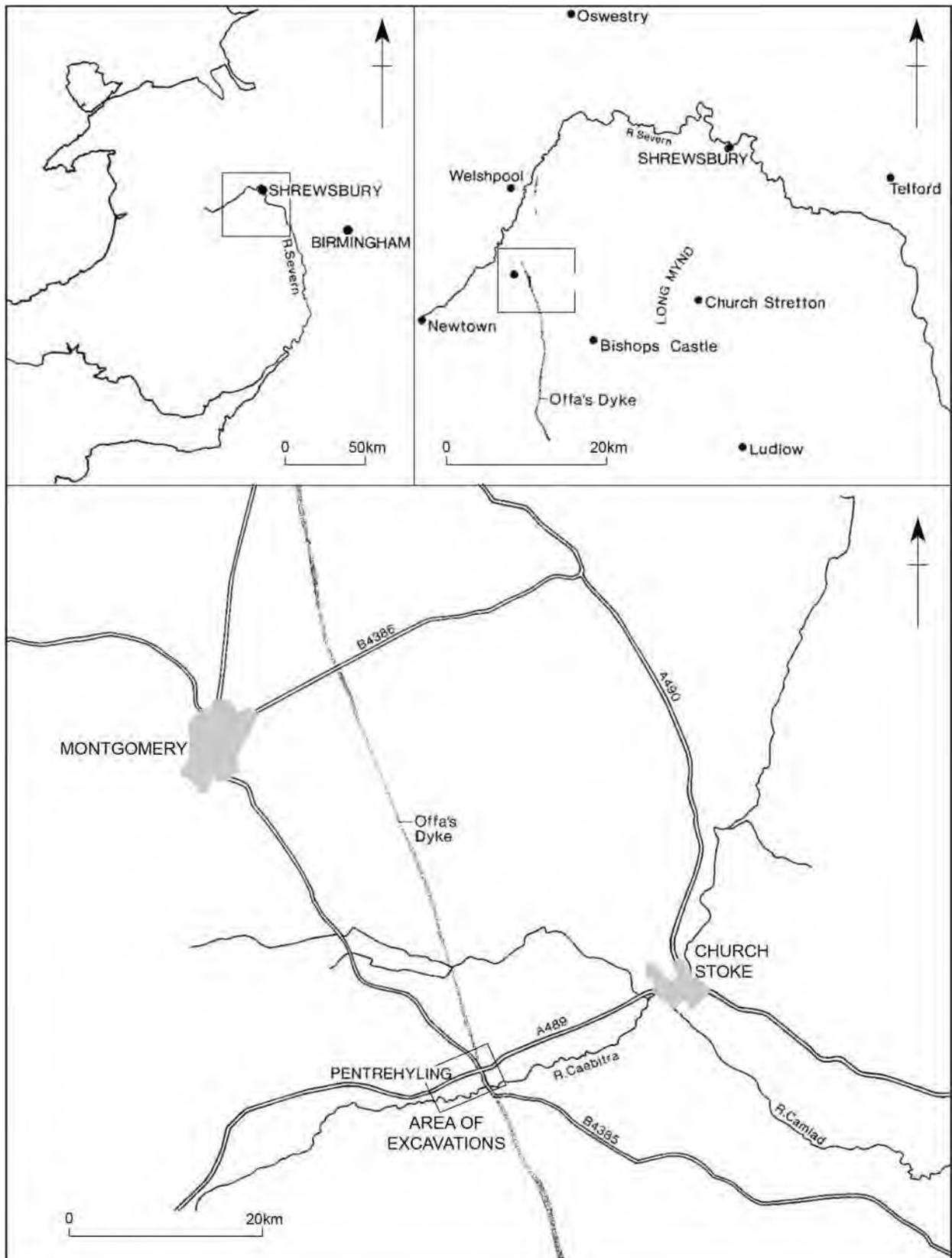


Figure 1 Site location plan.

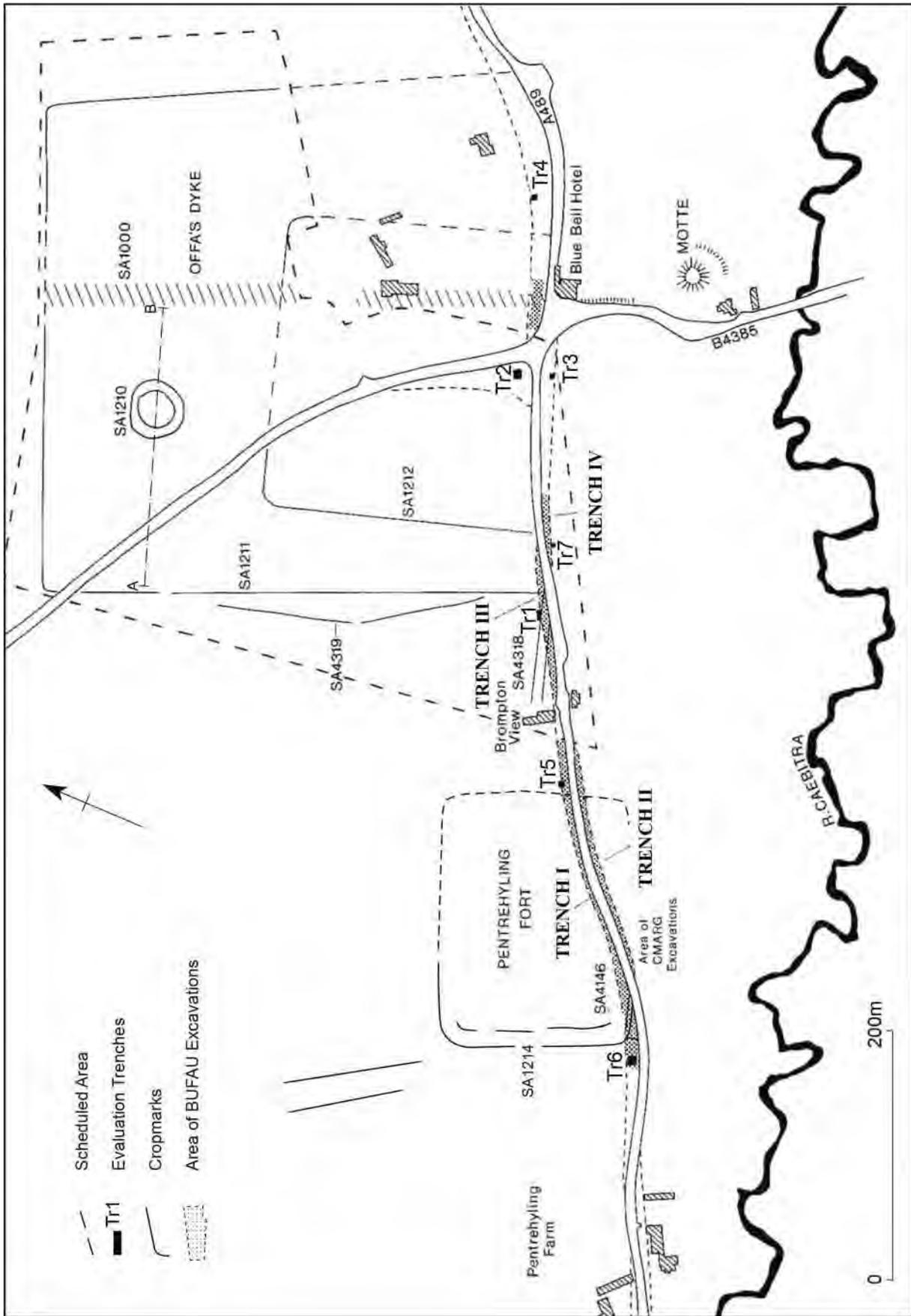


Figure 2 Location of Roman fort and marching camps with the location of BUFAU evaluation and excavation trenches.

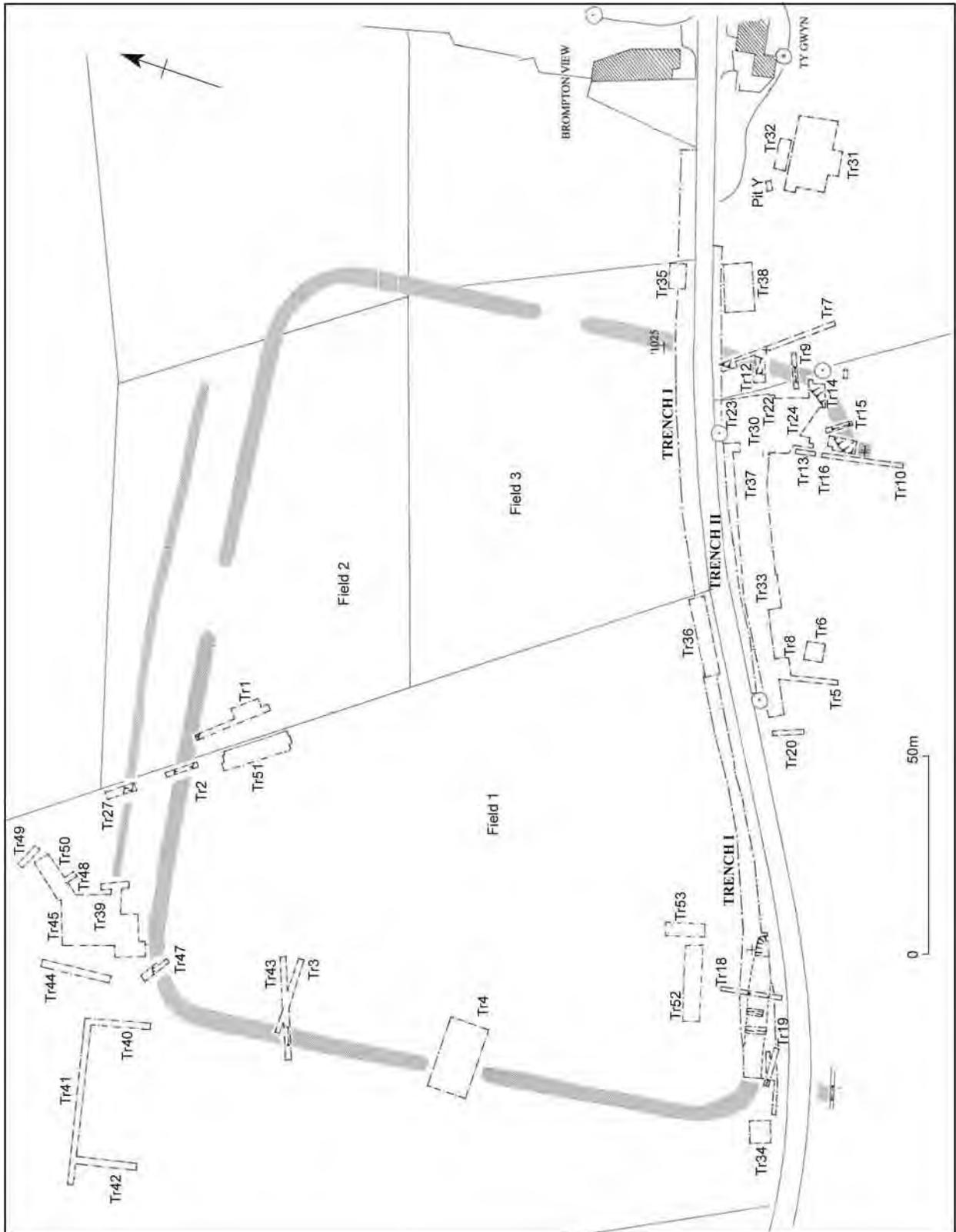


Figure 3 Location of CMARG and BUFAU excavation trenches in the area of the Roman fort.

areas are illustrated only when they extended beyond the outline of the later trench (for instance Trench 30 later covered most of trenches 22 and 23). The seven evaluation trenches excavated in 1989 (Figure 2) have been included within the results of the later more expansive trenches excavated by BUFAU and CMARG.

The system used to record the features and finds was different between the two groups. The BUFAU system used 'feature' numbers prefixed with an 'F', followed by a three digit number, with the first digit denoting the

trench number (e.g. F214). Contexts within the feature were given a four digit number. For the post-excavation archive and finds all BUFAU work was prefixed with the letters BRO (Brompton) with trench, context and find numbers as necessary (e.g. BRO 90 III 3003, 30). CMARG used the initials PH (for Pentrehyling) to differentiate their working numbers.

The CMARG context numbering system developed and changed during the long period over which excavations were conducted. One part of the system used in this report which remained consistent was the use of four digit numbers, the first two digits being the trench number and the second two allocated as they arose. This system was modified in later excavations: the first two digits still indicated the trench number, but the last two digits refer to the feature number. Contexts associated with a feature were given the same four digit number with the addition of a letter (e.g. PH 3915 B refers to Trench 39, feature fifteen and fill B).

The use of two sets of different numbering systems may lead to some difficulties in understanding, but the alternative would have involved a renumbering exercise which ran the risk of errors being introduced.

Post-excavation editing and preparation was initially undertaken by Sonia Allen and the CMARG team working from John Allen's manuscript. This has been edited and prepared for publication by Dr. John Halsted and Dr. Roger White, funded by an English Heritage grant to bring backlog reports to publication. Pressure of work has considerably delayed the publication of this study, which is much to be regretted, although it has allowed us to take advantage of recent advances in knowledge of Roman military studies in the Welsh Marches (Davies and Jones 2006; Burnham and Davies 2010).

Geophysical survey

Use of geophysics was limited to a resistivity survey carried out in the fields north of the A489 in 1984 by Steve Hyatt, a post-graduate research student at Bradford University (S. Hyatt, pers. comm.). The survey identified the north-east quarter of the fort's defensive ditch, and further gave the position of the north and east gates. The survey showed a hitherto unknown, ditch-like anomaly, north of and parallel to, the north ditch which was latterly investigated.

Phasing

Post-excavation analysis has identified three phases of occupation on the fort of Pentrehyling and one phase for the marching camps at Brompton. Phase 1 is Neolithic activity detected beneath the fort. Phase 2 is sub-divided into 2A representing the construction and occupation of the fort and its associated *vicus*, and 2B which represents the spreading of industrial activity from the *vicus* into the fort, presumably following its abandonment. Phase 2 appears to end before the mid 2nd century. Phase 3 is the late Roman activity on the site. Phase 4 indicates post-Roman agricultural activity.

THE ROMAN MARCHING CAMPS AT BROMPTON

The excavations confirmed the crop-mark evidence for two temporary camps to the east of Brompton View Farm (Figure 2; Figure 4). The possible third camp could not be confirmed.

Camp 1

The west side of Camp 1 was first identified in the 1989 evaluation excavations, and again in 1990/91 in Trench III, (Figure 2; Figure 5, F310). The ditch of Camp 1 (Figure 6, S104) had a V-shaped profile and was up to 1.4m wide and 0.55m deep. The primary fills were silty gravels. A secondary ditch (F313, Figure 5; Figure 6) was recorded slicing into the east side of the camp ditch. An adjacent, parallel, linear ditch-like feature (F309) of U-shaped profile, lay a little to the east. These ditches were cut by the later Roman roadside ditch leading from the east gate of the fort (F311, Figure 5).

Camp 2

The west side of the smaller Camp 2 was located in Trench IV, (Figure 4; Figure 7, F401). The ditch had a V-shaped profile (Figure 6, S102), was 2m wide and 1.14m deep, and was filled with silty gravel.

Camp 3

The linear ditch suggested to be part of a third marching camp was sectioned at two points (Point A and Point B). At Point A the ditch was rounded in profile 1.05m wide and 0.32m deep (Figure 6, S109). At Point B the possible marching camp ditch was V-shaped in profile, 0.9m wide and 0.41m deep (S99, Figure 6). The fills of both sections were of silty gravel. At Point B the ditch was excavated at its intersection with the Offa's Dyke ditch, which was found to be later (Figure 2).

At Point A the section was not characteristic of a military ditch, whereas the ditch at Point B could well be that of a marching camp. It would be unsafe at this point in time, therefore, to assume that the linear ditch belongs to a third camp.

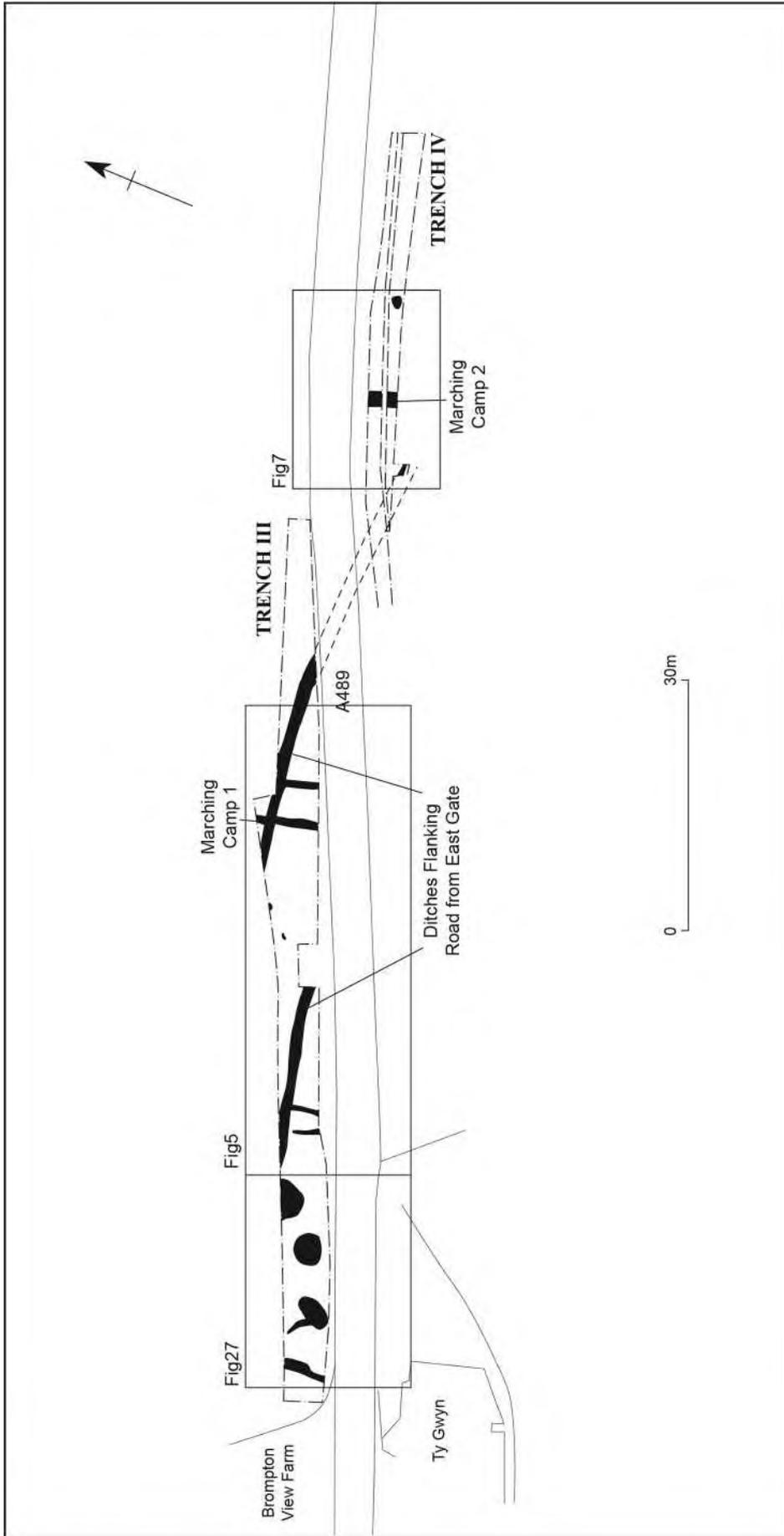


Figure 4 Location of marching camp ditches and ditches flanking a possible road to the east of the fort, indicating the position of more detailed plans.

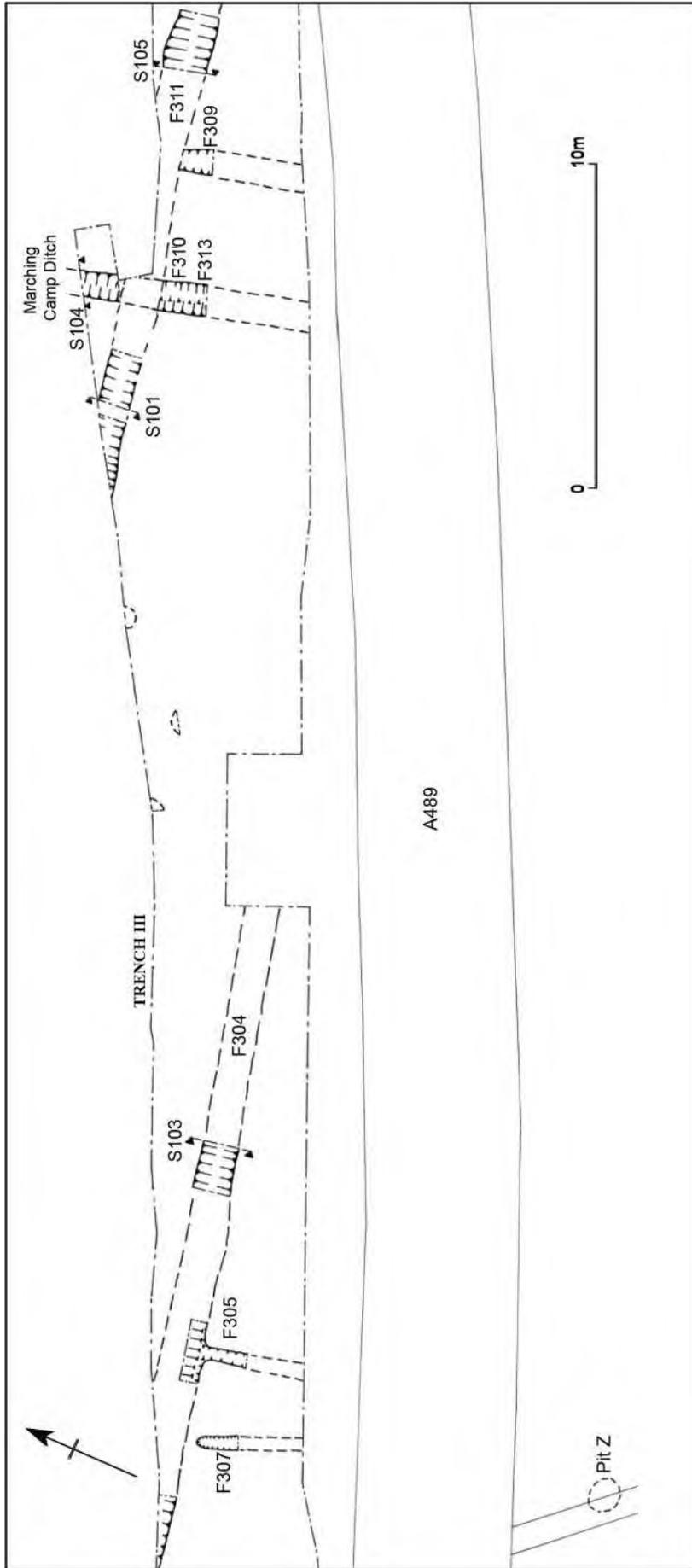


Figure 5 Plan of ditches to the east of the fort.

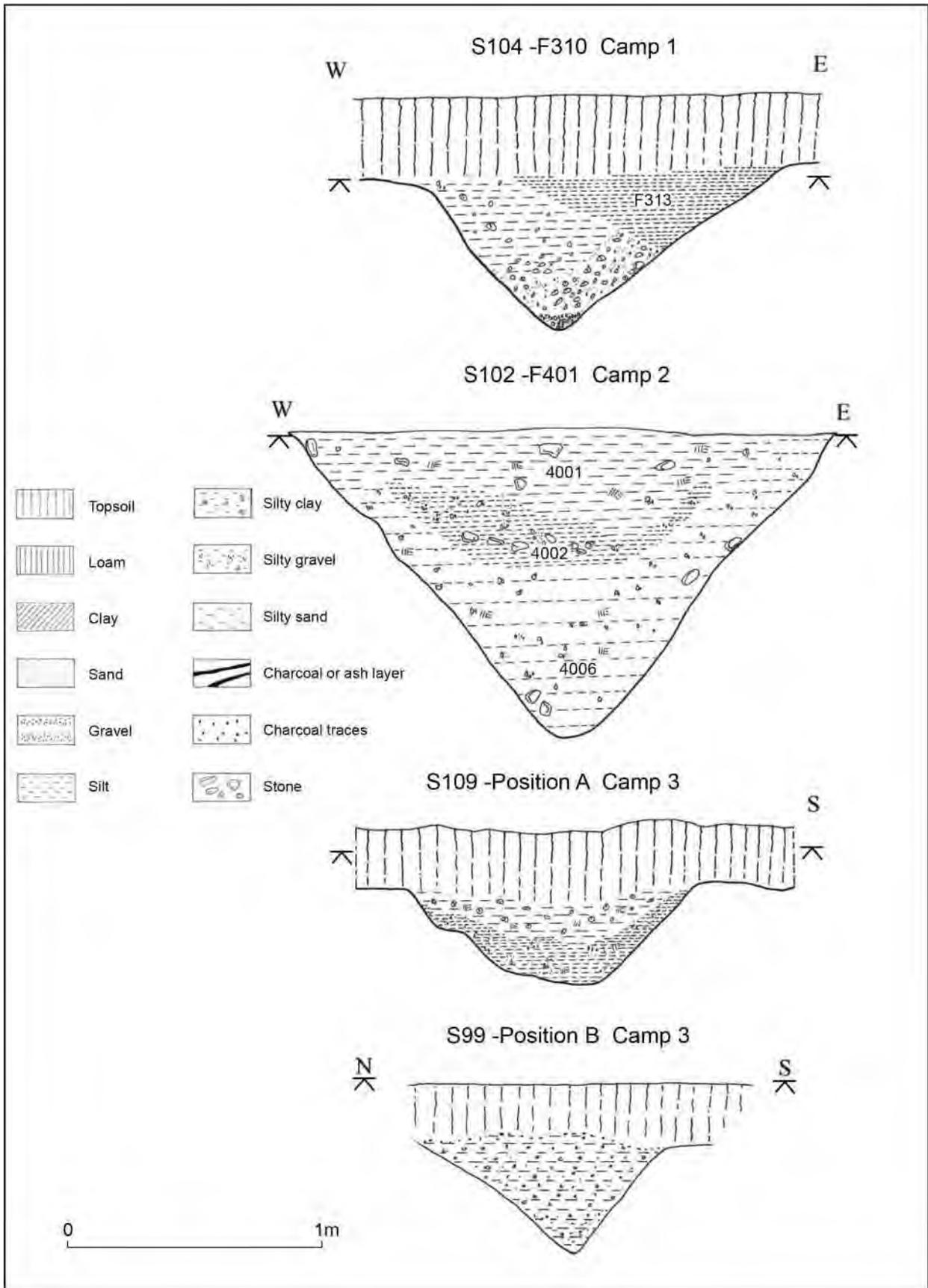


Figure 6 Sections through marching camp ditches.

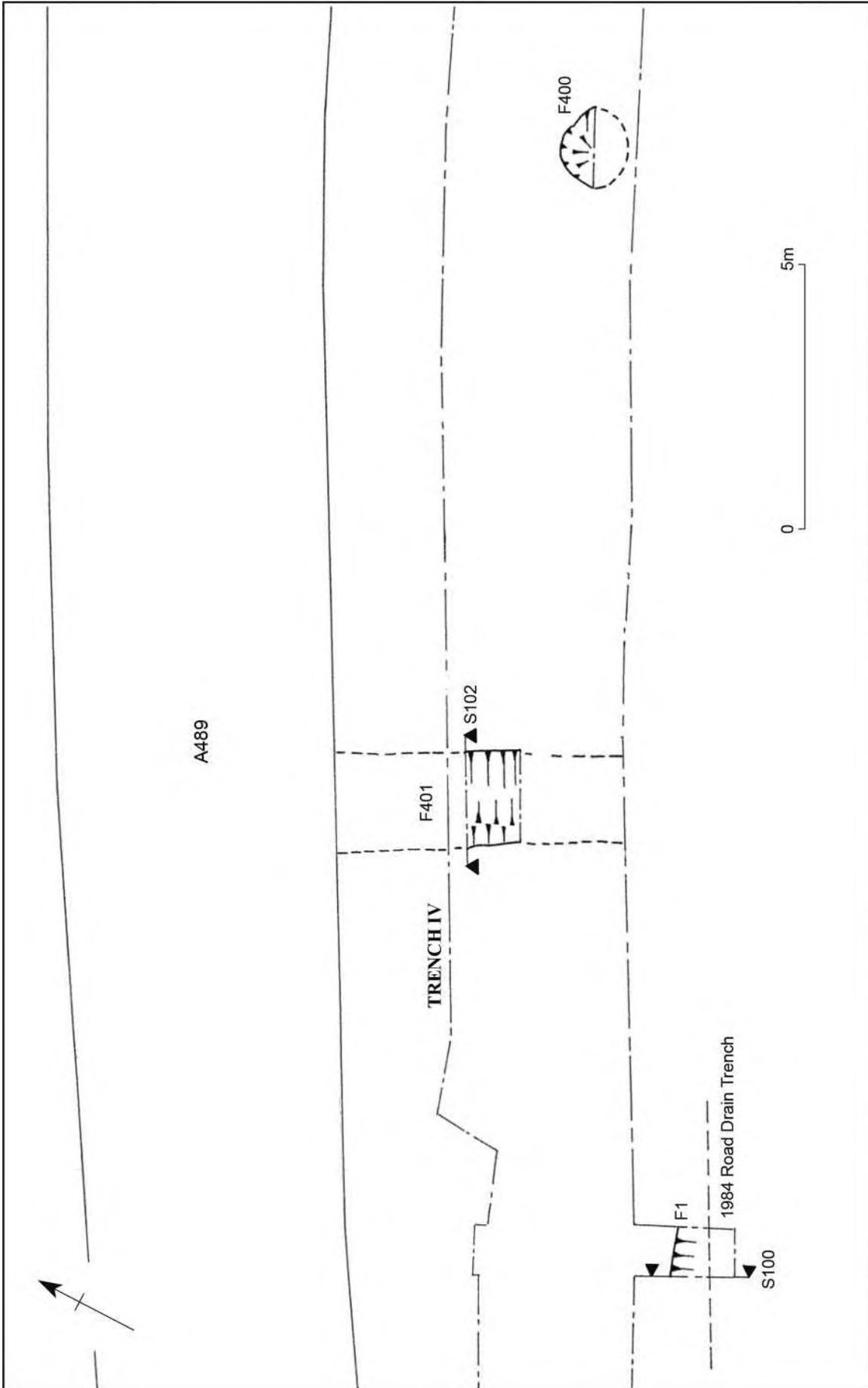


Figure 7 Plan of marching camp (2) ditch and road ditch east of the fort.

PENTREHYLING FORT

Period 1: Neolithic evidence

The earliest identifiable features (F106, F107; Figure 8), cut into the natural gravel at the western end of BUFAU Trench 1, and were sealed beneath the front face of the fort rampart. F106 was a flat-based, oval pit 0.60m deep, and filled with a light brown clay silt (1020). To the south-east of F106 was a roughly oval, irregular cut (F107) with a lip on its eastern side, backfilled with a similar material to 1020 (1021), sealed by a dark grey, clay silt, flecked with charcoal (1040). A large number of decorated sherds of a Peterborough Ware bowl of the Mortlake Style (Woodward, pers. comm.), possibly belonging to a single vessel, was recovered from these features, including sherds which preserved possible traces of charred food-residues. No other excavated features could be assigned to this period although ten worked flint flakes recovered from the topsoil nearby may indicate a concentration of prehistoric activity in this area.

Period 2: The Roman fort and *vicus*

Excavation retrieved evidence relating to the creation and occupation of the fort (Phase 2A), including its ditch and ramparts, the latter including the location of one gate and a corner tower. The defences were not located on the south side, where there instead appeared to be an annexe enclosing at least part of the slope down to the River Caebitra. Within the fort proper was evidence for some of the internal roads and a row of buildings, probably barracks and possibly a granary or other store building. Between the fort and the marching camps evidence for a *vicus* was located. Building plans were rare, but there was extensive evidence of industrial activity, mostly to do with lead-ore processing, including cupellation, and iron working. This evidence was found to extend into the area of the fort itself, implying the latter's demise as a military base. This phase of activity within both the former fort and its *vicus* is thus Phase 2B since there was no discernible break in occupation.

The defensive ditches

The fort ditches have been sampled on its northern, western, southern and south-eastern sides (Figure 3). The enclosing ditch has not, however, been located along most of the southern side. A smaller annexe ditch, enclosing an area to the south of the fort, springs from the south-east and south-west corners of the main ditch. The southern extent of this annexe has not been determined.

At the north side of the fort the ditch was 6.8m wide and 1.97m deep (Trench 2; Figure 9, S106). It had a V-shaped profile with a cleaning slot at its base. The primary fills appeared to be the result of natural silting (0207 and 0206), with subsequent fills which may relate to later occupation activity (0205 and 0205a).

At the east side of the fort the ditch was 6.7m wide and 1.85m deep and was V-shaped in profile (Figure 9, S107; Figure 10). Towards the south-east part of the fort the ditch was partially sectioned in Trench II (Figure 10) and was 5.7m wide. The depth of the ditch could not be determined for safety reasons. A full section was cut in Trench 12 at the south-eastern part of the fort (Figure 10), where it was 5.1m wide and 2m deep, with a profile similar to the sections described above. Excepting a small amount of dispersed charcoal, the fills of the ditch did not contain any significant occupation debris. Further south the ditch was 5m wide and 1.56m deep with a V-shaped profile (Trench 15, Figure 9, S108; Figure 10). The earlier fills of the ditch appeared to have been deposited by natural silting.

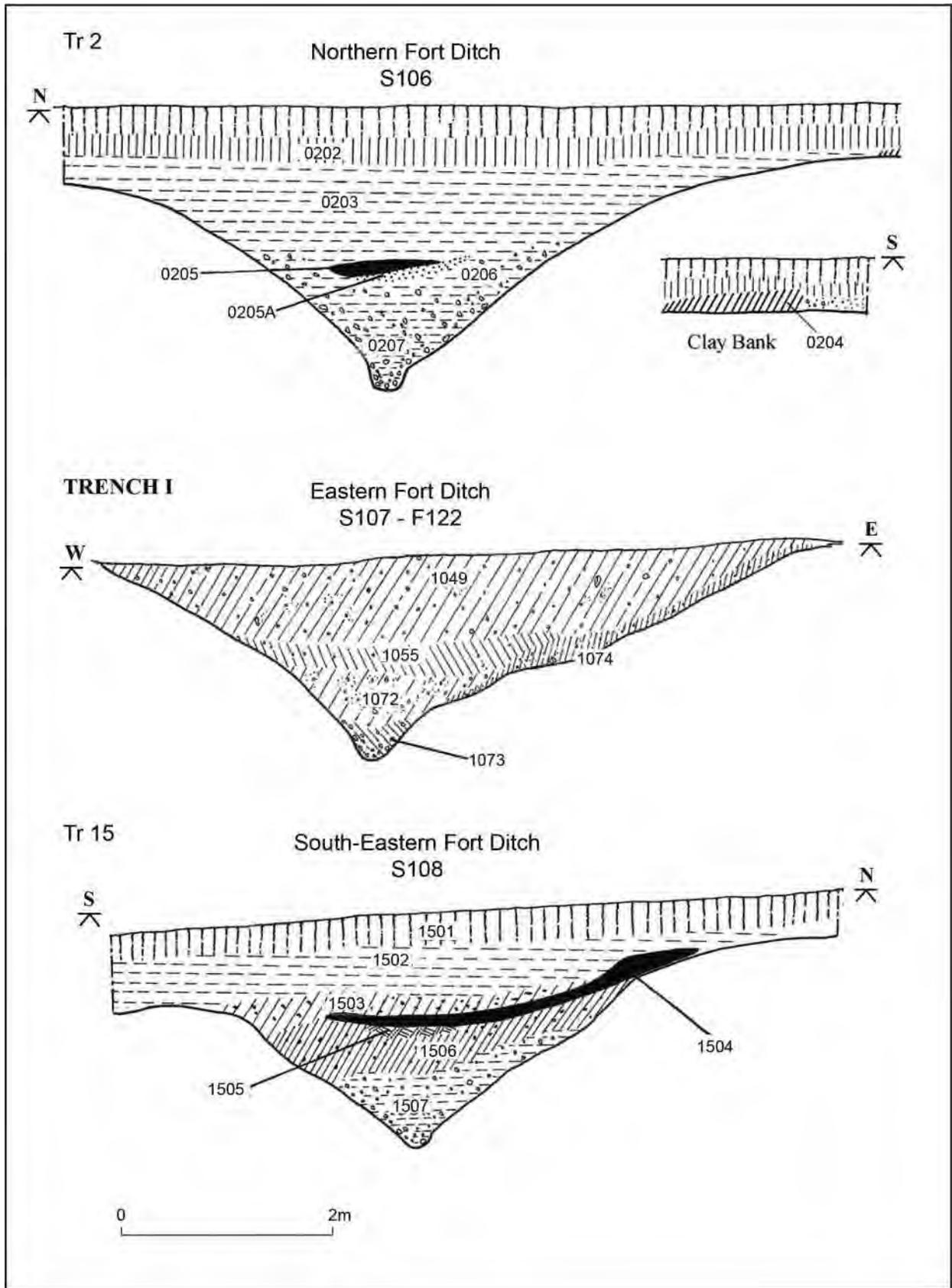


Figure 8 Phase 1 pits (F016 and F107) and Phase 2 features – the ditch and rampart in the south-west area of the fort.

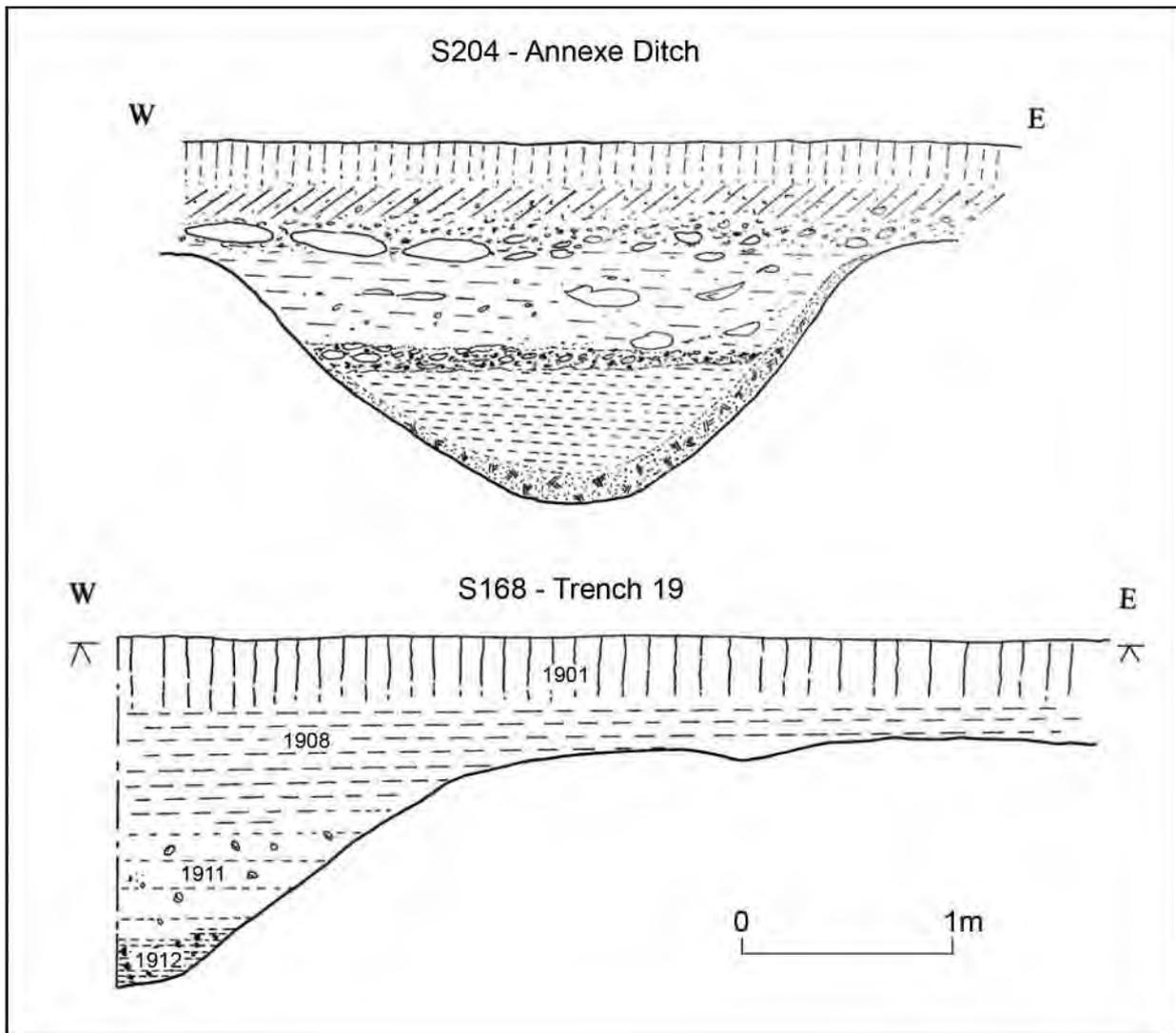


Figure 9 Sections through the Roman fort ditch.

The excavation of the ditch on the south-west side of the fort in Trench I (Figure 8) indicated that the ditch had been re-cut in Period 3, possibly along the line of earlier defences (see below). The ditch profiles were V-shaped and the ditch butt-ended within the area of excavation.

The annexe ditches

The annexe on the south-east side of the fort was formed by the main ditch turning south where it was approximately 2.2m wide. The ditch was not, however, excavated (Figure 11, Trenches 15 and 16; Figure 12).

On the south-west side of the fort, observations made during construction ground-works indicated that the annexe ditch was 2.4m wide and approximately 1.2m deep, with a U-shaped profile (Figure 13, S204). In Trench 19 the ditch was approximately 2.2m wide and 1m deep (Figure 3; Figure 13, S168). The primary fill (1912) had a very high charcoal content and was sealed by fills of stony silt (1908, 1911).

The rampart

Evidence for a rampart has been recorded as a low clay bank, significantly eroded by later ploughing. Some detail regarding the extent and form of the rampart have, nevertheless, been recorded on all sides of the fort.

At the northern part of the fort defences the rampart was recorded in Trench 2 as a bank of dirty yellow clay (0204), set one metre from, and parallel to, the edge of the ditch on its south side. The bank was 1.3m wide and

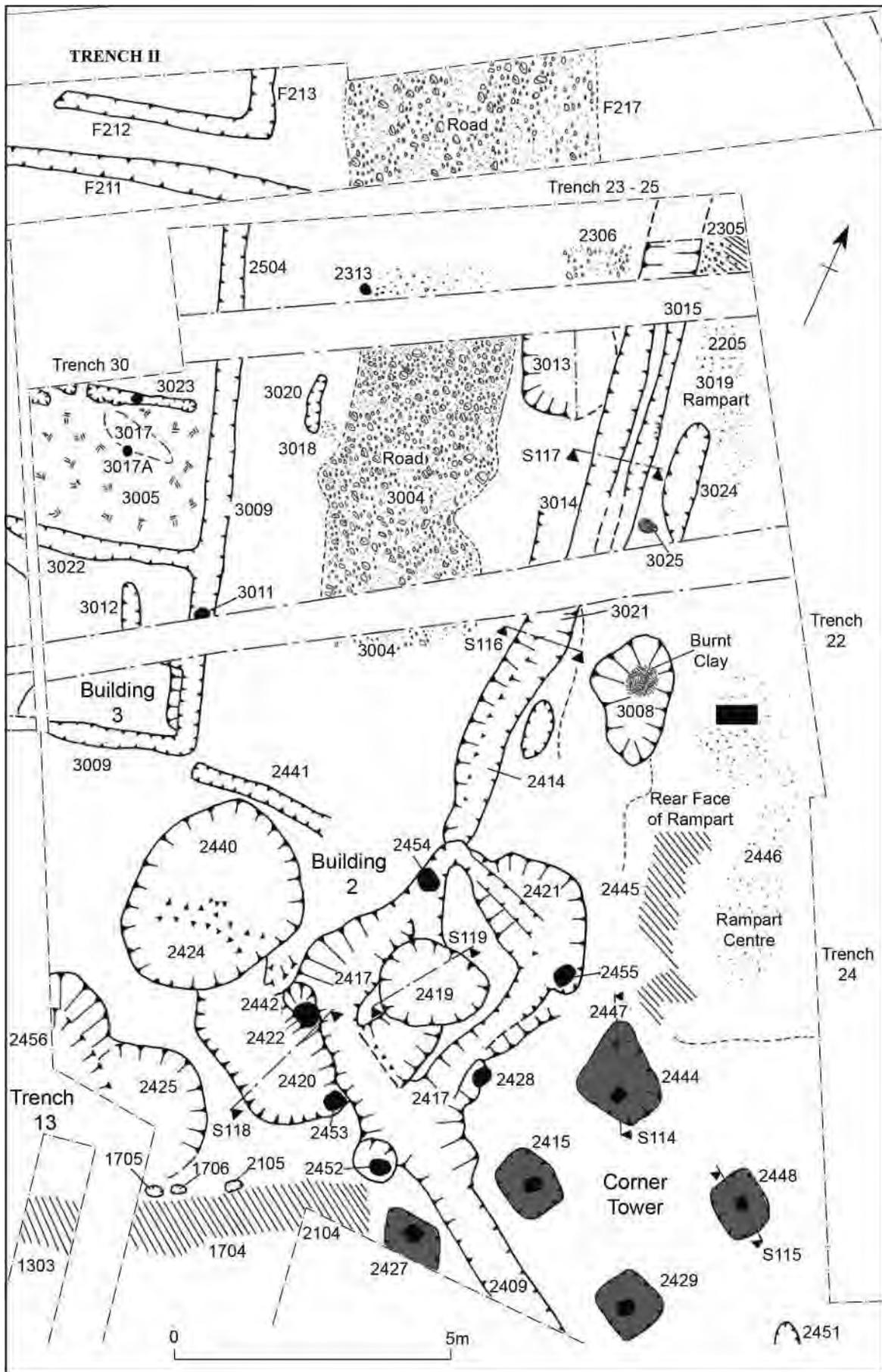


Figure 11 Plan of all excavated features in the southern and south-east area of the fort, indicating the location of more detailed plans.

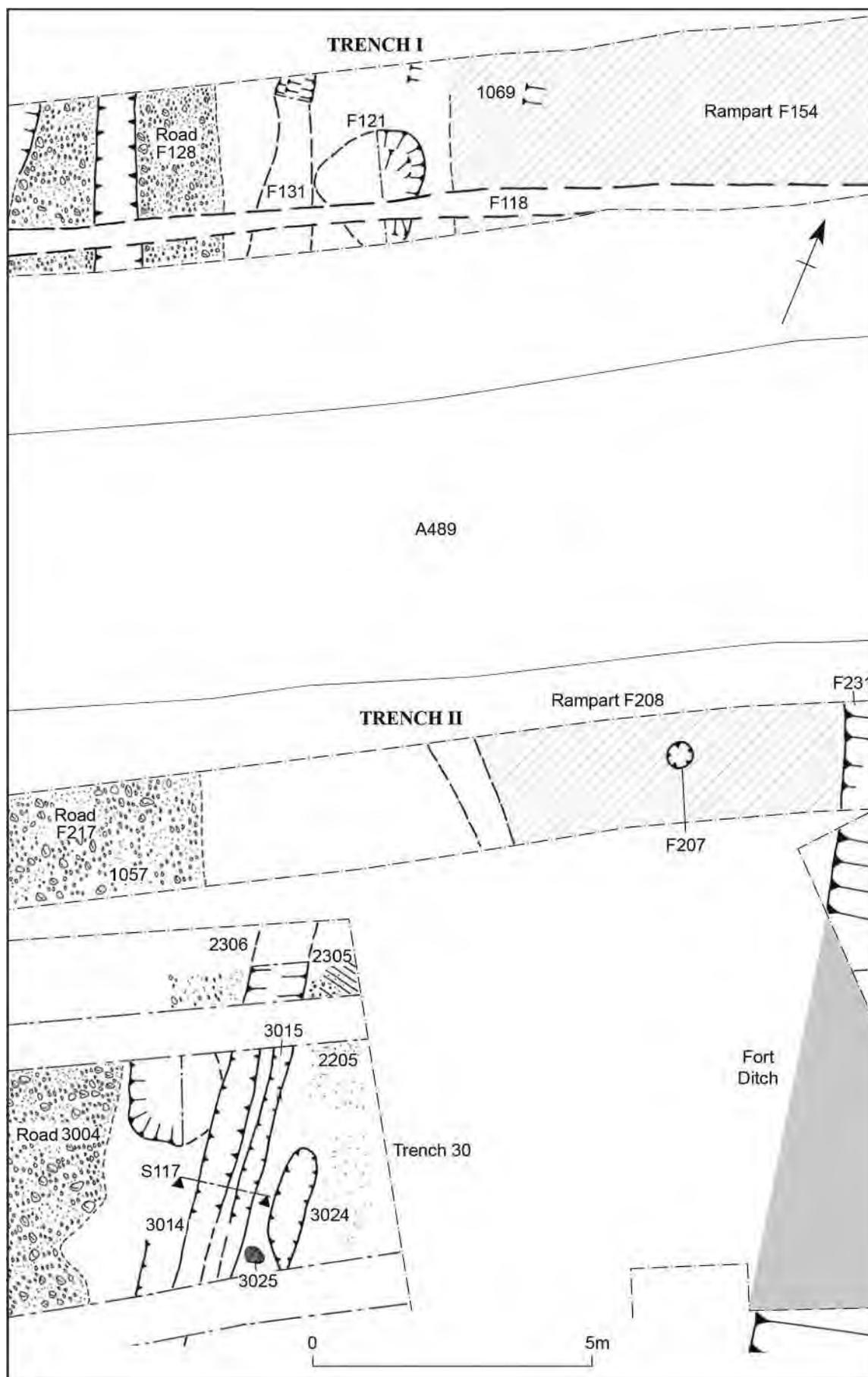


Figure 12 Plan of the annexe ditch at the south-east corner of the fort.

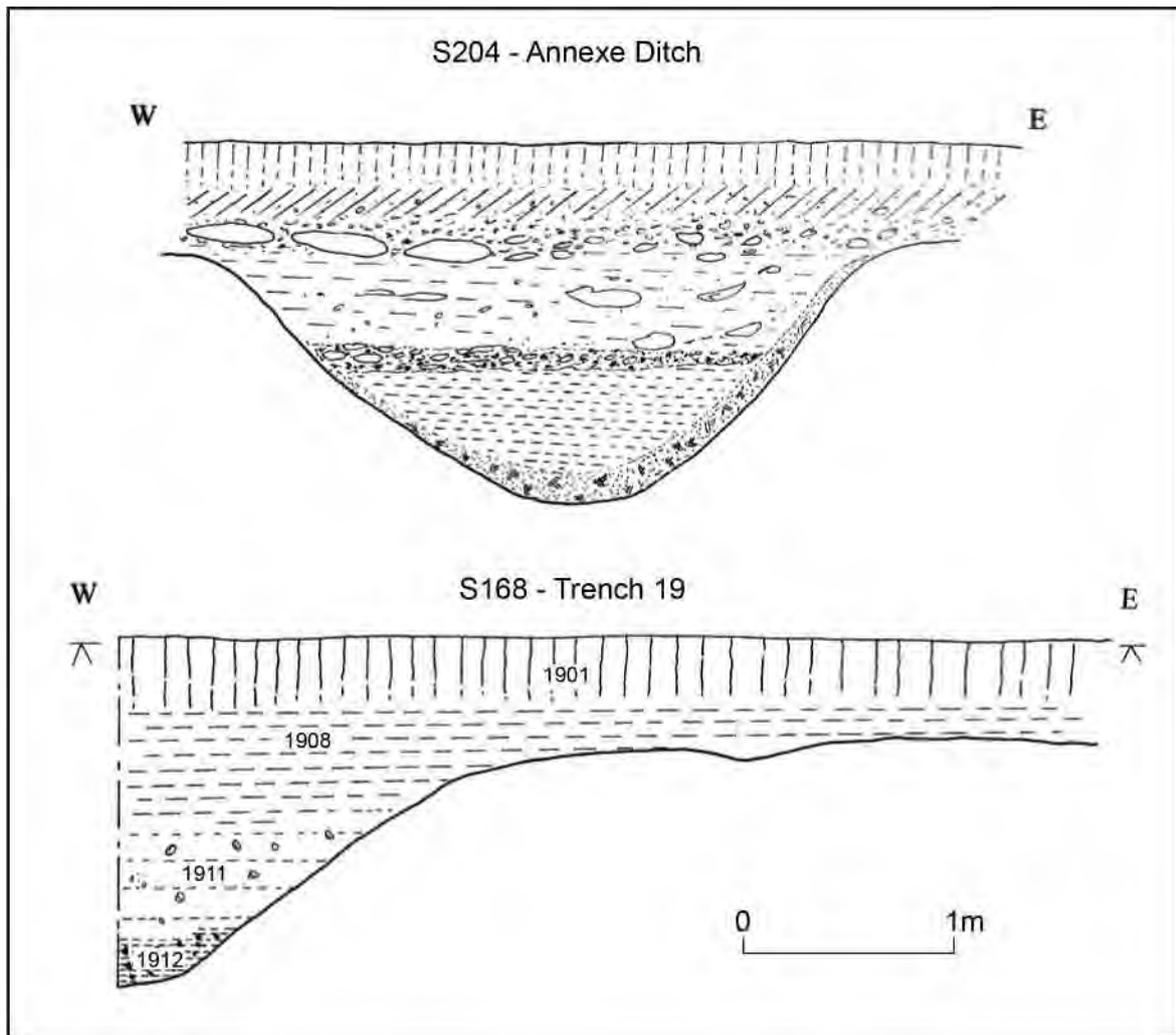


Figure 13 Sections through the annexe ditch.

approximately 200mm thick and sat directly on the natural gravel (Figure 9, S106). To the rear of the bank the material appeared to be a redeposited gravel similar to the natural. At the front of the clay bank were two closely-set post-holes approximately 30cm in diameter, cutting into the rampart (not illustrated). The position of the post-holes suggests that if they were inserted to reinforce the clay front of the rampart then this support was not uniformly spaced.

On the western side of the fort defences the rampart was recorded in Trench 4 where it consisted of a continuous band of clay located along the eastern edge of the trench (not illustrated).

At the south-west part of the fort the southern defences were defined for a length of 40m in Trench I (Figure 8). The southern rampart (F101) was exposed and its front and rear edge defined set back c.1m from the edge of the ditch, surviving to a maximum height of 0.2m. The rampart material was identified as a buff-brown silty clay which, in the centre, contained patches of decayed turf.

The rear of the rampart was also recorded nearby in Trench 18, where a clay bank (1806) was exposed 8m from the edge of the ditch (Figure 8). The bank was composed of a base layer of clay, a layer of silty gravel, and an upper layer of daub and charcoal. The small shallow pit (1809) in front of the bank is likely to be a later feature.

A post-hole (F151) was recorded at the rear of the rampart in Trench I, which was probably part of a support for the clay revetment (Figure 8). To the west, at the front of the rampart, two small post-holes (F106 and F107), are probably further examples of revetment (Figure 8). An adjacent post-pit (F105) was too large to be classified as a support post and was possibly one of the posts for an interval tower set into the rampart (see below).

The rampart was also recorded at the southern part of the fort defences in the vicinity of two gate towers identified in Trench 33 (Figure 14). A thin spread of dirty-yellow clay with some stony gravel (3317) was present in the area of the east gate tower and to its east (3319 3334/3337/3340/ 3362). In places this matrix

became a reddish gravel which was interpreted as the centre of the rampart. The front of the rampart was not determined.

Further east the rear face of the rampart was also exposed in Trench 13 (Figure 15). It appeared as a band of yellow clay (1303), 1.3m wide and up to 0.25m deep. The clay had been laid directly on to the natural surface, which had been levelled so as to form a horizontal platform. The clay bank extended eastwards into Trench 24, (1704 and 2104; Figure 15). Three post-holes (1705, 1706, and 2105) were cut into the natural surface close to the rear face and may have formed a revetment.

The rampart was also recorded on the east side of the fort in Trenches 22 and 24 (Figure 15). In this area the rampart core was composed of an orange-red gravel (2446) laid straight on the dirty-orange natural surface with a clay bank (2445) forming its rear face. Further to the north the rampart was composed of an extensive area of orange-red silty clay with stone (2205) and a small area of orange silty clay (2305).

The rampart located along the east side of the defences was also recorded in Trenches I and II (F154 and F208; Figure 16). It was 6m wide with a maximum thickness 0.15m and was composed of buff-orange, stone free, silty-clay containing patches of decomposed turf. The width of the berm was approximately 1m. A post-hole (F207) was found covered by the collapsed rampart.

To conclude, the rampart was made up of three components, an inner core of gravel possibly obtained when the ditch was dug, with a clay front and rear face, approximately 1m wide. Both the front face and the rear face were reinforced by posts driven into the natural surface. The random distribution of the posts suggests that the reinforcement was done on an *ad-hoc* basis.

Gates and corner tower

The south gate of the fort was almost completely excavated and the west gate, which had shown up well on aerial photographs, was also investigated. The north and east gates of the fort have not, however, been tested by excavation.

The south gate

The south gate was found to consist of two six-post towers (Figure 11; Figure 14; Plate 3). The six supports of each tower were arranged in three pairs to form a rectangular structure. The gate was of a design Group IVB, (Manning and Scott 1979) consisting of two six-post towers either side of a twin portal carriageway created by two posts supporting an original overhead walkway.

The east tower of the gate was identified by its six large post-pits arranged in pairs (Figure 14, 3311, 3312; 3313, 3330, 3331 and 3332). The post-pits were c.1m square in plan and 1.15m deep, with steeply sloping and vertical edges. Four contained rectangular post-pipes, 0.2m square (Figure 14; Figure 17, S146). Post-pit 3312 was square in plan but, unusually, contained two distinct post-pipes. Neither of the post-pipes gave any indication of replacement or removal, suggesting that they were in use at the same time.

The western tower was defined by five pits recorded within the excavated area (Figure 14). Four were completely excavated (3305 and 3306, 3316 and 3321), but only part of the fifth (3327) was contained within the northern edge of the trench. The plan of the western tower was similar to its eastern counterpart and the post-pits excavated were comparable in dimensions and shape to those in the east tower.

Within the area of the carriageway and entrance, two post-pits lay on a north-south alignment, dividing it into two. The southern pit (3319) was sub-rectangular and larger than any of the tower support pits. The south side of pit 3319 contained a post-pipe resting on a bed of compacted stones (Figure 17, S147).

Both the east and west towers had small gullies or slots extending from two central post-pits into the area of the entrance carriageway (Figure 14). The eastern tower included a post-pit (3313) which was joined by an east-west linear gully, which extended into approximately half of the east carriageway (Figure 14). The gully was 1.3m long, and up to 0.6m deep, with an almost vertically sided cross section and a flat base. The fill of both pit and gully was a uniform stony grey clay-silt. A similar feature was recorded extending from the central post-pit (3321) of the western tower and into the area of the carriageway. Together, the extensions jutting out from the central post of each tower covered a little more than half the carriageway.

These slots or gullies may have originally carried threshold-beams, from which were slung two gates. There was, however, a significant change of depth along the length of these slots which would not be helpful in providing a solid foundation for what must have been a very large timber beam. An alternative interpretation is that the gullies were foundation trenches for walls which would partially block the two portals. Perhaps it was considered prudent to reduce the risk of penetration through the south gate by constricting the passageway.

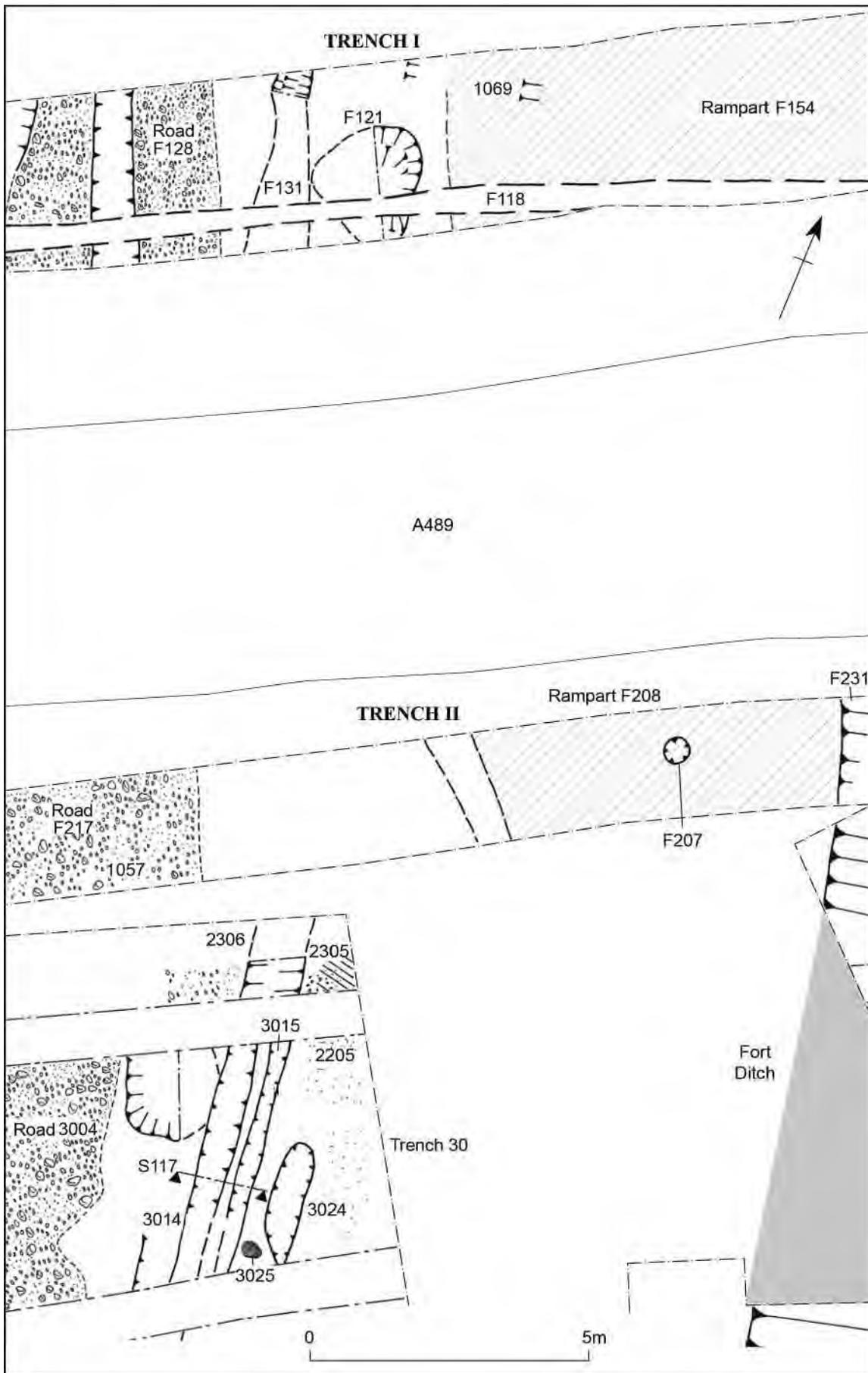


Figure 16 Plan of archaeological features behind the rampart in the south-eastern area of the fort.



