

HOUSESTEADS ROMAN FORT – THE GRANDEST STATION

Volume 1 Structural Report and Discussion

Alan Rushworth



ENGLISH HERITAGE

HOUSESTEADS ROMAN FORT – THE GRANDEST STATION

Volume 1

Structural Report and Discussion

HOUSESTEADS ROMAN FORT –
THE GRANDEST STATION
Excavation and survey at
Housesteads, 1954–95, by
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James Crow and others

Alan Rushworth

with contributions by

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Preface

The Tadmor of Britain (Stukeley 1776)
This famous oppidum (Gordon 1727)
Housesteads, the grandest station in the whole
line ... Here lies the ancient splendour in bold
characters (Hutton 1801)
A most wonderful station. It abounds with
remains (Lingard 1807)

The admiring comments of 18th- and early 19th-century antiquarian visitors to Housesteads, listed above, demonstrate that, only a short while after it had become accessible to scholars following the departure of the unruly Armstrong clan, the site had already acquired the status of one of Britain's pre-eminent archaeological monuments.

It remains so today. Housesteads represents perhaps the best-preserved, and certainly the most extensively displayed and dramatically positioned, fort on Hadrian's Wall, which is itself the most celebrated, evocative and best surviving of Rome's linear frontier barriers. As such the fort and the adjacent miles of Wall curtain in the Central Sector have acquired a virtually totemic status. For better or worse it is this site and its associated section which visitors most readily associate with Hadrian's Wall. Perched on its Whin Sill ridge, at the limit of a sparsely populated pastoral landscape and looking north over apparently uninhabited waste, it defines what the general public expect a Roman frontier to look like.

The monument's significance is reflected in the history of its investigation, which is associated with many of the most prominent scholars of Hadrian's Wall, beginning with John Hodgson in the 1820s. Hodgson's excavations at Housesteads initiated the archaeological as opposed to antiquarian study of the Wall and focussed in particular on the fort's gateways in the 1830s. Subsequent campaigns of investigation and clearance were directed by John Clayton, R C Bosanquet and F G Simpson. Bosanquet's work produced the first full plan of a fort on Hadrian's Wall (only the second in Britain as a whole, after Birrens). Eric Birley's investigation of the *vicus* in the 1930s, on behalf of the Durham University Excavation Committee, was the first to reveal an extensive area of a civil settlement. Excavation of the commanding officer's house and the hospital by John Wilkes and Dorothy Charlesworth, in the late 1960s and 1970s, completed the work of uncovering a full complement of the central range buildings, which had begun with Bosanquet in 1898 (the headquarters) and the National Trust in the 1930s (the granaries).

This process, which had begun to assume the character of a rolling programme of investigation, continued in the north-east corner of the fort under direction of Charles Daniels and John Gillam from 1974

onwards. The work was undertaken as the training excavation for the Department of Archaeology of Newcastle University and involved the excavation of another barrack block (XIII) and the two adjacent stretches of the north and east defences. It was accompanied, in 1979 and 1981, by selective reinvestigation of Buildings XIV and XV, to the south, which had been extensively explored by Wilkes on behalf of the Durham University Excavation Committee between 1959 and 1961. James Crow joined the directorial team in 1978 and when the programme came to an end in 1981 an entire quarter of the fort had been intensively investigated. Examination of the barrack block focussed in particular on the later Roman levels, which were characterised by the use of free-standing *contubernia* termed 'chalets' by the excavators. Buildings XIII and XIV (previously investigated in 1959–60) provided the best-surviving examples of this form of barrack, preserving evidence for numerous modifications over time. Complex structural sequences also survived in both stretches of the defences investigated, involving the removal of the rampart bank to make room for a series of workshops, followed later by the progressive refortification of the rampart areas, which entailed the reinstatement of the bank, the addition of interval towers and successive phases of rampart widening. Such an extensive and detailed examination of a frontier fort's defences was virtually unparalleled. There was also intriguing evidence for post-Roman activity in several areas. The new techniques of area investigation and enhanced standards of archaeological reporting which developed in the 1970s, particularly in the field of specialist analyses, meant that the level of data recovered and requiring publication greatly exceeded that associated with previous excavation reports for the site. It is this work that forms the core of the research published here.

As supervisors and students, many who were to go on to occupy academic and professional positions in archaeology were introduced to the delights of a Housesteads summer by these excavations. A photograph of the 1980 season's team, which included this editor, is displayed in the site museum. All I can say in our collective defence is that, had we realised how prominently and for how long the photograph would be displayed, I suspect we might have discarded our warm but less than sartorial headgear.

Subsequently, the only major excavation at the fort was that undertaken by Crow beside the north curtain in 1984 (published in *Archaeologia Aeliana* in 1988). Nevertheless, the 1980s did also see the completion of a detailed field survey of the environs of the fort by the RCHME and small-scale excavations by Crow, on behalf of the National Trust, on the terraces north of Housesteads farm and at the Knag Burn Gate. Interim

notes briefly summarising the 1974–81 excavation results were published in *Britannia* and presented in lectures and seminars, while Charles Daniels published an interim study of the chalets of Building XIII (1980) which was very influential. More recently Crow authored the English Heritage guidebook (1989) and a general study of the site (1995), now in its second edition (2004a), which have presented in broad outline some conclusions drawn from the excavations. Very detailed assessments of the archaeological and all other aspects of the site were also completed in this period (Crow and Rushworth 1994; Peter McGowan Associates *et al* 2002), which have contributed significantly to the preparation of this report. However, in part because of the long delay in the publication of the 1974–81 excavation programme, Housesteads has been somewhat overshadowed in recent years by the discoveries made at other sites, for example Birdoswald and South Shields, which have appeared in print more promptly.

It is this longstanding deficit which this report is intended to rectify. In addition to publishing the 1974–81 excavations in the north-east corner, it also contains the RCHME survey, Crow's excavations in the environs of the fort and David Smith's 1954 investigation of the frontage of the *principia*, while the results of Wilkes' excavations of Buildings XIV and XV are reviewed in the light of the 1974–81 findings at the appropriate points in the structural description. It thus represents the definitive statement regarding almost a

generation of archaeological research at a monument of international status and establishes a base for future study of the site. The report will add to the existing corpus of work along Hadrian's Wall and thereby inform future investigation of the World Heritage Site. The excellent preservation of the archaeological remains and deposits is apparent in the site photographs published here and should put paid to any lingering notion that early excavations had inflicted overwhelming damage to the archaeological deposits in the interior of the fort. This in turn highlights the potential importance of the site in addressing a wide range of outstanding questions concerning the northern frontier, and it is hoped the appearance of this work will help to reinstate Housesteads at the heart of Wall studies.

Alan Rushworth

Dedication

These volumes are dedicated to the memory of Charles Daniels and John Gillam, who together initiated the excavation project that forms the core of the work, but did not live to see the final appearance of the report. It is hoped that it will represent a fitting tribute to the outstanding contribution that both made to our understanding of the northern frontier and the inspirational introduction to its intellectual problems which they provided for many of the current generation of researchers.

Acknowledgements

I would like to thank all those who participated as students, volunteers and supervisors in the excavations reported on here. Particular thanks must go to Peter Moffat, Ian Caruana, James Crow and Mike Bishop who worked on the earlier stages of post-excavation work, preparing the initial structural reports, context and finds data that formed the foundations of this report. I would also like to express my gratitude to the specialists and other contributors whose names appear on the title page and above their contributions.

Funding for the 1974–81 excavations and initial post-excavation work was provided by the Department of the Environment, while the later stages were financed by English Heritage. The University of Newcastle upon Tyne also provided support through the Department of Archaeology training student dig and the salaried time of Charles Daniels and John Gillam. The patient encouragement and support on the part of Tony Wilmott, Alex Gibson, Pete Wilson and most recently Jonathan Last, of the Centre for Archaeology, who successively monitored the project on behalf of English Heritage, is greatly appreciated, all the more because the assignment must often have seemed to be a particularly intractable *provincia*. The dogged insistence on the part of David Sherlock that the project should be published was also vital in ensuring that forward momentum was maintained and I am also grateful for the support of Kate Wilson, David's successor as the regional Inspector of Ancient Monuments, and Mike Collins, the Hadrian's Wall Officer. Particular thanks must also go to Humphrey Welfare for his timely assistance in facilitating the final work to prepare the text for publication. Georgina Plowright, curator of the Hadrian's Wall Museums, made available for illustration many small finds from the excavations which are now stored at Corbridge Museum or displayed at Housesteads, and also for organising the assembly of the various fragments of *RIB* 1612 for photographing in preparation of the digital reconstruction of the full dedication (Fig 11.1).

I am particularly grateful to the late Charles Daniels and to James Crow for sharing their profound knowledge of the site. The collaboration with Jim in relation to the study of Housesteads has been a long-standing one involving joint preparation of a detailed archaeological assessment of the site and archaeological component of the Housesteads Conservation Plan, both of which contributed significantly to the preparation of this report. Equally crucial was the contribution of John Dore, whose unexpected death while this report was with the publishers is keenly felt by his friends and colleagues. As well as discussing the pottery from the site and its implications for dating, John provided invaluable advice and encouragement concerning many other aspects of the project, initially as

manager of the Newcastle University Archaeological Practice, and was instrumental in ensuring the final work to prepare the report for publication was completed. My long-suffering colleagues at the Archaeological Practice, Richard Carlton and Claire MacRae, and the staff members of the former Newcastle University Archaeological Practice also deserve especial thanks for their patient tolerance during the apparently interminable production of the report. Particular thanks must go to Claire for her invaluable assistance during the often exasperating work of preparing and reformatting the final draft of the typescript and illustrations for submission to the publishers. John Dore and Linda Green also provided vital help at this stage.

Miriam Daniels drew the bulk of the small finds illustrations, decorated samian vessels, mortaria stamps and graffiti. Tony Liddell was responsible for the remainder of the small finds and contributed to the coarseware drawing programme, as did Gary Forster who drew amphora type AM 2. The illustrations in the other specialist reports were prepared by the specialists themselves. All the finds illustrations in the various chapters of Volume 2 were page-mounted by Alan and Liz Williams.

The site planning was undertaken by Eric Balley, Brian Williams, Charles Daniels, James Crow and the supervisory staff. Annie Gibson-Ankers inked the plans of the 1974–81 excavation for publication with later revisions by Philip Cracknell, Alan Williams, Mark Hoyle and Dayne Winskell. Final corrections were undertaken by Claire MacRae. Tony Liddell drew the plans and sections in Chapter 10, based on original site drawings by Brian Williams and James Crow. The plans associated with the RCHME survey of Housesteads environs were prepared for publication by Philip Sinton (Figs , 10.3, ). The plan of the hospital (Building IX) was based on a survey by P Staniczenko of the Newcastle University Department of Surveying.

The digital restorations of *RIB* 1612 and the shrine of Mars Thincsus were produced by Mark Hoyle (Figs 11.1, 11.4). The reconstruction drawing of the shrine was drawn by Ivo Mott (Fig 11.5). The restoration of *RIB* 1613 (Fig 11.11) was drawn by Alexandra Rowntree and is reproduced after Crow 2004a, fig 49. The following illustrations derived from *Archaeologia Aeliana* are reproduced courtesy of the Society of Antiquaries of Newcastle upon Tyne (Figs 1.4, 7.14, 10.19, 11.7, 11.21). The extract from the Military Road Survey held at Northumberland Record Office (NRO SANT/PLA/7/2/1/1A) and John Hodgson's 1833 plan of the east gate are also reproduced courtesy of the Society of Antiquaries of Newcastle upon Tyne. The extract from the Thorngrafton Inclosure map of 1797 (NRO QRA 50) is reproduced with permission

of Northumberland Collections Service. F G Simpson's photograph of the north-east angle (Fig 3.2), previously published as Simpson 1976, fig 51, is reproduced with the permission of Dr Hilary Simpson (original copy held by Cumbria Record Office, Carlisle). The comparative, interpretive and reference plans in Chapters 1, 9, 10 and 11 were prepared by Tony Liddell, Ben Johnson and Claire MacRae.

The 1974–81 site photographs were taken by Charles Daniels and James Crow, those relating to the 1987 excavations on the farm terraces again by James Crow, while David Smith took the photographs in Chapter 8 covering the 1954 excavation of the *principia* façade. Those relating to the 1959–61 excavations were taken by John Wilkes on behalf of the Durham

University Excavation Committees (Figs 1.7, 3.20, 4.29, 7.15, 7.17). The views of remains exposed during consolidation works were taken by the late Charles Anderson in his capacity as site foreman for the Ministry of Works (Figs 1.8, 9.4–5). The photographs of earlier excavations held in the Hadrian's Wall Archive (Figs 1.5–6, 3.11, 9.3, 9.6, 11.18–19) are reproduced with the permission of the Museum of Antiquities, University of Newcastle upon Tyne. The original photographs of the oblique aerial views of the fort and *vicus* reproduced in Chapter 10 are held in the Cambridge University Collection of Air Photographs, Unit for Landscape Modelling (Figs 10.20, 10.21). All the original prints and slides selected for publication were scanned by Claire MacRae and John Dore.

Summary

Between 1974 and 1981, an extensive area of Housesteads fort was investigated through the Newcastle University archaeological training excavation, under the direction of Charles Daniels, John Gillam and James Crow. In conjunction with the Durham University excavations directed by John Wilkes between 1959 and 1961, which uncovered Buildings XIV and XV, the 1974–81 programme provided a complete plan of the north-east part of the fort. The main areas examined comprised Building XIII and the stretches of rampart between the north and east gates. Despite much earlier digging, good stratigraphic sequences survived, while the large finds assemblages recovered shed much light on the material culture of the fort and the structural and chronological relationships between various parts of the site. Furthermore, limited reinvestigation of Building XIV and excavation of the east end of XV allowed significant reinterpretation of certain aspects of Wilkes's excavations results, in particular the construction of the massive storehouse occupying site XV, which was redated to around AD 300. Accordingly, the evidence from both excavation campaigns is taken into account in Chapters 2–7 to provide a full history of this part of the fort.

The evidence revealed spanned the full 300-year period during which the fort formed an integral part of a military frontier, for much if not all of that time the base of the *cohors I Tungrorum milliaria peditata*, while traces of pre- and post-Roman activity were also uncovered. Traces of possible cord rig cultivation were uncovered beneath *Contubernia* 1 and 8 in Building XIII, taking the form of a series of parallel gullies cut into the natural subsoil. The 2nd- and 3rd-century barrack levels of Building XIII presented an uninterrupted sequence of relatively minor alterations to the internal arrangements, these being especially well represented in the centurion's quarters. This picture of apparent continuity provides an interesting contrast to the historical narrative of conflict and upheaval relating to the 2nd and early 3rd centuries.

In the rampart areas an unexpected complexity of structures and sequences was revealed, including detailed evidence for a series of workshops dating to the 3rd century. Analysis of associated metalworking debris – the range and quantity of which is unparalleled from a Roman military site in Britain – suggested that manufacture rather than simply repair of equipment, was taking place there. This evidence raises important questions regarding the extent and location of metalworking activities in Roman forts, and the way in which archaeologists have hitherto conceptualised such activities.

The scale of the military renewal that occurred in the later 3rd or early 4th century is very apparent. New construction included interval towers, the remodelling

of the barrack blocks as ranges of freestanding chalets and the erection of a huge storehouse, Building XV, which may have been intended to hold taxation in kind. Comparison of the coinage from the fort and *vicus* strongly indicates that the civil settlement had already been abandoned prior to this rebuilding, probably during the 270s.

The later phases of Building XIII and XIV have hitherto attracted the most attention as they represent the archetypal examples of a particular class of later Roman military accommodation now termed 'chalets', which consist of ranges of free-standing dwellings separated by narrow alleys. Whereas Wilkes (1966) had considered that the chalet was simply a different form of *contubernium* and accordingly argued that the later Roman fort still housed a substantial force of several hundred men, Daniels (1980) suggested that each individual chalet housed an individual hereditary soldier with his family who guarded the frontier and farmed the lands around the fort. Improvements in our understanding of the later Roman army since the appearance of Daniels's preliminary discussion, mean the soldier–farmer model is no longer tenable, while the material evidence of the small finds provides no support for the theory that women were present in the chalets. Analysis of the spatial distribution of small finds in XIII – in particular artefacts that might be indicative of female use – suggest that, on the evidence of the small finds, ordinary soldiers do not seem to have had female dependants living with them in the *contubernia* or chalets. This pattern did not change between the Principate and the later empire.

Military occupation continued right up to the end of the Roman period. Numerous structural modifications attributable to the later Roman era were identified and considerable quantities of late 4th-century material were recovered, much of which was unstratified. The evidence relating to this period from the north rampart was particularly interesting, with the rampart spreading to ever greater width as a result of the slumping of deposits, and the interval tower apparently rebuilt in timber following the collapse of the north curtain. Traces of oval, sub-circular or D-shaped structures were revealed at either end of Building XIII and on the adjacent road surfaces, providing valuable evidence regarding the later Roman–early medieval transition in the northern frontier zone. This later activity may be related to the possible ecclesiastical presence previously identified a little further west near the north curtain.

Several additional pieces of fieldwork conducted at Housesteads between 1954 and 1995 are also included here in Chapter 10. A survey of the landscape around the fort was undertaken by the RCHME in the 1980s, revealing an extremely complex palimpsest, spanning

over two millennia of human occupation. The analysis presented emphasises the extent of post-Roman activity at Housesteads, with multiple phases of cultivation evident, which must be related to the succession of farmsteads located inside and adjacent to the fort. Three small excavations were conducted by James Crow in the neighbourhood of the fort in the 1970s and 1980s under National Trust auspices. These comprise a watching brief for the digging of a waterpipe from the Roman well at the foot of Chapel Hill in 1976, the excavation of several trenches on the agricultural terrace between the museum and the farm in 1987 and the reinvestigation of the Knag Burn Gate in 1988. The results of the terrace excavation, in particular, neatly complement the RCHME survey and show what could be achieved by further targeted investigation of the surveyed palimpsest.

Excavation along the east front of the headquarters building by D G Smith in 1954 pointed to the addition of a platform supporting a portico along the building's facade. A survey of the various stretches of dressed masonry, principally the fort gateways, was undertaken by Peter Hill in 1995, and provided significant

information regarding the primary construction phase, in particular, suggesting that building of the fort defences was twice interrupted for periods of indeterminate length.

In Chapter 11, the results of the preceding chapters are summarised to produce an overall discussion of the development of the site during the Roman and later periods. Certain themes highlighted by the 1974–81 excavations are explored further, including the function of the chalet ranges and the large storehouse, Building XV, and the evidence for occupation in the immediate post-Roman period. The current state of knowledge regarding the various units known to have been stationed at the fort is also analysed here, based on detailed consideration of the epigraphic evidence from the site. The history of settlement at Housesteads is brought up to the present day, with particular attention being devoted to the evidence relating to the series of farmhouses that were built on the site from the late medieval or early modern era onwards.

A summary of the substantial material assemblages contained in Volume 2, and their significance, is provided at the beginning of that volume.

Résumé

De 1974 à 1981, une zone étendue du fort de Housesteads a été étudiée dans le cadre de fouilles de formation en archéologie menées par l'université de Newcastle sous la direction de Charles Daniels, John Gillam et James Crow. En conjonction avec les fouilles de l'université de Durham dirigées par John Wilkes et exécutées de 1950 à 1961, qui ont mis au jour les bâtiments XIV et XV, le programme de 1974-1981 a permis d'établir un plan complet de la partie nord-est du fort. Parmi les principales zones examinées figuraient le bâtiment XIII et certaines parties du rempart séparant les portes nord et est. Malgré des excavations bien antérieures, de bonnes séquences stratigraphiques subsistaient, et les assemblages importants d'objets découverts ont fourni des informations abondantes sur la culture matérielle du fort ainsi que sur les liens structurels et chronologiques entre différentes parties du site. En outre, le réexamen limité du bâtiment XIV et les fouilles menées sur la partie est du bâtiment XV ont abouti à une importante réinterprétation de certains aspects des résultats des fouilles de Wilkes, dont une nouvelle datation de vers 300 apr. J.-C. de la réserve massive qui occupait le site XV. Par conséquent, les traces découvertes dans le cadre des deux campagnes de fouilles sont prises en considération dans les chapitres 2 à 7 de manière à fournir une histoire complète de cette partie du fort.

Les vestiges mis au jour appartiennent à l'ensemble de la période de 300 ans durant laquelle le fort a formé partie intégrante d'une frontière militaire et a servi de base, sinon constamment du moins pendant une bonne partie du temps, à la *cohors I Tungrorum miliaria peditata*, mais on a également trouvé des indications d'une activité antérieure et postérieure à l'époque romaine. Des traces de cultures en *cord rig*, qui se présentent sous la forme de « caniveaux » parallèles creusés dans le sous-sol naturel, ont été découvertes sous les *Contubernia* 1 et 8 du bâtiment XIII. Les niveaux des casernes datant des II^e et III^e siècle présentaient une série ininterrompue de modifications relativement mineures de l'agencement intérieur, particulièrement bien représentées dans les quartiers des centurions. Cette impression de continuité apparente forme un contraste intéressant avec les récits historiques de conflits et de bouleversements liés au II^e siècle et au début du III^e.

Dans les zones des remparts, des structures et séquences d'une complexité inattendue ont été mises au jour, y compris des indications précises de l'existence d'une série d'ateliers datant du III^e siècle. L'analyse des débris métalliques associés à ces structures – dont la diversité et la quantité sont sans parallèles parmi les sites militaires romains découverts en Grande-Bretagne, indique qu'à cet endroit, se déroulaient des activités de fabrication plutôt que de

simple réparation du matériel. Ces vestiges soulèvent des questions importantes concernant l'étendue et l'implantation des activités de travail du métal dans les fort romains et concernant les hypothèses jusqu'à présent établies par les archéologues concernant ces activités.

L'ampleur du renouveau militaire qui s'est produit à la fin du III^e siècle et au début du IV^e est très apparente. Parmi les nouvelles constructions, figuraient des tours intermédiaires, le réaménagement des casernes sous la forme de *chalets* séparés et la construction d'une énorme réserve, le bâtiment XV, qui servait peut-être à stocker des impôts en nature. La comparaison des pièces de monnaie découvertes au fort et au *vicus* tend fortement à indiquer que l'agglomération civile avait déjà été abandonnée avant cette reconstruction, probablement durant les années du 270.

Ce sont les phases plus tardives des bâtiments XIII et XIV qui ont attiré jusqu'à présent le plus d'attention car elles représentent des exemples typiques d'une forme tardive particulière d'hébergement des soldats romains aujourd'hui désignée [en anglais N.d.T.] par le terme de «*chalets*», qui consiste en des rangées de logements distincts séparés par des allées étroites. Alors que pour Wilkes (1966), le chalet ne représentait qu'un type différent de *contubernium* et que, par conséquent, à la fin de l'époque romaine, les forts continuaient d'abriter des effectifs importants de plusieurs centaines d'hommes, Daniels (1980) a suggéré que chaque *chalet* abritait un seul soldat héréditaire accompagné de sa famille, qui gardait la frontière et cultivait les terres voisines du fort. La meilleure compréhension de ce qu'était l'armée romaine à la fin de l'empire acquise depuis l'hypothèse lancée par Daniels montre que le modèle du soldat-agriculteur n'est plus défendable, tandis que les preuves matérielles apportées par les petits objets découverts ne confirment en rien la présence de femmes dans les *chalets*. L'analyse de la distribution spatiale des petits objets découverts dans le bâtiment XIII, en particulier des artefacts susceptibles d'avoir été utilisés par des femmes, indique que les soldats ordinaires ne semblent pas avoir partagé leurs *contubernia* ou *chalets* avec des femmes. Rien n'a changé à cet égard entre le principat et la fin de l'empire.

L'occupation militaire a continué jusqu'à la fin de l'époque romaine. De nombreuses modifications structurelles attribuables à la période finale de cette époque ont été identifiées, et des quantités importantes de matériel de la fin du IV^e siècle ont été retrouvées dont une grande partie n'était pas stratifiée. Les données relatives à cette période provenant du rempart nord se sont avérées particulièrement intéressantes, cette structure s'étalant sur une largeur toujours plus grande sous l'effet de l'effondrement des dépôts, et la tour d'intervalle ayant apparemment été reconstruite

en bois après l'effondrement de la courtine nord. Des traces de structures ovales, sous-circulaire ou en forme de D ont été révélées à chaque bout du bâtiment XIII et sur les surfaces de la route adjacente, ce qui fournit des indications précieuses concernant la transition entre la fin de l'époque romaine et le début du Moyen Âge dans la zone de frontière septentrionale. Cette activité plus tardive est peut-être liée à la présence ecclésiastique possible identifiée un peu plus à l'ouest près de la courtine nord.

Plusieurs autres campagnes menées à Housesteads entre 1954 et 1995 figurent également dans le chapitre 10. L'étude topographique du paysage voisin du fort exécutée par la Royal Commission on the Historical Monuments of England (RCHME) dans les années 1980 fait apparaître un palimpseste extrêmement complexe, englobant deux millénaires d'occupation par l'homme. L'analyse présentée souligne l'ampleur de l'activité qui s'est déroulée à Housesteads après l'époque romaine et fait apparaître des phases diverses de culture, qui doivent être liées à la succession d'exploitations agricoles situées à l'intérieur et dans le voisinage du fort. Trois petites fouilles ont été menées par James Crow aux abords du fort dans les années 1970 et 1980 sous les auspices du National Trust. Celles-ci comprennent la surveillance de l'excavation d'une conduite d'eau partant du puits romain situé au pied de Chapel Hill, la fouille de plusieurs tranchées situées sur la terrasse agricole qui se trouve entre le musée et la ferme en 1987 et le réexamen de Knag Burn Gate en 1988. Les résultats des fouilles de la terrasse, en particulier, concordent bien avec l'étude de la RCHME et montrent ce qui pourrait être réalisé au moyen d'un examen ciblé du palimpseste examiné.

Les fouilles menées en 1954 le long du côté est du bâtiment du quartier général par D G Smith ont indiqué qu'une plate-forme soutenant un portique avait peut-être été ajoutée le long de la façade du bâtiment. Une étude de diverses étendues de maçonnerie taillée, principalement les portes du fort, a été réalisée par Peter Hill en 1995 et a fourni des informations importantes concernant la phase de construction primaire. Celles-ci suggèrent en particulier que l'aménagement des défenses du fort a été interrompu deux fois pendant des périodes de durée indéterminée.

Dans le chapitre 11, les résultats des chapitres précédents sont résumés de manière à donner une vue d'ensemble de l'aménagement du site durant la période romaine et les périodes postérieures. Certains des thèmes mis en lumière par les fouilles de 1974 à 1980 sont étudiés dans plus de détails, y compris la fonction des *chalets* et de la grande réserve, le bâtiment XV, ainsi que les vestiges confirmant l'occupation qui a suivi immédiatement la période romaine. L'état actuel des connaissances concernant les diverses unités dont la présence au fort est attestée fait également l'objet d'une analyse basée sur l'examen détaillé des données épigraphique venant du site. L'histoire de l'occupation de Housesteads est poursuivie jusqu'à la période actuelle en consacrant une attention particulière aux vestiges liés à la série de fermes construites à cet endroit à partir de la fin de la période médiévale ou du début de la période moderne.

Un résumé des assemblages de matériel substantiels décrits dans le volume 2, et leur importance, est fournie au début du volume en question.

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Zusammenfassung

Von 1974 bis 1981 wurde ein großer Bereich des Römerkastells Housesteads im Rahmen einer archäologischen Schulungsausgrabung der Newcastle University unter Leitung von Charles Daniels, John Gillam und James Crow untersucht. Zusammen mit den Ergebnissen der Ausgrabungen der Durham University von 1959 bis 1961 unter Leitung von John Wilkes, bei denen die Gebäude XIV und XV freigelegt wurden, konnte mit dem Programm von 1974–81 ein vollständiger Grundriss des nordöstlichen Teils der Festung erstellt werden. Die untersuchten Hauptbereiche umfassten Gebäude XIII und die Teile des Festungswalls zwischen den nördlichen und östlichen Toren. Trotz zahlreicher früherer Grabungen sind noch gute stratigraphische Sequenzen erhalten geblieben. Die Assemblagen aus den großen Fundstellen gaben viel Aufschluss über die materielle Kultur des Kastells und die strukturelle und chronologische Beziehung zwischen unterschiedlichen Bereichen der Stätte. Darüber hinaus ermöglichte eine begrenzte Neuuntersuchung von Gebäude XIV und die Ausgrabung der Ostseite von XV eine wichtige Neuinterpretation bestimmter Aspekte von Wilkes Ausgrabungsergebnissen wie die Neudatierung des Baus des massiven Lagerhauses in das Jahr 300 n. Chr, das auf Stätte XV stand. Die Nachweise aus beiden Ausgrabungen werden in Kapitel 2-7 berücksichtigt und bieten einen vollständigen geschichtlichen Überblick über diesen Teil des Kastells.

Die gefundenen Nachweise umfassten die gesamten 300 Jahre, in denen die Festung ein wesentlicher Bestandteil einer militärischen Grenze bzw. zeitweise, wenn nicht sogar über den gesamten Zeitraum, der Stützpunkt der *cohors I Tungrorum miliaria peditata* war. Hinweise auf Aktivitäten vor und nach der Römerzeit wurden ebenso freigelegt. Spuren, die auf eine Cord Rig Kultivierung (im prähistorischen Großbritannien praktiziertes Anbausystem) hinweisen, wurden unterhalb von *contubernia* 1 und 8 in Gebäude XIII gefunden. Sie bilden die Form einer Reihe von parallelen Rinnen, die in den natürlichen Untergrund geschnitten wurden. Die Barackenetagen von Gebäude XIII im 2. und 3. Jahrhundert zeigen eine ununterbrochene Abfolge von relativ kleinen Veränderungen der Innenaufteilung. Diese zeigen sich besonders gut in den Quartieren der Zenturionen. Dieses Bild von offensichtlicher Kontinuität steht in einem interessanten Kontrast zu den erzählten Konflikten und Umbrüchen im 2. und 3. Jahrhundert.

Im Bereich des Festungswalls wurden unerwartet komplexe Strukturen und Sequenzen freigelegt wie ein detaillierter Nachweis für eine Reihe von Werkstätten, die auf das 3. Jahrhundert datiert werden. Eine Analyse von damit in Zusammenhang stehendem Metallschrott, dessen Ausmaß und Menge für römische

Militärstützpunkte in Großbritannien einzigartig ist, legt nahe, dass hier produziert wurde und nicht nur einfache Reparaturen an der Ausrüstung vorgenommen wurden. Diese Fundstücke werfen wichtige Fragen im Hinblick auf das Ausmaß von römischer Metallverarbeitung in Römerkastellen auf und wo diese stattfand bzw. das Bild, das Archäologen von diesen Aktivitäten bisher hatten.

Das Ausmaß der militärischen Erneuerung, die im ausgehenden 3. oder frühen 4. Jahrhundert stattfand, ist sehr augenfällig. Neubauten umfassten Zwischentürme, die Umwandlung der Barackenblöcke in freistehende Chalets und die Errichtung eines riesigen Lagerhauses, Gebäude XV, in dem möglicherweise bestimmte Steuereinnahmen gelagert wurden. Ein Vergleich des Münzgelds aus dem Römerlager und dem *vicus* weist stark darauf hin, dass die zivile Besiedlung bereits vor diesem Wiederaufbau, vermutlich in den 70er Jahren des 2. Jahrhunderts, aufgegeben worden war.

Den späteren Phasen von Gebäude XIII und XIV kam bisher die größte Aufmerksamkeit zu, weil sie den Archetyp einer bestimmten Klasse von später römischer militärischer Behausung darstellen, die heute als „Chalet“ bezeichnet wird. Es handelt sich um Reihen von freistehenden Hütten, die durch schmale Gassen getrennt sind. Während Wilkes (1966) davon ausging, dass das Chalet schlicht eine andere Form eines *contubernium* darstellte und demzufolge argumentierte, dass das späte Römerkastell noch ein bedeutendes Heer von mehreren Hundertschaften beherbergte, meinte Daniels (1980), dass jedes Chalet von einem individuellen seßhaften Soldaten mit seiner Familie bewohnt wurde, der die Grenze bewachte und das Land rund um das Kastell bestellte.