Plate 3 Aerial photograph of excavations in the area of the southern gate towers, looking north.

The south-east corner tower

Five large pits with evidence for timber posts were recorded at the south-east corner of the fort (Figure 10; Figure 15, 2415, 2429, 2427, 2444 and 2448). These may have been part of an original six-post structure aligned south-west to north-east.

The southernmost pits (2429 and 2448) were positioned with the post set back approximately 2m from the edge of the main fort defensive ditch. The post-holes would appear to be grouped in pairs, one forward and one to the rear, and there is a strong probability that a sixth post existed in the unexcavated area to the south-east of 2427. The pits were rectangular in plan, between 0.95m and 1.3m in width with post-pipes of c.0.2m². Invariably the post-pipes extended the complete depth of the pits (Figure 17, S115). A layer of charcoal was found in the sides of the lower end of the post-pipe within pit 2448, which may suggest that the post had been charred to aid preservation. A second, smaller, post-hole had been dug into the corner of Pit 2444 and was filled with a soft silt which did not show a post-pipe (Figure 17, S114).

No evidence was recovered which might indicate how the structure was removed or deteriorated. The post-pipes showed clear, sharp profiles from top to bottom. The posts could have been lifted out vertically, cut off at ground level, or the complete tower left to rot *in situ*.

Possible interval towers

The area covered by the excavations did not reveal conclusive evidence for the presence of interval towers, although the recording of certain substantial post-pits may suggest their original presence. In Trench 1 in the northern area of the fort (Figure 3) a large post-pit (0131) with a square post-pipe (0130) could be interpreted as being part of one such tower.

In the south-west corner of the fort a single post-pit was found near the rampart spread (Figure 8, F105) containing a post-pipe 0.2m square. The size of the pit and post hole is similar to those in the south gate and corner tower pits, suggesting the presence of a further tower at this part of the defences.

The excavations in the south and the south-east corner of the site revealed no evidence for interval towers, but as the position and size of the trenches did not include the most likely locations for such structures, their original presence remains untested and unproven.

Via Sagularis (inter-vallum road) and other internal roads

The *via sagularis* was identified on three of the four sides of the fort. Where it was protected by a hedge bank it was in good condition, but in common with the other deposits on the site considerable damage had been done by

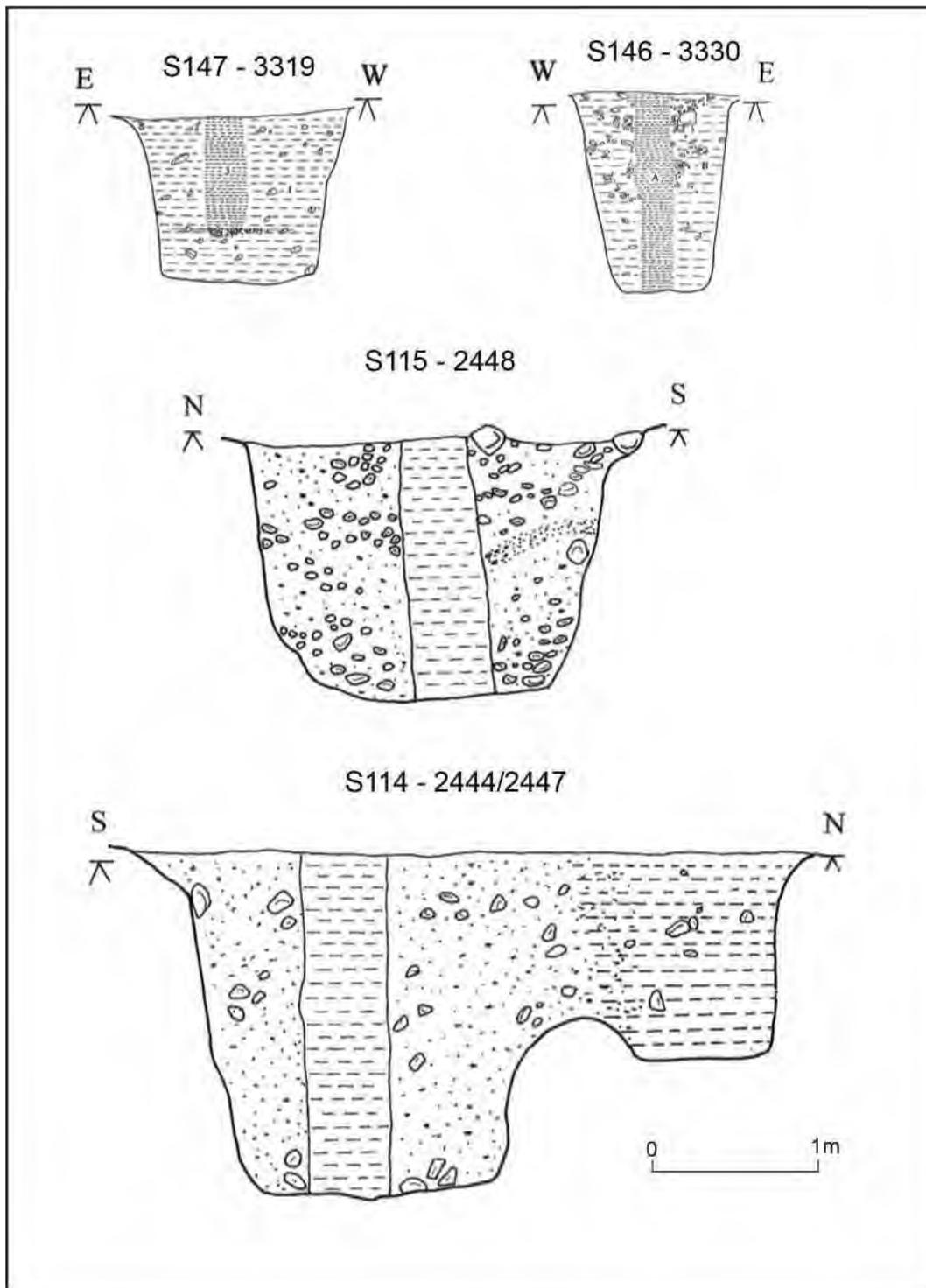


Figure 17 Sections through post-pits belonging to the southern gate towers and south-east corner tower.

ploughing. In general, the road surface was composed of rounded pebbles of varying sizes mixed with clay and compacted into a solid surface. The surface was laid directly on the natural gravel in the majority of instances, which implies that the top soil was stripped prior to construction. In only one instance was a possible road drain found, and in only one instance was a noticeable camber detected.

The *via sagularis* was identified to the rear of the rampart in southern, western and northern areas of the fort. In the southern area of the fort to the east of the southern gate a compacted area of pebbles (Figure 14, 3315) was recorded 15–25mm thick. Adjacent and to the east a more substantial section of the road was recorded where it had been better preserved by its immediate proximity to the hedge bordering the southern side of the modern road. It was composed of at least four layers of rounded pebbles mixed with dirty yellow clay (3329) to form a hard

surface approximately 60mm thick. In Trench II the road extended to the north-west (F230) where the top surface was found to contain slightly larger stones than the area to the south and east.

Further south, away from the immediate protection of the modern hedge, the surface of the *via sagularis* had been mostly destroyed by a combination of ploughing and phase 2B activities. Following the expected line of the road eastwards from the south gate, the surface rapidly deteriorated.

In the south-east area of the fort the *via sagularis* was identified in Trench 30 as a compact stony layer (3004) aligned north-south (Figure 15), continuing within Trench 23, approximately 100mm thick and laid on to a red-brown silty material containing flecks of charcoal. To the north a large area of the road was also visible towards the eastern end of Trench II (F217). The surface had been removed on its eastern edge and what remained showed considerable damage due to root action. The road was cambered in an east-west direction, and composed of pebbles of various sizes up to a maximum of 80mm. To the north of the A489 the *via sagularis* continued as a surface of compacted stones in Trench I (Figure 16, F128).

On the western side of the fort, the *via Sagularis* was identified in Trench 3, overlying earlier re-deposited gravel and two small post-holes. The road was approximately 6m wide at this point, with a possible drainage ditch on its western edge. What remained of the road surface was composed of rounded stones up to a maximum thickness of 70mm.

A further area of pebbling which may have been a fragmentary portion of intervallum road in the northern area of the fort was discovered in Trench 51 (Figure 3). A wide spread of clay could be construed as remnants of the northern rampart, with a linear area of scattered road pebbling lying immediately south of this. It is also possible that the pebbled surface related to later Roman industrial activity within the fort (described below, Phase 2B).

The west gate entrance road

Trench 4 (Figure 3) was cleaned down to a road surface which covered most of the area within the trench. The top layer was composed of stones whose size varied from c.20mm to 150mm. The upper layer of the road had suffered areas of disturbance, presumably due to plough damage. Unfortunately, unforeseen circumstances led to suspension of work in this trench.

The south gate entrance road

Inside the area of the gate a scattered, much damaged, pebble surface (Figure 14; 3322) covered the eastern carriageway of the gateway and spread northwards. The road was recorded further north within Trench 36 (Figure 3; Figure 18, 3622). The condition was, however, poor, consisting of a single layer of pebbles. These metallised surfaces can be interpreted as part of a principal north-south road inside the fort.

The external east road

The flanking ditches of a road leading east from the fort were recorded within Trenches III and IV and during the earlier evaluation phase (Figure 4; Figure 5; Figure 7). The north ditch (F311; F1) had a sloping-sided flat-based profile, 1.4m wide, and between 0.65m and 0.8m deep (Figure 19, S100; S101; S105).

The south ditch (F304) was 1.4m wide and 0.65m deep (Figure 4; Figure 5; Figure 19, S103). In contrast to the northern ditch it had a V-shaped profile. All the fill sequences suggested a gradual infilling rather than a deliberate backfill.

No remnant of road surface was detected during these excavations, and it was assumed to have been removed by agricultural activity. The alignment of the ditches suggested that the road was curving away to the south, possibly to take an eastern valley route.

Buildings

A number of buildings were recorded in the southern and south-eastern area of the fort (Figure 11). All the buildings found were originally of timber construction and the construction trenches are all that remained, as plough damage had inevitably caused the loss of other possible features such as floors (Plate 4). Further damage had also been done by the later Phase 2B occupation. It is, nevertheless, possible to put forward a tentative layout for approximately a quarter of the fort plan. Buildings recorded have been interpreted as possible barrack blocks aligned with the fort's axes, in addition to other structures of indeterminate function.

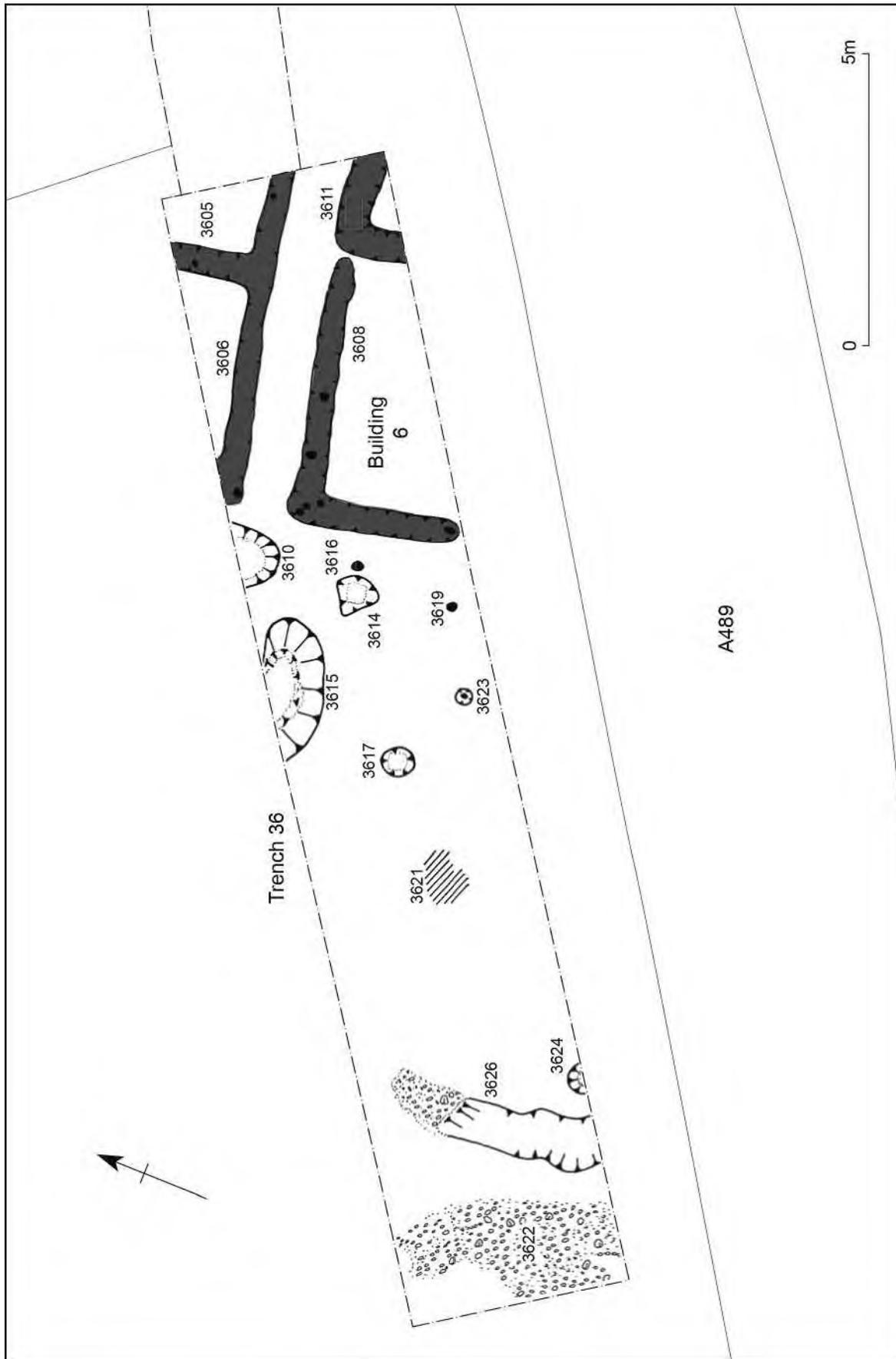


Figure 18 Plan of features within Trench 36 in the southern area of the fort, including Building 6 foundation slots, pits, hearths and surfaces.

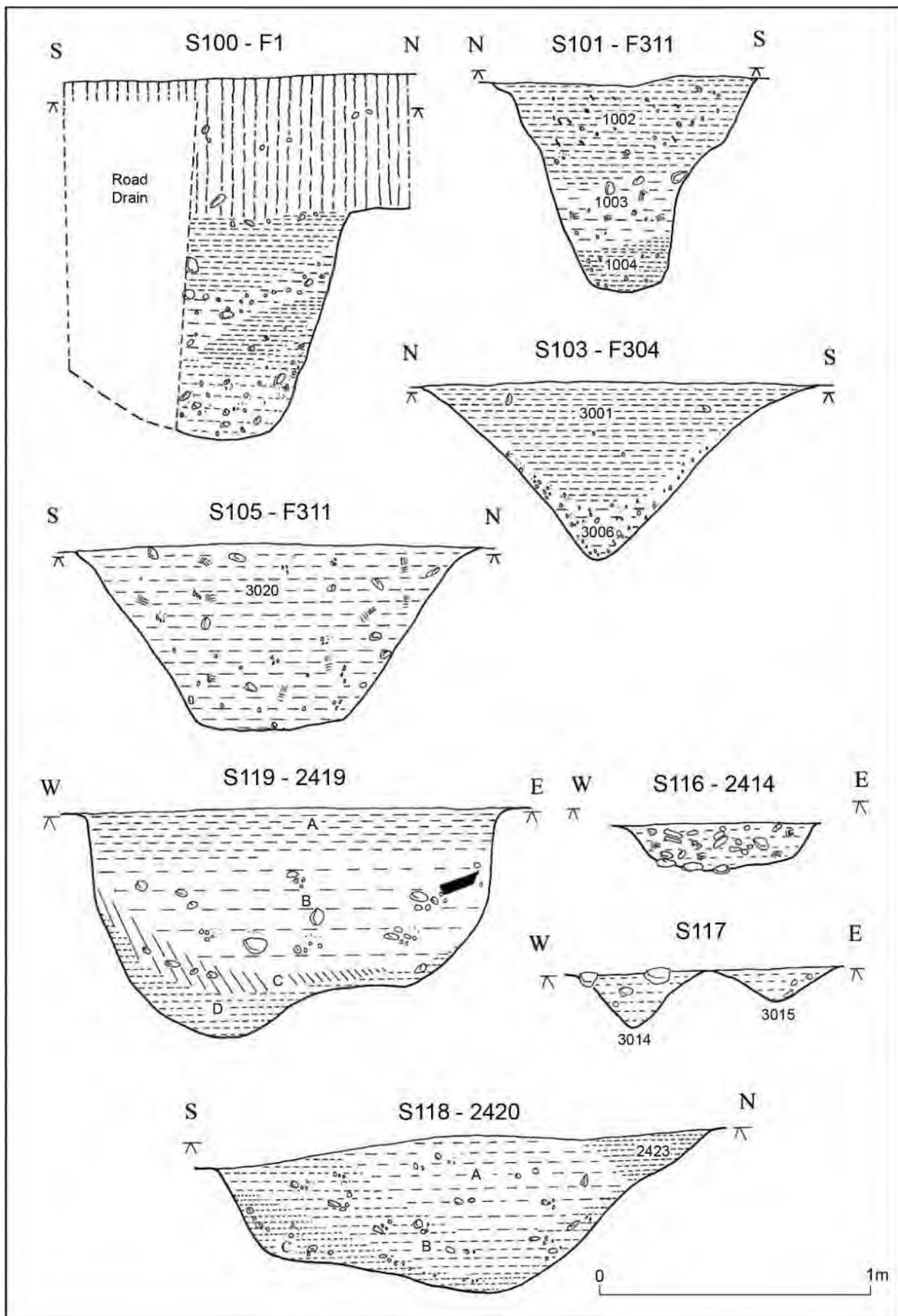


Figure 19 Sections through the eastern road ditch and selected pits and gullies.



Plate 4 Buildings 5 and 4 construction trenches, Trench 37, looking east.

Building 1

This rectangular building was located close to and north of the east tower of the south gate, its four sides being formed by construction slots (Figure 14, F236, F242, 3325). The north wall construction trench (F242) had sloping sides and a rounded base, the fill was predominately a clay silt. A stone-packed post-hole (F243) cut into the north edge of the construction slot. The construction trench of the west wall (F236) was steep sided and up to 0.25m deep. The south wall construction trench (3325) was steep-sided but very shallow, on average approximately 0.03m in depth, with the east wall construction trench (3325) being up to 0.25m deep.

The only feature inside the building was a pit (F235/ 3318), which occupied a central position in the northern half of the enclosed space. The pit was oval in plan and *c.*2m long; its sloping sides formed a bowl-shaped profile with a maximum depth of 0.56m. The primary fill consisted of a thin stony layer covered by a layer of stony silt, containing several larger stones up to 100mm in size, together with fragments of burnt clay. The top layer, a hard silty clay, contained charcoal and small quantities of burnt clay.

The position of Building 1 close to, and to the rear of, the south gate strongly suggests its function was that of a guard house. The function of the pit is more difficult to define. Its size would appear too large for a simple hearth used for cooking and heating.

Building 2

This building was located at the south-east corner of the fort, directly to the north of the south-east corner-tower (Figure 15). The structure was identified by six post-holes (2454, 2455, 2428, 2452, 2453, and 2442), which defined a trapezoidal area further delimited by an approximately rectangular gully (2417). This gully was wider on the north-west and south-east side of the building and had a rounded base. At its most southerly point it joins a linear gully (2409), which continues through the south-east corner tower and beyond the excavated area, possibly discharging into the fort ditch.

A further linear gully, extending from the north, joins the north-west corner of the rectangular drainage gully (Figure 15, 2414). The gully (F131) was recorded in Trench I at its northernmost extent and was flat-based, 0.65m wide and 0.13m deep (Figure 16) and split into two separate gullies along part of its length (3014 and 3015; Figure 19, S117). This gully system is likely to be the carrier of a water supply to Building 2 from a northerly direction.

A circular pit (2419), 1.9m diameter, and 0.8m deep, was located at the centre of the building and contained a primary fill of fine red-brown silt (2419D), possibly organic in origin (Figure 19, S119). The pit was connected to gullies 2417 and 2409, via two further shallow gullies.

The pit and gully systems could, however, only be contemporary with the building if a raised floor was present. The gullies and pit may, nevertheless, suggest the building's function was to house a latrine.

Building 3

This rectangular building was located in the south-east corner of the fort, aligned parallel to the fort defences (Figure 20). The structure was defined by construction slots which were generally steep-sided and flat-bottomed, 0.3m wide and up to 0.15m deep (F123, F213, 2504, 3004 and 3009 on the east side; F125, F215 and 3708 on the west side and 3009 on the south side). Post-holes were recorded within several construction slots indicating that they originally held upright timbers.

The building appeared to be constructed in two distinct parts. The southern part of the building was 10.5m long and 9m wide. The northern part of the building was only partially exposed in Trench I, where it was 7.5m wide (Figure 20). F212 appears to mark the southern extent of the northern half of the building, with slot F214 marking the northern extent of the southern part of the building. The full length of the building could not be determined, but it may have extended northwards to meet an east–west road inside the fort.

The building contained several internal divisions, defined by slots at right angles to the principal walls. The northern section of the building was divided by an east–west aligned slot (F124) with a post-hole (F126) at the junction with the outer eastern wall.

A substantial north–south aligned construction slot divided the southern part of the building into two halves (F224/ 3704). Seven small post-holes were located within in the fill with a larger post-hole (F233) at its northern end at the intersection with the east–west wall (F214).

Further internal divisions were recorded to the east and west of this line. Two cross walls (3022 and 3023) were recorded in the eastern half of the building, dividing it into three rooms, with gaps suggesting entrances between them. The area between the two slots defined a small room with traces of a floor made up of two layers of dirty, reddish clay (3005 and 3017A). A single small post-hole was also found, together with a post-hole within slot 3023. In the south-eastern part of the building a small L-shaped slot (3012) was recorded cutting into the edge of the east wall trench, suggesting that it is secondary feature.

The west side was also partitioned into three rooms by two east–west aligned construction slots. The northern cross-wall construction slot (3707) contained four post-holes and maintained an entrance gap of c.1m with the central north–south wall slot. A parallel construction slot was recorded to the south (3706) which served to define a narrow room slightly less than 2m wide. Three relatively large post-holes were located in the fill.

The southern room contained a north–south aligned gully (3709), running in a north–south direction and filled by clay overlain by a soft brown silt (3709A). Its wide, and somewhat shallow, U-shaped base lacked the steep sides associated with construction slots, although a post-hole was recorded at its northern end.

A large entrance gap of approximately 2.5m was recorded at the south-west corner of the building. The substantial post-hole recorded at the end of construction trench 3711 was matched by a smaller post-hole in the south end of the west wall trench.

Building 3 has all the usual characteristics of a barrack block. The separate south part is close to the rampart and is commonly thought of as the *centurion* or *decurion* quarters. However, the south-west room is certainly not characteristic, its wide entrance and central gully (3709) suggesting it may have been used as a stable (see below).

Building 4

This building was located to the west of Building 3 and shares a similar alignment and dimensions (Figure 20). The two buildings were separated by a metallised surface, which is likely to be the remnant of a continuous surface between the two buildings (F218/ 3714, 3743/4).

Three principal wall construction slots were recorded on the eastern (3736/ F220), southern (3734) and western (F225) sides of the building. Further north within Trench I a small slot (F134) is approximately on the line of the west wall, but its relationship with the building is far from certain.

Eight post-holes were found in the fill of the foundation trench of the southern wall 3734, which terminated at the eastern end with two post-holes (Plate 5). A wide entrance gap between walls 3734 and 3736 was apparent in the south-east corner of the building, opposite a similar entrance in Building 3.



Plate 5 Building 4 construction trench, looking west.

A short construction trench 3729, extending at right angles from the west wall of the building, joined the construction slot of the east wall of Building 5 (3728). A large post-hole, was found in the fill of this connecting slot close to its western end. It is possible that this short slot and post-hole played a part in strengthening or shoring up the walls in this area.

Within the building a central dividing wall was present in the form of a north–south aligned construction trench (3738/ F250), with post-holes recorded at various points along its length.

Further dividing walls were represented by construction slots within the western half of the building. Slot F248 ran at right angles to the central construction slot (F250), stopping short of the west wall (F225) at a post-hole. A partial cross wall is indicated by a shallow steep-sided slot containing three small post-holes (3726). A large possible entrance gap was apparent between its eastern end and the central dividing slot 3738. No corresponding partition walls were found in the eastern half of the building, but, unfortunately, modern pipe trenches damaged the building at points where these might have been expected.

A large trough-like gully (3739) was located within the south-eastern part of the building. It was 4m long, had sloping sides and a rounded base and was 0.47m deep. It was unlike a construction slot for walling. The gully was lined with a compacted stone and stiff clay *c.*10mm thick and was filled by compacted stones mixed with a silty clay, which may also have acted as lining within the gully. Two post-holes were recorded cutting the lower fills of the feature. This trough, whilst perhaps not waterproof, nevertheless seemed to have been built as a container.

On the same alignment and to the west of 3739 was a smaller, and much shallower gully (3752), bounded to the west by a small partition wall slot (3751) and surrounded by cobbling which may have been a working surface, or hard standing.

The shape, size and layout of Buildings 3 and 4 suggest that they are barracks buildings. The cobbled surface between the buildings constitutes a service area or road, the *via vicares*, between two barrack blocks.

Usually the end nearest to the rampart, which would be the southern end of both these buildings, is considered the residence of the *centurion* or *decurion*, but the southern ends of both these buildings suggest that something different was happening here. The southern portions of Building 3 and Building 4 may instead have been used for the stabling of horses. The facing, wide, barn-like doors or open fronted rooms may have given access for horses to enter for stabling inside. The linear trough-like features in each room, with their upright posts possibly for tethering, may have contained foodstuffs, or possibly were for the containment of manure. In each of Buildings

3 and 4, beyond the initial room for stabling, a wide doorway led through to an inner room. Here partition walls delineated a small squared off area which might well have supported a raised platform for hay and/or fodder. Parallels can be drawn with the Roman fort at Wallsend at the eastern end of Hadrian's Wall, where rows of military barracks have stabling at one end, each room having a linear trough-like gully set into the ground which it has been surmised was for the collection of horse urine (Hodgson 2003, 80–6). At Pentrehyling, this interpretation is strengthened by the fact that these rooms were downslope of the rest of the building, allowing urine to drain away from the structure.

Building 5

This building was approximately half the width of Buildings 3 and 4, suggesting a different function (Figure 20). The east wall was located by a construction trench (3728/ F226), with an adjoining construction slot (3729) linking with Building 4 to the east. Six post-holes were found in the fill of the eastern wall slot 3728; four of them were very much larger than average. The post-hole in the construction slot (3729) is most probably also part of the east wall structure, adding extra strength to this wall.

The construction trench for the south wall (3724) included a relatively large post-hole at the junction with the east wall and a further ten smaller post-holes were identified along its length. The slot protruded slightly at the corner with the west wall (3721) in order to accommodate a further post-hole. The west wall construction trench (3721) also contained two post-holes.

Two construction trenches for internal walls, running parallel to the west wall, were located within the south-west part of the building (Plate 6). Slot 3722 was joined to the south wall slot and two post-holes were found in the fill. A second internal wall slot (3723) was also aligned parallel with the west wall and contained three post-holes.

The internal construction slots (3722 and 3723) have a spacing characteristic of the foundations of supports for a raised wooden floor. A granary has such a floor, but normally the number of slots would be increased to cover the complete width of the building. The evidence supports the hypothesis of a raised floor running along the west wall only. The large post-holes in the east wall suggest that this wall was made deliberately stronger, perhaps to support the side loading resulting from stores stacked against it. The mostly likely purpose of Building 5 is that of a store, with some of the goods requiring a damp resistant floor.

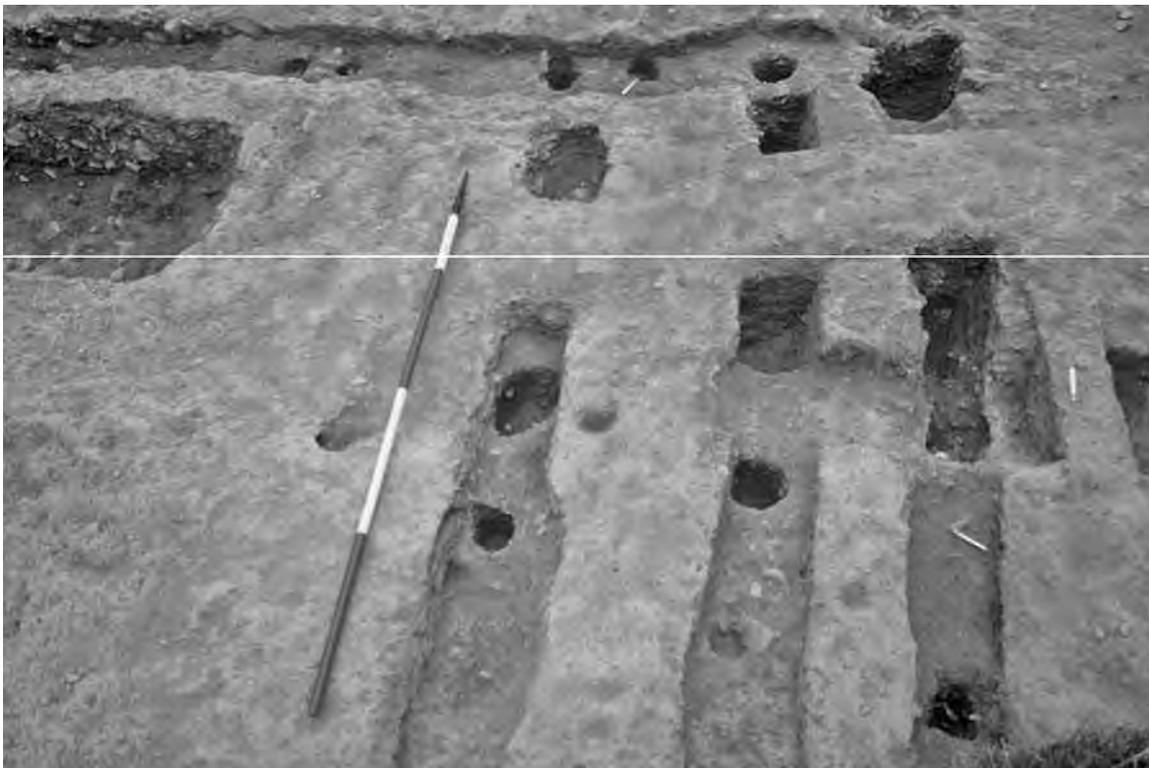


Plate 6 Building 5: construction slots on the western side of the building, looking south.

Building 6

This building was recorded further to the west within Trench 36, and on a similar axis to those buildings described above (Figure 3; Figure 18; Plate 7). The building seems similar to Building 3 in its apparent division into northern and southern blocks, although its full extent was not exposed and thus its dimensions cannot be established.

The northern part of the building consisted of an east–west foundation slot (3606) from which extended a north–south slot, 4m from its west end (3605). Small post-holes were recorded in the fills of these features.

The southern part of the building was made up of two L-shaped construction slots (3608 and 3611), which formed an east–west wall, and a north–south wall on the western side of the building and a possible north–south internal division. These foundation trenches defined a similar building plan to those of the northern part of the building. The foundation slot 3608 on the west side of the building contained several post-holes. All the foundation slots were *c.*0.4m wide, the depth of the slots in the north part of the building being *c.*0.25m, and those in the south part, 0.38m due to better preservation.

The tentative conclusion is that Building 6 is a two-part barrack block similar in its dimensions and layout to Building 3. The southern part of the building was either the *centurion's* or *decurion's* quarters with the other men of the unit being housed in the northern part.

Other possible buildings

In Trench 19 (Figure 3) a section of what appeared to be a steep-sided construction trench was found running in a north–south orientation across the eastern end of the narrow trench (not illustrated). This would place a building south of the main south ditch and within the area of the annexe.



Plate 7 Building 6 construction slots within Trench 36, looking south-west.

Phase 2A and 2B: The *vicus* and industrial activity

Our present level of understanding is that a *vicus* existed on the east side of the fort, and is most probably located on either side of a road coming from the east gate. It has not been possible to separate Phase 2A from 2B in the *vicus* area and, in fact, there is no necessity for there to be a discontinuity in operation.

Activity relating to the *vicus* was identified in Trenches I, II, III and IV and Trenches 31 and 32 (Figure 3) in addition to observations made during works associated with the road widening programme. Several hearths, pits and gullies were identified across these areas which were probably associated with metalworking activity and frequently contained fragments of lead, litharge and other metallurgical residues.

In Trench I and Trench 35, to the east of the fort ditch (Figure 10; Figure 21), a number of pits were recorded associated with connecting narrow gullies, together with further pits and gully features relating to industrial activities.

A flat-based oval pit (F145/ 3513; Figure 22, S132) contained silt (1103) and a burnt clay lining (1087) overlain by silts and charcoal rich silts (1086 and 1088) containing some slag, nails and ironwork. A hearth (3512) was recorded in the southern part of the feature together with an attached gully (3508). The hearth was stone-lined and filled with charcoal mixed with burnt bone. Gully 3508 was 0.33m wide, 0.17m deep, U-shaped in section and filled with a dark brown clay. The south end of F145 was cut into by a further flat-based gully (F147).

Another substantial pit (3505), with interconnected gullies (3511 and 3514), was recorded to the east (Figure 21). The pit was sub-rectangular with a rounded base and 1.2m deep (Figure 22, S133). The dark charcoal-rich primary fill (3505g) was overlain by pale brown silt (3505f), dark silty clay (3505e), and silty clay with charcoal (3505d). This was overlain by burnt clay and charcoal (3505c) with lead metalworking debris, above which was a dark silty clay with charcoal (3505b). The upper fill (3505a) of hard clay contained pieces of iron. The storage of water is a possible primary function of Pit 3505, later used as a metalworking hearth with three successive phases of use.

A sunken hearth was excavated to the east (3507; Figure 21) and to the east of this an oval pit (F142) was recorded 0.88m, deep and 1.6m long, with steep sides and a rounded base (Figure 22, S135). The primary fill (1097) was a charcoal-rich, stony silt containing smithing slag, hearth bottom and iron nails, above which lay redeposited gravel (1096). Pit F142 was cut by a gully F150 which connected with the eastern end of the gully 3514 and pit 3505 to the west. Gully F150 may, therefore, have supplied or drained water from pit 3505.

Two deep pits were recorded to the east. A large oval pit (F144), was 2.5m long and 1.5m wide and at least 1.3m deep (Figure 22, S136). Two deposits of charcoal occurred in the lower part of the pit, sealed by silt fills and a dump of clay (1083, 1084, 1101). Finds included ferrous material, slag, several bronze objects and a lump of litharge. Further to the east pit F148 was at least 1.4m deep. The fills were silty gravels, layers of charcoal, and charcoal-rich silty clays including some slag. The purpose of both pits F144 and F148 is not clear but they may have been water cisterns, used later as rubbish pits.

Further to the east a shallow U-shaped pit or gully (F143) was recorded, together with a shallow pit or gully (F141), which was filled with a silty gravel (1078) and included iron and slag. A possible post-hole (F146) was cut by a shallow bowl-shaped pit (F140) 0.6m deep (Figure 23, S137). The primary silt fill (1102) was overlain by charcoal and burnt clay representing a hearth (1081) and containing smithing slag. Subsequent fills (1080 and 1077) also contained ferrous and slag material. Pit F140 was probably originally connected with a gully to the north (F149).

Adjacent to these features was a large, steep sided, flat-based pit (F139), 3m in diameter and 0.8m deep (Figure 23, S138). The pit was filled by a thin layer of charcoal at the base (1094), followed by successive deposits of silt with burnt clay and charcoal (1093, 1092 and 1091). The upper fills were composed of silty gravels (1076 and 1090). A variety of finds from these fills included fragments of lead and litharge, and a total of 12.4kg of slag. The original function of the pit was probably associated with metal-working. A north-south aligned shallow gully (F138/ F152), 0.19m deep, probably originally joined the pit F139.

Further features associated with the *vicus* occupation were recorded directly to the south, beyond the south-east corner of the fort ditch in Trenches II and 38 (Figure 10; Figure 24). In this area a number of linear gullies were recorded interspersed by pits and hearths along with evidence for structures suggested by the presence of post-holes.

Gully F202/ 3829 was aligned north-south and had shallow edges steepening to a flat base and was 0.6m deep. The base deposit was interpreted as a hearth, overlain by a thick band of charcoal, gravel, and burnt clay. Further south the gully (3829) was filled by stony clay and rammed pebbles (3828) overlain by charcoal rich layers (Figure 25, S120, a-e; S121; 3821, b, c, d, e) and sealed by a dark silty loam (2821a). Further south (3821) the base of the gully was also lined with a rammed layer of stones, but sealed by a layer of thick clay which appeared water deposited (Figure 25, S122, 3821, d-e) suggesting it acted as a water container or carrier. Subsequent fills (S122, 3821, a, b, c) were charcoal rich clay-silts. Finds included several pieces of litharge, slag, lead metalworking

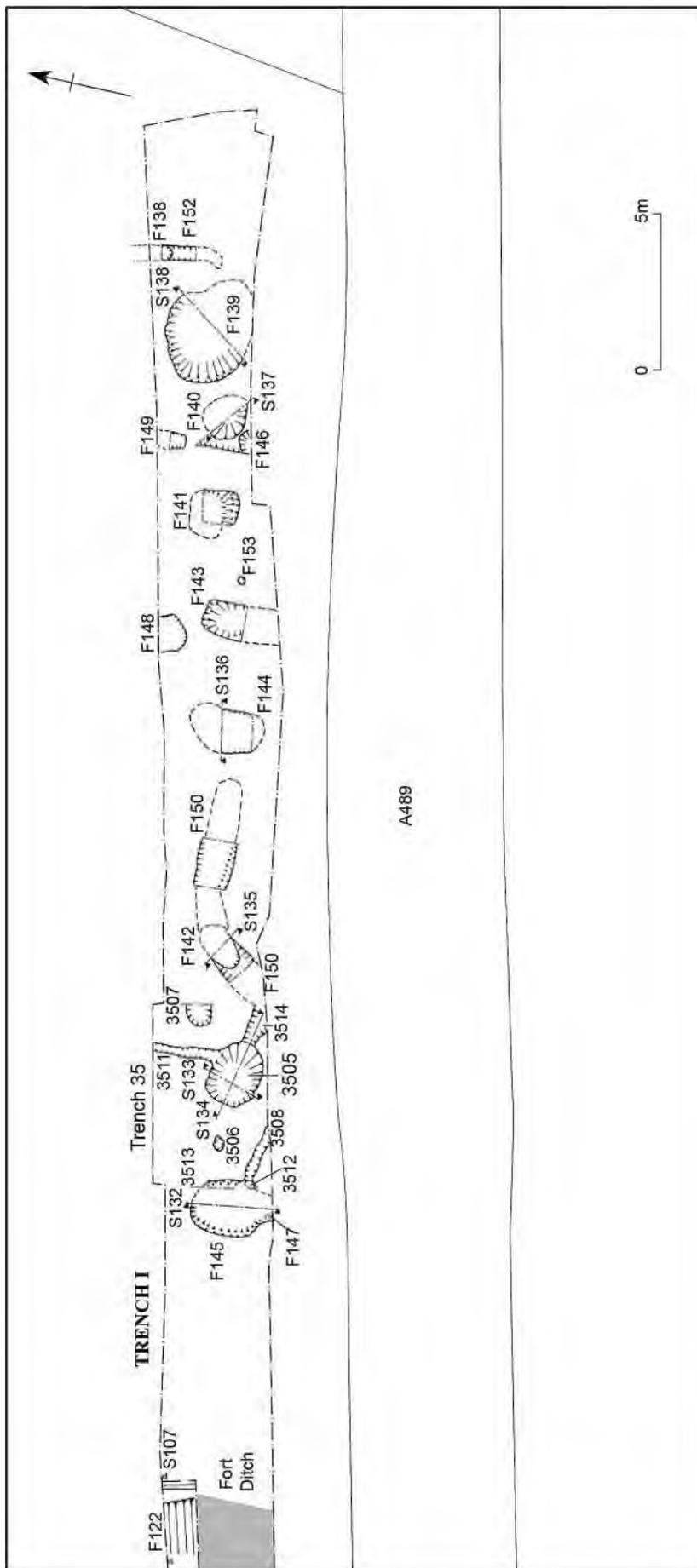


Figure 21 Plan of pits and gullies to the east of the fort within Trenches I and 35.

debris, bronze, quantities of ironwork and nails. Notably a copper alloy handle of a *patera* decorated with the face of Bacchus was recorded from deposit B (Figure 41). An area of pebbles set in clay and silt was recorded to the west of the gully.

To summarise, the gully comprised hearths and pebbled working areas towards the north of the feature, with a water tank or carrier to the south for use in what may have been a smithing process. It is interesting to note that the gully is on an alignment with pit F145 and gully F147 in Trench I to the north (Figure 21).

A sub-rectangular flat-based pit (3820) was recorded to the east which was 0.6m deep. The primary fill was a black charcoal-rich silt with considerable quantities of burnt clay. Above this were dark brown stony silts with burnt clay. Amongst the finds from the pit were slag and litharge and numerous iron nails.

A narrow flat-based slot (3825), 0.35m deep and 0.25m wide, ran north–south and cut the fill of pit 3820. The slot had the general appearance of a construction trench and it had one, possibly two, post-holes (3831 and 3823). The fill of the construction slot included iron and copper objects and several pieces of litharge.

A further narrow gully or construction slot, aligned north–south, was recorded to the east (F201/ 3805) with two possible post-holes F203 and F204, contained within it. The gully F201 was filled by dark brown silt with stone and flecks of charcoal (Figure 24). The fills of the gully included iron nails and litharge. At its northern end a further short slot (F200) joined it at right angles.

Two post-holes (3811 and 3812) were also located east of the gully 3805. The post-hole 3811, was up to 0.7m wide and contained a rectangular post-pipe. At the base of the post-pipe were sherds of an almost complete globular vessel, lying upside down. If the sherds had been dumped in the post-hole before the installation of the post they would have been crushed by the post. The post had, therefore, been removed prior to the remains of the vessel being carefully inserted. This may be interpreted as a votive deposit. Post-hole 3812 was 0.41m deep with a similar post-pipe visible within its silt fill.

To the north two further post-holes (3810 and 3818), c.0.2m diameter and 0.2m deep, were located to the east of gully 3805 and it seems that a building probably existed in this area. It is possible that gully 3805/ F201 may represent the foundation trench of the west wall of a building with slot F200 being the foundation trench for an internal wall.

A number of hearths were also recorded in this area. A large elongated pit F206/ 3814 (Figure 24), 4.5m long, contained a compacted stones (3815), sealed by black silt with charcoal and daub. At the centre of the pit successive hearth linings were recorded with ten layers and at least five relining phases identified (Fig 25, S129). A smaller hearth to the east (3806) consisted of an oval shallow, flat-based pit with silt fills which included charcoal and burnt clay. A larger oval flat-based pit was recorded, in the south-west corner of Trench 38 (3826) and was filled by silt and hard packed stony-silt, containing pieces of iron and litharge. In the south-east corner of Trench 38 a sub-rectangular flat-based pit (3816b) overlain by a compact stony deposit (3816a) sealed by a silty clay with stone and yellow clay (3816c). The primary fill contained iron, slag and 0.975 of litharge.

Further to the south-east Trenches 31 and 32 represent the most southern part of the *vicus* excavated (Figure 10; Figure 26). Several pits were recorded in this area which had been utilised as rubbish pits, although their primary function is uncertain. Pit 3112 was oval and flat based, 2.3m long by 1.7m wide and 0.65m deep. The primary fill consisted of black, charcoal-rich silt, overlain by stony clay and sealed by a thin upper layer of silty clay. Litharge, slag, and burnt clay were recorded within these fills.

A further oval pit (3107) was 0.9m wide and 1m deep and contained a dark brown silt with charcoal (3107B) sealed by a lighter silt (3107A). There was a single 190g lump of litharge within the lower fill.

Four inter-cutting pits were recorded towards the west of the trench (X0, X, X1 and X2). Pit X0 was the primary pit, cut into and respected by three others. The pits were filled by charcoal rich silts (31X03 and 31X02) sealed by a brown, stony loam (31X01A). Pit X2 was filled by black silt with charcoal and some litharge. The pit was cut by a later gully on its east side (3109).

To the north the large Pit Y was 1.6m in diameter and was filled by yellow silt overlain by brown stony silt with some slag (Figure 26; S170). To the west was a possible construction slot for a building (FY1) which would represent the most easterly structure identified.

A number of small hearths and remnants of a further possible building foundation slot were recorded in the vicinity of these pits within Trench 31 (Figure 26). A small oval hearth (3113) was lined with burnt clay and filled with charcoal. A second bowl-shaped hearth (3115) was filled by a mixture of silt, charcoal and small pieces of daub. Another small hearth (3108) was filled by charcoal and daub. To the north the shallow elongated feature 3106 was interpreted as a possible construction slot for light fencing.

To the south of the ditches extending from the eastern fort entrance, a further small pit was recorded during modern drainage works (Figure 5, Pit Z). Pit Z was steep-sided 1.3m wide and 1.2m deep. The primary fill was a black charcoal-rich silt containing daub and slag overlain by dark-brown silts. Its purpose was most likely that of a rubbish pit. The amount of charcoal suggests that a large hearth was being operated close by, and that the activity of the *vicus* extends into this eastern area.

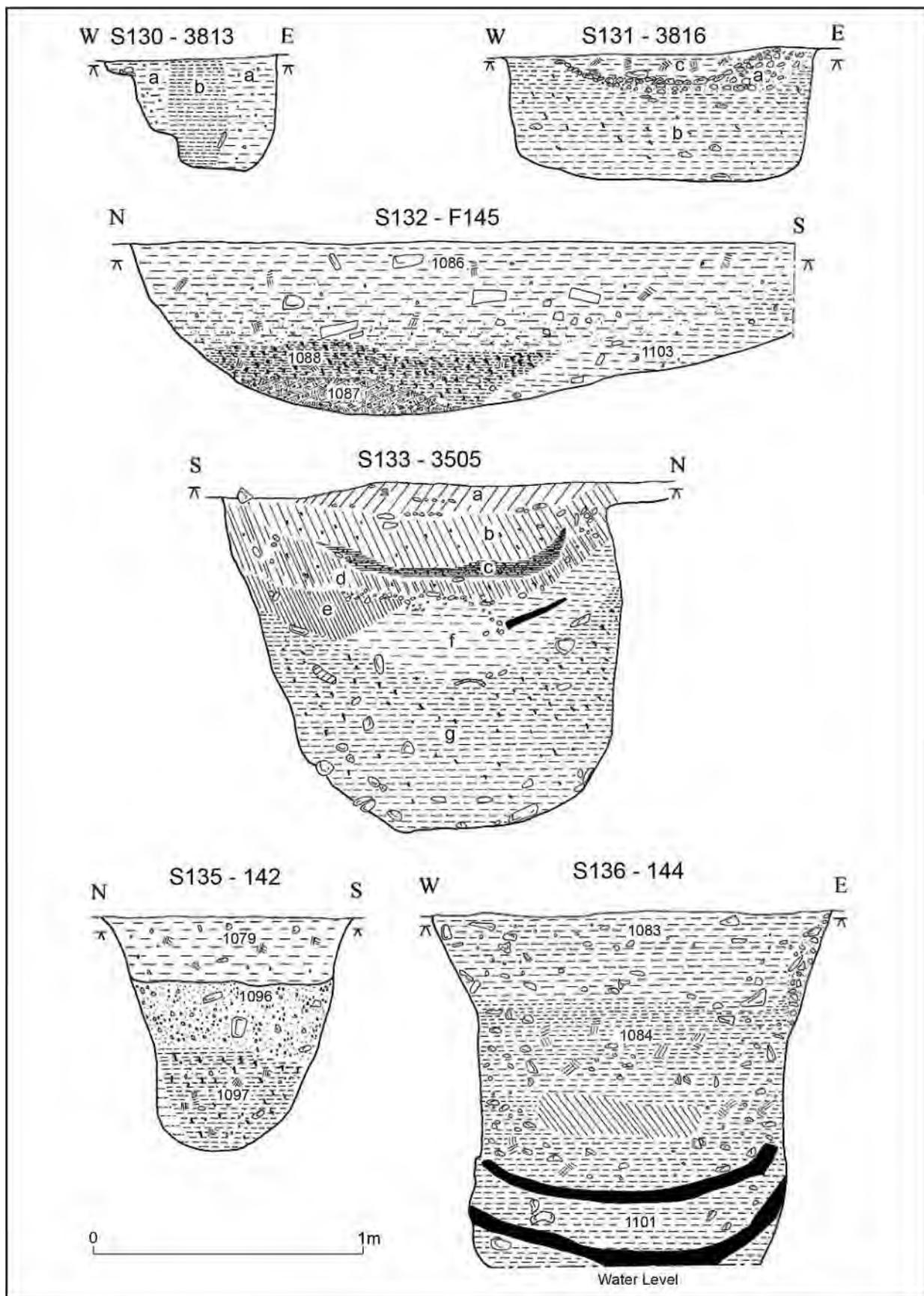


Figure 22 Sections through selected pits within the vicus area to the east of the fort.

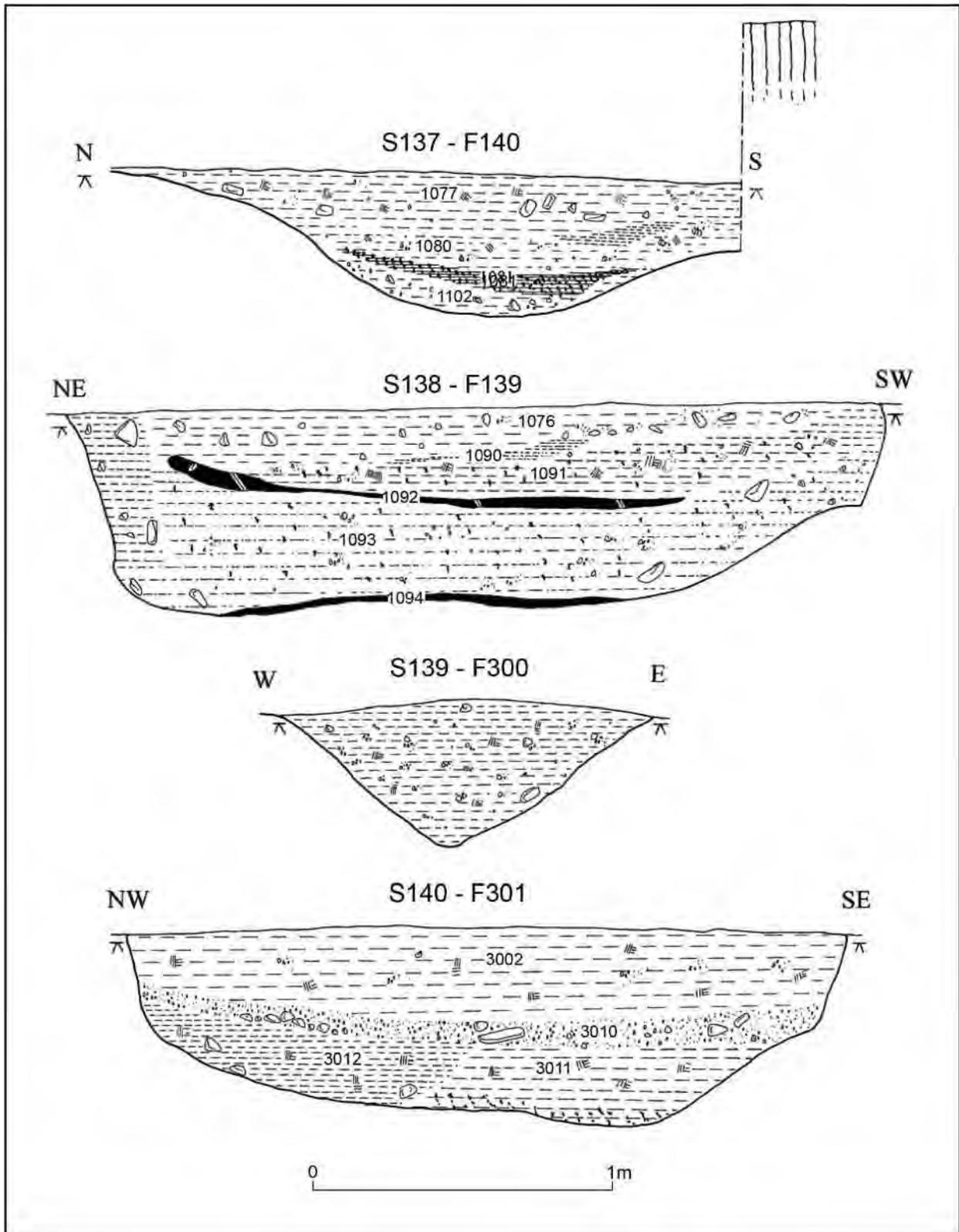


Figure 23 Further sections through selected pits within the vicus area to the east of the fort.

Further activity associated with the *vicus* was recorded within Trench III to the east (Figure 4; Figure 27). Two gullies were recorded on a north-south alignment. Gully F312, was U-shaped, narrow and filled with stony silt with charcoal. A later, larger gully (F300) cut F312, but maintained the same alignment. F300 was V-shaped 0.5m deep and 1.28m wide (Figure 23, S139) becoming flat-based to the south. The silt fill (3001) included a lump of litharge.

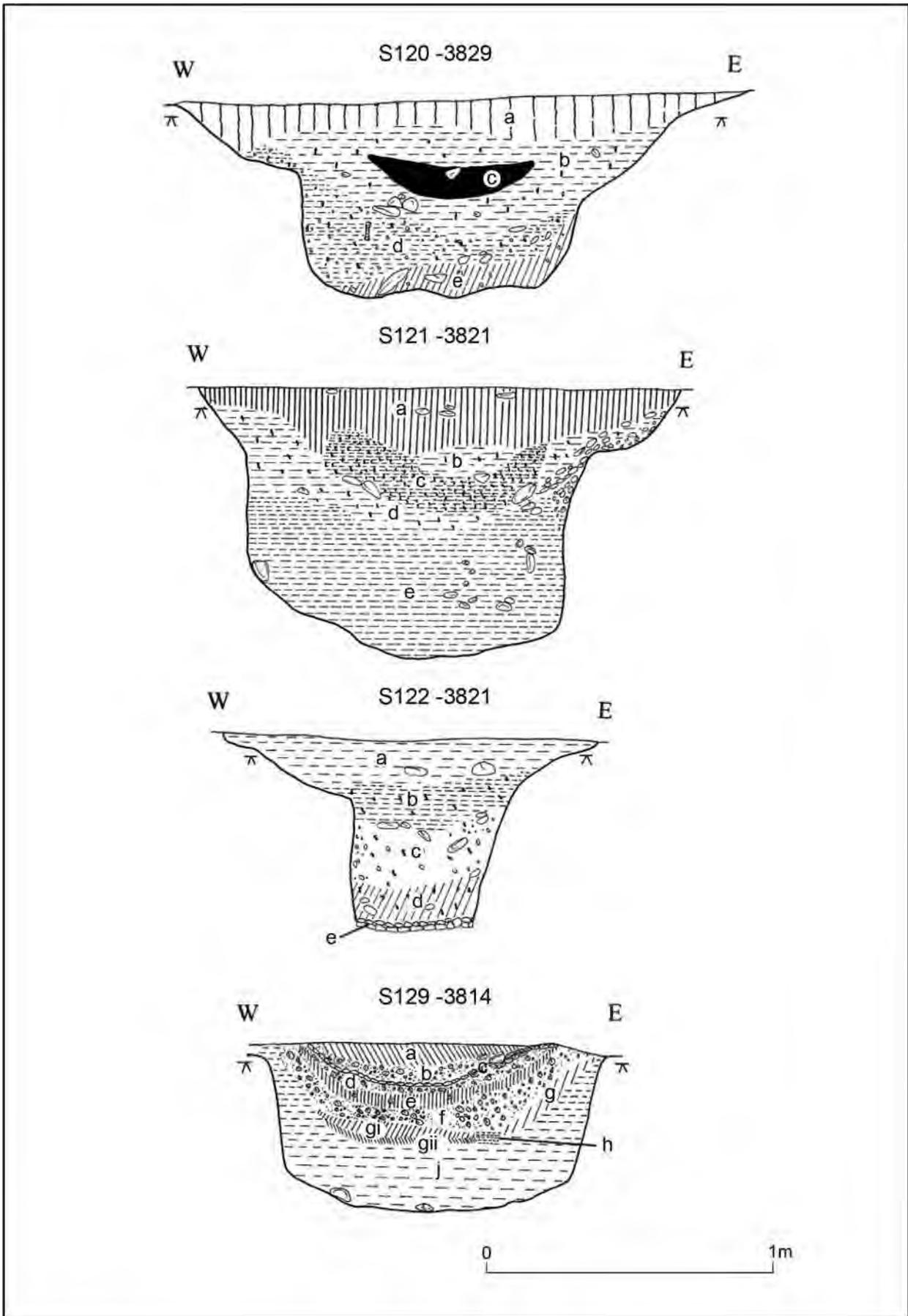


Figure 25 Sections through pits and gullies within Trenches II and 38.

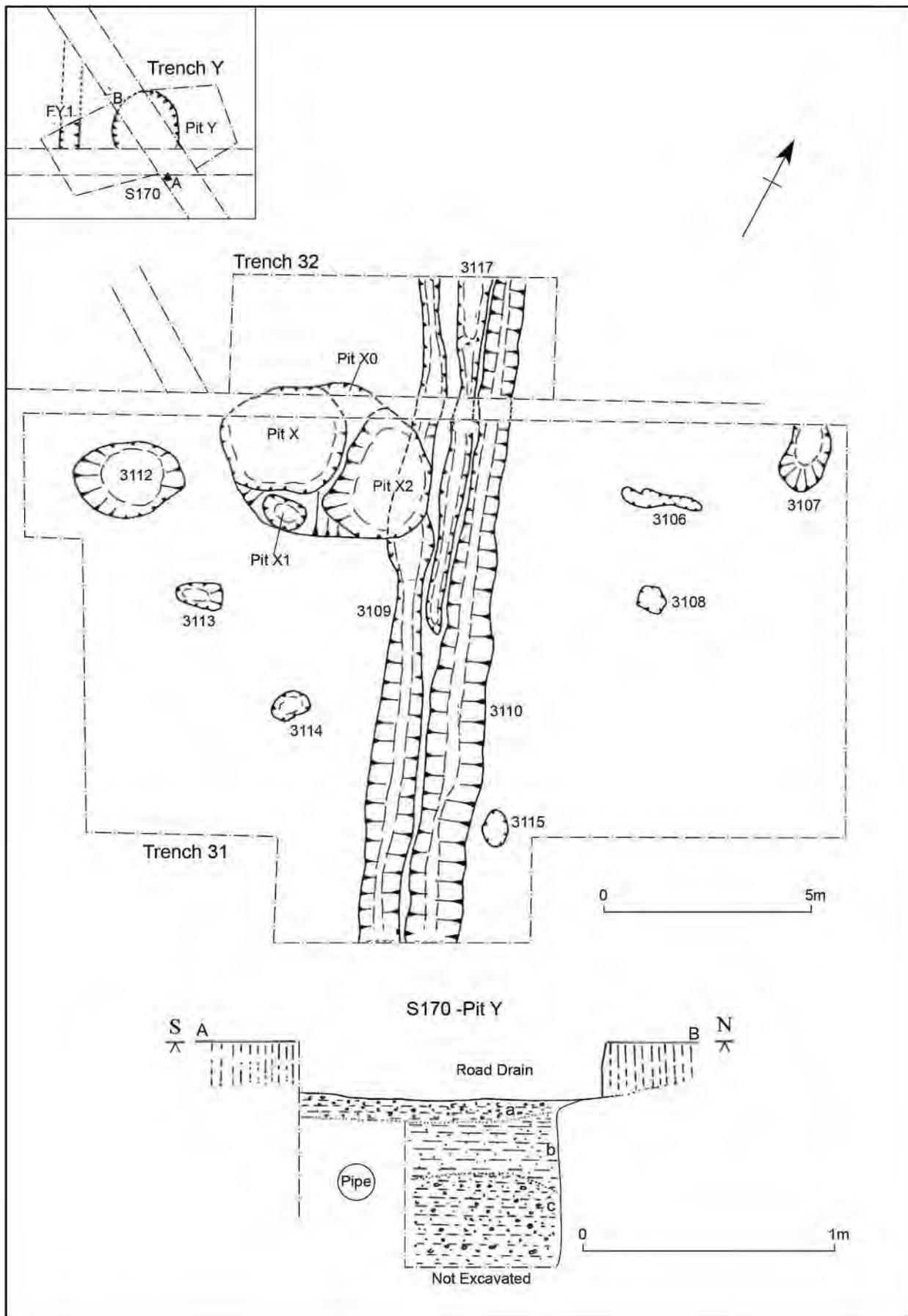


Figure 26 Plan of pits and gullies within Trenches 31 and 32 to the east of the fort and a section through a pit in this area.