Neue Erkenntnisse über die späte römische Armee seit Daniels einleitender Diskussion führen dazu, dass das Bauernsoldatenmodell nicht länger haltbar ist. Materialnachweise aus den kleinen Fundstellen liefern keinen Hinweis für die Theorie, dass Frauen in den Chalets lebten. Eine Analyse der räumlichen Aufteilung der kleinen Fundstellen in XIII – insbesondere Artefakte, die auf weibliche Benutzer hinweisen, legt nahe, dass gemeine Soldaten anscheinend keine weiblichen Angehörigen in den *contubernia* oder Chalets hatten. Dieses Muster bleibt zwischen Prinzipat und dem späteren Imperium unverändert.

Die militärische Besatzung dauerte bis zum Ende der römischen Ära an. Zahlreiche strukturelle Änderungen, die der späten römischen Periode zugeordnet werden, wurden identifiziert und große Mengen Material aus dem späten 4. Jahrhundert entdeckt. Ein großer Teil davon war nicht geschichtet. Die Nachweise aus dem nördlichen Wall bezüglich dieses Zeitraums waren besonders interessant. Der Wall breitete sich

durch das Absacken von Ablagerungen noch weiter aus und der Zwischenturm wurde offensichtlich aus Holz wieder aufgebaut, nachdem die Nordgrenze zusammengebrochen war. Spuren von ovalen, halbrunden oder D-förmigen Strukturen wurden an jedem Ende von Gebäude XIII und den angrenzenden Straßenoberflächen gefunden, die wertvolle Nachweise zum Übergang vom römischen Reich ins Frühmittelalter aus dem nördlichen Grenzgebiet liefern. Diese spätere Aktivität könnte mit einem möglichen Vorhandensein einer Kirche zusammenhängen, die etwas weiter westlich nahe der Nordgrenze entdeckt wurde.

Weitere Teile von Feldarbeit, die von 1954 bis 1995 in Housesteads durchgeführt wurden, sind hier auch in Kapitel 10 enthalten. Eine von der Royal Commission on the Historical Monuments of England (RCHME) in den 1980er Jahren durchgeführte Untersuchung der Landschaft rund um das Kastell zeigte einen extrem komplexen Palimpsest, der über zwei Jahrtausende menschlicher Besiedlung umspannt. Die vorgelegte Analyse unterstreicht das Ausmaß der Aktivitäten in Housesteads nach der Römerzeit mit einer Vielzahl von Kultivierungsphasen, die mit den Gehöften in Zusammenhang stehen müssen, die innerhalb und in der Nähe des Kastells standen. Unter Schirmherrschaft des National Trust wurden drei kleine Ausgrabungen in den 70er und 80er Jahren des 20. Jahrhunderts von James Crow in der Nachbarschaft des Kastells durchgeführt. Diese beinhalten eine Kurzbeobachtung für das Graben einer Wasserleitung vom römischen Brunnen am Fuß von Chapel Hill im Jahr 1976, die Ausgrabung von mehreren Gräben der landwirtschaftlichen Terrasse zwischen dem Museum und dem Bauernhof im Jahr 1987 und die Neuuntersuchung von Knag Burn Gate im Jahr 1988. Insbesondere die Ausgrabungsergebnisse an der Terrasse runden sehr schön die RCHME-

Studie ab und zeigen, was durch weitere gezielte Untersuchungen an dem schon analysierten Palimpsest erreicht werden könnte.

Ausgrabungen entlang der östlichen Seite des Hauptgebäudes von D.G. Smith im Jahr 1954 wiesen auf eine zusätzliche Plattform hin, die einen Säulengang entlang der Gebäudefassade stützte. Eine Untersuchung der verschiedenen Abschnitte von verputztem Mauerwerk, insbesondere die Portale des Kastells, wurde 1995 von Peter Hill durchgeführt und brachte wichtige Informationen bezüglich der anfänglichen Bauphase. Diese weisen insbesondere darauf hin, dass der Bau der Befestigungsanlagen zweimal für jeweils einen Zeitraum unbestimmter Länge unterbrochen worden war.

In Kapitel 11 werden die Ergebnisse der vorhergehenden Kapitel für eine umfassende Diskussion der Entwicklung der Stätte während der römischen Ära und späteren Perioden zusammengefasst. Bestimmte Themen, die durch die Ausgrabungen von 1974–81 unterstrichen wurden, werden weiter untersucht, wie die Funktion der Chalet-Reihen und des großen Lagerhauses, Gebäude XV, und die Nachweise für eine Besiedlung direkt im Anschluss an die Römerzeit. Der aktuelle Wissensstand bezüglich der verschiedenen Einheiten, die hier stationiert waren, wird an dieser Stelle ebenfalls auf Grundlage der epigraphischen Nachweise aus der Stätte analysiert. Die Geschichte der Besiedlung von Housesteads wird bis zum heutigen Tage gezeigt. Besondere Berücksichtigung finden hier die Nachweise für eine Reihe von Bauernhäusern, die auf der Stätte seit dem späten Mittelalter bzw. der frühen Neuzeit gebaut wurden.

Am Anfang von Band 2 steht eine Zusammenfassung der umfangreichen Materialassemblagen und ihrer Bedeutung.

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1 Introduction

This volume is principally concerned with the excavations that were conducted in the north-east quarter of Housesteads Roman fort between 1974 and 1981, under the direction of C M Daniels, J P Gillam and J G Crow. The excavations embraced three of the fort's main internal buildings (comprising two barrack blocks, XIII and XIV, and a third structure, XV, which served a more diverse range of functions) plus the adjacent stretches of the north and east ramparts, and represented the last in a series of important programmes of investigation conducted in the interior of the fort after 1945. The work also brings to publication a number of fieldwork projects conducted in the environs of Housesteads during the 1970s and 1980s, the most notable of these being the extensive earthwork survey undertaken by the Royal Commission on Historical Monuments of England (RCHME) in the mid-late 1980s and the excavations on the agricultural terraces beside the farmhouse and in the Knag Burn Gate conducted by J G Crow in 1987 and 1988 respectively. Although these projects were not conceived as part of an integrated programme they undeniably complement one another and combine to provide a much

fuller understanding of the development of the site in its immediate landscape setting, not merely during the Roman period, but over a timespan extending from late prehistory right up to the modern era.

The site (Fig 1.1)

Housesteads Roman fort is one of the best-preserved sites along Hadrian's Wall (E B Birley 1961, 178–84; Daniels 1978, 138–55; Crow 1989, and 2004a; Peter McGowan Associates *et al* 2002). In recognition of its signal importance it has been placed in the guardianship of English Heritage and is incorporated within the Hadrian's Wall Military Zone World Heritage Monument, designated by UNESCO in 1987. The excellent preservation of the archaeological deposits over much of the fort has made Housesteads potentially one of the most informative sites for the study of the Roman army and frontier in the north of Britain (Crow and Rushworth 1994; Peter McGowan Associates *et al* 2002).

The fort stands on the Whin Sill escarpment in the central and most scenic sector of the Wall. The Whin Sill, an igneous intrusion of dense dolorite, provided

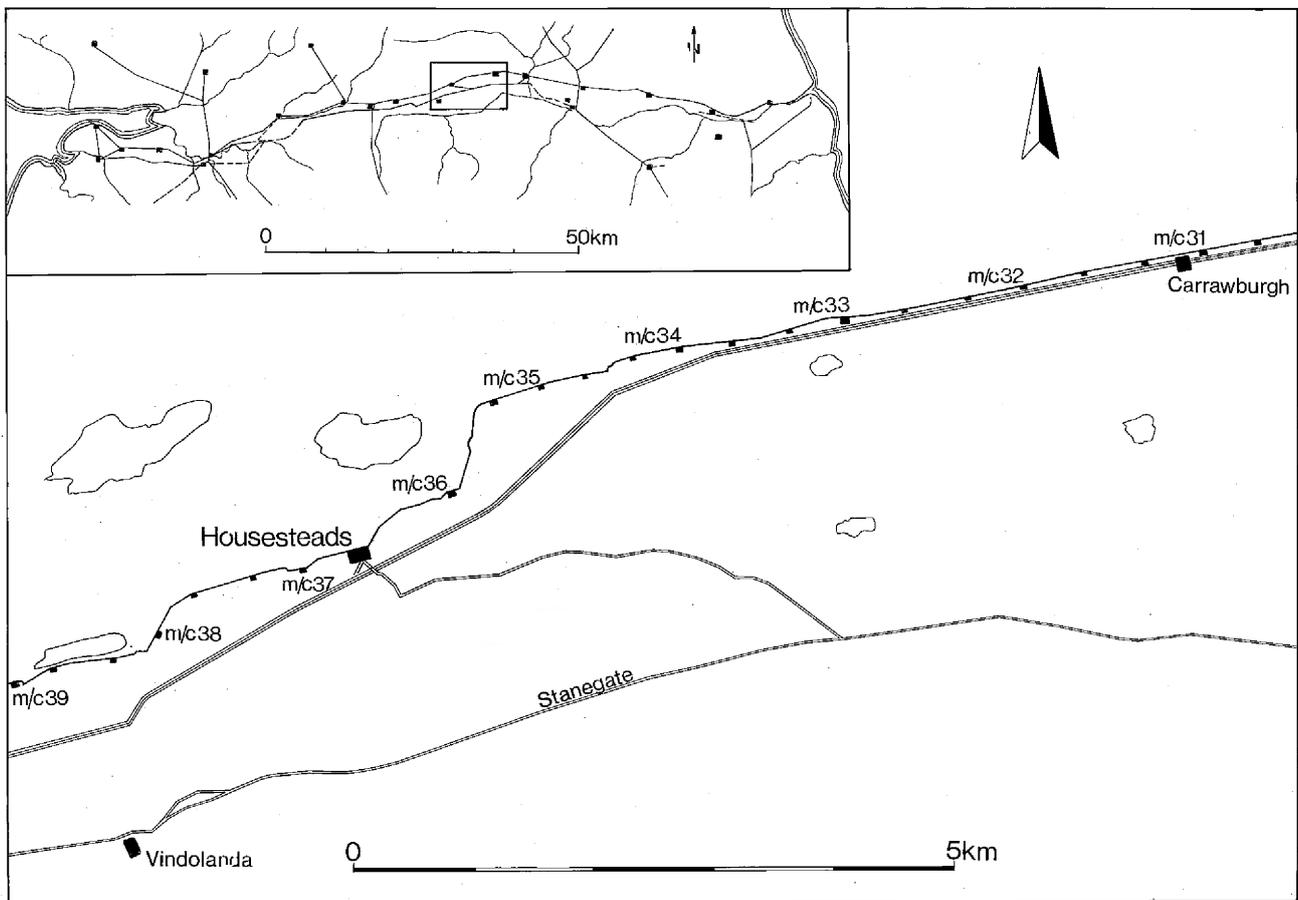


Fig 1.1 Location map of Housesteads.

impressive natural defences for the Roman frontier works. More generally, the complex geological structure, which shaped the scarpland topography of the surrounding landscape, has had a profound impact on settlement and cultivation in the area around the fort. This detailed relationship between geology and human settlement at Housesteads is discussed in Chapter 10.

The 2-hectare (5-acre) fort was designed to hold a milliary cohort of 800 men, conceivably the same *cohors I Tungrorum*, which garrisoned the site in the 3rd and 4th centuries, and was still recorded there by the *Notitia Dignitatum* c AD 395. The presence of units of German irregulars, the *cunei Frisiorum* and *numerus Hnaudifridi*, is also attested by 3rd-century epigraphy. The Roman name of the site, *Vercovicium*, is now thought to signify ‘place of the effective fighters’, a local British description of the first garrison (Rivet and Smith 1981, 493–4).

A large civil settlement or *vicus* extended around the southern flanks of the hillside, enveloping the fort from the east to west gates (Daniels 1978, 150–4; Salway 1965, 84–91, Peter McGowan Associates *et al* 2002, 181–8, 202–8 (A53–4, A71–4). Traces of field systems, which range in date from the Roman period (and perhaps earlier) to the 19th century, cover a wide area around the site.

History of investigation

The history of archaeological investigation at Housesteads is one of the most complex of any site on Hadrian’s Wall with innumerable interventions, large and small, not only within the fort but also in the surrounding area (Fig 1.2). The summary provided below focuses on previous work within the fort, with only the most significant work in the *vicus* and immediate environs being noted. A more detailed review of interventions outside the fort is contained in Chapter 10, where it is integrated with a wider discussion of the *vicus* and with reports on the most recent significant programmes of survey and excavation undertaken there – by respectively the Royal Commission on Historic Monuments and Buildings of England (RCHME) and James Crow on behalf of the National Trust.

The antiquarian phase – ‘the Tadmor of Britain’

The location of Housesteads at the heart of a notoriously violent and lawless Tudor frontier zone kept the site largely hidden from antiquaries during the 16th and 17th centuries. Fear of the border thieves (*‘praedones limitanei’*) dwelling thereabouts had prevented the antiquaries, William Camden and Robert Cotton from examining the central sector of the Wall east of Carvoran during their tour of the North in 1599, collecting material for a new edition of Camden’s *Britannia*, which appeared in 1600. As Hutton wryly observed 200 years later ‘the country itself would frighten [Camden], without the [moss]troopers’ (1802, 229).

However, the much more intrepid Bainbrigg, a school teacher at Appelby in Cumberland and one of Camden and Cotton’s principal northern informants, probably did manage to reach the site in 1601 (Haverfield 1911, 357–9). The short description he sent Camden is barely informative, but he copied one altar (*RIB* 1589), which Cotton was subsequently able to acquire, presumably through the efforts of Bainbrigg.

Bainbrigg’s brief stay apart, the period of antiquarian study of Housesteads did not really commence until the beginning of the 18th century, after the departure of its 17th-century tenants, the Armstrongs (a notorious clan of horse thieves), had made the site more accessible, and the publication of a new edition of Camden’s *Britannia* by Gibson in 1695 had reawakened scholarly interest in the Wall (E B Birley 1961, 9–12).

The first to examine the site was Christopher Hunter in 1702, whose account is contained in a letter printed in the *Philosophical Transactions* of the Royal Society, and he was followed by a rapid succession of antiquarian visitors in the next 30 years – Robert Smith in 1708, Warburton in 1716, Alexander Gordon and Sir John Clerk in 1724, Stukeley and Roger Gale in 1725 and John Horsley before 1730. There is a considerable emphasis on inscriptions, altars and sculpture in all the earlier reports, but the remains at Housesteads were too exceptional to be ignored, and much useful information was preserved.

Together the antiquarian accounts yield a considerable amount of archaeological information as well as illuminating the pattern of land-use and the destructive processes at work on the site during the 18th and early 19th centuries.

The highlights of these years include the site’s first cartographic depiction on Warburton’s 1716 *Map of Northumberland* where the fort was first identified as the ‘Borcovicus’, based on the entry in the *Notitia Dignitatum* and the first illustration of the site, a rough sketch by Stukeley in 1725 (not published until 1776), which shows the farmhouse in the centre of the fort, over the site of the hospital, and the curtain distinct on all four sides. Alexander Gordon recorded the earliest known excavation at Housesteads, noting that Sir John Clerk ‘caused the place to be dug where we were then sitting amidst the ruinous streets of this famous oppidum’. Horsley published the first detailed map of the Roman Wall in his *Britannia Romana* in 1732. The inset plan of ‘Borcovicus’ shows the fort correctly positioned with regard to the Wall. The north gate is not marked. In his description, he clearly distinguished between the fort and the surrounding civil settlement, was the first to mention the terraces, and made a methodical study of the inscriptions and sculpture. In general the antiquarian accounts give the impression that the *vicus* was significantly better preserved in the 18th century than it is today, with upstanding piles of ruins and clearly discernible streets rather than simply low foundations. However, such rhetorical flourishes should be treated with a degree of caution, as Welfare notes in

Chapter 10. The extent of earlier cultivation and resultant hillwash must already have obscured most traces of Roman activity at the foot of the hillside. Nevertheless, stone-robbing for field-walls or drainage works, following the parliamentary enclosure at the end of the 18th century, may have been responsible for removing further remains and the overall tenor of the antiquaries' comments cannot therefore be entirely dismissed. There is, for example, clear evidence, in the form of narrow wall-chasing trenches visible on aerial photographs, that some *vicus* buildings to the east of the fort were very systematically robbed out at some stage and this is just as likely to have occurred after 1700 as before.

At any rate the admiration the ruins inspired in the early antiquarians is undeniable. For Stukeley Housesteads was 'the Tadmor of Britain', a grandiose comparison with the newly discovered site of Palmyra in the Syrian desert. The site continued to invoke this response in the later 18th and early 19th centuries. In 1801, Hutton termed Housesteads 'the grandest station in the whole line'. The Revd John Skinner likewise reckoned it the most interesting site in his journey along the Wall, sentiments echoed by Lingard in 1807: 'a most wonderful station. It abounds with remains'. Clearly Housesteads had already established the status it retains today as one of Britain's pre-eminent archaeological monuments.

Previous excavation

The history of excavation at Housesteads begins in June 1822 with Hodgson's investigation of the *mithraeum*, which had just been uncovered by Gibson's workmen. Since then the site has been the scene of

repeated campaigns of excavation, the 1974–81 programme being only among the most recent and most intensive phases of archaeological examination. Its progress reflects the changing aims of the excavators and the differing resources available to them. Bosanquet's careful survey (1904, 199–204) of Hodgson's and Clayton's work in the 19th century is invaluable in assessing the extent and chronology of the earlier investigations. E B Birley (1961, 180–4) supplements and continues the summary up to c 1960.

The 19th century – Hodgson and Clayton (Fig 1.3)

In July 1822, following the discovery of the *mithraeum*, Hodgson opened the first trenches in the fort, to investigate the west passageway of the south gate and the north entrance to the *principia* (Hodgson 1822, 266–8). Returning in the 1830s, he sought to establish the extent of the remains and to investigate the anatomy of the fort. But, with limited time and resources, his work was restricted to the east, west and south gates (including the bastle), the interval tower in area 21, the eastern end of Building XV, the eastern half of the south granary including the corn-drying kiln, and a hypocaust (probably the south-west one) in the *praetorium* (Bosanquet 1904, 199–200; Hodgson 1840, 187, also 1822, 266; Charlesworth 1975, 17).

With greater resources over a longer period of time, John Clayton, during the middle decades of the 19th century, was concerned to expose the curtain walls of the fort, along with Hadrian's Wall, to public view. On MacLauchlan's plan of the 1850s the only internal structures visible are the granaries. Excavation of the gates, much of the curtain, the east wing of the

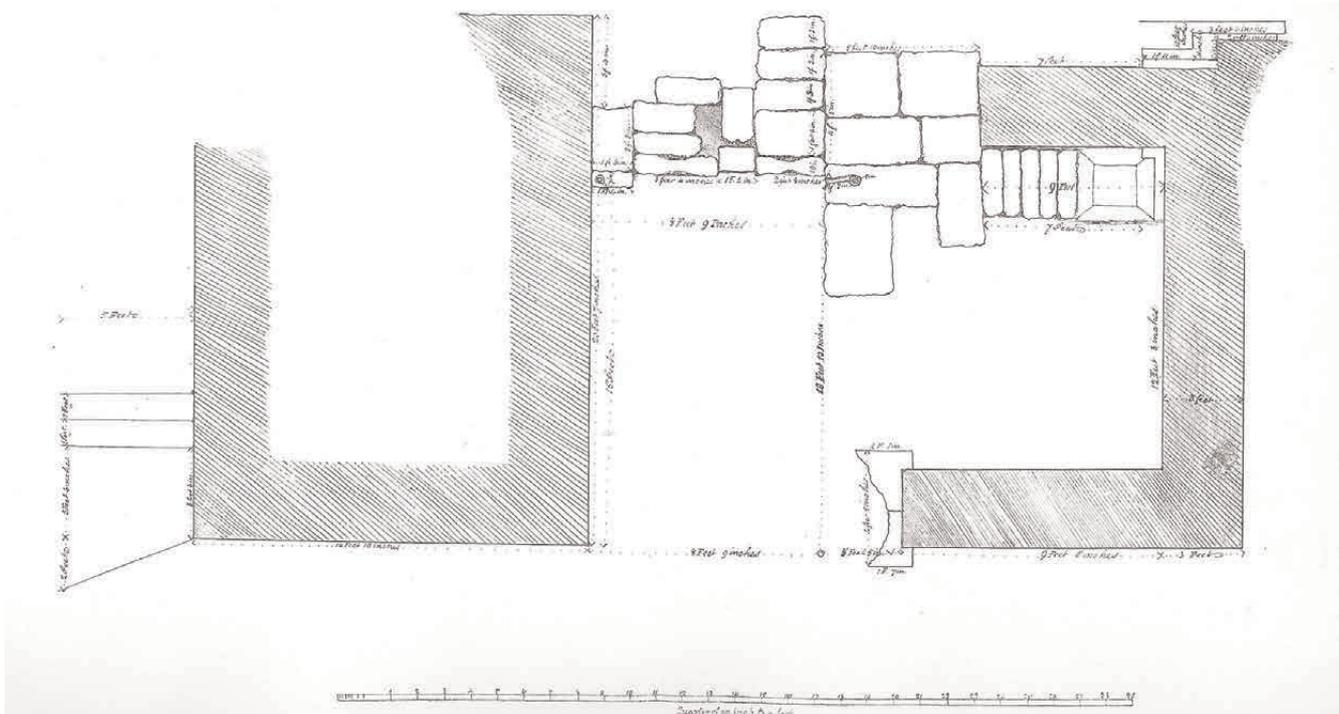


Fig 1.3 John Hodgson's plan of the east gate, 1833

praetorium, and perhaps the outline of Building XV definitely took place (Bosanquet 1904, 201–3, 209). However, unlike Clayton's excavations at Chesters, no plan of the fort was made and it is difficult to assess the statement that by 1866 much of the interior was exposed (Budge 1907, 189). Certainly Bosanquet's workmen in 1898 encountered earlier digging and he reports them as saying, 'There's nae dout auld Anthony's been here before us' (1904, 231); a reference to Clayton's foreman, Anthony Place. He specifically mentioned finding evidence of such trenching along the north face of Building I, but much of this disruption may have resulted from the search for inscriptions in the 18th century or ordinary stone robbing by the tenant farmers, since the Gibsons' constraints on disturbance of the relics were limited to inscribed or sculpted stones. Without more exact evidence for the source of Budge's statement, it cannot be taken literally, particularly since excavation in the north-east corner of the fort, between 1974 and 1981, found that extensive areas were undisturbed, although they demonstrated some earlier trenches and disturbance. On balance, therefore, it seems preferable to accept Bosanquet's careful assessment of the scale of Clayton's work (1904, 201–3) rather than his subsequent comments (1904, 231) born of exasperation at the activities of stone-robbers.

Bosanquet (1898) (Fig 1.4)

Excavations by R C Bosanquet in 1898 were promoted by the Newcastle Society of Antiquaries to establish the broad topography of the camp at a time when the only other nearly complete fort plan was that of Birrens in Dumfriesshire (Bosanquet 1904, 206). Apart from the full excavation of the *principia* (which Bosanquet termed the '*praetorium*' and numbered Building X) the remaining internal buildings were 'traced' which is to say the walls were located by trenches and then followed. This method is clearly shown in a number of the photographs of the 1898 excavations and Bosanquet was aware that this method allowed only a limited understanding of the chronology of the buildings, but he did recognise a number of different phases of construction in the barracks (1904, 233).

The 20th century

A few years later, further work was undertaken by F G Simpson as part of repairs to the curtain wall. The inner face of the curtain around the north-east angle was trenched and both primary and secondary angle towers revealed. The interior of the north-west angle tower was excavated and the relationship of the Wall and fort curtain at both angles investigated. Full excavation of the south-eastern area (H23), including the latrines, partly excavated in 1898, and the exterior face of the curtain, was the most extensive work carried out during Simpson's programme (Simpson 1976, 133ff).

For the next 50 years the objective of research on Hadrian's Wall was to establish the chronology of the different parts of the Wall system. This was achieved by a series of small-scale excavations intended to test certain hypotheses and resolve particular problems. These were carried out with a notable singlemindedness so that only specific elements and features were looked for and recorded. The only instance of this technique at Housesteads was the excavation of Turret 36b in 1945 (Richmond and Simpson 1946; Richmond 1950, 45).

There was, however, a flurry of activity in the 1930s. Simpson excavated in the north gateway (1931, 218), demonstrating that the east portal was never used. The granaries were completely cleared by the National Trust (Birley 1936, 16), regrettably with little record. Trial holes were dug in the bastle showing all occupation levels had been destroyed by 19th-century excavation, but stratigraphy outside the building showed it was substantially later in date than the Roman settlement. The longhouse was also trenched, inconclusively (Birley and Charlton 1932, 234). The central section of this building was subsequently removed to unblock the *via principalis* for visitors, having erroneously been assigned a 19th-century date (Birley 1937–8). Trenches were cut in several places on the south, east and west sides of the fort by Birley in 1931–2 (Birley *et al* 1933, 83–5), to reveal that the fort was protected by primary ditches only to the north of the east and west gates. The south side was entirely unprotected. The drain through the curtain at the south-east angle was also examined in 1932, and its course down the hillside preliminarily traced (Birley *et al* 1933, 92). In 1954, further work was carried out in the *principia* by Smith, mainly on the east face, where a secondary veranda covering the western part of the *via principalis* was revealed. The report (Smith 1954) was completed, but not published. It is therefore reproduced here in Chapter 8.

The first attempt to investigate the structural development of the barracks was directed by Wilkes between 1959 and 1961 and was concentrated on Building XIV and Building XV. This work established the form of the primary Hadrianic barracks, something only hinted at by Bosanquet, and described modifications to the barracks and Building XV, which allowed a clearer understanding of Bosanquet's plan. The result of this was a general study of 4th-century evidence from the fort and elsewhere along the Wall (Wilkes 1966).

Subsequent work in the later 1960s and early 1970s turned to the full display of the central range of buildings, including the *praetorium* (Bosanquet's Building XII) and the hospital (IX). Both structures had suffered extensively from earlier excavations and stone robbing and a clear structural chronology could not be recovered (Charlesworth 1975; 1976). Two trenches had already been cut by Tait, in 1962, from the south wall of the *praetorium* to the south curtain, to reveal the stratified rampart sequence, and providing the first published section from Housesteads (Tait 1963).

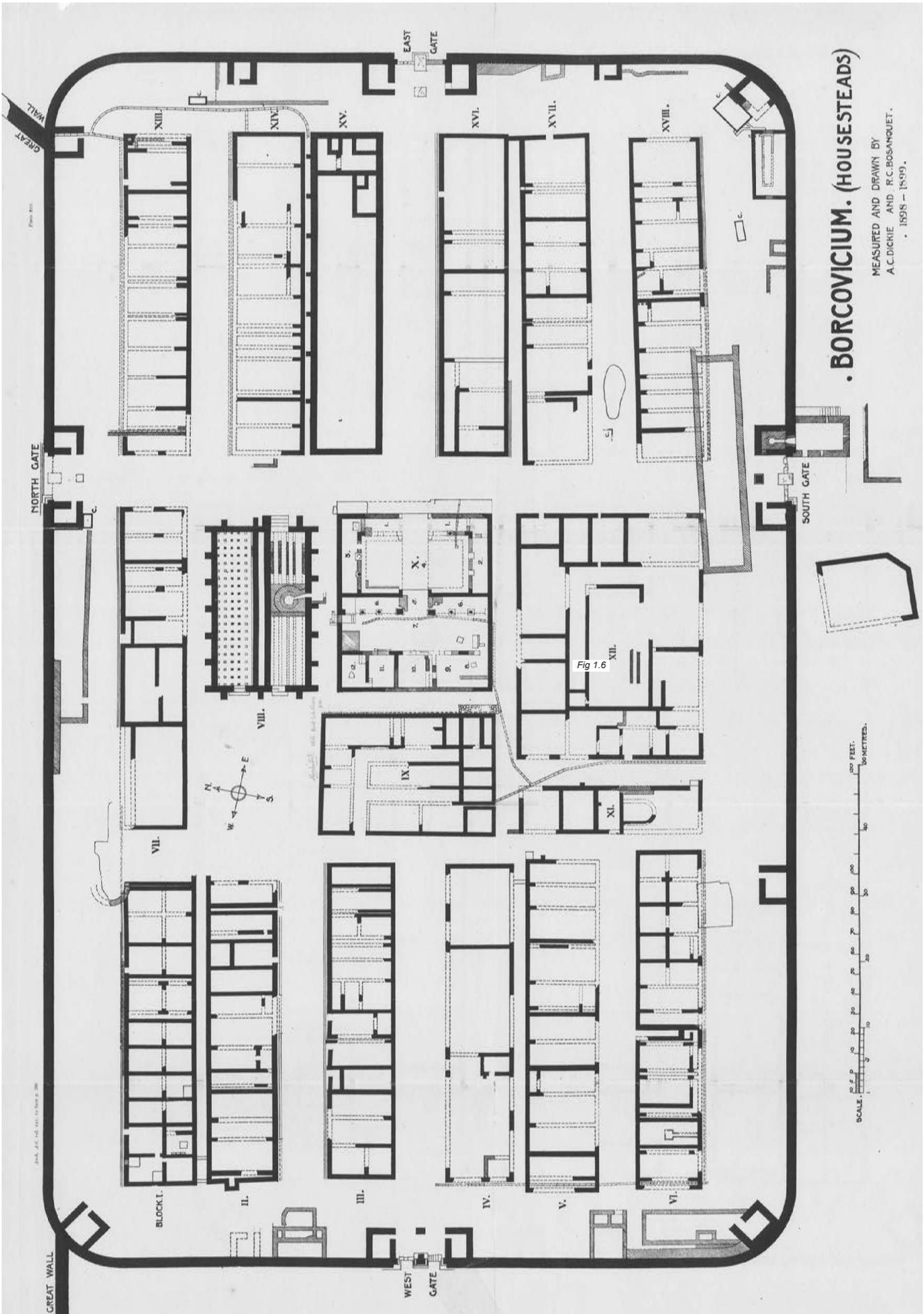


Fig 1.4 Bosanquet's plan of the fort from the 1898 excavations (Archaeol Aeliana 1904, pl xix).

Stuart (Charlesworth 1971a) re-examined the north terminal of the west ditch and its relationship to Hadrian's Wall (first investigated by Birley in 1932). Similarly, in 1968, Smith opened a number of small trenches in the area of the south-east angle and latrines, to check points of detail (Smith 1968).

From 1974 to 1981, excavations continued in the north-east corner, including extensive investigation of Building XIII plus the associated ramparts and roadways (Rampart Areas H20 and H21) and more limited work on Buildings XIV and XV. This resulted in the full excavation of this part of the fort and revealed a structural history more complex than the four periods proposed by Wilkes in the 1960s, which had essentially corresponded to Wall Periods I–IV. Only a preliminary analysis of the 4th-century buildings (Daniels 1980) and summary overviews (Crow 1989; 2004a) have hitherto appeared.

Following completion of the 1974–81 programme, further excavation took place just outside the fort, in 1984, when the north farm road and gate were removed. This uncovered a complex structural sequence in front of the north curtain (Crow 1988).

During this period several buildings in the central range (*latera praetorii*) were planned in detail, at a scale of 1:50. Plans of the *principia* and the granaries (Buildings X and VIII on Bosanquet's numbering scheme) were produced by J Thorne on behalf of English Heritage, and provided the basis of the interpretive plans that have since appeared (Crow 1989, 17, 20; 2004a, 55 fig 29, 97 fig 52), while the hospital (IX) was surveyed by students of Newcastle University, under the direction of P Carmedy. The latter has never been published and is included here as Fig 1.9. Detailed recording of the surviving stonework of the gates, towers and curtain, including the bastle beside

Table 1.1 Excavations, survey and discoveries in the fort

<i>date</i>	<i>nature of investigation</i>
1822	S gate, W passageway and <i>principia</i> N entrance – Hodgson
1830–33	Main Hodgson programme of excavations comprising:
1830	S bastle & kiln; S granary kiln
1831	S gate; bath suite in Building XV
1833	E gate; interval tower to N (Rampart Sector 21); W gate; S hypocaust in <i>praetorium</i>
1850–58+	Clayton excavations – mainly fort gates & curtain comprising:
1850–1	W gate
1852	S gate, & E gate, exc, N gate begun & much of curtain faces cleared (esp external)
1854	Altar to Cocidius Silvanus (<i>RIB</i> 1578) found in SW corner
1855	Rampart Sector 25 (SW angle-W gate) cleared
pre-1857	N curtain inner face (Rampart Sector 27) cleared, N gate displayed
1858	E wing of <i>praetorium</i> cleared
pre-1867	Relief of Mars (<i>CSIR</i> 67) found at SW angle of Building XV = partial outline of XV traced? (see Bruce 1867, 186–7; Bosanquet 1904, 209: 'some forty years ago')
1898	Fort interior extensively trenched, overall plan established – Bosanquet
1909–12	NW, NE, SE angles, latrines, S curtain – Simpson comprising:
1909	NW angle: Wall-fort junction, angle tower interior
	NE angle: Wall-fort junction, 2 angle towers, fort curtain inner face
1911–12	SE angle tower & latrines, S curtain outer face & S Rampart Sector 23 exc
1931–2	Ditches, post-Roman buildings & granaries exc – Birley comprising:
1931–2	Granaries cleared by National Trust
1931	Bastle investigated, no stratigraphy in the interior
1931	Longhouse trenched (central section later removed)
1931–2	Trenches on E, S & W sides of fort – showed ditches only present N of E and W gates
1932	Main sewer outlet at SE angle revealed, course down hillside traced
1945	Turret 36b excavated – Richmond & Simpson
1954	Work in <i>principia</i> , mainly E face (verandah) – Smith
1959–61	Barrack XIV and Building XV excavated – Wilkes
1962	2 trenches, from <i>praetorium</i> to S curtain, revealing rampart sequence – Tait
1968	SE angle/latrines, small trenches (eg angle tower W corner interior) – Smith
1967–9	<i>Praetorium</i> (XII) excavated – Wilkes & Charlesworth
1970	N terminal of W ditch at Wall – Stuart/Charlesworth
1969–73	Building IX (hospital) excavated – Charlesworth.
1974–81	Barrack XIII, Rampart Sectors 20–21 and E end of Building XV excavated, and Building XIV reinvestigated – Daniels, Gillam and Crow
1984	N curtain outer face E of gate (beneath N farm gate entrance) – Crow
1986	Detailed stone-by-stone recording of the standing structures – Whitworth
1995	Survey of the masonry of the gateways – Hill
1998–9	Narrow slot for drain exc in S <i>via principalis</i> – NU Archaeological Practice

the south gate and Turret 36b, both in plan (at 1:20) and elevation (at 1:50), was undertaken by Alan Whitworth between 1985–97 (*see* Whitworth 1990; 1994). An in-depth analysis of the dressed stonework in the fort, principally focusing on the masonry of the gates was undertaken by Peter Hill in 1995 (*see* Chapter 8). Since 1981 the only intrusive investigations in the interior of the fort have been associated with site maintenance and drainage, on the *via principalis* for example (The Archaeological Practice 1999).

An initial assessment of the extent and preservation of archaeological deposits within the guardianship area at Housesteads was completed by James Crow in 1985. This was revised in 1994 to take in the immediate environs of the fort and include a summary of post-Roman history and land-use and a history of the site's investigation. This work, in turn, provided much of the data for the recently produced Conservation Plan for Housesteads (Peter McGowan Associates *et al* 2002), which includes an assessment of the significance of the site as a whole and its individual components and contains a detailed gazetteer covering all the archaeological features of the site. As a result, Housesteads and its immediate setting now form one of the most intensively described and analysed archaeological sites in Britain and certainly on Hadrian's Wall.

Full publication of the 1974–81 excavations in the north-east quarter represents the outstanding lacuna in the descriptive and analytical corpus relating to Housesteads. The 1974–81 project was the last in the series of major excavations conducted in the interior of the fort after 1945, the remainder of which have all appeared in print, and provides the detailed evidence which underpins much of current thinking on the structural history of the fort and the development of the northern frontier in general, particularly in its

later phases. Accordingly, the results of the north-east quarter investigations constitute the core of this volume (Chapters 2–7).

A full list of interventions is shown on Table 1.1.

Consolidation

Virtually all the standing structures were extensively consolidated by the Ministry of Works and later the Department of the Environment from the late 1950s onwards. Charles Anderson, works foreman at Corbridge, kept a photographic record of the major programme of consolidation he carried out between the late 1950s and early 1970s (fort curtain, gates and central range internal buildings, Knag Burn gate and curtain to the west). Consolidation photographs of the remaining structures – Buildings XIII, XIV and XV and Rampart Areas 20 and 21 (north-east rampart back and *intervallum*) – are preserved in the English Heritage Photographic Library. Dates of principal consolidation works are set out in Table 1.2.

Work in the north-east quarter

As is evident from the foregoing, the north-east corner of the fort had been investigated on a number of occasions prior to 1974 and it is worth considering these earlier interventions in more detail since they have important implications for the results of the 1974–81 excavation programme.

In 1831, John Hodgson uncovered the bath suite at the eastern end of Building XV, following this up in 1833 by clearing the east gate and interval tower to the north. His notebooks contain several sketchplans of the baths and the gate, but particularly noteworthy is the large plan of the east gate drawn up on a separate

Table 1.2 Consolidation at Housesteads

<i>date</i>	<i>structure consolidated</i>
1937	Limited National Trust consolidation (N granary)
1945/52	Turret 36B
1952	SW angle
post 1954	<i>Principia</i> (after Smith excavations)
1956	S gate, including guardhouses & curtain facing to E
1958	W curtain
Late 1950s/early 1960s	E curtain, NE curtain & gate, granaries
1962	Barrack XIV and Building XV
1963	Latrines
1965	Repairs to Knag Burn curtain, E of gate?
c 1968–73	<i>Praetorium</i> and hospital (following and in conjunction with Charlesworth's excavations)
1976	Knag Burn curtain, E of gate
1978–9	Building XIII
1980–82	Rampart Sectors 20–21
1985	N curtain, external facing, formerly under N farm gate ramp
1986	Bastle and corn-drying kiln (at S gate)
1989–90	Re-consolidation of <i>praetorium</i>



Fig 1.5 The interval tower north of the east gate c 1898, showing the blocked doorway (Hadrian's Wall Archive).

sheet (Fig 1.3). This is now held in the Birley Archive at the University of Durham, together with the original text and plans of a paper by Hodgson describing his work at Housesteads, which was read to the Society of Antiquaries of Newcastle upon Tyne in 1834 (cf Birley 1937, 177–8). Along with Hodgson's paper, the plan was evidently borrowed from the Society by Eric Birley in 1936, when the latter was preparing his 'Fifth report on excavations at Housesteads' (Birley 1937). The work on the interval tower behind the east curtain (Rampart Area 21) was described by Hodgson in his journal for 17 July 1833 (*Misc Papers* Vol Z, pp 508–9). It was covered by a 'tough mossy sward', which was dug into to reveal side walls, built with irregular courses and very little mortar, and a rudely flagged floor. His rough sketch plan shows the doorway in the north-west corner and the broad mass of wall on the curtain side. On this side the curtain had bulged outward and an upper course of large (20in.— c 0.5m) stones 'injudiciously laid upon thin courses of small stones'. No trace of these large stones now remains, but it is clear that the curtain survives at a lower level than the side walls of the tower. The large stones noted by Hodgson were perhaps similar to the distinctive long blocks used to reconstruct the angles of the fort. Photographs of the tower taken at the end of the 19th century (Figs 1.5 and 1.6) show the doorway blocked up using the same kind of long stone blocks. Hodgson makes no mention of this blocking and his sketch plan shows the doorway open. It is possible, therefore, that rather than representing a modification to the tower carried out in late antiquity, this blocking was inserted later in the 19th century by Clayton's workmen, using stone from the collapsed curtain, with the aim of preventing cattle from entering the tower and further damaging the

east wall. The blocking must have been removed subsequently, when the tower was consolidated by the National Trust and the Ministry of Works.

During the 1850s John Clayton partly cleared the north and east rampart backs to reveal the curtain wall inner face. As a result of Budge's comments, noted above, it was long assumed that the archaeological deposits in the fort interior had been extensively damaged by Clayton's clearance work. Indeed that view was still fairly prevalent in 1974 when Charles Daniels and John Gillam began work on Building XIII. In fact the admittedly sparse accounts of Clayton's excavations provide no firm indication that he undertook any significant work on the internal buildings of the north-east quarter. Nor was any trace of such work found by the 1974–81 excavations. Some wall tracing may have been carried out around Building XV, as the outline of the building was apparent on the Ordnance Survey second edition (1898), whereas it was not shown on the earlier first edition in 1860, but little information survives on this. Indeed, both Buildings XV and XIV had already been identified as distinct building platforms by the ever-observant Hodgson and sketched as such in his notebook (*Misc Papers* Vol Z, pp 508–9). In the defences, where Clayton's work was concentrated, deposits along most of the outer face of the curtain were removed and much of the east rampart back was cleared to reveal the inner face of the curtain and the north wall of the bakehouse, but only short sections of the north rampart layers were cut away adjacent to the north-east angle tower and the north gate.

In 1898, R C Bosanquet traced the internal buildings of the north-east quarter. The position of his trenches can be estimated to a large degree by noting where walls are shown marked in black on his plan of



Fig 1.6 Bosanquet's trench along the *via sagularis* drain with cistern emptied (Hadrian's Wall Archive).

the fort (1904, plate xix facing p 300; Fig 1.4 here). In many instances the narrow trenches dug by his workmen to chase particular walls were located during the excavation of Building XIII, but they scarcely intruded into the earlier, barrack levels and did not for the most part significantly impede understanding of the later chalet phase. However, the main drain running along the edge of the east *via sagularis*, from the alley between XIV and XV as far as the north-east angle, was followed by Bosanquet (see Fig 1.6), which had the effect of severing the stratigraphy associated with successive *intervallum* road surfaces from that of the ramparts. In the course of following this drain he observed 'the remains of a rough retaining wall, which had evidently supported a bank of earth behind the rampart'; he shows this wall running from the south side of the water tank to a point less than half-way along the east wall of Building XV, corresponding to the primary rampart revetment (H21:3:74/5; 4:31; 4:27; 5:13).

F G Simpson's work in 1909 was focused on the defences, and in particular the north-east angle with the aim of resolving the question of the fort's relation to Hadrian's Wall, including the eccentric position of the angle tower. Simpson estimated the theoretical position, and cut a trench along the inner face of the fort curtain to expose the bonded side walls of the primary angle tower (PSAN³ 4, 1909–10, 96; Simpson 1976, figs 49–52). The southern end of the west side wall was also located in another trench. The interior of the secondary angle tower was cleared, uncovering a sewer connected to the *via sagularis* drain. On the west side of the tower the angle between the curtain and the

tower side wall was sounded. It is evident from Simpson's photographs that the south and east walls of the secondary tower did not stand quite as high as they do today. The junction between the fort curtain and Hadrian's Wall at the north-east angle was also investigated and the sewer outlet through a cavity in the curtain was recorded. A little further west, two small trenches were cut through the northern *intervallum* road by Hepple, Richmond and Simpson in 1945 to trace the course of Hadrian's Wall below (Richmond and Simpson 1946). The trenches were identified during excavation of this area in 1978 (H20:3:2; H20:5:3).

Along with Clayton's clearance work on the ramparts, the most sizeable programme of excavation in the north-east quadrant, prior to the 1974–81 campaign, was that conducted by John Wilkes on behalf of the Durham University Excavation Committee in 1959–61. This involved the area excavation of Buildings XIV and XV immediately south and west of the areas later investigated in 1974–81. In the case of Building XIV, excavated over two seasons in 1959–60, Wilkes proposed four distinct structural phases – Hadrianic, Severan, Diocletianic, Valentinianic – following the 'Wall Period' chronology then current. He identified a Severan rebuild of the conventional barrack *contubernia*, now often termed chalets (Wilkes 1960; 1961) (Fig 1.7). Four building phases were also identified in Building XV, although these did not quite fit the four Wall Periods, with a



Fig 1.7 Chalets 3 and 4 of Building XIV, in 1959, following excavation (photograph by John Wilkes for Durham University Excavation Committee).



Fig 1.8 Consolidation of the north curtain wall by the Ministry of Works.

secondary, late Antonine rebuild, but no later 4th-century work (Leach and Wilkes 1962). The massive storehouse phase was assigned a date 'not much later than the early third century' (Leach and Wilkes 1962, 89). However, work in 1981 on Building XIV and especially the eastern part of Building XV, which was not included in the 1961 excavation, resulted in significant revisions to the phasing schemes proposed by Wilkes.

The extensive programme of consolidation undertaken by the Ministry of Works during the late 1950s–early 1960s included most of the north-east curtain. It is unclear how extensively the fabric of the defences had been repaired prior to this, by Clayton

himself, the later Clayton estate and then the National Trust. Comparison of the present consolidated fabric with Simpson's photographs of 1909 (Simpson 1976, pls 49–50, 52) shows that several courses were added to the south and east walls of the secondary north-east angle tower and that some of the east rampart was removed to expose the inner face of the curtain. Similarly, the blocking in the doorway to the interval tower on the east curtain was removed at some stage after 1898. These alterations might belong in the period prior to the Ministry of Works programme. The most radical intervention undertaken in the north-east quarter as part of the consolidation work involved the

restoration, in *c* 1960, of a section of the north curtain inner face, stretching for up to 11m from the east side of the north gate. This entailed digging a deep trench along the inner face of the north curtain (*Anderson Albums I* 238, 240–4; *see* Fig 1.8 here), with significant obvious impact on the stratigraphy of that part of the rampart. The cut and fills of this trench were recorded during excavation in 1978–9 (H20:8:67; 8:69; 9:34). However, this modern construction trench did not extend further east, along the full length of the north curtain. There is a significant discrepancy between the restored and unrestored inner faces of the curtain, as the restored part was set vertical *c* 0.35m south of the unrestored section. The work on the north curtain also removed the stone dyke which ran WSE–ESE across the north rampart area (H20). This features on earlier photographs of the north curtain and early editions of the 1:2500 Ordnance Survey map and was interrupted by the farm track that traversed the north-east corner of the fort in a north-westerly direction and obliquely descended the steep scarp north of the fort. As a result, no trace of this wall was found during excavation in 1978–9, but a pair of postholes for the stone gate posts was seen (8:4–5), together with rough metalling and cart ruts of the farm road (8:3). In addition, the bath suite in Building XV was probably stripped out and the hypocaust floors removed during this consolidation programme, although this does not feature among Anderson’s photographs, and Building XIV was consolidated following its excavation by Wilkes.

The most recent investigative intervention in the north-east quarter involved the complete removal of the ramp for the north farm road and the excavation of the associated archaeological deposits immediately outside the fort by James Crow in 1984 (Crow 1988). This area was assigned the code H20:10 to continue the series of area codes used in the north rampart excavations in 1978–9 (H20:1–9). The deposits were much deeper than expected and a complex structural sequence was revealed against the north curtain, which has facilitated understanding the corresponding north rampart sequences, particularly the later phases. Subsequently, the surviving masonry of the north-east defences was recorded in plan and elevation by Alan Whitworth in 1993–7.

The 1974–1981 excavations

Between 1974 and 1981 a detailed programme of archaeological investigation was carried out in the north-east corner of the fort, the last in a series of important excavations conducted within the fort after 1945. The 1974–81 programme focused principally on the barrack block, Building XIII, and the adjacent rampart back and *intervallum* roadway areas, stretching from the north gate to the north-east angle tower and thence to the east gate. Significant reinvestigation of Buildings XIV and XV also took place. The structures revealed were then consolidated for public display.

The excavations were directed by Charles Daniels and John Gillam, with James Crow joining the team from 1978 as assistant director. The project served as the departmental training dig for second-year archaeology students of Newcastle University. Outside these intensive three-week spells, excavation was continued by much smaller numbers of volunteers, often working in atrocious weather conditions, each full season generally running from June to September.

The excavations at Housesteads took place during a seminal period for the study of Hadrian’s Wall. Since the Durham University Excavation Committee excavations at Birdoswald, in 1929, the dominant chronological model for the northern frontier had been the concept of ‘Wall Periods’. The structural history of Hadrian’s Wall and its associated installations was determined by reference to a series of what were thought to be four – later increased to five – historically documented destruction and subsequent construction episodes, apparently confirmed by archaeological and epigraphic evidence. This had first been fully elaborated in an important article by Eric Birley (1930), which was based on the results of the 1929 Birdoswald excavations (recently valuably reassessed by Wilmott 1997, 8–14). Although the first warning note had already been sounded regarding the dangers of making inferences relating to military and political events from archaeological evidence and, likewise, of using hypothetical interpretations of written evidence as a basis for dating structures and artefacts (*see* Gillam 1974, 1), the Wall Period model was still very much in vogue when work on Building XIII began in 1974. By the time the excavations finished in 1981, however, this framework was undergoing profound re-examination and indeed the whole idea of writing the kind of military and political history, based on archaeological evidence, previously attempted by Wall scholars such as Ian Richmond and Eric Birley, was being called into question.

This shift is reflected in the excavation records. The context notes relating to the excavation of Building XIII between 1974–7, which were contained in a series of A4 notebooks, are distinguished by frequent comments or queries regarding which of the four periods the particular context should be assigned to. By contrast, the context records for the north rampart excavations in 1978–9 – by now recorded on separate sheets stored in ring binders – were much less dogmatic in interpreting the date of any specific context and a more complex phasing structure was ultimately adopted. Indeed, by the time post-excavation work was underway on XIII, it was recognised that the building had only two main structural phases – labelled ‘Barrack’ and ‘Chalet’ – each having multiple sub-phases. The excavations of Building XIV and XV in 1981 were inevitably conditioned to a large extent by the pre-existing chronologies established by Wilkes’s excavations of those structures in 1959–61, but even here important revisions to the phasing were made.

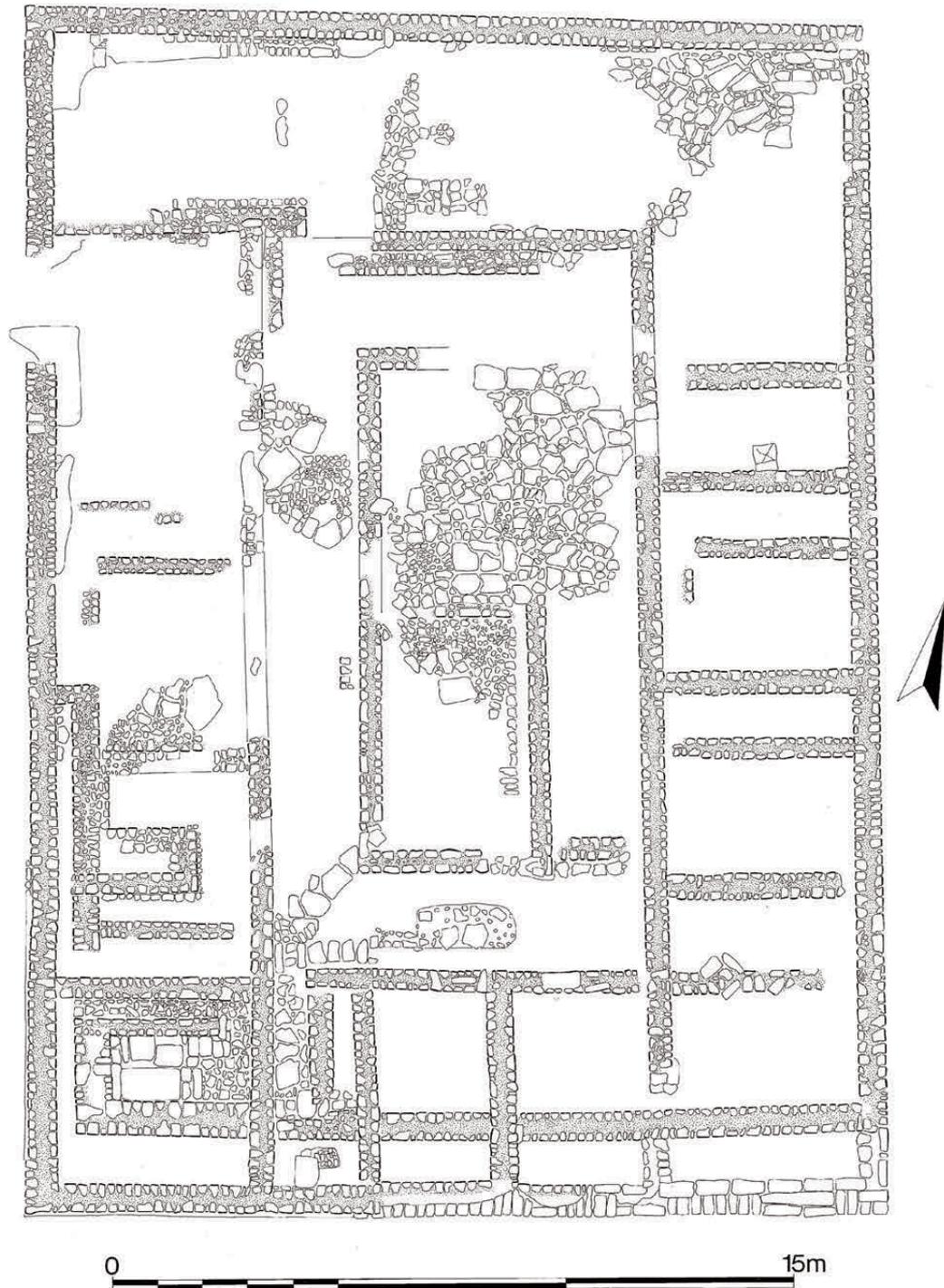


Fig 1.9 Plan of the hospital (Building IX) based on a survey by P Staniczenko (scale 1:150).

Methodology

Partly because of the limited personnel available, the north-east corner was not opened and investigated as a single unit. Instead excavation proceeded sequentially from area to area beginning with the investigation of a barrack block, Building XIII, in 1974–7, moving to the adjacent north rampart in 1978–9 and thence to the east rampart. The same is incidentally true of Wilkes's 1959–61 programme, with examination of Building XV, in 1961, following the previous two seasons work on Building XIV. Limited work was also carried out in

Building XIV, at the east end of Building XV and on the street between XIII and XIV during the 1974–81 programme. Again the interventions in Building XIV and in the street between XIII and XIV were each effected in two stages, in conjunction with consolidation work. Moreover the full extent of the north rampart was not investigated until 1979 when the westernmost area, running up to the north gate, was opened up. This step by step approach, lasting as it did over more than 20 years (if Wilkes's excavations are included) was largely determined by the circumstances

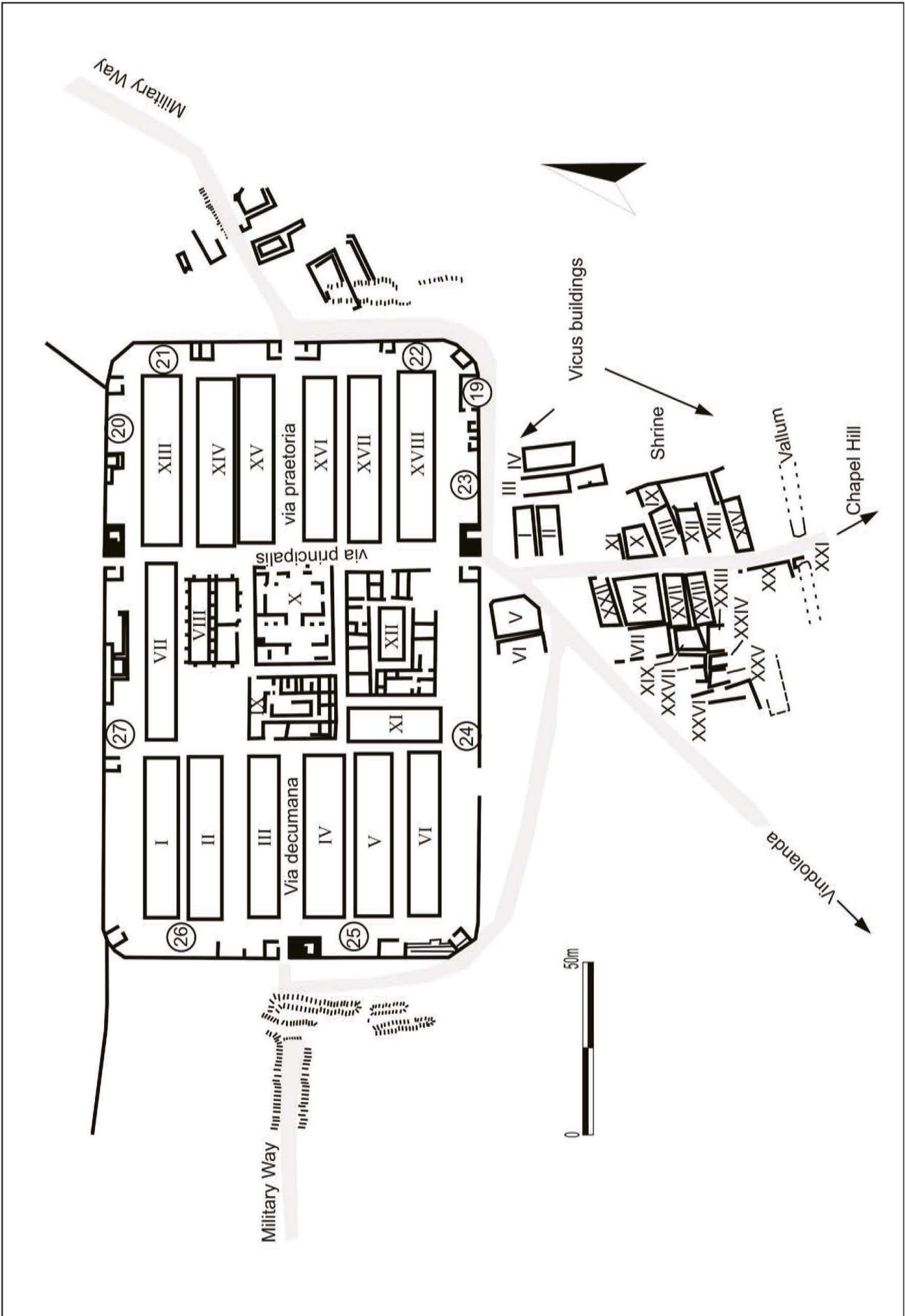


Fig 1.10 The fort and upper vicus showing the building and rampart sector numbers.

of the time, but it did not provide as complete a stratigraphic control as a single area excavation of the entire north-east quarter would have afforded. Hence it has important implications for the analysis of the project as a whole.

The close association of the entire project with the objectives of consolidation also exerted a considerable influence on the course of the excavation, providing both opportunities and limitations. Thus some re-investigation of Building XIV was possible, following the decision to lay chippings in place of the turf covering within XIV (which had already been consolidated following excavation by Wilkes in 1959–60). On the other hand, the decision to display the later levels of Building XIII, though it resulted in the most informative collection of later Roman barracks open to public view anywhere in the country, also restricted the extent to which the earlier barrack levels could be investigated. The latter was carried out principally through the recognition of walls carried through to the chalet phase, and by means of limited sondages to establish the presence of walls inferred but not initially visible. Thus where the upper levels survived badly, as in the case of Chalet 5, the lower levels (equating to parts of *Contubernia* 4 and 5) could be fully excavated down to natural. Similarly, the street between XIII and XIV was only cleared down to the uppermost surface over most of its length, though more intensive investigation was carried out at its eastern end in 1981. The most intensive investigation of the earlier barrack levels occurred in the western half of Chalet 1 (corresponding to the western half of the centurion's quarters), where, exceptionally, the later chalet flagging was removed. In the east rampart (H21) Clayton had cut right into the primary deposits and Simpson had cut trenches to locate the primary angle tower, but the better preservation encountered in the north rampart (H20) meant that the excavators there were only rarely able to investigate beneath the 3rd-century workshop levels (H20 Phase 3a) in that sector during 1978–9.

The detailed breakdown of the separate stages of excavation is as follows:

- 1974–7 Complete exploration of Building XIII (H13).
- 1977 An exploratory trench was opened in the north rampart area.
Building XIII excavation extended across the N end of the *via principalis*, revealing the E end of Building VII (H13:11).
- 1977–8 Clearance down to the uppermost road (winter) surface of the street between Buildings XIII and XIV (HS).
- 1978–9 North rampart-back and roadway area – N gate to NE angle tower (H20).
- 1978 Further small-scale investigation of earlier barrack structures in H13:8–10 and foundation of Hadrian's Wall to the north of H13:8.

- 1979 Examination of the westernmost *contubernium*/chalet of Building XIV (H14:9).
- 1980–1 East rampart-back and roadway area – NE angle tower to E gate (H21).
- 1981 Re-examination of the E end of Building XV where a bath-house was inserted during the 4th century. This had first been investigated by Hodgson and consequently was not explored by Wilkes in 1961 (H15:1).
The E end of the road between XIII and XIV excavated down to a suitable level for display (HSE).
Re-examination of the remains of Building XIV, first excavated by Wilkes in 1959–61, revealed again when turf lifted to allow replacement with chippings and display of centurion's quarters (H14:1, 3–6).

The site/building codes featured above (H13 etc) are those adopted in the site and research archive documentation and are followed hereafter as a convenient means of distinguishing between the component sites of the 1974–81 excavations (*see* Fig 1.11). They derive ultimately from the numbering sequence (I–XVIII) given to the internal buildings by R C Bosanquet in 1898 (cf Fig 1.4). The rampart/*intervallum* site numbering was formulated by C M Daniels to continue that of Bosanquet, starting with the north gate to north-east angle tower stretch as Rampart Sector 20 and continuing clockwise around the fort circuit, culminating with north-west angle to north gate (Sector 27; cf Fig 1.10). The intervening number (19) was assigned to the latrines at the south-east angle.

The different sites were each subdivided into several areas for the purposes of supervision and recording (*see* Fig 1.11). In the two barrack blocks, XIII and XIV, these areas each normally corresponded to an individual chalet (areas 0 and 11 at either end of H13 are exceptions), with the numbering running from east–west (H13:0–11 and H14:1–9). The bath-house area, investigated at the east end of Building XV, was treated as a single unit (H15:1).

In contrast the rampart sites were simply divided into blocks. The north rampart sector, H20, which was 41m long (east–west) by 10m wide (southwards from curtain wall), comprised nine areas, numbered 1–9 from the east. In the stretch opened in 1978, area 1 lay immediately south-east of the angle tower, area 2 represented the narrow strip immediately south of the angle tower, while areas 3–7 each covered a 5m stretch along the curtain from the west face of the angle tower. Areas 8 and 9, which were not investigated until the following year, were both 8m wide. The east rampart H21 was similarly split into five areas, numbered 1–5 from the north, each of which was 10m square (area H20:1, confined between the east face of the angle tower and the curve of the fort wall, was subsequently redesignated H21:1 and investigated more extensively in 1980–1).

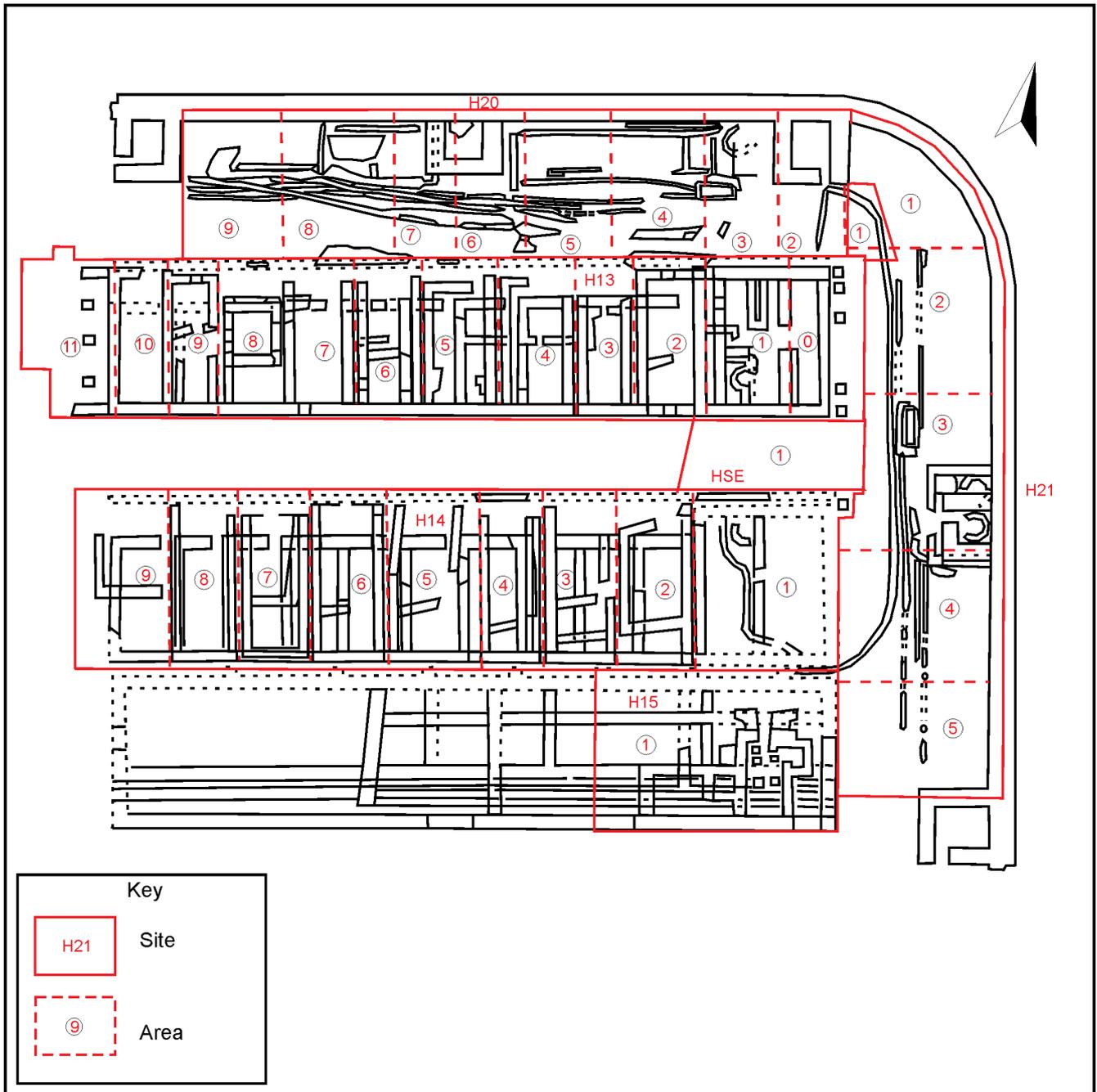


Fig 1.11 Outline plan of the north-east quarter of the fort showing the 1974–81 excavation sites and areas.