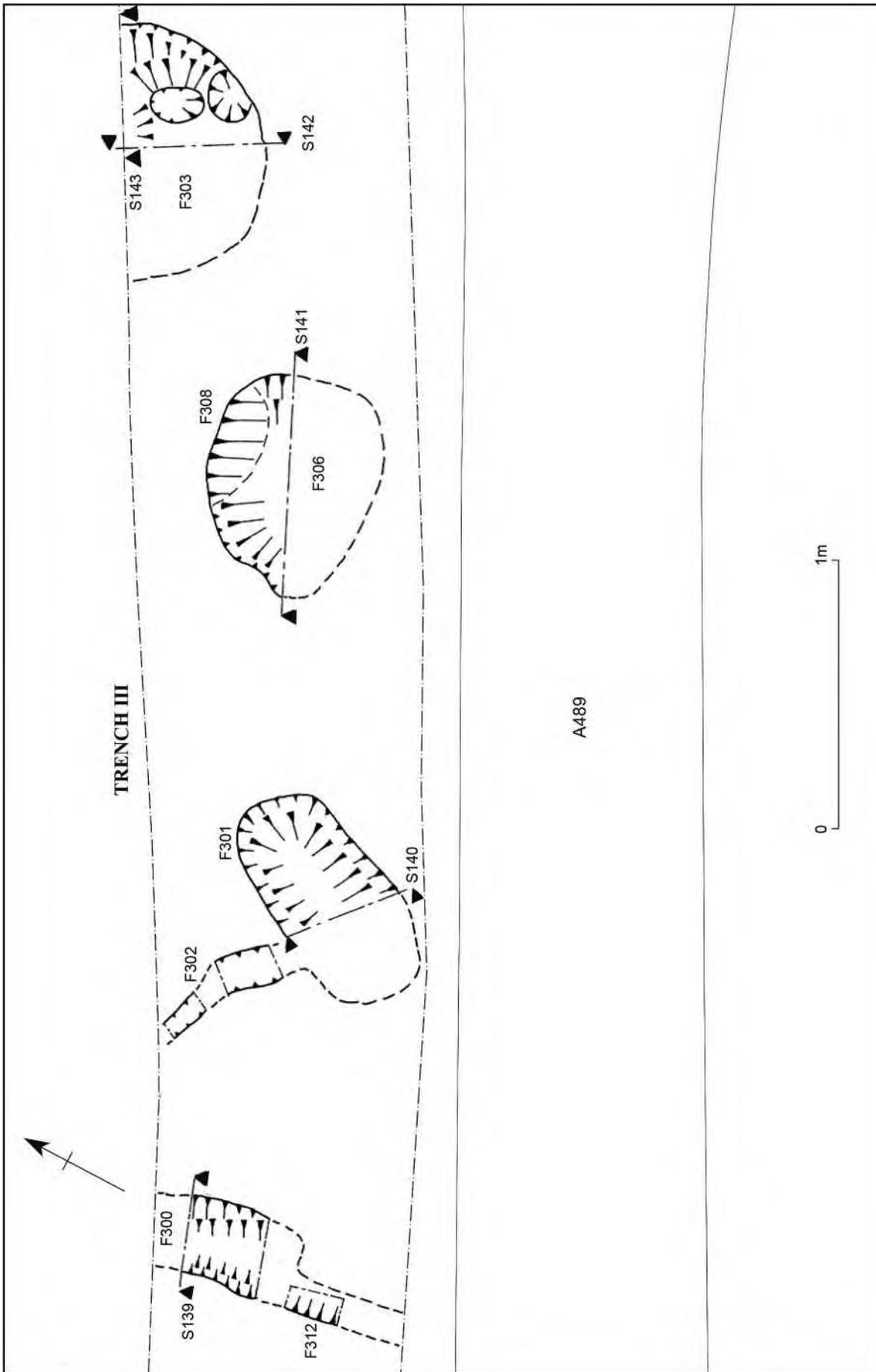


Figure 27 Plan of pits and gullies within Trench III to the east of the fort, between the fort and the earlier marching camps.

A large oval flat-based pit (F301), was recorded to the east and was 4.4m long, 2.4m wide, and 0.65m deep (Figure 23, S140). A primary fill of silt (3011) rested on a very thin layer of charcoal, followed by fills of silt with gravels and some charcoal (3010 and 3012). The upper fill (3002) contained 2.84kg of smithing slag with two pieces of litharge. A small gully (F302) appeared to run into the pit.

A further large circular flat-based pit (F306) was recorded to the east, 4m in diameter and 0.7m deep. A primary fill of silty clay (3015) was sealed by a dark-green charcoal-rich silt containing burnt bone, slag and iron objects (3014), followed by a lens of silty gravel (3013) sealed by dark-brown silt (3008). The character of the fills and the shape and size of the pit suggest that this feature was originally another sunken working area, later used as a rubbish pit. The north-east side of F306 was cut by a smaller pit (F308), 2.5m long and 1m wide.

A third oval pit (F303) was found to the east which had an irregular base with two oval scoops cut into it. The pit was filled by silts (3004), the upper fill (3003) being slightly darker with some charcoal, litharge and slag. Pit F303 can be interpreted as another example of a sunken work area. The two inner oval scoops were probably hearths which did not require a clay lining.

East of the main area of industrial activity, a narrow V-shaped ditch (F305) joined the southern road ditch at the western end of Trench III (Figure 5). An adjacent flat-based gully was recorded on its west side (F307), which may have held some form of fencing delimiting a work area.

The easternmost feature relating to the *vicus* was located at the east end of Trench IV (Figure 7), in the form of a shallow circular pit (F400) 0.1m deep and 1.4m in diameter. The sides had only a shallow slope, the fill being silty loam. There was no indication of purpose.

Phase 2B Industrial activity within the fort

A number of pits, some of which were substantial, together with hearths and gullies, have also been recorded in the southern and northern areas of the fort. Deposits of charcoal and burnt clay within these features, and evidence for metalworking in the form of litharge and iron slag, indicate widespread industrial activity within the fort post-dating earlier Phase 2A buildings and the original fort layout. Industrial activity appears, therefore, to have spread to areas within the fort from earlier phases of activity in the *vicus*.

Industrial activity in the south-western part of the fort

At the western end of Trench I (Figure 8) a gully (F109/F115) was cut at the rear of the southern rampart, the fills of which contained litharge, smithing slag, and hearth bottom. This gully was cut into at its northern end by another linear gully (F117) which contained angular stone fragments within a mottled green-red clay. At the south-west corner of the fort the annexe ditch contained a thick deposit of burnt clay and charcoal which sealed earlier fills and may relate to an industrial phase of activity.

Within Trench 52 (Figure 3) a number of small features were recorded which appear to relate to industrial activity within this area of the fort (Figure 28). A small hearth (5216) was located adjacent to a linear slot (5207) with a small stake hole at its terminus. To the north three closely spaced post-holes were recorded (5212, 5213, 5214). Areas of clay and small areas of pebble surfaces (5204, 5206, 5217, 5208 and 5209) were recorded around these features. Further spreads of clay 5210 and pebbling 5215 together with a possible hearth (5211) were recorded to the west.

In Trench 53 adjacent and to the east (Figure 3; Figure 28) a linear gully-like feature (5308) was considered to be a foundation trench. The trench formed a right angled turn (5312), and contained two post-holes (5314 and 5313).

Two substantial pits were recorded to the south (5310 and 5311; Figure 28). Pit 5310 was well over a metre in depth and was steep-sided with a flat base (Figure 29, S202). The adjacent pit (5311) was flat-based, steep-sided and narrow (Figure 29, S202). Both pits were filled with silts and stony silts which, in the upper parts, had very similar sequences of fills capped by a layer of thick clay that spread beyond the immediate confines of the pits, and 'firmed-up' the surface, preventing subsidence. To the south-west was a small post-hole (5306), alongside a spread of dirty clay (5307).

Industrial activity in the southern area of the fort

In Trench 33 was an interrelated system of pits and gullies which cut into the *via sagularis*, and were aligned along the rear of the rampart (Figure 14). Four features (3348, 3341, 3343 and 3354), joined to form a working area seemingly related to a large hearth in pit 3343.

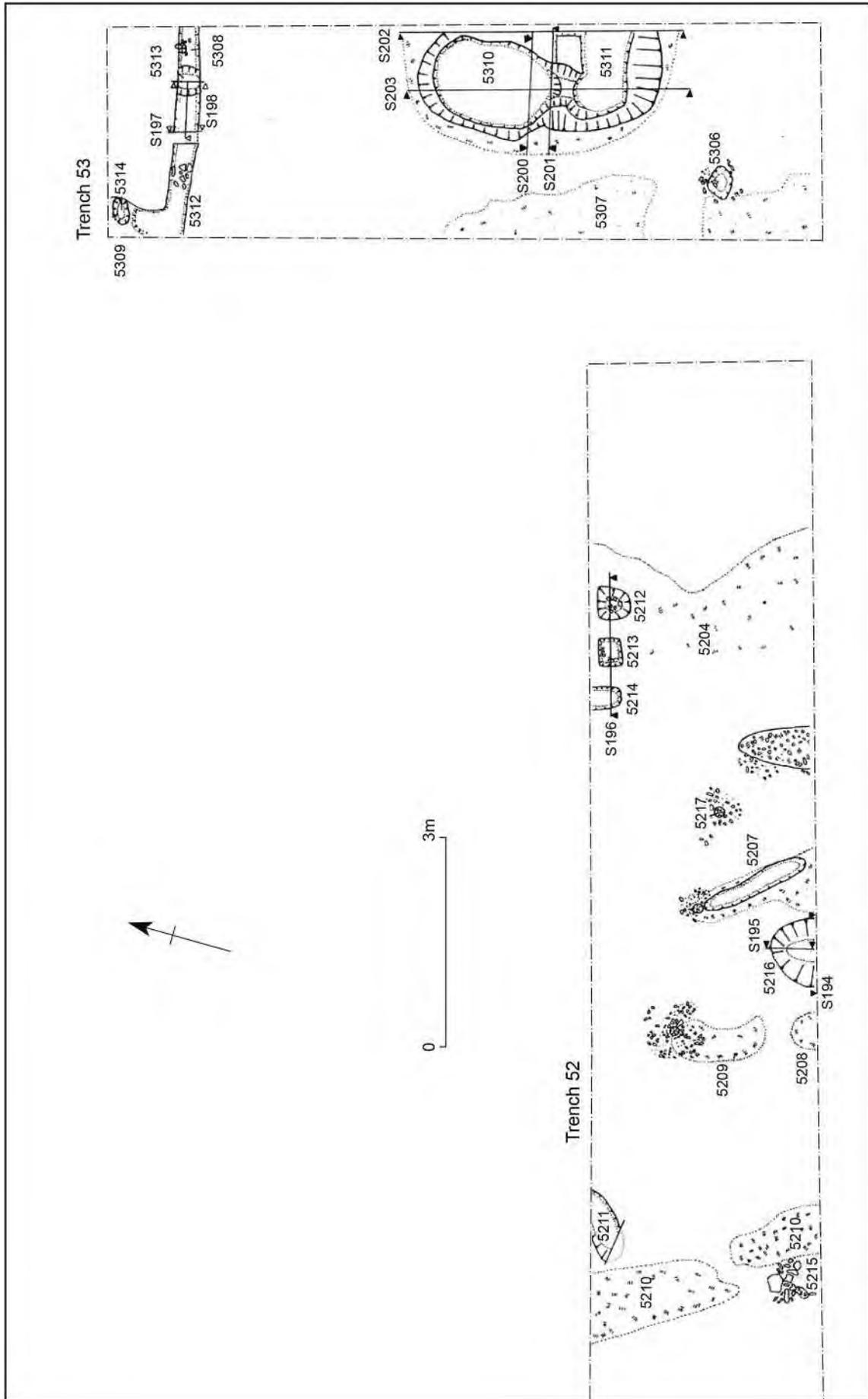


Figure 28 Plan of pits, post-holes, gullies and surfaces in Trenches 52 and 53.

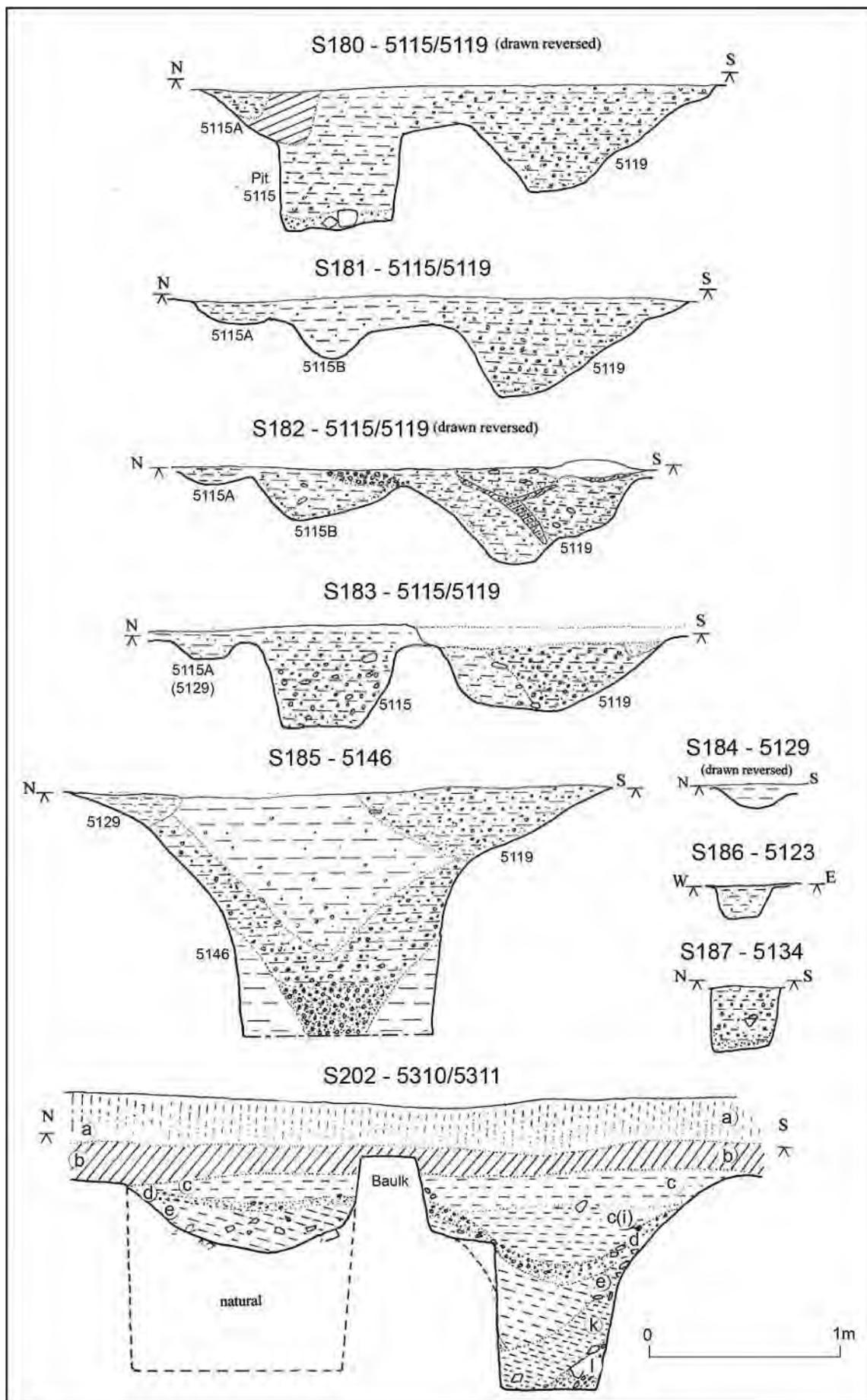


Figure 29 Sections through selected gullies in the northern part of the fort and pits in the southern part of the fort.

Pit 3343 had been cut with steep sides and a flat base and was 1.45m deep. A dirty silt covered the base, over which a yellow-brown bowl-shaped clay hearth had been laid. Above this a hard bowl-shaped stony surface covered most of the base of the pit, overlain by mixed layers of charcoal. This was succeeded by mixed yellow and red burnt clay (or degraded hearth), over which lay an extremely hard bowl-shaped stone and clay deposit. These deposits were overlain by a stony silt with a thick layer of silt sealing the top of the pit. Altogether two, possibly three, hearths had been constructed one above the other: each successive hearth building upon, and utilising, the shape of its predecessor.

A short gully or flue was recorded on the north side of the hearth pit 3343. Upon this had been laid a compact layer of stones set into clay. This surface seemed to be contiguous with the final hearth, and it seems likely that an area of stone surfacing in the area between pit 3343 and pit 3354 also related to this phase of construction.

The adjacent steep-sided flat based pit (3354) was 1.15m deep and joined pit 3343. At the intersection between the two areas a compact area of stone surface was recorded. Both pits (3343 and 3354) had filled up simultaneously with similar deposits. A considerable quantity of smithing slag and hearth bottom was recovered from both pits.

A gully (3339) was recorded to the north of pit 3341. The gully was filled by a thin layer of charcoal mixed with burnt clay and silt and where it approached pit 3343 it was lined with packed stone which extended over the fill of the pit. The gully was filled with later accumulations of mixed silt containing a small amount of stone and pottery.

Despite this sequence of pits intruding into the *via sagularis*, they nevertheless respected the line of the road and projected no further into it. It is possible that at the time, the road was still used for access.

At the eastern end of the gully a large steep sided pit 3314 was located. It was roughly circular in plan with a diameter of 3.3m and was up to 1.5m deep. A dirty mixed silt occupied the base of the pit, overlain by charcoal and burnt clay sealed by a thin layer of compacted stone over which a brown silt had been deposited. A clay lined hearth had been laid over these fills, above which gravels were observed tipping into the pit on its northern side. The upper part of the fill was composed of a charcoal rich, mixed silt containing a quantity of smithing slag, burnt clay and stones.

A further shallow gully (F237/ 3345) was recorded to the north, filled by silty clay with small amounts of charcoal and burnt clay. The fill at the southern butt-end contained large amounts of burnt clay and charcoal visible at the surface, suggesting the presence of a hearth. Further to the west was a circular steep-sided pit, 1.5m diameter (F234/ 3350) and up to 0.8m deep. The primary fills of stony silt were sealed by silty-clay which included metal slag, burnt clay, charcoal and stone.

Further to the south, another pit was recorded south of the southern gateway within the fort annexe area (Trench 6; Figure 14, 0611). The primary silt fill of the pit was sealed by a red and yellow clay hearth (0608). An adjacent shallow hollow indicated a further working area or pit (0612).

In the central southern area of the fort, two pits were partially exposed in Trench 36 (3615 and 3610; Figure 18). Pit 3610 was 1m wide and 0.5m deep with a primary fill of stony silt followed by charcoal and burnt clay, darker silt and an upper fill of compact stones and silt. The presence of the burnt clay and charcoal suggests that a hearth had been constructed within the feature. Pit 3615 was oval, steep-sided with a flat base and 1.1m deep with silt fills and the remains of two hearths, indicated by a lower deposit of burnt red clay and an upper deposit of hard yellow clay and stone. The final use of the feature was that of a rubbish pit. Two small hearths were also found in Trench 36 (3621 and 3624), in addition to others set within pits (Figure 18).

Industrial activity in the south-eastern area of the fort

Further pits, hearths and gullies were recorded in the south-east corner of the fort, some of which cut through the foundations of earlier buildings. A large pit (3725) was recorded in Trench 37 (Figure 20), cutting the earlier foundations of Building 4. The pit was oval in plan, up to 2m across and 2.2m deep, making it the deepest pit fully excavated. The primary fill was a charcoal rich silt, overlain by a fill of brown silt upon which had been deposited a mixed yellow clay, dumped in on the north side of the pit. Mixed with the clay were a number of large reddened stones, including a sub-rectangular sandstone block, with a shallow hollow and cuts, indicating its use as an anvil. Three layers of silts, containing stones and charcoal, rested on the clay, overlain by burnt clay mixed with silt and charcoal and further silty clay. The purpose of the pit was not clear, although it appeared to have been mainly used as a dump.

A further pit (3705) also cut the construction trenches of an earlier building (Figure 20). It was roughly oval in plan up to 2.85m across and 1.1m deep, with irregular sides and a slightly rounded base. The fills were silty-clays which were probably deposited by natural processes.

A small hearth pit (3718), cut into the earlier Period 2A Building 5 (Figure 20), was joined by two shallow gullies extending to the east and west. The pit contained primary fills of silt with charcoal, with clay hearth material laid

over. The gullies were found filled with charcoal-rich debris. Finds included iron nails and fragments of copper alloy, which may suggest that the production of copper alloy artefacts, or the smithing of iron, was taking place.

Parallel and to the north a small gully (F244) was aligned east–west, had sloping sides, and was approximately 0.35m wide and 0.2m deep. The profile was uncharacteristic of a construction slot, but there was a shallow, 0.25 m deep, 0.4m diameter hole, at the west end, F245, which was possibly a small post-hole. An irregular hollow or gully, also aligned east–west, was recorded adjacent to the south (F239). The fill was composed of silty clay with only a very small amount of charcoal, but with bronze fragments and slag and lead sheet, which indicate its proximity to industrial processes within or located nearby. A further gully (F252) was aligned approximately north–south and cut the above features. It had a flat base and steeply sloping sides, was 0.4m wide and up to 0.5m deep. The fill was a silty clay, with stones and small amounts of charcoal. The function of the gully is uncertain, but it is possible that it was related to the activity in the hearth 3718, to the south

Two further hearths were found nearby. To the south-east was an oval, sloping-sided pit (3727), 0.32m deep with a flat base. The hearth was similar to many others on this site, in that a pit was partially filled with silt on which was laid a bed of stony, silty-clay overlain by hard red clay mixed with charcoal. A further hearth pit was recorded to the south (3726). The pit had an oval plan with sloping sides and a rounded base, 0.35m deep. The pit was largely filled with a brown silty clay, overlain by a small area of red clay at the centre.

To the north of this group of features was a shallow gully (F228) at least c.11m long, 0.4m wide and 0.12m deep. At the west end, the gully terminated (F232) and was 0.3m deep. Close to the western end of the gully was an oval pit (F222), 0.28m deep; the silty-clay fill gave no indication of its purpose.

The end of F232 terminated at a shallow disturbed area, from which a narrow gully (F253) ran into a small pit (F246). The latter was oval in plan, 1.5m long by 0.9m wide. It had sloping sides, a rounded base, and a depth of 0.35m. The fill of the pit was a mixed silty-clay, containing burnt clay and charcoal. The fill of the gully F253 was very stony, suggesting that it was deliberately backfilled. In Trench I, to the north a small oval pit (F130), containing orange-red silt clay, may have functioned as a hearth (Figure 20).

Further to the east an irregular shallow hollow (2421; Figure 15) contained burnt clay, charcoal and 140g of litharge suggesting that it was a working area. To the south a second, larger, sunken area 0.55m deep (2420), was cut by a large flat-based pit (2440) on its north edge, which was 3m in diameter and 1m deep (Figure 19, S118). The fill was mainly composed of silty gravels which included over seventy pieces of slag and ironwork, and fragments of lead and lead metalworking debris. Slightly south of 2440 were two conjoined pits (2425 and 2456; Figure 15), 0.6m deep. The fill in both features was a compact silty gravel, which suggests that it was backfilled deliberately.

To the north-east (Trench 30), and possibly set into the rear face of the rampart, was a small irregular elongated pit 2.4m long by 1.45m wide and 0.6m deep with a flat base (3008; Figure 15). The pit was filled with a grey silt, mixed with charcoal and pieces of iron and hobnails amongst other finds. A hearth consisting of a compact area of burnt clay, 0.7m diameter, was set into the fill in the northern half of the pit. Associated with this hearth was found a burnt clay object, somewhat tubular with a central hole. It may have been a tuyere or tube originally relating to bellows. Unfortunately it was not possible to preserve this object as it was soft and damp and fell apart upon excavation. To the north a short gully or oval pit (3024) was recorded.

At the south-east corner of the fort the defensive ditch (Figure 9, S108) contained a secondary fill (1506) with dispersed charcoal probably derived from a surface containing occupation debris. A clay hearth (1505) had been placed on top of earlier silting, and was covered by a thick layer of charcoal (1504), which extended up the north side of the ditch.

Industrial activity in the northern part of the fort

Building 7 was located in Trench 1, within the northern part of the fort (Figure 3 and Figure 30). Two parallel construction slots were recorded, which defined the north and south sides of an east–west aligned rectangular structure 3.7m wide (0116 and 0126). Between the two construction slots a rectangular pit (0105) was recorded, with a large hearth (0121) located at the west end of the pit. It seems likely that the purpose of Building 7 was to provide cover for metalworking activities carried out within. The building was most probably open sided so as to ventilate and provide lighting to the work space.

A further building, south of Building 7, may be suggested on the basis of the steep-sided, flat-based slot (0129), in the southern end of Trench 1 (Figure 30). It had all the characteristics of a construction trench in shape and size, and was filled with a silty gravel.

Within Building 7, pit 0105 was rectangular in plan and approximately 2.6m wide (Figure 30). The pit was steep-sided and flat-based (Figure 30, S167; Plate 8). The primary fill of the pit was composed of a thin, charcoal-rich layer of silt. Above this, on the south side only, was a very thick compacted ledge of stony gravel (0125),

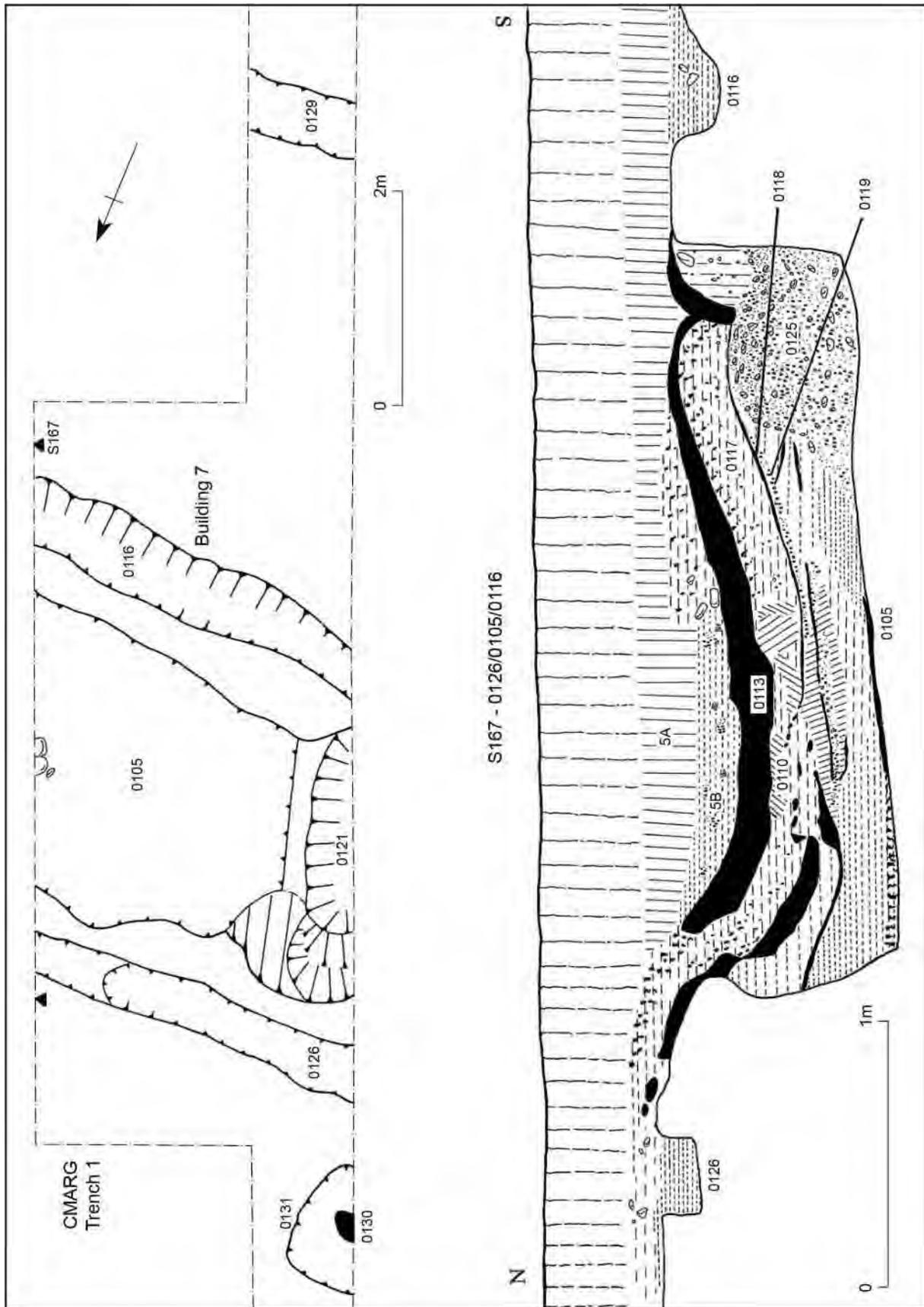


Figure 30 Plan and section of Building 7 and large rectangular pit in Trench 1 at the northern part of the fort.



Plate 8 Pit 0105, Trench 1, section, looking east.

extending over most of the length of the pit. Dark silts were recorded butting up against this gravel. Capping these silt deposits was a thin layer of clay (0119), overlain by an extensive deposit of charcoal (0118). The remains of a possible hearth with smithing slag (0110) was recorded above these deposits, which was in turn sealed by a grey-brown dirty silt (0117) with lead and pieces of iron. A subsequent thick layer of charcoal (0113) was covered by a heavy mixed, dirty yellow, silty-clay (5B). The upper fill was a soft dirty orange silt (5A). The fills of the pit indicate that it was the site of industrial working, involving iron smithing and possibly lead working. This was most likely connected with the secondary working of metal heated within the hearth (0121).

To the west Trench 51 contained a complex of substantial pits and hearths, together with a series of gullies, parallel with the fort's defences (Figure 3; Figure 31). These gullies may have provided drainage and divided the industrial activity from other areas.

A large oval pit (5114; Figure 31) contained a hard packed clay and pebble 'working surface' at its centre (Figure 32, S174). The pit narrowed on its eastern side where it formed a channel-like 'entrance' (5109), with a slight ridge dividing this from the main area of the pit. A smaller oval pit (5110/ 5111) formed an integral part of the larger pit (5114) on its northern side, with certain fills overflowing from one pit to another (Figure 32, S173).

The large pit 5114 (Figure 32, S173–S174) was filled by a greyish yellow stony silt (o) with a secondary fill of yellow and red clay lumps (p) as if dumped. At the western end of the pit an expanse of very fine silty materials had formed, of differing shades of reddish purple with occasional cream and grey lenses (n). Stony silty fills were tipped in on the south side of the pit (i). At the western end of the pit a very hard clay with stones (m) formed a concrete-like base of a bowl-shaped feature 5128 (Figure 33, S175–S178). Over this concrete-like material a very thick layer of red and yellow clay was encountered (h), with an upper brown clay deposit (l). This clay formed a thick bowl-shaped mass. A very fine layer of charcoal (j) lay over the top of much of the clay. Overlying this was a thick layer of grey-brown silts (g; S174 and S175) containing further reddish colourations with grey and cream lenses. Above these silts lay a vast area of thick charcoal (f; S174–S176) which formed a huge bowl-like concentration (5104) and spilled over into the pit 5111 to the west (Figure 32, S173). Above the charcoal layer, various silts had accumulated within pit 5128 and pit 5114 (e, d and c; S174–S178).

To the north, in the smaller pit (5111) above a primary stony silt (o), a reddish silty material (n) and charcoal spread (f), later silts had formed (S173, g). Following these fills there were signs of later industrial activity. A layer of hardened stony material (u) was followed by yellow clay hearth material (t) and further silts (e and d; S173), above which were found further quantities of charcoal (r) and the clay remnants of a hearth (s). Quite a large clay rim remained of a hearth 5113 (Figure 31). Above these deposits, at the eastern end of both pits 5111 and 5114, a deliberately placed thick layer of pale clay had been pushed into the sunken features to render them firm (S173, b). It can be interpreted, therefore, that late in its life, this area was filled in deliberately with stiff clay.

The channel leading into the larger pit (5109) contained a similar sequence of infills (S171–S172), with pebbles (q), stony silts (o) and further silting (e), interspersed with charcoal and clay lenses (v and w), followed by further silts (d) and silty clay (bi). The area was also finally capped with clay (b). Finds from this complex of pits and hearths included a large quantity of slag and ironwork and a small lump of litharge.

To the north of these pits a large, somewhat linear, area of pebbling (5116), was recorded adjacent to a spread of clay (5117), which may have been the remnants of, or re-use of, the intervallum road to the rear of the rampart (See Phase 2A).

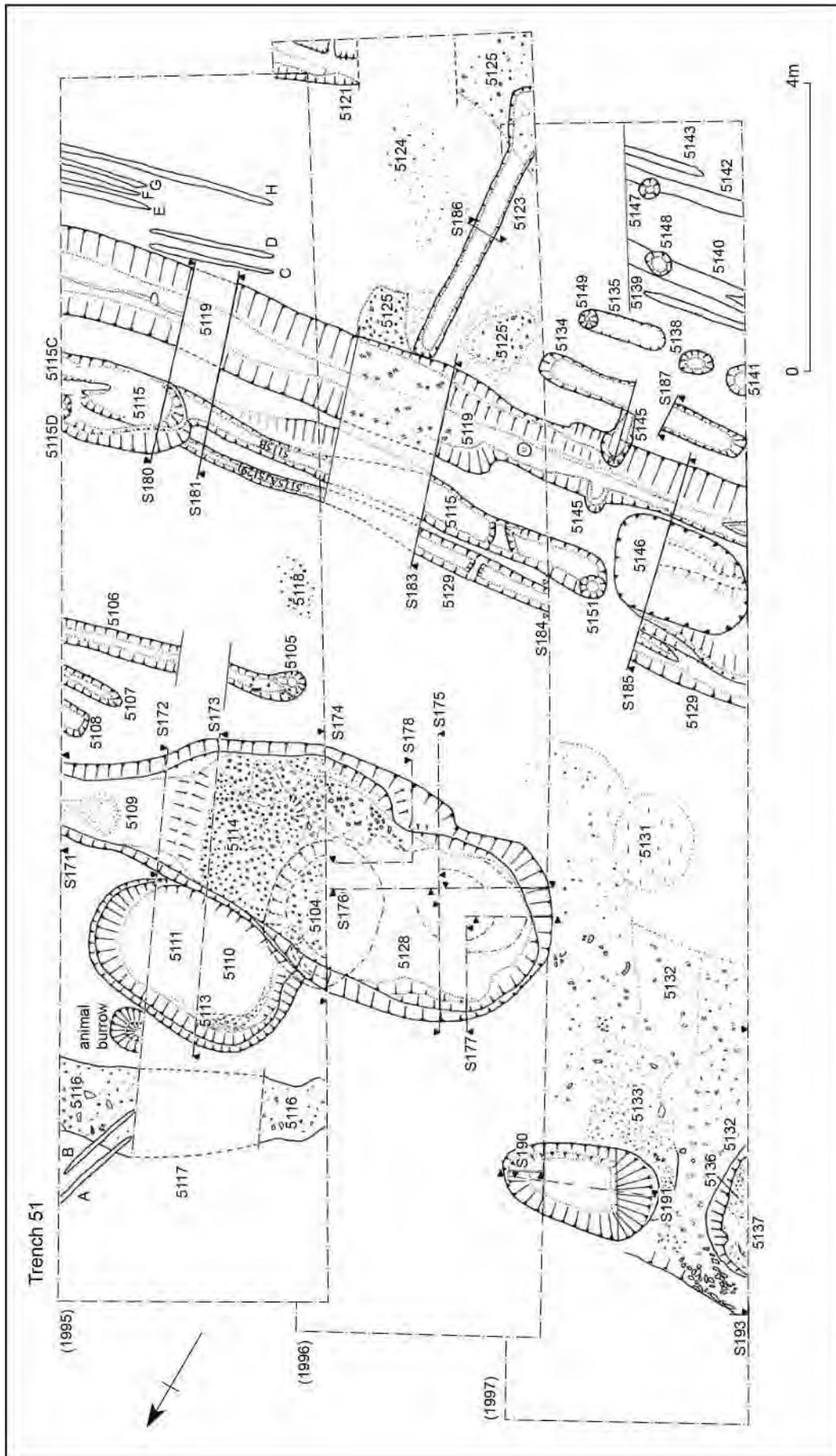


Figure 31 Plan of pit complex and linear gullies within Trench 51 at the northern part of the fort.

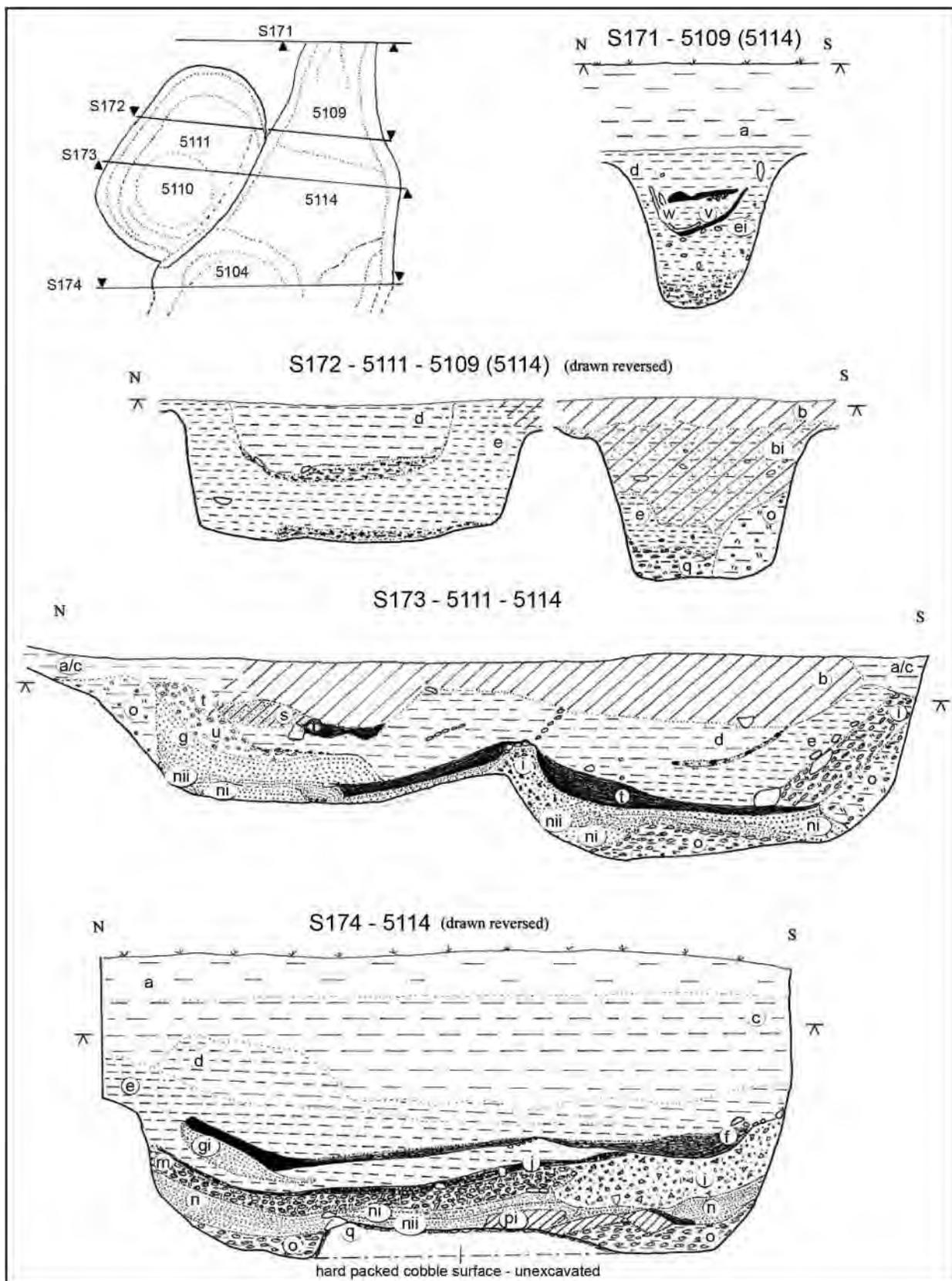


Figure 32 Sections through pit complex 5110, 5111 and 5114 in Trench 51.

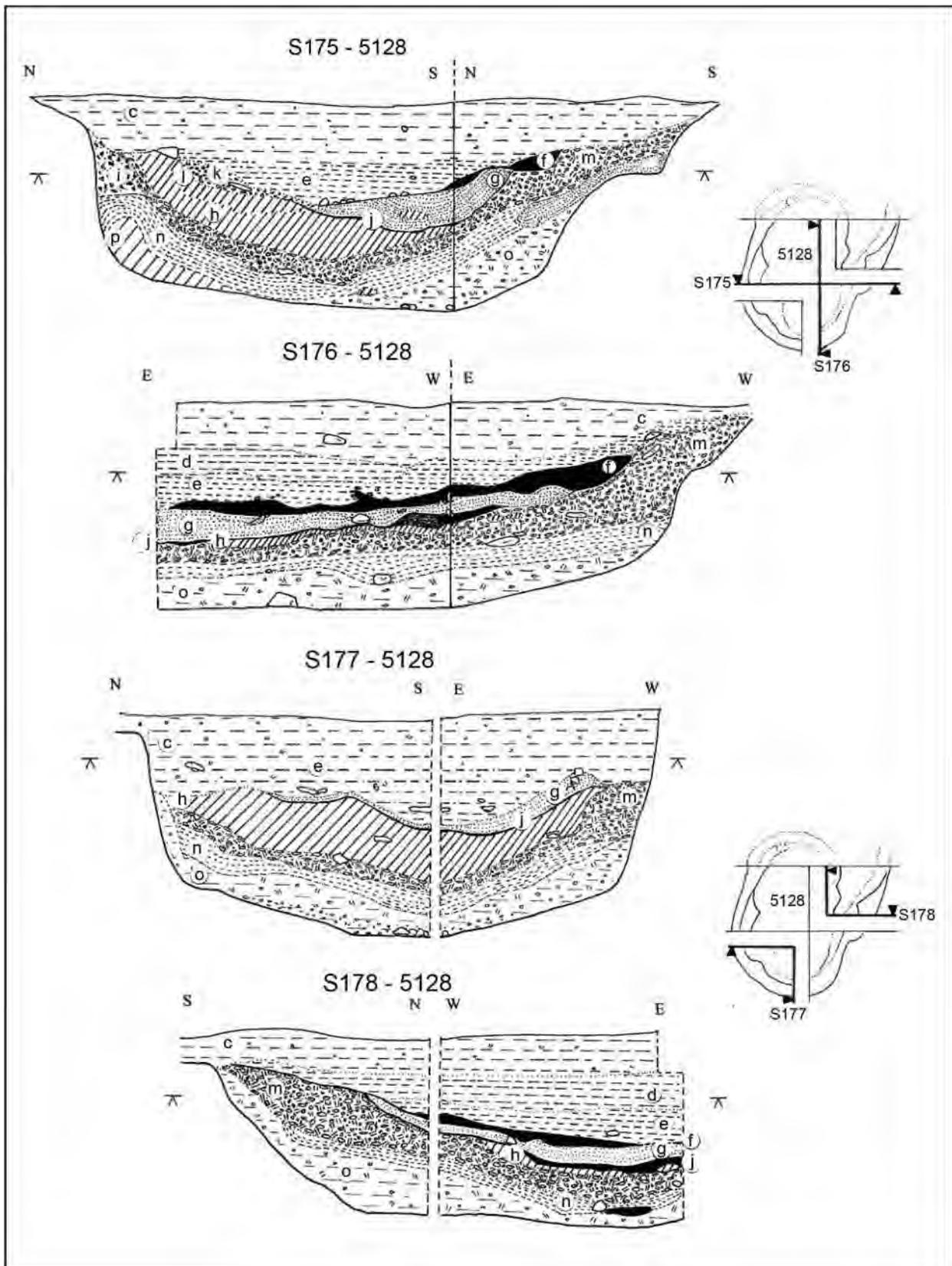


Figure 33 Sections through pit 5128, Trench 51, in the northern area of the fort.

To the south-east of this complex of pits and hearths possible construction slots 5106, 5107 and 5108 could have been associated with the industrial activity indicating, perhaps, some sort of walling or supports. To the south of slot 5105 a small area of pebbling (5118) was also recorded.

A further focus of industrial activity was recorded to the west. A small and deep oval pit (5126) was recorded (Figure 31). A succession of charcoal-rich fills, associated with areas of thick stony clay (presumably hearths), were intermixed with silts within the pit. Several deposits of charcoal and a number of fragmentary clay hearth bowls were found surrounded by iron objects and iron lumps, indicating that iron-working might have taken place. On the southern side of the feature was a layer of compacted stones (5133) which may have been utilised as a hard-standing work-surface which had, in part, covered over some of the infill of the pit 5126.

A series of layers were also recorded close to pit 5126, which may relate to a further focus of industrial activity (Figure 31). Overlying the cobbled surface 5133 and the western side of the pit 5126, lay a heavily trodden, thick layer of dark clay (5132), intermixed with daub and charcoal. Overlying this clay could be seen thick layers of material, which indicated an extensive area of hearth and burning (5136). Large masses of coloured clays were recorded adjacent to a large area of hard, concrete-like material. Next to this lay a thick band of charcoal made up of three distinct deposits. The fact that only plough soil lay above this raised feature shows how unusually high above the natural these materials had accumulated, and how close to suffering from plough-damage they had become. This expanse of clays and charcoal seemed to be overspill from an area of industrial activity, perhaps associated with a pit (5137) located largely beyond the area of excavation.

To the south of the industrial pits and hearths lay a series of linear gullies aligned east-west (Figure 31; Figure 29, S180–S185). These gullies (5115; 5119 and 5129) may have channelled water past the workshop areas and were parallel with the fort defences to the north. At the western side of the trench a steep-sided pit (5146) was cut by two gullies (5129 and 5119; Figure 29, S185). At the eastern side of the trench gully 5115 also cut through a steep-sided pit or sump (Figure 29, S180). South of the linear gullies pebble surfaces constituting (5124/5125) seemed to be remnants of a larger pebbled area.

To the south of the water channels were a number of possible construction trenches for walls (5123, 5134, 5135, 5145; Figure 31; Figure 29, S186–7). The more shallow linear slots in this area (5140 and 5142) could, however, relate to later ploughing. A number of post-holes were recorded in the area which could not be seen to form part of any structure (5138, 5141, 5145, 5147, 5148, 5149 and 5151).

Water supply systems

During the excavation, when the surrounding fields were left to pasture, clear water-filled gullies were formed running down the hill. The source of this water is a spring on the upper slope of the hill lying to the north and west of the fort site. This leads to the suggestion that the water supply for the fort came from sources on the higher ground.

During the excavations a series of gullies and ditches were recorded in areas to the north-west of the fort, to the south-east of the fort and within the northern part of the fort interior. It is suggested that these gullies were designed to channel water either towards industrial features or carry surplus water away. An east-west ditch recorded to the north of the fort may have served to distribute water from sources on higher ground to other areas of the fort.

Ditches and gullies to the north and north-west of the fort

A ditch system on the north-west side of the fort consisted of three moderately large inter-connected ditches. It would appear that this ditch system is heading towards the main fort ditch at the north-west corner of the fort. It seems feasible, therefore, that this system was emptying into the fort ditch as a means of carrying away waste water. Subsequently water may potentially have been distributed via the east-west ditch on the north side of the fort to other parts of the site.

The first ditch, which lay parallel with the main northern defensive fort ditch but was smaller than it, (Figure 3) was 1.41m wide and 0.35m deep. It would have posed little obstacle to any attacker, indicating it was not a defensive feature but may perhaps have been a simple open conduit. Excavations to the west (Trenches 39 and 50) revealed a further section of this feature, along with a complex sequence of gullies (Figure 34).

A deep steep-sided north-east to south-west aligned ditch was divided into three linked segments. The mid-section of the ditch (3915/3930/ 5014) was 17.7m long, with ditch 5004 extending from its north east end, and ditch 3937 extending from the south-west.

The north-east section of the ditch (5004) was 1.43m wide, and 0.76m deep with steeply angled sides, sloping down to a flat narrow base (Figure 35, S154). The primary fill (5012) was a thin layer of fine dark silt overlain by

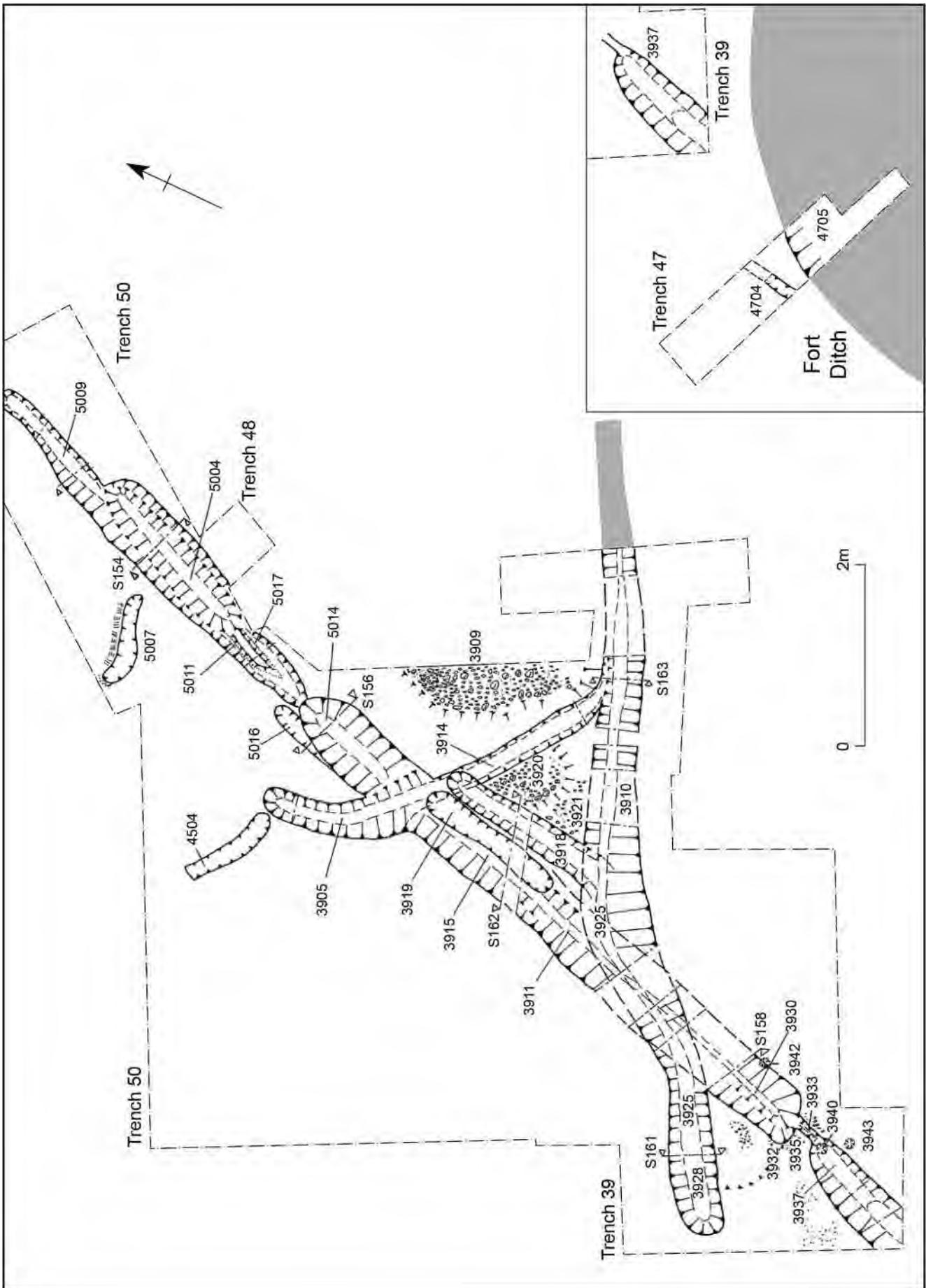


Figure 34 Plan of ditches and gullies within Trenches 39 and 50 and Trench 47 beyond the north-west corner of the fort ditch.

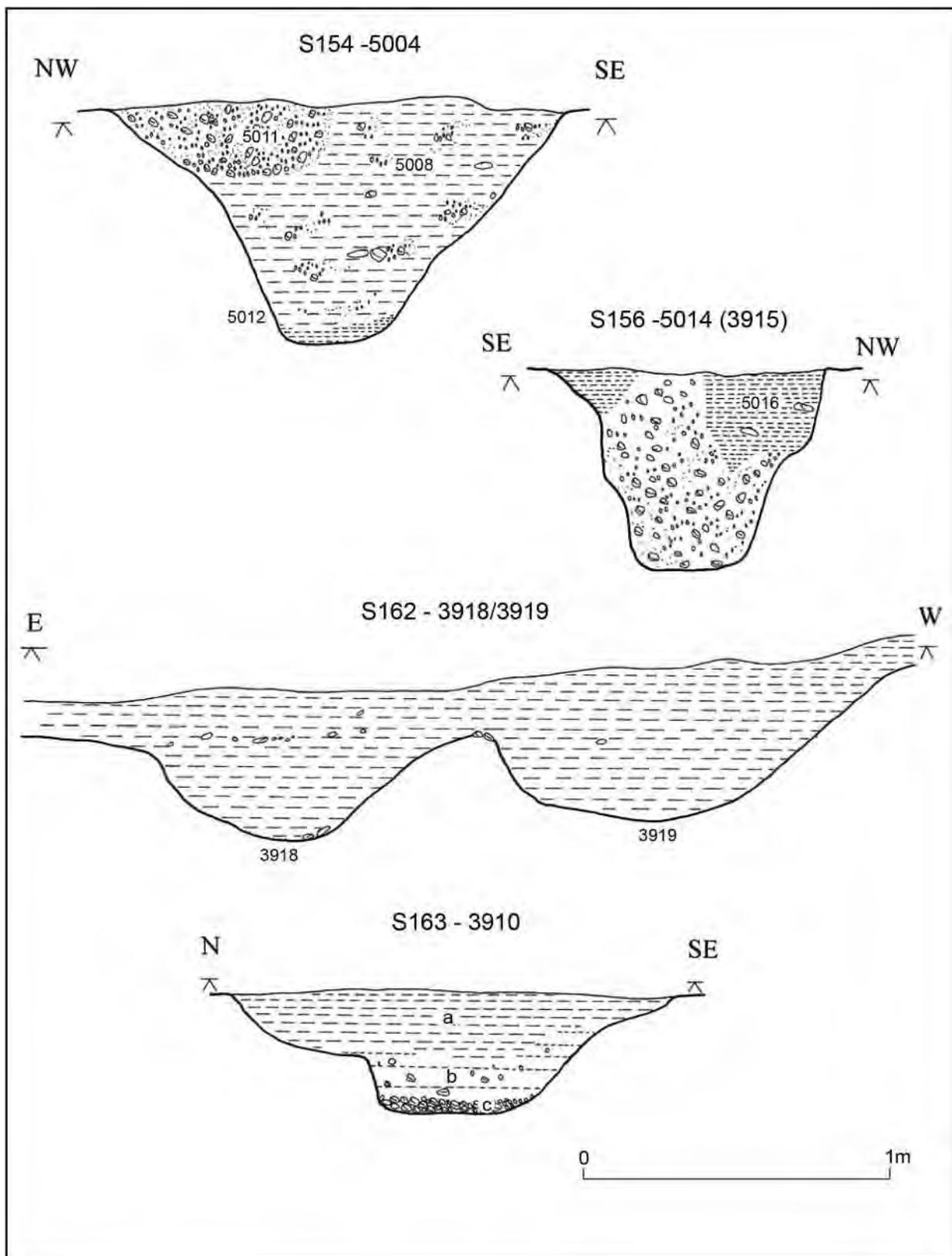


Figure 35 Sections through gullies beyond the north-west fort ditch.

a mixed stony silt (5008). A narrower, shallower, flat-based gully 5009 cut into this ditch and was filled by stony silts 5010 and 5011 (Figure 34). The southern end of the ditch 5004 was divided into two shallow channels (5017 and 5011; Figure 35, S155) the fills of which contained significant amounts of gravel, to the extent that they were almost indistinguishable from the natural gravels.

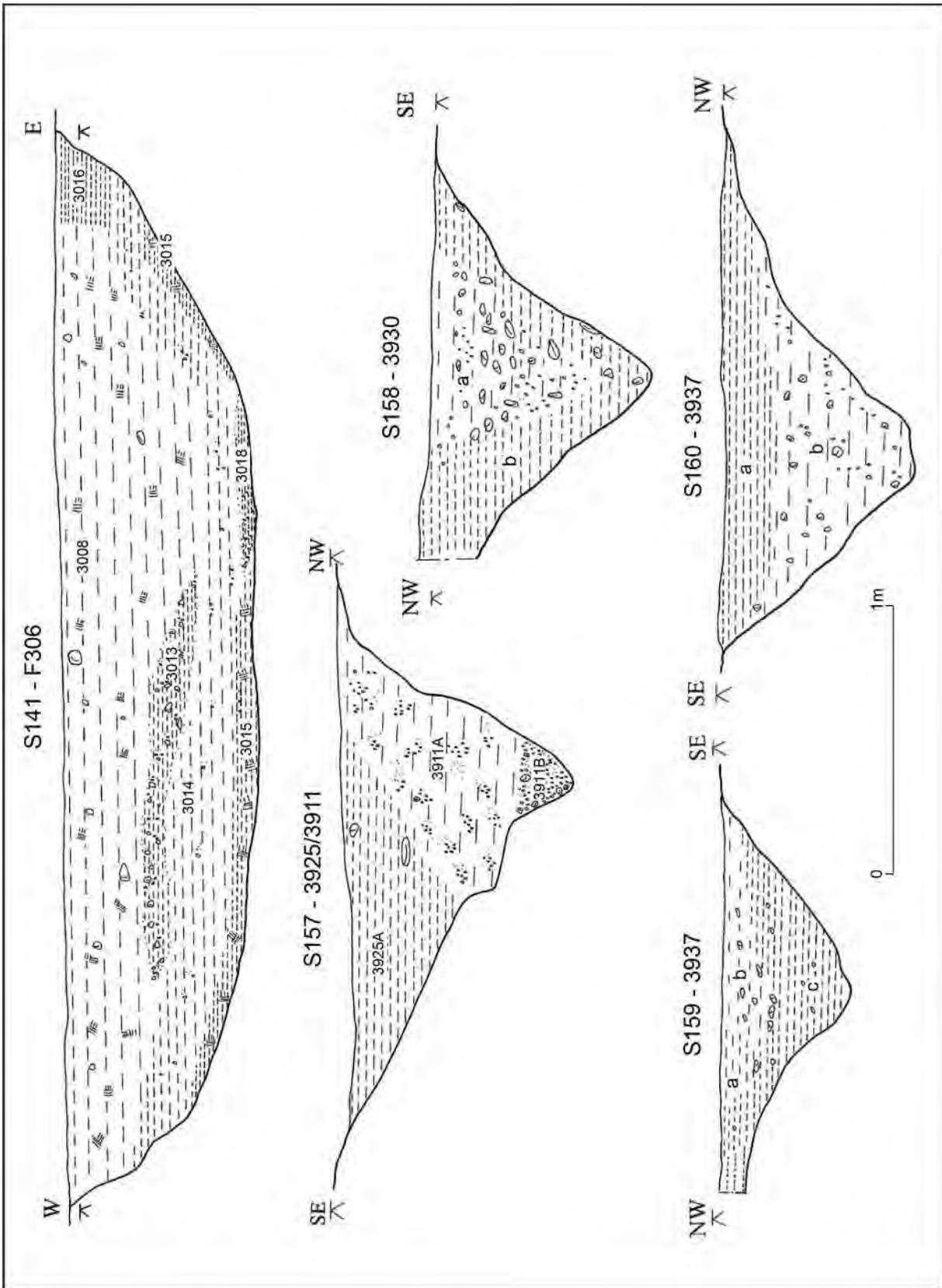


Figure 36 Section through pit F306 to the east of the fort and sections through selected gullies to the north-west of the fort.

The mid-section of the ditch (3915/ 5014; Figure 35, S156) was moderately steep-sided and flat-based. The ditch continued to the south west (3911) where it was V-shaped with a primary fill of dense gravel (3911B), overlain by compacted stony gravel (3911A). Towards the south-west end of the gully the silt fill was possibly re-cut and filled by a stony gravel (3930A; Figure 36, S158). The ditch butt-ended, but was connected to a further section of the ditch system (3937) by a short narrow gully (3933). Ditch 3937 was deeper towards the south-west and was filled by silts, with the upper fill being a very clean, pure silt (Figure 36, S159, S160).

The second, east–west, ditch identified to the north of the fort defences in Trench 27, was also recorded further west in Trench 39, cutting through the gully system described above (3928, 3925, 3910; Figure 36, S157). The western end of the ditch (3928), was flat-bottomed and filled with a silt containing some large stones. Further to the east the ditch became increasingly V-shaped with silt fills (3925 and 3910, Figure 36, S157) and was in places lined with pebbles (Figure 35, S163). The ditch (3910) continued eastwards to meet the north-east edge of the trench, where the shape of the section is very similar to that found in Trench 27 further to the east.

Three small gullies were recorded cutting into the earlier south-west to north-east aligned gully system, with a similar alignment to the earlier ditch. A small gully (5016) was recorded cutting into the west side of the earlier ditch (S156) and gully 3919 was recorded cutting into the eastern side of the gully system with gully 3118 adjacent (Figure 35, S162). Gully 3918 seemed to cut into the east–west ditch 3925, but as the fills of the two features were very similar this was hard to discern.

The short gullies 3919 and 3918 were cut across by a last, more substantial gully (3905/ 3914) which, at its southern end, joined the east–west ditch 3910 (Figure 35, S163). Two shallow gullies (4504 and 5007) were recorded at right angles and to the north-west of the gully system. Gully 4504 terminated close to the gully 3905. Gully 5007 had a spread of clay along its northern edge and its silt fill included a charcoal deposit (5005).

A number of cobbled surfaces were also recorded in and around the gullies which may have been relatively late in the sequence of features. To the east of gully 3914 a relatively extensive spread of pebbles was recorded (3909). To the west a further stone surface was recorded between an area of gullies which comprised two layers of stone, with 3921 succeeded by 3920. Some of the stone of 3920 had slipped into the late gully 3918 suggesting that this pebble surface belonged to a late phase of the gully system. In the south-west corner of the trench further small pebble surfaces were recorded, including 3935 which was found covering the small channel 3933. This latter paving, therefore, seems to be a later modification of the use of this area. A number of post-holes in this area of the trench may be associated. Post-hole 3940 was set into the butt-end of ditch 3937, a small depression or truncated post-hole (3943) was adjacent, and post-hole 3942 set into the side of ditch 3930.

The purpose of these features is not clear. They may have had an industrial function, bringing water to aid in the processing of ore for instance. If so they would belong in Phase 2B. Equally, they could merely be a means to direct water away from the fort and into its surrounding ditch.

Gullies to the south-east of the fort

A series of approximately north–south aligned gullies were recorded in Trenches 31 and 32 beyond the area of the fort and to its south-east (Figure 26). The gullies appeared to post-date a group of pits in the area (described above). The central and shortest water channel (3117) was replaced by a longer parallel channel 3109 to the west. This latter gully cut the fill of Pit X2 and continued south beyond the southern edge of the trench. A third parallel gully 3110 was found to the east. Gullies 3109 and 3117 were filled by similar dark silts, including small lumps of burnt clay, litharge, iron, and glass. The fill of gully 3110 was a brown silt and the number of finds, particularly in the top half of the fill, was greatly reduced. The most likely purpose was to take the surplus water away from the occupied areas of the *vicus*; the ground surface in this area slopes southwards towards the River Caebitra which would aid this process.

Period 3: Late Roman activity

The next discernible event after the end of Period 2B activity was the re-excavation of part of the defensive ditch assumed to have been dug in Period 2A, at the south-west corner of the fort. The ditch was fully re-excavated in this area, presumably following the line of the Period 2A defensive ditch; none of the fills of the earlier ditch survived. Artefacts from primary fills have been dated to the 3rd/ 4th century. Artefacts from subsequent fills included a silver spoon of 4th century form and a coin of Constantius II (337–341 A.D.).