Each individual archaeological context within the site:areas outlined above was assigned a further number. The unique context identifier was thus composed of three numerical components in the following manner: (site):(area):(context), for example H13:1:105. Although this system is more cumbersome than a unique single number system it does have the advantage of enabling the general location of a given context to be easily identified. However, it also resulted in those features which straddled area or site boundaries being designated by two or more unique identifiers. This drawback particularly applied to long linear features such as rampart revetments and *intervallum* drains.

Original research aims

The 1974–81 excavations were undertaken in the period before it became mandatory for archaeological research to be accompanied by detailed project designs setting out a set of specific questions the programme of work was designed to address. Nevertheless, research questions, which the excavations were evidently intended to answer, are included in the interim reports composed after each season, and in the introduction to each volume of the Level 3 archive report. Although the various site components were not initially conceived as a single unitary project, with a pre-determined plan to excavate all the areas eventually

investigated, it is clear that two principal overall research aims underlay all the work:

1. To recover the plan of the original Hadrianic layout in this area of the fort.
2. To establish the subsequent changing pattern of occupation.

Each component site generated its own variant of these basic questions. For example the more detailed aims regarding H13, the first site to be investigated, may be expressed thus:

- To establish the plan of the original barracks.
- To determine the changing pattern of occupation in the barracks/chalets.

Similarly for Building XV:

- To obtain further evidence regarding the primary form and function of Building XV.
- To obtain new evidence about the dating of the baths complex at the east end of Building XV (H15 Level 3, 2).

When commencing work on the ramparts in 1978 interest focused on the possibility that rampart back buildings would be uncovered, similar to those found behind all other stretches of the curtain by Clayton and later by Simpson's excavations.

3. To uncover comparative evidence which would allow a further understanding of the chronology and function of rampart back buildings (H20 Level 3, 2).

Two general points should be noted regarding the process whereby research aims were defined for the 1974–81 excavations. Firstly, the step by step method of exploring the north-east quarter one area at a time did have the advantage of enabling aims to be revised in the light of experience gained from preceding seasons of investigation. The excavation of the eastern end of the street between Buildings XIII and XIV (HSE) enabled road surfaces in the street and the east *intervalum* to be equated, providing further stratigraphic links between the *via sagularis* and Building XIV – sites H21, HSE and H14.

Secondly, the formulation of research questions and the means adopted to answer them was to an extent opportunistic, since the areas available for excavation, and the depth to which digging could be taken was in large measure determined by the requirements for consolidating and displaying the north-east corner, as noted above. For example, in order to harmonise the display of Building XIV with that of XIII the decision was taken to lay chippings in place of the turf covering within XIV (which had already been consolidated following excavation by J J Wilkes in 1959–60). This enabled the limited reinvestigation of areas of Building XIV in 1981.

These two factors contributed to formulation of a fourth research aim:

4. To build up a unified picture of the history of the NE part of fort.

This also entailed the excavation of the east end of Building XV.

The analysis phase

A preliminary interpretation of the Chalet Phase of Buildings XIII and XIV was presented in 1979 (Daniels 1980), in the context of a comparative study of chalets. Post-excavation analysis proper followed on immediately after completion of the final season of excavation and was conducted in three distinct campaigns. Peter Moffat and Ian Caruana produced a preliminary draft of the Level 3 stratigraphic report for H13 by March 1982 and the corresponding report for H20 had been finished by James Crow and Peter Moffat by August 1983. In addition much preparatory analysis was completed on the pottery and many other specialist reports were commissioned, with a number accomplished (stamped samian, glass, graffiti, botanical evidence) during this phase of analysis.

The project resumed in June 1987 when Mike Bishop commenced work under contract to English Heritage, with a view to producing a complete Level 3 archive and a final published report. The contract ran up to the end of May 1989, with some 'goodwill' work continuing into 1990. During this period the earlier Level 3 stratigraphic reports were revised and those for the remaining sites completed with the assistance of James Crow. A single, draft structural report was compiled from all the Level 3 reports. Most of the remaining specialist reports on the separate material categories were commissioned and completed. A publication synopsis was devised and the plans drawn up for final publication.

The final stage of the post-excavation work commenced in 1995, with funding from English Heritage, following the preparation of an assessment and revised project design (Rushworth 1995) according to the principles of MAP2 (English Heritage 1991a). The work was co-ordinated by Alan Rushworth, under the overall supervision of Charles Daniels up until Charles' untimely death in 1996. The structural report was revised with the aim of tying together the different sites as far as possible. Although direct stratigraphic links were generally absent, because of the sequential site-by-site excavation method and the intrusive impact of earlier archaeological investigations, relationships between various structures in the different sites were often apparent, in the form of wall alignments or other structures that clearly respected or paralleled one another. A significant measure of success was achieved by this method, particularly with respect to the later phases. Thus the expansion of the north rampart in its latest

phase can be seen to have had a corresponding impact on the chalets of Building XIII, particularly those in the centre of the range, resulting in a shortening of the chalets with the formerly open fronts being closed off by stone walls. The oblique alignment of the latest rampart revetment is even paralleled by the secondary front wall of Chalet 4 and the porch of Chalet 5. Moreover, substantial progress was made in analysing the structures belonging to the very latest occupation phases on the site and in resolving certain especially problematic areas of interpretation. The remaining specialist reports were completed, including that relating to the samian ware. Additional quantities of coarseware and small finds that had initially escaped analysis were identified and included. One additional piece of work was commissioned in association with this phase, namely a study by Peter Hill of the dressed stonework in and around the fort, principally focusing on the masonry of the gates. This yielded significant information regarding the initial construction of the gateways in particular and, by extension, the fort in general.

As a result of the involvement of so many researchers, Chapters 2–7, which contain the detailed structural history of the fort's north-east quarter, have a broad parentage, incorporating text compiled over the years by Peter Moffat, Ian Caruana, James Crow and Mike Bishop, with input from Charles Daniels, while final editing, revisions and additions were accomplished by Alan Rushworth. Moreover, sections of text in other chapters, dealing with the history of investigation, for example, have been adapted from earlier unpublished reports analysing the archaeology of Housesteads and its environs, produced by James Crow and Alan Rushworth since 1994 and from the recently completed Housesteads Conservation Plan (Peter McGowan Associates *et al* 2002).

Sadly, Charles Daniels died suddenly in 1996, before the project was completed. His breadth of knowledge regarding Roman frontiers in general and Hadrian's Wall in particular and his inspirational enthusiasm for the subject are greatly missed.

The fort: associated survey

Several pieces of survey work were carried out during the course of the 1974–81 excavations. Two overall surveys of the fort were undertaken, correcting significant errors in the 1898 Dickie and Bosanquet site plan (Bosanquet 1904, plate xix facing p 300). A ground survey at 1:250 undertaken by P Staniczenko of Newcastle University Surveying Department in 1974 forms the basis of Fig 1.9 here. A subsequent aerial photogrammetric survey by Plowman-Craven Associates was later adapted and corrected by the RCHME during their study of the fort environs (Chapter 10). The resultant composite plan may be considered the most accurate record available of the entire fort as it stands today, forming the basis for further analysis and revision.

Survey and excavation in the fort environs

In addition several significant pieces of fieldwork and research were conducted in the environs of the fort, either contemporary with, but separate from, the 1974–81 excavation project or in the years immediately afterward.

- 1975 Ancient Monuments Laboratory geophysical survey and auguring W and S of the fort.
- 1976 Watching brief in water pipe trench 20m SW of valley bottom well and N of Chapel Hill (J A and J G Crow).
- 1986 RCHME survey of Housesteads *vicus* and environs.
- 1987 Trenches excavated on the terrace between farm and museum (J G Crow).
- 1988 West half of the Knag Burn gate examined (J G Crow).

Together these projects addressed aspects such as the *vicus* and its associated agricultural features, the multi-period landscape palimpsest surrounding the fort, post-Roman settlement within and outside the fort, as well as the survival of archaeological deposits over the entire site. Their combined impact is thus to broaden our understanding of the site by studying it both in its wider landscape context and in its full chronological setting. The results of the geophysical survey were disappointing owing to the high remanent magnetism of the igneous Whin Sill and it proved impossible to publish the survey, but the Royal Commission survey and the three excavations are included here in Chapter 10, to stand alongside the work inside the fort.

Summary of phasing

Phasing concordance

The site phasing concordance is set out in Table 1.3. In the following chapters each of the constituent site phases is designated by site then phase number, taking the form H20 Phase 1 or, more succinctly, Phase H20/1, for example. Site H13 (Building XIII), however, is largely divided into two main periods – Barrack and Chalet – which in turn are further subdivided into numbered barrack period and chalet period phases. The phasing of each site floats, to a greater or lesser extent, with respect to the others. Thus Phase 2 on one site is not necessarily contemporary with the second phase on another. Moreover, phases occupying equivalent positions within the table are not tied together by firm stratigraphic relationships, although the chart does provide a rough guide to inferred relationships, as well as a relative chronology within each site.

Various pre-fort features were identified beneath Building XIII (PR) along with the construction of Broad Wall foundation along the crest of the ridge

Table 1.3 Housestead 1974–1981 excavations. Phase concordance chart

<i>Overall</i>	<i>H13:0/1</i>	<i>H13:2-11</i>	<i>H14</i>	<i>H15</i>	<i>H20</i>	<i>H21</i>	<i>HSE</i>
Modern	M	M	M	M	M	M	M
Post Roman?	CH3+	CH3	4	5	4e	4b+	6
IV	CH3				4d	4a-b	5
4th to early 5th century	CH2	CH2	3	4	4c	3a-f	4
					4b		3
III Chalets (c AD 300)	CH1	CH1	3	4	4a	3a-f	2
II 2nd to 3rd-century modifications	BA5+	-	2	3	3d	2g	1
	BA5	BA			3c	2f	
	BA4		3b	2a-e			
	BA3.i-iii		3a		1d		
	BA2	2	2	2b	1a-c		
I Primary Construction	BA1.i-iv	CON	1	1		2a	-
Pre-fort (inclu. H Wall)	PR	HW	-	-	1	-	-
		PR					

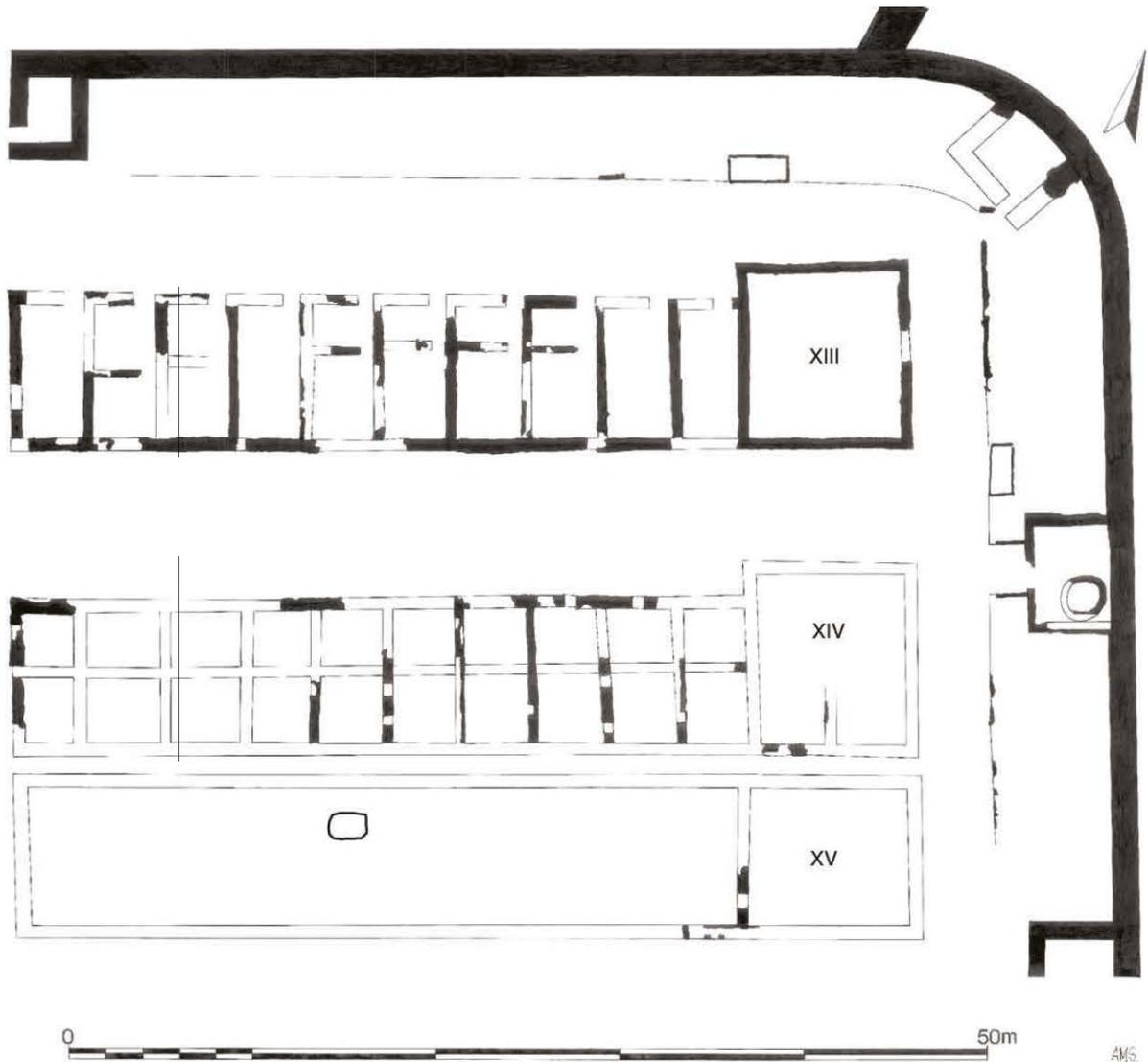


Fig 1.12 Outline plan of the north-east quarter of the fort in Phase I.

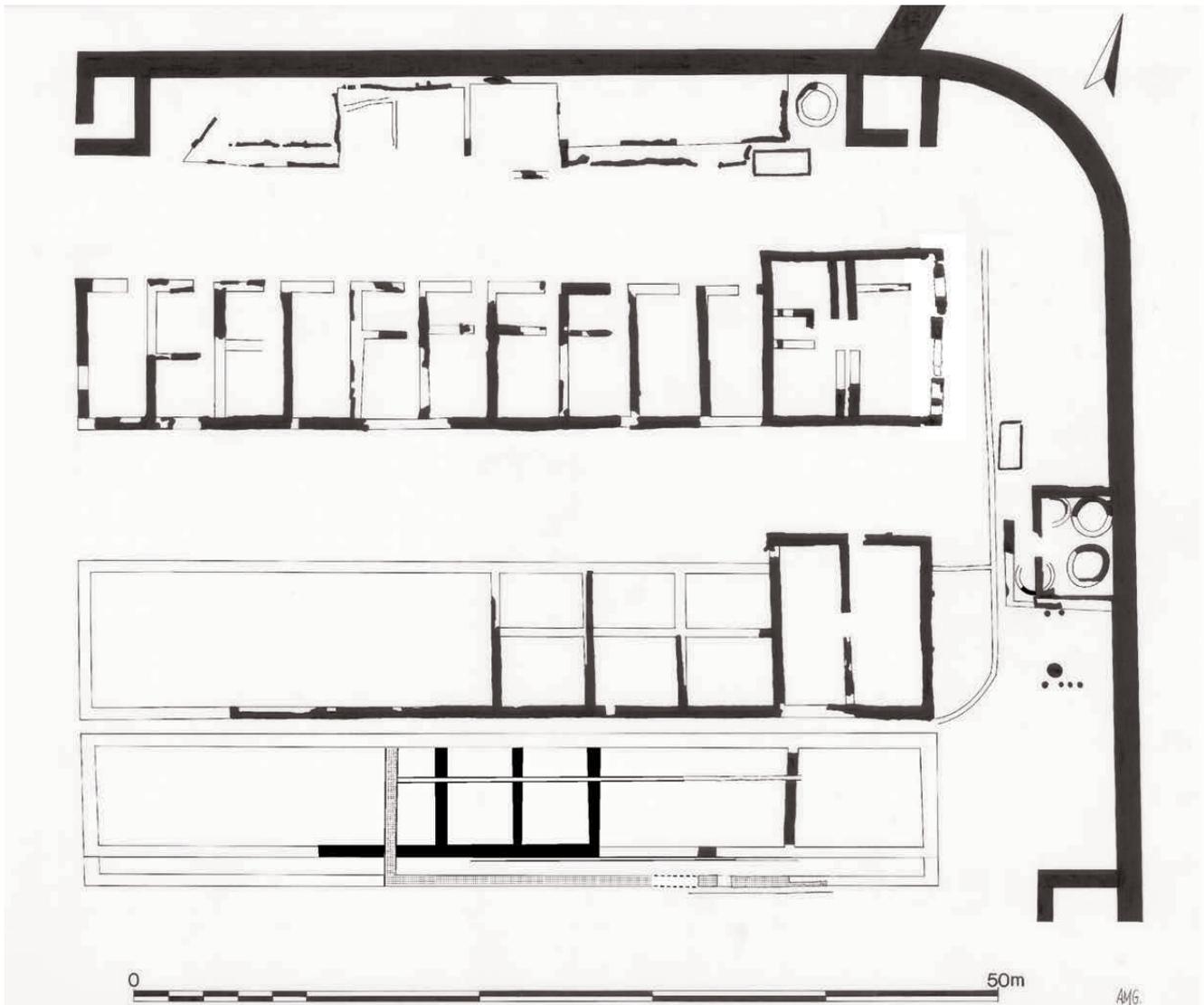


Fig 1.13 Outline plan of Phase II (showing the later partial reinstatement of the north rampart).

(HW), which was recovered more fully in site H20 (see Chapter 2). Following that, four overall phases of activity relating to the history of the north-east part of the fort can be established (cf Figs 1.12–15). These are set out in Chapters 3–6 under the following headings:

- | | | |
|--------|-----------------------------------|------------------------------------|
| 3) I | The primary fort | Hadrianic |
| 4) II | Modifications to the primary fort | Mid- to late 2nd and 3rd centuries |
| 5) III | The chalet phase | Tetrarchic |
| 6) IV | Modifications to the chalet phase | 4th to early ?5th centuries |

A post-Roman phase, potentially of sub-Roman or early medieval date, was also identified, notably at either end of Building XIII (see Fig 1.16). The structural sequence terminates with more recent ploughing over Building XIII and the farm track over the north rampart (which may have been in use by the medieval period). This post-Roman activity is described and discussed in Chapter 7.

It would be easy to view these four Fort Phases as identical to the classic Wall Periods: I (Hadrianic), II (Severan), III (Tetrarchic–Constantius I) and IV (AD 367–Count Theodosius). In fact the phases actually represent two major construction/reconstruction episodes – Hadrianic and probably Tetrarchic–early Constantinian – and two long phases of successive modifications, sometimes structurally very important within one part of the site, but not demonstrably affecting the excavated area as a whole. Indeed, in general it is probably more appropriate to talk about separate *events* rather than phases. It is possible, with varying degrees of certainty, to link some of these events together into wider episodes of activity, which probably reflect major reconstruction programmes. However, there is no reason to believe that every event can be assigned to such major building episodes. It is likely the structures in the north-east corner of Housesteads fort underwent a continual process of minor alteration and adaptation as on any long-occupied site. Even if there had been no previous investigation of the site, with its consequent

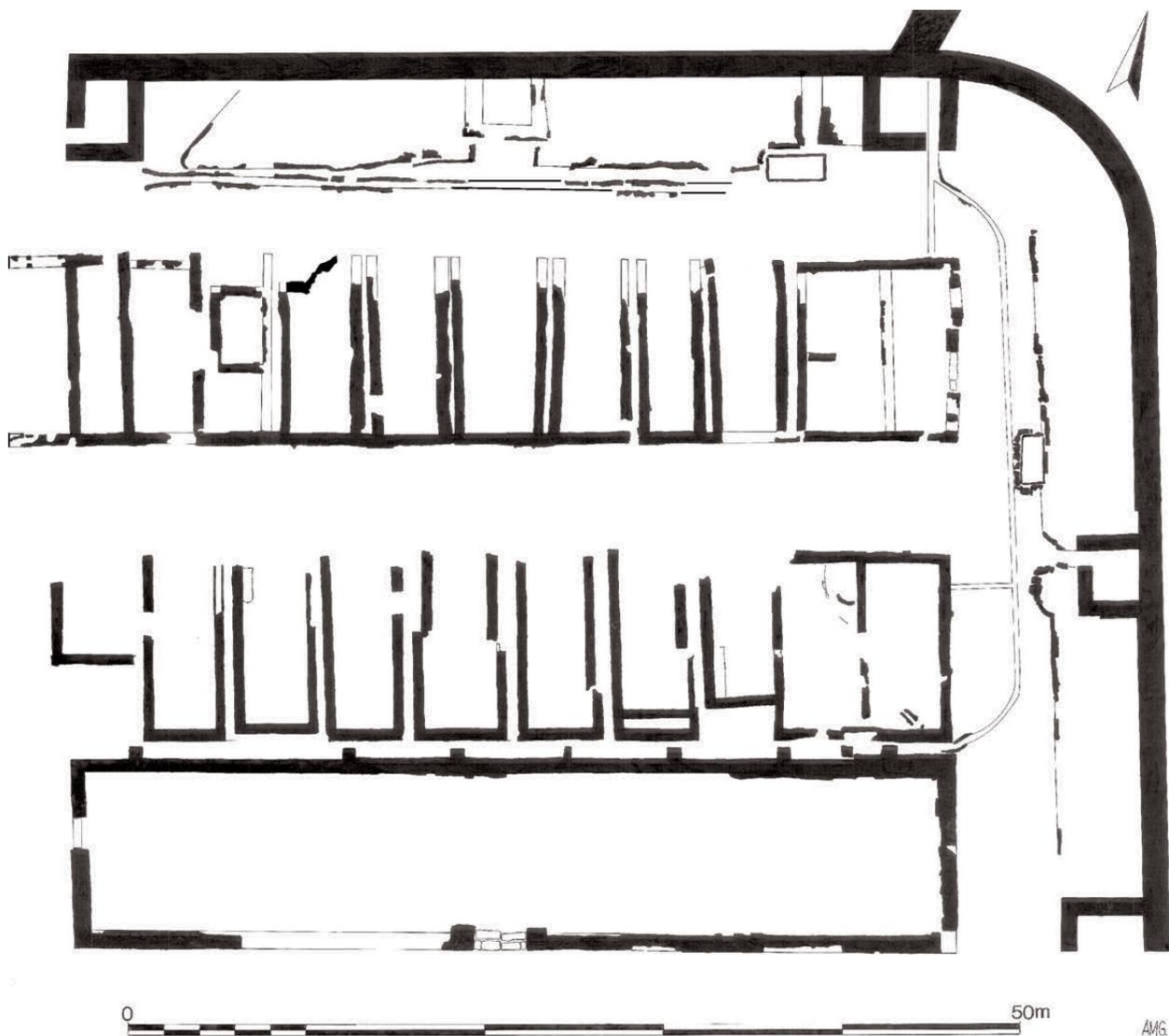


Fig 1.14 Outline plan of Phase III.

damage to stratigraphic relationships, it would still be difficult to relate and date precisely all such events across the entire site.

Thus Phase I and III episodes can be recognised across the site and form chronological anchors for the remainder of the structural phasing. However, far greater difficulty is met when attempting to provide a relative chronology for 'events' in different parts of the excavated area during the long 'modification' periods, other than the obvious equivalence between the removal of the rampart banking and establishment of workshops in both the north and east rampart areas (H20 Phase 3a; H21 Phase 2). The secure equivalences are all marked by the thick black lines on Table 1.3.

Otherwise the phasing of each of the six component sites, as set out in the Level 3 reports, has perforce been devised very largely independently of the others. Thus H15:1 has five phases while its neighbour H21 has four, and H15 Phase 4 does not equate to H21 Phase 4. In H20, Phase 1 represents laying of Broad Wall foundation, which relates to fort construction and

is therefore earlier than the primary phase in any of the other component sites. Conversely H20 Phase 4 covers both the chalet construction period (III) and the subsequent modification period (IV). It would, for instance, of course be possible to re-label H15 Phases 2 and 3 as 2a and 2b, in order to bring its phasing into line with H21 and slot it within the overall four period chronology. However, the exercise would be both intellectually dishonest and potentially misleading since each of the five phases of H15 represents a substantial rebuild of Building XV and therefore merits characterisation as a separate phase, and, moreover, there is no reason to assume that the resultant H15 Phase 2a would be chronologically equivalent to H21 2a.

Within H13 the problem is still more apparent, since different parts of that site cannot be stratigraphically related because of the way in which the *contubernium* and chalet walls divide the earlier stratigraphy up into a chain of islands. The chalets for the most part had to be phased by reference to primary and secondary features rather than floor surfaces (cf *H13 Level 3 Report*, 3).

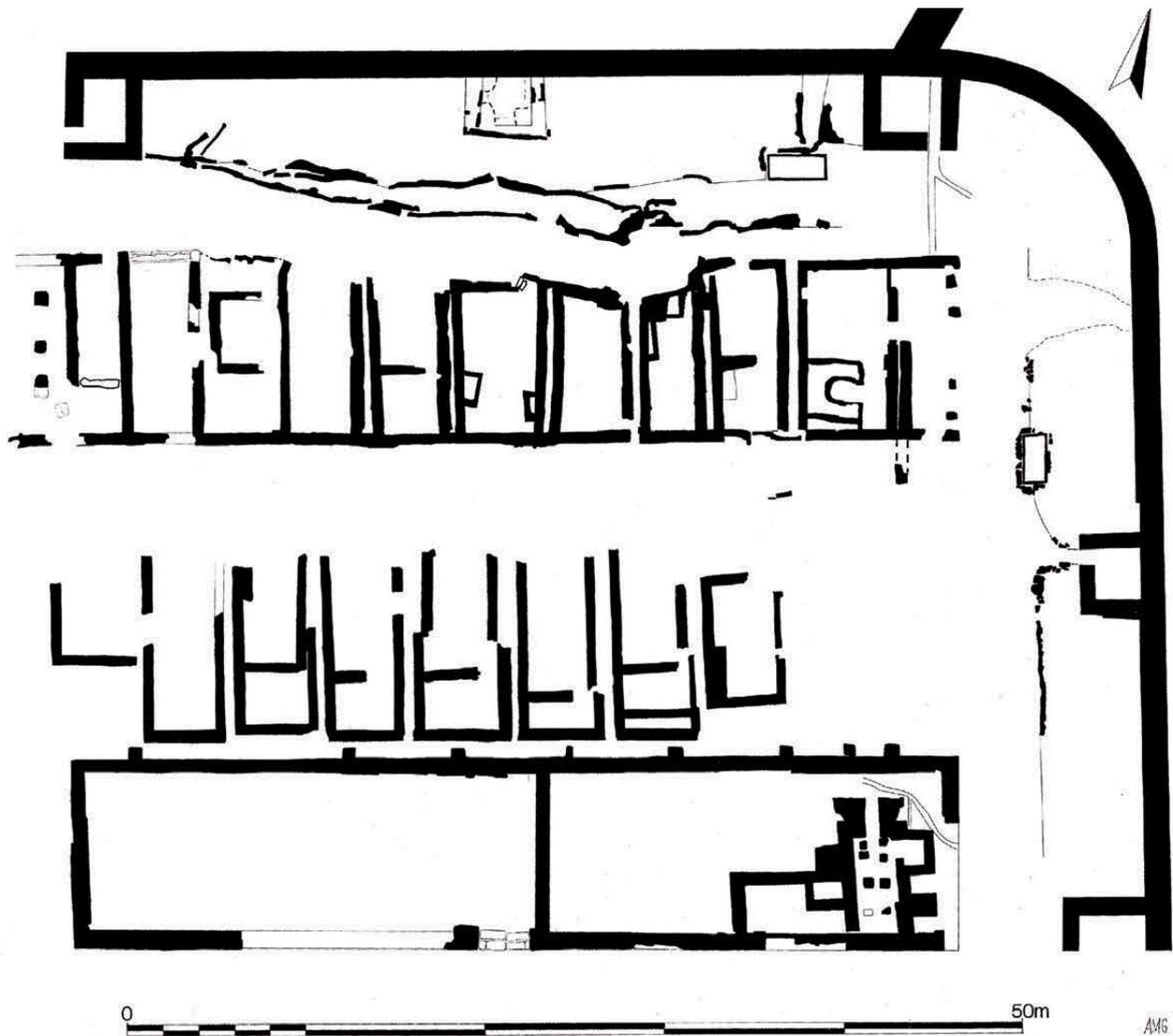


Fig 1.15 Outline plan of Phase IV.