Three sections were excavated across the southern fort ditch F102 in Trench I (Figure 37; S110, S111 and S113) and a further section was excavated in Trench 18. The ditch was 5.0m wide, up to 1.9m deep and had a V-shaped profile with a large and deep cleaning slot at the base (S110). The ditch butt-ended towards the eastern

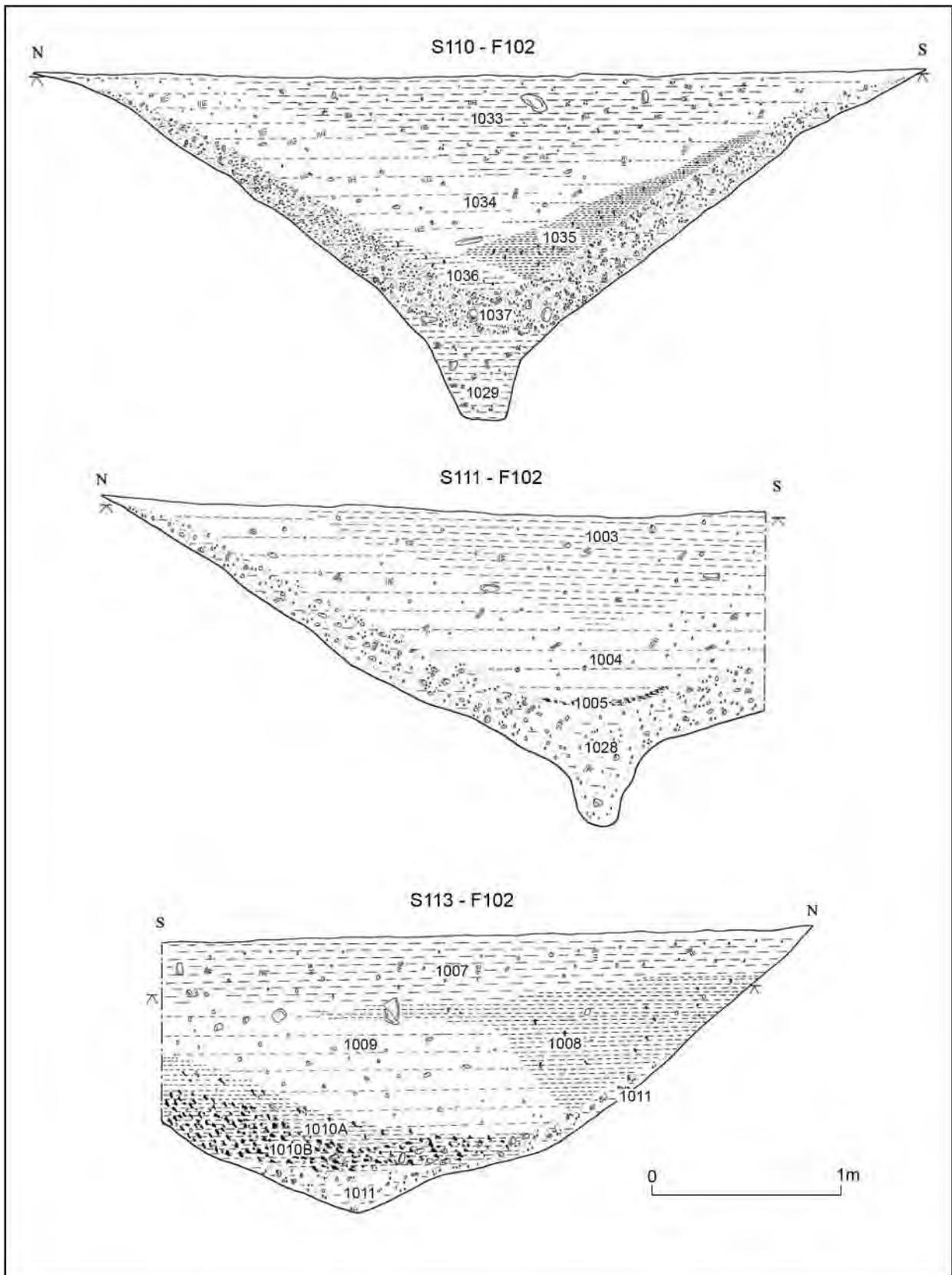


Figure 37 Sections through Phase 3 fort ditch at the south-west part of the fort.

limit of excavation (S113) and was rather squared off and sharp-angled, with a marked increase in depth near to its terminus.

The three sections cut across the ditch revealed a consistent sequence of backfills. The cleaning slot was filled with buff-grey silts (1028, 1011 and 1029), sealed by a collapse of the ditch sides (1037) caused by weathering and erosion. A finds rich deposit of charcoal-stained dark brown clay silt (1005, 1010, 1035 and 1036) was then dumped into the now partially backfilled ditch hollow. This material was overlain by a light brown silt clay (1008, 1009, 1004). The spoon was found in layer 1009 in association with the coin of Constantius II and a repaired sherd of black burnished ware dish. The remaining hollow in the ditch was then infilled with further silts (1003, 1007 and 1033) containing pottery of a later Roman date.

The total re-excavation of this sector of the fort's defensive ditch was followed by its infilling with artefacts suggesting nearby occupation of some form. The southern annexe could also have been defended or re-defended in this period, though there is no evidence for this. The dating evidence suggests at least a 4th century date for this activity.

Period 4: Post-Roman activity

In Trench I (Figure 20) a very long gully-like feature (F118) was aligned parallel to the north edge of the A489. The gully was sampled at two small sections: the width varied between 0.3m, and 0.8m, and its profile was a shallow U with a depth of 0.1m deep. The gully cut through all the other features that lay in its path; the fill was a grey clay-silt. No finds of any kind were recovered. The gully F118 is interpreted as a late feature primarily on the basis of its alignment and proximity to the modern road. To the north, two further features (F136 and F137; Figure 20) consisted of shallow scoops approximately 0.05m deep. F137 was indeterminate in shape and appeared to continue under the north edge of the trench. There were no finds, so little more can be said as to purpose and date.

A number of possible plough marks, of unknown date, were recorded within Trench 51 in the northern part of the fort and may potentially post-date Roman activity on the site (Figure 31, features a-h, 5139 and 5143).

SPECIALIST REPORTS

The specialist reports that follow, which contain some nationally important finds, quite aside from their regional importance, were mostly commissioned and written in the early to mid 1990s as part of the post-excavation analysis of the BUFAU excavations. Specialists agreed to look also at the material recovered by CMARG at the same time. However, it is worth noting that the specialists finished their reports before CMARG excavations ceased in 1998. It has not proved possible to incorporate the small amounts of material found in these later excavations in the final reports as there was insufficient time and funding to revise the reports. It is not thought that anything found in these later trenches was significantly different from what had been recovered from the remainder of the excavation, and the quantities were in any case very small. These later finds have not been amalgamated with the reported material but are within the archive.

THE ROMAN COINS

by SIMON ESMONDE CLEARY AND ROGER WHITE

The coins were initially identified by the first author in 1995 when the catalogue was drawn up as part of the post-excavation appraisal. During the final editing process, a more detailed inventory was carried out by the second author in accordance with current practice (Brickstock 2004).

Coin catalogue

BRO 90 PH 31x2	Vespasian, 69–79, <i>as</i> Obv: head r Rev: illegible / worn flat Wt: 6g; die axis: — ; diam: 26mm; condition: worn / very worn
BRO 90 PH3709 SF41	Vespasian, 69–79, <i>as</i> , Obv: head r, fillet IMP CA]ES VESPASIAN [AVG COS (?) Rev: seated figure; in exurge IVDAEA (?) Perhaps as RIC 2, 762 Wt: 5g; die axis 6; diam: 28mm; condition: unworn / corroded
BRO 90 III 3002	Vespasian, 69–79, <i>as</i> , illegible Obv: head r; legend illegible Rev: Victory, adv. R with wreath [S] C; VIC]TOR[IA AVGVST S; as RIC 2, 766 Wt: 7g; die axis: 6; diam: 25mm; condition: worn / worn
BRO 90 F141 1078	Titus (as Caesar), 76–78, <i>as</i> , Obv: head r T CAES IMP AVG F PON T RP COS V (or) VI] CENSOR Rev: corroded – illegible Wt: 7g; die axis: — ; diam: 27mm; condition: worn / corr.
BRO 90 TR24 SF10	Titus (as Caesar), 77–78, <i>as</i> Obv: head r, laur [T CAESAR V]ESPASIAN[VS TR P COS VI] Rev: Ceres stg l with staff and ears of corn [CERES] AVG S C RIC 2 as 683 Wt: 9g; die axis: 6; diam: 27mm; condition: worn / worn
BRO 90 II 2007	Domitian, 84–96, <i>as</i> , Obv: head, laur, r [IMP CAES DIVI VE]S]P F DOMITIAN AVG GER COS] Rev: Moneta stg. l holding scales and cornucopia MON[ETA AUG]VST C[OS X(?) S C RIC 2 as 242A Wt: 6g; die axis: 6; diam: 28mm; condition: unworn / unworn – damaged edges
BRO 90 III 3001	Domitian, 86, <i>as</i> , Obv: head r]COSXIIIICA] Rev: illegible Wt: 3g; die axis — ; diam: 26mm; condition: slightly worn / corroded

BRO 90 3805 SF 17	Domitian, 86, <i>as</i> Obv: head r, laur. IMP CAES DOMIT AVG GERM COS XII CENS [PER P P] Rev: Rev: Moneta stg. l holding scales and cornucopia [MONETA AUGVST] S C RIC 2, 301(b) Wt: 7g; die axis: 6; diam: 28mm; condition: unworn / unworn
BRO 89 PH3505 SF 4	Domitian, 85–96, <i>as</i> , Obv: head r, laur [IMP CAES] DOMIT AVG GERM COS X[I CENS] PER [P P] Rev: Fortune stg. r holding rudder and cornucopia FORTVN[A] AVGVS[TI] S C RIC 2 as 299(a) Wt: 6g; die axis: 6; diam: 28mm; condition: unworn / unworn
BRO 90 PH3805 13	Domitian, 85–96, <i>dupondius</i> , Obv: head r, rad. [IMP CAES DOMIT AVG] GERM [COS (?) C]ENS[PER P P] Rev: Virtus stg r. holding parazonium and spear [VIRTVTI AVGVSTI] S C RIC as 305A Wt: 8g; die axis: 6; diam: 28mm; condition: unworn / unworn
BRO 90 3107A	Trajan, 103–11, <i>as</i> , RIC as 482 (Not seen in 2014 – no detailed description)
BRO 90 I 1009	Constantius II, <i>nummus</i> 340–2 Obv: Bust dr, diad [CONST]AN[TI]VS PF AVG Rev: Two soldiers with standards, between vexillum with M mm: TRS~ [G]LOR[I-A]E[XER-CITVS]; LRBC I, 132 RIC 8, 105 Trier mint, 340–2 Wt: 1g; die axis: 12; diam: 18mm; condition: unworn / unworn
BRO 90 3339 159	C1–C2 illegible (Not seen in 2014 – no detailed description)

Discussion

This small group, comprising 13 coins, represents two periods of occupation at Pentrehyling Fort. No coins were found in the excavations at Brompton Camp. The size of the collection precludes further statistical analysis. The first group, comprising 11 coins of the Flavian period and one of Trajan, represent the floruit of the fort in phases 2A and 2B. The last legible coin derives from the late phase of occupation, phase 4. The preservation of the coins was generally good to poor, but legibility had been considerably improved by conservation. Corrosion of the surfaces and loss of the flan edge were commonly observed, but the group is stable following its conservation.

For the larger, earlier, group coin losses were confined almost entirely to the lowest commonly available denomination of that period: the *as*. The exception was a *dupondius* of Domitian, but this too is a low denomination coin. Where flan surfaces were preserved, it was observed that those of Domitian were often very crisp, demonstrating little sign of wear. In contrast, those of Vespasian did show signs of wear, especially on the obverse where the prominent head allowed wear to occur rapidly. This may imply that the fort was occupied for a short duration only, as is implied by the pottery evidence too (Dickinson below). It was unfortunate that the coin of Trajan was not available for inspection. This came from the area of the *vicus* and might corroborate the conclusion of the pottery report (Evans, below) that occupation here continued into the early 2nd century, whereas on the coin evidence alone the fort would seem to have been evacuated before the end of the 1st century.

Little can be made of the only late Roman coin found on at Pentrehyling. It is one of the most common issues from Roman Britain and is strong evidence for activity on the site at this date, also demonstrated by contemporary pottery and the silver spoon (Evans, below; Johns, below). However, the total absence of the commonest coins of later Roman Britain, the irregular ‘barbarous radiates’ of the 270s, does suggest there was very little or no occupation of the site in the 3rd century.

SMALL FINDS OF METAL AND SHALE

by L. BEVAN, with contributions by M. HENIG, C. JOHNS, D. MACKRETH, P. W. ROGERS, C. ROWE,
F. ROWE AND P. TOGHILL.

Due to the high incidence of corrosion and fragmentation among the small finds assemblage, the following catalogue comprises a selection of identifiable and better-preserved items, for which full description and, in many cases, illustration have been provided. Miscellaneous undiagnostic items, summarised below within relevant material groups, have been listed by context in the archive catalogue.

Jewellery, Dress and Personal Adornment (Nos. 1–13)

Finger Rings (Nos. 1–3 by M. Henig, 4–5 by L. Bevan)

1. Iron ring. The hoop is narrow and nearly of rounded section at narrowest surviving point but widens markedly from around the middle of the hoop; the upper part of the ring is of flattened section. The type belongs to Henig Type III (Henig 1978, 35–6, fig. 1 see pl.xliii, no.381), characteristic of the 1st century but extending into the beginning of the 2nd. There is a small section of the hoop which is lost and a break across the shoulder.

The ring is set with an intaglio, evidently of dark glass, imitative of onyx; it has a flat upper surface and bevelled edge. The intaglio shows some surface wear and pitting. Its device is a warrior, nude but with a helmet on his head and shield on his right arm, kneeling on one knee and setting a shield upon a corselet as a battlefield trophy (or just possibly inscribing it). There is a ground line.

For the half-kneeling warrior with a shield see Fossing 1929, nos. 117 and 119 (the latter in glass), Maaskant-Kleibrink 1978, nos.328 and 606. Also note Henig 1994 no.203 which depicts the warrior chasing a design on a corselet with hammer and punch and Maaskant-Kleibrink 1986, no.67 showing a kneeling warrior.

If the warrior is actually inscribing the shield he could have been intended to represent the Spartan hero Othryades who was the sole survivor amongst his compatriots at the battle of Thyrea, fought against the Argives c.550 B.C. and despite having been mortally wounded is said to have written the record of victory upon a shield with his own life-blood. A glass gem from Hod Hill, Dorset, certainly depicts Othryades who, weakened by his wounds, rests on his shield while he inscribes another (Henig 1978 no.449). The soldier on the Pentrehyling intaglio and those on its comparanda do not fit with this story, and it is best not to insist on a specific identification. J.P. Guepin writes in his paper on the hero, placing the type in his Group IV: '*Dans ce group sont réunies les pierres qui montrent un guerrier reposant sur un genou. Il n'est pas blessé. On ne peut donc l'appeler Othryades, car l'essential de l'anecdote semble perdu*' (Guepin 1966, 66–7). In any case heroic themes such as this gem were popular devices for signet-rings worn by soldiers, especially in the 1st century (Henig 1970), evoking as they did legendary deeds of courage. Date: 1st century A.D., after an Augustan period prototype.

Dimensions: Diameter of hoop, external 28mm; internal 21mm. Width of hoop at widest point: 13mm; at narrowest point 1.5mm. Intaglio measures c.11mm by 10mm. PH 3820B/27. Figure 38: 1; Plate 9.

2. Iron ring. Type as last (Henig Type III) with hoop of flattened section widening especially from around the middle. The ring is complete but corrosion at the bezel has resulted in a large blister which has lifted the intaglio clear of the original surface.



Figure 38 Iron finger rings with intaglio (1-3) and copper alloy finger rings (4-5). Scale 1:1.



Plate 9 Intaglio in Ring 1. Photograph: Robert Wilkins.



Plate 10 Intaglio in Ring 2. Photograph: Robert Wilkins.

The intaglio is a grey-brown chalcedony with a flat upper surface and bevelled edge. The intaglio is well polished and in excellent condition. Its device is a lion, squatting on its haunches to the left, with the head of an animal between its forepaws. There is a ground line.

For comparanda see Henig 1978, no. App.220 (lion reclining; tree behind), from military destruction layers at Wroxeter; also the type see Zwierlein-Diehl 1991, no.1833 (squatting on haunches, tree behind);

Maaskant-Kleibrink 1978, no.613 (lion standing). The style of the leaping lion on a gem from the Main Drain at Bath (Henig 1989, 33 no.28) is reasonably close and suggests that the Pentrehyling intaglio, too, is of Flavian date.

Lions are common in Roman art as symbols of devouring death but also as protective powers. They often appear in funerary art, but were also portrayed in domestic art and objects of daily use as *mementi mori* (Henig 1977, 356–9 and especially Ferris 1988–9). In addition, of course, Leo was a sign of the Zodiac.

Date: third quarter of the 1st century A.D. Dimensions: Diameter of hoop, external 26mm; internal 20mm. Width of hoop at widest point: 10mm; at narrowest point 2mm. Height of blister 10mm. Intaglio measures c.13mm by 11mm. PH 3318, 23 Figure 38:2; Plate 10.

3. Iron ring. Type as last (Henig Type III) with hoop of flattened section widening, especially from around the middle. The ring is complete but there is corrosion at the bezel and the stone has evidently lifted away and been lost. This small ring might have been worn by a woman or child.

Date: Second half of first century A.D. Dimensions: Diameter of hoop, external 22mm; internal 16mm. Width of hoop at widest point: 8mm; at narrowest point 1.5mm. PH3209. Figure 38:3.

Rings numbers 1–3 are all of a type current in the Flavian period when the fort was established, and the two larger ones, set with gems, surely belonged to soldiers for whom their signet-devices are certainly suitable. The presence of a fairly high quality cut gem in an iron ring might seem strange, but iron was a traditional medium for signets and in any case the use of gold was limited by sumptuary legislation to people of Equestrian rank or above.

4. Ring of copper alloy with very corroded surface. Cast ring with 'D'-shaped section. Internal diameter: 14mm, height: 3mm, maximum thickness: 3mm. PH3705A. Figure 38:4.
5. Ring of copper alloy. Very corroded. Some traces of decoration, perhaps alternating notches to produce 'wave' effect, but now obscured by surface corrosion. Internal diameter: 15mm, height: 3mm, maximum thickness: 3mm. PH3109A. Figure 38:5.

The Brooches (Nos. 6–11)

by *Donald Mackreth*

Six brooches comprise this small group. All are of copper alloy. They have been catalogued below according to type but, due to a high incidence of fragmentation, none of the brooches has been illustrated.

Colchester Derivatives

6. The remains of the wings are plain. The bow is also plain, its junction with each wing being masked by a curved moulding rising from the latter. PH89, Tr.85 (5A), sf.9
7. The right-hand wing has a pair of mouldings at its end. The bow is separated from each wing by a vertical moulding. A sunken bead-row runs down the upper two-thirds of the bow. On each side of the bead-row is a series of poorly laid out ribs running out to the edge of the bow. BN89, I, 1002
8. The head of the bow is missing, otherwise it is a repeat of the last, only with the ribs being replaced by divided lenticular bosses forming a loose saltire arrangement across the bow. PH31 X01.

All three brooches once had springs secured by the Polden Hill method: an axis bar mounted in pierced plates at the ends of the wings passed through the coils of the spring, whose chord was held by a rearward-facing hook.

They all belong to a major family which was made somewhere in the Severn Valley and which spreads out into Wales and across the central Midlands, with examples being found as far away as Kent, East Anglia and Scotland. The only major sub-group has a hinged pin and was made somewhere in the southern Pennines. The designs are various, ranging from plain examples such as no.6, through more distinct patterns such as the basic one to which both brooches 7 and 8 belong, to elaborately moulded pieces. There is, as yet, little to show that there are any significant distributional differences between these various designs and the only major chronological indicator seems to be whether the brooch has a foot-knob or not. None survives here, but only no.6 is likely not to have had one. The dating of the whole family has been reviewed (Mackreth in Jackson and Potter, 1996) and the conclusion was that, while those without foot-knobs begin before A.D.75, the general range for the family is from the later first century to c.A.D.150/175.

Trumpet

9. The bilateral spring is mounted on a single lug behind the head of the bow. There are the remains of a sheet metal tube in the coils and this would have housed the ends of a wire loop. The trumpet head has a central ridge relieved on each side by a narrow flat face. Lying on each side of the head against the upper margin is a hollowed lenticular moulding. The knob consists of a prominent cross-cut central moulding with a step above and below down to flutes which separated the knob from the head and the lower bow. Only the mouldings at the top of the latter and the knob remain; they are plain repeats of the lenticular motif on the head. Similar mouldings at the base of the head are corroded away. The lower bow has a slight ridge down the middle and a groove along each edge, the foot is missing. The stub of the catch-plate has a line of rocker-arm ornament along the inner edge next the bow. BRO 91 I 1093.

Close parallels are few, although there is a clutch of related designs which may have a chronological significance. However, too few are dated for any direction to be determined. The group, if it may be so called, belongs mainly to the lower Severn Valley. Dating is not helpful and all that can be offered is the general range for the whole family: from before A.D.75 to c.A.D.175, with a few persisting to the end of the century, if not beyond (Mackreth in Timby 1998, 133–7).

Late La Tène

10. Part of the pin and two coils of spring. The curve on the outer coil shows that it had once bent under a bow to form the internal chord of a four-coil internal chord brooch. PH/BRO 91, I, [1093], III [3006], PH 3112C, sf. 12
The bow may either have had a section like a rod or like a thin rectangle. The former would make it a *Drahtfibel* Derivative, the latter a *Nauheim* Derivative. The date-range, if the other brooches in this collection are any guide, is unlikely to go back to pre-conquest times. On the other hand brooches of the general spring-system seldom date as late as A.D.100.

Hod Hill

11. Badly damaged, the head is lost as well as most of the lower bow. The upper bow had at least one ridge down each border separated by a flute from the central feature which has beaded borders and a wavy ridge buried between these. The lower bow has a marked median arris. BRO 91, III [3006]

The Hod Hill is essentially recognisable because virtually all display the two-part design derived from the Aucissa and none has been convincingly published from a pre-conquest context, although it is almost a matter of chance that this has not happened as the brooch arrived fully formed, and in great variety, with the army of conquest. One example from Skeleton Green may have been pre-conquest but it was not unequivocally sealed beneath the flood (Mackreth 1981, 141–2, fig.72.55) and another from Baldock was assigned to the first quarter of the 1st century A.D., which must be incorrect as it would then predate its parent (Stead and Rigby 1986, 120, fig. 47,112). The Hod Hill is not present in the King Harry Lane cemetery (Stead and Rigby 1989). There is no reason to think that this example should be seen as being later than the general range which, as the distribution of the type in Britain shows, was passing out of use between A.D.60 and A.D.70, very few surviving to be taken north by the Roman army. Nor does it belong to the strand which persists on the continent to give rise to a further series of designs.

Other Personal Items (Nos. 12–14)

12. Bracelet fragment of shale. Undecorated, with semi-oval section and some surface abrasion. Width: 8mm, thickness: 5mm, diameter: 60mm. BRO 90 1010. Figure 39:1.
13. Pin of copper alloy, complete, in two joining parts. Badly corroded. Head is conical, partly damaged on one side, and separated from the shaft by a single groove. The conical head is similar to that of a more elaborate pin from Colchester with incised lines on the head and triple grooving beneath (Crummy 1983, 30, figure 31:497). The Colchester example has been tentatively dated to the 2nd century based upon contemporary parallels executed in bone, and it is possible that this example could also date from that time. Length: 135mm, diameter: 3mm. PH3109. Figure 39:2.
14. Fragment from a pair of iron tweezers. Upper part of blade and loop. Width: 5mm, thickness: 1.5mm. PH3101. Not illustrated.

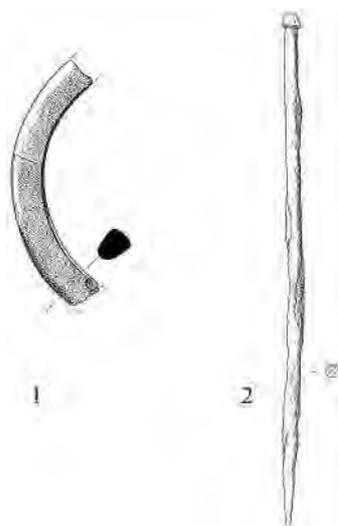


Figure 39 Shale bracelet and copper alloy pin. Scale 1:1.

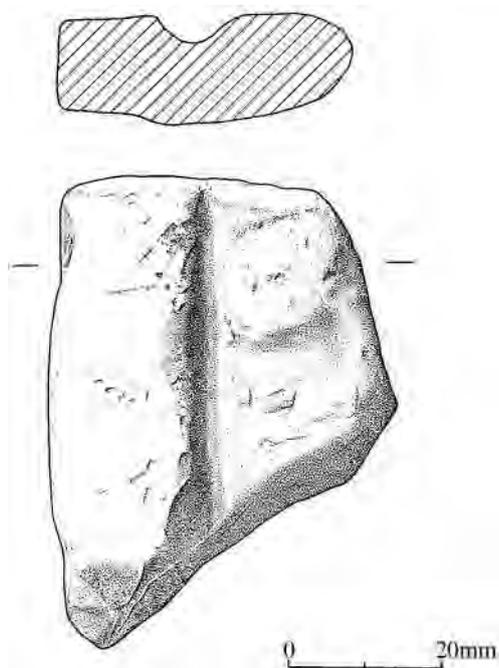


Figure 40 Utilised stone – point-sharpener. Scale 1:1.

The Worked Stone

by Fiona Roe, with geological descriptions by Peter Toghil

15. Fragment of grooved pebble of laminated coarse siltstone utilised as a point sharpener. Maximum length: 59mm, width: 45mm, thickness: 12mm. Groove: 5mm wide by 2mm deep. PH 3802. Figure 40.
16. Fragment of a saddle quern of feldspathic sandstone with aggregates of haematite, possibly Carboniferous in date. Thickness: 42–85mm. BRO 90 1 1001. Not illustrated.

Hobnails

Contextual information regarding the 361 hob nails found appears in the table below. The majority of hobnails were found singly or in groups of between two and ten. The greatest concentration came from context PH0120 from which 52 hob nails were recovered, many in clusters suggesting that they had corroded together whilst the

leather of a shoe or sandal was still intact. Large quantities of hob nails also came from the following contexts: PH3123 (27), PH3102 (28), PH3820 (32), PH3350 (15), PH3107 (13) and BRO 1005 (12). However, when the number of hobnails required for one item of footwear is considered, even the largest collections might represent only one or two shoes or sandals.

361 hob nails were recovered from the following contexts:

Table 1 Hobnails from Pentrehyling Fort and *vicus*.

Numbers of hobnails	Phase	1	2-10	12+
Contexts	1	–	–	–
	2A	PH3728	–	–
		PH3739		
	2A/B	PH0615	PH3112	PH0120 (52)
		PH3814	PH3122	PH3107 (13)
		PH3816		PH3350 (15) PH3820 (32)
	2B	BRO 1096	PH33FUR	
		PH0611	PH2440	
		PH2440	PH3008	
		PH3354	PH3024	
		PH3356	PH3110	
		PH3718	PH3314	
		PH3343		
		PH3610 PH3615		
	3	–	–	BR01005 (12)
unphased	PH3119	PHY	PH3102 (28)	
	PH3123	PH0616	PH3123 (27)	
	PH3209			

Personal Objects and Utensils (Nos. 17–20)

Patera Handle

by Lynne Bevan

17. Hollow handle, of heavily-leaded copper alloy, from a *patera*. The handle terminates in an upward-turned, mask-like face, probably the youthful, fleshy face of Bacchus, his identity confirmed by the head of a large cat, probably a panther, one of his attendant beasts, at the intersection with the body of the vessel. Length of handle: 106mm, diameter: 17mm, average thickness: 3mm. PH3821. Figure 41.

Handles and bowls of both silver and copper alloy *paterae* were commonly decorated with Bacchic motifs of an often elaborate nature, sometimes including representations of the god himself (see Hutchinson 1986, 22–23 for full discussion).

Despite some surface degradation, the inward-looking face of Bacchus can be clearly identified at the handle's tip. The blank, expressionless face has coarse features, a bulbous nose and slightly slanting eyes. Both the subject matter and the style of its execution, with the decorated end of the handle being delineated by a series of bands, are reminiscent of two similar examples featuring the god's head, from Welshpool (Boon 1961) and Bartlow Hills (Gage 1838). Both *paterae* are more finely modelled than the example from Pentrehyling, although its apparent coarseness might result partially from surface erosion, and their decorative repertoire is more elaborate. The Welshpool *patera* bears the profile of a human mask in a Phrygian cap beneath the handle (Boon 1961, plate 7), and the Bartlow Hills *patera* incorporates a variety of different motifs and ritual scenes including the profiles of hooded men (Gage 1838, plate 11). In contrast to the Pentrehyling Bacchus, both comparative faces of Bacchus originally had inlaid silver eyes, and their hair was longer and more elaborately curled. Again, surface damage might have eroded finer hair detail on the Pentrehyling Bacchus's hair but it appears quite short and worn with a 'quiff' at the front.

Another parallel, this time the handle from a jug, comes from Rocester, Staffordshire (Cooper 1996). Bacchus again appears at the base escutcheon of the handle which is decorated with a variety of Bacchic

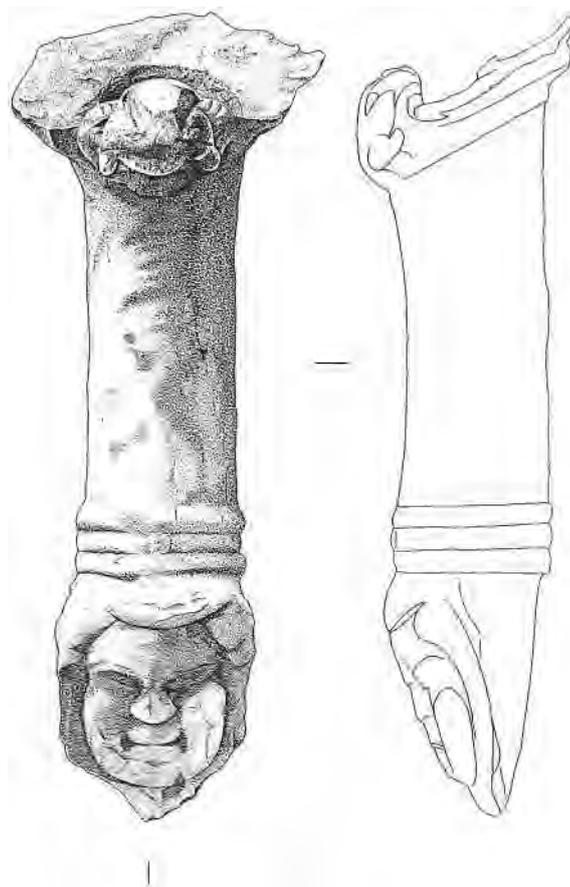


Figure 41 Copper alloy patera handle. Scale 1:1.

symbols. Bacchus is more elaborately coiffured than the Pentrehyling Bacchus, but has a similarly blank expression, and is accompanied by a female figure, possibly Methe, formally presiding over the rim of the vessel with outstretched arms. The addition of a second motif at the intersection of a vessel handle with a bowl is a common feature. For example, on the Welshpool *patera* Bacchus is accompanied by a satyr, and on the Bartlow Hills *patera* by a ram, the latter has Bacchus with outstretched arms. On the Pentrehyling *patera*, although less well-preserved than the face of Bacchus, a panther's head can be clearly recognised. The pairing of the god with the most important of his sacred beasts suggests a seriousness of subject matter which might be significant. However, in the absence of the *patera* bowl, the handle might provide only a partial picture of the *patera*'s imagery, although it is possible that the bowl could have been plain, like that of the Welshpool *patera*, and that only the decorated handle was retained once the vessel had outlived its usefulness.

The rich symbolism of *paterae* decoration seems to be at variance with the apparent utilitarian function of these objects, and many *paterae* show obvious signs of wear. The excavator of the three Welshpool examples concluded that they were 'basically domestic' rather than restricted to 'ritual', with their worn appearance perhaps leading to their inclusion in a burial or cremation when they were no longer fit for domestic usage (Boon 1961, 17). However, the suggested use of these items for heating water to mix with wine in Bacchic rites would have essentially involved wear. Hutchinson includes these examples in a category of vessels and utensils decorated with symbolic motifs, which 'could have been used equally well for culinary and cultic purposes...perhaps...used for both, as individual needs required' (Hutchinson 1986, 25). The Pentrehyling *patera*, featuring Bacchus and an attendant panther presiding over the, now-absent, vessel seems also to belong to Hutchinson's dual-purpose group. The determination of 'ritual' or 'utilitarian' use of objects such as *paterae*, when in the past such roles might have been indivisible, is a modern construction which Hutchinson has criticised (1986, 25).

Both the Bartlow Hills and Welshpool *paterae* are believed to be of Italian origin and the latter has been dated to the late 1st century A.D. (Boon 1961, 18–19). It seems likely that the Pentrehyling *patera* is the latest addition to, and is contemporary with, this enigmatic category of cult object with which it shares a number of decorative and ideological traits.

Roman Silver Spoon

by Catherine Johns

18. The spoon has an oval bowl, plain pointed handle of slightly squared section, and an open C-shaped scroll forming the handle offset. There is a short rat-tail running beneath the bowl, and a very slight keel persists beyond the point where this tapers away.

The bowl is severely worn at the front and to the left side, the typical wear from right-handed use, and the handle has been broken 47mm from the tip. This is a modern break. Prior to conservation there was heavy mauvish-grey corrosion on the back of the bowl and within the bowl at the worn edge. Some greenish corrosion was also present within the bowl.

The corrosion at the edge completely obscures the first two letters of the inscription which runs the full length of the bowl interior. Radiography has revealed these letters. The initial V is half worn away, but the remaining upright is clearly visible in the X-ray.

The inscription is fairly neatly punched in broad letters with serifs. It reads VTEREFELISVIV. There is no visible trace of a ligatured VA or final S. There are no stops between words.

The spoon is a standard 4th-century type. The fully developed *cochlear* of the late 4th century tends to be larger, typically about 200mm long weighing around 24g. The scroll offset between the handle and bowl also developed into an ornamental element, pierced, engraved, and sometimes incorporating a stylized

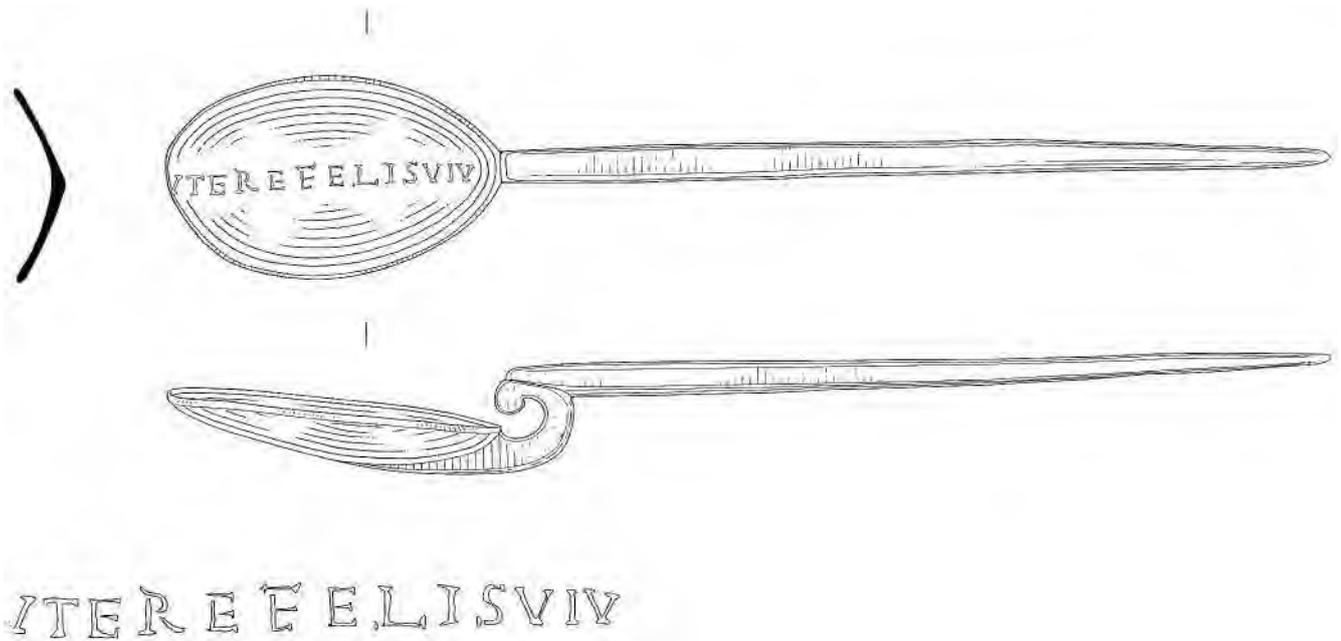


Figure 42 Inscribed silver spoon. Scale 1:1; inscription 2:1.



Plate 11 Inscribed silver spoon following conservation. Photograph: Roger White.

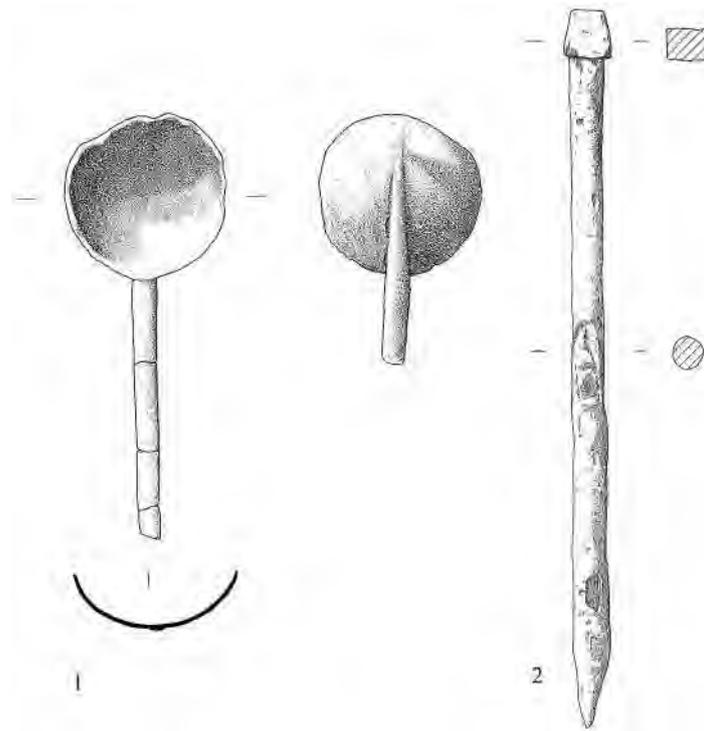


Figure 43 Copper alloy spoon and Iron Stylus. Scale 1:1.

animal head. The simple open C-scroll of the Pentrehyling spoon is closer to the 2nd- and 3rd-century spoons with a plain curved arm joining handle and bowl. The overall form of the Pentrehyling spoon therefore suggests manufacture in the early 4th century, or perhaps even the end of the 3rd. This fits very well with the archaeological evidence, since the spoon was associated with 3rd- to 4th-century pottery and a coin of A.D.340–342.

VTERE FELIX inscriptions are not common on spoons, and no parallel has been found for the spelling used here, nor for the addition of *'vivas'* to the phrase. One of the pair of 3rd-century spoons from Köln (Sherlock 1973, 205) is inscribed VTERE FELIX, Milošević records one from north Italy (Milošević 1968, 139, Isola Rizza, prov. Verona), and there is an example from France (Sherlock 1973, 209, Salles d'Aude), but the closest parallel, a silver spoon inscribed VTERE FELIX of very similar form and size to the Pentrehyling Spoon, is from Kaiseraugst. This is an early stray find from the site, and is catalogued in Riha and Stern 1982 as no.276. The lettering is less elegant than that on the Pentrehyling spoon, and there is a narrow decorative border around the bowl which is absent on the new find.

It is also worth noting that the form is paralleled in the unprovenanced group of spoons in private hands which might be associated with the 1962 Canterbury treasure (Johns and Potter 1985, no. U.6). Even more heavily worn than the Pentrehyling spoon, that particular example is manifestly earlier than the main group of the Canterbury treasure. Its size and weight, as well as the open offset scroll, compare well with the Pentrehyling spoon. It has no inscription.

This new find, therefore, is an important addition to the list of late-Roman silver spoons from Britain. It has a hitherto unrecorded inscription (Frere and Tomlin 1991, 127–144), it represents the earlier development of the typical 4th-century *cochlear* seen in the major late-Antique silver hoards in Britain and elsewhere, and it is an excavated piece from a well-dated context.

(Analysis of metal (SQ XRF): silver: 95%; copper: 3%; lead: 1%; gold: 1%; zinc: trace; tin: trace.) Weight: 16g. Overall length: 15.2cm; length of bowl: 4.4cm; width of bowl: 2.6cm; weight: 16g. BRO 90 I 1009. Figure 42; Plate 11.

19. Spoon, copper alloy, with slightly damaged round bowl and fragmentary handle in three pieces. This example is similar to a round-bowled spoon from Colchester (Crummy 1983, 2008), a type of spoon dated 'from the second half of the 1st and the 2nd century' (Wilson 1968, 101). Diameter of bowl: 23mm, depth of bowl: 6mm, average thickness of bowl: 1mm. PH3122. Figure 43:1.
20. Stylus, iron. Slender shaft with small eraser, conforming to Manning's Type 1, a common form of stylus with a wide distribution (Manning 1985, 85–87, Plate 35:N2, N12). Length: 92mm, diameter of shaft: 4mm. BRO 90 3002. Figure 43:2.

Military Fittings and Projectiles (Nos. 21–30)*Military Fittings (Nos. 21–24)*

21. Scabbard plate. Part of lower plate from an iron scabbard, with traces of inlaid decoration executed in silver. Top left hand corner and tip of plate are missing. Surviving length: 75mm, width: 37mm, thickness: 2mm. Visible decoration consists of a double band of opposed transverse lines enclosing a tapering design register with horizontal banding combined with infilled triangles. At the top of the design, a row of banding below a thicker, triangular motif clearly represents a temple, showing part of the pediment and a row of columns. PH1801. Figure 44:4.

Scabbard plates, believed to have been manufactured in the Rhineland (see Crummy 1983, 134–135 for discussion), often include the stylised temple motif in their repertoire of decoration. This motif, derived from the finer bronze plates attached to officers' scabbards (Grozenbach 1966; Crummy 1983, 135), occurs on an iron dagger plate from Colchester combined with palm tree motifs (*ibid*, Figure 154) and also on a less elaborate example from Gloucester (Hassall and Rhodes 1974, plate 6c). The Gloucester example, with its predominantly linear decoration and bands of opposing transverse lines, provides a closer parallel for the Pentrehyling scabbard plate, although the banding is broken up by quatrefoil motifs and a 'schematically rendered 'arrow' on the better-preserved Gloucester example (Hassall and Rhodes 1974, 79), in contrast to the Pentrehyling example which, despite loss of surface detail, appears exclusively linear in character. The finer quality Colchester scabbard is believed to pre-date the Gloucester scabbard, the latter representative of a general decline in quality of equipment 'from the Claudian period' onwards (Crummy 1983, 135), and, on this criterion, the Pentrehyling example is also later in date, envisaged as dating to the later first century.

22. Junction loop for horse harness, in copper alloy, consisting of a waisted plate originally affixed to a leather strap by two rivets. One rivet hole, separated from the broken hook by a register of raised banding, is empty and the second rivet remains in place where it was found attached to a fragment of leather. The shape of the leather follows the waisted shape of the fitting. Length of fitting: 53mm, thickness: 1mm. Similar copper alloy fittings have been found at Wall, Staffordshire (Webster 1966/7, 33, Figure 15:2), and at Usk, Gwent (Manning *et al.* 1985, 39–40, figure 14:3,4.). PH3615. Figure 44:1.

The Roman Leather Strap by P.W. Rogers

The leather strap is 13–14mm wide and consists of two strips placed flesh-to-flesh and stitched along the long edges. The sewing thread is plied (S-twisted from two or three Z-spun threads); the fibre is partially processed flax or hemp. The stitching has been worked with two separate threads, which exchange between front and back, crossing each other as they pass through the same stitch-hole; there are 4–5 stitches per cm.

Along the middle of each side of the strap is a faint red band, c.5mm wide, which seems to have been painted on: the red has only soaked into the top layer of the leather. A small sample was removed with a scalpel and examined by Dr. G.W. Taylor, who comments as follows:

'The sample was tested for natural red mordant dyes. Identification of the colorant was achieved by means of spectrophotometry and thin-layer chromatography. A mixture of alizarin and purpurin was detected. These are the principal colorants found when a madder dyeing is analysed. It is concluded that the leather had been coloured with Dyers' Madder, *Rubia tinctorum L.*'

Pliny the Elder, speaking of plants of commercial value, said that 'of prime importance is madder, used by dyeing wool and leather' (*Historia Naturalis* Book xix, Section 47, Bailey 1929, 37). The use of madder in wool textiles of the Roman period has already been established by analysis (Taylor 1983), but, so far as the author is aware, this is the first time that the dye (or paint) has been identified on leather.

23. Strap end of copper alloy, in two joining pieces. Very corroded. Fitting consists of a perforated attachment loop, beneath which two registers of incised linear decoration enclose an oval-shaped perforation. Fitting has broken below second register of design. Surviving length: 42mm, maximum width: 12mm, thickness: 2–5mm. BRO 90 111 3003. Figure 44:2.

24. Apron mount with two surviving rivets and two empty rivet holes at the curved terminal. The hook is hollow and built up at outer edges to a thickness of 3mm. Length: 46mm, maximum width of plate: 12mm. See Brailsford (1962) for a general discussion of apron mounts. PH2440. Figure 44:3.

Projectiles (No. 25–26) (of iron)

25. Catapult bolt-head, with triangular-sectioned head, and tapering, circular socket. Conforms to Manning Type 1 bolt-heads which were 'found on many Roman military sites in Britain and probably continued in use with

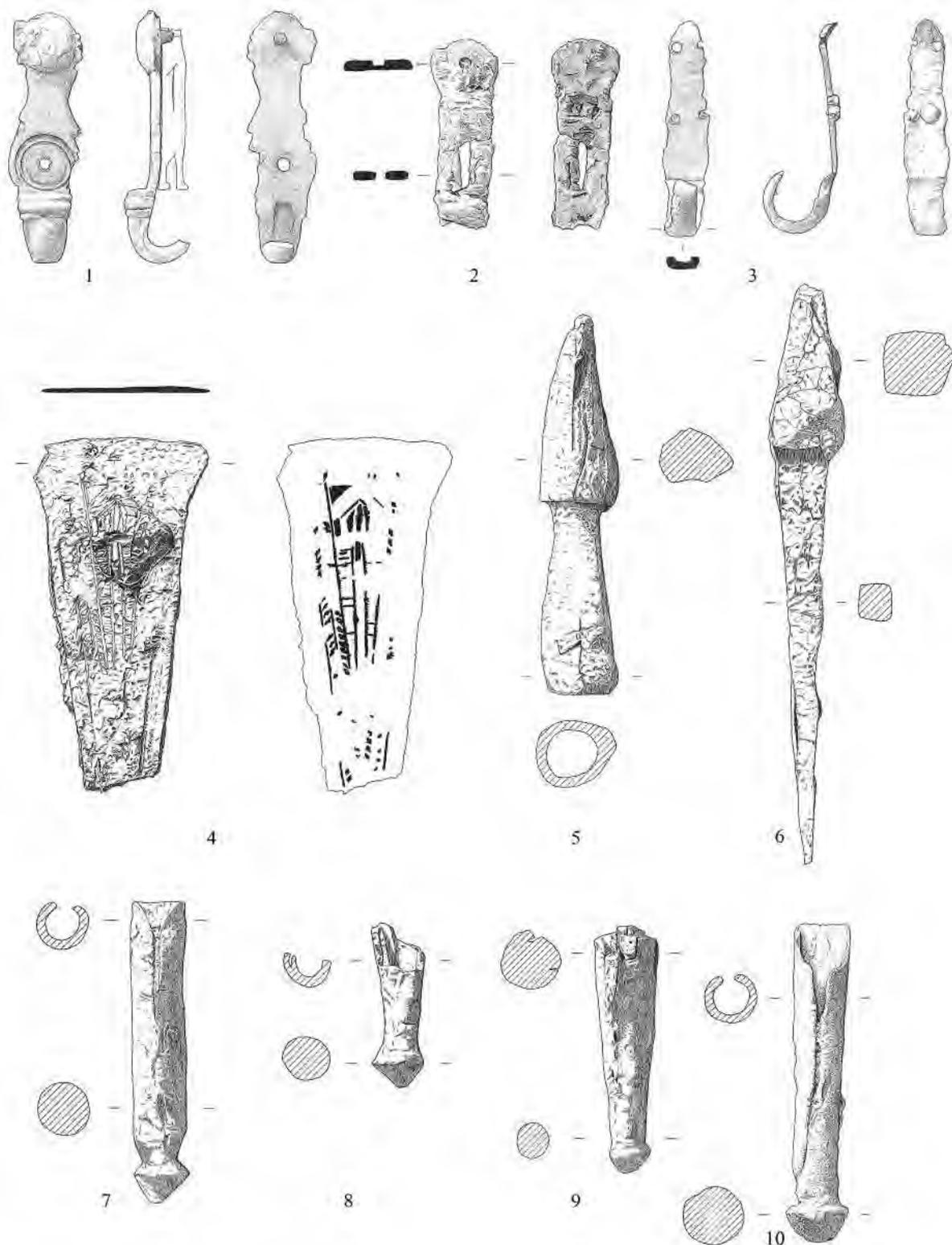


Figure 44 Military equipment, copper alloy fittings and iron projectiles. Scale 1:1.

little or no modification throughout the Roman period' (Manning 1985, 1700175, plates 82 and 83). This one differs slightly from those illustrated in Manning (1985, plates 82 and 83) in that the head is triangular rather than square-shaped, and it also has a small indentation around the point, creating a small, conical terminal. Total length: 78mm, length of arrowhead: 40mm, diameter of socket: 10mm, average thickness of iron: 1mm. PH0125. Figure 44.5

26. Projectile, with an elongated pyramidal head, square in section, similar to that of a *pilum* (Bishop and Coulston 1993, figure 34:8–9, 67). This example has a short, tapering shaft and might have been a specialised form of arrowhead. Length: 112mm, average width of shaft: 7mm, of head: 10mm. PH33 FUR. Figure 44:6.

Conical-Headed Ferrules (Nos. 25–28) (of iron)

Four ferrules were recovered, each with a distinctive, short, conical head and narrow socket (Figure 44:7–10). Nos. 28 and 30 were found together. Such ferrules, more commonly found in Germany, were apparently ‘confined to military sites’ in Britain including Usk, Ham Hill, Housesteads and Newstead, and a large group was also found in the Corbridge Hoard (see Manning *et al.* 1995, 31–33 for discussion).

Manning suggests that this form of ferrule was fitted to the butts of spears, rather than to more ‘expendable’ arrowheads, despite its relatively small diameter (*ibid.* 31). The sockets of the Pentrehyling examples shown in Figure 44:7–10 ranged from only 8–10mm in diameter and the example from Usk is approximately 12mm (*ibid.* 33, figure 11:18).

This form of ferrule, recovered in quantity from late 1st century deposits at Newstead (Curle 1911; Manning *et al.* 1995) may have become ‘more popular as the 1st century progressed, an argument which is strengthened by the relatively large group from the Corbridge Hoard which was probably deposited in the 130s’ (Allason-Jones and Bishop 1988) (Manning 1995 *et al.* 32).

The four well-preserved examples from Pentrehyling suggest a date in the latter 1st century, and contemporaneity with those from the pre-Flavian legionary fortress at Usk, Gwent which lies to the south-west (Manning 1989, 56, Manning *et al.* 1995, 31).

27. Ferrule with conical head. Length: 69mm, diameter of socket: 8mm, thickness: 1mm. BRO 90 1094. Figure 44:7.
28. Ferrule with conical head, similar to No. 23, but smaller and more tapered. Surviving length: 33mm, diameter of socket: 6mm, thickness of iron: 1mm. PH2440. Figure 44:8.
29. Ferrule with conical head and remains of iron ‘shaft’ in socket. Very corroded. Length: 55mm, diameter: 10mm. BRO 90 3002. Figure 44:9.
30. Ferrule with conical head. Length: 61mm, diameter of socket: 10mm, thickness of iron: 1mm, PH2440. Figure 44:10.

Knives, Tools and Weights (Nos. 31–49)

Knives (Nos. 31–35) (all of iron)

31. Knife, tip missing, with remains of rivetted bone handle, the latter retaining traces of linear decoration near blade. This type of angle-bladed knife conforms to Manning’s Type 7b, an ‘elegant’ form with decorated bone handle, often equipped with an end loop (Manning 1985, 112, plate 53: Q17, plate 54: Q18, Q19). This knife might originally have been similarly equipped, in common with No. 30, below, but little of the handle remains. The linear decoration is similar to that shown on a complete knife from a 1st century context in London (*ibid.* Q19). Surviving length of blade: 64mm, of handle: 50mm, width of blade: 14–18mm, thickness: 1mm. PH3103. Figure 45:1.
32. Knife in two joining pieces, with remains of rivetted bone handle with traces of cross-hatched decoration at outer edge and a broken suspension loop. Very corroded without a tip, but more complete than No. 31. This example also conforms to Manning Type 7b, particularly to a knife from London with a cross-hatched handle and a less sharply angled back (Manning 1985, Q20). Surviving length of blade: 110mm, of handle: 56mm, average width: 20mm; average thickness: 0.5mm. PH3101. Figure 45:2.
33. Knife, complete, in three joining pieces with some damage to blade. Corroded. Conforms to Manning’s Type 23 ‘characterised by a markedly upturned tip and curved edge...’ an ‘Iron Age’ type which ‘continued into the Roman period, apparently passing out of use at the end of the 1st or 2nd century...’ (Manning 1985, 118, Plate 56:66–71). Length: 187mm, width: 48mm, thickness: 5mm. PH1908. Figure 45:3.
34. Knife, folded across centre of blade, with long tang and damaged tip. This conforms to Manning’s Type 16, characterised by its equal sides and tang lying on the mid-line of the blade, which was ‘probably a long-lived form’ of knife during the Roman period (Manning 1985, 116, plate 55: Q55). Total length: 190mm, width: 33mm, thickness: 3mm. PH3505A. Figure 45:4.
35. Knife blade fragment. Corrosion precludes identification to any specific knife type as defined by Manning. Surviving length: 51mm, thickness: 9mm, thickness: 1mm. BRO 90 1010. Not illustrated.

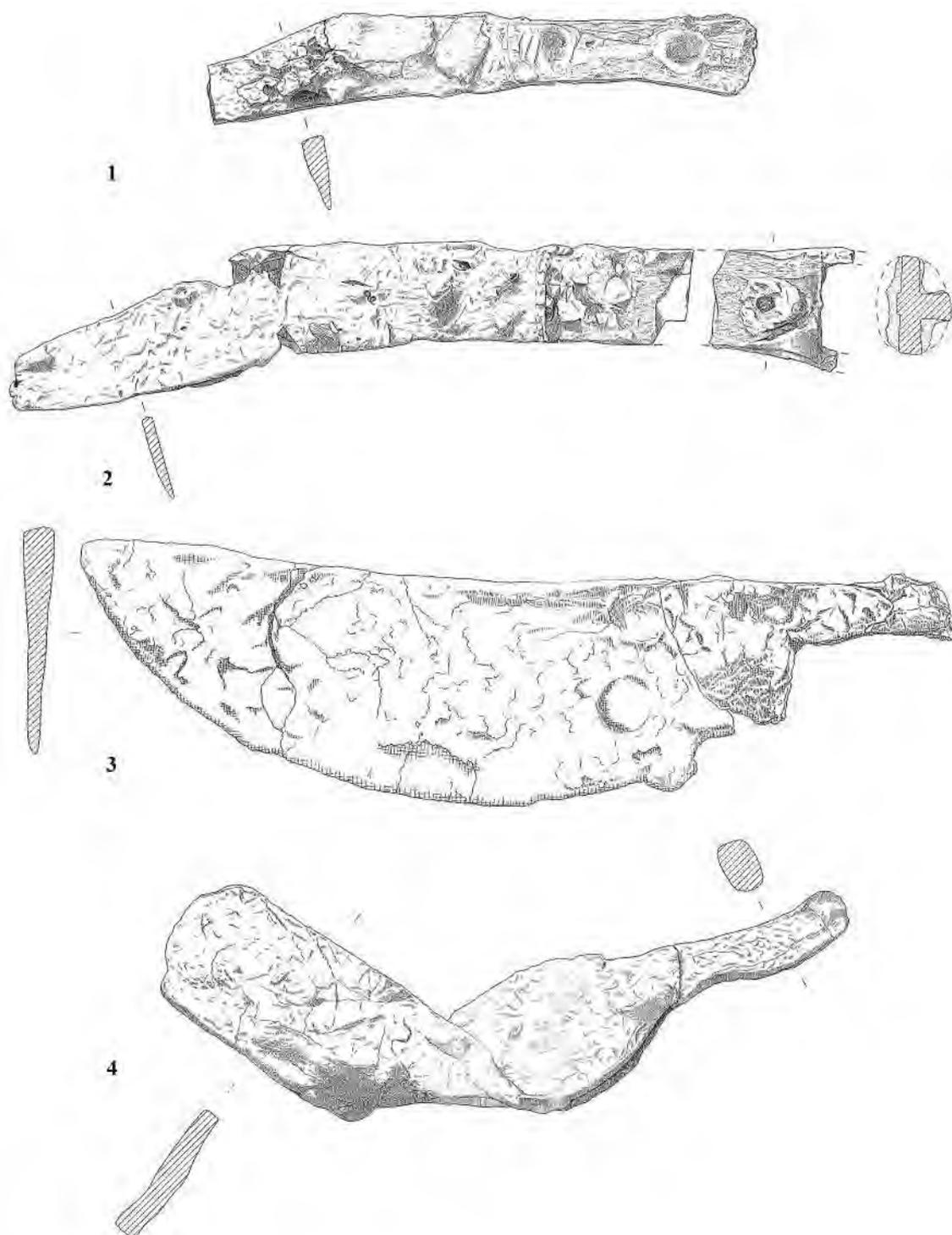


Figure 45 Iron knives. Scale 1:1.

Tools (Nos. 36–42) (all of iron)

This small collection comprises two slide keys, an awl, a set, two punches and an ox-goad, all of which have been illustrated in Figure 46:1–7.

36. Set, fragmentary, consisting of a tapering, rectangular-sectioned handle, broken at intersection with the blade. This example is similar in shape and surviving dimensions to the complete ?mid-1st century example shown by Manning (1985, 9, plate 5:AI8). Surviving length: 60mm, maximum width: 28mm, thickness: 13mm. PH3349A. Figure 46:1.

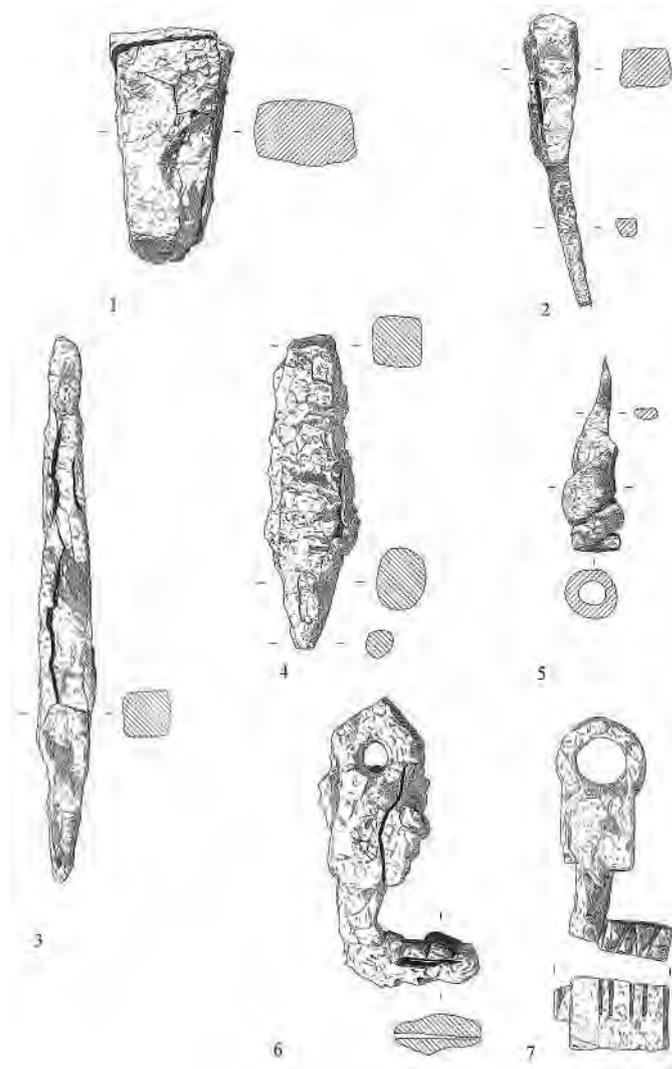


Figure 46 Iron tools and keys. Scale 1:1.

37. Punch. Rectangular-sectioned handle with splayed end and a square-sectioned blade tapering to a blunted point. Probably used for leatherworking, this object is a similar size to punches catalogued by Manning, although the shape is slightly different (1985, 41–42, plate 16: E30, E31). BRO 90 1025. Figure 46:2.
38. Awl, with rectangular-sectioned stem tapering to square-sectioned tang and blade. This example is corroded but appears to be a longer version of Manning's Type 4, being generally similar in form to some 1st century examples from Hod Hill, Dorset (1985, 39–41, plate 16:EI6, E22). PH 0612. Figure 46:3.
39. Punch. Square-sectioned and tapering. Corroded. Length: 84mm, average thickness: 10mm. PH3314. Figure 46:4.
40. 'Ox-goad'. Made in the form of a collar ferrule with a sharp spike at one end. These items are now identified as pen-nibs following discoveries at Vindolanda (Bowman 1994, 19, n.8). Length: 50mm, internal diameter: 7mm, thickness: 2mm. PH3109. Figure 46.5
41. Slide key with a rectangular stem and handle, the latter with a triangular top. The bit has four large, even teeth. This key is complete, but distorted by corrosion products. Conforms to Manning's Type 2 slide keys (Manning 1985, 93, plate 41:048). Length of handle: 70mm, length of bit: 30mm. Average thickness: 5–6mm, diameter of perforation: 7mm. PH 07. Figure 46.6
42. Slide key with a rectangular stem and handle, the latter with a rounded top. The bit is slightly off-set with four irregular-shaped teeth. Conforms to Manning's Type 2 slide keys (Manning 1985, 93, plate 41:048). Well preserved. Length of handle: 56mm,; length of bit: 24mm, average thickness: 669mm, diameter of perforation: 13mm. PH 3820. Figure 46:7.