The excavation of the earlier, Barrack Period (BA), levels within Building XIII was severely restricted by the decision not to remove the later, Chalet Period (CH), features of the building, instead consolidating and displaying them as found. Investigation of the Barrack Period 'involved for the most part recognition of which walls carried through to the chalet period and limited sondages to establish the presence of walls which were inferred but not visible' (*H13 Level 3 Report*, 2). Only the western half of the centurion's quarters (H13:1), part of Chalet 2 (H13:2) equivalent to the south-east part of *Contubernium* 1, and the southern half of Chalet 5 (H13:5) equivalent to *Contubernium* 4 and 5, were excavated in sufficient depth to reveal the earlier barrack levels. Even so, in H13:5 the trenches were not taken right down to natural (though it is considered the primary floor was revealed). The fact that a sequence of six phases – new floor surfaces, hearths and hints of alterations to timber-framed partitions – was recognised in all three of the most thoroughly investigated *contubernia*, 1, 4 and 5, may be significant. However, no

substantial rebuilding of the block, to compare with Wilkes's suggested Phase 2 in Building XIV (H14 Phase 2), seems to have been undertaken prior to the construction of the chalets. Fewer events were noted in the other *contubernia* and primary floors were not always recognised, reflecting the more limited investigation undertaken there. It is also possible that the earlier levels in some areas were truncated as a result of later activity (probably in H13:8, for example). The centurion's quarters in XIII did undergo considerable successive alterations during this period, with the frequent insertion of new floor surfaces, hearths, timber or wattle-and-daub partitions and, later, stone wall subdivisions, corridors and *opus signinum* floors (see below for a full summary of the Barrack Period events in the centurion's quarters). As noted above, the way the chalet and *contubernium* side walls partition the building means there is no direct stratigraphic link between the five phases and multiple sub-phases recorded in the centurion's quarters, and any of the six phases established for *Contubernium* 1, 4 and 5, for example. Nor is it possible to

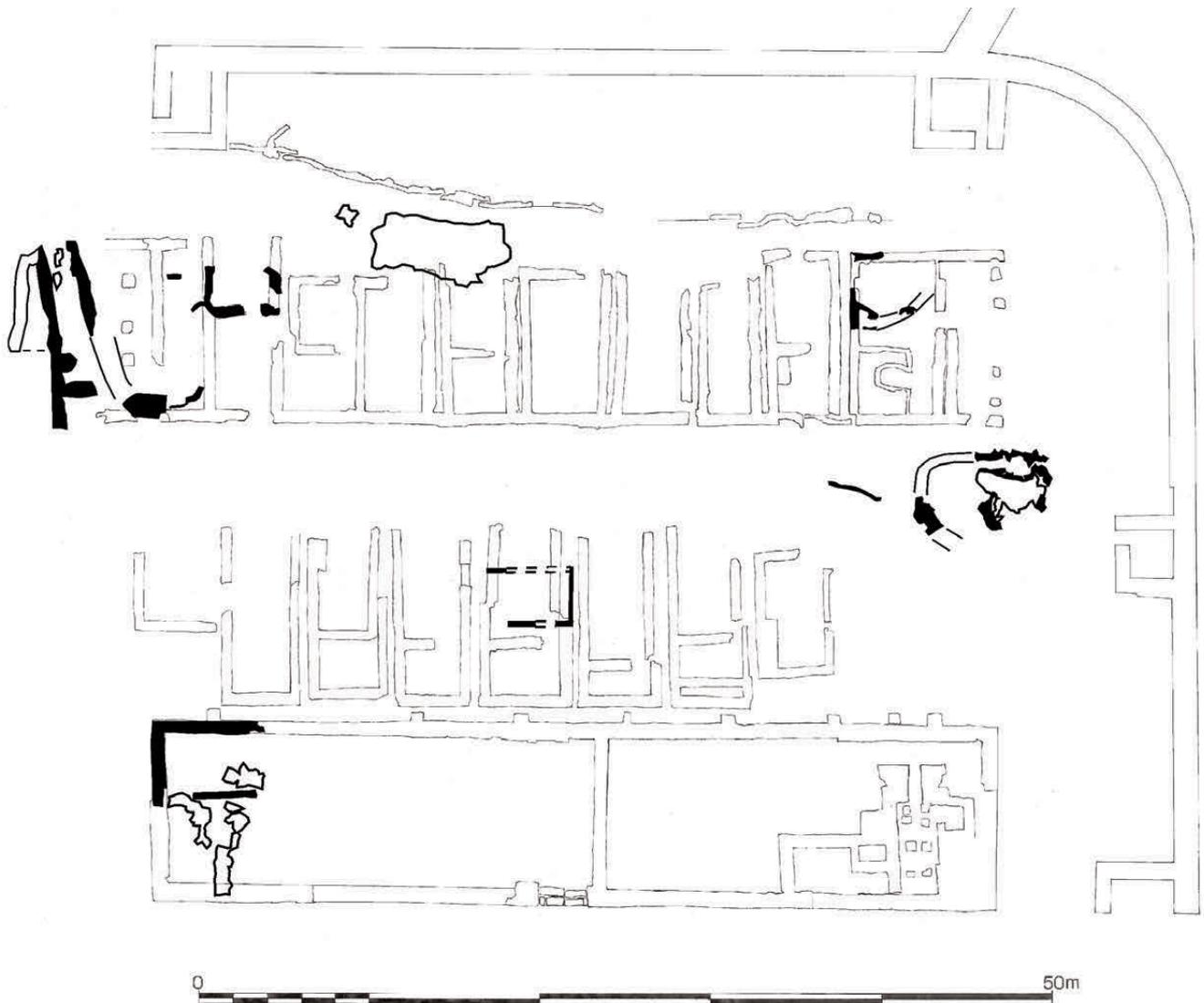


Fig 1.16 Outline plan of post-Roman features.

relate alterations in one *contubernium* to those in another. The same is true with regard to modifications during the Chalet Period. Instead, the overall phasing for Building XIII represents a series of relative chronologies and, although it is reasonable to suppose that the fourth phase in *Contubernium* 4 will not be far removed in time from Phase 4 in *Contubernium* 5, it is only the presence of dateable material in the contexts relating to each phase that enables their conversion into something approaching a unified, absolute chronological sequence.

The internal roadways were examined by excavation at various times in H13, H20, H21, and HSE. It is not possible to produce a coherent scheme into which all the road surfaces found can be placed, but a sequence of ten roads, overlain by flagging belonging to a late, possibly post-Roman, structure of some kind, was defined in the area of the east rampart (H21) and at the east end of the street between Buildings XIII and XIV (HSE). These surfaces (including the late structure) were numbered 1–11, from the bottom upwards. They provided some good stratigraphic links between

H21 and HSE and helped to tie together the later history of the *intervallum* area and Building XIV. However, it is important to note that even here many of the relationships were inferred rather than observed. The road surfaces were not excavated simultaneously, in sequence. The road surfaces on the inter-barrack street were examined in 1981, whereas those on the *via sagularis* east were mostly investigated in 1980, with some surfaces in H21:2 revealed in 1981. In several cases only a limited extent of a particular surface listed in Table 1.4 was actually revealed and recorded, where later intrusions had already partially removed the overlying stratigraphy for instance. Thus, the equivalences between the uppermost surfaces – flags HSE:1:3 and H21:3:115, for example, or road surface HSE:1:16; 1:30 and H21:3:18 – were clear, while some of the lower surfaces were of such distinctive composition that their relationship was obvious even though there was no direct excavated link between two pockets of the same surface. The latter circumstance was most strikingly exemplified by the ‘blue limestone’ cobbling

Table 1.4 H13 phasing concordance chart

<i>Overall</i>	<i>H13:0/1</i>	<i>H13:2</i>	<i>H13:5</i>		<i>H13:9</i>	<i>H13:10/11</i>
I (Hadrianic)	Cent qtrs Phase 1.i 1.ii 1.iii 1.iv	<i>Contub.</i> 1: Floor 1	<i>Contub.</i> 4: Floor 1	<i>Contub.</i> 5: Floor 1	<i>Contub.</i> 9	<i>Contub.</i> 10:
II (mid-2nd to 3rd centuries)	2 3.i ii iii 4 5	2 3 4 5 6	2 3 4 5 6	2 3 4 5 6		
	Intermediate		Demolition	-		
III (c AD 300)	Chalet 0/1 Phase 1	Chalet 2 Phase 1	Chalet 5		Chalet 9 Phase 1	Chalet 10/11 Phase 1
IV (4th to early 5th centuries)	2 3	2 3			2 3	2 3
Post-Roman	Post-Roman?				Post-Roman?	Post-Roman

(H21:2:48 = 3:118) laid on the east *intervallum* road during the 3rd century, though, even in this case, the suggested equivalent level (4:5/57), further south, was constructed of more common sandstone cobbling. Beneath this level, the earliest roads were for the most part seen only in a section cut through the *via sagularis* east (in area H21:2), which did at least provide a clear and coherent sequence in that area. However, the intervening layers associated with road levels 6, 7 and 8 were less distinctive and, as a result, the suggested equivalences between the road surfaces in H21:3 and H21:4 on the one hand and HSE on the other were not beyond question, though they do represent the most convincing reconstruction.

Finally, and more significantly, almost all the road levels of the east *intervallum* were, in stratigraphic terms, severed from the adjacent rampart deposits and structures by the long excavation trench that Bosanquet cut to chase the stone drain running along the eastern edge of the *via sagularis*. Direct correlation on either side was only possible in relation to the very earliest layers, which lay below the level of the drain.

The combined sequence of the road surfaces west of the drain is presented in Table 1.5 (latest at the top, earliest at the bottom). The context numbers of the makeup layers are italicised and the most obvious equivalences labelled.

Dating

Primary Hadrianic construction can be recognised and equated across the entire north-east corner, of course, as can the chalet construction and rampart redeposition programme of the late 3rd to early 4th centuries (with

which H15 Phase 4, the massive rebuild of Building XV as a storehouse, is considered to be contemporary). The earlier removal of the rampart banking and establishment of workshops in the east and north rampart areas (H20 Phase 3a; H21 Phase 2) was most probably carried out towards the beginning of the 3rd century. Subsequent successive phases of partial rampart reinstatement behind the north curtain (H20 Phase 3b–c and H20/3d) can be dated to the mid- to late 3rd century (before the total reinstatement of the rampart in H20 Phase 4a during the overall Chalet Phase (III)), while some of the workshops clearly continued in use late into that century. No additional evidence of any significance was recovered in 1979 or 1981 to date H14 Phase 2 – the substantial rebuilding of Barrack XIV – which Wilkes had assigned to the beginning of the 3rd century, and indeed there is some reason to question the very existence of that structural phase (*see* Chapters 4 and 5). H15 Phase 2 – the reconstruction of Building XV probably as a barrack block – may be tentatively allocated to the later 2nd century, while H15 Phase 3 – the subsequent reconstruction of XV as a stable – must also have occurred at some stage in the 3rd century.

Site phasing summaries

H13 – Building XIII (, , 6.8,)

Building XIII had two main structural periods – labelled ‘Barrack’ and ‘Chalet’.

Barrack period: A conventional L-shaped barrack block with projecting officer’s quarters, ten *contubernia* and a veranda. Presumably intended to accommodate an infantry century.

Table 1.5 Summary concordance chart for the road levels in Sites H21 and HSE

Road	H21:4	HSE	H21:3	H21:2	Description
11 late structure		1:18			flagged surface
		1:19			makeup
		1:3	3:115		flagged surface
		1:21			makeup
		1:28			flags
		1:29			makeup
10		1:12			surface
9 (nail scatter - XIV Chalet 1 demolition?)	4:2	1:16; 1:30	3:3/18		surface
		1:32			makeup
8	4:4	1:33	3:47		surface
		1:34			makeup
7 chalet construction	4:55	1:35	3:41	2:3	surface
		1:36			makeup
6	4:56	1:37	3:103	2:43	surface
5 'blue limestone' road (workshop debris)	4:5/57		3:117; 3:121		makeup
			3:118	2:48	surface
4	4:58			2:58	makeup
3 VS main drain				2:62	surface
				2:61	surface
				2:65	makeup
				2:66	makeup
2 rampart revetment wall				2:73	surface
				2:74	makeup
1 primary rampart				2:77	surface

Dating: Primary construction (Hadrianic). The barrack continues in use until the late 3rd century.

Chalet period: Reconstruction of the barrack block as a range of mostly freestanding *contubernia*, now conventionally labelled 'chalets'.

Dating: Late 3rd- to early 4th-century reconstruction. The chalets continue in use throughout the 4th century, with evidence for continued adaptation into the post-Roman period in some cases.

Each of these comprised multiple phases and sub-phases reflecting numerous modifications of a greater or lesser scale over time. Areas 0–1 representing the Barrack Period centurion's quarters and the later Chalet 1 may serve as an example of these:

H13:0–1 – Barrack Period centurion's quarters

(Figs 3.12, 4.18–19, 4.23)

Phase 1: Has four sub-phases relating to the initial construction and occupation of the building:

- Sub-phase i Levelling deposits prior to construction. Working surfaces for building external walls. Occupation deposits.
- Sub-phase ii Temporary surfaces. Possibly a small hut.

Sub-phase iii Floor surfaces. Rooms (timber partitions).

Sub-phase iv Silty occupation material.

Phase 2: Floor surfaces. Silty occupation material. Moved sill slot.

Phase 3: Relates to the building of interior walls 1:15, 45 and 147:

Sub-phase i Debris from demolition of timber partitions and altered external walls. Temporary surfaces. Trenches and backfill from interior wall construction.

Sub-phase ii Bedding sand for clay floors. Clay floors.

Sub-phase iii Silty occupation material.

Phase 4: Concerns building of interior walls 1:66 and 1:142. Definite divisions for five rooms. *Opus signinum* floor in Room 3. Cooking area in Room 2. Flagged floor in east area. Possible latrine pit in north-east corner. Doorway into Room 1 from Room 5.

Phase 5: Major structural alterations: building extended to the east. Entrance in the north wall. New rooms created in the north-east area. *Opus signinum* floor in Room 1 to match that in Room 3.

End of the barracks and demolition.

H13:0–1 – Chalet 1 (Figs 5.16, 6.7, 6.8, 6.16, 7.3)

Phase 1: New west wall, north wall rebuilt, other external walls reused. New monolithic threshold in east wall. Stone bollard at south-east corner.

Central north–south orientated dividing wall with drain on west side.

East–west partition wall sub-dividing the western half of the building.

South room contains drain running from south to north terminating in a stone box.

East–west drain in north-west part of the chalet feeding into latrine channels.

Further flagged floor in the east half of the building.

Latrine channels in north-east corner.

‘Causeway’ added across the eastern half of the chalet later in this phase?

Phase 2: New north–south dividing wall immediately to the east of the Phase 1 wall.

Small heated room with hypocaust inserted in south part of chalet, fired from a stoking area to the west.

South-west drain and ‘box’ went out of use and back-filled.

East–west drain backfilled. Flagged floor covers north-west part of building.

New causeway surface across eastern half of the chalet with another floor of flagging and gravel to south.

Phase 3: New north–south partition wall over Chalet Phase 1 wall, with doorways in the centre and at its north end.

Heated room out of use – hypocaust filled with flagging and clay.

Stoking area transformed into an oven.

Oven rebuilt and enlarged.

East wall and part of south wall demolished and replaced by five piers turning the eastern half of the chalet into a open pentice structure.

Latrine drain in the north-east corner rerouted to exit to the east rather than the north.

West half of chalet extended southward over the street surface.

Sub-Roman?: Black loamy soil over causeway and part of west room. Building unroofed?

Wooden shelter over bread oven.

Final causeway surface of rough flagging. Flagged surface in part of west half of building and new threshold in central doorway of the dividing wall.

Mass of burnt clay and charcoal in west half of building.

Oval structure built into north-west corner of chalet.

Earlier flagged floor reused, flags removed to create central hearth.

H14 – Building XIV ()

Phase 1: Conventional L-shaped barrack block with projecting officer’s quarters, ten *contubernia* and a veranda, like Building XIII (Fig 3.16). Presumably intended for an infantry century.

Dating: Primary (presumably Hadrianic).

Phase 2: Major rebuilding of barrack block including a new south wall and walls of the centurion’s quarters (Fig 4.28) (but see Chapter 5).

Dating: Uncertain – mid/late Antonine? or Severan?; Wilkes argued for a Severan date.

Phase 3: Reconstruction of the barrack block as a range of freestanding *contubernia* (‘chalets’) (Figs 5.18 and 5.19).

Dating: Late 3rd or early 4th century.

Phase 4: Assorted modifications to the chalet range (Fig 6.17).

Dating: Through the course of the 4th century.

H15 – Building XV (Figs 3.18, 4.30, 4.32, 5.24, 6.20)

Phase 1: Primary phase of Building XV (Fig 3.18) – a rectangular subdivided building (first recognised in the 1981 excavation).

Function: Probably a stores building or workshop, perhaps even an armoury (see Crow 2004a, 60). Not a barrack block – its plan is fragmentary but does not resemble Buildings XIII and XIV built at the same time, lacking the distinctive projecting centurion’s quarters found in the Hadrianic barracks and featuring a hard-wearing cobbled floor.

Dating: Primary (presumably Hadrianic).

Phase 2 (Wilkes’s Period I): Major rebuilding saw the width of Building XV reduced by the construction of a new south wall (see Fig 4.30). Cross-walls (four were recognised) divided the building into a series of rooms similar to *contubernia*, with hearths and a narrow veranda on the south side.

Function: Uncertain – it might conceivably represent another phase of workshops, but the presence of a colonnaded veranda suggests it was probably a barrack block (Crow 2004a, 60). Although no centurion’s quarters was found, these may have been located at the west end of the block, where no trace of this phase remained due to later truncation resulting from the construction of the H15 Phase 4 storehouse. The dimensions are clearly different from those of the Hadrianic barracks, XIII and XIV, but this can be explained by the later date of this building.

Dating: Uncertain – mid/late Antonine?

Phase 3 (Wilkes’s Period II): Building XV was completely reconstructed (including a new south wall) as an open rectangular hall, with a stone-flagged floor and two internal west–east drains (Fig 4.32). This building may have been shorter than its predecessors, not stretching as far west, but the west end may simply have been removed by later truncation, in which case the apparent west wall may only represent an internal partition designed to support a change in the level of the roof gable on a sloping site.

Function: The flagged floor, providing a hard standing, and the internal drains suggest it was a stable.

Dating: 3rd century (Severan? 220s?). If this building was a stable, its construction could have been associated with the arrival of the Frisian *cuneus*, assuming that

3rd-century *cunei* – as opposed to 4th-century *cunei equitum* – were actually cavalry units. The Frisian unit was certainly stationed at Housesteads during the reign of Severus Alexander (*RIB* 1594).

A radiate coin (259–73; see Chapter 13: No. 254) was found in the southern drain, implying the building was not replaced before mid- to late 3rd century.

Phase 4 (Wilkes's Period III): XV was rebuilt as a long rectangular building, wider than any of its predecessors (Fig 5.24). It featured fine masonry consisting of long blocks, the lower courses being laid as headers and stretchers. Buttresses along the north wall were not bonded in. None were found along the south wall, but may have been robbed out with little trace. The eastern end of the building was levelled up with a layer of sand, sandstone and yellow clay. Floored with carefully laid flagging, which showed signs of extensive wear 'suggesting many decades of continuous use' (Leach and Wilkes 1962, 86). The main entrance lay in the centre of the south wall and was wide enough to take carts. A large monolithic post-setting for a 0.18m square post was identified towards the east end of the building, implying a central row of timber posts supporting an upper floor. Two post sockets set against the inner face of the north wall may have supported a wooden staircase to such an upper floor.

Function: Massive storehouse, perhaps to hold *annona* taxation in kind (Crow 2004a, 98–9).

Dating: A *terminus post quem* of AD 259 for the construction of the Phase 4 storehouse is provided by a radiate coin in the southern Phase 3 drain (No. 254). A fragmentary Diocletianic dedication (*RIB* 1613) may mark the construction of the Building XV storehouse (Crow 2004a, 89–94, 98–9).

Phase 5 (Wilkes's Period IV): Demolition of the east end of the storehouse to make way for a small bath-house (Fig 6.20). Fragments of tufa presumably related to the construction of the bath-house vaulting were noted. The western half of XV carried on in use apparently as before, with the construction of a cross-wall, a little to the east of the southern entrance, serving as the new east wall of the storehouse.

Dating: Mid- to late 4th century?

Phase 6 (sub-Roman?): Traces of later occupation were found at the west end of XV with the blocking of the west doorway, insertion of an internal wall and a stone slab floor (Leach and Wilkes 1962, 86, pl xii.2).

H20 – north rampart (, , , 6.5)

- 1 Hadrian's Wall, whinstone foundations 3.35m (11ft) broad below the *intervallum* road.
- 2a Construction of the north gate, fort curtain and rampart bank with primary revetment (Wall A) and water tank.
- 2b Additional rampart deposits laid (after settling of primary layers?).
- 3a Primary north-east angle tower demolished and replaced by secondary tower at junction with

Hadrian's Wall. Removal of rampart bank and construction of a bakehouse, four workshops and the expansion wall.

- 3b Reduction of the open area to Workshops 3 and 4 only; reintroduction of the rampart bank, with new retaining walls to the west (B) and east (C).
- 3c Clay bank.
- 3d Southward extension of the west rampart bank revetted by Wall D. East rampart bank probably similarly extended southward (Wall F).
- 4a Construction of the new interval tower and new rampart bank retained by Wall E. Wall F probably extended westward slightly, beside the SE corner of the tower. Open cobbled area at the west end of the rampart, sloping up to the curtain wall. Platform at the east end over the former oven. Drain G.
- 4b New rampart revetment (Wall H), Drain G out of use.
- 4c Retaining Wall Ji, water tank out of use, access to the interval tower blocked.
- 4d Face of Wall J repaired (Jii).
- 4e Blocking of the rampart's west corner; demolition? and reconstruction of the interval tower in wood, new rampart set back with stone or timber parapet, reduces *via sagularis* to a narrow alley at the east end. Late flagged surface butts up against the retaining wall.

H21 – east rampart (, , 4.12, , 6.6)

- 1a Construction of fort curtain wall and primary north-east angle tower.
- 1b Construction of rampart bank and retaining wall, water tank and primary road surfaces of *via sagularis*.
- 1c Construction of the bakehouse and oven.
- 1d Additional rampart deposits laid (after settling of primary layers?); second oven inserted in the bakehouse.
- 2a Demolition of primary angle tower and construction of secondary angle tower. Construction of main *via sagularis* drain, with initial outlet passing northward through NE corner of rampart over remains of primary angle tower. Associated raising of *via sagularis* surface.
- 2b Rampart removed and workshops established in areas H21:2 and H21:4.
- 2c Insertion of new oven (3:88) in bakehouse. Succession of cobbled surfaces in front of the bakehouse (entrance way and former rampart).
- 2d Construction of a drain (3:102) leading from Building XIV to the main *via sagularis* drain.
- 2e Cobbled surfaces extended from the *via sagularis* over much of the former rampart area (especially areas H21:2 and H21:3).
- 2f Subsequent reduction in the size of the north part of the bakehouse by cross-wall 3:58 involving the demolition of oven 3:88. Remainder of the bakehouse extended westward and southward (walls 3:70, 4:48, 4:43) to incorporate a new oven in the SW corner (4:42).

- 2g Layers associated with the demolition of the bakehouse prior to the construction of the interval tower.
- 2r *Via sagularis* road surfaces belonging to H21 Phase 2.
- 3a Construction of the interval tower with massive foundations on the site of the bakehouse. Hearth inside tower.
- 3b Redeposition of the ramparts with associated retaining wall. Former oven platform 4:42 incorporated into the rampart revetment in front of the interval tower, as a semi-circular expansion, providing a more elaborate entrance to the tower.
- 3d Modifications to the drain leading from Building XIV to the main *via sagularis* drain.
- 3e Possible hearth (3:81) outside the interval tower.
- 3f Realignment of the north end of the *via sagularis* drain to pass through the secondary angle tower, possibly servicing a latrine there.
- 3r *Via sagularis* road surfaces belonging to H21 Phase 3.
- 4a Flagging laid inside the interval tower.
- 4b New rampart retaining wall constructed to the west of the previous one, expanding the width of the rampart – clear to the south of the tower, traces more ephemeral to the north.
- 4b+ V-shaped feature (2:18) cut into the rampart.
- 4r *Via sagularis* road surfaces belonging to H21 Phase 4.

Presentation of the dating evidence

The dating evidence for each phase or discrete sub-phase of the north-east quarter is presented in tabulated form at appropriate points in Chapters 2–7, accompanied by a discussion of the salient elements, including any problems or caveats.

In cases where the quantity of dating evidence relating to a particular structural phase or sub-phase is relatively restricted, the various categories are combined in a single table for ease of reference. These tables list the contexts from which dateable material derived, with an abbreviated context description followed by columns detailing the coin evidence (if present), then coarseware and samian present in each context.

In the case of the coin evidence, the catalogue number given to that coin in Chapter 13 is cited, followed by the emperor/empress depicted and the date of minting.

The coarseware is organised by vessel/fabric formcode, for example BO 23, JA 60, as used in the coarseware chapter (16) followed by the individual F(eatured) V(essel) N(umber) of the particular vessel present and then the date at which the form first appears, not the full period the form was in production. Thus, in context H13:5:13, the sixth and final clay floor surface of *Contubernium* 5 prior to the chalet phase, bowl form BO 13 is represented by featured vessel 212, which first appears in the late 3rd century or later, and is set out as follows:

context	description	formcode	FVN	date
H13 5 13	<i>Contubernium</i> 5 – 6th clay floor	BO 13.0	212	L3C+

Such material could have been trampled into the floor during its life or even at the very end of its existence, but does provide a *terminus post quem* for the subsequent chalet phase. Material that was not selected as a featured vessel but is nevertheless significant for dating purposes is included in the tables with an abbreviated description such as Crambeck plain r(immed) di(sh) or gr(ey) wa(re) flan(ged) bo(wl).

With regard to the samian ware, the conventional, familiar vessel formcodes are used, such as 31R, 37 and so forth, plus readily recognisable abbreviated codes for the area and site of manufacture, for example CG LZ: Central Gaulish, Lezoux – or EG RH – East Gaulish, Rheinzabern. Again these abbreviated codes are set out in the relevant specialist chapter, 15. However, only the latest material in any given context is listed in the dating evidence tables, for conciseness. The full list of samian ware present in each context is tabulated in the archive report compiled by Brenda Dickinson and held with the rest of the site and research archive at Corbridge Roman Site Museum. Samian evidence is not included in the tables relating to the later phases that are described in Chapters 6 and 7 as the samian in these levels may all be assumed to be residual.

In those instances where the ceramic assemblages are very large, the different categories of evidence are presented separately, to reduce the complexity of the dating evidence table. In these cases, the coins are generally included in the associated finds listing, as described below, rather than in the dating evidence section.

Presentation of the finds listings

Significant finds, which feature in the various specialist chapters, are also listed immediately after the particular section of the structural description that relates to the context from which they were recovered, that is to say the text describing the relevant phase and structural component of the overall site. The finds are listed by context, by the number allocated to them in the relevant specialist chapter and by figure number, if appropriate. The bulk of the finds listed represent objects described in Chapter 14, the small finds chapter, but the stonework, querns and other large stone objects are contained in Chapter 12, the glass vessels in Chapter 17 and the graffiti in Chapter 18. The leatherwork, although included in Chapter 14 with the small finds, also has a different numbering system. The coins catalogued in Chapter 13 are also listed here. There is, therefore, some overlap in the finds numbers that appear in these lists, but there is no duplication within each of the material assemblage chapters in Volume 2.

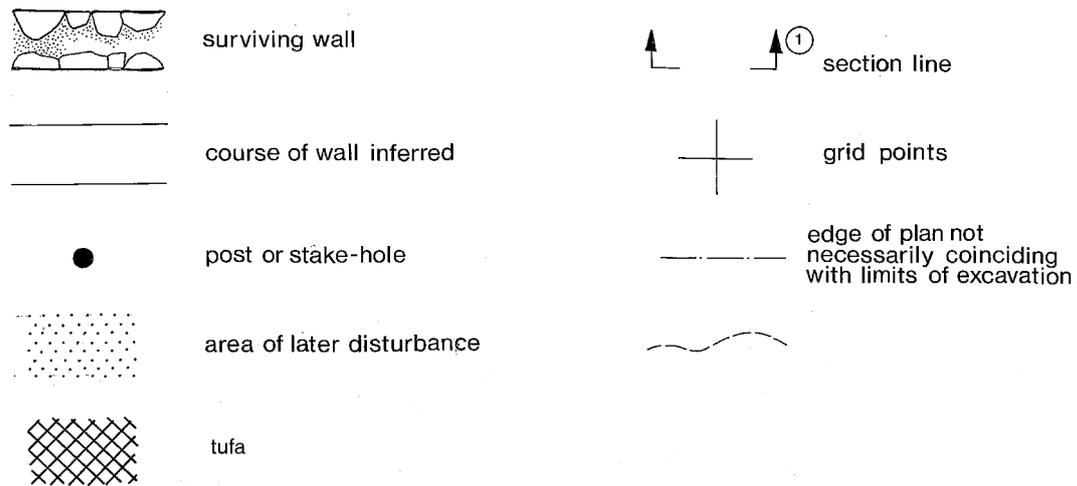


Fig 1.17 Key to the plans

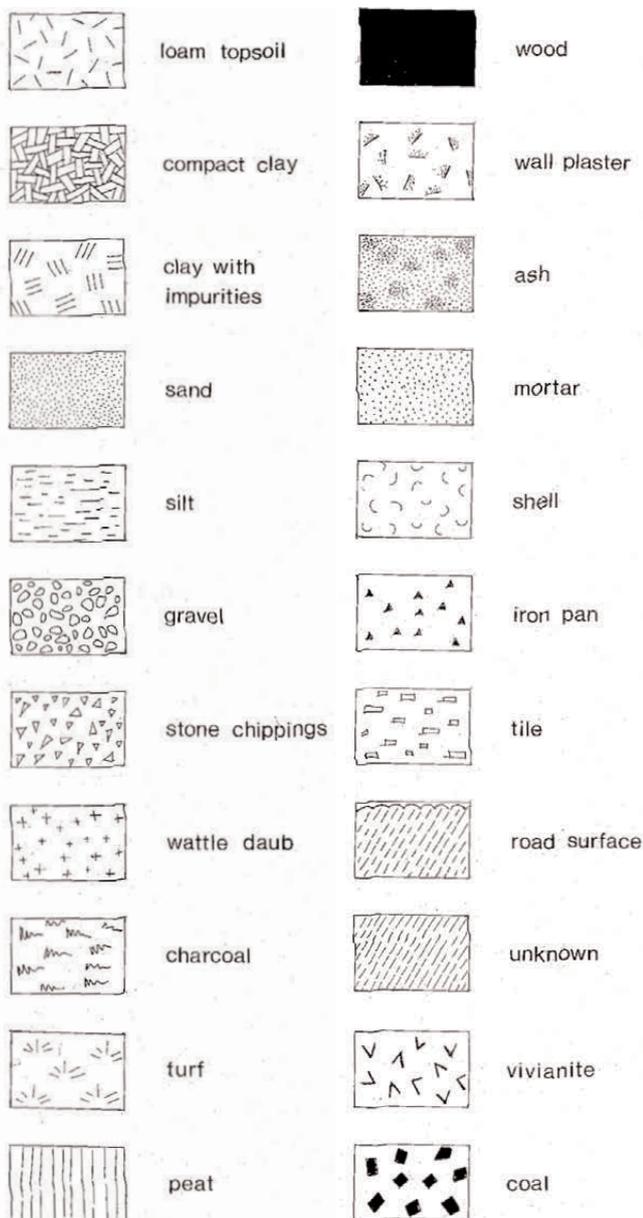


Fig 1.18 Key to the sections.

Context, site and building designation

The unique context identifiers, incorporating the three numerical components (Site):(Area):(Context), are used below in Chapters 2–7, which set out the main structural description for the 1974–81 excavations, and in the chapters reporting on the material assemblages (12–21). However, within each section of the structural description – for example that discussing Building XIII within Chapter 3 – the identifiers have generally been truncated to the (Area):(Context) codes after the first occurrence of the full code, this entailing no meaningful loss of precision. Thus, after an initial reference to H13:1:220 subsequent identifiers take the form of 1:218, 1:211 and so forth. Keys to plans and sections are shown in Figs 1.17 and 1.18.

In the following chapters the buildings are generally referred to by the label given to them by Bosanquet, for instance Building XIII or Building XV, rather than their site codes H13 or H15 respectively unless the excavation site is specifically intended. With respect to the principal buildings of the central range, which are discussed in parts of Chapters 8 and 11, either the original Latin title – *principia*, *praetorium* or *horrea* – or a commonly accepted modern descriptive label – headquarters, commanding officer’s house or granaries – is normally used rather than Bosanquet’s numerical designation. The eight stretches of rampart which together encompass the full circuit of the fort’s defences were allocated numbers from 20 to 27 by Daniels, to continue Bosanquet’s building numbering sequence, as noted previously. These are designated Rampart Sectors in general discussion, in Chapters 9 and 11 particularly, and are capitalised in the text like the numbered buildings, *contubernia*, chalets, workshops and other structures. However, when specific reference is being made to the rampart excavation site, the codes H20 or H21 are used.