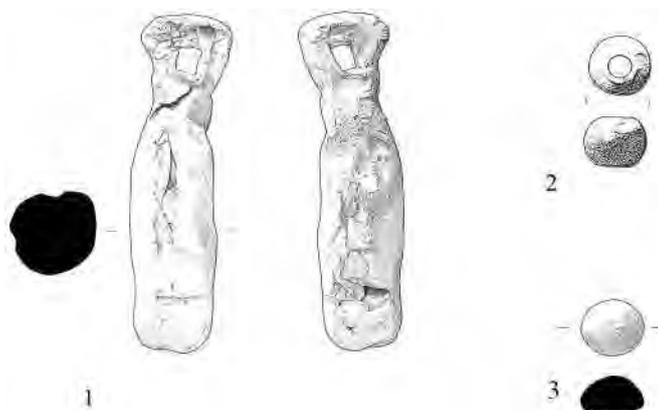


Figure 47 Lead weights. Scale 1:1.

Weights (Nos. 43–49) (of lead)

Three weights have been illustrated (Figure 47:1–3). No. 43 conforms to a known Roman weight, and No. 42 is possibly from a beam balance or fishing net. Nos. 45–49 are smaller and less certain. Nos. 46–49 have not been illustrated.

43. Weight. Elongated in shape with ovoid section, flattened suspension loop and rectangular-sectioned perforation. Probably from a beam balance or sliding bar. Its weight of 188g is close to seven Roman ounces and the apparent completeness of this weight precludes any significant reduction by oxidisation (Kisch 1966, 81). Length: 85mm, width: 18mm, maximum thickness: 18mm. PH3354. Figure 47:1.
44. Weight, possibly from a fishing net or beam balance. Circular object with wide central perforation. Weight: 17g. Thickness: 13mm, diameter of weight: 16mm, diameter of perforation: 6mm. BRO 90 4000. Figure 47:2.
45. ?Weight, convex, ovoid object with a flat base. Weight: 7g. Diameter: 12mm, thickness: 7mm. PH3739. Figure 47:3.
46. ?Weight or counter, circular in shape. Weight: 4g. Diameter: 14mm, thickness: 5mm. PH 3345. Not illustrated.
47. ?Weight or counter, sub-circular in shape. Weight: 7g. Diameter: 17mm, thickness: 5mm. PH 3356. Not illustrated.
48. ?Weight, circular in shape. Weight: 66g. Diameter: 27mm, thickness: 16mm. PH 0100. Not illustrated.
49. ?Weight or counter, circular in shape. Weight: 109. Diameter: 16mm, thickness: 6mm. PH 3341. Not illustrated.

Miscellaneous Fittings (Nos. 50–55) (all of copper alloy)

This collection is in a generally poor condition with a high incidence of fragmentation and corrosion. The collection is regarded as Roman in date. The majority of items appear to have been fittings for furniture, chests and caskets including; a small decorative boss (No.54), 15 fragments of plate and eight fragments of strip. A collection of small fragments (No. 55), including plate, rivetted strip and some fragments with preserved wood attached, came from context 2023. This appears to be the remains of a small wooden casket. Other notable items are a possible handle from a similar casket (No. 52), and another handle, possibly from a small chest, which has retained part of its original fitting (Nos. 50–51, Figure 48:4). In addition, one piece of chain link was recovered (No. 53).

50. A curved handle with 'D'-shaped section. The circular terminal encloses an iron nail with a copper-plated domed head. This might have been originally attached to furniture, perhaps to a small chest, by No. 49, below. Diameter of nail head: 11mm, maximum thickness of handle: 7mm. BRO 90 III 3002. Figure 48:4.
51. Loop-headed, rectangular-sectioned strip with traces of iron corrosion products within loop. The loop appears to have been fixed to the handle (No. 50) with which it is illustrated in Figure 48. The other end of the strip is missing but would have originally been attached to an item of furniture, probably with a small nail or stud. Width: 8mm, internal diameter: 8mm. BRO 90 III 3002. Figure 48:3.
52. Looped, rivetted terminal enclosing part of a fragmentary ring. Very corroded. Possibly the handle of a small casket. Thickness: 3mm. PH3372. Not illustrated.

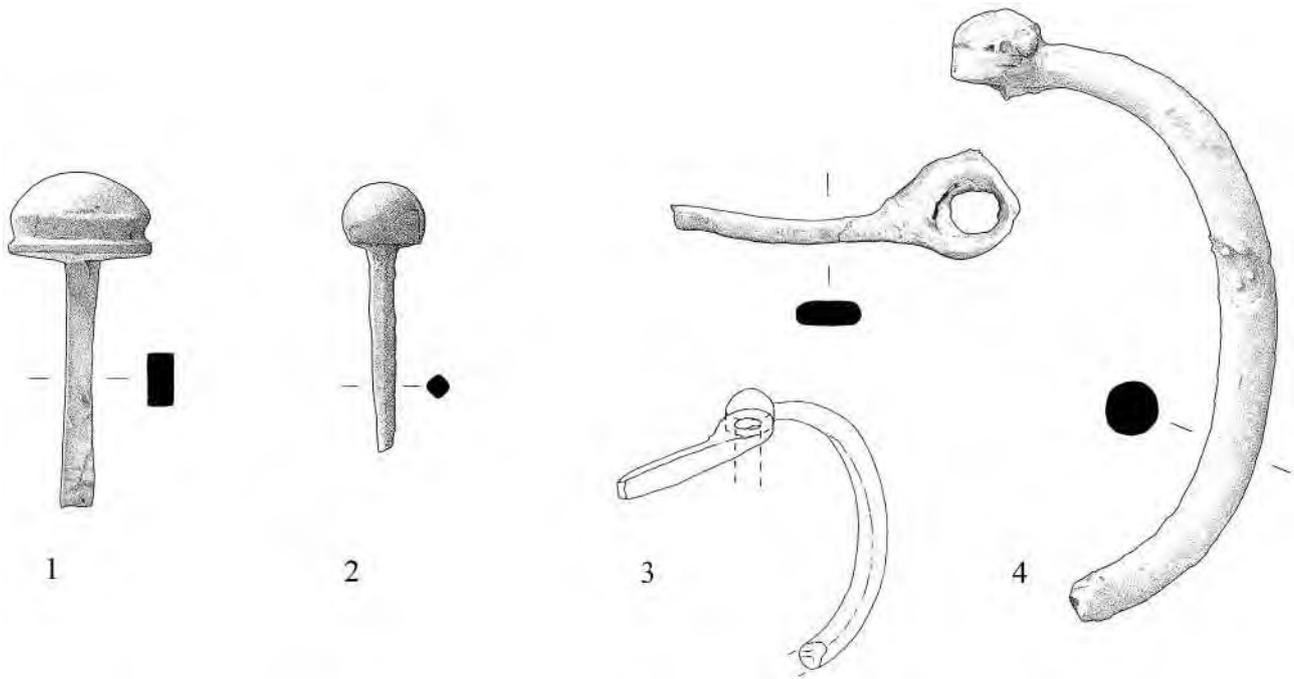


Figure 48 Miscellaneous fittings and copper alloy nails/studs. Scale 1:1.

53. Split ring with circular section – possible chain-link. Internal diameter: 7mm, height: 2mm, thickness: 1.5mm. PH3112C. Not illustrated.
54. Round boss with concentric grooving near base and central projection. Height: 11mm, diameter: 12mm. PH2440. Not illustrated.
55. Collection of fragments, including one unidentified fitting (a.), a piece of strip (b.) and fragments of binding from small furniture or a casket (c.).
- One double thickness of strip held together by two rivets. Length of lower strip: 27mm, of upper strip: 21mm, width of lower strip: 9mm, maximum thickness: 5mm. Diameter of rivet heads: 3–5mm.
 - Single strip fragment. Length: 24mm, width: 6mm, thickness: 3mm.
 - Several fragments of curved sheet, some with fragments of preserved wood attached. BRO 90 11 2023. Not illustrated.

Miscellaneous Fittings (Nos. 56–63) (all of iron)

This small collection comprises a hook (No. 54), a possible bucket handle mount (No. 55), a joiner's dog (No. 56) and five possible pieces of door furniture (57–61) listed below. In addition, four ferrules, six rings, a rectangular loop, two fragments of sheet and a number of miscellaneous iron fragments were found including: nine fragments of bar, 14 of plate, four of sheet, six of strip, and six unidentified lumps (Archive Catalogue Nos. 90–103).

56. Hook. Rectangular-sectioned with a large flat eye. This resembles a ?mid-1st century example from Hod Hill, 'possibly a harness hook, but more probably one which was nailed to a wall or beam' (Manning 1985, 129, plate 59:R22), although the Pentrehyling example is generally smaller. Length: 54mm, thickness: 7mm. PH0402. Not illustrated.
57. ?Bucket-handle mount. Perforated, rounded strip with two rivet holes, rest of strip is missing. Length: 31mm, width: 28mm, thickness: 4mm. PH3348. Not illustrated.
58. Joiner's Dog with tapered 'D'-shaped mid-section and two thinner 'arms'. This type of fitting was 'used for joining timbers' (Manning 1985, 131, Plate 61: R53). Total length: 11.5mm, Maximum width: 8mm, thickness: 4mm. PH31X2. Not illustrated.
59. Sheet, triangular, with rivet hole. Possibly an element of door furniture. Length: 62mm, maximum width: 28mm, thickness: 5mm. PH3112B. Not illustrated.
60. Strip with five corroded rivets. Fragment of hinge plate. Surviving length: 90mm, width: 20mm, thickness: 7mm. PH0611. Not illustrated.

61. Tapering bar with two rivets at one end and two grooves at other end. Possible door furniture. Length: 92mm, width: 22–26mm, thickness: 5mm. PH3615. Not illustrated.
62. Tapering bar. ?Door furniture. Length: 135mm, maximum width: 35mm, thickness: 5–7mm. BRO 90 2045. Not illustrated.
63. Strip with corrosion products adhering. ?Door furniture. Surviving length: 140mm, width: 31mm, thickness: 1.5mm. PH3202. Not illustrated.

Miscellaneous Fittings (Nos. 64–71) (all of lead)

Pot Rivets or Cramps (Nos. 64–66)

Three pot rivets or cramps were identified (Nos. 62–50), none of which has been illustrated.

64. Pot rivet or cramp with a barb-like projection. Length: 41mm, thickness: 5mm. PH 312. Not illustrated.
65. ?Pot rivet or cramp. Hook-shaped ‘rod’ reminiscent of a pot cramp. Length: 70mm, average thickness: 10mm. PH 3721A. Not illustrated.
66. ?Pot rivet or cramp. Length: 45mm, thickness: 1.5mm. PH 3349. Not illustrated.

Lead Caulking (Nos. 67–71)

Five fragments of lead caulking were recovered, all of which have been catalogued below. This type of fitting would have been used to seal various objects. None of the fragments have been illustrated.

67. ?Caulking, sub-circular object with circular, off-centre perforation. Length: 16mm, width: 14mm, thickness: 4mm, diameter of perforation: 5mm. PH3112.
68. ?Caulking fragment of irregular shape with a central circular impression. Thickness: 2mm, diameter of impression: 35mm. PH 33.
69. Conical caulking fragment with impression of central rod. Thickness: 15mm, diameter of impression: 35mm. PH 01.
70. ?Caulking fragment with one flat surface and one surface with a rod-like impression. Maximum thickness: 13mm. PH 2440.
71. Conical caulking fragment with a central hole and the impression of a central rod. Diameter: 20mm, depth: 16mm. PH 312.

Copper Alloy Nails (Nos. 72–75)

Nine copper alloy nails and four studs were recovered, all of which conform to examples from Colchester which were used in upholstery (Crummy 1983, 115). Only illustrated and complete examples have been catalogued below. Descriptions of remaining items appear in the Archive Catalogue (Nos. 76–85).

72. Nail with indentation around spherical head and rectangular-sectioned shank. Total length: 53mm, diameter of head: 18mm, depth: 10mm. This example is larger than the decorative nails used in ‘furniture upholstery’ shown in Crummy (1983, 115, figure 116), but it probably fulfilled a similar function. PH2402. Figure 48:1.
73. Nail with spherical head and broken tip. This nail is identical to an example from Colchester (Crummy 1983, 115, figure 116:2995). Such nails ‘with a globular, bun-shaped or biconical head’ were ‘almost certainly from furniture upholstery’ (*ibid.*). Depth of head: 8mm, diameter: 10mm, thickness of shaft: 3mm. PH: 3122. Figure 48:2.
74. Nail with spherical head and broken tip. Identical in size and shape to No. 74 PH 3123. Not illustrated.
75. Nail with globular head and square-sectioned shaft. This is a smaller version of a nail used for ‘furniture upholstery’ from Colchester (Crummy 1983, 115, figure 116:3021). Length: 15mm, diameter of head: 6mm. PH3721. Not illustrated.

Iron Nails

by Colin Rowe

1,312 iron nails and nail fragments were recorded, 591 of which could not be categorised, being incomplete. The remainder were categorised according to Manning’s nail typology (Manning 1985, 134–137, figure 32). However, the high incidence of corrosion made identification difficult. An indication of the generally poor condition of most of the nails can be gained from the fact that only 95 nails were sufficiently complete for measurement (7.24%).

Table 2 Quantity of nails from Pentrehyling sorted into types as per Manning 1985.

Types:	1a	1b	2	3	4	5	7	8	10 (hobnails)
	68	264	4	4	5	1	11	3	61

The largest group was hobnails, discussed above, at 361 nails (50.06% of the classified nails). Manning's Type 1b nails were the second largest group at 264 nails (36.61% of the classified nails), followed by Type 1a at 68 nails (9.43%). The remaining 28 items consisted of four each of Types 2 and 3, eleven Type 7, five Type 4, three Type 8 nails and one Type 5 nail.

Types 1a and 1b were the longest nails with lengths ranging between 36–50mm, with some examples of 1b being up to 60mm in length. These heavy duty nails were used for timber building construction, some being large enough for use on heavier beams and roof trusses. The rarer nail types represented were also used in woodworking, with Types 2, 4 and 5 designed to be driven into wood without their narrow heads being visible. Type 7, often called tacks and regarded as decorative, would have been used in furniture construction rather than for building purposes.

Pentrehyling: Small Finds Archive Catalogue

by Lynne Bevan

This catalogue includes all items not selected for illustration.

Identified Items 5: Miscellaneous Fittings (Items 76–103) (all of copper alloy)

With the exception of the washer (No. 87), the collection is regarded as Roman in date. The items listed below are miscellaneous fittings comprising: 15 fragments of plate, eight fragments of strip, seven nails and four studs.

76. Nail with spherical head and broken tip. Identical in size and shape to No. 73 (Figure 48:2). PH3123.
77. Nail with globular head and square-sectioned shaft. This is a smaller version of a nail used for 'furniture upholstery' from Colchester (Crummy 1983, 115, Figure 116:3021). Length: 15mm, diameter of head: 6mm. PH3721.
78. Ovoid, convex stud head. Thickness: 10mm, length: 24mm, width: 18mm. BRO 90 III 3003.
79. Two small, convex-headed studs, both broken and very corroded. Diameter of largest head: c.5mm. PH3123.
80. Globular nail head. Diameter: 6mm. PH3749.
81. ?Nail or pin shaft. Small round-sectioned fragment. Diameter: 1.5mm, length: 8mm. PH3825.
82. ?Nail/stud, Length: 11mm. BRO 90 1084.
83. Head of stud. Thickness: 8mm. BRO 90 1084.
84. Nail fragment consisting of part of flat head and shank. Thickness of head: 1mm, of shank: 3mm. PH2425.
85. ?Nail head. Diameter: 8mm, thickness: 4mm. PH3718.
86. Fragment of sheet copper alloy folded into fluted tube with rolled-back terminal at narrow end and rivet hole near wider, broken end. Length: 17mm, diameter at narrow end: 5mm, at widest end: 8mm. PH2401.
87. Two fragments of hollow, tubular binding. Average thickness: 6mm. Lengths: 55mm and 37mm. PH3820.
88. Fragment of fluted edging strip. Length: 67mm, maximum width: 14mm, thickness: 3mm. BRO 90 I 1017.
89. Washer, possibly modern. Diameter of washer: 18mm, of off-centre perforation: 7mm, thickness: 5mm. PH8833.

Identified Items 6: Miscellaneous Fittings (Items 90–103) (all of iron)

This small collection comprises: four ferrules, six rings, a rectangular loop, and two fragments of sheet.

90. Ferrule with mouth of socket intact. Length: 34mm, diameter: 7mm at mouth, 5mm at broken end, thickness: 1.5mm. BRO 3020.
91. ?Ferrule, square-sectioned and flattened, with evidence for a socket. Length: 54mm, width: 7mm, thickness: 12mm. BRO 90 3008.

92. Ferrule. Tubular binding with corroded surface. Length: 46mm, internal diameter: 10mm, thickness: 1.5mm. BRO 90 1039.
93. Collar ferrule, single thickness, both ends broken. Surviving length: 42mm, height: 8mm, thickness: 2mm. PH3702.
94. Ring, possible collar ferrule. Height: 7mm, internal diameter: 10mm, thickness: 4mm. BRO 90 3001.
95. Ring with 'D'-shaped section. Internal diameter: 40mm, width: 10mm, thickness: 5mm. PH3739C.
96. Ring with 'D'-shaped section. Internal diameter: 40mm, width: 10mm, thickness: 7mm. PH2440.
97. Ring with rectangular section. Internal diameter: 44mm, width: 7mm, thickness: 5mm. PH3107.
98. Ring with rectangular section. Internal diameter: 30mm, width: 10mm, thickness: 6mm. PH3615.
99. Ring with 'D'-shaped section. Internal diameter: 14mm, width: 4mm, thickness: 4mm. PH3515A.
100. Loop, rectangular in shape. Very corroded. Approximate measurements: 60mm × 25mm. Width: 7mm, thickness: 8mm. PH3318A.
101. 'L'-shaped sheet with rivet hole. Length: 78mm, maximum width: 34mm, thickness: 3mm. PH3343.
102. Sheet with rivet at curved terminal. Length: 17mm, width: 7mm, diameter of rivet hole: 4mm. PH0201.
103. Strip with one rivet, attached to circular-sectioned strip of iron. Diameter of iron strip: 3mm, diameter of rivet: 3mm. This might have been a small fragment of strap fitting from military or equestrian equipment. PH0102.

Miscellaneous and Unidentified Objects (104–115) (of copper alloy)

104. Sheet, small fragment, 25 × 20mm, thickness: 3mm. PH3343.
105. Curved fragment. Very corroded. Length: 29mm, maximum width: 27mm, diameter of rivet hole: 2mm.
106. Folded plate which has become attached to a piece of rusted iron. Maximum dimensions: 70 × 40mm, thickness: 1.5mm. PH O111.
107. Fragment with curving edge. Thickness: 2mm. BRO 90 III 3003. 106. Fragments, very corroded. BRO 90 III 3001.
108. Fragment, very corroded. PH3821a.
109. Fragment, very corroded. BRO 90 II 2045.
110. Five fragments, very corroded. BRO 90 I1095.
111. Fragment, corroded. BRO 90 II 2032.
112. Four fragments. PH TR 18.
113. Eight fragments. PH 3505A.
114. Fragment. PH3505A.
115. Fragment. BRO 90 III 3002.

Metalworking Debris (116–118) (copper alloy)

116. Five fragments and two globules of scrap metal. BRO 90 1084.
117. Three globules of scrap metal. BRO 90 1017.
118. Five globules of scrap metal, the largest of which had a high lead content. BRO 90 3003.

Miscellaneous and Unidentified Objects (119–149) (all of iron)

119. Bar, corroded. Length: 42mm, thickness: 10mm. PH0402.
120. Bar, 'L'-shaped with rectangular section. Length of sides: 45mm, width: 22, thickness: 10mm. PH3302.
121. Strip with corrosion products adhering. Length: 30mm, width: 11mm, thickness: 2mm. BRO 90 1094.
122. Object, curved and rectangular-shaped, with two prongs. Possibly complete, but function unknown. Length: 70mm, width: 18mm, thickness: 2mm. BRO 90 1079.
123. Sheet, curved and bent at one side. Length: 30mm, average width: 12mm, thickness: 2mm. PH3826A.
124. Fragment of iron. Length: 35mm, width: 13mm, thickness: 7mm. PH 3109KL.
125. Sheet, curved. Length: 37mm, width: 22mm, thickness: 3mm. PH2401.
126. Bar, corroded. Length: 60mm, thickness: 7–10mm. BRO 3002.
127. Sheet. Length: 36mm, maximum width: 12mm, thickness: 0.5mm. PH 1414.
128. Strip, in two pieces. (a). Length: 35mm, width: 20mm, thickness: 7mm. (b). Length: 39mm, width: 13mm, thickness: 7mm. BRO 90 3002.

129. Bar, two pieces. (a). Length: 30mm, width: 12mm, thickness: 12mm. (b). Length: 38mm, width: 9mm, thickness: 7mm. BRO 90 1017.
130. Strip, twisted. Length: 46mm, width: 16mm, thickness: 2–4mm. PH2440.
131. Bar, rectangular-sectioned, with rivet hole at one end and flattened, spatulate end at the other. Length: 120mm, width: 11–15mm, thickness of bar: 6mm, of spatulate end: 2mm. BRO 90 1081.
132. Bar, folded in half. Badly corroded. Original length: 218mm, width: 27–30mm, thickness: 5–8mm. PH 3302.
133. Bar, Length: 38mm, width: 8mm, thickness: 5mm. PH3112A.
134. Bar with spatulate end, corroded. Length: 82mm, diameter: 9mm. BRO 90 1002.
135. Plate fragment. Thickness: 1.5mm. PH 3302.
136. Sheet fragment, very corroded. Thickness: 1mm. PH 3109C–D.
137. (a).–(d). four amorphous plate fragments (average thickness: 2mm) and (e). one piece of curved strip. Length of strip: 62mm, width: 8mm, thickness: 3mm. BRO 90 1001.
138. Strip. Length: 44mm, width: 14mm, thickness: 3mm. BRO 89 1003.
139. Strip. Thickness: 3mm. BRO 90 1081.
140. Plate fragment. Thickness of plate: 1.5mm. BRO 90 3017.
141. Lump. Thickness: 20mm. BRO 90 3017.
142. Lump. Thickness: 12mm. BRO 90 1087.
143. Plate fragment. Thickness: 6mm. BRO 90 1090.
144. Lump. Thickness: 12mm. BRO 90 1075.
145. Plate fragment and bar fragment. Length of plate: 48mm, width: 18mm, thickness: 3mm. Length of bar: 69mm, average thickness: 10mm. BRO 90 3008.
146. Lump. Thickness: 8mm. BRO 90 1109.
147. Four plate fragments. Average thickness; 4–5mm. BRO 90 3007.
148. Lump. BRO 90 3002.
149. Two fragments of plate. (a). 35 × 33, thickness: 10mm. (b). 35 X 45, thickness: 4mm. PH 0402.

Miscellaneous and Unidentified Objects (150–177) (all of lead)

150. Circular object. Diameter: 30mm, thickness: 1mm. PH3300.
151. Three fragments of strip. Average length: 35mm, thickness: 4mm. PH 3356.
152. Sheet fragment. Maximum length: 54mm, thickness: 2mm. PH 0108.
153. Sheet fragment. Maximum length: 62mm, thickness: 2mm. PH 3302.
154. Two fragments of folded sheet. Thickness: 1–2mm. PH 317A.
155. Two fragments of sheet. Thickness: 2mm. PH 3112C.
156. Three fragments of lead sheet. Thickness: 1–3mm. PH 3615A.
157. Sheet fragment. Length: 14mm, thickness: 2mm. PH 3302.
158. Sheet fragment. Thickness: 4mm. PH 3314.
159. Four fragments of sheet. Thickness: 1mm. PH 3345.
160. Fragment of sheet. Length: 34mm, thickness: 3mm. PH 3348.
161. Sheet fragment. Maximum length: 30mm, thickness: 5mm. PH 2440.
162. Sheet fragment. Maximum length: 40mm, thickness: 1–2mm. PH 3314.
163. Two sheet fragments, folded. Average thickness: 4mm. PH 3302.
164. Three sheet fragments. Average thickness: 3–4mm. PH 0100.
165. Three sheet fragments. Average thicknesses: 3–5mm. PH 312.
166. Three rods. Lengths: 43mm, 96mm and 108mm, average thicknesses: 10mm. PH 312.
167. Two rods. Lengths: 65mm and 105mm, average thickness: 10mm. PH 01.
168. Rod. Length: 25mm, thickness: 6mm. PH 3718.
169. Rod. Length: 27mm, thickness: 3mm. PH 3318.
170. Rod, sub-rectangular in section. Length: 34mm, thickness: 7mm. PH 3341.
171. Three small lumps. Average thickness: 12mm. PH 01.
172. Elongated lump. Length: 45mm, thickness: 14mm. PH 3356.
173. Amorphous lump. Thickness: 15mm. PH 3819A.
174. Two amorphous lumps. Thicknesses: 13mm and 26mm. PH 3112A.
175. Amorphous lump. Thickness: 12mm. PH 3112C.
176. Two small amorphous lumps. Thickness: 5mm. PH 3217A.
177. Two small amorphous lumps. Thickness: 3mm. PH 0100.

Metalworking Debris (178–188) (all of lead)

- 178. Two globules. Average thickness: 4mm. PH 3302.
- 179. Globule. Maximum length: 34mm, thickness: 8mm. PH 3343.
- 180. Two globules. Average thickness: 5mm. PH 3343.
- 181. Globule. Length: 40mm. PH 0117.
- 182. Globule. Length: 32mm. PH 3821B.
- 183. Ten globules including one large piece (150mm × 130mm). PH 0110.
- 184. Three globules. Average length: 15mm, thickness: 2mm. PH 33.
- 185. Globule. Length: 60mm, thickness: 10mm. PH 2440.
- 186. Globule. Thickness: 5mm. PH 3505C.
- 187. Globule. Thickness: 5mm. PH 0100.
- 188. Seven globules. Thickness: 5–7mm. PH 312.

METALWORKING DEBRIS FROM PENTREHYLING FORT

by JUSTINE BAYLEY AND KERSTIN ECKSTEIN (ANCIENT MONUMENTS LABORATORY,
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Introduction

Excavations within the Roman fort at Pentrehyling, and in the annexe on its south side, have been undertaken over a number of years by the Central Marches Archaeological Research Group (CMARG) under the direction of John Allen. More recently CMARG and Birmingham University Field Archaeology Unit (BUFAU) jointly undertook an archaeological evaluation of a cropmark complex at Pentrehyling, which included the fort, in advance of a road widening scheme.

Excavations produced some 65kg of debris from iron smithing operations. Nearly 40kg came from the annexe and a further 25kg from inside the fort (Evans and Ferris 1992, 6). This is to be expected on any site of this type and date; its presence is not unusual. The finds examined included a few smithing hearth bottoms, amorphous pieces of smithing slag (much of it silica-rich and of low density), fuel ash slag and vitrified clay hearth lining. Hammer scale is also recorded from the site (Allen 1993, 14). The presence of these finds suggests iron smithing was carried out in or very close to the excavated areas. A large stone, almost certainly used as an anvil for smithing, has also been recognised; it came from Pit 3725 (Allen 1993, 11). Considering the total area excavated, this is a significant but not very large collection of material. There was no evidence of iron smelting.

The other group of metalworking debris from the site comprised fragments of litharge (lead oxide) 'cakes', which have not often been recorded and are thus of more intrinsic interest than the iron slags. The material is a by-product of extracting silver from lead. Much of it was found dumped in a group of pits in the annexe (Pits X in Trench 31; Figure 26). Over 30 kg were retained (Evans and Ferris 1992, 6) though a significant amount of further material was re-buried on site (J Allen, pers. comm.). Further fragments of litharge were also discovered in Trench 5 (Cane and Allen 1989, 7) though the total weight of this material was under 2kg.

A number of features discovered in the course of the earlier excavations were provisionally described as 'furnaces'. Many of these features are situated in deep pits where both an adequate air supply and access to work them are difficult to arrange. There is no direct evidence associating them with either iron smithing or lead cupellation.

Silver Extraction

Most silver sources in Britain are lead ores that contain some silver. Modern analyses of surviving ore bodies suggest their silver content is too low for its extraction to be viable, though Tylecote (1986, 69) notes that the silver content of lead ores is generally higher in the upper layers of a deposit. Richardson (1974) commented that 'The Romans were lucky in working a number of lead deposits that had not been developed before...and thus mined the silver-rich upper portion of the ore bodies'. The lead deposits at Shelve, Snailbeach and other sites in the area between Pentrehyling and Wroxeter are known to have been mined, apparently for the first time, by the Romans (Haverfield 1890-91; Scarth 1895). The finds of litharge cakes from Pentrehyling and also from Wroxeter (Bushe-Fox 1914, 11) show silver extraction took place in the Roman period, so the locally produced lead must have contained sufficient silver to make this extraction economic.

The first step in extracting silver from a lead-silver ore is to smelt the ore. The product is metallic lead containing silver; the silver concentrates in the metal rather than in any slags. The silver is then recovered from

the lead by cupellation, a process carried out at about 1000°C. It involves the oxidation of the lead to litharge (PbO), which is skimmed off the melt, lost as fumes or absorbed by a bone-ash or lime-rich (marl) hearth lining; the unaltered silver is left behind on the surface of the hearth. Gowland (1900) describes the operation of cupellation hearths and illustrates a reconstruction of one, based on Roman finds from Silchester and 19th century ethnographic evidence (*ibid*, figs 2 and 3), though it should be noted he is dealing with smaller-scale silver-refining rather than primary silver extraction.

Litharge Cakes

The litharge cakes found at Pentrehyling are examples of litharge-impregnated hearth linings. The more complete examples are all fairly flat with slightly convex under surface and a sunken area in the centre of the upper surface, which is where the silver would have solidified (Plate 12). They were somewhat irregular in plan, with diameters of around 0.5m and are typically about 40mm thick (Figure 49). The protruding edge of the step round the sunken area is quite rough and was probably chipped away deliberately as part of the silver extraction process. This part of the litharge cake is where some silver was likely to have been trapped so it would have been worth removing it and adding it to the next batch of lead that was desilvered.

Most archaeological finds of litharge cakes come from sites far from lead-silver sources (Bayley and Eckstein 1997, Fig 2). Although they were also the by-product of cupellation, the metal being cupelled was not silver-rich lead but debased, re-cycled silver. The metal was refined by melting it with lead and oxidising the lead to litharge, which dissolved the copper and other base metals from the silver. The litharge that soaked into the hearth linings in these cases thus contained significant amounts of copper and other metals, in contrast to litharge from primary extraction sites like Pentrehyling. The silver-refining litharge cakes are typically only 100-200 mm in diameter, but still roughly circular in plan with a depression in the upper surface.

Scientific analysis of litharge samples from Pentrehyling

The litharge cakes were all a pale buff-grey colour, on both original and fracture surfaces. The surface layer was powdery and X-ray diffraction (XRD) analysis showed it to be cerussite (lead carbonate, PbCO₃), a typical decay product found on buried lead in damp, temperate climates. A cut surface revealed that the bulk of the litharge cake had a bright orangey-red colour, typical of litharge (lead oxide, PbO) whose presence was also confirmed by XRD.

A thin section cut from one edge of a litharge cake fragment supplied by John Allen (Plate 12 and Figure 49) was examined using both optical and scanning electron microscopy (SEM). Area analyses spanning the thickness of the litharge cake were made using the energy-dispersive X-ray analyser on the SEM; the results are given in

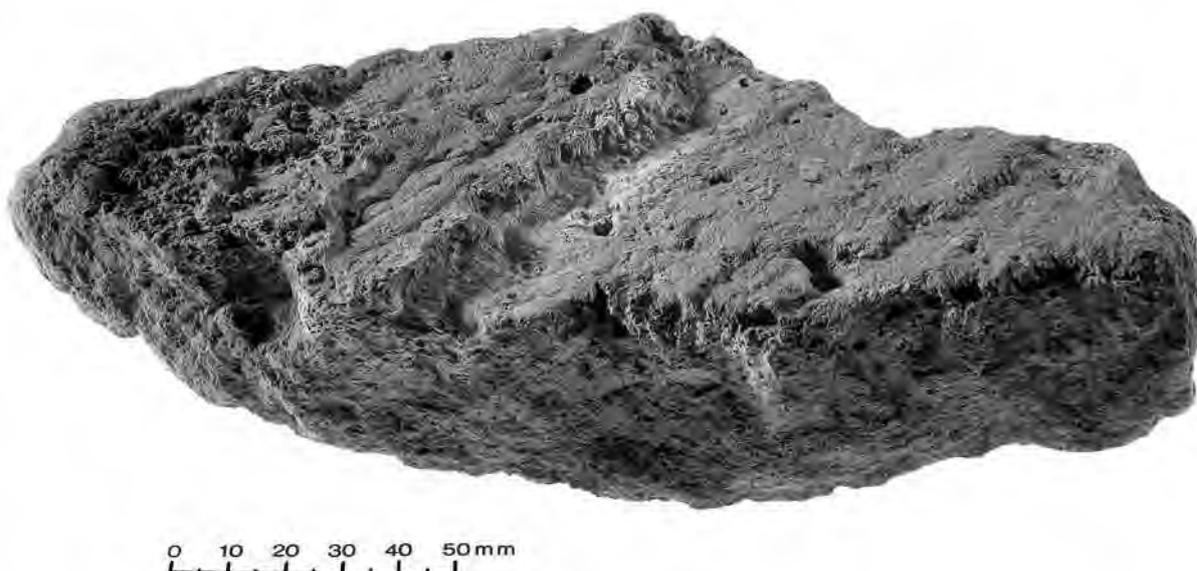


Plate 12 Litharge cake from Pentrehyling.

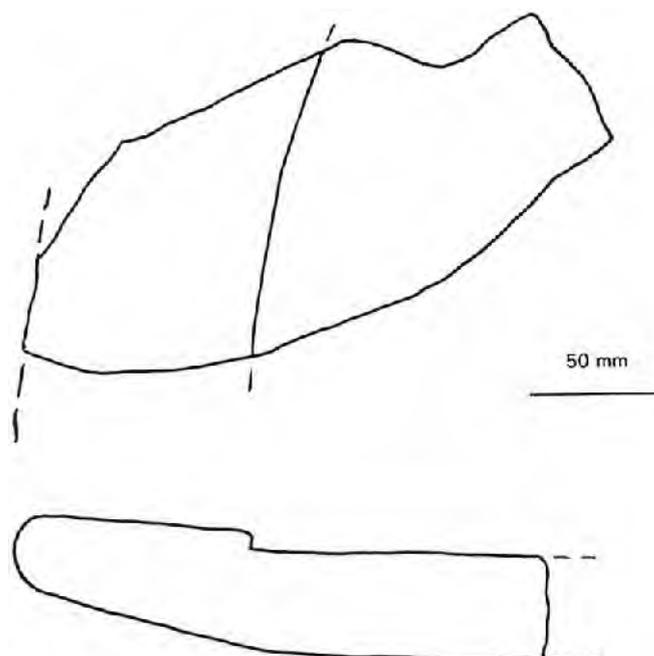


Figure 49 Section and plan view of litharge cake.

Table 3 EDX analyses of the litharge cake section (wt%).

Area analysed	SiO ₂	Al ₂ O ₃	CaO	MgO	K ₂ O	PbO	P ₂ O ₅	CaO/P ₂ O ₅
Upper	3.6	0.5	1.8	ND	ND	93.7	0.4	4.3
Upper	6.4	1.1	4.8	ND	ND	87.1	0.6	8.5
Upper middle	6.6	3.6	11.5	0.7	ND	77.2	0.4	28.0
Middle	6.7	2.6	9.2	0.4	0.8	80.3	ND	
Middle	7.4	2.6	9.0	0.5	0.8	79.1	0.5	17.1
Lower middle	10.7	2.7	9.7	0.5	1.0	74.9	ND	
Bottom	5.9	0.9	7.1	ND	ND	81.3	0.4	19.3

Note: 1) Copper, tin and lead were sought but not detected in any of the areas.

2) The area at the bottom also contained 3% FeO, 0.9% TiO₂ and 0.5% MnO.

3) ND = not detected.

Table 3. These show that the hearth lining had not been made of bone ash; the CaO/P₂O₅ ratio was far higher than the 1.0-1.5 that is typically of bone ash. The high levels of alumina (Al₂O₃) relative to other analysed litharge cakes shows the hearth lining used at Pentrehyling was a clay-lime mixture. The litharge had partly reacted with the hearth lining forming other minor silicate phases which were identifiable in thin section but were not present in sufficient quantity to be detected by XRD.

Comparative data

Only three other Roman sites in this country — Chew Park (Rahtz and Greenfield 1977), Herriott's Bridge (*ibid*) and Green Ore (Ashworth 1961-2), all near the Mendips — are said to have produced litharge from primary silver extraction. In no case does the published data give a good idea of the quantities found. All other reported litharge finds contain significant quantities of copper (e.g. Bayley and Eckstein 1997) and so cannot have derived from the primary extraction of silver from argentiferous lead.

Chew Park and Herriott's Bridge are about 1km apart in the area flooded by the Chew Valley Lake. The distribution of finds was used to suggest that the lead ore was smelted at the former site but that desilverisation was carried out at the latter (Rahtz and Greenfield 1977: 353). Most of the litharge found was described as having solidified in stalactite drips (*ibid*, 361), presumably having been raked over the edge of a cupellation hearth. No fully quantitative analyses were undertaken, but spectrographic analyses suggested a piece of litharge from Chew

Park contained 0.1-0.5% Si, Al, Cd, Mg, Fe, Ni and Mn; silver was present at *c.*0.001%. By comparison the silver contents of galena and material described as 'extracted galena' from the same site was 0.1-0.5%, showing most of the silver had been separated from the litharge.

Conclusions

The presence of litharge cakes at Pentrehyling indicates that the lead ores mined from the local deposits by the Romans must have contained sufficient silver to make its extraction economically viable. As the site is a fort, it would appear that there was some official/military interest in the silver production. However, the main dump of litharge came from the area of the annexe which suggests the process may not have been carried out directly by the military.

Acknowledgement

We would like to thank Malcolm Ward for carrying out the XRD analyses for us.

THE ROMAN POTTERY

by C. JANE EVANS with contributions from BRENDA DICKINSON (SAMIAN REPORT), KAY HARTLEY (MORTARIA STAMPS AND CONSULTATION), DAVID WILLIAMS (AMPHORAE REPORT), ROGER TOMLIN (GRAFFITI REPORT) AND LYNNE BEVAN (ARCHIVE RECORDING)

Introduction

The pottery discussed in the following report represents the combined assemblages from the CMARG seasonal excavations (PH) and the BUFAU excavations undertaken in 1990 (BRO 90), which for the purposes of analysis and publication have been treated as a single assemblage. A total of 3975 sherds were recovered, weighing 62kg. These provide evidence for patterns of supply and pottery use in the early fort and *vicus*, and the late Roman occupation of the site. The assemblage was recorded by Lynne Bevan.

As can be seen from Table 4, the majority of the pottery came from the CMARG excavations, although for the *vicus* (Period 2B) and the late re-occupation of the fort (Period 4) the BUFAU excavations provided the larger assemblages. Table 4 illustrates a marked variation in the average sherd weights and indices of brokenness between the two excavations. The reasons for this are unclear. In places the two excavations adjoined, so it seems unlikely that there would be such a significant variation in depositional patterns. A variation in the retrieval method or subsequent storage may hold the answer. The two excavations took place under very different conditions; the BUFAU excavations under rescue conditions during a very wet and snowy winter while the CMARG excavations were undertaken as a research project, and took place during the summer when the soils would often have been very hard. It is conceivable that fewer small sherds were retrieved during the former, or that during the latter a greater number of smaller sherds were located, or that sherds were more often broken as the hard soil was trowelled over. Whatever the reasons, it highlights one of the problems of comparing assemblages from different excavations, even where they are so close together.

The surfaces of many sherds were abraded, presumably a result of the soil conditions which seem to affect most central Welsh sites (Webster 1989, 80).

Methodology

The pottery was recorded by context, using a fabric and form series devised by the author. The internal fabric series, which has been described below, has been cross referenced where possible with the series used by the Clwyd/Powys Archaeological Trust based on material from Caersws. The pottery was recorded before publication of the Wroxeter *Macellum* assemblage, which subsequently provided a Roman fabric type series for this area (Timby *et al.* 2000, 246–257). Some of the various Severn Valley type and sandy fabrics may match the Wroxeter fabrics, but there was no opportunity to review this. Other, more distinct fabrics and forms have been cross-referenced with the Wroxeter series. Forms were recorded by vessel class: flagons (F), beakers (BK), cups (C), tankards (T), jars (J), bowls (B), dishes (D), platters (P) mortaria (M), lids (L) and miscellaneous forms (MS) such as a triple vase. Where possible jars were subdivided into more precise categories: cooking pots (JC), defined as handmade vessels in a native tradition, narrow-mouthed jars (JNM) and wide-mouthed jars (JWM). A more precise form type was recorded for rims, handles, bases and, where appropriate, body sherds. Other information recorded included decoration and comments relating to production (wasters, potters' stamps and variations in firing such as reduced cores or overfiring), use (sooting or residues such as limescale) and re-use or repair (repair holes, counters etc.). A few cross joins were also noted. The data were analysed using FoxPro.

The majority of the assemblage was quantified by sherd count and weight, rim EVE — an estimated vessel equivalent based on the total rim percentages extant — but not base EVE. The exception to this is the samian

Table 4 Summary by site and period.

Site	Phase	Qty.	% Qty.	Wt.	% Wt.	Av Wt.	Total Rim %	% Rim E.V.E..	Index of Brokenness
BRO90	2A	76	1.9	1629	2.6	21	201	3.7	0.4
BRO90	2A/B	35	0.9	1281	2.1	37	164	3.0	0.2
BRO90	2B	444	11.2	7477	12.1	17	726	13.29	0.6
BRO90	4	548	13.8	8846	14.3	16	860	15.8	0.6
BRO90	5	5	0.1	142	0.2	28	9	0.16	0.5
Total BRO 90		1108	27.9	19375	31.3	17	1960	35.95	0.6
PH	0	4	0.1	38	0.1	9	0	0	-
PH	2A	192	4.8	279	0.4	1.5	6	0.1	32.0
PH	2A/B	2232	55.9	39085	63	18	2955	54.1	0.7
PH	2B	201	5.1	1623	2.6	8	328	6.0	0.6
PH	4	3	0.1	0	0	0	0	0	-
PH	5	176	4.4	1191	1.9	7	139	2.5	-3
PH	NA	68	1.7	415	0.7	6	73	1.3	0.9
Total PH		2867	72.1	42631	68.7	15	3501	64	0.8
TOTAL POT		3975	100	62007	100	32	5461	99.95	

Note: Brokenness = sherd count + EVEs.

which, apart from a few sherds separated for illustration, was lost in transit subsequent to identification. The catalogue includes sherd counts, but weights and rim percentages had not yet been recorded. This is obviously a significant loss in an assemblage dating predominantly to the 1st and early 2nd century, and particularly affects discussion of the vessel classes represented.

Only the best example of each form has been selected for illustration and similar forms may occur in other fabrics (Figure 50). The catalogue descriptions for illustrated pieces are followed by fabric, site, context and period.

The two main aims of post-excavation analysis were as follows: first to provide a fully quantified record of the assemblage, enhancing not only the regional database discussed by Webster (1990, 146), but also the national database for military sites discussed in an assessment of Romano-British pottery studies (Fulford and Huddleston 1991, 43). Second, to study patterns of pottery supply to the site in the light of existing work (Darling 1977; Greene 1979a; 1993; Breeze 1977, 1984). In particular, to compare and contrast patterns of pottery supply and use in the fort and *vicus*, and to assess the evidence for differences in status, function, or chronology between these areas. The completion of the publication report on material from the Websters' excavations at Wroxeter provided a major new reference point for comparison (Timby *et al.* 2000; Darling 2002).

Sources of Pottery

The fabrics identified were divided into three broad groups based on source: Local/Regional wares, Traded wares and Imported wares (Table 5). Two factors should be taken into consideration when reading discussions based on these groups, particularly the wares produced in Britain, and when comparing proportions presented in this report with proportions published elsewhere. First, when analysis was undertaken it was not possible to define a clear cut 'Region' into which the Pentrehyling assemblage could be slotted; in fact as has been indicated above, one of the research aims was to attempt to achieve this. Consequently some wares could be moved from one group to another. For example the Malvernian wares, which have a clearly defined source in modern day Worcestershire, are included with the Traded wares. The source for the Severn Valley type wares is less certain and may in fact have changed over time. These have been included with the Local/Regional wares, although it is quite possible that some were produced at least as far south as the Malvern area. This leads to the second factor, the difficulty of defining sources for many of the wares represented, in particular the sandy oxidised and reduced wares and the white wares.

Local/Regional wares — (SANDRF, SANDRM, MISCR2, SANDRMC, SANDRC, SANDRG2, SANDRG1, SVOX, SVORGR, SVORGO, SANDOX, SANDOXF1, SANDOXF2, SANDOXWC, GROGWC, MD1, GL1, CREAM1, CREAM2, CREAM3/8, CREAM4, CREAM7, MORT04, MORT05).

Traded wares — non-local Romano-British wares produced by major industries and widely traded — (BB1, OXFCCR, NVCC, MALVH, MALVW, MANCH, MORT01).

Imported — Wares produced outside Britain (SAMSG, SAMCG, SAMEG, RHEN1, RHEN3, CREAM5, CREAM6, MORT02, DR20, SSPAN, GAUL4).

Local/Regional Wares

Severn Valley wares

Standard fabric

SVOX Soft to hard fired, usually reddish orange (Munsell 2.5YR 5/8) but may be brown (Munsell 5YR 6/6) and sometimes has a reduced core (Munsell 10R 6/1). A fine micaceous fabric containing occasional limestone fragments, clay pellets and iron ore (Webster 1976, 18–46).

SVOWC with a cream colour coat (Munsell 10YR 8/4, very pale brown).

SVOXBC with dark grey colour coat (Munsell 5Y 4/1). Includes a fine beaker (Figure 51.14), in a soft reddish-yellow fabric (Munsell 5YR 6/8) with a brown colour coat (Munsell 7.5YR 5/2), which could be classified as an ‘Eggshell’ ware.

Organic tempered variant, oxidised

SVORGO Soft to medium micaceous fabric with reddish-yellow surfaces (Munsell 7.5YR 6/6) and a grey core (Munsell 10YR 6/1). Inclusions of moderate to abundant ill-sorted black organic inclusions and elongated voids < c.2mm, with sparse very angular rock inclusions.

Organic tempered variant, reduced

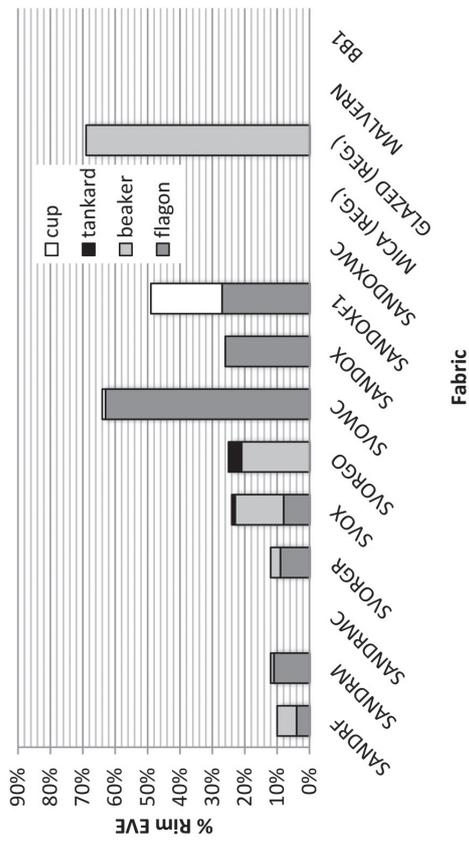
SVORGR Soft to medium; grey throughout (Munsell 10YR 5/1) or with a grey core and lighter pale brown margins (Munsell 10YR 6/3), may have very dark grey external surface (Munsell 2.5Y N3/0). Inclusions similar to SVORGO above.

A number of sherds were classified as Severn Valley ware on the basis of fabric (SVOX), forming one of the most common wares represented (Table 5). Analysis of the forms represented, however, throws into question their definition as Severn Valley wares. Characteristic Severn Valley types represented only 3% by rim EVE. Jars were the most common vessel class (Figure 50), none of which were Severn Valley types. Most common were everted-rim types (22%) of a type normally produced in reduced ware (Figure 52:11), followed by short-necked jars (Figure 52:13; 14%) and jars with lid-seat rims (Figure 52:14–16; 6%). Butt beakers, BK2, were the single most common form type (Figure 51:17–20, 16%). These are not one of the classic Severn Valley types defined by Webster (1976), although examples in Severn Valley ware are found elsewhere (Darlington and Evans, 1992 fig. 17). Bowls were fairly common. The only typical Severn Valley ware type was a small carinated bowl, Webster’s Iron ‘C’ derived form H60 (Webster 1976, fig. 9). Types reminiscent of samian forms included copies of Dr 37, Dr 29 and Dr 31 (Figure 53:9–10; 2; Figure 55:17), and a possible form 38 copy (not illustrated). None are typical Severn Valley types although Webster includes a number of samian copies in his series (Webster 1976, 35). The only other bowls represented were carinated types (Figure 53:1 & 7). In addition to the incised grooves and pattern burnish common to Severn valley ware (Webster 1976, 19) decoration included a single sherd with linear rustication.

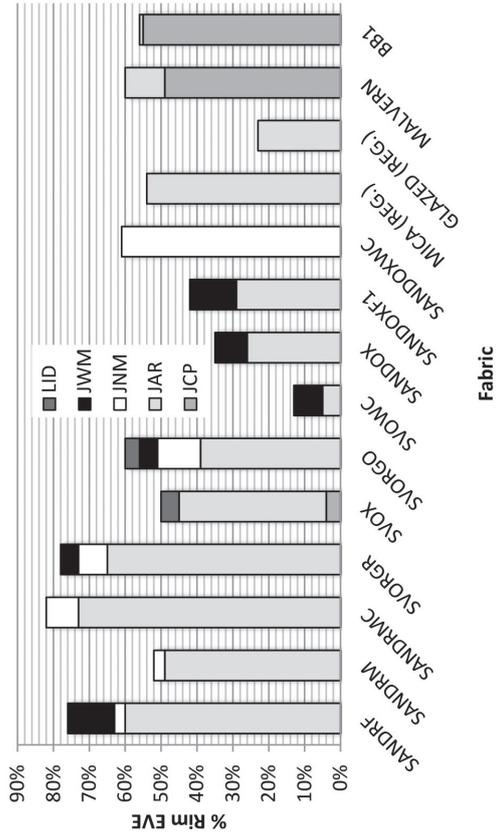
Two variants of this fabric were defined by their surface treatment, one having a white colour coat (SVOWC) and one a dark grey/brown colour coat (SVOXBC). Flagon were by far the most common class produced in the white colour-coated ware (Figure 50). All were ring-necked types, although within this they ranged from upright to splayed necks (Figure 51:1–3). Bowls were the second most common class. The forms were similar to those produced in the plain fabric; copies of samian form 37 were most common (Figure 53, 8 & 10–11; 11%), and a copy of form 31 was also noted (Figure 55:17). The remainder were more unusual carinated bowls (Figure 53:13). More characteristic Severn Valley ware types represented only 9% by rim EVE. These were jars (Figure 52:24 & 18), and, least common, representing less than 1%, a tankard (Figure 51:23). The only identifiable forms in the brown colour-coated ware were a globular everted-rim jar (Figure 52:7) and a small beaker (Figure 51:14), so fine it could well be classified as an ‘Eggshell’ ware.

The plain fabric was most common in Periods 4 and 5 although a fair proportion was also noted in Period 2B (Figure 61), and least common in Period 2A. The white colour-coated variant was most common in Period 2A,

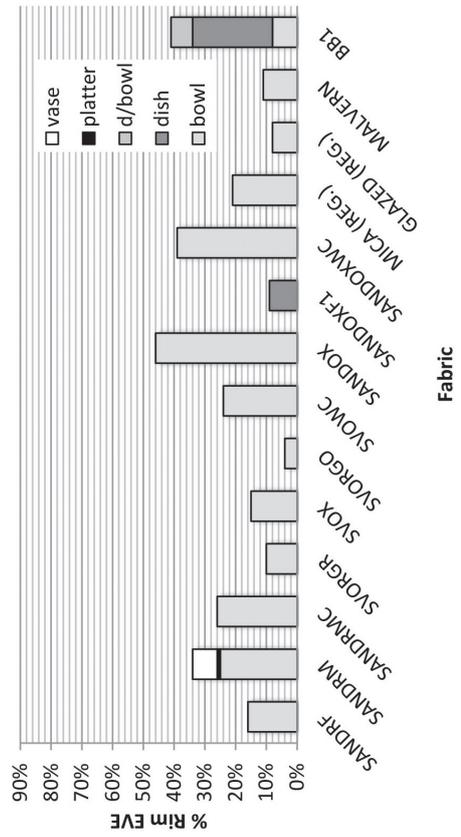
Roman pottery by fabric (% Rim EVE): Drinking Vessels



Roman pottery by fabric (% Rim EVE): Storage Vessels and food preparation



Roman pottery by fabric (% Rim EVE): Table wares



South Gaulish samian by vessel type

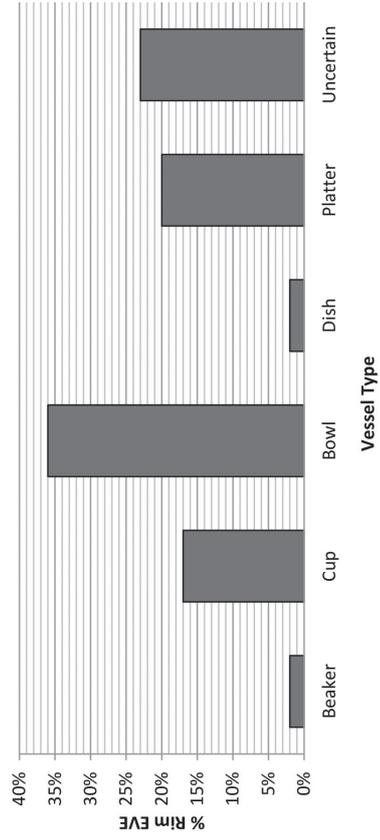


Figure 50 Vessel classes by fabric.

Table 5 Summary of fabrics by source.

Fabric Name	Qty.	% Qty.	Wt.	% Wt.	Average Sherd Wt.	Total % Rim	% by Rim Eve
SANDRF	198	5.0	1662	2.7	8	327	6.0
SANDRM	533	13.5	7344	11.9	14	1444	26.6
MISCR2	10	0.3	169	0.3	17	25	0.5
SANDRMC	58	1.5	1005	1.6	17	134	2.5
SANDRC	13	0.3	198	0.3	15	0	0
SANDRG1	5	0.1	1210	2.0	242	0	0
SANDRG2	4	0.1	10	0.0	2	0	0
SVORGR	238	6.0	2409	3.9	10	517	9.5
<i>TOTAL REDUCED</i>	<i>1059</i>	<i>26.8</i>	<i>14007</i>	<i>22.7</i>	<i>13</i>	<i>2447</i>	<i>45.1</i>
SVOX	540	13.6	4455	7.2	8	487	9.0
SVORGO	291	7.3	2807	4.5	10	365	6.7
SVOWC	317	8.0	2826	4.6	9	822	15.1
SVOXBC	26	0.7	172	0.3	7	40	0.7
SANDOX	92	2.3	903	1.5	10	83	1.5
SANDOXF1	40	1.0	296	0.5	7	82	1.5
SANDOXWC	101	2.5	1112	1.8	11	62	1.1
GROGWC	1	0.0	30	0.0	30	0	0
<i>TOTAL OXIDISED</i>	<i>1408</i>	<i>35.4</i>	<i>12601</i>	<i>20.4</i>	<i>9</i>	<i>1941</i>	<i>35.6</i>
MD1	35	0.9	97	0.2	3	47	0.9
SANDOXF2	3	0.1	5	0.0	2	0	0
GL1/2/3/4	7	0.2	56	0.1	8	29	0.5
CREAM7	5	0.1	16	0.0	3	37	0.7
CREAM1	18	0.4	25	0.0	1	18	0.3
CREAM2	39	1.0	213	0.3	5	0	0
CREAM3/8	5	0.1	71	0.1	14	0	0
CREAM4	33	0.8	393	0.6	12	0	0
<i>TOTAL FINE</i>	<i>145</i>	<i>3.6</i>	<i>876</i>	<i>1.3</i>		<i>131</i>	<i>2.4</i>
MORT04	3	0.1	60	0.1	20	0	0
MORT05	3	0.1	34	0.0	11	0	0
<i>TOTAL MORTARIA</i>	<i>6</i>	<i>0.2</i>	<i>94</i>	<i>0.1</i>	<i>31</i>	<i>0</i>	<i>0</i>
TOTAL REGIONAL	2618	66	27578	44.5		4519	83.1
MALVH	105	2.7	1851	3.0	18	16	0.3
MALVW	13	0.3	515	0.8	40	16	0.3
BB1	151	3.8	2751	4.4	18	390	7.2
OXFCCR	10	0.3	133	0.2	13	15	0.3
NVCC	9	0.2	34	0.0	4	0	0
MANCH	8	0.2	389	0.6	49	9	0.2
MORT01	29	0.7	1348	2.2	46	0	0.0
TOTAL TRADED	325	8.2	7021	11.2		446	8.3
RHENI/2	15	0.4	29	0.0	2	23	0.4
RHEN3	14	0.4	37	0.0	3	27	0.5
CREAM5	13	0.3	44	0.0	3	18	0.3
CREAM6	6	0.2	72	0.1	12	4	0.0
SAMSC*	269	6.8	0	0	0	0	0
SAMCG*	8	0.2	0	0	0	0	0
SAMEG*	6	0.2	0	0	0	0	0
MORT02/03	5	0.1	154	0.2	31	0	0
AMPH1	661	16.7	26504	42.8	40	195	3.6
AMPH2	4	0.1	172	0.3	43	0	0
AMPH3	7	0.2	152	0.3	22	0	0
AMPH4							
TOTAL IMPORTED	1008	25.6	27164	43.7		267	4.8
TOTAL POTTERY	3951	99.8	61763	99.4		5232	96.2

Table 6 Summary of fabrics by period.

Fabric Name	P2A				P2B			
	Qty.	Wt.	Av. Wt.	Total % Rim	Qty.	Wt.	Av. Wt.	Total % Rim
SANDRF	2	28	14	4	21	140	7	40
SANDRM	16	255	16	59	115	1578	14	371
MISCR2	0	0	0	0	10	169	17	25
SANDRMC	2	64	32	0	3	29	10	12
SANDRC	0	0	0	0	1	16	16	0
SANDRG1	0	0	0	0	1	37	37	0
SANDRG2	0	0	0	0	1	3	3	0
SVORGR	2	22	11	0	48	376	8	103
<i>TOTAL REDUCED</i>	<i>22</i>	<i>369</i>	<i>73</i>	<i>28</i>	<i>200</i>	<i>2348</i>	<i>112</i>	<i>551</i>
SVOX	10	47	5	6	129	1251	10	167
SVORGO	2	6	3	0	12	152	13	17
SVOWC	21	166	8	125	36	269	7	115
SVOXBC	0	0	0	0	9	68	8	8
SANDOX	1	5	5	0	19	159	8	22
SANDOXF1	0	0	0	0	6	28	5	24
SANDOXWC	0	0	0	0	17	61	4	0
GROGWC	0	0	0	0	0	0	0	0
<i>TOTAL OXIDISED</i>	<i>34</i>	<i>224</i>	<i>21</i>	<i>131</i>	<i>228</i>	<i>1988</i>	<i>55</i>	<i>353</i>
MD1	0	0	0	0	15	42	3	25
SANDOXF2	0	0	0	0	0	0	0	0
GLI/2/3/4	1	5	5	13	2	8	4	0
CREAM7	0	0	0	0	4	11	3	27
CREAM1	0	0	0	0	2	4	2	5
CREAM2	1	2	2	0	4	23	6	0
<i>CREAM 3/8</i>	<i>1</i>	<i>61</i>	<i>61</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
CREAM4	2	3	1.5	0	0	0	0	0
<i>TOTAL FINE</i>	<i>5</i>	<i>71</i>	<i>69.5</i>	<i>13</i>	<i>27</i>	<i>88</i>	<i>18</i>	<i>57</i>
MORT04	0	0	0	0	2	45	23	0
MORT05	0	0	0	0	3	34	11	0
<i>TOTAL MORTARIA</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>5</i>	<i>79</i>	<i>34</i>	<i>0</i>
TOTAL REGIONAL	61	664	163.5	172	460	4503	219	961
MALVH	0	0	0	0	19	268	14	14
MALVW	0	0	0	0	4	49	12	6
BB1	4	14	3.5	0	18	75	4	20
OXFCCR	0	0	0	0	0	0	0	0
NVCC	0	0	0	0	0	0	0	0
MANCH	0	0	0	0	1	21	21	0
MORT01	14	359	26	0	1	44	44	0
TOTAL TRADED	18	373	29.5	0	43	457	95	40
RHEN1/2	0	0	0	0	0	0	0	0
RHEN3	0	0	0	0	2	7	4	0
CREAM5	0	0	0	0	8	22	3	8
CREAM6	0	0	0	0	1	2	2	4
SAMSC*	2	0	0	0	67	0	0	0
SAMCG*	0	0	0	0	2	0	0	0
SAMEG*	0	0	0	0	0	0	0	0
MORT02/03	0	0	0	0	3	111	37	0
AMPH1	186	848	5	0	48	3742	78	27
AMPH2	0	0	0	0	2	63	31	0
AMPH3	0	0	0	0	3	117	39	0
AMPH4	0	0	0	0	0	0	0	0
TOTAL IMPORTED	188	848	5	0	136	4064	194	39
TOTAL POTTERY	267	1885	198	172	639	9024	508	1040

P2				P4				P5			
Qty.	Wt.	Av. Wt.	Total % Rim	Qty.	Wt.	Av. Wt.	Total % Rim	Qty.	Wt.	Av. Wt.	Total % Rim
182	1502	8	273	8	121	15	45	2	3	1.5	0
470	6407	14	1306	43	662	15	77	17	229	13	61
10	169	17	25	0	0	0	0	0	0	0	0
50	935	19	112	0	0	0	0	8	70	9	22
12	193	16	0	0	0	0	0	1	5	5	0
5	1210	242	0	0	0	0	0	0	0	0	0
1	3	1.5	0	0	0	0	0	3	7	2	0
221	2319	11	464	13	75	6	53	3	11	4	0
951	12738	328.5	2180	64	858	36	175	34	325	34.5	83
300	2681	9	354	164	1385	8	93	59	286	5	30
252	2613	10	365	28	112	4	0	10	72	7	0
270	2331	9	601	34	429	13	196	9	33	4	0
24	168	7	40	0	0	0	0	2	4	2	0
77	817	11	69	7	44	6	14	3	14	5	0
38	285	8	82	2	11	6	0	0	0	0	0
94	1074	11	62	0	0	0	0	2	19	10	0
1	30	15	0	0	0	0	0	0	0	0	0
1056	9999	80	1573	235	1981	37	303	85	428	33	30
35	97	3	47	0	0	0	0	0	0	0	0
3	5	2	0	0	0	0	0	0	0	0	0
7	56	8	29	0	0	0	0	0	0	0	0
5	16	3	37	0	0	0	0	0	0	0	0
18	25	1	18	0	0	0	0	0	0	0	0
23	125	5	0	3	21	7	0	2	3	1.5	0
4	68	17	0	1	3	3	0	0	0	0	0
27	328	12	0	4	50	13	0	1	7	0	0
122	720	51	131	8	74	23	0	3	10	8.5	0
2	45	23	0	1	15	15	0	0	0	0	0
3	34	11	0	0	0	0	0	0	0	0	0
5	79	34	0	1	15	15	0	0	0	0	0
2134	23536	493.5	3884	308	2928	111	478	122	763	76	113
76	1646	22	167	18	131	7	0	10	55	6	9
10	467	47	16	0	0	0	0	3	48	16	0
29	208	7	20	115	2370	21	359	3	141	47	7
1	4	4	0	10	133	13	15	0	0	0	0
0	0	0	0	9	34	4	0	0	0	0	0
1	21	21	0	6	336	56	0	1	32	32	9
20	1043	52	0	4	198	50	0	5	107	21	0
137	3389	153	203	162	3202	151	374	22	383	122	25
13	27	2	23	0	0	0	0	2	2	1	0
14	37	3	27	0	0	0	0	0	0	0	0
11	30	3	8	0	0	0	0	2	14	7	10
6	72	12	4	0	0	0	0	0	0	0	0
235	0	0	0	13	0	0	0	19	0	0	0
2	0	0	0	6	0	0	0	0	0	0	0
0	0	0	0	6	0	0	0	0	0	0	0
3	111	37	0	2	43	22	0	0	0	0	0
597	23688	40	187	53	2645	50	8	11	171	16	0
3	144	48	0	1	28	28	0	0	0	0	0
7	152	22	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
891	24261	167	249	81	2716	100	8	34	187	24	10
3162	51186	813.5	4336	551	8846	362	860	178	1333	222	148

although residual sherds were present in the later Periods 4 and 5, and the brown colour-coated ware most common in Period 2B.

More typical Severn Valley ware types accounted for only 31% of the forms represented in the oxidised organic Severn Valley variant (SVORGO), all jars apart from a tankard. Butt-beakers were one of the most common form types represented (Figure 51:17–20; 24%). Jars were the most common vessel class (Figure 50), predominantly everted-rim jars (Figure 52:1–13; 24%). The remaining jars were more typical Severn-Valley ware types (Figure 52:17–22, 1 & 23). Other forms occurred in only small quantities: a typical Severn Valley ware type tankard (Figure 5:23), a lid (Figure 54:4), and bowls copying samian forms Dr 37 and Dr 29 (Figure 53:10 & 2 respectively). A single sherd decorated with rusticated blobs probably comes from an everted-rim jar. Other decoration consisted of more characteristic grooves (Webster 1976, 19) and occasional sherds with white or dark brown colour coat.

The reduced organic Severn valley ware variant (SVORGR) was slightly less common. Once again typical Severn Valley ware forms were in the minority (33%). Jars were even more dominant in this ware (Figure 50), mainly the everted-rim (Webster's type 11; Figure 52:3–13), amongst which type J1.1 (Figure 52:3) was the single most common vessel type. Apart from a small carinated bowl (Figure 53: 6), jars were the only classic Severn valley ware form represented (Figure 52:1, 18, 19, 22 & 25). Bowls were the second most common vessel class forms included flange-rimmed types (Figure 53:19 & 21), a samian Dr 29 copy (Figure 53:2) and an unusual form with a thickened rim (Figure 53:23). Forms occurring in small numbers were cupped-mouth flagons and butt beakers (Figure 51:6 & 18 respectively). A number of sherds had rusticated decoration; 13 with blobs, 12 with linear rustication and 1 with spidery rustication. Twenty one sherds were noted with a black colour coat, although this may have in fact been sooting, and a number of sherds were decorated with the more characteristic incised grooves.

The organic tempered Severn Valley variant is a characteristically early ware (Webster 1976, 19). On this site it was most common in Period 2, being more common in Period 2B than 2A (Figure 61). The proportion noted from Period 5 emphasises the problems of residuality in the assemblage.

Sandy oxidised wares

Medium sandy oxidised ware

SANDOX Medium-hard fabric, generally yellowish red (Munsell 5YR 5/6). Abundant inclusions of rounded/subangular white, clear and pinkish quartz; sparse black inclusions < 1mm and less commonly < 2mm.

Fine sandy oxidised ware

SANDOXF1 A soft, fabric varying in colour from yellowish red (Munsell 5YR 5/8) to brown (10YR 4/3). Inclusions are variable, with combinations of black ironstone, rounded white quartz < 0.1mm. More than one source is probably represented.

Cream colour-coated wares (see also SVOWC)

SANDOXWC Medium to hard, reddish brown (Munsell 5YR 5/4) with a very pale brown colour coat (Munsell 10YR 8/4). Moderate to abundant ill-sorted white or pinkish rounded and sub-angular quartz < 0.5mm, sparse black organic inclusions and elongated voids occasionally up to c.4mm. Distinguished by white colour-coat.

GROGWC Soft fabric with a grey core (Munsell 5Y 5/1) and light yellowish-brown margins and surfaces (Munsell 10YR 6/4) and a cream colour-coat (Munsell 2.5Y 7/2, light gray). Inclusions of moderate, illsorted, angular grog and occasional rock fragments < c.1mm. A single sherd only.

Oxidised sandy wares were less common than reduced sandy wares (Table 5). Most common was the white colour-coated ware (SANDOXWC). Only two forms were represented, both Severn valley ware types; a narrow-mouthed jar (Figure 52:2) and a small carinated bowl (Figure 53:4). It is surprising that no flagons were noted, given that this was the most common form in the other major white colour-coated ware. The range of forms in the plain, medium sandy ware (SANDOX) was less restricted. Bowls were the most common class (Figure 50), mainly copies of samian forms 37, 31 and 29 (Figure 53:8, Figure 55:17 & Figure 53:2 respectively) although a flanged-rim bowl was also noted. Flagons and jars occurred in equal proportions, the flagon a slightly-splayed ring-necked type (Figure 51:2) and the jar of an everted-rim type (Figure 52:11). No forms were noted in the remaining white colour-coated ware (GROGWC). All the white colour-coated wares combined represented only 6% by weight of the overall assemblage.

Jars and flagons were the most common classes in the finer sandy variant (SANDOXF1), the jar an everted-rim type (Figure 52:3) and the flagons of cupped-mouth types (Figure 51:7 & 9). Other forms included a campanulate cup copying samian form 27 (Figure 51:22), a wide-mouthed jar similar to a Severn Valley ware type (Figure 52:23) and a plain-rimmed dish (similar to Figure 55:14–15).

All of the sandy oxidised wares seem to be most common in Period 2, in particular Period 2B.

Reduced wares

Fine sandy reduced ware

SANDRF Soft, varying in colour from grey throughout (Munsell 2.5Y N6/0) to light brownish grey (Munsell 2.5Y 6/2), occasionally with very dark grey external surface (Munsell 2.5Y N3/0). Inclusions of sparse clear or white quartz < 0.1mm; sparse elongated voids (burnt organic) < 2mm; sparse to moderate dull black inclusions < 0.1mm. Some sherds of reduced Severn Valley ware may be included in this category.

Medium sandy reduced ware

SANDRM Soft to medium fabric. Colour very variable, from grey throughout (Munsell 2.5Y N5/0 to 5Y 5/1) to sherds with a reddish brown core (Munsell 5YR 4/4) or reddish brown margins and dark grey core (Munsell 5Y 4/1). May have very dark grey external surface ((Munsell 2.5Y N3/0). Inclusions of moderate to abundant white or clear quartz < 0.1mm; sparse to moderate elongated voids < 3mm; sparse to moderate dull black inclusions < 0.1mm, sparse black ?ironstone < 2mm. The most common grey ware fabric.

MISCR2 A soft fabric distinguished by the distinctive very dark grey 'core' (Munsell 2.5Y N3/0) and light grey margins (Munsell 10YR 7/2), with a dark grey surface (Munsell 2.5Y N4/0). The 10 sherds represented are all very abraded but they probably originally had darker grey surfaces. Moderate inclusions of sub-angular white quartz < c.0.1mm. May be a mis-fired variant of SANDRM.

Medium-to-coarse sandy reduced ware

SANDRMC Soft fabric, generally grey throughout (Munsell 5Y 5/1). Inclusions of moderate, ill-sorted white quartz and black ironstone usually < 0.1mm but occasionally > 0.1mm resulting in a 'pimply' surface texture. Moderately common.

Coarse sandy reduced ware

SANDRC Medium to hard, white fabric (Munsell 2.5Y N8/0) with dark grey external surface (Munsell 2.5Y N4/0). Inclusions of abundant angular/sub-angular ill-sorted white or pinkish quartz < 0.1mm; and moderate ill-sorted black inclusions < 0.1mm. Only represented by a few sherds and may be related to fabric CREAM4.

Grog tempered reduced ware

SANDRG1 A medium fabric with a grey core (Munsell 2.5Y N6/0), dark greyish brown internal surface (Munsell 2.5Y 4/2); light brownish grey margins and external surface (Munsell 2.5Y 6/2); or very dark grey where sooted (Munsell 2.5Y N3/0). Micaceous fabric with sparse to moderate grey grog, black ?ironstone inclusions and elongated voids < 0.1mm; occasional hard rock inclusions < 2mm. Represented by a single vessel, possibly a variant of SVORGR.

SANDRG2 Soft, with a very pale brown core (Munsell 10YR 7/4), and very dark grey surfaces (Munsell 2.5YR N3/0). moderate ill-sorted sub-rounded white quartz, orange grog and black ?ironstone, all < c.1mm. Only represented by a few small sherds.

The medium sandy fabric (SANDRM) was by far the most common reduced ware. Within this jars were the most common vessel class (Figure 50), predominantly types broadly paralleled in the military assemblages from Caersws and Wroxeter. The main types were 11 everted-rim jars (Figure 52:3–5, 7, 10–11 & 13; 26.5%) and 13 short-necked jars (Figure 52:17, 18, 20 & 22; 18%). Present in smaller quantities were lid-seated jars (Figure 52:15, 16; 4%), narrow-mouthed and wide-mouthed jars similar to Severn Valley types (Figure 52:2, 24). Bowls were the second main class, again mainly types paralleled at Wroxeter and Caersws. Most common were reeded-rim types (Figure 53:15–17, 19 & 21; 12 %), followed by carinated bowls (Figure 53:1–3; 9%) including B1.2, a copy of samian form 29. Present in small quantities were copies of samian form 37 (Figure 53:10 & 12), and

a copy of a late BB1 type flanged bowl (Figure 53:22). The remaining vessel classes were not so common, they included flagons (Figure 51:4 & 8) and a BK1 type everted rim beaker (Figure 51:10). More unusual forms were a Belgic type platter (Figure 53:24) and a triple vase (Figure 54:6), the latter possibly indicating a Wilderspool source for some of this ware. Decoration included rusticated blobs and linear or spidery rustication (3, 5 and 5 sherds respectively), two sherds with barbotine dots, eleven sherds with incised grooves and burnished loops on the BB1 copy bowl. Fourteen sherds were noted as having a black colour coat, although this may in fact be sooting.

This fabric was most common in Period 2 and again in Period 5, when some may have been residual. The presence of the late BB1 copy, however, does indicate production continuing in this fabric in the later Period.

The other medium sandy ware (MISCR2) only occurred in Period 2B and probably all comes from a single vessel, a reed-rimmed bowl (Figure 53:16) decorated with a single incised groove.

The fine sandy ware (SANDRF) was the second most common reduced fabric (Table 5). A wider variety of decoration was noted in this ware. In addition to the incised grooves (eleven sherds) and rustication (blobs two sherds, linear five sherds and spidery one sherd) there were fourteen sherds with barbotine dots and two with dots and swags (Figure 51:20), twelve sherds with rouletting, and one sherd from a butt beaker with a combination of burnished cross hatch and rouletting (Figure 53:14). The main forms produced, however, were not fine ware types but jars, which were more common in this ware than in the medium fabric (Figure 50). Half the assemblage comprised everted-rimmed jars (Figure 52:5–12), the other types represented being short-necked jars (Figure 52:21–22), and Severn Valley type narrow-mouthed and wide-mouthed jars (Figure 52:1 & 23–24). Bowls were the next most common class, comprising in order of frequency a samian form 29 copy, a reeded-rim type, a carinated bowl, and a flange-rimmed bowl (Figure 53:2, 15, 1 & 21 respectively). Forms represented in small quantities were an everted-rim beaker decorated with barbotine dots and a double-handled flagon (Figure 51:10 & 5).

Fine sandy wares are common elsewhere in early Roman assemblages (Bryant and Evans 2004, 257–9). They were present in all Period 2 assemblages, and also in the Period 4 assemblage where it is assumed they are residual.

Much smaller quantities of the medium-coarse fabric (SANDRMC) were noted (Table 5) and consequently a much narrower range of forms was represented. Jars were again the most common type (Figure 50), most commonly with everted rims (Figure 52:13, and a distinctive short-necked type with a square rim (Figure 52:20). Bowls were the only other class noted: a carinated bowl, a samian 29 copy, and a bowl with a plain flanged rim (Figure 53:1, 2 & 19). A single sherd was noted with linear rustication, and two sherds with incised grooves.

This fabric was most common in Periods 5 and 2A. No diagnostically late forms were identified, however, and much if not all of the Period 5 material may be residual.

No forms were noted in the other grey wares, the coarse sandy ware (SANDRC), and the grog-tempered wares (SANDRG1 and SANDRG2). The only decorated sherds noted in SANDRC were two sherds with incised grooves and one with rusticated blobs, and no decoration was noted in the grog-tempered wares.

The small quantities of SANDRC were mainly from Period 2 contexts while SANDRG1 was most common in Period 2, and SANDRG2 in Period 5.

A number of points can be made relating to the reduced wares as a whole. It is notoriously difficult to demarcate individual fabrics within an assemblage of sandy grey wares. The wares discussed above have been broadly separated into fine, medium and coarse, where no other distinguishing features were apparent. Analysing the forms represented it seems that although proportions of vessel classes and form types may vary between wares, as demonstrated above, the actual form types varied little. Most of the wares appear to be from the same source, most probably a fairly local one. The presence of small numbers of more unusual forms, for example the platter and triple vase in SANDRM, indicate that small quantities of material from other sources may have been included during analysis.

Copies of samian bowls were less common in the grey fabrics than in the red wares, better suited for the production of table-wares. It is interesting that no lids were evident amongst the grey wares given that some of the jars produced appear to have been designed specifically for use with lids (Figure 52:14–16). Lids were noted amongst the oxidised wares, but only in the Severn Valley ware related fabrics, which may or may not be significant.

The fine wares

Mica Dusted ware

MDI Medium to hard fabric with mica-dusted surfaces. Yellowish red, or less commonly with yellowish-red margins and (Munsell 5YR 5/6) and a dark grey core (Munsell 5Y 4/1). Inclusions of abundant very fine sub-angular white and clear quartz, and sparse red ?ironstone < 0.1mm.

SANDOXF2 Medium to hard. Colour varies from pink throughout (Munsell 7.5YR 7/4) to light brown (Munsell 7.5YR 6/4). Inclusions of ill-sorted clear, white and pinkish rounded and sub-rounded quartz.

Glazed wares

GL1 Soft micaceous fabric, varying in colour from reddish yellow (Munsell 5YR 6/6) with a grey core (Munsell 5Y 5/1) to grey throughout (Munsell 5Y 6/1), and with an olive to light brown-olive glaze (Munsell 5Y 4/3–2.5Y 5/4). With sparse very fine black and white inclusions < 0.1mm. (now includes GL2, GL3, GL4).

CREAM7 Soft to medium, very pale brown (Munsell 10YR 7/4). Inclusions of ill-sorted rust-brown coloured ?sandstone < 0.1mm. One sherd (Figure 51:15) has patches of surviving glaze.

Fine Cream wares

CREAM1 Soft soapy fabric, very pale brown similar to Munsell 10YR 8/3 but slightly more yellow. Originally had a red colour coat (Munsell 10R 4/2) and roughcast decoration. Few visible inclusions apart from very occasional white quartz, orange ?ironstone and elongated voids.

CREAM2 Soft soapy fabric, cream (no parallels in Munsell) varying to pink (Munsell 7.5YR 7/4) particularly at the core. Few visible inclusions apart from occasional fine orange/red inclusions and occasional black inclusions < 0.1mm. Possibly from Wroxeter (Timby *et al.* 2000 CREAM F) although other sources such as Mancetter-Hartshill may also be included.

Medium cream wares

CREAM3/8 Medium/hard, surfaces may be very pale brown (Munsell 10YR 8/3). Moderate inclusions of very fine white sand, with occasional pieces up to 0.1mm; and sparse to moderate black ?ironstone only just visible macroscopically. Possibly from Wroxeter (Timby *et al.* 2000 CREAM) although other sources may also be represented.

Coarse cream wares

CREAM4 Medium to hard, very pale brown (Munsell 10YR 7/3) with abundant ill-sorted angular/subangular white or slightly pinkish quartz < 0.1mm and occasional dull red ?sandstone < 0.1mm. Possibly from Wroxeter (Timby *et al.* 2000 CREAMC) although other sources such as Oxford and Verulamium may also be represented.

SANDOXF2 Of the 3 sherds represented one is decorated with barbotine scales and probably comes from a cup copying a Lyon ware type (Greene 1979b, fig 5 type 3). Another very fragmentary sherd with a boss and mica dusted is from a beaker of Marsh type 20 (Marsh 1978, fig.6.9) a type produced at Holt and Gloucester, copying imported types similar to those found at Wroxeter (Timby *et al.* 2000, fig. 142 BK3.18).

Most common were the white or cream wares (Table 5), broadly classified as fine, medium and coarse. Amongst these the fine wares (CREAM1 and 2) were most common, followed by the coarse ware (CREAM4), and in much smaller quantities the medium ware (CREAM3/8). Sourcing the white wares, like the grey wares, is problematic and, as has been indicated above, a variety of sources may well be represented, some well outside the region. It is likely that the suppliers of white ware mortaria also supplied the other forms, in which case the Brockley Hill/Verulamium kilns may be more likely than a regional source for the coarser fabric in Period 2. The marked dominance of Verulamium mortaria in Period 2A is not however reflected in the proportion of CREAM4. No real variations were noted in the distribution of individual fabrics between Periods. As a group, white wares were most common in Period P2A, reflecting the quantities of CREAM3/8 in this Period, but residual sherds were also included in the assemblages from Periods 4 and 5. The only forms produced were beakers similar to BK1.3 and BK1.4 (Figure 51:12).

The next category of fine ware represented were mica-dusted or mica-slipped ware. These were produced at Holt c.A.D. 100–130/140 (Grimes 1930, 167; Marsh 1978, 203) and possibly also at Wroxeter (Timby *et al.* 2000 fabric MICA2) where they are common during period 2. Although mica dusted wares dating to the Flavian-Trajanic period have been found in Chester it is not certain that they were produced at Holt, and Gloucester has been suggested as an alternative source (Carrington 1977, 159 footnote 10). Fabric MD 1 was the more common of the two represented at Pentrehyling (Table 5). The only rim forms were a fine, flange-rimmed bowl (Figure 53:18) and a globular jar (Figure 52:4). Also noted was the flat base from a dish or platter with near-upright sides, perhaps similar to Marsh type 25 (Marsh 1978 fig 6.12) and a type noted at Gloucester (Rawes 1972 fig. 12). At Pentrehyling they were most common in Period 2B (Figure 61).

Least common were the glazed wares, mainly occurring in Period 2A (Figure 61). Holt is again a likely source (Grimes 1930, 175–8; Arthur 1978, 334–8; Greene 1977, 103–5). Both fabrics (GL1 and CREAM7) occurred in very small quantities although a variety of forms are recorded; everted-rim jars (Figure 52:5 & 10), beakers (Figure 51:15 & 21), and a flat-rimmed bowl (Figure 53:19).

Mortaria

Probable Wroxeter mortaria

MORT04 Oxidised mortaria (Timby *et al.* 2000, fabric MWWOC). Wheel-thrown, soft to hard, usually reddish-orange (Munsell 2.5YR 5/8) to brown (Munsell 5YR 6/6), sometimes with a reduced core (Munsell 10R 6/1). Micaceous with inclusions of abundant ill-sorted, sub-rounded quartz, up to c.0.6mm and visible by eye, together with occasional limestone fragments, clay pellets and iron ore. Trituration grits include moderate red-brown sandstone (up to 4mm), translucent quartz/quartzite (up to 3mm) and black ironstone (up to 2mm).

MORT05 White mortaria (Timby *et al.* 2000, fabric MWWW). Wheel-thrown, hard fired, buff-cream, sometimes with pink or brownish core (Munsell 10YR 7/4, very pale brown). Trituration grits include moderate red-brown sandstone (up to 4mm), translucent quartz/quartzite (up to 3mm) and black ironstone (up to 2mm), with a similar range of inclusions occurring in the fabric.

Two mortaria fabrics were thought by Kay Hartley to be most probably from Wroxeter (MORT04 and MORT05), although a single sherd in MORT04 had hackly quartz trituration grits and inclusions which would also fit a source in Wales. They were represented in similar proportions, occurring mainly in Period 2B, and were dated by Kay Hartley to A.D.100–160. None are illustrated.

F1 Ring necked

- F1.1 Near-upright neck with prominent upper ring, Wroxeter type F3.1 (Timby *et al.* 2000, fig. 139). Illustrated example has a very abraded white colour coat. SVOWC, BRO 90 CI049 F122 Period 2A (Figure 51:1).
- F1.2 Splayed ring-neck with very slight internal cup, perhaps related to Wroxeter Military type F4.1 (Timby *et al.* 2000 fig. 140). Illustrated example has an almost completely abraded white colour coat. SVOWC, PH C3194 Period 2A/B (Figure 51:2).
- F1.3 Increasingly splayed ring-neck with prominent near triangular rim, Wroxeter type F3.4 (Timby *et al.* 2000, fig. 139). Illustrated example has a very abraded white colour coat. SVOWC, BRO 90 C3003 F303 Period 4 (Figure 51:3).

F2 Double handled

- F2.1 With flat-topped rim, similar to military form P8.31 from Wroxeter (Timby *et al.* 2000, fig. 141). Illustrated example has an abraded surface but appears, however to have been deliberately blackened. SANDRM, PH C3615A Period 2B (Figure 51:4).
- F2.2 Perhaps similar to Wroxeter military type F8.1 (Timby *et al.* 2000, fig 141), although no evidence for handles survives. Illustrated example has a blackened external surface. SVOX, PH C3197 Period 2A/B (Figure 51:5).

F3 Cupped-mouth

- F3.1 Loosely similar to Wroxeter type F5.41 (Timby *et al.* 2000, fig 140), where it is dated 1st to 2nd century. Illustrated example has blackened surfaces. SVORGR, PH C3122 Period 2A/B (Figure 51:6).
- F3.2 Illustrated example very abraded with no evidence for handles but perhaps originally a form similar to Wroxeter form F5.47 (Timby *et al.* 2000, fig 140). SANDOXF1, PH C3107A Period 2A/B (Figure 51:7).
- F3.3 Similar to Wroxeter Military type F5.61 (Timby *et al.* 2000, fig 140) and a reduced ware narrow neck jar from Caersws (Webster and Hartley 1989, fig 59 366). SVOX, BRO 90 C3006 F304 Period 1 (Figure 51:8).
- F3.4 Illustrated example very fragmentary and abraded, perhaps from a cupped rim flagon similar to Wroxeter type F5.47 (Timby *et al.* 2000, fig 140). SANDOXF1 PH C3107B Period 2A/B (Figure 51:9).

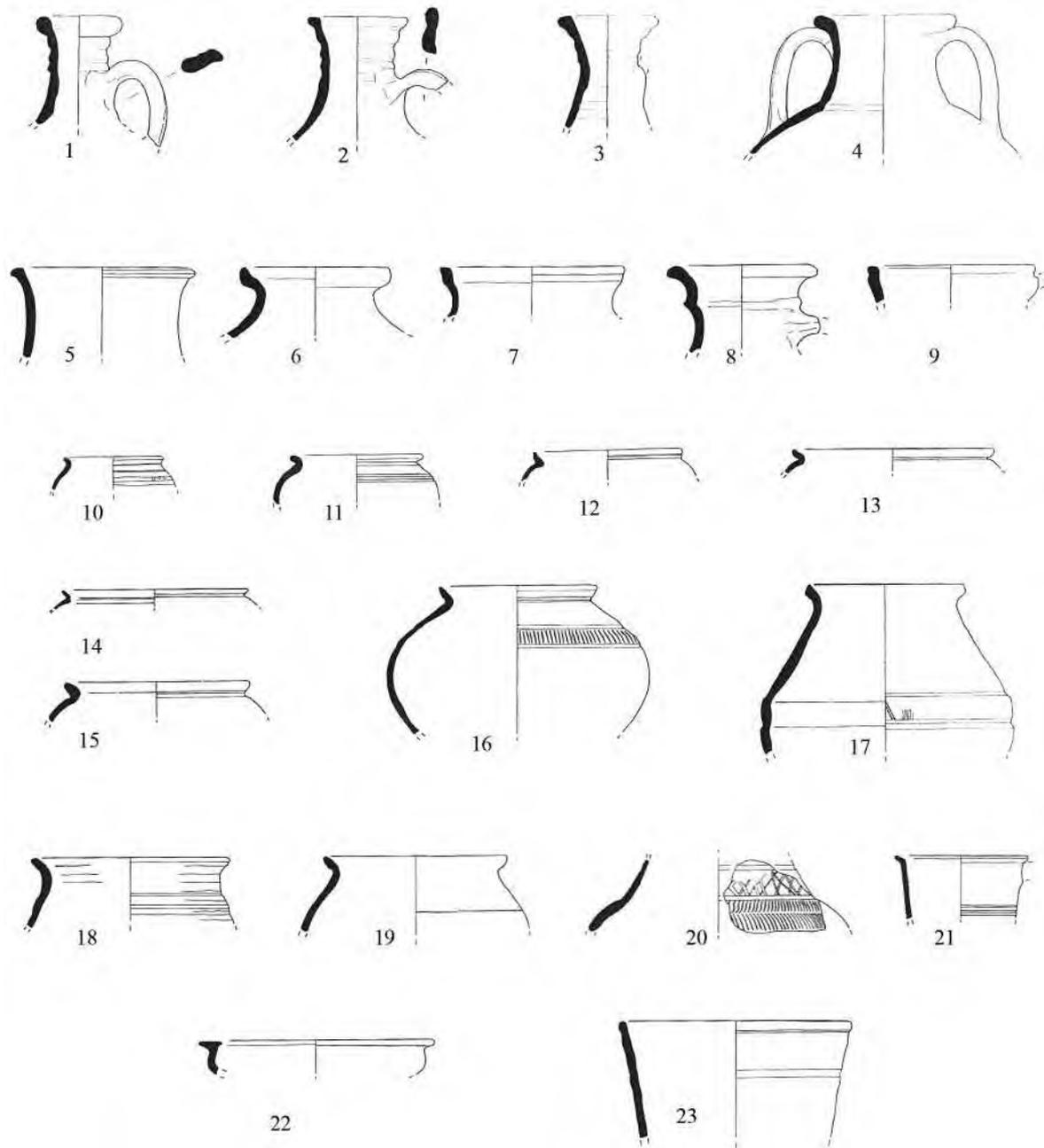


Figure 51 Flagons, beakers, cups and tankards.

BK1 Everted rimmed beakers

- BK1.1 Fine beaker decorated with burnishing and barbotine dots. SANDRF, PH C3109A Period 2A/B (Figure 51:10).
- BK1.2 Similar to Wroxeter form BK3 (Timby *et al.* 2000, fig. 142) and a type produced at Holt (Grimes 1930 fig 72 no 197; Marsh 1978, fig 6.10, type 22) GL1 PH 3199 Period 2A/B (Figure 51:11).
- BK1.4 With slightly cupped rim, broadly similar to type BK6 from Wroxeter (Timby *et al.* 2000, fig. 142), and certain forms produced at Gloucester (Rawes 1972, fig. 5.59). MD1 BRO 90 C2049 Period 2A/B (Figure 51:12).
- BK1.5 The illustrated example is very abraded. CREAM1 BRO 90 C2009 Period 2B (Figure 51:13).

Globular beakers, similar to Wroxeter BK3 (fig 142), are one of the most common beaker categories from military contexts at Wroxeter.

- BK1.7 The illustrated example is very abraded but originally had a dark red-brown colour coat. SVOXBC PH C3122 Phase2A/B (Figure 51:14).
- BK1.8 The illustrated example is very abraded. CREAM7 PH C3820B Period 2A/B (Figure 51:15).
- BK1.9 Globular beaker with rouletted decoration, loosely similar to a creamware type noted at Wroxeter, period 1 (Timby *et al.* 2000, fig 142 BK6.31). The illustrated sherd is abraded but may originally have been burnished. SANDOXF1, PH C3197 Period 2A/B (Figure 51:16).

BK2 Butt Beakers

- BK2.1 With simple everted rim, similar to types from period 2 contexts at Wroxeter (Timby *et al.* 2000, fig 142 BK1.2). Illustrated example very abraded but with hints of pattern burnish around girth. SVORGO, PH C3821B Period 2A/B (Figure 51:17).
- BK2.2 Illustrated example has blackened surfaces, burnished externally and inside rim. SVORGR, BRO 90 C1094 F139 Period 2B (Figure 51:18).
- BK2.3 SVOX, PH C3358 Period 2B (Figure 51:19).
- BK2.4 Body sherd, decorated with burnished cross hatch and rouletting. SANDRF PH C3825 Period 2A/B (Figure 51:20).

BK3 Wide mouthed beakers

- BK3.1 With straight walls and an out-turned lip, a type produced in glazed ware at Holt (Marsh 1978, fig. 6.8 type 11) see Grimes 1930 fig. 70.165, fig. 71.171, 174–6, 179–182, fig. 72.204, fig 76.9 GL2 BRO 89 C1002 F101 Period 2A (Figure 51:21).

C1 Cups

- C1.1 Campanulate cup with a flat T-shaped rim, imitating samian Dr 27. The flat rim and strong curves are reminiscent of 1st century examples of Dr 27 rather than 2nd century types. Similar forms noted from Military levels at Wroxeter were dated to the Flavian period (Timby *et al.* 2000, fig 153 C1). The illustrated example although abraded has patches of the original blackened and burnished surface surviving. SANDOXF1, BRO 90 C3008 F306 Period 2B (Figure 51:22).

T1 Tankard with slightly-splayed walls

- T 1.1 Similar to Webster type E39 (Webster 1976 31, fig 7) dated by him to the 2nd century. Paralleled at Wroxeter by type TK2.1 (Timby *et al.* 2000, fig 167). Illustrated example very abraded. SVORGO, PH C3826 Period 2A/B (Figure 51:23).

Narrow-mouthed jars (JNM)

- JNM1 Slightly overhanging rim.
- JNM1.1 Upright neck and slightly hooked rim, similar to Webster A6 (Webster 1976 fig 1) dated second to third century. Illustrated example has blackened surfaces and is burnished externally. SVORGR, BRO 90 C1078 F141 period 2B (Figure 52:1).
- JNM1.2 Out-curving neck. Illustrated example has abraded burnishing externally and just inside the rim. SVORGO, PH C3107A Period 2 A/B (Figure 52:2).

Medium-mouthed jars (J)

J1 Neckless, everted rims.

Everted rim jars, probably used as cooking pots, are one of the most common forms noted at Caersws, where they are broadly dated mid 1st to early or mid 2nd century (Webster and Hartley 1989 90) At Wroxeter they first appear as a later military type, at least Trajanic, (Timby *et al.* 2000, fig 147 JM2, fig 148 JM3.5) and are common in period 2 assemblages, often having rustication.

Globular jars, with slightly cupped rims, similar to Wroxeter military type JM2.2 which is usually rusticated (Timby *et al.* 2000, fig 147).

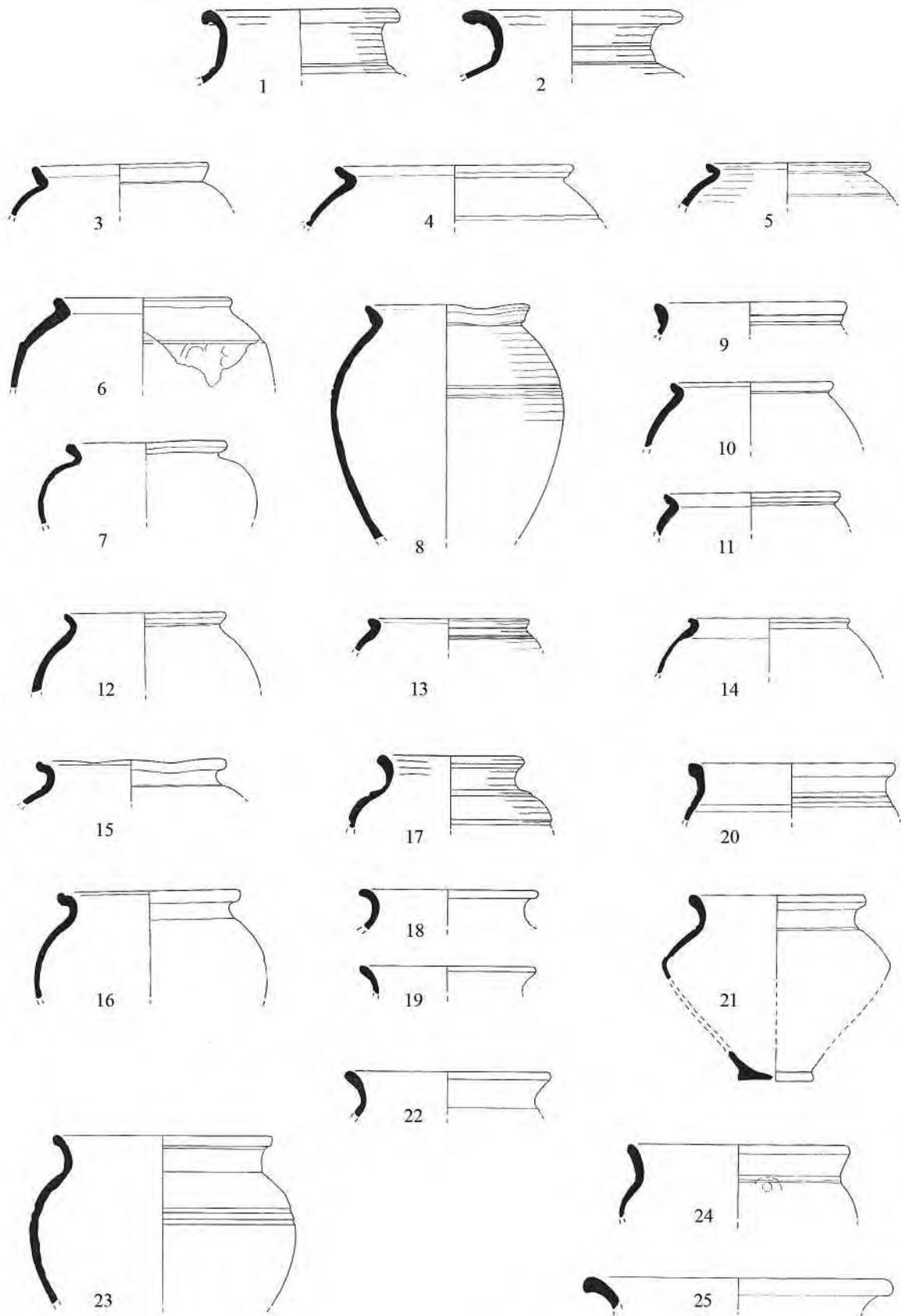


Figure 52 Jars.

- J1.1 Illustrated example has very abraded surfaces. SVORGR, PH C3820B Period 2A/B (Figure 52:3).
- J1.2 Illustrated example is abraded but probably had burnishing externally. SANDRM, C3820B Period 2A/B (Figure 52:4).
- J1.3 Illustrated example abraded but appears to have been burnished externally. SANDRM, BRO 90 C1094 F139 Phase 2B (Figure 52:5).
- J1.4 With simple everted rim and rusticated decoration, similar to Wroxeter type JM 1.2 (Timby *et al.* 2000, fig 147). Illustrated example had blackened surfaces and is burnished externally and inside the rim. SVORGR PH C3197 Period 2A/B (Figure 52:6).
- J1.5 The surfaces appear originally to have been blackened although the illustrated sherd is very abraded. With thickened rim. SVOXBC, PH C3197 Period 2A/B (Figure 52:7).

Slacker forms

With thickened, everted rim similar to Wroxeter type JM3.2 (Timby *et al.* 2000, fig 148) first noted in period 2.

- J1.6 The illustrated sherd is a waster, burnished on the upper half. SVORGO, PH C3811 Period 2A/B (Figure 52:8).
- J1.7 The illustrated sherd is very fragmentary and abraded. SVORGO, PH C3109EF period 2A/B (Figure 52:9).
- J1.9 The illustrated sherd is very abraded. SVOX, PH C3122 period 2A/B (Figure 52:10).

With slightly thickened rim

- J1.10 The illustrated sherd is very fragmentary and abraded. SVORGO, PH C3110 Period 2A/B (Figure 52:11).
- J1.11 The illustrated sherd is abraded but appears to have a dark colour coat externally and just inside the rim. SVORX, PH C0825 Period N/A (Figure 52:12).

Beaded rims

- J1.12 The illustrated sherd is blackened and burnished externally and inside the rim. SANDR, BRO C1094 F139 Period 2B (Figure 52:13).

Short-necked jars

- J2 Lid-seated rims, similar to types first noted in military and Period 1 levels at Wroxeter (Timby *et al.* 2000, fig.151, JM9).
- J2.1 The illustrated sherd is very abraded, although patches of the original blackened surface survive. SVOX PH C3350 Period 2B (Figure 52:14).
- J2.2 The illustrated example is a waster. SANDRM, PH 3197 Period 2A/B (Figure 52:15).
- J2.3 SANDRM, PH C3122 Period 2A/B (Figure 52:16).

J3 Miscellaneous short-necked jars

- J3.1 Simple upright rim, with a high shoulder decorated with cordons and grooves. The illustrated sherd is burnished externally and inside the rim. SANDRM, PH C3123 Period 2A/B (Figure 52:17).
- J3.2 The illustrated sherd is abraded. SVORGR, PH C3123 Period 2A/B (Figure 52:18).
- J3.3 The illustrated sherd has a blackened, burnished surface. SVORGR, BRO 90 C3001 F300 Period 2B (Figure 52:19).
- J3.4 With a near rectangular rim, similar to Wroxeter Military type JM7.33 (Timby *et al.* 2000, fig 149). SANDRM, PH C3123 Period 2A/B (Figure 52:20).

Short neck and slightly thickened rim

Similar to Wroxeter Military type JM7 (Timby *et al.* 2000, figs 149–150).

- J3.5 SANDR, PH C3343 Period 2B (Figure 52:21).

J3.6 Patches of the original blackened external surface survive on the abraded illustrated sherd. SVORGR, PH C3123 Period 2A/B (Figure 52:22).

Wide-mouthed jars (JWM)

Short upright neck, beaded rim Webster type C20, 1st to 2nd century (Webster 1976 fig 4).

JWM1.1 SANDOXF1, PH C3107B Period 2A/B (Figure 52:23).

JWM1.2 Slightly beaded rim. The illustrated example is highly abraded. SVOWC, BRO 90 C3003 F303 Period 4 (Figure 52:24).

Near triangular rim, similar to Webster type C21, dated mid-late 2nd century.

JWM1.3 SVORGR, PH C3194 Period 2A/B (Figure 52:25).

B1 Carinated Bowls

B1.1 With everted rim, possibly from a low carinated bowl similar to Wroxeter type B2 which is often white slipped (Timby *et al.* 2000, fig 154). The illustrated example has a blackened surface. SANDRMC, PH C3820B Period 2A/B (Figure 53:1).

Carinated bowl with a cupped, moulded rim; copying samian form 29, a 1st century form which generally went out of production *c.*A.D. 85.

B1.2 Similar to Wroxeter type B1.2 (Timby *et al.* 2000, fig 154), and the 'Caersws Bowls' decorated with white slip and rouletting which are dated Flavian to Trajanic (Webster in Britnell 1989, 90, fig 55 263 and 275). The illustrated example is very abraded, but although patches of white colour coat survive there is no indication that the bowl had rouletted decoration: SVOWC, PH C3194 Period 2A/B (Figure 53:2).

Possibly from a carinated bowl, with a slightly in-turned beaded rim.

B1.3 SVOWC, PH C3112C Period 2A/B (Figure 53:3).

Carinated bowls with near-upright sides

B1.4 With a low carination and tall, slightly flaring walls; similar to Wroxeter type B3.4 (Timby *et al.* 2000, fig 155). A native derived, 1st to 2nd century, form commonly occurring in Severn Valley ware (Webster 1976 33, fig 9 H59–60). Only patches of the original white colour coat survive on the illustrated example. SANDOXW, PH C0125 Period 2A/B (Figure 53:4).

B1.5 With a gently out-turned rim. Perhaps related to forms such as Wroxeter Military type B2.75 (Timby *et al.* 2000, fig 154). The illustrated example has blackened and burnished surfaces. SVOXBC, PH C2440 Period 2B (Figure 53:5).

B1.6 Small bowl or cup with everted rim. The illustrated example has a blackened and burnished external surface. SVORGR, BRO 90 C3001 F300 Period 2B (Figure 53:6).

Carinated bowl with flaring sides

B1.7 Similar to Wroxeter Military type B2 (Timby *et al.* 2000, fig 155). The illustrated example is very abraded. SVOX, BRO 90 C3008 F306 2B (Figure 53:7).

B2 Open-mouthed bowls reminiscent of samian form Dr 37.

The Dr 37 type emerged *c.*A.D.70 and was the most common decorated samian bowl type by the early 80s. It was produced into the late 2nd and early 3rd centuries, and was copied after this date in colour coated wares.

B2.1 SANDOX, PH C3505 Period 2A/B (Figure 53:8).

B2.2 The illustrated example is decorated with rouletting. SVOX, PH C3112C Period 2A/B (Figure 53:9).

B2.3 The illustrated example is very abraded. SVORGO, PH C0099 Period 2A/B (Figure 53:10).

B2.4 Only patches of colour-coat survive on the illustrated example. SVOWC, PH C3122 Period 2A/B (Figure 53:11).

B2.5 The highly abraded example illustrated originally had a black colour-coat. SANDR, BRO 90 C2006 F202 Period 2B (Figure 53:12).

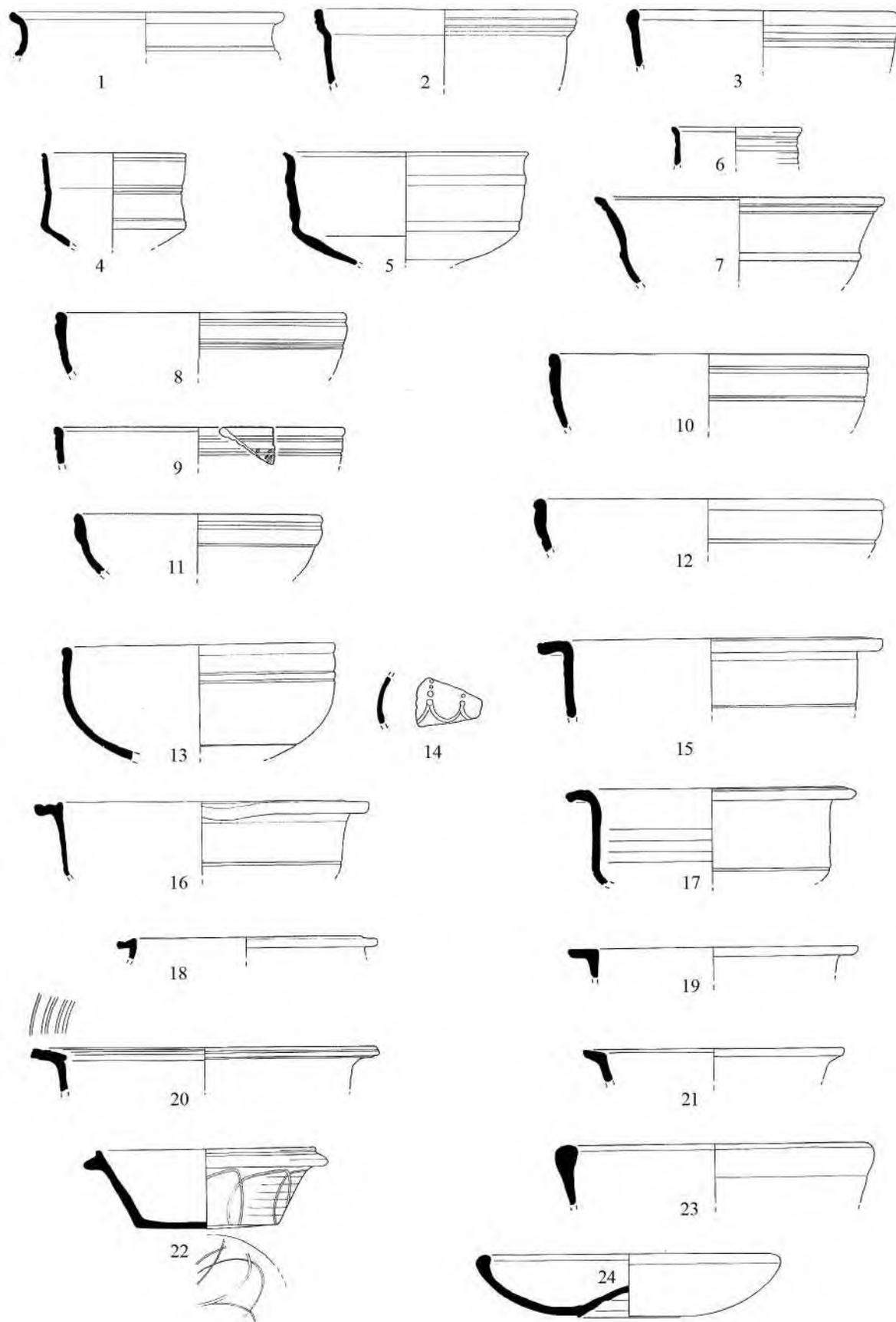


Figure 53 Bowls, dishes and platters.

B2.6 SVOWC, PH C3505A Period 2A/B (Figure 53:13).

B2.7 Body sherd decorated with barbotine dots and swags. SANDRF, PH C3195 Period 2A/B (Figure 53:14).

B4 Flanged and carinated bowls

The type first appears in Wales at the conquest. It is prevalent in the Flavian and Trajanic period, and is one of the most common forms noted at Caersws (Webster and Hartley 1989, 90). Although well represented in the Wroxeter military assemblage the form is not frequently noted on early military sites in the Midlands (Timby *et al.* 2000, figs 157–8, B13–B17).

Reeded-rim bowls

Two grooves on rim, Wroxeter type B13 (Timby *et al.* 2000, fig 157).

B4.1 The illustrated example has a very abraded blackened surface. SANDR, BRO 89 CI002 F101 Period 2A (Figure 53:15).

B4.2 The illustrated example is a waster and has blackened internal and external surfaces. MISCR2, BRO 90 C3001 F300 Period 2B (Figure 53:16).

B4.3 With slightly down-turned rim, similar to Wroxeter type B14 (Timby *et al.* 2000, fig 157). The illustrated example is very abraded. SANDRM, BRO 90 C3003 F303 Period 4 (Figure 53:17).

B4.4 With slightly in-sloping neck similar to Wroxeter type B17, thought to be a later variant of the type often occurring in a finer fabric (Timby *et al.* 2000, fig 158). MDI, PH C3826 Period 2A/B (Figure 53:18).

B4.5 With up-turned rim, Wroxeter type B15 (Timby *et al.* 2000, fig 158). SVOX, BRO 90 C1087 F145 Period 2B (Figure 53:20).

Plain flanged rims

B4.6 Flat rimmed, perhaps similar to Wroxeter type B17.3 (Timby *et al.* 2000, fig 158). The illustrated example is very abraded. SANDRM, BRO 90 C1082 F143 Period 2B (Figure 53:19).

B4.8 Slightly upturned rim, possibly a copy of a BB1 form. The illustrated example is very abraded. SANDOX, PH C3110 Period 2A/B (Figure 53:21).

Shallow bowl or dish with dropped-flange rim

B5.3 With burnished black surfaces imitating BB1. SANDRM, BRO 90 C1005 F102 Period 4 (Figure 53:22).

Bowl or dish with near-upright walls and thickened rim

B6.1 With near upright walls and thickened rim. SANDRMC PH C3820B Period 2A/B (Figure 53:23).

P1 Platters

P1.1 Curved wall platter, with in-turned rim and a pronounced 'up-kick' on the base. Similar to Wroxeter Military type P2 (103) or P5 (106) which copy Camulodunum 16, one of the few products of the Gallo-Belgic industry to occur on British military sites (Darling 2002, 199, fig 5.33) and also copied at Usk. The illustrated example has blackened and burnished surfaces. SANDRM, PH C3821B Period 2A/B (Figure 53:24).

Lids with thickened rims

L1.1 Wroxeter type L2 (Timby *et al.* 2000, fig 168). SVOX, PH C3122 Period 2A/B (Figure 54.1).

L1.2 Small lid or stopper, Wroxeter type L2.31 (Timby *et al.* 2000, fig 168). SVOWC, BRO 90 CI049 F122 Period 2A (Figure 54.2).

Lids with rims hooked upwards, Wroxeter type L1.2 (Timby *et al.* 2000, fig 168)

L2.1 The illustrated example although abraded appears originally to have been burnished. SVOX, PH C3343 Period 2B (Figure 54.3).

L2.2 The illustrated example is abraded but patches of burnish survive internally and externally. SVORGO, PH C3197 Period 2A/B (Figure 54.4).

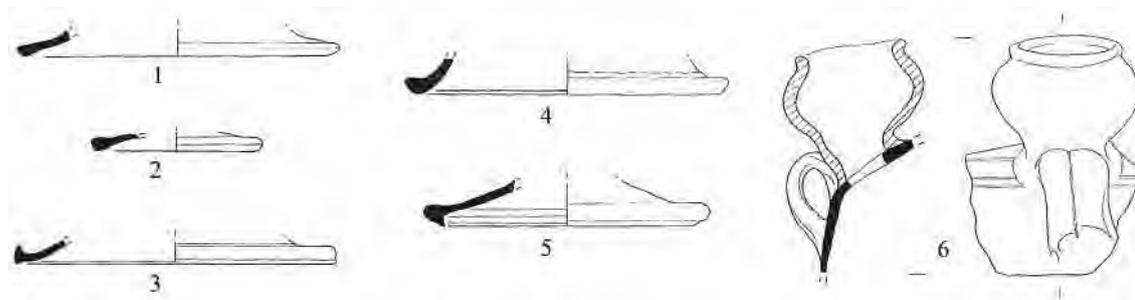


Figure 54 Lids and miscellaneous forms.

Lids with sharply in-turned rims

L3.1 The illustrated example is abraded but appears originally to have had a blackened surface. Wroxeter type L6.11 (Timby *et al.* 2000, fig 169). SANDRM, PH C0117 Period 2A/B (Figure 54.5).

MS 1 Triple vase

MS 1.1 Wilderspool is a likely source for this vessel. Wilderspool triple vases appear to have been marketed within at least a fifty mile radius, examples from fort sites tending to come from the associated civil settlements (Hartley and Webster 1973 87–9). Two types were noted at Wroxeter, the illustrated examples being in a fine oxidised ware from a military context and one in a cream ware from a period 2 context (Timby *et al.* 2000, fig 170 MTV1.11 and MTV2.11 respectively). The surface of the illustrated vessel is very abraded, but appears to have originally been blackened and may well have been burnished. SANDRM, PH C3821 C/D Period 2A/B (Figure 54.6).

The Traded Wares

Cooking wares

BB1 Dorset Black-burnished ware. (Williams 1977, 163–220).

No attempt was made to sub-divide this ware into the variants described by Farrar (1973).

Malvernian wares

MALVH Malvernian Metamorphic: hand-made (Peacock 1967 15–18; Peacock 1968, 415–21 Group A). Hard fired, usually black/dark grey throughout (Munsell N3 very dark grey), less commonly with a layer or patches of orange-red/brown colour (7.5YR 6/8 reddish yellow). Inclusions of angular fragments of angular metamorphic rock usually < 3mm with occasional larger fragments < 8–10mm. The commonest inclusions are quartz, pink and white feldspar and hornblende. Surfaces are either burnished with a linear pattern or an even polish. Source in the Malvern Hills area, Worcestershire.

MALVW Malvernian Metamorphic: wheel-made, (Peacock 1967 18–26; Peacock 1968, 418–28). Hard fired, grey (Munsell 5YR 5/1) or occasionally oxidised (Munsell 5YR 4/6). Inclusions of moderate to abundant angular metamorphic rock fragments < 3mm. It is not always easy to distinguish between handmade and wheel-thrown sherds.

Fine wares

OXFCCR Oxfordshire red Colour-Coated Ware (Young 1977, 123–184).

NVCC Nene Valley Colour-Coated Ware (Howe *et al.* 1980).

Mortaria

MORT01 Brockley Hill/Verulamium Region Mortaria Wheel-thrown, hard fired, greyish-cream (Munsell 10YR 8/2), sometimes with a pink (Munsell 7.5YR 7/4) or black core. May have a self-coloured or buff (Munsell

7.5YR 6/6) slip. Abundant rounded and sub-angular quartz grains, typically *c.*0.5mm in size, and sparse large iron ore and flint fragments < 3.5mm. Trituration grit mainly flint with some quartz and rare red-brown and black fragments. Main period of production *c.* A.D. 70–150.

MANCH Mancetter/Hartshill Mortaria (Hartley 1973, 143–47). Usually hard fired, creamy white (Munsell 10YR 8/1), sometimes with a pink core. Outer surface may have a thin yellow (Munsell 10YR 8/3) wash. The fabric ranges from one with scarcely any inclusions to one with a fair amount of ill-sorted black slag like inclusions. Also included occasional large quartz grains < 2mm and re-fired pottery fragments. Trituration grits are hard rust-brown and/or black re-fired pottery fragments. Mortaria later than *c.*A.D.140 contain only rare quartz fragments, while mortaria earlier than A.D.130 usually have mixed trituration grit in which quartz and sandstone are normal components. Mancetter/Hartshill, Warwickshire.

No hand-made cooking wares were produced locally, and this category formed the main type traded into the region. Dorset Black-burnished ware (BB1) was the most common fabric (Table 5), but mainly occurred in the later Period 4 with only small quantities noted from Period 2. This is reflected in the proportions of the various forms represented. Jars were the main vessel class (Figure 50), the late 3rd- to 4th-century splayed-rim type JC1 (Figure 55) accounting for more than half of the assemblage by rim EVE, and the earlier type (Figure 55.8) only 1% by rim EVE. All the decorated body sherds from jars (23 sherds including nine with incised grooves above) had obtuse rather than acute cross-hatch. Conical bowls or dishes with dropped-flange rims (Figure 55.11–13) were the second most common type, 39% by rim EVE, including some sherds decorated with burnished arcs. The majority (23%) were classified as dishes similar to type B5.2, although with incomplete profiles some bowls may have been included. Plain-rimmed dishes accounted for only 2 % by rim EVE, none of which are recorded as having decoration.

The Malvernian potters were the other major suppliers. The hand-made and wheel-made wares (MALVH and MALVW respectively) occurred mainly in Period 2, particularly Period 2B (Table 6), despite the fact that as a proportion of the period assemblage they were most common as residual sherds in Period P5 (Figure 61). The hand-made ware was the more common of the two. Tubby-cooking pots were the only form. The upright-walled variety (Figure 55.1 & 2), dated by Peacock to the 2nd century (1965–7, 16–18) were by far the most common (89%), predominantly type JC2.1 with a thickened or beaded rim. The remainder (Figure 55.3–5) were all of the type dated by Peacock to the 1st or 1st/early 2nd century (1965–7, 16–18, fig 1). Two forms were noted in the wheel-made fabric, a flange-rimmed bowl possibly copying a BB1 type and a tubby cooking pot with in-turned rim (Figure 55.6 & 4 respectively).

The only traded fine wares that were positively identified were Oxfordshire (OXFCCR) and Nene Valley (NVCC) colour-coated wares, both of which occurred in very small quantities in Period 4 (Table 6). No forms or decorated sherds were noted in Nene Valley ware. Bowls were the only Oxfordshire products represented, a Young type C55 dated A.D.240–400+ and a Young type C45 dated *c.*A.D.270–400+ (Figure 55.16 & 17 respectively; Young 1977).

The Verulamium region (Figure 56.3) and the Mancetter-Hartshill potteries were the only sources of non-regional mortaria represented. Kay Hartley notes ‘all the Flavian mortaria came from the two major potteries active at that time and the Verulamium region appears to have been the more important of the two.’ This was the most common mortaria fabric represented (Table 5), being particularly common in Period 2A (Figure 61).

Most sherds were dated by Kay Hartley to A.D.60–110, a few sherds to A.D.60–90 including a fragmentary stamp (Figure 56.1), and a flange and spout to A.D.70–100. The absence of rim sherds made it difficult to date the Mancetter-Hartshill mortaria accurately. Hartley notes that ‘The Mancetter-Hartshill mortaria could date from the 2nd century, probably the second half, to the mid 4th century. Their mortaria are extremely rare in this area before A.D.130–40, presumably because of competition from the local potteries at Wroxeter. Five sherds have the trituration grit which began to be used only in the mid second century, the other two having too little grit for any comment to be made.’ A later date is supported by the fact that all but a single sherd came from the late Periods 4 and 5.

Malvernian wares

- JC2 Malvernian ‘tubby cooking pot’ type Upright walls, Peacock types 1–8 (Peacock 1965–7, 16–18, fig 1), dated to the 2nd century. The rim form varies greatly.
- JC2.1 Expanded rim, with some evidence of burnishing surviving. MAL VH, PH C31 09 Period 2A/B (Figure 55.1).
- JC2.2 Plain rim. MAL VH, PH C3199 Period 2A/B (Figure 55.2).

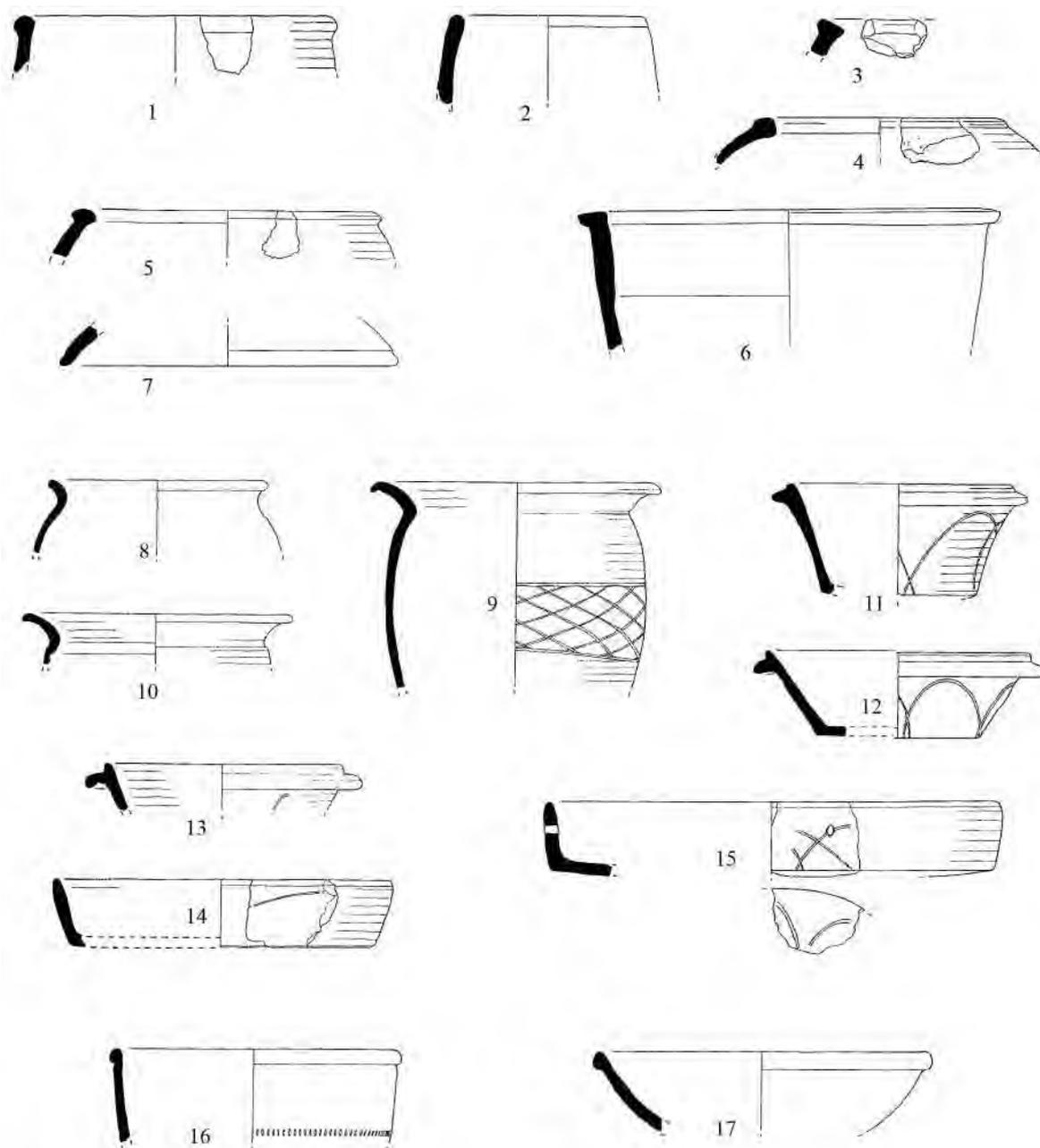


Figure 55 The Traded wares: Malvernian forms (top) and Black Burnished 1 (BB1) forms.

Inturned rims, Peacock types 9–12 (Peacock 1965–7, 16–18, fig 1), dated to the 1st or 1st/early 2nd century and generally absent on Antonine sites.

JC2.3 T-shaped rim, illustrated example very abraded. MAL VH, PH C3702 Period 5 (Figure 55.3).

JC2.4 Near-square rim. Illustrated example abraded but some burnish survives. MAL VH, BRO 90 C1085 F150 Period 2B (Figure 55.4).

JC2.5 Rounded T-shaped rim, illustrated example fragmentary and abraded. MALVH, BRO 90 C1088 F145 Period 2B (Figure 55.5).

B4 Bowl with a plain flanged rim.

B4.7 Slightly down-turned, possibly a copy of a BB1 form. MALVW, PH C3112C Period 2A/B (Figure 55.6).

Lids with plain slightly beaded rims

L4.2 Wroxeter type L4.1 (Timby *et al.* 2000, fig 168). MAL VH, PH C3350 Period 2B (Figure 55.7).

Black-burnished ware

JC1 BB1 cook-pot types.