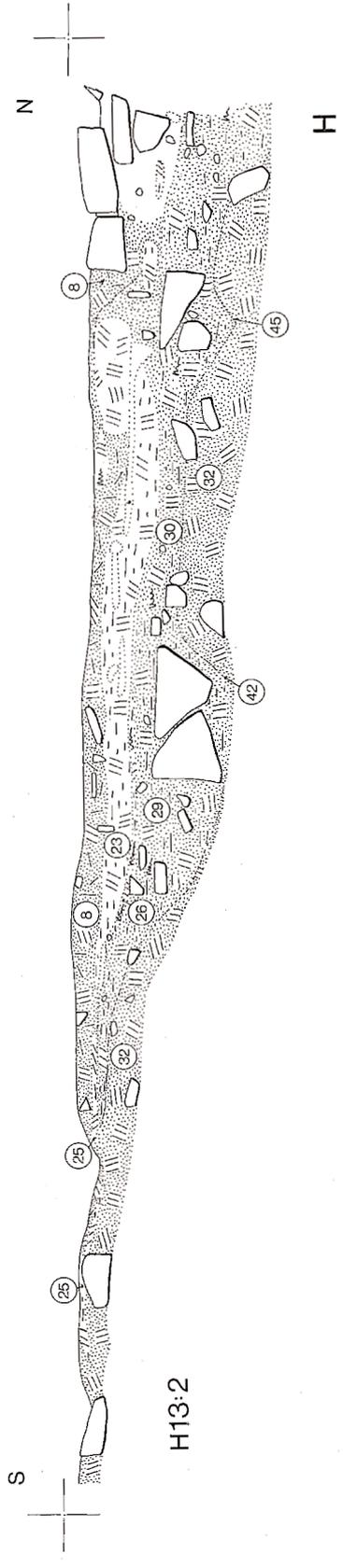


Fig 2.1 Section H (H13:2) showing the possible cord rig gullies (scale 1:20).

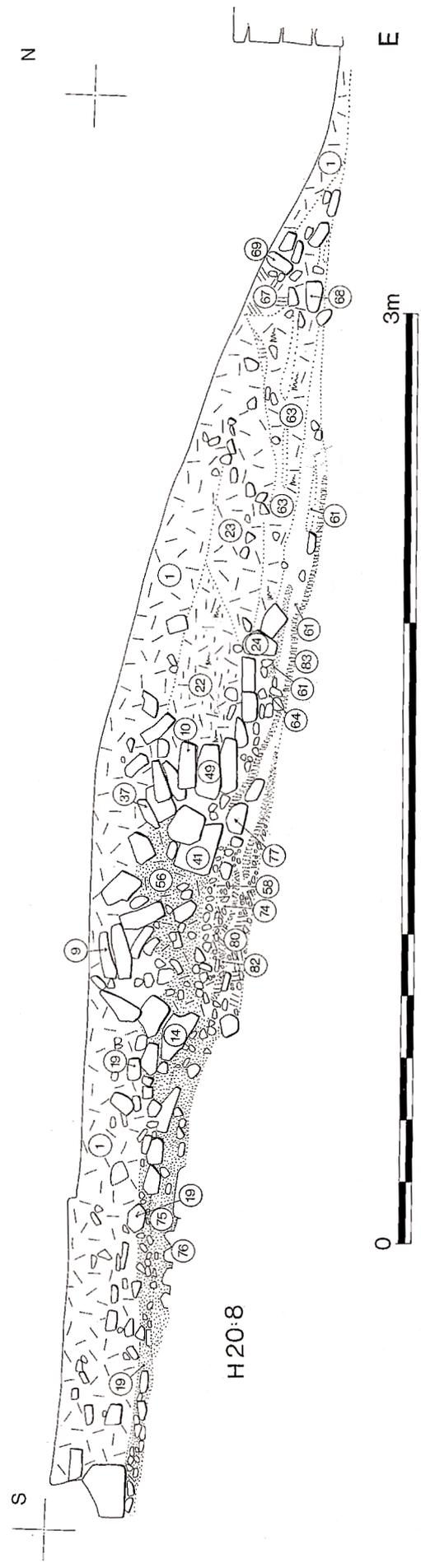


Fig 2.2 Section E in H20:8 showing successive rampart phases and revetments (scale 1:20).

2 Hadrian's Wall and pre-Roman agricultural activity

Agricultural activity (Figs 2.1–2.3)

The discovery of more than 20 Mesolithic and Neolithic flint tools during the excavations in the north-east quarter of the fort, and earlier in the south rampart, bears witness to the long history of human activity on the ridge at Housesteads (see Chapter 21). However, all these flints were residual finds in Roman or later contexts (many in the modern topsoil) and no features of comparably early prehistoric date were identified in excavation.

In contrast, more substantial evidence of possible later prehistoric activity was recovered. Unlike many sites in the vicinity of the Wall, Housesteads has not produced any evidence of ard marks beneath the fort, but several features of interest, in the form of short 'gullies', were revealed beneath Building XIII (see Figs 2.1 and 2.3) during the course of excavation, which suggest there was agricultural cultivation on the site at some period prior to the arrival of the Roman army.

Under the lowest floor surface of *Contubernium* 1, four depressions (H13:2:42–5) were cut into the natural yellow sandy clay (2:32). These gullies varied in width and were orientated east–west, and should perhaps be interpreted as the remnants of cord rig. No such activity was evident beneath *Contubernium* 4, but there were a number of similar gullies, orientated north–south, cut into the natural clay (8:14; 8:22) under *Contubernium* 8 (see Figs 2.4 and 4.27). One of

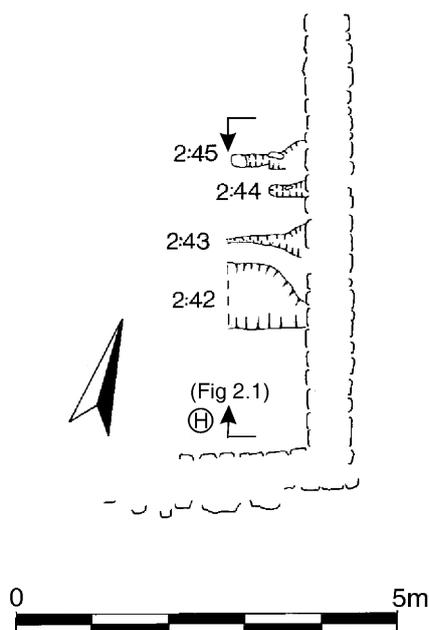


Fig 2.3 Plan of H13:2 showing the cord rig gullies beneath the floors of *Contubernium* 1 (scale 1:100).

these (8:34) lay alongside the west wall of the *contubernium*, and was 0.25m wide and 0.05m deep. A second gully (8:42), c 1m further to the east, ran roughly parallel to the first and was filled with heavy red-brown clay flecked with charcoal. It was c 0.25m wide and up to 0.1m deep at its south end. Both were truncated to the north by later barrack/chalet features, making their original length uncertain. Between these two lay another shallow trench (8:26) on a similar alignment, but this latter turned through 90 degrees and headed east, passing just south of gully 8:42.

Finds

Glass: H13:8:26 481 Small annular bead of opaque dark blue glass

Dating evidence

context	CW form	TPQ
H13 8 26 L-shaped gully u S room of <i>Contubernium</i> 8	BB1 jar	L1C+
	Dr 20 am	2C

Discussion

No Roman finds were associated with any of the gullies beneath *Contubernium* 1, nor with H13:8:34 and 8:42. This would be consistent with the identification of these features as examples of pre-Roman Iron Age cord rig, resulting from spade-dug cultivation. Rows of similar furrows have been recognised covering much more extensive areas beneath a number of Roman northern frontier sites, notably Wallsend, South Shields, Newcastle and Rudchester forts and on Hadrian's Wall at Denton. The lack of correspondence with identifiable plough marks in the subsoil suggests that, in most cases, these furrows were the product of spade-dug cultivation, although in some instances they may have initially been cut with a plough and then finished off and ridged using a spade (see Hodgson 2003, 23–36 for full discussion).

Tantalising evidence of related activity, the processing of cereal grains, was represented by a possible fragment of a saddle quern (see Chapter 12: No. 88), found reused in very late Roman or post-Roman flagging (H20:8:14) overlying the north *intervallum* road. This type of quern was being replaced by beehive querns as early as the 2nd century BC (Welfare 1985, 154, and see Chapter 12 for discussion).

A small number of finds, including 14 largely undiagnostic Roman pottery sherds, were recovered from the L-shaped gully, 8:26. None of the pottery need post-date the Hadrianic period and hence its presence does not rule out the possibility that 8:26 represented another agricultural feature, backfilled at the beginning



Fig 2.4 *Bosanquet's trench along the via sagularis drain with cistern emptied (Hadrian's Wall Archive).*

of Roman occupation. However, the overall quantity of finds within 8:26 suggest it was backfilled after a certain period of Roman activity on the site had elapsed and it is perhaps more plausible that this feature was associated in some way with the construction of the fort and Building XIII in particular.

The significance of these cultivation features is heightened by the recognition that surviving terrace lynchets situated below the fort, on the slope between the east gate and the Knag Burn gateway, may also be tentatively associated with later prehistoric agricultural activity (*see Welfare below, Chapter 10*). A number of settlements are known in the vicinity, the nearest being located 400m to the south-west. The possible cord rig revealed beneath Building XIII and the terraces north-east of the fort may imply that there was another settlement situated at or immediately adjacent to the fort site itself. Any traces of such a settlement would have been largely obliterated by the construction of the military installations, and any surviving features cut into the subsoil would have gone undetected by earlier excavations, which were concerned to reveal and leave in place the structures of the Roman fort.

By contrast, botanical samples from organically rich waterlogged deposits sealed within and towards the base of the primary rampart (H21:2:40; H20:5:94; H20:6:73) provide little evidence for cereal cultivation in the area. Instead, assuming that they in some way reflect the local vegetation at the time of the rampart's

construction, the plant remains suggest that the fort was surrounded by open grassland and heather moorland with very wet ground nearby, plus a little hedge scrub as well as weed growth typical of disturbed ground (*see Chapter 19*). One solution to this apparently contradictory evidence would be to suggest that cultivation had been practised at Housesteads at some stage in the Iron Age, but had ceased by the time the fort was constructed. However, as is noted in Chapter 19, it is not clear how accurately these samples do in fact reflect the local vegetation. The organically rich deposits are very localised and did not form part of the old ground surface. Nor is it clear precisely what these deposits constitute. The most likely interpretation is that they represent layers of rubbish dumped in the rampart area during construction – old floor coverings, stale bedding material or fodder for animals quartered at the site (*see Chapter 3*). This would account for the numerous pieces of redundant leather – worn out tent panels and old shoes – present in these levels (*see Mould: 'The leather', in Chapter 14*). Similar fragments of leather were also found by Tait at the base of the south rampart in 1962 (1963, 44) and it is clear that construction of the rampart sealed and thereby preserved extensive midden deposits from the earliest phase of the fort. Evidently, a sample of plant remains resulting from such depositional circumstances might not be entirely representative of the wider environment. Furthermore, very similar organic-rich layers,

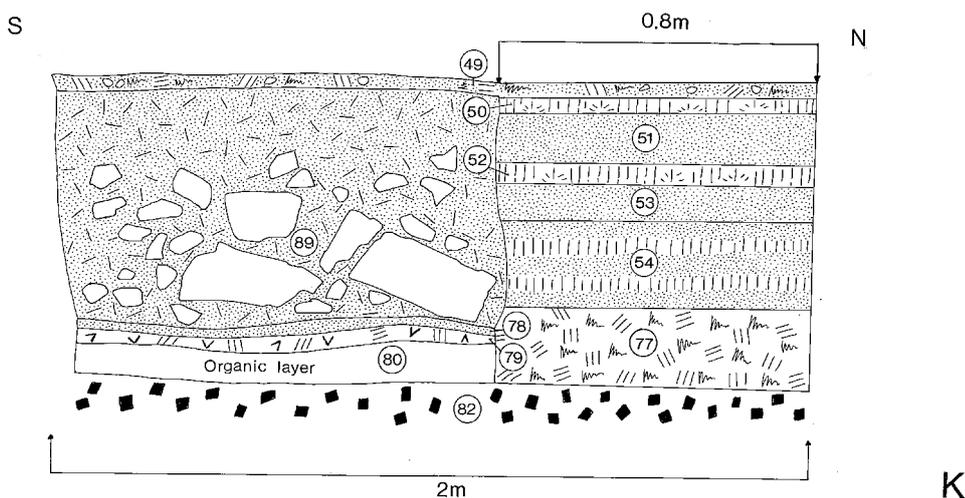


Fig 2.5 Section Sketch K (H21:1); scale 1:20.

H21:1:79–80, 1:96, were found at the base of a robber trench associated with the demolition of the primary angle tower, an event that may have occurred as late as the beginning of the 3rd century (see Chapter 4). Examination of Section Sketch K (Fig 2.5) suggests that 1:79–80 and 1:96 are more likely to represent rubbish deposited in the bottom of the trench while it was open, rather than primary rampart material cut by the later robbing activity.

Hence further environmental evidence may be required from the site before any firm conclusions can be drawn regarding the nature of late prehistoric activity in the vicinity and in particular whether there was cultivation and settlement at Housesteads immediately prior to the arrival of the Roman army.

Hadrian's Wall (Fig 3.3)

It has long been known that part of Hadrian's Wall was demolished to enable the construction of the fort at Housesteads, and Turret 36b was excavated by Simpson, Hepple and Richmond in 1945 (Richmond and Simpson 1946, 134). The excavations in the north-east corner of the fort in 1974–81 again found traces of the foundation of the broad-gauge Wall and were able to show that the line predicted by Richmond and Simpson (1946, 136, fig 9) needed slight modification.

Between the north rampart and Building XIII, directly beneath the *intervallum* road, broad-gauge whinstone foundations (H20:8:76) were set in crushed sandstone (8:84) over a further layer of whin boulders (8:85), with charcoal, coal, and hobnails mixed in (Figs 2.2: Section E and 3.3). This last layer rested on natural clay and sand (8:86), which dipped steeply to the north. The south edge was marked by a well-constructed kerb (H13:7:17; H13:8:48) of large whinstone blocks $0.3 \times 0.5\text{m}$, similar in size and arrangement to those on either side of Turret 36b. The whinstone foundations extend north from the kerb some 3.35–3.40m, as far as a distinct edge between the



Fig 2.6 Vertical view of the Broad Wall foundation incorporated in the north *intervallum* road, from the south.

large boulders of the Wall foundation and the smaller cobbling (H20:8:80) of the later extension for the *intervallum* road (see Fig 2.6).

Further whin foundations (3:65), probably belonging to the Wall, were identified just to the west of the north-east angle tower (Fig 3.3), directly beneath the early oven (3:56; cf Fig 4.1: Section A).

Dating evidence

<i>context</i>		<i>form</i>	<i>orig</i>	<i>kiln</i>	<i>date</i>
H20 8 76	Broad Wall whinstone foundations	31R	CG	LZ	MLA

The only diagnostic dateable material found in association with the Wall foundations was a sherd of intrusive samian ware and probably reflects the subsequent use of the solid whinstone pack as part of the north *intervalum* road (see Chapter 3).

3 The primary fort

The defences

The curtain wall

The curtain wall had already been largely excavated and consolidated and the 1974–81 excavations only examined it at two points in any detail.

In the east defences (H21), it was observed that yellow-orange mortar survived in the joints of the bottom four courses of the wall, below the level of modern consolidation (H21:2 : Section F1).

Elsewhere, in the northern defences (H20), the inner face of the curtain was examined below the foundation of the east wall of the later interval tower. It was discovered that the wall survived to a height of 2.06m, comprising 13 courses of facing stones, and was 1.6m thick. The foundation course was offset from the wall above it by 0.26m and rested on a layer of buff-coloured

sandy clay mixed with mortar (H20:6:88). No evidence was noted for a construction or laying-out trench (Fig 4.1: Section B), while the construction material seen beneath the foundation course may suggest that the wall above it was not primary. A more detailed analysis of the curtain at this point was possible during subsequent excavations (Crow 1988, 63–5). A construction trench for the curtain was recognised at one point on the east defences, close to the east gate (H21:5:16).

The primary north-east angle tower

In 1909, Simpson noted the primary north-east angle tower during excavation and this was re-examined (Fig 3.1). Only the stubs of the walls, projecting from the curtain (to which they were bonded), were found, the easternmost (H21:1:23; 1:88), which was 2m long,

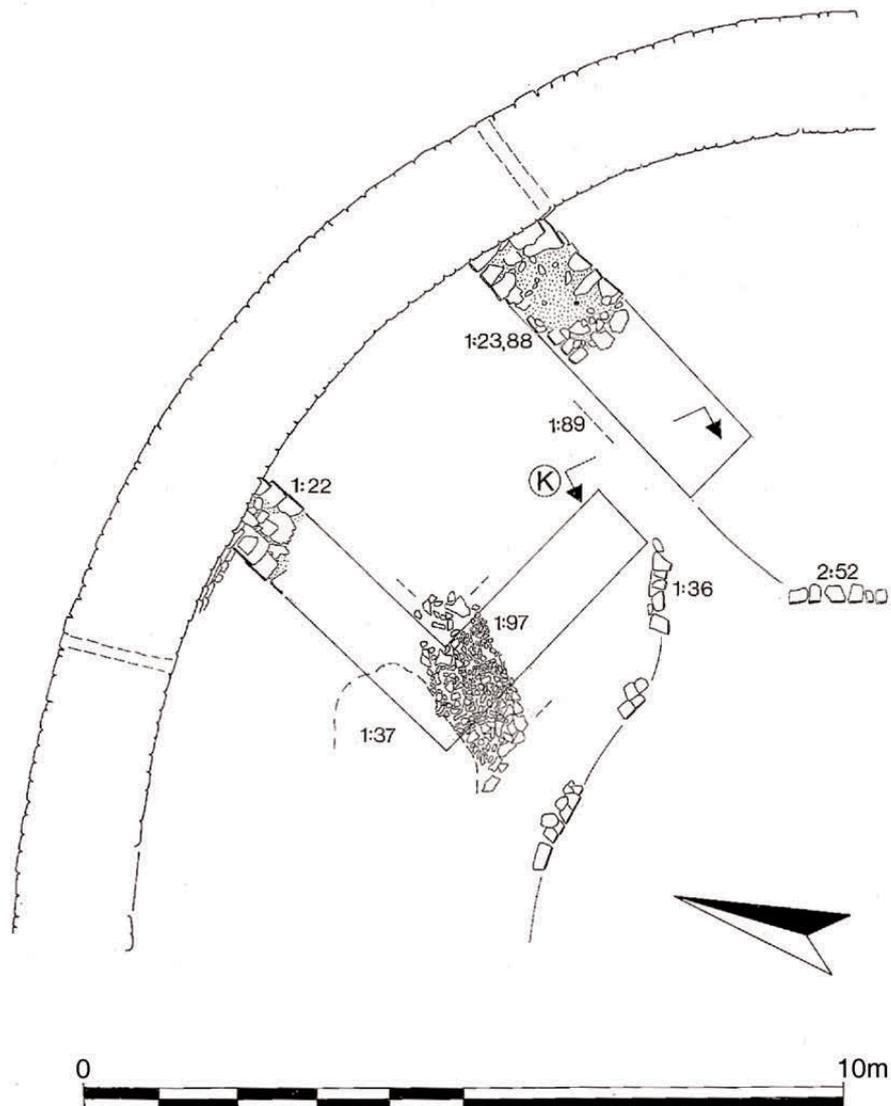


Fig 3.1 Plan of the primary north-east angle tower (scale 1:100).

included mortar (1:85) and a possible stakehole in its fabric. Only some 1.5m of the westernmost wall (1:22) was located. Comparison of the modern plan (Fig 3.1) to that published by Simpson (1976, plate xii facing p 130) showed a difference of 5 degrees in alignment. At 3.75m, the distance between the inner faces of the tower walls was significantly larger than that of its successor.

Interpretation: Although little survived of this primary angle tower, the evidence recovered indicated that construction work had progressed to a much higher level than is apparent now and the tower quite probably stood to its full height. Scrutiny of Simpson's excavation photographs (1976, figs 49–51, and *see* Fig 3.2 here) suggests that the two strips of curtain wall directly above the junctions with the surviving tower foundations were rebuilt at some stage, probably when the tower walls bonded into the curtain were demolished. The strip of slumped curtain facing, directly above wall 1:22, can only be explained in this way, but some different characteristics may also be discerned in the facing above 1:23/88, where the rebuild was more competent and hence less obvious. Neither rebuild can be traced clearly today, as a result of repair and consolidation since Simpson's day, perhaps first during National Trust management and then by the Ministry of Works. Further evidence for the demolition of the



Fig 3.2 F G Simpson excavation photograph showing the rebuilt inner face of the curtain at the site of the primary angle tower (previously published as F G Simpson 1976, fig 51; original held by Cumbria Record Office, Carlisle).

primary tower was encountered in the form of a rubble-filled trench (1:89) on the same alignment as the easternmost stub, and seen in section at the western end of the 1981 excavation trench exposing 1:23 (*see* Fig 2.5: Section Sketch K). This presumably represents the robbing of the tower's east wall. Rubble was also present in the bottom of the excavation trench around surviving wall stub 1:23/88, but it is likely that all other trace of the robber trench had been removed by Simpson's earlier excavation in this same area. At the base of this robbing cut were the several layers rich in organic material (1:79–80, 1:96) noted above, sealed under a sandy layer (1:78). It is unclear whether these layers were the result of the robber trench disturbing organic deposits beneath the tower wall – such deposits were encountered elsewhere at the base of the primary rampart (*see above*) – or represent the use of the open cut as a rubbish pit prior to refilling. Section Sketch K would suggest the latter. A stone spread (1:97), recorded in plan only, may constitute further evidence for the robbing of the angle tower walls. The position of this spread would correspond with the west corner of the tower and was evidently cut by another of Simpson's excavation trenches, 1:34 (*see* Chapter 4 for further discussion).

The floor of the tower did not survive, but the makeup for it was recorded in section (*see* Fig 2.5: Section K) and comprised alternating layers of sand and peat/turf (1:50–4) over a mixed clay base (1:77). This deliberate alternate banding of makeup deposits is somewhat similar to that recorded by Hodgson in the south tower of the east gateway, in method if not composition (NRO *Misc Papers* Vol Z, p 508).

The common invariable method of getting the insides of buildings to have a level floor was by fill and then up thus in the slope with clay [*sic*]. Frequently pit coal of the kind called here by the country people Crow Coal is mixed in layers with the clay, especially in the south tower of the East gateway.

The rampart

The north rampart (Figs 3.3–3.11)

In one area of the northern defences (H20:6), the primary rampart survived to a height of 1.2m above the natural subsoil. It was formed from mixed material, comprising sandy clay loams, clays, orange sand, waterlogged peat, and sandstone rubble and there were evident tip-lines, sloping from south to north, that is to say up towards the curtain (6:34–40, 6:72–3, 6:76–86; *see* Fig 4.1, Section B). One layer of crushed sandstone and mason's chippings (6:81), 1.1m above the foundation course of the north wall, may represent a working surface used in the construction of the curtain, suggesting that the rampart material was added in stages as the height of the wall increased. Elsewhere, in

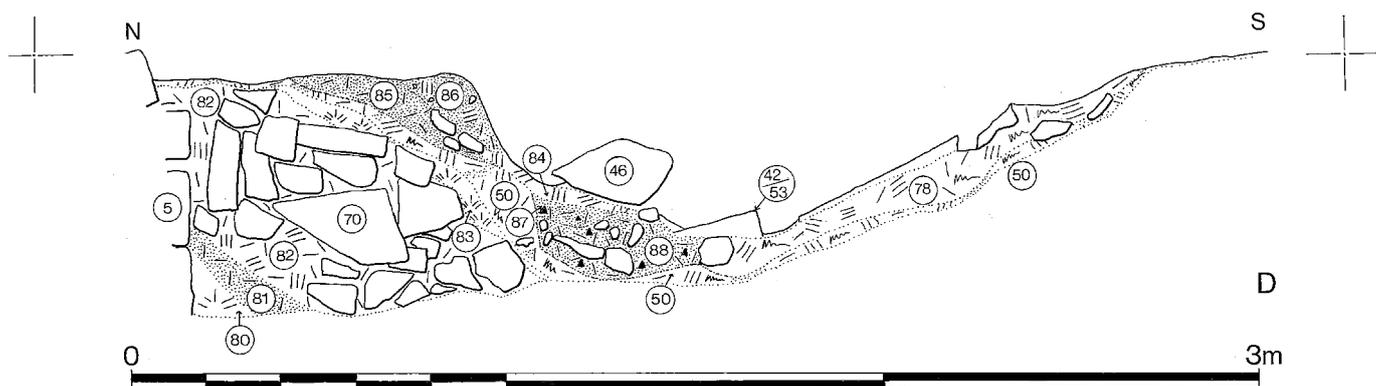


Fig 3.6 North rampart Section D (H20:5), showing mostly primary layers (scale 1:20).

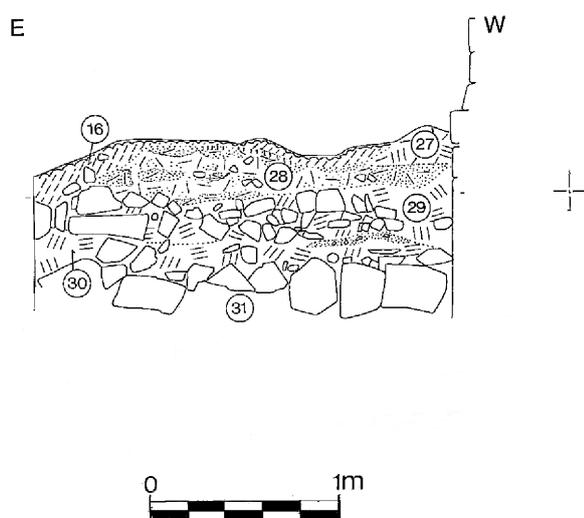


Fig 3.7 Section J, showing mostly primary layers in north rampart area H20:9 (scale 1:40).

H20:5, tipped layers of sandy loam and peat (5:80–2), under a pack of whinstone boulders (5:70), were found sealed beneath the later expansion of the fort wall (Fig 3.6: Section D). In H20:4, there were alternating layers of peat and turf and orange sand (4:82–4) dipping towards the south, with evidence of loose rubble packing again. The whole rampart was delineated to the south by a retaining wall (5:95), a 1.4m length of which was identified (Wall A). Two courses of this single-faced wall survived (only one stone in width) and showed that the distance from the inner face of the fort wall to the southernmost point of the rampart, at this point at least, was 5.8m.

A stone slab-sided cistern, aligned on wall 5:95 and with its south side 5.7m from the inner face of the curtain, also belonged with the primary north rampart. With internal measurements of 3.05 × 1.2m and a depth of 0.7m, the capacity of the tank would have been in the region of 563 gallons (2562 litres). The vertical slabs were 0.1–0.12m thick, there being two on each side and one at either end. There were vertical slots at the joints between the slabs forming the long sides, presumably for lead cramps (now missing).

There was pronounced wear (in the form of scalloping) at the tops of the slabs on the south and east sides, possibly associated with the sharpening of blades. There is little wear to the west, and that to the north (which would presumably not have been accessible in the primary phase) was broader and shallower.

During consolidation work, five segments of stone gutter were found, although probably displaced from their original level, and this gutter seems to have led to a notch in the south end of the west slab. This is quite logical, since this corner of the fort at Housesteads naturally drains towards the north and east. No trace was found of a rampart retaining wall in the immediate vicinity of the tank.

The east rampart and intervallum road (Figs 3.4–3.5)

In the area of the eastern defences, the primary rampart was found to be a mixture of bright orange sand (H21:2:21–2; 3:78) – sometimes with inclusions of sandstone and whinstone (2:21) – and grey clay (1:15, 2:23–5; 3:76; 4:23). Towards the base of the east rampart several items of leather (*see* Chapter 14) were found in a light grey sandy clay with small rounded stones, stained green (H21:2:40), accompanied by twigs and bracken.

In the trench cut for the section (F1 – *see* Fig 3.5) in H21:2 a distinction was seen between the lower make-up deposits (eg 2:40, 2:23–4), which filled the steep slope behind the curtain to bring the rampart up to the level of the primary *intervallum* road, and the upper rampart layers. Two kerbs associated with the primary *via sagularis* were uncovered in the section trench, parallel to one another at distances of 5.0m and 5.7m from the curtain, and set on a dump of clay forming part of the rampart makeup (*see* Figs 3.5: Section F1, and 3.8). Both kerbs were situated to the east of the revetment wall (2:52), the more easterly of the two, set at a slightly lower level, being composed of large whinstone boulders (2:79), while the second was made up of smaller boulders (2:80). The earliest road surface on the line of the *via sagularis* (2:77), consisting of small rounded cobbles, extended up to and abutted the upper kerb.



Fig 3.8 Area H21:2 showing, from left to right, the whinstone kerb for the rampart (Hadrianic?), the intervallum road kerb and revetment wall (Antonine?).

The large whin boulders were in turn abutted by a lower layer of cobbling – perhaps makeup for the primary road surface – and thus were conceivably intended to roughly mark out the *intervallum* road line and the edge of the rampart. The primary road surface was thus shown to pre-date not only the large north–south drain originally excavated by Bosanquet, but also appeared to underlie the east rampart revetment wall – this relationship could not be established conclusively as the revetment wall was not removed.

The primary surface of the *via sagularis* was in turn covered with a level of makeup (H21:2:74), on top of which was another road surface of small rounded cobbles set in loose yellow loam (2:73), yet this still predated the construction of the drain, but probably abutted the primary revetment wall. Moreover, it was noted that this surface was well worn and broken in some places. To the east of the revetment wall the primary road surface was overlain by the upper rampart layers, which were retained by the revetment. The first of these comprised a thin, very dark brown greasy clay layer (2:81) which continued over the lower rampart makeup towards the curtain, sloping very slightly upwards. In turn this was covered by sandy orange layer 2:21–2.

The rampart revetment wall itself (1:36; 2:52; 3:74–5; 3:87; 3:123; 4:27; 4:31; 5:13) survived to a height of four courses and, like its northern counterpart, was formed of single stones faced on the side facing the *via sagularis*. Wing walls on either side of the bakehouse entrance (3:87; 3:123) served to retain the rampart, but, once again, no trace of a retaining wall was found around the water tank (3:5), which was recessed into the east rampart. The rampart measured 6.5m from the inside of the curtain to the face of the revetment wall.

The alignment of one of the walls (1:36) suggests it may have formed the part of the rampart revetment running up to the doorway of the primary angle tower (assuming the doorway of the primary north-east tower was in the same relative position as that of the

secondary tower, as were the entrances of all but one of the other primary angle or interval towers – the south-east angle tower was the exception with a centrally located door).

The eastern water tank (3:5) had already been cleared by Bosanquet (1904, 249 and fig 22) and measured $2.6 \times 1.125\text{m}$, with a depth of 0.8m. This gives a capacity of 514 gallons (2340 litres), slightly less than that of the tank behind the north rampart.

The bakehouse

A rectangular structure, 3.4m long and 2.5m wide, was set into the east rampart. With three stone walls (the fort wall serving to provide a fourth side to the building), this structure housed an eventual total of three ovens (one, 3:88, clearly a later addition), showing it to be a bakehouse. The north wall (3:12; 3:14) was built of faced stone and stood nine courses high when found. At 0.75m broad, this was more substantial than the west wall (3:15), which was only 0.45m wide. Only five courses survived of the latter and it may well have been a dwarf wall. A gap, 1m wide, towards the north end, may have been an entrance, although the two lower courses of the wall extended across this ‘doorway’. The position of the later, consolidated, interval tower meant that it was only possible to examine the south face of the south wall of this building. The north wall was butted against the curtain, demonstrating that the construction of the bakehouse was secondary to that of the fort wall. However, the bakehouse was clearly built in conjunction with the deposition of the rampart. The rampart tip-lines were seen to slope down from the bakehouse north wall, and, while the lower deposits actually underlay the wall’s sandstone foundations, there was no trace of a construction cut for the wall through the rampart layers (Fig 3.9: Section L). The primary revetment wall (3:74–5) was then led across the front of the entranceway to the bakehouse. The area in front of the building, between the two revetting wing walls, seems to have been metalled with angular stones set in sticky yellow-grey clay (3:110), flush with the top

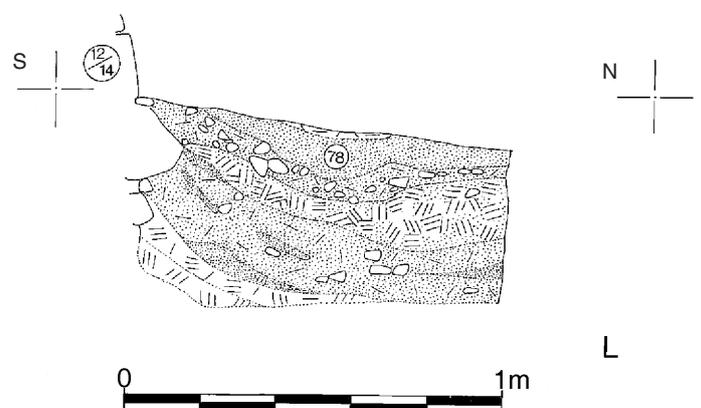


Fig 3.9 Section L showing primary levels north of the east rampart bakehouse foundations (H21:3); scale 1:20.



Fig 3.10 Oven H21:3:109 in the east rampart bakehouse.

of the revetment wall. Entering the bakehouse from the *intervallum* road would therefore have involved stepping up on to the passageway.

There were two stone-built ovens within the bakehouse set against the back wall (ie the fort curtain), although neither stokehole was located. Both were clearly relatively early in the bakehouse sequence, but the apparent differences in the construction of the two ovens suggest that they were not built at the same time. It is now impossible to determine stratigraphically which of the two was the primary oven, though the occurrence in the makeup (3:79) for the north oven of a Raetian mortarium rim fragment (FV 1627; Form M27/1), which provides a late 2nd- to early 3rd-century *terminus post quem*, would point to the south oven as the most likely candidate. This southern oven (3:109) was circular, with a diameter of 2.25m, floored with large flags (3:120), and had a corbelled wall 0.25m thick, which survived to a height of five courses (Fig 3.10). The collapse from this wall (3:119) was found within the oven, along with the red clay (3:114), which may represent the remains of the dome of the structure. The wall of this oven had been bonded with grey clay, which was reddened through heat on the inside of the structure.

The north oven (3:53) was also circular and was 2.45m in diameter, but only survived to three courses in places, the lowest course being offset into the interior of

the oven, and the southern half of the structure had been destroyed by the foundations of the later interval tower. On the eastern side, a makeup level (3:79) for the oven floor, consisting of stone, tile, and grey clay, rested on the offset course. Where both faces survived, the wall was 0.46m wide. The collapsed dome may be represented by clay in the fill of the oven (3:60; 3:63). No flagged floor survived in this north oven.

Interpretation

As noted above it is likely that only one of the ovens in the bakehouse was a primary structure. A second early oven may have been housed in the ground floor of the primary north-east angle tower. Simpson's excavations in 1909–12 revealed ovens in both the north-west and south-east angle towers, sealed beneath later flagged floors (Fig 3.11). The charcoal deposits in the area of the entrance passage to the primary north-east tower, though subsequently disturbed, may reflect a similar pattern of use in this tower also, suggesting that the angle towers at Housesteads all housed ovens during their earlier phase (the internal arrangements of the south-west tower are unclear as it has not been properly excavated). The bakehouse oven was probably allocated to the century (*centuria*) housed in Building XIV while the soldiers resident in Building XIII probably used the oven within the adjacent primary angle tower. The organisation of breadmaking by century in this way



Fig 3.11 The oven in the north-west angle tower (Hadrian's Wall Archive).

is well attested by the number of quernstones marked with the name of the century found in the forts and milecastles of Hadrian's Wall. A breadmaking stamp with a centurial mark has even been found on the German frontier. This pattern of one oven per barrack block with the ovens housed in a mixture of angle towers and dedicated bakehouses set into the rampart back can be restored right around the fort perimeter (Crow 2004a, 39, *see* Chapter 9). The second bakehouse oven, perhaps the north one, was probably added when Building XV was rebuilt as a barrack – the second phase of that building (*see below*) – to provide for the troops newly installed there, an episode which might, very tentatively, be assigned to the later 2nd century.

Finds

Copper alloy:

H20:5:70	148	Small disc stud (Fig 14.12)
H20:6:37	13	Incomplete bow brooch (Fig 14.2)
H21:1:64	294	Rectangular strip with an elliptical hole punched through
H21:1:11	111	Incomplete dagger guard
H21:3:78	48	Incomplete enamelled plate with central rivet hole (Fig 14.4)
H21:4:22	211	Collar with sloping sides and two incised rings (Fig 14.13)

Lead:

H21:1:54	408	Unidentified lead
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Intaglio:

H21:1:13	422	Cornelian intaglio (Fig 14.22) (H21/1b?)
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Ceramic:

H20:5:88	590	Roughly cut disc of Central Gaulish samian
H20:8:80	594	Disc of clay or badly fired pot

Stone:

H20:5:95?	705	Possible sling-stone
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Leather:

H20:5:94	8521	Nailed shoe
H21:2:40	9061	(811411) Seam reinforcement strip (Fig 14.27 No. 12)
	9062	(811413a + b) Tentage (Fig 14.27 No. 8)
	9063	(811412) Shoe lining and scrap

Environmental samples:

H20:5:94 and 6:73		Organic deposits within the primary rampart.
H21:2:40		Organic deposits at the base of the primary rampart

Worked flint:

H20:8:80	13	Small white/light grey flint flake
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Dating evidence (Table 3.1)

Angle tower

The construction trench for the primary angle tower (1:86) contained Rustic ware (FV 1608) providing a late 1st-century *terminus post quem*.

Table 3.1 Dating evidence from the primary defences

<i>context</i>	<i>NE angle tower</i>	<i>CW form</i>	<i>FVN</i>	<i>TPQ</i>	<i>samian</i>	<i>date</i>
H21:1:86	construction trench for angle tower	–	1608?	L1C?		
north rampart						
H20:4:79	turf	BO 39	1148	c 160	CG LZ dish or bowl	ANT
		JA 55	1149	M2–M3C		
H20:4:85	(no context description)	M 14	1176	130–80		
H20:5:70	whin pack (Fig 3.6: Section D)				St2: Clemens iii (CG LZ 31R)	160–90
H20:5:93	orange sand	Dr 20 am	–			
H20:6:40	grey clay, coal & loam (Section B)	BO 86	1081	L2C+		
H20:6:59	yellow sandy soil & turf lenses	JA 44	1080	c 100–160		
H20:6:72	rampart (Fig 4.1: Section B)	JA 132	2442	2–3C		
H20:8:61	orange sand (Fig 2.2: Section E)	gr wa j	–	E2C		
H20:9:30	clay soil + s/stone chippings	JA 44	1431	c 100–160		
east rampart						
H21:1:11	rampart bank material – orange sand				CG LZ 31	ANT
H21:1:54	sand/peat layers – primary rampart	JA 89	1606	E–M2C		
H21:2:22	orange sand/loam – primary rampart (as 3:78)	BO 27	1594	M–L2C		
H21:2:24	grey clay – primary rampart	BB1 j	–	M2C?		
H21:2:40	green rampart layer				CG LZ 18/31 or 31	H/A
H21:3:68	grey-brown soil N of bakehouse – rampart?	Dr 20 am	–			
H21:3:78	rampart material – orange sandy layer (as 2:22)	Dr 20 am	–			
H21:4:22	clayey rampart soil				CG LZ 33	H/A
H21:4:23	rampart foundation				CG LZ 30 or 37	ANT
H21:5:12	primary? rampart material				CG LZ 27	HAD
bakehouse						
H21:3:79	oven 3:53 floor makeup	M 27/1	1627	L2–E3C		
H21:3:110	bakehouse cobbled entrance passage	Dr 20 am	–			
via sagularis						
H13:8:48	rubble – S edge Broad Wall foundation	undiagnostic				
H20:8:76	stone pack – Broad Wall foundation				CG LZ 31R	MLA
H20:8:80	cobbles northward widening of <i>via sagularis</i>				St8: Mainacnus (CG LZ 31)	160–200

The ramparts

The inclusion in the pottery assemblage associated with the primary rampart of a significant proportion of Antonine, Central-Gaulish samian and coarseware, which provides a mid- to late 2nd-century *terminus post quem*, as well as earlier 2nd-century material, suggests that there may have been an Antonine phase of rampart construction. A distinction between upper and lower rampart deposits was recognised by the excavators in the section cut through the east rampart (F1 in Area H21:2; see Fig 3.5), although this was interpreted as marking different stages in the construction of the primary rampart rather than two separate phases. No comparable distinction was observed in any of the sections through the north rampart recorded in 1978–79. Furthermore, it must be emphasised that the actual number of sherds involved is fairly small as the early deposits were very clean. Accordingly the integrity of the stratification and the possibility that this material was intrusive must be considered carefully.

In the case of the east rampart this is clearly a significant factor. Many of the early deposits (eg H21:1:11) lay directly beneath topsoil as a result of Clayton's cutting away of the rampart bank, and only two sections were cut in this stretch by the excavators in 1980–81 to expose sealed rampart levels (see Figs 2.5 and 3.5: Sections K and F1). Activity associated with the following workshop phase (H21 Phase 2) and the subsequent reinstatement of the rampart bank (H21 Phase 3) may also have been responsible for intruding material into some early levels. Hence, little reliance may be placed on the occurrence of mid- to late 2nd-century pottery in these deposits if the east rampart is viewed in isolation (though it may be noted that there is no material in these early deposits that provides a *terminus post quem* later than the late 2nd century).

However, the north rampart was much better preserved. Here the early rampart was investigated by means of several sections cut through the bank (see Figs 2.2, 3.6, 3.7, 4.1: Sections E, D, J and B, especially)

exposing a series of sealed deposits, from some of which mid- to late Antonine ceramics were recovered. The integrity of these deposits is not in question, but it is conceivable that sherds fell out of the side of the baulk into lower levels during the excavation of the sections. Although the excavators were very conscious of this problem and took care to prevent it, clear evidence that some pottery in contexts H20:4:79 and H20:4:85 was intrusive is noted in the coarseware notes compiled by Peter Moffat during Level 3 post-excavation analysis. FV 1176 (M 14) is probably the same vessel as FV 1229 in H20 Phase 3b charcoal rampart deposit, 5:37. The rim has probably dropped out of the charcoal deposit in the section (where it is numbered 4:29, but represents the same deposit as 5:37 – see Fig 4.16: Section C). FV 1148 (BO 39), in context 4:79, probably forms part of the same vessel as 1182 in Phase 3b rampart layer 4:22 and other fragments may also have been found in 4:23 and 4:55 (cleaning of the baulk).

Nevertheless it is difficult to accept that all of the mid- to late 2nd-century material recovered can be accounted for in this way. Particularly in the light of Tait's identification of an Antonine construction phase in the south rampart, based on the evidence of the two sections through the defences which he recorded to the west of the south gate (Rampart Sector 24; see Tait 1963, 40; and below Chapter 9), the possibility of a similar episode in the north and east ramparts cannot be discounted.

The significance is difficult to determine. It is clear from the sections that the rampart contained numerous lines of turf, peat or other organic material, particularly in its lower levels. The same was true in the south rampart and Tait suggested this was the most accessible material, given the thinness of the soils over the whin bedrock and the consequent difficulty in cutting ditches (1963, 40). This turf may have compressed and settled, perhaps unevenly, requiring the rampart level to be raised. Alternatively, were the defences still unfinished at the end of Hadrian's reign, languishing in this state until the Wall was fully recommissioned once more in the 150s? If the distinction observed in the east rampart deposits in Section F1 corresponds to the break between Hadrianic and Antonine construction work it would suggest that the Hadrianic east rampart was revetted only by the large whinstone boulder kerb (H21:2:79), while the revetment wall (1:36; 2:52; 3:74–5; 3:87; 3:123; 4:27; 4:31; 5:13) was not erected until the Antonine period to retain the completed rampart, which was significantly higher and wider. This evidence should be considered in conjunction with the analysis of the masonry of the fort gates, which has revealed three distinct stages within the overall primary construction phase, each marked by a decline in the quality of workmanship, with the suggestion of a hiatus between the stages (see Chapter 8). There is, of course, no means of determining the length of such a hiatus, which might conceivably have ranged anywhere from a single season to several years.

Bakehouse

The only dateable material associated with the early east bakehouse structures comprised a sherd of Raetian mortaria (M27/1), with a late 2nd- to early 3rd-century *terminus post quem*, in the makeup (3:79) for the more northerly of the two ovens, 3:53. The presence of this pottery may signify that this oven was a secondary addition to the bakehouse, perhaps associated with the reconstruction of Building XV as a barrack block (H15 Phase 2), as suggested above (p 00). The possibility that this vessel was intrusive, deriving from the whin foundations of the later interval tower, which cut through earlier bakehouse features, cannot be excluded, however.

The *via sagularis*

The continued use into the later 2nd century of the primary road surface of the north *via sagularis*, which incorporated the broad gauge foundation of Hadrian's Wall, is reflected in the association of a small amount of mid- to late Antonine samian, including a sherd with a stamp of Mainacnus with these deposits. The material had presumably been trampled into the primary road surface during its life.

The buildings

Building XIII

The northernmost of the three principal internal buildings in the north-east quarter, Building XIII, adopted a shallow L-shaped plan in its primary form, with officer's quarters at the east end occupying the full width of the block and ten *contubernia* to the west, which opened on to a colonnaded veranda. The building faced northward across the *via sagularis* towards the north rampart. Its overall length was 50m, of which 39.5m was taken up by the ten *contubernia*, and its width was 10m. The veranda was on average 2m in width, giving each *contubernia* a length of c 8m from north to south. The northern edge of the veranda was marked by a stone gutter, several lengths of which survived (H13:4:32; 5:105; 8:55).

The first walls of Building XIII were constructed of sandstone blocks, the faces of which were cut flat and roughly square. The stones were tapered inwards in order to key them into the core of the wall, which was formed from small rubble, the whole being bonded by a yellowish clay. In the southern part of the west wall of the centurion's quarters (2:1), the average length of stones used in the wall was 0.24m, with the height of courses around 0.12–0.15m.

The centurion's quarters (Fig 3.12)

The north wall of the centurion's quarters (0:4; 1:42) was 9.4m long between its two outside corners and about 0.63m wide. It survived up to five courses high



Fig 3.12 Building XIII centurion's quarters – Phase 1.i–iv (scale 1:125).

(0.6–0.7m), beneath the later chalet wall (1:16), which was placed directly on top of it. The west wall (2:1) was 10.2m long and 0.6–0.65m wide and was bonded with both the north (1:42) and south (1:2) walls to its full surviving height of eight courses (1.05m), over an offset footing and foundation of large whin boulders.

The south wall (1:2; 0:20), at 9.6m long, was slightly larger than its more northerly counterpart, but it was 0.63m broad again. Five courses of stone survived on the outer face, although seven (0.8m high) were found at one point on the inner face. It was felt by the excavators that the pattern of internal partitions (1:92; 1:117) suggested there should have been a doorway in

the south wall, but no trace was found (although it should be noted that no excavation took place between 1:92 and 1:117). The east wall (0:17) was 10.35m long and 0.5–0.65m wide. Its southern half had been levelled in a later phase and its surviving top course was not worn, so it is possible that it may have lost a course during Bosanquet's trenching.

The primary phase of activity detected within the centurion's quarters of Building XIII consisted of a floor surface of clay and small stones (1:246) over clay leveling deposits (1:250–1). The stones were flat and lay close together, but were not visibly worn. On top of this surface was a small hearth (1:243), an area of burning about 0.5m across, and this was surrounded by a spread of silt and charcoal (1:245) some 1.8m by 1.2m. This floor extended at 4.5m south from the north wall (its limits were not established) and similar material (1:253) should probably be equated with it. A shallow stone-capped drain (1:215) led northwards for 3m from the south-west corner of the building, then swung round towards the east (it was traced for an additional 2.5m). The drain consisted of a clay-lined channel, 0.25m wide and 0.2m deep, cut into the subsoil. The channel was filled up with silt and earth (the surface of which had broken up into little lumps). The flagstones were up to 0.7m long, 0.4m wide, and 0.06m thick and rested on whinstones at the side of the channel. Above and around this drain there were patches of yellow-blue clay (1:226).

The aforementioned material may all represent the constructional phase of the centurion's quarters, as may a subsequent sub-phase of activity, represented by a surface of clay (1:244) extending 8m south from the north wall and overlying the previous floor surfaces. This was in turn overlain by silty material (1:238) containing charcoal and flecks of stone. There was a small hearth on its northern edge (1:240), consisting of pink ash, clay, and charcoal, 0.5m by 0.4m. There was a thin layer of clay above this (1:234), from which was cut a posthole (1:241) 0.2 × 0.3m and 0.25m deep; a stone 0.25m across lay pitched upright in the fill of this posthole. Fairly regular southern edges to 1:238 and 1:244 might be seen to suggest the presence of a small hut on the site, prior to the construction of the centurion's quarters, but the evidence for this is limited and equivocal.

It is debatable whether this material represents a constructional phase and, if so, at precisely what point remains of occupation within the building itself can be identified in the archaeological record. Nevertheless, immediately above the levels just described was a series of clay surfaces that were either floors in their own right or bedding for floors of a more perishable material. To the south, overlying the drain, was a clay floor about 0.05m thick (1:225). Above it, and to the north-east, were the remains of a later floor repair of grey clay, 0.75 × 1.05m (1:222). In the northern half, there was a floor surface of yellow sandy clay and grey silt only 0.01m thick (1:247), the northern edge of this being clearly defined. North of this, there was a thick dump of yellow clay (1:220) interleaved with lenses of

grey silty material (1:221), forming a number of floor surfaces. There were two successive stone and tile-built hearths in it (1:218; 1:233), the earliest (1:233) being a large tile 0.5m across and badly damaged by fire at its centre (and cut away by later disturbance 1:211 to the east). This damage had been made good by the addition of clay, which had itself been burnt, as had some of the flooring to the south of the hearth.

Floor surface 1:225 was overlain by a thin lens of grey silty material containing some charcoal (1:223), possibly representing occupation debris; any comparable material further north was not detected by excavation.

No partition belonging to the primary centurion's quarters was identified, but there were clues to the possible locations of two. The clear distinction between contexts 1:220 and 1:247 certainly suggested an east-west partition, perhaps in the form of a sill-beam. On the other hand, the difference in composition between 1:247 and 1:225 may indicate that another partition lay beneath a later wall (which was not removed).

The *contubernia*

Since the *contubernia* of Building XIII were investigated to varying degrees, the primary surfaces were not recognised for all of them, although in most cases the primary walls could be identified.

Contubernium 1 lay immediately to the west of the centurion's quarters and its north wall (2:18), which was 0.6m wide and survived to three courses, was examined. This was found to be bonded to the west wall of the centurion's quarters (2:1): however, it was strongly suspected by the excavators that both 2:18 and 2:1 were a later (but pre-chalet) rebuild of these walls. This stretch of north wall was revealed in the position normally occupied by the doorway into each *contubernium*, suggesting that it was either shifted later in the building's life or the threshold was raised to match rising floor levels. The west wall of this *contubernium* would appear to have been 2:34, which was 0.5m wide and was later reused as the west wall of Chalet 2. The excavated dividing wall (2:41) does not appear to have been primary. The lowest of the clay floors in this *contubernium* (2:31) filled the gullies already discussed as pre-fort features.

Contubernium 2 was not investigated, but its east (2:34) and west (3:2) walls were identified, both about 0.5m wide, and the overall width of the *contubernium* was 3.5m.

The north wall of *Contubernium* 3 was examined (4:14) and found to be 0.63m broad. The west wall (shared with *Contubernium* 4) butted against it and was 0.52m wide (4:13); it in turn was butted against by a central partition wall (4:7), 0.32m broad. The east wall (3:2), shared with *Contubernium* 2, survived as the west wall of Chalet 3. The dimensions of the rooms were 2.15 × 3.6m (north) and 4.65 × 3.6m (south). Beyond the north wall, a large stone (4:33) may have represented a base for one of the veranda posts.

The south wall was at its narrowest (0.6m) in *Contubernium* 4 (5:11) and the wall of Chalet 4 butted against it, suggesting that it was original although, admittedly, not demonstrably primary. Little was found of the north wall, although two squared stones were found on the correct alignment (4:21), but their total width (0.45m) may indicate that they were part of the *contubernium* threshold. The west wall (5:5) varied between 0.5m and 0.7m in width, possibly having spread slightly since it formed part of the floor of Chalet 5, and it was noted that it butted against the south wall. The clay-bonded partition wall (4:20; 5:53) was 0.5m wide. The north room was 3.6m across, as was the south room, which measured 4.75m in length. The primary floor in the south room was a pink loamy clay (5:44), which levelled up the rather uneven natural surface, while the lowest floor in the north room (5:95) was a clay/loam mix with charcoal staining.

The west wall of *Contubernium* 5 was damaged (6:25), but seems to have been about 0.5m wide and butted against the south wall (5:11), which was 0.6m wide. The north wall was concealed by the chalet period flagging. Fragments of a partition wall were possibly identified (5:78–9). Since this *contubernium* was not excavated to natural, it is possible that the lowest of the six Barrack-period floors was not primary, but to the south it consisted of clay (5:62), while a single posthole (5:66) was found against the east wall, packed with stone and earth (5:64), with a postpipe of grey material (5:65) about 0.12m deep and 0.1m in diameter. South of the doorway in the partition, an area of sandstone fragments (5:75) and charcoal (5:76) may indicate patching of the floor.

The north wall of *Contubernium* 6 (6:37) was 0.6m wide, both it and the south wall (6:41) showing evidence of rebuilding. Again, the footings of the north wall appeared to continue across the doorway into the *contubernium* (although survival was only partial), suggesting that the bottom course of the wall ran continuously for the full length of the *contubernia* range and was built in a single operation. The west wall (7:21) was offset up to 0.2m to the west of the later chalet wall above it. No attempt was made to reach natural material in this *contubernium*, and the nature of the primary deposits was not ascertained.

The south wall of *Contubernium* 7 was nearly intact (7:8) and was 0.68m wide. The west wall (7:6), 0.48m wide, was later incorporated into Chalet 7. It abutted the north wall (7:22), which was 0.7m wide. The east wall (7:21) was visible beneath that of the chalet phase, but its width could not be determined, although the breadth of the *contubernium* itself was 3.35m. Both of these walls butted against the south wall. The floor levels were not investigated.

Only two courses of the south wall of *Contubernium* 8 survived (8:16); the first course (0.7m broad) and an offset projecting 0.15m to the north. The offset sat upon a rubble foundation. Four stakeholes (8:33) parallel to and immediately north of the wall may represent

construction features, perhaps scaffolding. An L-shaped gully (8:26), 0.8m to the north, which ran roughly parallel to the south and west walls, may represent another construction feature, rather than an example of a backfilled, cord rig cultivation (*see* Chapter 2), though its precise function is unclear. The lowest courses of the north wall of Chalet 8 represent the barrack north wall (8:51), but no trace survived of the doorway into the *contubernium*, having been removed by the east wall of the chalet (8:23), a possible drain next to it, and later robbing (8:9). The *contubernium* measured 3.35m in width by 7.5m total length. No direct evidence for a medial partition was found. However, a sharp line in the northern flagging (8:38) may indicate where one had been located. No early floor levels survived within this *contubernium*.

In *Contubernium* 9, the north wall (9:26, 9:37) was identified in a trench beneath the flagging of Chalet 9, and its whin foundation (9:38) was noted in the area where the doorway was presumed to have been situated. The west wall (9:8) was 0.5m broad, clay bonded, and butted against the barrack south wall (9:4), which was disturbed but determined to be 0.64m wide. A medial wall (9:24) was sealed by the later chalet floor. This wall survived up to two courses high and was 0.37m wide. The north room was probably 3.45m wide by 3.65m long, while the south may have been 3.45 × 3.35m respectively.

Part of the original foundations (10:19) and a small stretch of offset (10:23) of the west wall of *Contubernium* 10 were recovered beneath the west wall of Chalet 10 (10:5). These primary elements, 0.5m and 0.6m wide respectively, butted against the north wall (10:38), the only evidence for which was several facing stones (10:38) and a strip of foundation clay (10:39). Both the east and west walls butted against the south wall (10:22), which was rebuilt during the chalet period. A clay floor (10:35) lay directly on natural in the southern part of the *contubernium* and extended 2m from the north wall. A possible socket for a doorpost was evident, cut into the whinstone bedrock, beside the east wall of the *contubernium* in the area where the doorway into the southern room would have been located. The *contubernium* was 3.45m wide and 7.3m long internally.

Finds

Inscribed stone:

H13:8:7 2 Facing stone with inscription on one face

Glass:

H13:1:225 495 Melon bead
or 496 (no SF number)

Ceramic:

H13:7:15 539 Fragment of a samian disc with a central circular hole

Stone:

H13:8:44 700 Possible sling-stone
711 Possible throwing/‘ballista’ stone

Table 3.2 Dating evidence from the primary levels of Building XIII

<i>context</i>	<i>description</i>	<i>CW form</i>	<i>FVN</i>	<i>TPQ</i>	<i>samian</i>	<i>date</i>
H13:1:220	centurion's quarters primary floors	JA 60.0 JA 90.0	17 16	L1–M2C E–M2C	CG LZ 18/31R* CG LZ 33 CG LZ 18/31R*	HEA H/A HAD
H13:1:221	occupation lenses in floor 1:220					
H13:1:247	centurion's quarters primary floor	JA 106.0	40	E3C+		
H13:8:26	L-shaped gully u S room of <i>Contubernium</i> 8	BB1 j Dr 20 am	– –	E2C		
H13:8:45	clay makeup for veranda cobbling 8:36	JA 131.0 1 frag Castor box	589	2–3C		

*CG LZ 18/31R sherds in 1:220 and 1:221 may belong to the same vessel.

Dating evidence (Table 3.2)

Relatively little dateable material was found in association with the earliest levels of Building XIII. In part this is because only limited areas were investigated, but also it reflects the generally clean nature of the primary deposits in the north-east quarter. However, the small pottery group present in primary floors levels 1:220 and 1:221 in the centurion's quarters is consistent with a Hadrianic date for the barrack. Moreover, the discovery of a *dupondius* of Hadrian, minted between 125–28 and exhibiting only slight wear (No. 49), in the secondary floor surface (1:242) in the centurion's quarters (see Chapter 4), would argue against a date as late as the Antonine period for construction and earliest occupation phases of the building.

The evident caveat that the clay floors found in the early barracks do not represent completely sealed contexts is highlighted by the likelihood that the sherd of Hadrianic/Antonine Dressel 33 in 1:220 derives from the same vessel as sherds in the Phase 3 floor levels, 1:210 and 1:211, above. Material could thus either be intruded into earlier levels or brought up from those levels in the course of reconstruction work and reincorporated in later floors.

The *via principalis* and Building VII

(Figs 3.13–3.15)

The excavation of Building XIII was carried far enough west to reveal some detail of the history of the *via principalis*, as well as uncovering the eastern extremity of Building VII. The exposed remains of this building probably belong to the subsequent, chalet phases of occupation (see Chapters 5–7), but it was seen to sit on a low terrace or platform some 0.22m above the surface of the *via principalis*. The terrace was formed by cutting away the natural ground surface to expose massive blocks of whin outcrop, particularly around the north-east angle of the building where they formed a natural revetment. The area on top of the platform between the east wall of Building VII (H13:11:21) and the whinstone scarp was covered by



Fig 3.13 View of the north end of the *via principalis* with the north gate in the background.

a cobbled surface set in a yellow-brown clay matrix (11:23). Further south, the terrace appeared to be composed of a layer of greenish-yellow clay and stone (11:32) makeup that extended over the western edge of the primary surface of the *via principalis*.

The primary road surface (H13:11:26) of cobbling was laid directly onto the natural sandy orange clay subsoil, was 4.5m wide, and was aligned with the west portal of the north gate (Simpson having found the

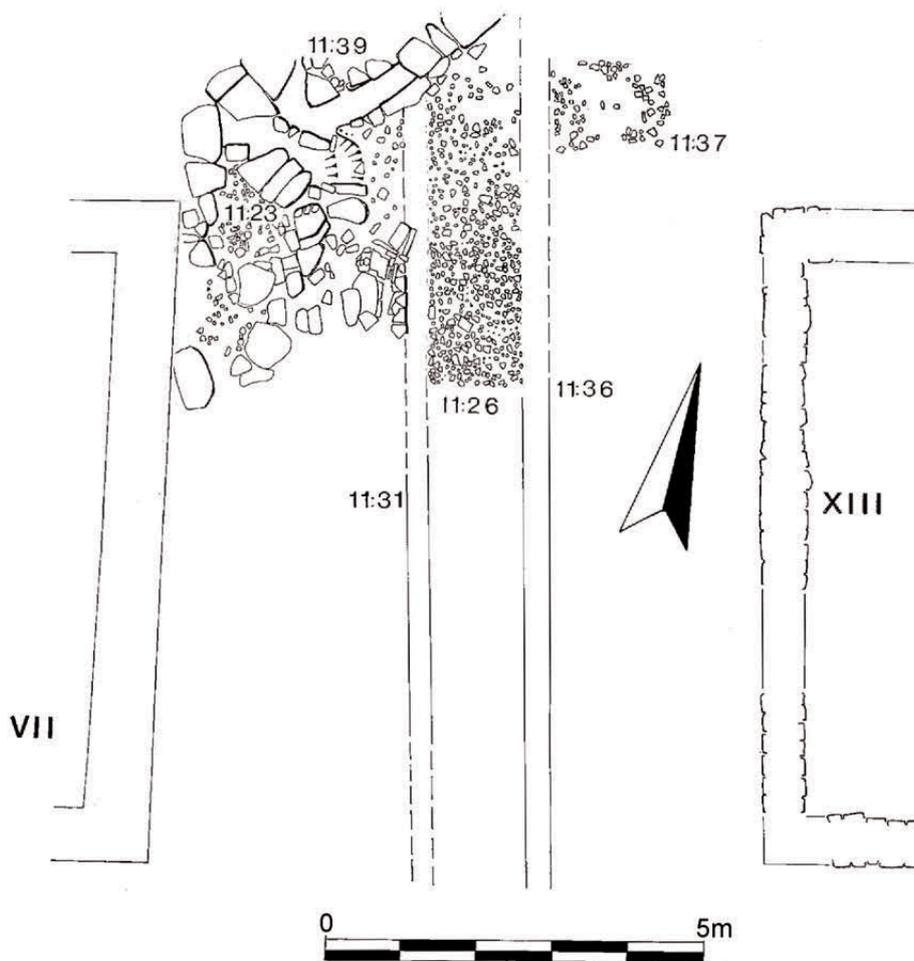


Fig 3.14 The north end of the *via principalis* (scale 1:100).

eastern portal to be blocked). Some cobbling (11:37) on the same level was found to the east of this in a limited sondage. The exact relationship of the two surfaces was unclear, but 11:37 may represent a continuation of 11:26 leading towards the north-east *via sagularis*. Two parallel gullies (11:31; 11:36), 0.15m deep and 1.5m apart (centre to centre) ran along the *via principalis*, aligned to pass either side of the gate *spina*. Initially interpreted as wheel ruts on the basis of their spacing, their orientation plus the survival of a 0.8m length of small facing stones, lining the west side of 11:31 at one point, suggests that both gullies may have been deliberately constructed gutters intended to discharge rainwater off the surface. A stone-lined and capped drain (11:39), with side walls two to three courses high, ran north-eastwards from Building VII. It crossed the road, heading towards the south-west corner of the east guardchamber, and may have continued north through the gateway. However, the stratigraphic records do not make it clear whether this drain was built at the same time as the road or was a later insertion. A second channel, with side walls of whinstone outcrop, may have originated at the same point below the north-east angle of Building VII and headed north towards the west portal of the north gate.

Dating evidence (Table 3.3)

Discussion

There is no indication that the primary road surface at the northern end of the *via principalis* was replaced until the chalet rebuilding phase towards the end of the 3rd century. The dateable material found in association with the various structural features of the *via principalis* is consistent with stratigraphic evidence that revealed only one layer of cobbling (11:26; 11:37) beneath the chalet period road surface (11:14) and set directly on the natural clay subsoil. This is in marked contrast to the eastern *via sagularis*, for example, where a succession of new road surfaces belonging to the 2nd and 3rd centuries was recorded. It is unclear whether drain 11:39 was constructed at the same time as the primary road surface was laid, but it certainly cannot have gone out of use before the early 3rd century, at the earliest, to judge from the 14 fragments of a large lid-seated grey ware jar (JA 16) found in its fill (11:40).