JC1.1 Wide girth, with a slightly everted rim. The illustrated vessel is very abraded with no evidence of pattern burnish surviving. Dorchester Greyhound Yard type 1, found at Dorchester in large numbers in deposits dated A.D.75–120 although most common there during the 1st centuries B.C. and A.D. (Seager Smith and Davies 1993, fig 122). BB1, BRO 90 C1094 Period 2B (Figure 55.8).

JC 1.2 Narrow girth, with markedly splayed rim and cross-hatch burnish on the body. Dorchester Greyhound Yard type 3, most common in early 4th century and later contexts (Seager Smith and Davies 1993, fig 122). Similar to type JC3.8 at Wroxeter (Timby *et al.* 2000, fig 145). More precise dating of this type is problematical as there is little morphological development in cooking-pots from the later 3rd century until the last quarter of the 4th century (Holbrook and Bidwell 1991 95). BB1, BRO 90 C1005 F102 Period 4 (Figure 55.9).

JC1.3 BB1, BRO 90 C1009 F102 Period 4 (Figure 55.10).

B5 BB1-type conical bowls and dishes with dropped-flange rims

The form first appears *c.*A.D.270 at Exeter (Holbrook and Bidwell 1991, 99) and *c.* A.D.275 at Vindolanda (Bidwell 1985, 177). At Dorchester Greyhound Yard it is increasingly common from period 9, early 4th century A.D., onwards. Wroxeter type B24 (Timby *et al.* 2000, fig 159).

B5.1 Deep-sided bowl. The illustrated example has patches of sooting. BB1. BRO 90 C1005 F102 Period 4 (Figure 55.11).

Shallow bowl or dish

B5.2 BB1, BRO 90 C1005 F102 Period 4 (Figure 55.12).

Bowl or Dish

B5.4 BB1, BRO 90 C1008 F102 Period 4 (Figure 55.13).

D Plain rimmed Dishes

Dorchester, Greyhound Yard type 20 (Seager Smith and Davies 1993, 233 fig 123). The form is generally dated late 1st century until the end of the Roman period (Gillam 1976, 73–7, fig 5, 68–81; fig 6, 82–4). Wroxeter type D3 (Timby *et al.* 2000, fig 160).

D 1.1 Slightly splayed walls. BB1, BRO 90 C1008 F102 Period 4 (Figure 55.14).

D1.2 Upright walls. The illustrated example is perforated, most probably for a lead rivet repair. BB1, BRO 90 C1009 F102 Period 4 (Figure 55.15).

Oxfordshire wares

B2 Open-mouthed bowls reminiscent of samian form Dr 37.

B2.7 With rouletting. Young type C55, dated A.D.240–400+ and never particularly common (Young 1977, 160). OXFCCR, BRO 90 C1007 F102 Period 4 (Figure 55.16).

B3 Shallow open mouthed bowl reminiscent of samian form Dr 31.

B3.1 Young (1977) form C45 with bead rim, dated *c.*A.D.270–400+; classified at Wroxeter as type B7.3 (Timby *et al.* 2000 fig 155). OXFCCR, BRO 90 C1010 F102 Period 4 (Figure 55.17).

Mortarium stamps

1. A fragmentary stamp preserving parts of]BIN[, from one of the many dies of Albinus. Verulamium region. A.D. 60–90. See Hartley in Symonds and Wade (1999, 198) for up to date details of his career; see also Frere 1972 and 1984, and Saunders and Havercroft 1977, 139–140. MORT01, BRO 90 C3020 Period 2A/B (Figure 56.1).

2. A tiny patch of a chevron border survives. Only two potters who made Gillam type 238 mortararia, Q. Valerius Veranius and Gracilis, used a chevron of this type. The stamp is very fragmentary for sure identification, but it is almost certainly from the upper border of the cognomen stamp, VERANI, (for a stamp from the same die, see Thompson 1976, fig.37, no.7). Northern France. A.D.65–100. See Symonds and Wade (1999, 209–11)

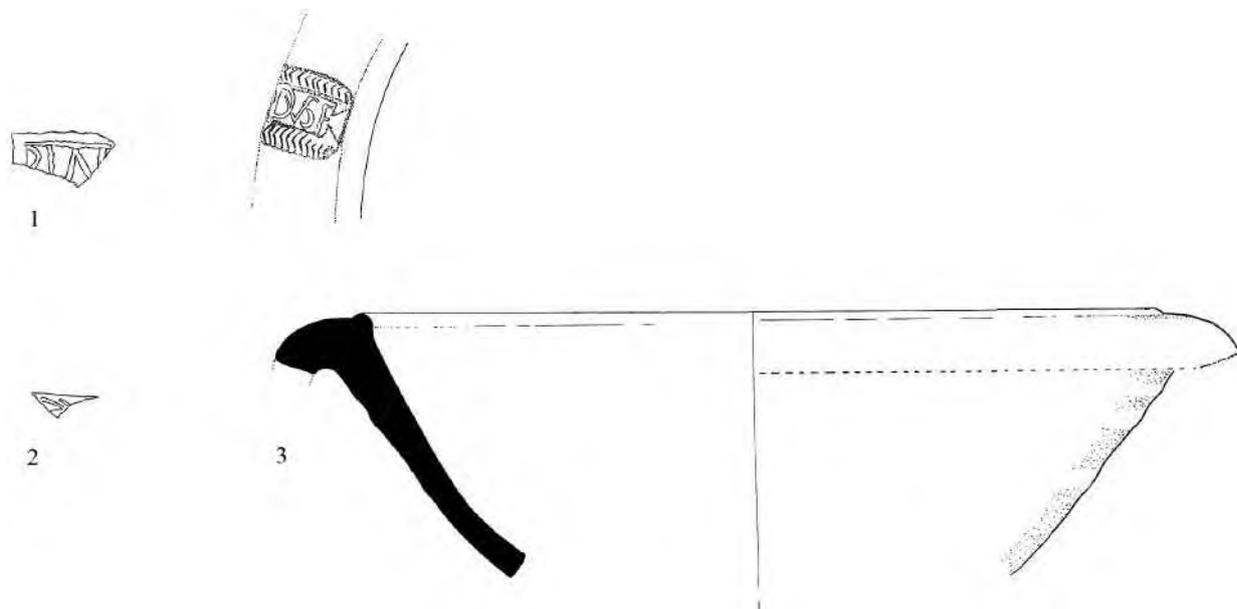


Figure 56 Mortarium stamps.

and Hartley (1998; 1999, 197–8) for details of his work. The date is not dependent on correct identification. MORT02/03, BRO 90 C1011 Period 4 (Figure 56.2).

3. The fragmentary stamp, JDVSF is from the only known die of Secundus, who worked in the Verulamium region (i.e. the potteries between Verulamium and Brockley Hill), perhaps for some time at Brockley Hill itself, where five of his mortaria have been found. Forty-six of his mortaria have now been recorded from sites throughout England, Scotland and Wales. Optimum date A.D.55–85. See Frere 1972, 378, no.37 and Frere 1984, 281 for further details. MORT01, PH 5120 15 (Figure 56.3).

The Imported Wares

Mortaria Northern France

MORT02/03 Gillam type 238 (Gillam 1970, fig. 24; Hartley 1977, Group II) from Northern France, dated c.A.D.65–100. A pale yellow fabric (Munsell 2.5Y 8/4) similar to Usk mortarium fabrics 1–4 (Hartley 1993, 390).

Fine wares

Central Gaulish Colour-coated wares (Anderson 1981; Symonds 1992, 6–10).

RHEN1/2 Soft, micaceous, reddish-yellow fabric (Munsell 7.5YR 7/6), with a colour-coat usually very dark grey (Munsell 10YR 3/1). During analysis some sherds (RHEN2) were distinguished by the use of a red colour-coat (Munsell 2.5YR 5/6) internally and externally around the base, although these variants were subsequently merged.

RHEN3 Yellow-buff fabric (Munsell 10YR 8/4, very pale brown) with no visible mica, except for one sherd. Very dark grey (Munsell 10YR 3/1) or red (Munsell 2.5YR 5/6) colour-coat.

Cream wares

CREAM5 Soft, yellowish micaceous fabric (Munsell 10YR 7/6) with sparse to moderate inclusions of very fine white/clear quartz and occasional red/brown ?clay.

CREAM6 Soft, very pale brown (Munsell 10YR 7/4) with few visible inclusions apart from occasional white quartz and elongated voids <0.1 mm.

Samian

SAMSG South Gaulish ware.

SAMCG Central Gaulish ware.

SAMEG East Gaulish ware.

Amphorae

AMPH1 Dressel20.

AMPH2 Unassigned.

AMPH3 Gauloise 4.

AMPH4 Southern Spanish.

The mortaria

Two sherds of Flavian mortaria from northern France were included in the assemblage, including the stamped sherd which is described in detail in the catalogue for Figure 56.2. Three of the five sherds came from Period 2B, the remainder being residual in the Period 4 assemblage.

The fine wares

South Gaulish samian, discussed by Brenda Dickinson below, comprised the vast majority of the imported fine wares, but small quantities of other wares were also represented (Figure 61). Flavian-Hadrianic Central Gaulish Colour-coated wares (RHEN112 and RHEN3) accounted for 9% by count. The majority were from Period 2, although only two sherds were included in the *vicus* assemblage, and none in the assemblage from the fort. Fabric RHEN1 included five sherds with rouletted decoration and grooves (Symonds 1992, Group 1), and one rim from a hairpin beaker (Figure 57:1; Symonds 1992, group 2). One sherd in the RHEN2 variant had roughcast decoration but no forms were represented. Most of the sherds in RHEN3 had roughcast decoration, and the majority had the metallic sheen to the colour-coat normally found on Flavian-Hadrianic rather than pre-Flavian vessels (Greene 1979b, 43–47). The only forms were globular beakers with everted, sharply pointed rims and roughcast decoration (Figure 57:2).

Two cream wares may perhaps have been imported, although, as with the regional cream wares, a variety of sources are probably represented. Forms included a small lid or amphorae bung (Figure 57:3) and a fragmentary flat rim, recorded as a bowl. The majority of sherds came from Period 2B, but none were noted in the fort assemblage.

Imported fine wares

1. Hairpin beaker (Symonds 1992 Group 2). RHEN1, PH C3123 Period 2A/B (Figure 57:1).
2. Roughcast beaker. RHEN3, PH C3199 Period 2A/B (Figure 57:2).

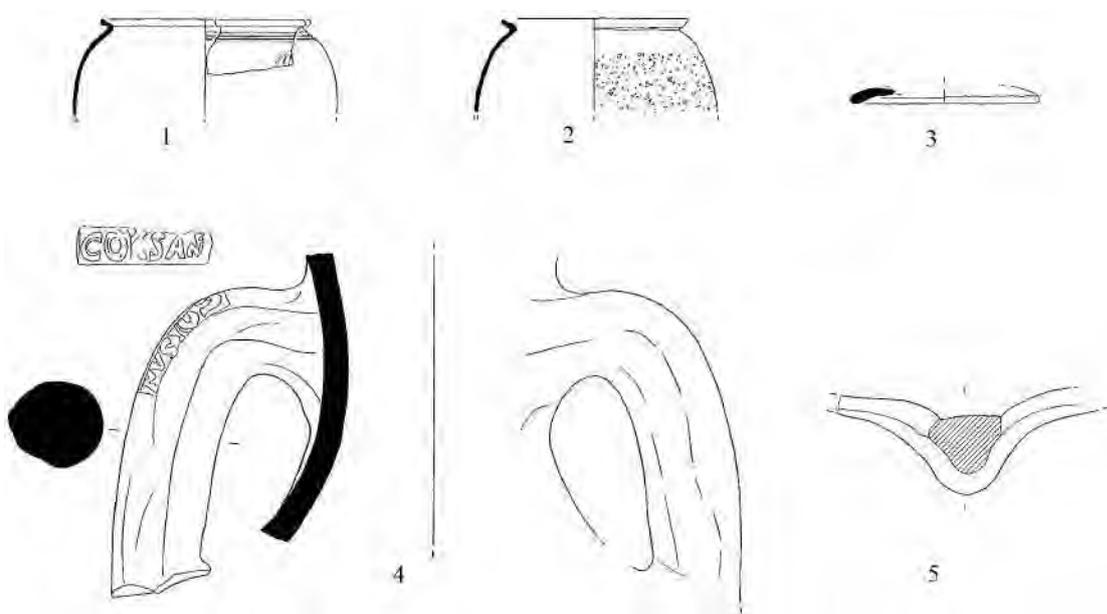


Figure 57 Imported fine wares.

3. Lids with plain slightly beaded rims, Wroxeter type L4.6 (Timby *et al.* 2000, fig 169). The illustrated example has abraded surfaces CREAMS, PH C3S0SC Period 2A/B. Possibly an amphorae stopper (Figure 57:3).

The Samian

by Brenda Dickinson

The excavation produced 283 sherds of samian, representing a maximum of 182 vessels from the fort and 67 from the *vicus* area.

All the material from the fort, Period 2A, and most of that from the *vicus*, Period 2B, was first-century South Gaulish ware, from La Graufesenque. The general erosion of the sherds often made close dating difficult and it was sometimes impossible to decide whether a piece was Neronian or Flavian. However, the style of the decorated ware, the dating evidence for the potters' stamps and the absence of pre-Flavian forms, such as 24 and Ritt. 8, suggest that the fort was not in use before A.D.70, at the earliest. There was no evident difference in date between the 1st-century samian from the fort and that from the *vicus*, and the overall range seems to have been a relatively narrow one, almost certainly reflecting occupation for only a few years. The decorated component of the material from both sites is in the order of 35 per cent. The South Gaulish ware is stylistically reminiscent of the samian from sites founded in the early 70s and on this evidence, and that of the potters' stamps, it seems likely that the fort was associated with Frontinus's campaigns in Wales. It might seem that the ratio of form 29 to form 37, approximately 1:2, argues for an occupation beginning in the early- to mid-80s, when the production of form 29 was declining. However, the bowls of form 37 are all the work of potters active mainly in the early-Flavian period, and the kind of decorated ware typical of British sites founded under Domitian, or at contemporary forts on the German *Limes*, does not occur.

Although the samian does not demonstrate whether the fort and *vicus* were abandoned simultaneously, it strongly suggests that there was a break in the supply to both sites before the end of the 1st century, probably in the

Table 7 Samian forms by fabric and form for fort/*vicus*.

Form	S Gaul	C Gaul	E Gaul	Fort	<i>Vicus</i> -Related	Total
15/17	5	—	—	1	4	5
15/17or 18	11	—	—	9	2	11
18	33	—	—	25	8	33
27	29	—	—	23	6	29
29	21	—	—	14	7	21
30	6	—	—	3	3	6
30 or 37	6	—	—	3	3	6
31	—	1	2	—	3	3
31R	—	—	2	—	2	2
33a	2	—	—	2	—	2
33	1	—	—	1	—	1
33/36	1	—	—	—	1	1
37	46	1 (MV)	—	35	11	46
67	6	—	—	6	—	6
72	—	2	—	—	2	2
Curle 11	2	—	—	2	—	2
Lagena	1	—	—	1	—	1
Dec. Bowl	3	—	—	3	—	3
Bowl	1	—	—	1	—	1
Dish	5	—	—	5	—	5
Dish/Bowl	1	—	—	1	—	1
Cup	10	—	—	9	1	10
Enclosed	1	—	—	1	—	1
—	51	—	—	37	14	51
TOTAL	241	4	4	182	67	249

(MV) = Les Martres-de-Veyre.

mid-80s. The later activity on the *vicus* site produced only eight vessels; the four from Central Gaul comprise one from Les Martres-de-Veyre and three from Lezoux. Of the four East Gaulish pieces three come from Rheinzabern and go down to the first half of the 3rd century; the other, probably from La Madeleine, is Hadrianic-Antonine. All the East Gaulish ware was residual in Period 4, as were six of the eight sherds of Central Gaulish ware. The Central Gaulish ware therefore accounted for a mere three per cent of the samian from the *vicus*. As the East and Central Gaulish wares include one decorated bowl and two jars with 'cut-glass' decoration, they seem more likely to be material dumped from a reoccupied fort area than to have been associated with the industrial phase of activity.

Code numbers shown in brackets are those used by Brenda Dickinson in her archive catalogue and relate to individual sherds.

The decorated samian

1. Form 29. The grass-tuft (Hennet, pl. 14, 87) was used in full impression, as here, in the late-Neronian and early-Flavian periods, but later normally only the tip was impressed. It occurs on a bowl from Strasbourg with a stamp of the Bassus ii-Coelus firm (Knorr 1952, Taf. 10D). The hoops ending in rosettes are on a bowl from Bonn stamped by Cotto ii, in the same arrangement, but with different motifs at the sides. *c.*A.D. 70–85. (Archive no. 228). BRO 90 C1088 Period 2B (Figure 58:1).
2. Form 29. The type of triangular leaf (Hennet, pl. 8, 45–7) was used throughout the Flavian period and into the early 2nd century, but the range of tulip buds to which the one here belongs (*ibid.*, pl. 12, 1134) originated in the pre-Flavian period and would be unusual after the mid 80s. Both ranges of motifs were used by more than one mould maker, but close parallels occur on a bowl from Strasbourg stamped by Patricius i (Knorr 1952, Taf. 50). *c.* A.D.70–85. 2. (Archive no. 267). BRO 90 C2023 Period 2A (Figure 58:2).
3. Form 37. The ovolo, with borders incurving towards the top, and the fan-shaped plant (formed from triple impressions of Hermet, 1934 pl. 14, 49) are on form 37 from Verulamium with a mould-stamp of Patricius i (1932, Insula IV). *c.*A.D.70–90.3 (Archive no. 196, 200). PH C3199 Period 2A/B (Figure 58:3).
4. Form 30. The ovolo, with four-pronged tongue, is on a stamped form 37 of M. Crestio from Richborough (Simpson 1968, pl. 31, 21). He also used the left-hand gladiator, on form 30 from Vindonissa (Knorr 1952, Taf. 19D) and the spindle in the saltire is on a bowl in his style from the first Flavian fort at Carlisle (Dickinson 1992, 54,2). *c.*A.D.75–100. (Archive no. 242–4, 247, 252). BRO 90 C 1094 Period 2B (Figure 58:1).
5. Form 37, with a zone of sinuous gadroons of a type used by Frontinus, as on a stamped bowl from Newstead (Knorr 1952, Taf. 25G). *c.*A.D. 75–100. (Not illustrated). (Archive no. 84). PH C0102 Period 5.
6. Form 37. The arrangement of the panelled zone, with alternating saltires and medallions, is typical of the early-Flavian period, and occurs widely in the Pompeii Hoard (Atkinson 1914, *passim*). The plant in the

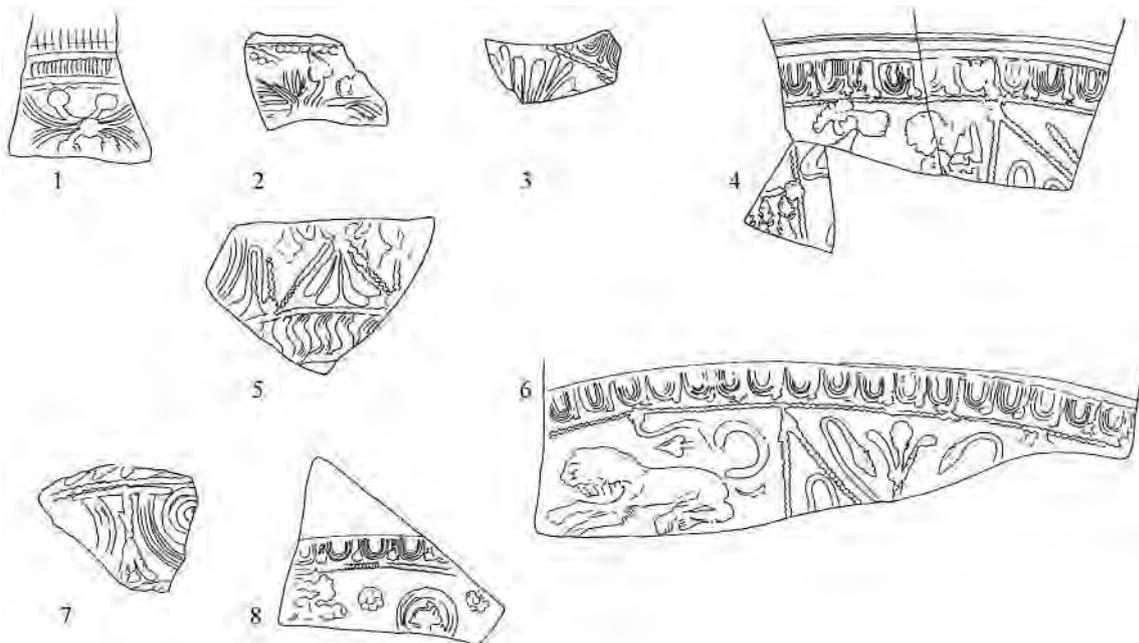


Figure 58 The decorated samian.

- saltire, used by several potters, occurs on a signed bowl of Memor in the Hoard (*ibid.*, no. 73). However, Memor's S-shaped gadroons are different from the ones here, which are almost certainly those of M. Crestio. He used them on bowls from Richborough (Bushe-Fox 1926, pl. XIX, 2) and Chesterholm (unpublished) and the plant on a stamped bowl from Mainz (Knorr 1952, Taf. 19A). The decoration is too banal to be attributable with certainty to him, and there is no evidence so far of his use of the leaf-tips, but a date *c.*A.D.75–100 is not in doubt. (Archive no. 67). PH C3196 Period 2A/B (Figure 58:5).
- 7 Form 37. The ovolo, with the tip of the tongue turned to the left, was used at La Graufesenque by Memor and Mommo. The lion (Hermet, 1934 pl. 25, 11) was used by several Flavian potters, most of whom also stamped form 29. It is on this form at Rottweil, from a stamped mould of Severus iii (Knorr 1907, Taf. 11, 1), perhaps with the same leaf-tendrils. The poppy-head in the saltire is on form 29 in the Pompeii Hoard (Atkinson 1914, no. 14). *c.*A.D.70–90. (Archive no. 209). BRO 90 C3020 Period 2A/B (Figure 58:6)
- 8 Form 37. The trifid motif with striated outer petals, here used in a pendant, occurs in wreaths on a stamped bowl of M. Crestio from Strasbourg (Mees 1995, Taf. 45, 1) and on a signed bowl of Calvinus i from Caerleon (Zienkiewicz 1986, pl. 10, 16). It also appears in pendants, with the triple festoons, on bowls from the Caerleon fortress (Nash-Williams 1933, fig. 53) and the fort at Carlisle. *c.*A.D.75–100. (Archive no. 15). PH C3615A Period 2A/B (Figure 58:7).
- 9 Form 37, Central Gaulish, in the fabric of Les Martres-de-Veyre. A bowl in the style of X-13, who supplied moulds to Donnaucus. The rosette-tongued ovoIo is probably Rogers BSI. X-13 used the fine beads (Rogers AI) and seven-beaded rosettes (Rogers C280). For the rosette and, probably, the ovolo, cf. Stanfield and Simpson 1958, pl. 42, 487 (Straubing). The small medallion and the animal's head in it occur together on a bowl from Les Martres (Terrisse 1968, pl. XXX, 1080) and separately on bowls from London and Corbridge (Stanfield & Simpson 1958, pl. 43, 491 and 44, 511, respectively). The other figure-type seems to be otherwise unknown. *c.*A.D.100–120. (Archive no. 238). BRO 90 C1083 F144 Period 2B (Figure 58:8)

The potters' stamps (not illustrated).

- 10 Form 15/17 or 18, stamped OFC LV[II]: Calvus i, Die 5d' (Ettlinger 1978, Taf. 1, 37). The stamp comes from a die which was modified by having swallow-tails cut into the ends of the frame. A stamp from the original die comes from the fort at Carlisle, founded in the early 70s. *c.*A.D.75–90. (Archive no. 4). PH C3615 Period 2B.
- 11 Form 15/17 or 18, stamped 0 [CRES]: Crestus, Die 3a. A stamp recorded several times at early Flavian foundations, such as Caerleon, Castleford. It has also been recorded from Caerwent (Nash-Williams 1930, 173,30). *c.*A.D. 75–100. (Archive no. 1). PH 3112C Period 2A/B.
- 12 Form 18, stamped OFP TRIC: Patricius i, Die 4c. Site dating for this stamp is sparse, but there are three examples from the Nijmegen fortress, which could be early Flavian. The die was used occasionally to stamp form 16, which should be, at the latest, either late Neronian or very early Flavian. *c.*A.D.65–90. (Archive no. 4). BRO 1091 Period 2B.

The Amphora

by D.F. Williams

The squat globular Dressel 20 amphora, which carried Baetican olive-oil (Peacock and Williams, 1986, Class 25) dominated the assemblage, accounting for well over 98% of the amphorae represented by both sherd count and weight. It was the only amphora type represented in Period 2A, the fort, and represented 91% by count and 95% by weight of the amphorae from Period 2B, the *vicus*. Much of this material is now in a fairly friable condition and many of the body sherds have been reduced to small laminated sherds.

Dressel 20 was made in great numbers along the banks of the River Guadalquivir and its tributaries between Cordoba and Seville, and over 100 production centres have been located to date (Bonsor 1931; Ponsich 1974, 1979, 1991; Remesal 1986). This amphora form is by far the commonest found on most types of Roman-British sites and, together with its precursor, Oberaden 83, can also be found to a limited extent on British pre-Roman Iron Age sites (Williams and Peacock 1983). Importation into Britain of southern Spanish olive-oil in Dressel 20 containers took place over some 250 years, with the peak of this trade centring around the middle years of the 2nd century A.D. (*ibid.*). The production of the Dressel 20 form seems to have ceased shortly after the middle of the 3rd century A.D., with the latest stamps found on these vessels dating to the reign of Gallienus (Rodriguez-Almeida 1989). However, Baetican olive-oil still found its way to Britain after this date, albeit on a much reduced scale, and carried in the successor to Dressel 20, the smaller amphora form Dressel 23 (Carreras Montfort and Williams (2003).

The Pentrehyling excavations produced twelve partial Dressel 20 rims (taking into account joining or very similar sherds both texturally and typologically), together with one complete and fourteen partial handles and two small basal worts (Figure 57:5). As each of these rim sherds appear to belong to separate vessels, the total Dressel 20 assemblage must represent a minimum of at least twelve vessels. Interestingly, an unusually large and angular-shaped partial rim from PH (C3505) is matched by a virtually identical partial rim from BRO 90 (C3020 F311), both Period 2A/B. Although these sherds do not actually join, the similarity strongly suggests that they come from the same vessel.

According to the typology of Dressel 20 rims established by Martin-Kilcher at the well-dated site of Augst (1983, 1987), the majority of the Pentrehyling rims that can be paralleled with the Augst examples appear to span the period from the later 1st century A.D. to round about the middle of the 2nd century A.D. The sherds present in Periods 4 and 5 are all residual.

Two of the handles are stamped, although in only one case is that stamp clear enough to read (Figure 57:4). The other stamp, situated towards the base of the handle, is very faint and not at all clear to read (PH C3217, unstratified). Three large body sherds contain graffiti, two of which are reported on below (Figures 59 & 60).

In addition to Dressel 20, there are two other known amphora forms present at Pentrehyling, as well as a small number of unassigned sherds. Taken as a whole, this non-Dressel 20 group must represent another five vessels, found mainly in Period 2, and predominantly Period 2B. However, only one of these is from an amphora type known to have carried wine. On this evidence, if wine was consumed in any quantity on the site then it seems likely that it was brought in containers other than amphorae, perhaps wooden barrels or skins. A somewhat similar range of Dressel 20 dominated assemblages which lack known wine-carrying amphorae have previously been noted from forts in the northern frontier that were occupied during the 2nd and 3rd centuries A.D. (Bidwell and Speak 1994, 214). During the Flavian period wine amphora are not an uncommon find in many amphorae assemblages from military sites (*ibid.*, see also at Usk, Manning 1993; Wroxeter (Darling 2002, 182–5) and Caerleon, as yet unpublished).

Three body sherds, all probably from the same vessel, represent the flat-bottomed southern French wine amphora type Gauloise 4 (Laubenheimer 1985). This form seems to have arrived in Roman Britain shortly after the Boudiccan revolt and by the 2nd century A.D. it had become the most commonly imported wine amphora reaching the province (Peacock 1978). Production of this type appears to have lasted until at least the late 3rd century A.D. (Laubenheimer 1985).

One partial rim from a southern Spanish form was recovered. This vessel was probably made somewhere along the southern Spanish coastline and was almost certainly used for transporting locally produced fish-based products at some point during the first two centuries A.D. (Peacock and Williams 1986, Classes 16–19).

There were also three undesignated body sherds in separate fabrics.

Amphorae

- 1 Stamped amphora handle. The stamp occurs on the summit of the handle and reads *C O R(or L) S A N I* (PH 3112C). At present it is difficult to find parallels for this. AMPH1, PH C3112C Period 2A/B (Figure 57:4).
- 2 Basal wort from a Dressel 20 amphorae. AMPH1, PH C3605 Period 2A (Figure 57:5).

Two Amphora Sherds with Graffiti

by R.S.O. Tomlin

Both sherds come from a Dressel 20 amphora and both came from the same feature (PH C0009) in Period 2A/B. They are quite likely from the same amphora but they do not conjoin. The graffiti were scratched after the fabric had been fired, which usually means that they are marks of ownership.

Graffito scratched on a wall sherd in capitals 20mm high. The tops of the letters (except the second I) have been lost where the surface has flaked away; the apparent cross-bar of A and the down-stroke after N may be accidental.

GAIONIS[...]

Gaionis, '(Property) of Gaio'

The personal name *Gaio* is rare. Its resemblance to the Latin praenomen *Gaius*, quite often used as a cognomen and whence the names *Gaianus* and *Gaiolus*, is coincidental. *Gaio* may, however, be a variant of the unique name



Figure 59 Graffito scratched on amphora body sherd.

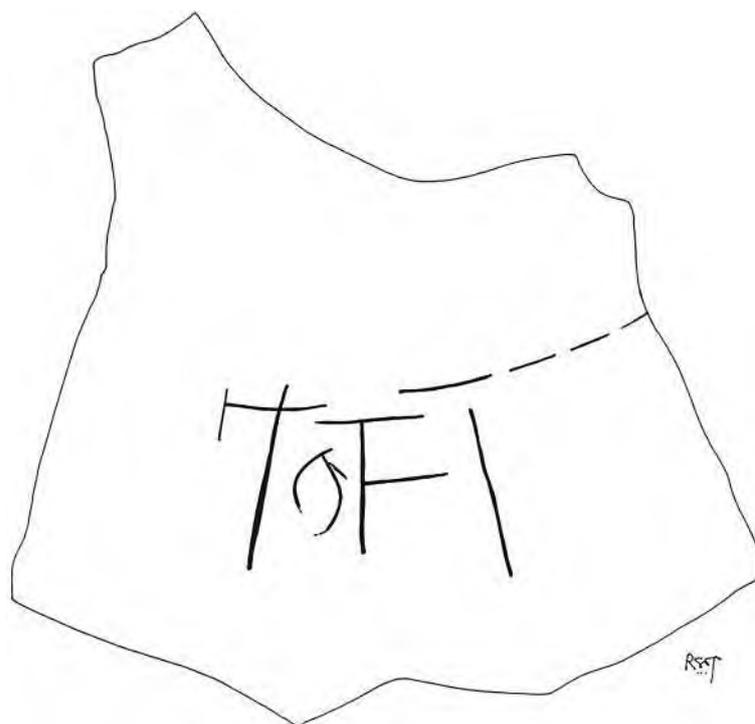


Figure 60 Graffito scratched on amphora body sherd.

Gauo found at Vindolanda: *Tab. Vindol.* II, 192.1, a *Gauuone* and (back) *ratio Gauonis*, where the editors compare *Gauolus*, *CIL* v 337 (Aquileia). In the alternative spelling *Caio* it is twice found, at two places fifty miles apart just to the north east of Italy: in *CIL* iii 11592 (Virunum, Noricum), *Quinto Caio I nis filio* [*Glrata I uxor I Marcio filius I Tertius filius I Catta filia I de suo dedere*; and in *CIL* iii 10795 (Municipium Latobicorum, Pannonia Superior), *Veco Caioni(s filius) I an(nis) XXX h(ic) s(itus) e(st) I Caio Boudion(is filius) I vivus f(ecit) sibi et I Suadul(a)e con(iugi) I*...It is certain from both inscriptions that the form is *Caio I -onis* (genitive), and highly probable that it is a Celtic personal name. (A third epitaph, *CIL* vi 3205 (Rome), that of the Thracian cavalryman

T. Aur. Gaio...*nat(ione)* Bessus, may be excluded from consideration: at first sight *Bessus* implies that *Gaio* is also nominative, but the nominative with *nat(ione)* has become a formula; the epitaph is Severan or later, when the name-form Aurelius Gaius is quite well attested.) So the name *Gaio* suggests an auxiliary soldier of Celtic origin, probably from Noricum, Pannonia or Dalmatia.

A Graffito scratched on a wall sherd from the shoulder of the amphora, in capitals c.50 mm high:

TFT (?)

Perhaps *T(iti) F(lavi) T(. ..)*, (Property) of Titus Flavius T ... ‘

Between T and F there is what looks like a small O. Since the alternative readings this suggests, ToFT or ToFI [the I barred, and thus a numeral], unlike TFT make no sense, it is better to read TFT. This would then be a typical three-letter abbreviation of a Roman citizen's tria nomina, TF for *T(iti) F(lavi)* being an attractive combination to find at a Flavian fort. ‘O’ must then be regarded as an earlier graffito, or an insertion of unknown purpose (possibly a medial point). But in view of this uncertainty, and also the inconclusive forms of T and F (which do not exclude a reading ‘III’, ‘three’), this reading and interpretation must remain doubtful.

Discussion

by C. Jane Evans

The Early Fort and Vicus

Dating

No pottery was recovered from Period 1 contexts associated with the marching camp, and none of the pottery from later Periods could be related to this phase of activity.

The great majority of pottery was associated with Period 2 activity in the fort and *vicus*, coming either from Period 2 contexts or residual in later contexts. The dating evidence for the *vicus* was rather better than for the fort, which produced only two sherds of samian. However, a Flavian date is proposed for the establishment and main occupation of the fort, with some activity perhaps continuing into the first quarter of the 2nd century in the *vicus*. The Pentrehyling fort and its associated *vicus* thus form part of this region's Flavian network, abandoned by or in the Hadrianic period. The Period 2 assemblage is broadly contemporary with Caersws periods 1 and perhaps 2 (Britnell 1989, 1–2) and periods 2–5A at Segontium (Casey *et al.* 1993, 17). It also overlaps with the later-military and early-civil period assemblages from Wroxeter (Darling 2002), and material from the Wroxeter macellum, Period 2 (Faiers, in Timby *et al.* 2000), which contained a fairly high proportion of residual military material.

The best dating evidence for Phase 2 at Pentrehyling was provided by the imported wares, in particular the samian, most of which came from the *vicus* (phase 2B) or from contexts not easily attributable to either the fort or the *vicus* (phase 2A/B). Apart from a couple of sherds of Central Gaulish ware dated A.D.100–120, both from the *vicus*, all the samian dated between A.D.70 and the mid 80s. Taking into consideration the wider economic trends affecting the marketing of samian, this still implies that the main period of activity on the site was fairly short, with the supply of samian all but ceasing before the end of the first century at the latest (Dickinson, above). This contrasts with the evidence from Caersws *vicus*, which produced more Trajanic samian and is thought to have had ceased functioning commercially after c.A.D.130 (Britnell 1989, 4). Other imports included a small quantity of Flavian-Hadrianic Central Gaulish Colour-coated ware, mortaria from Northern France dated c.A.D. 65–100 and late 1st to mid 2nd century Dressel 20 amphorae. Lyon ware, commonly found on sites with pre-Flavian activity and found in small quantities on other Flavian sites in Wales (Webster 1991, 11), was entirely absent.

The traded wares also provided valuable evidence. The Verulamium Region mortaria were dated between A.D.60–110, and the presence of organic-tempered Severn Valley ware is compatible with a later 1st to early 2nd century date. The Malvernian ware included 1st or 1st/early 2nd century tubby-cooking pots (Figure 55:3–5), but the upright-walled variety (Figure 55:1 & 2) traditionally associated with Hadrianic or Antonine contexts (Peacock 1968, 16–8) was more common. There are however parallels for this form in 1st century contexts elsewhere, for example in the pre-Flavian military assemblage from Metchley fort in the West Midlands (Green *et al.* 2000). Only a small quantity of BB1 was recovered, indicating that the fort was abandoned by c. A.D.120 when the ware became more widely distributed. A higher proportion of both BB1 and Malvernian ware was noted at Caersws where there was evidence for activity continuing later into the 2nd century. The BB1 jars noted at Pentrehyling

(Figure 55:8) are common at Dorchester in contexts dated A.D.75–120, although the form was in production from the 1st century B.C. (Seager Smith and Davies 1993, fig 122, type 1).

The locally produced wares could not be closely dated but included forms characteristic of the Flavian to Trajanic period, for example everted-rim jars with rustication (Figure 52:3), the ‘Caersws Bowls’ (Figure 53:2), and ring-necked flagons (Figure 51:1–3). Certain forms found on early military sites, up to and including the Flavian period, were absent; for example the Hofheim-type flagons found at Wroxeter (Timby *et al.* 2000, fig.139,F1) and Caersws (Webster and Hartley 1989, 1989, fig. 48.2 and fig. 49.35), and contemporary pulley-wheel rim flagons, the commonest military type found at Wroxeter (Timby *et al.* 2000, fig. 140, F2). The latter, however, are not common on military sites elsewhere.

Comparing the assemblages from the fort and the *vicus* there are a few hints that activity continued slightly longer on the latter. As has been noted, the two sherds of Central Gaulish samian dated A.D.100–120 were recovered from the *vicus* (BRO 90 C1083, F144; Figure 58:8). Five sherds of Wroxeter mortaria dated A.D.100–160 were found in the *vicus*, but none was noted from the fort; and mica-dusted ware, generally dated c.A.D.100–130/140, was recovered only from the *vicus*. A single Trajanic coin was recovered, dated A.D.103–11, but this unfortunately came from a context that could not be attributed to either the fort or the *vicus* (PH C31 07 A).

Patterns of supply

Slight variations were detected in the range of wares represented in the fort and the *vicus*, which may reflect different patterns of supply (Figure 61). The *vicus* seems to have had access to a wider range of sources, not only for fine wares, mortaria and amphorae, but also perhaps for the reduced and oxidised coarse wares. This could indicate that supply to the fort was more restricted, perhaps by military contracts, but could simply be further evidence for the *vicus* having been occupied for a longer period, as proposed above.

The supply of pottery generally during Phase 2 follows the pattern noted at Wroxeter (Darling 2002), Caersws (Webster and Hartley 1989), Segontium (Casey *et al.* 1993, 78) and contemporary military sites elsewhere in western (Darling 1977; Webster 1990, 139) and north-western Britain (Webster 1982; 1991, 11). Many of the coarse ware forms from Pentrehyling can be paralleled in the above publications, and must therefore have been produced by military potters working in the same broad tradition; for example neckless everted-rim jars (Figure 52:3–11), the ‘Caersws bowls’ and flanged and carinated bowls (Figure 53:2; 7 & 15–21). The Belgic influence noted in other military assemblages in the Midlands (Darling 1977, 68) is also evident at Pentrehyling (Figure 52:17; Figure 53:4), as at Caersws (Britnell 1989, fig 48.12; fig 49.64; fig 50.101).

Most of the coarse pottery is assumed to have been locally made, as the forms fit into the pattern noted by Webster (1990, 139); they are similar to those found on contemporary military sites of the region, but differ sufficiently in detail to suggest a separate source. It is not possible, however, to define a precise source based on fabric analysis. Two broad traditions are represented, both of which were produced at a variety of sites across large areas. Severn Valley wares were produced mainly in the Central Severn Valley around modern-day Worcestershire and Gloucestershire, but kilns are known as far south as Shepton Mallet, Somerset and as far north as Wroxeter in the Upper Severn Valley. The sandier Cheshire Plain-type wares are commonest on the Lancashire/Cheshire Plain but are found throughout the North West region and North Wales as far south as the Upper Severn Valley (Webster 1991, 13). At Wroxeter a degree of fusion was noted between these two traditions; sandy fabrics being used by the military potters, but also to some extent by later potters producing forms in the Severn Valley ware tradition (Timby *et al.* 2000). Similar problems bedevil sourcing some of the mortaria found in the region, despite having the additional evidence of trituration grits and potter’s stamps. Some of the mortaria from Caersws (Hartley in Britnell 1989), for example, could only be attributed to Wroxeter or the Cheshire Plain (fabric 4), and some to the even broader ranges of Wales or the Cheshire plain (fabrics 1a and 13) and Wales or Wroxeter (fabric 12). The paucity of Wroxeter mortaria found at Pentrehyling, however, and the absence of mortaria attributed to the other sources does perhaps eliminate these as likely sources for the coarse wares and support the argument for local production.

The fort and *vicus* were not, however, entirely self-sufficient. Imports to the site fall into two categories: specialist products such as mortaria, flagons and fine wares; and containers used to transport other commodities.

The main suppliers of mortaria to Pentrehyling, and the only suppliers represented in the fort (Table 5, Figure 61), were the Verulamium potters, whose products first appear at Wroxeter in later military contexts dated c.A.D.65–90 (Darling 2002). They are the main type noted in contemporary levels from Segontium (Casey *et al.* 1993, 78), and are also present at Caersws (Hartley 1989). There is no evidence at Pentrehyling for local production of mortaria. This contrasts with Wroxeter, where locally made mortaria predominated during the military and early civil periods (Darling 2002). A ‘minor potter’ is even thought to have been at work at Caersws (Hartley 1989, 122). No Caersws mortaria were found at Pentrehyling, nor any mortaria from the other Welsh

or Gloucester/South Wales sources represented at Caersws and Segontium. This, however, probably reflects chronological factors. North Wales mortaria are not found at Segontium until the Trajanic-Hadrianic period 5B (Casey *et al.* 1993, 78) and the Caersws mortaria, although broadly dated A.D. 70–120, included forms compatible with an early-2nd century date. A small quantity of Wroxeter mortaria was found in the *vicus*, less than at Caersws. Again, this is not commonly found in central and north Wales until the early 2nd century (Hartley 1989, 91). As at Caersws, Segontium and Wroxeter small quantities of mortaria were imported from Northern France (MORT02/03; Gillam type 238). None was noted from the Rhone Valley, however, the main continental source represented at Wroxeter (Darling 2002).

The main fine ware used on the site was south Gaulish samian, although small quantities of Central Gaulish colour-coated wares were also present and, as at Caersws, mica-dusted and glazed wares were supplied by less distant workshops, probably Holt and Gloucester (Marsh 1978, 122–3, 203; Arthur 1978, 334–8). None of the flagons in the assemblage need have been produced on site. The white wares may well have come from Wroxeter or perhaps Verulamium, while all the white colour-coated flagons were in the Severn Valley type fabric (SVOWC), possibly also from Wroxeter. Compared with Wroxeter, both Pentrehyling and Caersws received fine wares from a much narrower range of sources.

The fine wares and mortaria were presumably marketed alongside more essential commodities, now no longer visible in the archaeological record. The second category of imports, the containers, would have been traded specifically for their contents. Amphorae are the main class. At Pentrehyling, as at Caersws (Webster 1989, 90) and Segontium (Casey *et al.* 1993, 77), a narrow range of sources and commodities is represented, particularly compared with Wroxeter where the range was notably wide. Some of the coarse wares may also have been brought onto the site as containers; Malvernian tubby-cooking pots, for example, could conceivably have been used to bring salt from Droitwich and the Severn Valley ware jars may also have contained other produce.

The range of non-local sources represented at Pentrehyling, particularly amongst the foreign imports, is paralleled at Caersws and Segontium, but is very limited when compared with Wroxeter. This may reflect the increasing difficulty of transporting such wares across the region. Given that the infrastructure existed to transport such wares as far as Wroxeter, however, it could be argued that they could have been brought the additional distance had it been economically viable. Their absence presumably reflects a fusion of economic, functional and cultural factors. The lifestyle and activities associated with the smaller forts and *vici*, combined with the smaller size and perhaps even cultural background of their populations, presumably resulted in an insufficient market.

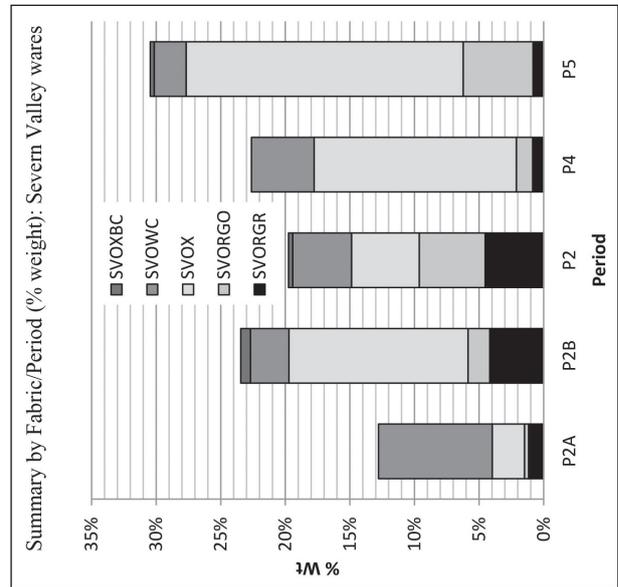
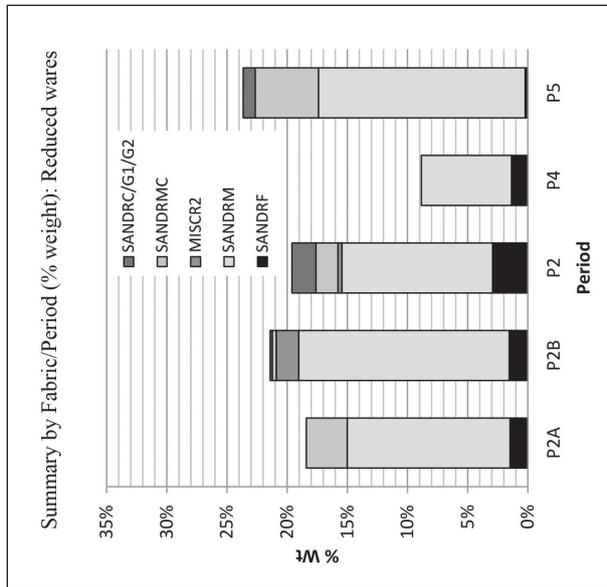
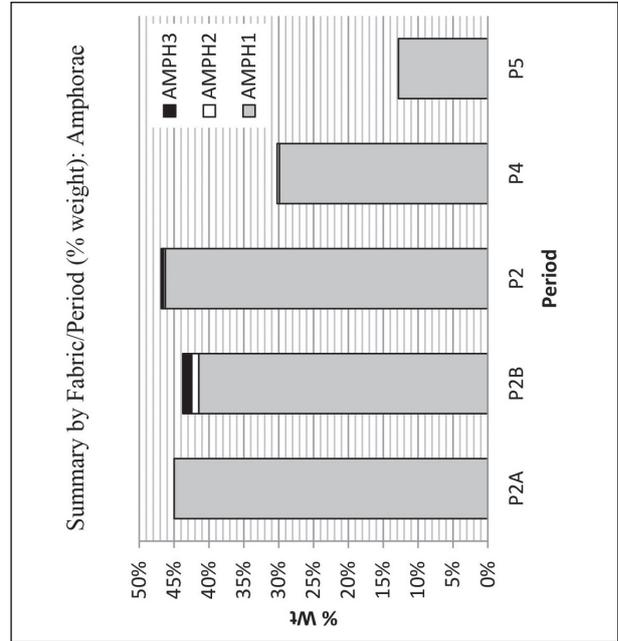
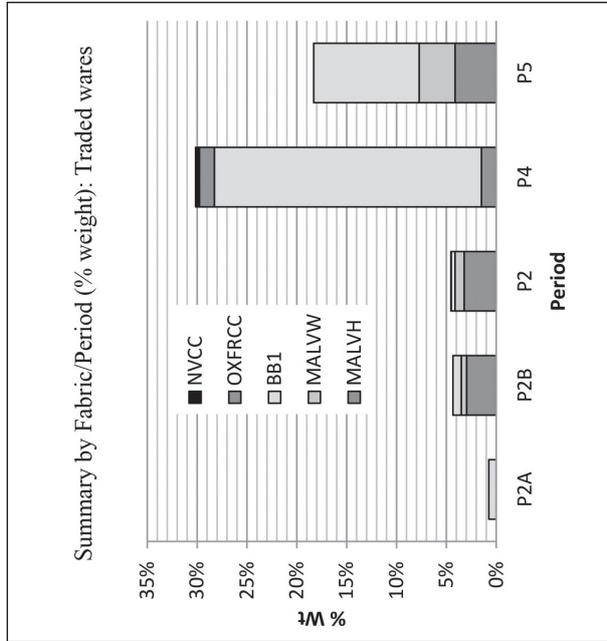
Function and status

Analysis of the vessel classes and fabrics represented indicates some possible functional and perhaps also cultural differences between the fort and *vicus*. There is also some evidence for the materials preferred for different vessel classes, particularly when the glass assemblage is taken into account.

Considering the vessel assemblage as a whole, there seems to be an emphasis on the storage of foods and liquids rather than their consumption. The glass assemblage consisted mainly of storage bottles, with only a few table-wares such as cups, beakers and bowls (Price and Worrell, below; see Figure 63). A similar pattern is evident in the pottery assemblage when the forms are quantified by rim EVE (Figure 62), although had equivalent data been recorded for the samian the emphasis would undoubtedly have been less marked. Jars are by far the most common vessel class amongst the coarse wares. A significant proportion of these would have been used for storage, although cooking vessels are also included. Flagon, for storing or serving liquids, are far more common amongst the liquid containers than drinking vessels such as beakers and cups. Tankards are included here as drinking vessels but could equally well have served as measures, perhaps for redistributing the contents of the jars. The bowls, dishes and platters, which make up only 18% of the assemblage, probably served a variety of functions; some could have been used for cooking and some as table-wares, with a number probably serving both functions.

The samian, the main fine ware represented, is the exception to this pattern. The South Gaulish potters supplied only table-wares, predominantly the food-serving bowls, platters and dishes (Figure 63) with relatively small numbers of drinking vessels included. The proportions of cups and beakers in the samian and glass assemblages are very similar (Figure 63), but glass bowls were less common than their samian counterparts.

Comparison of the fort and *vicus* assemblages indicates possible functional differences. The fort assemblage (Figure 62, Phase 2A) produced a limited range of vessels: flagons, tankards, bowls and jars, together with amphorae and mortaria. Most of these could have been associated with storage of provisions and none need necessarily imply consumption on site apart perhaps from the bowls. Flagon were by far the most common class (60% by rim EVE), reflected in the relatively high proportions of cream wares and the white colour-coated fabric SVOWC. A marked increase was noted in flagons in the later military assemblage at Wroxeter, but even there they represent only 40% (Darling 2002). The figures stand out as anomalous when compared with data



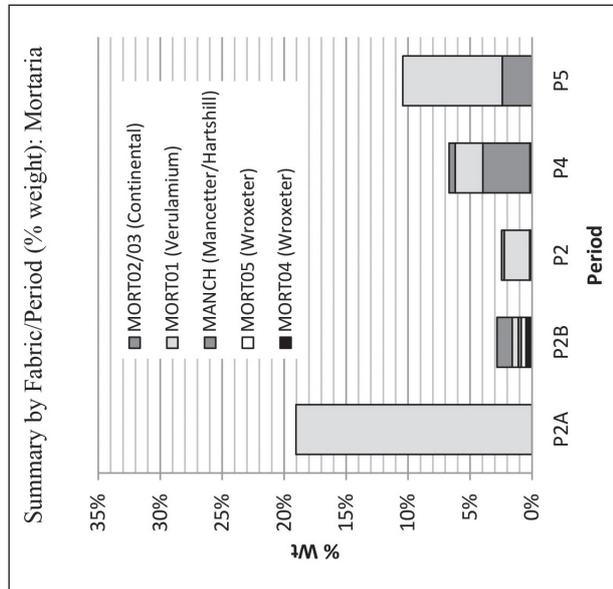
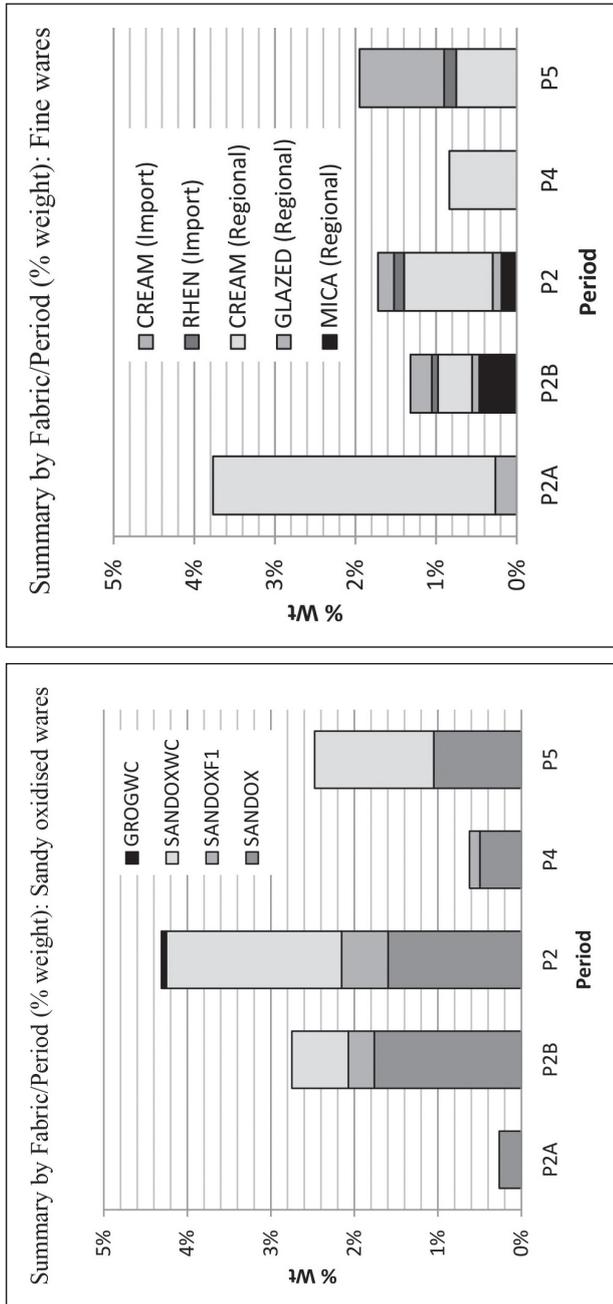


Figure 61 Graphs showing fine wares by period (% count).

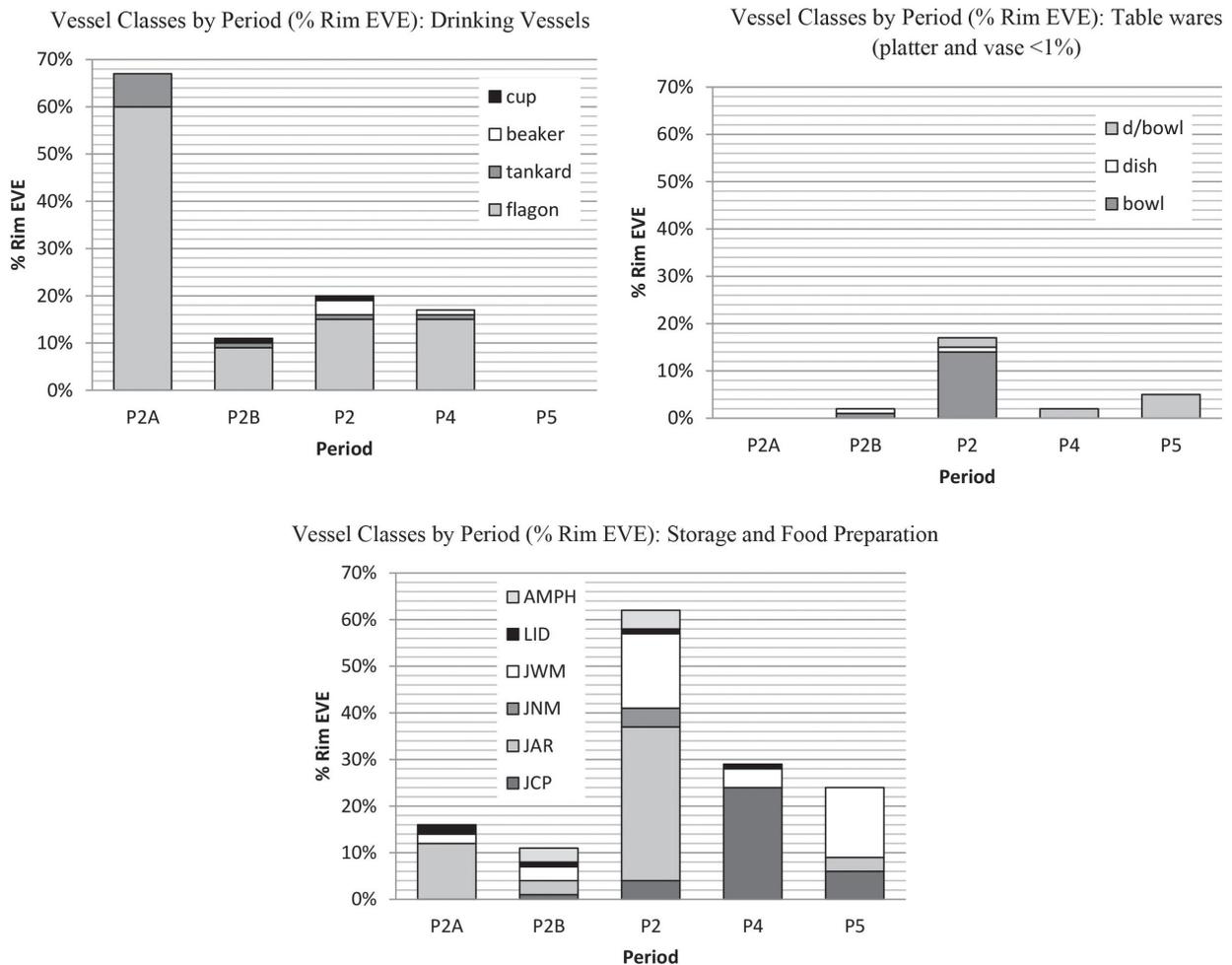


Figure 62 Graphs showing vessel classes by period (% count).

presented elsewhere for Flavian fort assemblages (Evans 1993, p.113, Appendix 1). Jars are less common in the fort assemblage, which is surprising given the bias towards storage. Amphorae, however, are well represented by both sherd count and weight, although the olive oil amphorae Dressel 20 was the only type present. The absence of wine amphorae is interesting given the very high proportion of flagons which were presumably used for wine. David Williams notes that wine amphorae are not uncommon in many amphorae assemblages from Flavian military sites (Bidwell and Speak 1994: see also Usk, Manning 1993; Wroxeter (Darling 2002, 182–5) and Caerleon, as yet unpublished), and suggests that other containers such as barrels or skins could have been used to bring wine onto the site. Barrels found on the *vicus* site at Segontium have been interpreted as wine containers (Casey, Davies and Evans 1993, 78).

This functional bias is open to a range of interpretations. It could simply reflect the nature of the area excavated, away perhaps from the focus of food preparation and consumption. Alternatively, if the sample analysed is representative of all the pottery used in the fort, it could indicate that an important role of the fort was as a store. Vessels in other materials, for example metal or wood, may well of course have supplemented the vessel repertoire.

The *vicus* assemblage (Phase 2B) produced a wider range of vessels, including flagons, tankards, drinking cups, food-serving vessels such as bowls and dishes, a variety of jars including cook pots (Figure 62), amphorae and a small quantity of mortaria. The higher proportion of table-wares from the *vicus* is reflected in the fabrics represented. The *vicus* produced a greater quantity of samian (11 % by count compared with 0.7% for the fort) and a wider range of fine wares (Figure 61). Although more sherds of amphorae were recovered in the fort the proportions by weight in the fort and *vicus* are very similar (45% for the fort, 43% for the *vicus*), and a wider variety of types was recovered from the latter.

Analysis of data from contemporary northern sites has shown that coarsely tempered cook-pots are common on rural sites but not forts, perhaps indicating an emphasis on communal cooking and a greater use of metal vessels on the latter (Evans 1993, 107). At Pentrehyling, Malvernian cook pots (MALVH, MALVW) were found in small quantities in the *vicus* but not the fort, and BB1 was poorly represented in both. Although this in part reflects the

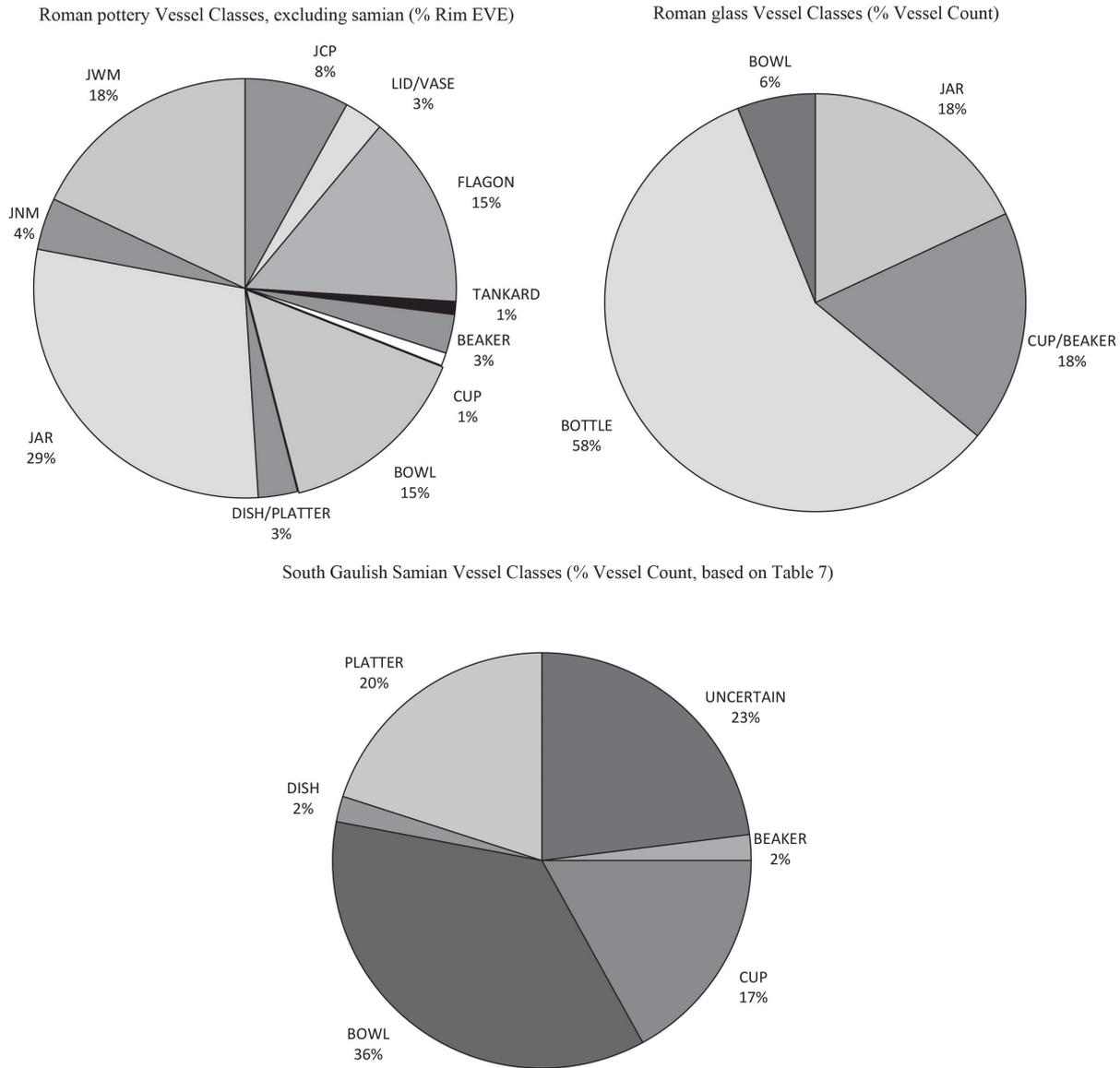


Figure 63 Pie charts showing pottery, glass and samian assemblages (% vessel count).

chronological factors discussed above, it could also hint at a ‘native’ bias in the *vicus* assemblages. The presence of mortaria is arguably indicative of ‘Romanized’ methods of food preparation, and more of this was recovered from the fort than the *vicus* (19% and 3% by weight respectively). Severn Valley ware (SVOXBC, SVOWC, SVOX, SVORGO, SVORGR), another native-derived ware, is also more common in the *vicus* assemblage (Figure 61).

In the discussion of patterns of supply above, comparison has been made between the narrow range of imported wares represented at Pentrehyling and the wider range from contemporary Wroxeter. This must also in part reflect the status and function of the site.

The late Roman assemblage

The coin of Constantius II, dated 340–2, and the 4th century silver spoon (Johns, above) provide a good terminus for the Phase 4 re-excavation of the southern defensive ditch. The pottery evidence is compatible with this date. The best dating evidence was provided by the traded wares, in particular BB1 and Oxfordshire colour-coated ware. The BB1 included splayed-rim jars (Figure 55:9), a type common in the early 4th century and later (Seager Smith and Davies 1993), which were decorated with characteristically late obtuse cross-hatch burnish. Also present were conical bowls or dishes with dropped-flange rims (Figure 55:11–13), which appear elsewhere *c.A.D.*270 and are increasingly common from the early 4th century onwards. The Oxfordshire red colour-coated ware included a bowl dating to *c.A.D.*270–400+ (Young 1977, C45, 123–184). This ware first appears at Wroxeter in 4th century

contexts (Timby *et al.* 2000). The Mancetter-Hartshill mortaria could not be closely dated, but on the basis of the trituration grits used, is thought to have been produced some time between *c.*A.D.140 and the mid 4th century.

The level of residuality was high, 41% by weight at a conservative estimate. This is evident in the presence of characteristically early fabrics such as Verulamium and continental mortaria, organic tempered Severn Valley ware and handmade Malvernian ware. Amongst the residual material, however, there was only sparse evidence for any activity on the site between the early 2nd century and the later 3rd to 4th century: six sherds of Central Gaulish samian dated either 'Hadrianic/Antonine' or A.D.150–200, and six sherds of East Gaulish samian broadly dating to the late 2nd to early 3rd century.

As the late pottery assemblage was associated with the silver spoon it was necessary, because of the law on treasure trove at the time of excavation, to consider whether it had been deliberately buried or was redeposited rubbish. Taking into account the proportion of residual material included, and the fact that none of the vessels was complete, the latter seems most likely.

The composition of the assemblage reflects the changing patterns in supply evident in most assemblages of this date. BB1 is ubiquitous on Romano-British sites from the Hadrianic period onwards. This was the single most common fabric in Pentrehyling Phase 4, representing 27% of the assemblage by weight (Figure 61) while Severn Valley ware, perhaps from Wroxeter, represented only 16%. Reduced coarse wares, some at least of which were residual, were proportionally less common than they had been in Phase 2. The presence amongst the reduced wares of forms copying late BB1 types (Figure 53:22) is evidence that local potters were still active at this time. The fine wares were all supplied by the major Romano-British industries of Oxfordshire and the Nene Valley, and the Mancetter-Hartshill potters dominated the market for mortaria.

REPORT ON THE ROMAN GLASS

by JENNIFER PRICE AND SALLY WORRELL (SUBMITTED MAY 1996)

The excavations at Pentrehyling produced 179 fragments of Roman glass, 147 from vessels and 32 from objects. No fragments of window glass have been found. The assemblage suggests that a relatively limited range of vessels were in use at the site. It is dominated by vessels associated with the storage of foods or liquids, although tablewares are present in small numbers.

A minimum vessel count suggests that a small number of vessels were in use at Pentrehyling: three cups/beakers, two or three jars, one bowl and at least 10 bottles. The glass is generally of a high quality and shows little sign of wear. Tablewares, the cups/beakers, bowls and jars, form 16.3% of the vessel assemblage, and household containers, which in this assemblage were exclusively bottles, 83.7 % .

There is a dark blue mould-blown vessel, a single pale green example of a Hofheim cup and a colourless 'jig-saw' facet-cut beaker. Decorated mould-blown vessels were in use in Britain in the Claudian, Neronian and early Flavian periods in Britain and elsewhere in the Roman West, Hofheim cups were common in the Claudian and Neronian periods but disappear rapidly in the first decade of the Flavian period and colourless facet-cut beakers appear in the late Neronian period and become more common in the last quarter of the 1st century A.D. There is an interesting dearth of cast vessels, especially pillar moulded bowls which would not be chronologically displaced with the other material in this assemblage, and other common forms of the period such as conical or globular jugs and tubular rimmed bowls are also absent. This may be a reflection of supply, although in such a small assemblage lacunae like these should be regarded with reservation.

Vessels such as the square bottles and jars are found on sites of the same period throughout Roman Britain. Cylindrical and prismatic bottles are present in similar proportions at Pentrehyling which suggests that the bottles were in use in the last quarter of the 1st century A.D.

On the basis of the forms present and the unworn state of most of the glass, the use of this glass can be placed around c.A.D.70–85. This assemblage is typical of that from a military site with a short period of occupation of this period. The condition and size of some fragments, especially those from bottles may indicate deposition associated with abandonment rather than a phase associated with collection for recycling.

Since this glass was in contemporary use over a short time, the following report discusses the vessels according to their apparent function.

Vessels associated with drinking

A minimum of three drinking vessels have been identified in this assemblage (nos. 1, 4 and 8).

Three small dark blue fragments were found (no. 1, not illustrated), and these are likely to come from the same vessel on the basis of the colour and quality of the glass. One fragment, no. 1, shows signs of being blown into a decorated mould. It has a straight side tapering out with the edge of a shallow mould-blown ridge. Unfortunately, the fragment is too small to identify the form of the vessel, although it is likely to come from a cup or bowl. Mould-blowing as a decorative technique was used during the second and third quarters of the 1st century, at a time when brightly coloured glass was popular. It seems to have gone out of fashion soon after the ascendancy of colourless glass after around A.D.65–70.

The designs found on mould-blown vessels vary greatly in style and the degree of elaboration ranging from simple ribbing, bosses, or geometric patterns to complex stylized or naturalistic floral and foliage patterns and figured scenes (Price 1991, 56). It is possible that the fragment from Pentrehyling is similar to a yellow/green

Table 8 Vessel glass from Pentrehyling.

	No. of fragments	% of vessel glass
Dark blue	3	2
Yellow/green	3	2
Pale green	9	6.2
Colourless	5	3.4
Blue/green	127	86.4
Total	147	100

cup found at Colchester which is decorated with a curved foliage design (Cool and Price 1995, 51 no.240, figure 3:2). Similar examples also include the dark blue fragment with foliage in relief from Gloucester (unpublished). Other dark blue mould-blown vessels in Britain include a ribbed bowl found at Blackfriars Street, Carlisle (Price 1990, 166 no.6, figure 159). Ribbed bowls are a relatively common form and are found in Tiberian contexts and continued in use in the Neronian and Flavian periods.

The most outstanding vessel represented in the Pentrehyling assemblage is the colourless beaker with 'jig-saw' facet-cutting (no. 8, Figure 64.1). Six fragments of the rim, body and base survive and although the full profile cannot be reconstructed it is possible to tell that it was a tall vessel. When complete, these beakers have a vertical rim with the edge cracked-off and ground smooth and a more or less straight side tapering in to a diagonal foot and a small flat base.

Facet-cut beakers were produced by grinding away the exterior of a blown blank to leave a series of horizontal zones in relief, including cordons at the rim and sometimes on the upper and lower body, a broad central area and the base ring. Most commonly the facet-cutting involves circular or oval facets closely set in horizontal rows to produce diamonds or hexagons. 'Jig-saw' facet cut beakers do not have cordons on the upper and lower body. The style of facet cutting shows an interlocking design made up of long, wide curving facets and gives the impression of a 'swirling' free-hand design. This effect is achieved by first cutting the facets in quincunx and then grinding away some of the junctions between the facets. Beakers with 'jig-saw' facet cutting are much rarer than those with facets arranged in quincunx. The example from Pentrehyling is probably the most complete found in Roman Britain. Other pieces have been recorded at Fishbourne, Sussex (Harden and Price 1971, 340 nos.39–41, figures 138–9), Nanstallon, Cornwall (Harden 1972, 107 no.159), Gloucester (Charlesworth 1974, 76 no.19, figure 24), Exeter (Charlesworth 1979, 224 no.12), Colchester (Cool and Price 1995, 74 no.396, figure 5.6), Blake Street, York (Cool 1995, 1569 and 1653, no.5930, figure 737), Annetwell Street, Carlisle and possibly Chester (both unpublished). A complete 'jig-saw'-faceted beaker was found at Pompeii and is thus earlier in date than A.D. 79 (Harden *et al.* 1987, 192). A large part of the upper body profile of a beaker was found at Augst (Rutti 1991, 60 no.1211) and three fragments come from Vindonissa (Berger 1960, 71 nos.165–7, Taf.10). 'Jig-saw' facet-cutting is confined almost exclusively to blown vessels, although this technique of decoration has been noted on cast vessels, including a skyphos in St. Louis Museum, Missouri (Oliver 1984, 45, figure 17) and a bowl from Fishbourne (unpublished).

The dating evidence suggests that beakers with this style of cutting were amongst the earliest facet-cut beakers to be made. The fragment from Exeter, for example, was found in a construction deposit dated to A.D.60–65 (Charlesworth 1979; 224 no.12, figure 70) and that from the Roman fort at Nanstallon, Cornwall, must have been in use prior to c.A.D.80 when occupation on the site ended (Harden 1972, 107 no.159).

Facet-cut beakers had come into use by the very early Flavian period. They are common finds on Flavian sites and continued in use into the 2nd century (Isings 1957, Form 21; Oliver 1984; Cool and Price 1995, nos.395–401). They were always made in good quality colourless glass and must have been labour-intensive to produce. A strong bias in their distribution towards military sites has been recognised for facet-cut beakers in Britain and other frontier provinces, which may indicate that they were probably expensive to acquire. Although facet-cut beakers in general are fairly common finds on sites throughout the province, they are high-quality tablewares and it is unlikely that they were ever mass-produced as other blown vessel forms were.

No.4 is a straight-sided pale green upper body fragment with two broad bands of horizontal abrasion (Figure 64.2). It is more likely to be a fragment from a Hofheim cup, so-called because large numbers were found at that site (Ritterling 1913, 365, Form 1). This is the commonest type of blown drinking vessel to be found on Romano-British sites in the mid-1st century A.D. These small convex or cylindrical cups have cracked-off rims which are ground smooth and are either vertical or slightly in-turned. The upper body is slightly convex or straight and the lower body is convex and tapers into a flat or concave base which sometimes has a high central kick. The body is decorated with horizontal wheel-cut or abraded bands, or both. They were most commonly produced in blue/green glass, although polychrome, strongly coloured and pale green or greenish colourless examples are also known.

The form was also widespread in many parts of the Roman world in the 1st century. Some of the earliest examples were recorded in late Augustan contexts at Magdalensberg (Czurda-Ruth 1979, 37–43 nos.3224–

418), but they are most commonly found on Tiberian, Claudian and Neronian sites. Hofheim cups are found on many Claudian and Neronian sites in southern Britain and the Midlands and in smaller quantities in northern Britain. Many examples have been recorded at Camulodunum (Harden 1947, 302–3 nos.68–76, pl.LXXXVIII; Charlesworth 1985, mf 3:F7 and 9 nos.48–9, 82–4, figure 81) and elsewhere in Colchester (Cool and Price 1995, 64–68 nos.279–331, figure 5.2), and at Usk (Price 1995a, 159–162 nos.32, 37–45, figure 43), Kingsholm, Gloucester (Price and Cool 1985, nos.21–23c, 41–45b, figures 18–9), Wroxeter (Cool and Price 2002, 229–30) and at many other sites, mostly of military status, throughout the country.

Some of these cups were still in use in the late Neronian and early Flavian period, as examples have been found at sites first occupied at that time such as Alstone Cottage, Caerleon (Price 1995b, 87 no.3, figure 9), Inchtuthil (Price 1985, 305–6, 308–10 no.2, figure 93), Blake Street, York (Cool 1995, 1563, figure 735), Ribchester and Chester (both unpublished). After this period they disappear rapidly.

Vessels associated with serving liquids and foods

Two collar rim fragments were found; one is yellow/green (no.2; Figure 64:3) and the other blue/green (no.9; Figure 64:4). These were formed by rolling the rim edge in, then out and down to form a vertical tubular collar rim. This rim form is found on globular, ovoid and square jars (Isings 1957, Form 67c, 67b and 62), but since nothing survives of the body on either fragment it is not possible to establish which body form these fragments come from. Nonetheless, it is probable that no.2 at least comes from a globular jar because of its colour. A convex yellow/green body fragment with a vertical rib (no.3, not illustrated) may come from the same vessel. The blue/green rim (no.9, Figure 64:4) may be from a globular or ovoid jar because the glass is thinner than is usual in square jars.

Convex jars have vertical or slightly out-turned tubular collar rims and the edge is often rolled in or sheared, then bent out and down to form a double fold. The body is globular or ovoid and there is an open pushed-in base ring and a concave base. Globular-bodied jars were more common than the ovoid ones. They were frequently decorated with narrow vertical or slightly diagonal ribs on the body and were mostly produced in blue/green glass although examples occur in a range of strong colours including dark blue, yellow/brown, yellow/green and pale green and a very few are polychrome, having opaque white marvered splashes. They are frequently found in the north-western provinces in later 1st to early-mid 2nd century contexts. The ovoid jars were usually plain made in blue/green glass.

It is probable that both globular and ovoid jars functioned as tablewares for presenting and serving liquids or fruit and as a secondary function they were used as cinerary urns or as accessory vessels in burials. They were introduced in the Neronian period and continued in use into the early/mid 2nd century. At Usk, fragments of sixteen blue/green, dark blue, yellow/green, yellow/brown and polychrome jars were found in Neronian to early Flavian and later contexts (Price 1995a, 156–7 no.30, 169–71 nos.7115, figures 44–5). Two complete blue/green jars and fragments of twelve other blue/green, pale blue, yellow/brown and yellow/green jars come from Verulamium, Hertfordshire (Charlesworth 1972, figure 76 nos.25 and 26; 1984, 166 nos.246–252, figure 67 nos.105–6) and dark blue and yellow/green examples were found in Flavianic-Trajanic contexts at Alstone Cottage, Caerleon (Price 1995b, 84 nos.5 and 9, figure 9). Examples found in burials include an almost complete yellow/brown ribbed jar from a cremation burial at Shefford, Bedfordshire (Kennett 1970, 201).

The pale green ribbed body fragments nos.5 (Figure 64:5) and 6 (not illustrated) may also come from ribbed jars, although it is possible that they could be from ribbed conical or globular jugs as the body fragments from these forms are very difficult to distinguish. Ribbed conical or globular jugs (Isings 1957, Forms 55 and 52) are very commonly found on sites throughout the north-western provinces from the Neronian period until the middle of the 2nd century. These jugs have been discussed in connection with finds from Colchester (Cool and Price 1995, 120–30).

Vessels associated with storage/transport

This assemblage, like many others from occupation sites of the 1st and 2nd centuries in Britain, is dominated by fragments from prismatic and cylindrical blue/green bottles (nos.11–26). 127 fragments (86.4% of the total assemblage) come from a minimum of four cylindrical bottles and six prismatic bottles. The ratio of cylindrical bottle fragments:prismatic bottle fragments is approximately 2:3. The large proportion of cylindrical bottle fragments and the particularly unworn state of much of the bottle glass suggest that these bottles were in use for a limited time in the last quarter of the 1st century, when both forms were very common. The size of the bottles is a further chronological indicator. Large bottles, such as that represented by no.11 (Figure 65: 6) with a rim diameter of c.120mm and a neck diameter of 80mm, were not common before the Flavian period. These bottles were robust and produced in good quality glass, free of any obvious visible impurities and are typical of early bottle production.

It is usual for bottle fragments to make up 30%–50% of the vessel glass assemblage on Romano-British sites occupied during the later 1st and 2nd centuries, but the percentage at Pentrehyling, like that at Ribchester where the bottle fragments made up almost 90% of the vessel glass assemblage (unpublished) is particularly high. The minimum number of bottles has been calculated from a consideration of the diagnostic fragments and the colour of the glass. This is almost certainly an underestimate of the number of vessels present, but it is a more realistic means of estimation than simply a fragment count, since one would expect there to be more fragments from a broken bottle than from a broken cup, for example.

Blue/green bottles were produced in large quantities in the Western provinces in the 1st and 2nd centuries. They first appeared in the Claudian period but do not become very common until the Flavian period. The most common forms were cylindrical and square, although hexagonal and rectangular forms also existed. Cylindrical bottles disappear in the early 2nd century, but square, and to a lesser extent, hexagonal bottles continue in use until the late second or early third century. They were nearly always produced in varying shades of blue/green glass, although pale green (no.10b. not illustrated) and nearly colourless examples are also known.

All bottle forms have certain common features such as the form of the rim and handle. The rim is generally folded out, up, in and flattened and can be either horizontal (no.11, Figure 65:6), or diagonal in section (no. 12, Figure 65:7). Bottles were produced with a wide range of body, neck and rim diameters which is likely to reflect the variety of commodities transported and stored in them. Some rims and necks were wide enough to admit a hand and may have stored pickled or dried foods or semi-liquids such as honey, while others with very narrow necks were presumably used for liquid substances. All bottle forms have a cylindrical neck which often shows tooling marks at the junction with the shoulder. The bottles in this assemblage have neck diameters ranging from 30–80mm, which suggests that the larger examples, at least, may have stored liquids, semi-liquids or dried foods. Bottle handles were applied to the shoulder and drawn up and across at an angle to meet the neck below the rim in a folded attachment. The lower section of the handle was usually reeded and the individual ribs were frequently drawn down below the handle onto the shoulder; a process which took place after the handle had been attached to the vessel. The handle fragments in this assemblage (nos. 15 – not illustrated – to 17; Figure 65:8–9) are interesting in that they all have very prominent ribs rather than ribs left in low relief. Prominent ribs appear to be a feature of the handles of some early bottles; they have also been noted on the handle of a possibly cylindrical bottle from a Neronian context at Colchester (Cool and Price 1995, 191 no.2138, figure 11.8) and on a bottle found in a late Neronian or early Flavian context at Usk (Price 1995, 46 no.126 figure 48).

Horizontal scratch marks, which are often present on the neck, suggest that a cord, perhaps attached to a stopper, was tied on, and vertical scratches which are almost always present on the body indicate that the bottle was lifted in and out of a close-fitting wood or basketry container. The edges of the rim and base and the widest point of the shoulder are sometimes very heavily worn, although the bottle glass from Pentrehyling shows little sign of heavy wear, an exception being no.19 (Figure 65:10) which suggests that its period of use was not particularly extensive before the bottles were broken.

There are two principal forms of cylindrical bottles, either short and wide as at York (Harden 1962, 136, H.G.53 p1.66) and Carlisle (Price 1990, MF2 76–7, figure 163 no.59), or tall and narrow as the examples from Newstead (Curle 1911, 271–2, figure 36) and Inchtuthil (Price 1985a, 307). Cylindrical bottles first appear in Britain in small numbers on early post conquest sites, such as Camulodunum (Harden 1947, 306 no.98c), and become particularly common in the Flavian period (Price 1985, 307). Although they had largely gone out of use as household vessels by the beginning of the 2nd century, they occasionally appear in early 2nd century burials where they are re-used as cinerary urns, as at Bartlow Hills, Essex (Gage 1834, 7, pl.III nos.5 and 7), Old Newton, Suffolk (Low 1906/7 pl.B) and Stansted, Essex (unpublished).

Square bottles were also present in Britain in the mid-1st century, becoming very common in the Flavian period and continuing in use until at least the end of the 2nd century. Square, hexagonal and rectangular bottles almost invariably have moulded designs on their bases, the commonest pattern consisting of varying numbers of concentric circles often with a small, central pellet, as is seen on the Pentrehyling examples (nos.21–26, Figures 65:11–16). As well as aiding the strength and stability of the vessel, these base marks may have acted as some form of trademark, although it is often not clear whether they relate to the original contents of the bottle or to the glasshouse that produced it (Price 1978). However, a rectangular bottle from Linz with the mark SENTIA SECUNDA FACIT AQ(UILEIA) VITR(A) (Harden 1970, 72, p1.4B) leaves no doubt that in this particular case the base mark links the person named with the production of the bottle.

Objects

A total of four glass melon beads (nos.27, Figure 66: 1 to 30 not illustrated) and a minimum of 13 faience melon beads were found, nos. 31–47 (no.31, Figure 66:2 and no.35, Figure 66:3). Both glass and faience melon beads

are associated primarily with military activity in Britain and have been found on sites throughout the province. Interpretations for their exact function remain tentative. The faience beads may have been used like other beads as a form of personal adornment, but an alternative interpretation should perhaps be sought for the glass beads and the larger faience beads. These are often large and heavy and would have been impractical to wear, especially around the neck. It has been suggested that some were used as decoration for horse harness, Ritterling has compared melon beads from Hofheim with the beads portrayed on a decorative strap around the neck of a horse on the tombstone of Titus Flavius Bassus, found at Cologne (Ritterling 1913, 179–80 Abb.35). In addition, many of these beads show signs of heavy wear at the perforations which may be the result of being jolted against each other on a moving horse. Both frit and glass melon beads were in use during the first and second centuries, but were most numerous during the first century. These beads were produced in a range of sizes and all have wide perforations and convex, more or less globular profiles, with vertical or slightly diagonal grooves scored into the outside surfaces.

Translucent deep blue glass melon beads were never as common as the faience examples and this is reflected in the numbers found at Pentrehyling. Both types were in use from the Roman Conquest until the Antonine period (Guido 1978, 100). Glass melon beads are most frequently noted on Flavian sites. Seven examples were found at Annetwell Street, Carlisle, and eight examples were recorded at both Ribchester, Lancashire (both unpublished) and at Castleford, West Yorkshire (Cool and Price 1998, 181). There is some evidence that glass melon beads may have been produced at military sites, such as Camelon and the *vicus* at Castleford. The glass melon beads from Pentrehyling range in height from 12.5–15mm, and all show signs of heavy wear at both ends of the perforation, suggesting that they may have been damaged by moving against each other on a cord.

Faience melon beads occur commonly on sites throughout Roman Britain and in many other parts of the Roman world. They were produced in a wide range of blue shades, from turquoise to bright blue on the exterior, with a buff/greenish core. When excavated, the glaze has often almost completely disappeared, or survives only in the grooves. Little analytical work on the chemical composition of the beads has been undertaken, and therefore it is not known what causes the variations in colour, nor whether they are deliberate. Examples were noted in Neronian contexts at Camulodunum (Harden 1947, 307 no.3). Twenty-four examples were found in the Legionary Baths at Caerleon in Flavian/early 3rd century drain deposits and other contexts (Brewer 1986, 151 nos.1–24, figure 49A) and a minimum of 43 were found at Usk, mostly in Neronian–early Flavian contexts (Price 1995, 4D nos.35–41, figure 31). Thirty-five were present in the small assemblage from the fort at Ribchester, Lancashire (unpublished) and ninety-seven examples were found at Castleford, West Yorkshire (Cool and Price 1998, 181). Melon beads are sometimes found in association with burials in Britain, as in a Flavian cremation burial at Grange Road, Winchester (Biddle 1967, 245 nos.54–61, figure 9) which contained eight faience beads.

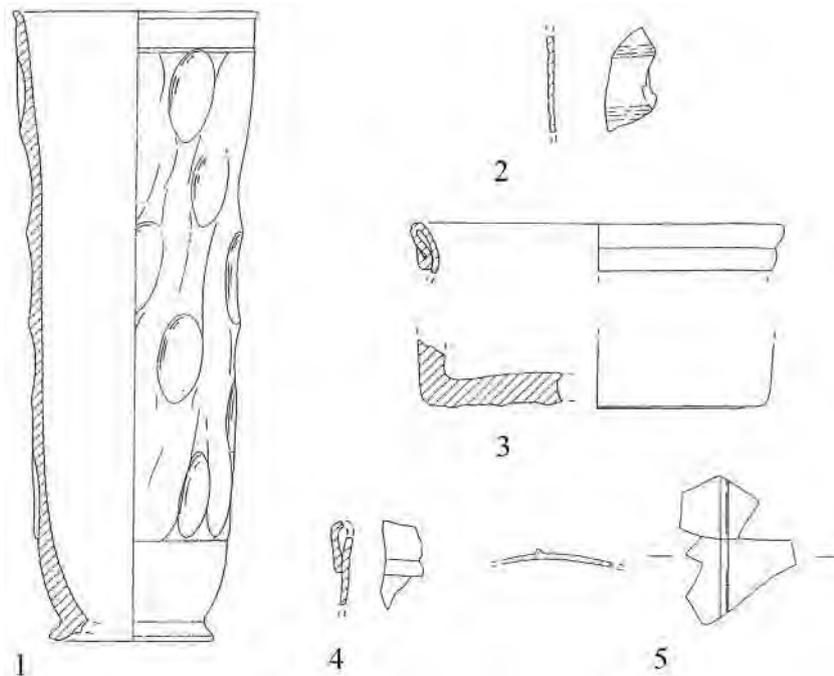


Figure 64 Vessel glass from Pentrehyling.

Counters

Plano-convex counters were produced by simply dropping a small blob of hot glass onto a flat surface. They were principally made in 'black' and opaque white glass although examples in other colours, such as translucent and opaque blue, opaque yellow and polychrome, are also known. They are found on a wide variety of sites from the 1st–4th centuries, and often occur in large numbers, particularly in military contexts. These objects may have been used for accounting purposes and in board games. They are often found singly or in small groups on occupation sites, although at Caerleon forty-eight counters came from three of the drain deposits and from various non-drain contexts in the legionary fortress baths (Brewer 1986, 155–6, figure 49C) and 23 'black' and 31 white counters were included in the Trajanic or Hadrianic hoard of armour and other material found in a wooden chest at Corbridge (Allason-Jones and Bishop 1988, 82, figure 99). The two examples from Pentrehyling are both dark-coloured, appearing black (no.50, Figure 66:4 and no.51, not illustrated).

Sets of counters quite frequently occur in burials with rich collections of grave goods, especially in the late Iron Age and early Roman periods. Nine opaque white and ten translucent dark blue counters came from the Claudian warrior burial at Stanway (Crummy *et al.* 2007), twelve opaque white, four black and two blue pieces were found in the Flavian cremation burial at Grange Road, Winchester (Biddle 1967, 244–5 nos.36–53, figure 9) and nine opaque white and eleven black were found in a late 1st century burial at Verulamium (Niblett and Reeves 1990, 444 P.L.LIX).

Catalogue of Roman Glass from Pentrehyling

Abbreviations:

RD – rim diameter
 RT – rim thickness
 Ph – present height
 WT – wall thickness
 mm – millimetres

Mould-blown vessels

Dark blue

001 BRO 90 III 3008

Body fragment. Straight side tapering out. Edge of shallow ridge. Some small bubbles.

Dims.: 27 × 13 WT: 1

001a PH 3217A

Two body fragments. Straight side. Slight surface scratching. Some small bubbles. Dims. (of largest fragment): 16 × 15 WT: 1

Blown vessels

Yellow/green

002 PHY

Rim fragment, jar. Yellow/green with black impurities. Vertical rim, edge rolled in, then out and down to form collar rim. Some small bubbles. Ph: 14.5 RD: 80 (Figure 64:3).

003 BRO 90 I 1086

Body fragment, ribbed jar or jug. Convex body, with one broad vertical rib. Light surface scratching.

Ph: 31 WT: 0.5–1.5

003a PH 3307

Body fragment, slightly convex.

Pale green

004 BRO 90 I 1008

Body fragment, ?cup, Straight-sided upper body fragment. Two broad horizontal wheel-cut lines.
 Dims.: 25 × 13.5 WT: 1–1.5 (Figure 64:2).

Also 2 convex body fragment:

004a PR873102

004b PH 3505C

005 PH 31X23

Two joining body fragments, ribbed jar or jug. Convex-curved body with one vertical rib. Some small bubbles.
 Dims.: 32.5 × 36 WT: 0.5–2.5 (Figure 64:5).

006 PH 31/X2

Shoulder or lower body fragment, ribbed jar or jug. Convex side tapering in to change of angle. Parts of three vertical ribs. Some large bubbles.
 Dims.: 33 × 33 WT: 1–2.5

007 PH 31112C

Body fragment. Convex side. Applied self-coloured trail. Some small, slightly elongated bubbles.
 Dims.: 19 × 13 WT: 1–3

Colourless

008 PH 3821B

Two rim and upper body fragments, 'jig-saw' facet-cut beaker. Colourless with yellowish tinge. Vertical rim, edge cracked-off and ground smooth. Straight upper body tapering in. Raised ridge on rim edge and raised decorative zone. Horizontal band between rim and decoration ground down. Two rows of oval facets. Edges of some facets ground away to form irregular 'jig-saw' pattern. Grinding and polishing marks visible. Very few bubbles.
 RD: c.80, Ph: 48 WT: 1–3 (Figure 64:1).

008a PH 31X2 & PH31X23

Two joining body fragments, 'jig-saw' facet-cut beaker. Colourless with yellowish tinge. Straight side tapering in with 4 rows of oval 'jig-saw' facets. Grinding and polishing marks in facets. Very few small oval bubbles.
 Ph: c.67 BD: c.60 WT: 1–3 (Figure 64:1).

008b PH 31X02

Lower body and base fragment, 'jig-saw' facet-cut beaker. Colourless with yellowish tinge. Straight-side in raised decorative zone. Slightly convex lower body. Lower body ground away to form small diagonal foot. Two rows of oval 'jig-saw' facets with plain area below. Grinding and polishing marks visible. Small bubbles.
 Ph: 75 BD: c.40 WT: 2–4 (Figure 64:1).

Blue/green

009 PH 3107B

Rim and upper body fragment, jar. Vertical rim, edge rolled in, then bent out and down. Rim edge missing. Convex upper body tapering out slightly. Some black impurities; strain cracks.
 Ph: 22.5 WT: 1–2 (Figure 64:4).

010 PH 31X23

Two joining body fragments, ribbed jar or jug. Convex body. Vertical rib. Some small bubbles.
 Dims.: 28 × 23.5 WT: 1–2.5

Also 1 convex body fragment with vertical trail: 010a PH 35/05C

Also 2 convex body fragments:
 010b PHY
 010c PH 3802

Bottles

Pale green

Two body fragments, cylindrical bottle
 010d PH3349 – heavy vertical scratching
 010e PH31X23 – strain cracks

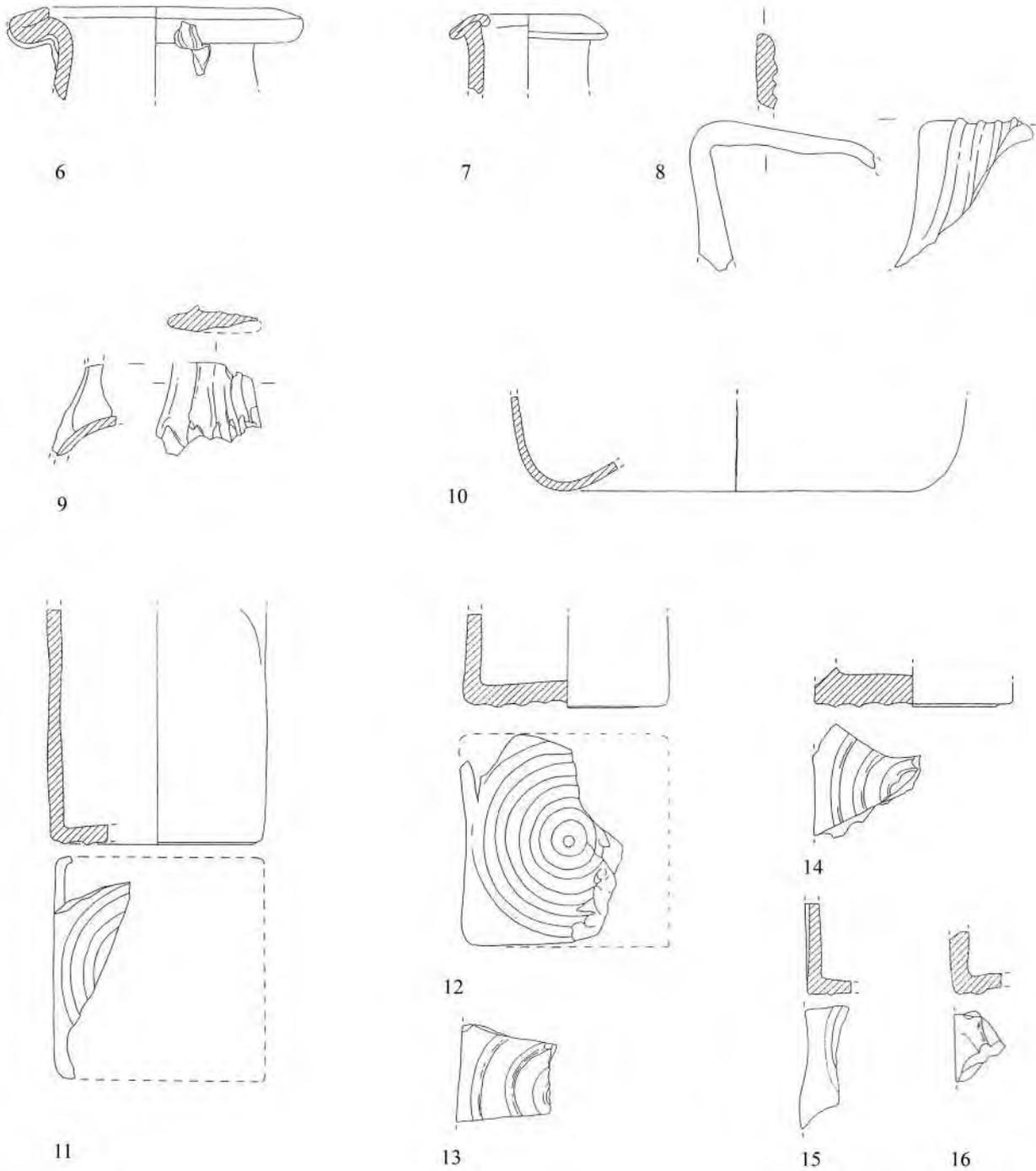


Figure 65 Bottle glass from Pentrehyling.

Blue/green

Rims, necks, shoulders and handles

011 PH 35/5A

Rim, neck and handle fragment, bottle. Horizontal rim, edge bent out, up, in and flattened on top surface. Cylindrical neck. Return of handle trail on underside of rim and neck. Light horizontal scratching on neck below trail and on inside surface of rim. Very few bubbles.

Ph: 38 RD: *c.*120 ND: *c.*80 WT: 5.5–12.5 (Figure 65:6).

012 BRO 90 I 1002

Rim and neck fragment. Diagonal rim, edge bent out, up, in and flattened on top surface. Cylindrical neck. Light horizontal scratching on upper neck. Strain cracks. Wear on top and on inside edge of rim. Very few bubbles.

Ph: 31 RD: *c.*65 ND: *c.*35 WT: 5.5–16 (Figure 65:7).

013 BRO 90 III 3003

Neck and handle fragment, bottle. Cylindrical neck. Upper folded attachment of angular ribbon handle with multiple reeding.

Ph: 25 WT: 5–7 ND: *c.*30

014 PH 36/15A

Neck and shoulder fragment, bottle. Cylindrical neck, wide convex shoulder.

WT: 2.5–4

Also 4 cylindrical neck fragment:

014a PH 3107A

014b PH 3107B

014c PH 2440

014d PH 3112C

Also 4 shoulder fragments:

014e BRO 90 HI 3003

014f BRO 90 n 2049

014g PH 3107B

014h PH 31X2

015 PH 0702

Handle fragment, bottle. Straight handle. Rounded edge and one very prominent vertical rib. Small elongated bubbles. Horizontal tooling marks on underside.

Ph: 24.5 WT:

016 BRO 90 I 1016

Handle fragment, bottle. Large angular handle. Rounded edge and four prominent vertical ribs. Large elongated bubbles. Tooling marks on underside.

Ph: 80 WT: 4.5–15 (Figure 65:8).

017 BRO 90 I 1056

Handle and shoulder fragment, bottle. Rounded edge and six vertical prominent ribs pulled down into points on shoulder. Large elongated bubbles in handle.

Ph: 37 WT: 6–21 (Figure 65:9).

Cylindrical bottles

018 PH 3024 A

Fragment, shoulder and upper body. Edge of handle. Small bubbles. Light vertical scratching.

Ph: 77 Body diam.: *c.*200 WT: 2.5–3.5

Also 11 shoulder and upper body fragments:

- 018a BRO 90 II 2021 – light vertical scratching, body diam.
- 018b BRO 90 III 3008 – light vertical scratching
- 018c BRO 90 HI 3003 – vertical scratching
- 018d BRO 90 I 1002 – 3 fragments
- 018e PH 3505C – vertical scratching
- 018f BRO 90 n 2032 – vertical scratching
- 018g BRO 90 I 1084
- 018h BRO 90 I 1091
- 018i PH 2425

Also 26 body fragments:

- 018j BRO 90 II 2000 – light vertical scratch marks
- 018k PH 3107A – bubbly, light vertical scratch marks
- 018l PH 3739 – light vertical scratch marks
- 018m PH 38/21ab – light vertical scratching
- 018n PH 3350 – light vertical scratch marks
- 018o PH 3814 J – light vertical scratch marks
- 018p BRO 90 I 1005 – light vertical scratching
- 018q PH 0120
- 018r PH 31XOI
- 018s PH 3705
- 018t PH 3109MN
- 018u PH 3615A
- 018v BRO 90 III 3003 – 5 fragments
- 018x PH 31X29
- 018y PH 3505A – 2 fragments
- 018z PH 3107A
- 018aa BRO 90 II 2049
- 018ab PH 903731
- 018ac BRO 90 I 1009
- 018ad PH 903725
- 018ae PHY

019 BRO 90 I 1016

Lower body and base fragment. Concave base. Band of wear around base edge.

Ph: 44 BD: *c.*180 WT: 3–4 (Figure 65:10).

019a BRO 90 III 3003

Base fragment, cylindrical bottle.

Prismatic bottles

020 PH 2440

Shoulder and body fragment, large prismatic bottle. Edge of convex shoulder, edges of points of handle, straight side.

Ph: 96.5 WT: 2–5

021 PH 3314

Shoulder, body and base fragment, square bottle. One almost complete vertical side and part of two others. Convex shoulder. Flat base. Base design; parts of two concentric circles. Some large bubbles. Light vertical scratching on body. Wear on corner of base and on concentric circles.

Ph: 98 D. of largest circle: *c.*80 Width of side: *c.*87 WT: 3–6.5 (Figure 65:11).

Also 4 shoulder and upper body fragments:

- 021a PH 3505C
- 021b PH 0102

021c BRO 90 I 1012
021d PH 2440

Also 40 prismatic bottle body fragments:

021e BRO 90 III 3008 – 3 fragments (2 joining), one with two straight sides
021f PH 3341 – part of two sides
021g PH 3821B – part of two sides
021h BRO 90 HI 3002 – strain cracks
021i PH 31X23
021j PH 2440 – 2 fragments
021k PH 3341
021l BRO 90 J C.1039 – 2 fragments
021m BRO 90 I 1094
021n BRO 90 I 1023
021o BRO 90 I 1009
021p PH 33/FUR
021q BRO 90 III 3001
021r PH 2440
021s PH 3615A – 2 fragments
021t BRO 90 III 3006
021u PH 33314EF
021v PH 3314
021x PH 3350
021y PH 3107B – 2 fragments
021z PH 3350
021aa PH 31X01
021ab PH 3107B – 3 fragments
021ac PH 903726
021ad BRO 90 I 1002
021ae PHY
021af PH 33 FUR
021ag PH 3820 B
021ah PH 903725
021ai 1016 – 2 joining fragments
021aj BRO 90 I 1002
022 PH 1505

Thirteen body and base fragments (four joining), square bottle. One almost complete side and part of two others. Flat base. Base design; four concentric circles and small central pellet. Many small bubbles. Little signs of wear. Ph: 37 Width of side: *c.*87 D. of largest circle: *c.*80 WT: 2–9 (Figure 65:12).

023 PH 3318

Base and lower body fragment, square bottle. Part of one side and flat base. Base design; three concentric circles. Strain cracks. Little sign of wear. Ph: 17.5 D. of largest circle: *c.*80 WT: 7.5 (Figure 65:13).

024 BRO 90 I 1090

Base fragment, square bottle. Part of one side. Flat base. Base design; parts of three concentric circles. Dims: 42 × 46 D. of largest circle: *c.*60 WT: 13 (Figure 65:14).

025 PH 3341

Lower body and base fragment, prismatic bottle. Part of one vertical side. Flat base. Concave area on body and base edge. Base design; one distorted concentric circle. Many small bubbles. Ph: 36.5 WT: 6 (Figure 65: 15).

026 PH 2440

Lower body and base fragment, prismatic bottle. Part of one vertical side. Slightly concave base. Part of one concentric circle. Ph: 26 WT: 6–8 (Figure 65:16).

Melted fragments

Also 2 melted blue/green fragments
026a PH 3505C
026b PH 3107A

Chips

Also 1 blue/green chip
026c PH3602 36/2

The glass objects

Glass melon beads

027 BRO 90 II 2045

Complete glass melon bead. Dark blue. Twenty slightly curving vertical grooves. Occasional small bubbles at surface. Both ends of perforation worn, one end chipped.

Ht.: 12.5 Diam.: 18.5 Diam. of perforation: 9–10.5 (Figure 66:1).

028 BRO 90 II 4/5

Fragment, c.40%, glass melon bead. Dark blue. Seven slightly curving vertical grooves. Both ends of perforation worn.

Ht.: 14 Diam.: 19.5 Diam. of perforation: 10

029 PH 3348 53

Fragment, c.40%, glass melon bead. Mid blue. Seven slightly curving vertical grooves. Heavily worn at ends of perforation and on body.

Ht.: 15 Diam.: 24.5 Diam. of perforation: 9

030 PH 3602

Fragment, c.30%, glass melon bead. Dark blue. Six vertical grooves. Occasional small bubbles at surface. Ends of perforation worn and chipped, wear on body.

Ht.: 14.5 Diam.: 18 Diam. of perforation: 7.5

Faïence or frit melon beads

031 BRO 90 II 2004

Complete melon bead. Traces of blue/green glaze. Twenty-one slightly curving vertical grooves. Ends of perforation slightly worn. Outside surface heavily worn.

Ht.: 19 Diam.: 25.5 Diam. of perforation: 10 (Figure 66:2).

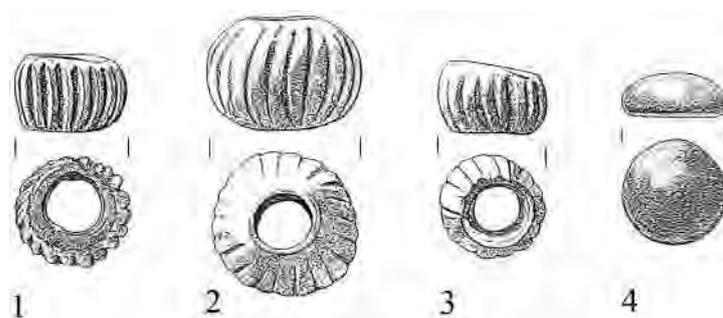


Figure 66 Glass objects from Pentrehyling.

032 PH 3615A

Three joining fragments, complete melon bead. Blue/green. Twenty-two slightly curving vertical grooves. Ends of perforation worn, one end chipped.

Ht.: 19 Diam.: 24.5 Diam. of perforation: 13

033 PH 3217 6

Two joining fragments, complete melon bead. Traces of turquoise glaze. Eighteen slightly curving vertical grooves. Heavily worn. Ends of perforation worn and chipped.

Ht.: 16.5 Diam.: 21.5 Diam. of perforation: 12.5

034 PH 33/FUR

Complete melon bead. Blue/green. Twenty slightly curving vertical grooves. Ends of perforation lightly worn.

Ht.: 17 Diam.: 20.5 Diam. of perforation: 7.5

035 PH 3615A

Complete melon bead. Traces of pale blue glaze. Sixteen diagonal grooves. Ends of perforation chipped and worn. Heavily weathered.

Ht.: 11.5 Diam.: 17.5 Diam. of perforation: 7.5–10 (Figure 66:3).

036 PH 335051

Fragment, *c.*45%, melon bead. Blue/green. Seven vertical grooves. One end of perforation lightly worn.

Ht.: 12 Diam.: 14.5 Diam. of perforation: 7.5

037 PH 3345 44

Fragment, *c.*55% melon bead. Blue. Ten vertical and diagonal grooves. Light weathering.

Ht.: 12 Diam.: 12.5 Diam. of perforation: 7

038 PH 31X23

Fragment, *c.*60% melon bead. Traces of pale blue glaze. Eleven vertical grooves. Heavily weathered surfaces. Little signs of wear.

Ht.: 10.5 Diam.: 14.5 Diam. of perforation: 8

039 BRO 90 1079

Fragment, *c.*40% melon bead. Pale blue. Distorted bead. Ten vertical grooves of uneven length. Heavily weathered surfaces.

Ht.: Range –13.5 Diam.: 17 Diam. of perforation: 10.5

040 PH 2440 18

Fragment, *c.*50% melon bead. Traces of turquoise glaze. Nine slightly curving vertical grooves. Heavily weathered outside surface. Wear on one end of perforation.

Ht.: 11 Diam.: 15 Diam. of perforation: 6.5

041 BRO 90 III 3008

Fragment, *c.*25% melon bead. Turquoise. Seven vertical grooves. Lightly worn at ends of perforation. Surface weathering.

Ht.: 17 Diam.: Diam. of perforation: 9

042 PH 3626

Fragment, *c.*30% melon bead. Turquoise. Distorted bead. Six diagonal grooves. Lightly worn.

Ht.: range–11.5 Diam.: 14 Diam. of perforation: 5.5

043 PH 2425

Three fragments (two joining), *c.*80%, melon bead. Pale blue. Fourteen slightly curving vertical grooves. Surfaces heavily weathered.

Ht.: 15 Diam.: 19 Diam. of perforation: 12

044 PH 3116 16

Two joining fragments, *c.*40%, melon bead. Blue. Six vertical and diagonal grooves. Wear at ends of perforation.

Ht.: 14.5

045 PH 3314 FE

Fragment, melon bead. Pale blue. Six slightly diagonal grooves. Surfaces very heavily weathered.

Ht.: 11 Diam. of perforation: c.8

046 PH 3314 FE

Fragment, melon bead. Grey with small traces of turquoise glaze. Five slightly diagonal grooves. Surfaces very heavily weathered.

Ht.12

047 PH 31X23

Fragment, c.25 %, melon bead. Traces of turquoise glaze. Five vertical grooves. Heavily weathered surfaces.

Ht.: 14 Diam. of perforation: 6

047b PH 3917

Fragment, melon bead, c.20%. Traces of turquoise glaze. Three vertical grooves. Heavily weathered surfaces.

Ht.: 11.5 Diam. of perforation: 6

Counters

048 PH 3302 35

Fragment, c.90% piano-convex counter. Translucent light blue. Patches of wear on uneven lower surface. Some large bubbles on the surface. Large white inclusions.

Ph: 6 Diam.: 13

049 PH 90 3737

Complete piano-convex counter. Opaque white. Most of lower surface worn flat. Brown and black specks. Small bubbles at surface.

Ph: 5.5 Diam.: 13

050 PH 3805 9

Two joining fragments, complete piano-convex counter. Dark, appearing 'black'. Light patches of wear and uneven and pitted lower surface.

Ph: 7 Diam.: 17.5 (Figure 66:4).

051 PH 3302 36

Complete piano-convex counter. Dark, appearing 'black'. Small area chipped off base. Uneven base; base and part of side pitted.

Ph: 6 Diam.: 14.5

BROMPTON/PENTREHYLING: DISCUSSION

by ROGER H. WHITE

Whilst the delay in getting this report to publication has been regrettably protracted, there has been one benefit. This is that there has been considerable research undertaken on all aspects of Roman military studies within Wales and the Marches which has greatly extended our understanding of the chronology, layout and function of the forts and fortresses in the region (Webster 2002; Davies and Jones 2006; Burnham and Davies 2010; White, Gaffney and Gaffney 2013). More importantly, the conceptual study of the Roman Army has moved on immeasurably over the nearly two decades since excavation ceased. The intellectual questions relating to the wider social and economic role of the army in respect of its logistical requirements, for example, have driven a great deal of debate, much of it fuelled by the revelatory discoveries contained within the Vindolanda tablets (Bowman 1994). The discovery, and deciphering, of the contents of these documents has thrown all sorts of insights into the garrisoning and operation of forts at the end of the 1st and into the 2nd century A.D., when the Roman Army was at the very peak of its power. The congruence between the contents of the Vindolanda tablets and papyrii from similar contexts in Egypt permit us to extrapolate the findings across the Empire; the documents in short cover similar situations and relationships at the extremities of Empire which rather suggests that these were common problems and issues seen across the whole Empire (Davies 1989a; Bowman 1994). Most illuminating of all has been the relationship between the army and the local civilian community displayed in the tablets, albeit in tangential and often opaque references. Another conceptual change in Roman military studies has been the realisation that women and children were not necessarily barred from the presence of forts and fortresses so that the social separation between military and civilian implied in earlier military studies is probably incorrect (Allison 2006; Tomášková 2006; James 2006; Becker 2006).

Alongside this refocusing of Roman military studies, the contextualisation of the research at Brompton/Pentrehyling has been greatly enhanced by both the impact of developer-funded archaeology within the region since 1991 and by the work carried out between 1994 and 1997 by the Wroxeter Hinterland Project (WHP). The former has enabled us to examine many more rural Roman sites in Shropshire than has been possible heretofore and the latter has permitted a characterisation of the background noise of cultural material within central Shropshire (Hunn 2000; Gaffney and White 2007; White, Gaffney and Gaffney 2013). Analysis of the results of the WHP in particular has enabled us to investigate existing research questions relating to the economic and social impact of Roman settlement within the Cornovian heartland and permitted a much more nuanced understanding of the Cornovian economy over time. Despite these considerable advances there are still many research questions that remain, as will become apparent as the discussion unfolds. The work reported on here is thus still important to relate since the sequence uncovered by John Allen and his team undoubtedly adds to our understanding of the *Cornovii*, their territory and their relationship to the Roman state, but also poses fresh and unanswered questions about the economy and society of the period. In the light of these new considerations and debates, the results of the excavations at Brompton and Pentrehyling can now be considered.

Strategic considerations

It seems fitting to start with the traditional aspects of study for these monuments: their date and relationship to the wider questions of the conquest and suppression of territory that the Roman Army carried out in the first few generations after the conquest of A.D.43. In this, we need to separate out the temporary camps at Brompton and

the more permanent fort at Pentrehyling. Although only separated by a few hundred metres, the two types of fortification represent very different phases of activity undertaken by the Roman Army.

The earlier camps, at Brompton, relate to the phase of initial conquest and subjugation of the area. That they are earlier than the fort at Pentrehyling is demonstrated by the cutting of the ditch of Camp 1 by the later road leading to the fort (Figure 5). A recent consideration of the evidence suggests that the creation of these camps occurred in the context of the Roman advance up the valleys of the Mule, Onny and Camlad rivers from the forts at Stretford Bridge, Herefordshire, to the south-east (Davies and Jones 2006, 65). This is as opposed to what may be characterised as the main route of attack into mid Wales from Wroxeter and along the Upper Severn Valley to Forden Gaer, Caersws and beyond.

Although Forden Gaer lies a mere 6.5km north of Brompton, the two routes are separated by a substantial ridge that will have encouraged the two routes of attack (Davies and Jones 2006, 65). Dating for this activity is difficult but a Flavian date seems probable given the comment by Davies and Jones that '*where camps exist in close proximity to permanent installations in Wales their context appears to be overwhelmingly Flavian*' (*ibid*, 37). It should be noted that the occurrence of one camp placed inside the other immediately infers that there were two periods of occupation but given the nature of campaigning there may well have been only a brief interval between the two periods (*ibid*, 36).

The fort and its *vicus*

The foundation of the more permanent fort at Pentrehyling lies also in the Flavian period and ostensibly reflects the intention to ensure the military subjugation of the wider area and to police it until the area was deemed to be quiescent. In this, the approach is entirely consistent with the rest of Britain, and indeed other comparable areas of the Empire, such as in Germany. The dating material indicates a foundation within the Flavian era, both glass and coins, for instance indicating a floruit in the period A.D.70–85 with a single Trajanic coin as an outlier (see coin report above). From what could be seen of the internal buildings, conventional barrack blocks with joint accommodation for men and horses seems evidenced, implying that either a *cohors equitata* (mixed cavalry and infantry) or an *ala quingenaria* (cavalry only) was in occupation (Davies 1989b; Burnham and Davies, 2010, 67–90). The identity of this garrison is not possible to determine, but the occurrence of a graffito on an amphora that appears to signal a Danubian origin for the writer (Tomlin, above) perhaps indicates the source of the troops: this would be consistent with other garrisons noted in Roman Britain at this period (Birley 1979, 90–6; de la Bédoyère 2001, 239–246). The only other visible details of the fort, the ramparts and gates, look to be entirely standard for the period. The lack of interval towers is more than likely illusory given the small scale of the trenches and the relatively small area excavated overall.

The occupation of the fort seems to have been brief — perhaps 20 years or less — since on the sensitive evidence of the samian and coins there was very little to suggest occupation by the garrison even beyond 100 A.D., while the absence of any early Black Burnished Ware indicates abandonment of the site, including the *vicus* by the 120s (Evans, above). It certainly seems the case that the fort was abandoned before the civilian settlement (a *vicus*), which itself had been established between the Brompton camps and the fort probably at the same time as the fort was founded. It was the activity from this settlement that appears to have spread into the fort once it had been decommissioned and to have taken over some of its structures. From the surviving evidence cupellation of lead to create silver, a state monopoly, was one of the main operations underway at this period. As has been noted by Bayley and Eckstein (above), direct evidence for cupellation in the form of litharge is rare in Britain and must demonstrate that the extraction of silver from lead ore in this region was feasible. Since the Shropshire lead mining areas are only a few kilometres to the east of Pentrehyling fort, this must mean that the Shropshire ores were economically worth exploiting for silver. In an email to the author, Dr. Peter Cloughton of the University of Exeter has commented on this:

'At present one can only speculate as to the source of the silver rich lead refined at Pentrehyling but the nearest and most likely source would be the western edge of the Shropshire orefield. My own work on the mining of silver-bearing ores shows that many orefields which, in the modern period, were regarded as being low in silver in fact produced significant amounts of silver during the medieval [period]. Although there is as yet little direct evidence for the Shropshire orefield, I do not expect it to be an exception.' (Cloughton, email 04/11/2003).

On this basis, one can surmise that Pentrehyling, rather than being founded for strictly military purposes, may have been founded in order to exploit the region's natural resources, providing a defended location where the supervised process of cupellation could occur, as well as supplying a workforce to police and supervise the mining operation. In this scenario, the ore would have been mined from either Linley or Shelve, both areas known to have been

worked in the Roman period (White 2000, 34). Initial processing would have occurred, possibly at the Roman building complex excavated by Thomas Wright in the grounds of Linley Hall (Wright 1872, 24–29), with the ore then being taken to Pentreyling Fort, 10km to the west, for cupellation. Silver would then have been taken by the army for use by the state, while the lead would have been used locally either by the army or perhaps passed or sold on to the civilian authorities who were establishing the *civitas* capital at Wroxeter at the end of the 1st century A.D. (White, Gaffney and Gaffney 2013, 171–9).

If this scenario is accurate then the demise of the fort could well have been because the returns on cupellation were no longer great enough to justify the effort. The spreading of workings into the fort once it was abandoned may represent the continuing demand for lead or iron, which in itself may have been enough to account for the continuing, but limited, engagement with the trade routes evidenced by the pottery and other material culture in to the first decade(s) of the 2nd century. That lead production continued in the region into the early decades of the 2nd century is demonstrated by the survival of three lead pigs, all marked with the Emperor Hadrian's name, but carrying the initials of Roman citizens who were presumably lessees of the lead mines. These were found at Aston, Snailbeach and Snead, all in or near southern Shropshire (Whittick 1932; Frere, Roxan and Tomlin 1990, 50–53).

While the lack of material culture after the mid 2nd century at the latest suggests the site of the fort and its *vicus* were abandoned it is not possible to dismiss totally the idea that someone was using the site, since the earthwork defences would still have been highly visible: absence of evidence is not necessarily evidence of absence. Without the presence of the army, communities were far less able to engage with the Roman economic systems of trade and exchange, so the lack of later 2nd and 3rd century artefacts does not necessarily indicate total abandonment, especially since the 3rd century in particular is notorious for its poor artefactual evidence, a factor compounded by the lack of material culture generally prevalent in this region, highlighted by both the WHP and research by Michael Greene of the South West Shropshire Historical and Archaeological Society (pers. comm.). Such cultural preferences may also be reflected in the choice of Malvernian cooking pots, perhaps used by the inhabitants of the *vicus* for communal meals, as noted by Jane Evans (above). It is telling, however, that there are no late 3rd century coins at all, which does rather suggest that there was no substantive later 3rd century occupation.

Whether there was abandonment or not, there is clear evidence for 4th century activity on the site, albeit only through rubbish disposal, rather than in the form of structural evidence. The diagnostic artefacts include 4th century forms of Black Burnished ware, a characteristic indicator of late occupation in the region, and a coin of the House of Constantine. Much more significant, however, is the discovery of a late 3rd or early 4th century silver spoon with an inscription linked to Christian beliefs. This is an item of great value at the time and suggests high status occupation here or in the vicinity. Potentially, this occupation could have been military, given that officers at this date (such as might have been able to afford a spoon made of silver) were expected to be Christian and required to be so after A.D.379 (Stoll 2011, 471–3), while the rest of society was not, but there is no other proof of such high status individuals as might be expected (in the form of military brooches, buckles or weapons). The discovery of these items in a ditch fill suggests that there may have been extensive truncation of the latest levels of the site: the late Roman occupation levels, which can often be quite ephemeral, are in any case more vulnerable, being at the top of any likely sequence following abandonment. The lack of late Roman finds, even in the topsoil, does not, however, hint at extensive lost levels of occupation in contrast to the much more extended sequence seen at nearby Forden Gaer (Crew 1980; Jones 2010).

The fort, its community and its hinterland

Perhaps the most important aspect of the excavation at Brompton/Pentreyling has been the recovery of a wide range of artefacts and evidence for technology and production on the site. The finds are not in themselves unusual — they are indeed typical of many other forts throughout the Empire in the 1st and 2nd century — but this is in itself important for two reasons. The first is that it tells us that Pentreyling fort was in full communication with the normal Roman supply network. It can be assumed that the bulk of the material found on the site will have been re-exported from Wroxeter or, conceivably, Chester. Even in the relative wilds of the South Shropshire hills, a wide variety of pottery, including Traded and Imported wares are found, albeit in relatively low numbers. Similarly, the glass ware will have been imported, probably from the Rhineland, while some high status goods, such as the Bacchus handle, remind us of the variety of personnel living within the fort, since objects like these are more than likely to have been used in the officers' or non-commissioned officers' households.

Despite the relatively brief occupation, an adjacent settlement — the *vicus* — was swiftly established. This community appears to have been closely tied to the fort and did not long outlive the fort's demise. This suggests two things: one, the community in the fort were effectively camp followers and departed when the army, on whom they depended, moved on, and two, there is little evidence of local (native) engagement with the fort or its *vicus*. This is not unusual in this region. As noted by Sebastian Sommer:

In Wales and the northern military zone, the military *vici* must have had only limited functions for the natives' needs. Otherwise the *vici* would have continued to exist after the withdrawal of the garrisons. This observation implies, furthermore, that as a general rule the movement of people from the neighbourhood surrounding forts into the *vici* themselves must have been marginal (2006, 118).

Evidence is adduced by Jane Evans (above) to suggest that communal cooking was more prevalent in the *vicus* and that they had access to a narrow range of vessels of lower status, but this does not rule out the likelihood that the people themselves were not locals. While of lower status than the soldiers (which is hardly surprising), their use of pottery is different and unusual in this region: here you are lucky to find any Roman pottery in excavations, as has been demonstrated by South West Shropshire Archaeology's excavations, as well as those of others (Michael Greene pers. comm.). The locals probably did engage with the markets that would have been held in the *vicus*, even if only to gain access to the coin that they needed to pay their taxes. Unfortunately, the commodities that they were likely to have been trading are those most likely not to have survived archaeologically: meat and dairy products, leather, wool, grain and other crops. The acid soils at Pentrehyling have robbed us of the evidence for animal husbandry and diet which would have been such a key factor in the running of the fort, and in demonstrating the connection between native and Roman. As at Wroxeter, the reaction of the native people to the settlement and exploitation of the Brompton/Pentrehyling region by the Roman Army appears to have been largely one of indifference and lack of engagement (Gaffney and White 2007, 272–278).

Conclusion

The value of the excavations at Pentrehyling might seem relatively slight. The fort was established in the third quarter of the 1st century, and abandoned as a fort by the end of that century. A limited continuation was identified, which appeared to cease before the death of Hadrian in A.D. 138. After a long hiatus, evidence was found for some limited occupation in the mid 4th century with final abandonment probably not long afterwards. Beneath this bare sequence, however, lies a range of interesting and useful evidence for industrial practice, an integrated and effective means of exploiting the natural resources of the area, and evidence too of the economic pull that the Roman Army was able to exert in quite remote areas of Britain. Given our lack of knowledge and understanding of the detailed relationship between the Roman Army and the local people who lived and worked in the area at the time, Brompton/Pentrehyling has cast an important and full light on a critical period in the relationship between conqueror and conquered.

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