Building XIV (Figs 3.16–3.17)

The next building to the south, XIV, was separated from Building XIII by a street, but it too faced northward, that is towards the rear wall of XIII. It adopted

Table 3.3 Dating evidence from the *via principalis*

<i>context</i>	<i>description</i>	<i>CW formcode</i>	<i>FVN</i>	<i>TPQ</i>	<i>samian</i>	<i>date</i>
H13:11:29	large stones ov W end of drain 11:39	BK 10.0	596	3C	EG RH 31*	L2M3
		BO 86.0	597	L2C+	EG TR 31?	L2M3
		BB1 plain r di	–	M2–L3C	EG ARG 45	L2M3
H13:11:31	fill of gully in <i>via principalis</i> surface	BO 30.0	893	c 140+		
H13:11:32	VP – clay/stone layer ov cobbles 11:26**	Crambeck	–	L3C+		
		flan bo				
H13:11:40	fill of drain 11:39	JA 16.0	894	E3C		

* pierced disc, with graffito IIII[inscribed after firing

** under chalet-phase cobbling 11:14

the same shallow L-shaped plan as XIII, with officer's quarters at the east end occupying the full width of the block and ten *contubernia* to the west, opening on to a colonnaded veranda. The building's overall length was in the region of 49.15m, of which 40.3m was taken up by the *contubernia*, and its width was c 10.5m. The length of the individual *contubernia*, from north to south, was c 8.6m (8.65m across *Contubernium 2*, for example).

The primary walls of the centurion's block of Building XIV (Wilkes's A and B) appear to have been completely rebuilt, the only trace being a foundation of dark yellow clay and rounded stones, including whin (H14:1:18). At only 0.6m wide, this foundation was considerably narrower than the wall built on top of it (1:5), which was 0.8m broad. This suggests that the south wall of the whole building, and possibly the other walls of the centurion's quarters, may have been rebuilt. A trace of an internal partition wall (1:20) was excavated (0.65m wide) and floor surfaces that may have been primary (1:11) were found in the west end of the centurion's quarters.

The medial partition wall of *Contubernium 1* (Wilkes's C), which may have been primary, was found to be 0.48m wide when re-excavated, having first been noted by Wilkes (1961, 282 and plan 1). The west wall survived for at least half of its length, part of that being with two faces and reaching a width of 0.48m. The overall internal dimensions of the north room were 3.3m east–west by about 2.95m north–south, while the respective measurements in the south room were 4.05 × 3.3m.

Roughly half the west wall (3:19) of *Contubernium 2* (Wilkes's D) was located, its footing course being up to 0.6m wide, while much of the north wall (3:7) was traced and shown to be 0.7m in width. Excavation between Chalets 2 and 3 also revealed what may have been a primary flagged surface in the north room. There were two holes in the surface of this flagging, the purpose of which was unclear, but may be related to the possible presence of a timber, wattle and daub screen wall separating the north room proper from a side passage giving access to both rooms. The holes may even have been associated with the doorway into

the north room. Possible traces of the north face of a medial partition wall were noted overlying the flagging close to the southernmost hole. This medial wall was situated a little further north than its counterpart in *Contubernium 1*, with the result that the north room measured only 2.35m, internally, from north to south. The internal width of *Contubernium 2* was 3.5m.

The west wall (4:2) of *Contubernium 3* (Wilkes's E) varied in width between 0.4m and 0.55m and the overall internal width was also variable, between 3.3m and 3.55m. Stretches of the north wall continuing westward (3:7; 3:10) were uncovered. The primary hearth (3:15), first excavated by Wilkes, was also located in this *contubernium*.

The width of the west wall of *Contubernium 4* (Wilkes's F) was 0.5m and the overall internal width 3.5m. That of *Contubernium 5* (Wilkes's G) was the same, although the west wall (5:6) was slightly broader at 0.55m.

The south half of the west wall of *Contubernium 6* (Wilkes's H) was 0.5m wide. Part of the north wall was also excavated, surviving in the form of a rubble foundation 0.7m wide which continued to the west as the north wall of *Contubernium 7* (Wilkes's I). The overall internal width of *Contubernium 6* varied between 3.35 and 3.45m.

A foundation of clay and stones (9:8; 9:14) was interpreted as the only surviving traces of the west wall of *Contubernium 9* (Wilkes's K), although Wilkes had shown this as running under the west wall of the later Chalet 8. The south wall of *Contubernium 10* (Wilkes's L) could similarly be traced as a line of yellow bonding clay and small stones (9:12), while the west wall of this *contubernium* (and, indeed, of the whole building) was represented by a foundation of stones and clay (9:7; 9:13). The foundations of the north wall (9:6) were spread somewhat due to later disturbance and recent excavation. The overall internal dimensions were approximately 2.75m by 7.25m, the width being noticeably less than that of other *contubernia* in this building.

A veranda surface was identified to the north of *Contubernia 2* and 3, consisting of a cobbled surface set in a matrix of mixed orange-buff sandy material with small pieces of what appeared to be denuded sandstone

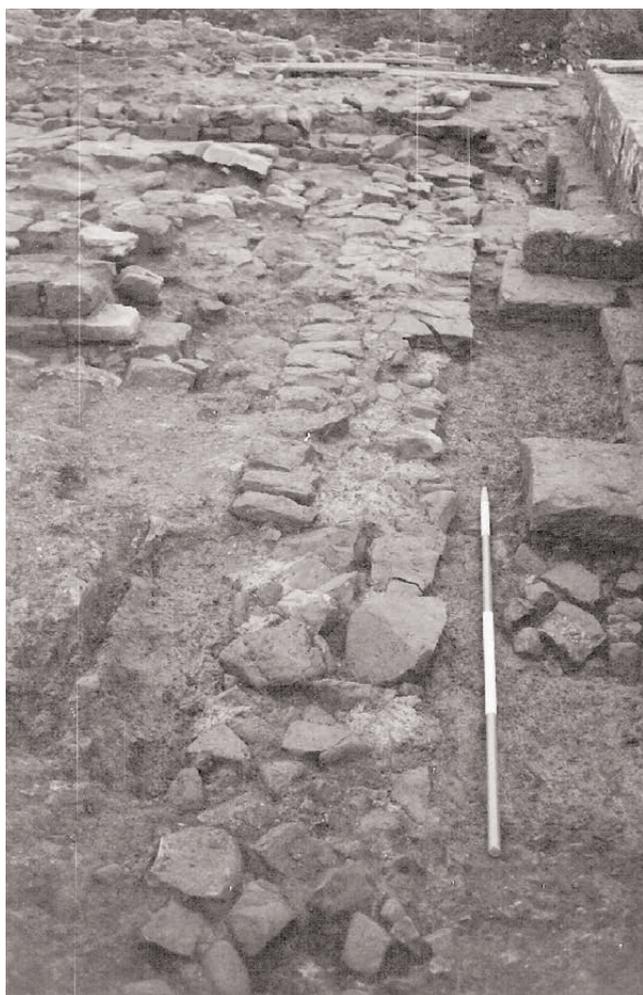


Fig 3.17 Primary narrow foundation of the south wall of Building XIV (Area H14:1)

(3:8). This was separated from the north wall of the *contubernia* (3:7) by a rougher surface of medium-sized angular stones in a matrix of light brown sandy soil (3:18), which may have belonged to the following phase (see below). Two lengths of veranda guttering, which had first been uncovered by Wilkes, were also revealed to the north of the centurion's quarters and *Contubernium* 4.

Dating evidence

context	description	CW form	TPQ
H14 9 13	west wall of Building XIV	gr wa flan bo	L3C+

The only dateable material recovered from the primary contexts of Building XIV during the 1979 and 1981 excavations was evidently intrusive, as was perhaps to be expected given the extensive excavation and consolidation of the building previously undertaken.

Building XV (Figs 3.18–3.19)

Two primary clay-bonded stone walls were located beneath the consolidated Building XV. The first (H15:1:133), 0.78m wide, ran from east to west, being

recorded over a length of 6.5m below the south wall of the later, Phase 3, building on this site (1:8). The second wall (1:134) was 0.65m broad and originally 7.25m long, although subsequently robbed down to 3.15m. This wall ran northwards at right-angles to the first. An area of cobbling (1:145; 1:152) was set in a hard yellow sandy matrix to the west of 1:134, and similar material also lay to the east (1:147). Wall 1:133 clearly continued to the east of 1:134, and presumably constituted the south wall of the primary building. Cobbling (1:158), which presumably formed part of either an early *via praetoria* surface or a veranda, was noted to the south of this wall, beneath the gutter belonging to the next building phase, but no trace of a colonnade was found comparable to that of the Phase 2 structure, although any evidence would probably have been obliterated by the south wall (1:100) of the massive later storehouse. It must be assumed that the north wall of the primary structure ran beneath the later north wall of Building XV (1:24). Traces of an earlier, underlying wall, composed of smaller stonework, were identified there at one point. It is not clear, however, whether these underlying remains belonged to Phase 1, 2 or 3, or were common to all three buildings. No dating evidence relating to this phase was preserved, but the structure may reasonably be presumed to have formed part of the primary Hadrianic fort

The function of the primary buildings

The primary barracks: XIII and XIV

In their primary layout, Buildings XIII and XIV were conventional barrack blocks, with each comprising ten *contubernia*. The number of *contubernia* would suggest that each building housed an infantry *centuria*. The pair are within the normal range of size for such buildings (Davison 1989, 4–8, 79–82). The provision of a colonnaded veranda in front of the *contubernia*, but not the officer's quarters, which resulted in a shallow L-shaped building plan, was a common though not universal feature of 2nd-century barracks. It was a feature of Hadrianic barracks at Benwell (Daniels 1978, 67; Breeze and Dobson 2000, 52), for example, but 2nd- and 3rd-century examples at both Wallsend and South Shields lack any such adornment, forming simple rectangles in plan (Bidwell and Speak 1994, 17–35; Hodgson 1999a, 76ff; 1999b, 87 fig 15; 2003, 37–90). Clear evidence was found for division of the *contubernia* into front and rear rooms, the smaller front room (*arma*) presumably being intended to store soldiers' equipment, while the rear room (*papilio*) was utilised as sleeping quarters. Two holes cut in the stone flagging in the north room of Building XIV, *Contubernium* 2 may have formed part of a north–south partition dividing off the main area of the room from a side passage leading from the doorway to the rear room. Such partitions and passageways have been extensively recognised in 3rd-century barrack *contubernia* at South

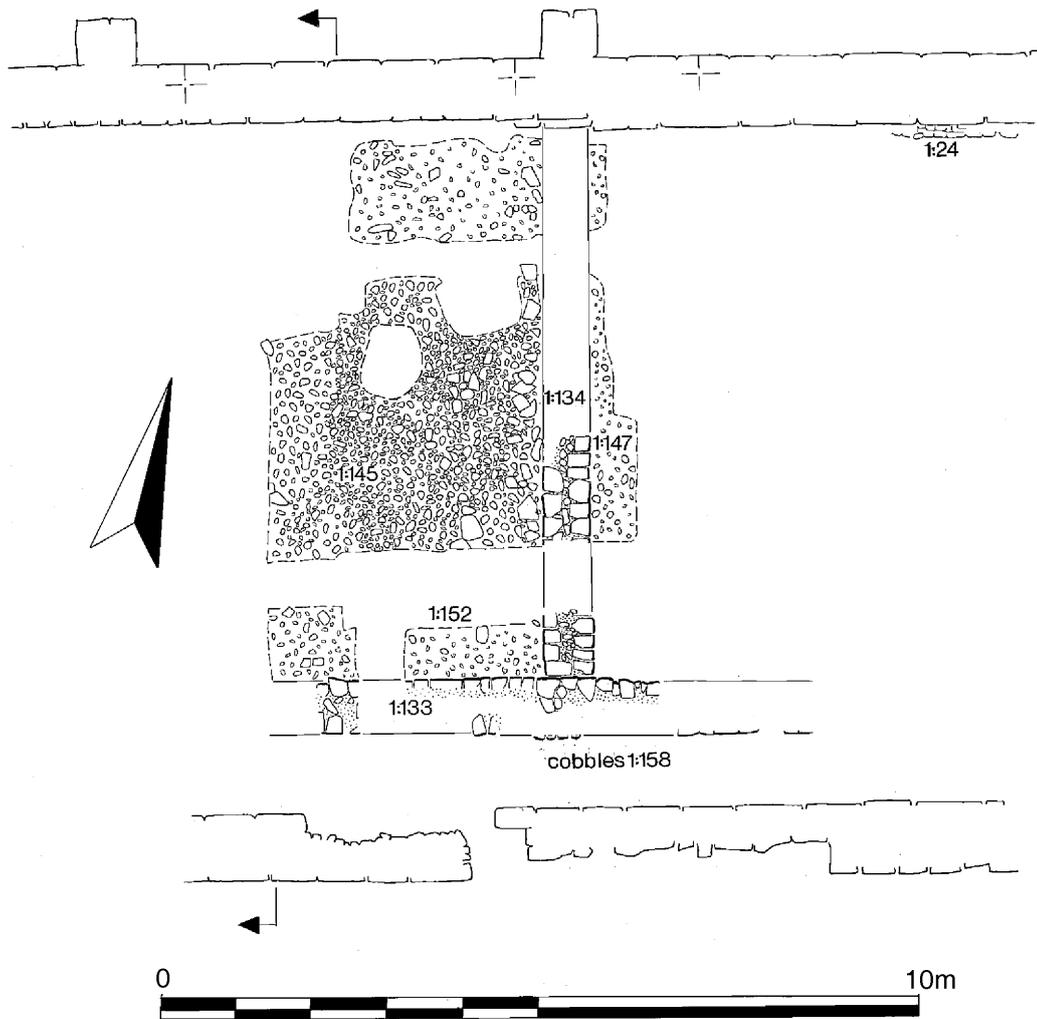


Fig 3.18 Plan of Building XV Phase 1 (Area H15:1 – scale 1:100).



Fig 3.19 Primary surfaces and walls in Building XV, from the north.

Shields (Bidwell and Speak 1994, 17–35; Hodgson 1999a, 76ff; 2003, 37–90). Stone construction was employed from the start at least for the lower courses of the external walls and internal partitions. The centurion's quarters in Building XIII must initially have used timber and wattle-and-daub panelled partitions, although increasing use of stone walls, at least as sleeper walls, was made as time went on. Such extensive use of stone represents a marked contrast with the contemporary barracks at Wallsend, for example, where timber construction was used throughout. Even after the Wallsend barracks were rebuilt in stone later in the same century, timber was retained for the internal partitions and a similar mix of stone external walls and internal timber partitions was used in the 3rd-century barracks at South Shields. However, it is perhaps understandable that an upland fort like Housesteads would make greater use of stone from the beginning.

Building XV

The primary phase of Building XV had not been uncovered by Leach and Wilkes in 1961 and its emergence came as a surprise to the 1981 excavators. Although no dateable material was found in association with this structure it must be assumed to be Hadrianic. The only evidence for its function is provided by the form of the building. It was evidently divided into a range of rooms that opened on to the *via praetoria* to the south. The rooms had hard-wearing cobbled floors rather than the clay or flagged floors characteristic of *contubernia* and there is no indication that the building was fronted by a veranda, presenting a marked contrast with the primary barracks at Housesteads, as typified by Buildings XIII and XIV. Equally, no hearth, slag or significant scrap metalwork was recognised in the excavated area which would suggest the structure cannot be interpreted as a range of workshops, unlike Building IV which occupied a similar position on the south side of the *via decumana* (Bosanquet 1904, 241; Crow 2004a, 59–60). However, one feature recorded by Leach and Wilkes in 1961 might belong to this phase. It comprised a stone-lined pit, measuring 6ft by 3ft (c 1.8m by 0.9m) with a depth of about 18in (c 0.45m), and was 'filled with crushed animal bones' (1962, 88, pl XIV.1; see Fig 3.20). The pit was cut through by features belonging to Phase 3 – the northernmost of the two lateral stone drains and the north–south cross-wall (see Chapter 4) – and therefore must pre-date that phase. It sits fairly centrally within one of the compartments of Building XV Phase 2 and might therefore belong to that secondary phase, as was assumed by Leach and Wilkes



Fig 3.20 The stone-lined pit in Building XV revealed in 1961 (photograph by John Wilkes for Durham University Excavation Committee).

(their 'period I'). However, their plan marks a hearth at the north-east lip of the pit in what would probably have been impracticably close proximity if the two features had belonged to the same phase. Since the other Phase 2 compartments (or *contubernia*?) investigated in 1961 both contained a clay hearth, the pit may tentatively be assigned to the primary phase, which otherwise was not exposed by Wilkes. Admittedly, it is uncertain whether the pit was filled by material connected with its function or simply formed a convenient place to dispose of unrelated waste when it went out of use. Nevertheless this does hint at some kind of processing activity. It has also been suggested that XV served as some kind of store building and, specifically, that it was used as an armoury (Crow 2004a, 60). An inscribed altar mentioning a *custos armorum* is known from Housesteads (*RIB* 1596; *CSIR* 65) and the building's convenient location beside the principal street would have suited the storage of equipment of any kind. Indeed the separate rooms in the range may have fulfilled a variety of functions.

4 Modifications to the primary fort

The defences

The primary layout of the defences in the north-east part of the fort underwent a series of drastic alterations probably around the end of the 2nd or beginning of the 3rd century. The original north-east angle tower was replaced with another tower, positioned at the junction of Hadrian's Wall and the fort curtain, both the north and east ramparts were removed, making way for extensive workshop facilities, and a stone-lined drain was added along the *via sagularis* behind the east rampart. It is likely that these three measures were contemporary and interrelated.

The north-east angle

The primary angle tower was now demolished, its walls robbed down to its foundations (robber trenches H21:1:89; 1:97; *see* Fig 3.1), and its remains covered by a stony spread (1:16), recognised in the west corner where it overlapped both robber trench 1:97, and redeposited rampart deposits. The robber trench (1:98) for the south-east wall was seen in the excavation trench cut to reinvestigate the surviving stubs of that wall, which had first been recorded by Simpson, and it was particularly clear in section (K; *see* Fig 2.5) when the excavation trench was extended south-westward. It contained large blocks of rubble in a sandy-loam matrix (1:89). In the bottom of the robbing cut were a series of organic-rich deposits (1:79–80; 1:96), beneath a layer of sand (1:78). The deposits contained pieces of leatherwork, especially tentage (*see* Chapter 14: leather), as well as twigs and other plant remains (*see* Chapter 19), and included an emerald green layer (with traces of vivianite), mixed with patches of orange sandy clay (1:79). The presence of this organic material may reflect opportunistic use of the open robber trench as a rubbish pit. The other stretch of robber trench revealed in 1981 was marked by fill 1:97 and had evidently removed the west corner of the tower, showing an apparent return for the north-west and south-west walls. This was recorded in surface plan only, the fill apparently being composed of smaller rubble (no context description was provided). The remainder of the robber trench for the north-west wall was not traced, but it is likely that this trench had already been encountered by Simpson in 1909. His large excavation trench (1:34), extending south-eastward from the corner of the secondary tower, clips the edge of the rubble backfill 1:97 at the same point where his overall plan (1976, pl xii), locates what would appear to be the southern tip of a strip of surviving foundations for the tower's north-west wall. No trace of any such foundations still remained at this point in 1980–81, however, and Simpson clearly did not trace the full extent shown on the plan.

The new angle tower, slightly smaller than its predecessor, had likewise been revealed at an earlier date, first by Bosanquet and then Simpson, and the 1978 excavations within the tower succeeded only in finding the earlier excavation trenches. Nevertheless, it is clear that the walls of this replacement tower butt against the fort wall, unlike those of its predecessor, which were bonded, suggesting the curtain must have been complete to its full height before construction of the secondary angle tower was commenced. This would tend to confirm the evidence noted earlier for the completion of, or at any rate substantial progress with, the primary tower. Simpson's photographs also reveal that the walls of the secondary tower, particularly the east wall, were significantly lower when excavated in 1909 than they are today, implying that their present form must owe much to subsequent restoration, either by the Clayton Estate, upon whose behalf Simpson was working, or perhaps by the National Trust in the 1930s.

Finds

Leather (Fig 14.27):

- H21:1:80 9532 (815944) Tentage
- 9533 (815944) Nailed shoe
- 9534 (815946) ?Shield cover;
(815946a) Tentage; (b) seam; reinforcement strip; (c) tentage; (d) secondary waste
- 9535 (815947) Tentage
- 9536 (815948a) Tent panel; (b) Tentage

Environmental samples:

- H21:1:79, 80 organic deposits in layers at the bottom of primary angle tower robber trench.

Interpretation: organic deposits H21:79–80, 96

The organic deposits 1:79–80 and 1:96, noted above, are strikingly similar to the deposit encountered in the base of the primary rampart (2:40). The latter also included leather tent fragments and is most plausibly interpreted as rubbish generated by Hadrianic construction teams, camped on or near the site, and disposed of by burial beneath the ramparts. Initially, 1:79–80 and 1:96 were interpreted in the same way, as primary rubbish deposits sealed at the base of the rampart. The realisation that they derived from a secondary context, as outlined above, occurred during post-excavation analysis, principally on the evidence of Section Sketch K (Fig 2.5). The recording in this area was, admittedly, imperfect, with only the sketched section to back up the context descriptions. The sketch shows that the spread of the organic deposit corresponded with the bottom of the robber trench fill, 1:89,

but the section did not reveal the full width of either the robber trench or the deposit (which were never established either in plan or section during excavation). Stratigraphically, therefore, it is conceivable that the neat relationship is more apparent than real and that the robber trench simply cut into the top of a much earlier rubbish pit. Structurally, however, this interpretation is very problematic since it is difficult to envisage how an early rubbish deposit of this kind could have survived the construction of the primary angle tower's foundations in the very same area, not to mention the later removal of those footings by robber trench 1:98. On balance, therefore, the leatherwork and botanical remains contained in organic layers 1:79–80 should be assigned an early 3rd-century date of deposition (see below for full discussion of the dating evidence for the remodelling of the north-east angle defences).

The northern defences (Figs 4.1, 4.7)

The earlier rampart deposits were removed between the north and east gates and replaced by a series of workshops. As before, the best preserved section of defences excavated were those to the north. Here it was evident that at least three workshops and a bakehouse were inserted between the new north-east angle tower and the east tower of the north gate of the fort. At the same time, and presumably connected with the removal of the rampart bank, an expansion wall was added to the rear face of the north wall of the fort. A small area of rampart bank was left in place beside the north gate, perhaps to provide access to the curtain wall-walk.

The expansion wall

The expansion wall (H20:3:25; 4:67; 4:70; 5:46; 6:52), which varied in width between 1m and 1.2m, seems to have been formed by facing with dressed stone the remains of the cut-back rampart (Fig 3.6: Section D), although initially it was not continuous along the whole length of the wall. Its complete absence in the very western part of this sector of the defences (Areas H20:8–9) is probably explained by the retention of a remnant of primary rampart (9:28–31; see Fig 3.7: Section J) in the angle between the curtain wall and the eastern tower of the north gate, perhaps to provide more immediate access to the curtain parapet (though the picture is somewhat obscured by 19th-century and later excavation and, in particular, by deep trenches dug during DoE consolidation of the fort wall). However, the expansion wall was also clearly absent in Areas H20:6–8, immediately to the east of the surviving rampart, during the earlier stages of the workshop phase. This was demonstrable within the later interval tower where the expansion wall overlay or at any rate was contemporary with a flagged surface (6:46; 7:68) belonging to a secondary phase of Workshop 3 (see Fig 4.1: Section B).

This first expansion wall survived up to a height of four courses of roughly squared sandstone blocks. At its eastern end it tapered away before reaching the new angle tower, partly perhaps to allow room for the oven (3:56) immediately to the south, but probably more especially to enable the drain (3:49; 4:72), which ran along the base of the expansion wall in this area (Area 1), to reach and exit through the curtain wall immediately to the west of the tower.

Behind the eastern sector of the curtain, a secondary expansion wall (3:52; 4:43; 4:68; 4:71; 5:45) was encountered (Fig 4.2). This lay to the north of the south face of the original, between 0.5m and 0.75m from the curtain, and was at a higher level than the main, broad expansion wall (Fig 4.16: Section C).

To the west there is only one phase of expansion wall (7:6; 8:30; 7:52; 6:89), which survived at a distance of between 0.7m and 1.3m from the curtain. This may be associated with the secondary, narrow, expansion wall to the east, since, as noted above, the stretch of western expansion wall within the later interval tower (6:89/7:52) *apparently* overlay secondary workshop flagging, while the width of the western and the narrow eastern expansion walls is generally similar (Fig 4.3).

Interpretation: The precise relationship of workshop flagging 6:46/7:68 to the expansion wall (6:89/7:52) is actually uncertain. It is stated in the archive report that the wall overlay the flagging, though this is not confirmed by the section (B – see Fig 4.1) and at least some of the underlying flagstones revealed by the removal of the expansion wall (recorded on H20 site archive plan P39) are labelled 'wall stones' on a sketch plan (H20:7 archive sketch plan 8). However, the salient point is that, even if the expansion wall does not actually overlie the flagging, its footings sit at the same level as the secondary flagging and must be broadly contemporary with it. If the expansion wall in the western half of H20 is of one build with the later, narrower phase of the eastern expansion wall, as seems likely, it must have been erected before the partial reinstatement of the north rampart (H20 Phase 3b – see below). The same is therefore true of flagging 6:46/7:68 and all underlying deposits, although the flagging may have remained in use during the later phase.

The workshops and the north bakehouse

Four walls ran south at right-angles to the expansion wall (3:24; 4:57; 6:43; 7:61), to which they were bonded. These cross-walls served to divide the rampart area into five compartments, which can be referred to as the north bakehouse, an *ascensus* area (1) and Workshops 2–4 (running from east to west). All the workshop floors sloped from south to north: between the kerb (8:77) representing the northern limit of the *via sagularis* and the flagging (8:20) there is an overall drop of 0.65m from south to north over a distance of 4m, a gradient in excess of 1 in 6. In addition, the workshops were stepped down from west to east in a similar



Fig 4.1 Sections A (H20:3) and B (H20:6) through the northern defences (scale 1:20).



Fig 4.2 View of the section through the north rampart in H20:4, with two phases of expansion wall and the later clay bank evident (at Section C).

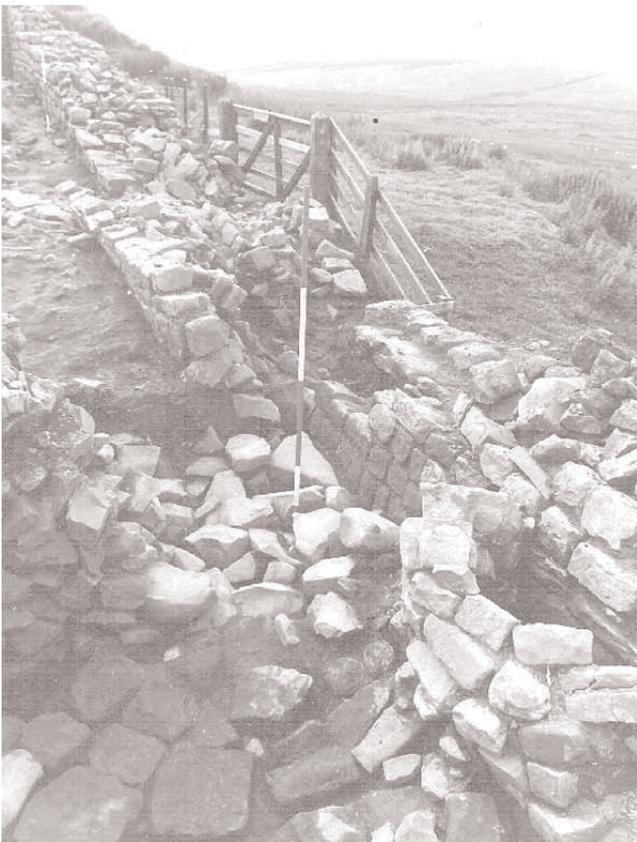


Fig 4.3 The expansion wall in H20:6–7, with the flagged floor of Workshop 3 also visible, enclosed by the foundations of the later interval tower.

manner to the *contubernia* (and later the chalets) in Building XIII. The difference in the level of flagging 8:20 in Workshop 4 and the best-preserved flagged floor in Workshop 3 (6:46; 7:68) was 1.12m over a distance of 7m, again a gradient of 1 in 6 (although differential degrees of later subsidence may have contributed to this).

The north bakehouse was attached to the west side of the secondary angle tower. It was smaller than that set into the east rampart and contained only a single oven, which probably replaced one set inside the ground floor of the primary north-east tower. The primary angle towers at Housesteads, when known in any detail, each appear to have contained an oven and there is every likelihood that the same was true of the primary north-east angle tower. The surviving remains of the west wall (3:24) of this bakehouse extended 3m south from the expansion wall, with two faces, and was between 0.45–0.60m in width, being broader at the base. It was set in a construction trench (3:36) that cut the orange clay of the primary rampart (3:35) and was packed with a mixture of grey clay, loam and small pieces of sandstone (3:63). This wall presumably supported a pentice roof which would have sloped down either from north to south or east to west from the curtain wall or the west wall of the tower respectively.

The oven, which sat within the bakehouse, had been partially destroyed during previous work by Clayton, Simpson, and Anderson. No description of this oven survives from any of this earlier work.



Fig 4.4 View of the east end of the north rampart showing the ascensus steps and the two phases of oven in the bakehouse beyond, with inset detail of the steps.

Roughly ovoid in plan, rather than circular, the stone base of the oven measured 2.8m north to south, with a width of 2.6m. Built above the whinstone boulders of the probable foundations of Hadrian's Wall (*see above*), it rested on a compact layer, 0.25m thick, of small angular sandstone fragments and yellow clay (3:64), and upon a charcoal level (3:60; Fig 4.1: Section A). The side walls of the oven (3:56) were made of sandstone rubble, bonded with light brown clay (3:66), and survived to a height of 0.65m. The only trace of the oven floor was a narrow layer of charcoal 0.6m deep, but above this were the remains of the collapsed dome of the oven: a thick layer of sandstone blocks and rubble mixed with burnt clay, between 0.15–0.40m thick (3:58–9). The working area outside the oven was largely obscured by the later platform (3:18), but a floor level below a layer of light clay with charcoal, probably oven rakings (3:30), may well be associated and, since it is below the level of the oven, represents an interesting instance of a working area being below the oven

floor, a characteristic of modern ovens of this type in the Near East. This floor of worn flagstones (3:26) corresponded with the top of the cistern. The stone placed over one corner of the tank may well be an original feature of this phase, intended to facilitate access to the oven, and helps to confirm that the cistern formed part of the primary rampart layout, pre-dating the construction of the bakehouse and secondary tower.

The area immediately to the west of the bakehouse and north of the earlier water tank was initially interpreted as a roofed workshop structure, like the trio to the west, and was labelled Workshop 1. Further consideration suggests it most probably represented an open space that provided access to the curtain wall top via a set of steps (*ascensus*) (Fig 4.4). However, for convenience, the numbering sequence has been retained. Area 1 was bounded by the bakehouse west wall (3:24) and the east wall of Workshop 2 (4:57), which survived to only 2.9m in length, but never seems likely to have reached beyond the water tank. The main evidence for

flooring consisted of scattered flagging (4:48), which included the cover slabs for a stone-lined drain (4:60). This drain flowed north to join (at the north-west corner of the area) one flowing east (3:49; 4:72), its gradient falling by as much as 1 in 2. Another drain (3:45) flowed northwards (the gradient of this one being 1 in 2.7) from just behind the north-west corner of the water tank and this too fed into the east-west drain. Patches of charcoal (4:47, 4:49) surrounded the fragmentary flagging and the cover stones of the drains, towards the south end, and a hearth (3:44) was found over the eastern drain. The ground fell away so steeply to the north that the lowest cover slab of the east drain (4:60) was below the level of the bottom of the water tank. No trace of flooring was found south of the later revetment Wall C, due to subsequent disturbance. A set of steps (3:37), or *ascensus*, like that found by Simpson on the south curtain, immediately west of the latrines, was built over the west-east drain roughly midway along its length. The steps were set on a foundation of squared sandstone blocks, rubble and small whinstones in a dark-brown, loamy matrix (3:48). Four treads remained, each consisting of two or three sandstone blocks, with the bottom tread showing signs of wear. The steps rose to the full surviving height of the secondary expansion wall and originally must have continued upward to give access to the curtain wall walk. The steps can only have functioned if the area was unroofed. Deep orange staining (3:51; 4:78) was noted over the layer of clayey soil (3:35; 4:56) sloping northward down to the west-east drain, probably a result of iron precipitating out of rainwater running down the slope, which confirms that this area was open to the elements.

The adjacent workshop, labelled Workshop 2, was defined by wall 4:57 and by another wall (6:43), giving the structure an internal length of 8.4m. The sequence of floors within Workshop 2 was complicated by robbing of the expansion wall, by the presence of the later rubble rampart base, and by subsidence in the northern half of the area. However, it seems that the orange clay (3:35; 4:56; 5:50) of the levelled primary rampart may have formed the initial flooring for this workshop, but the first flagged floor was noted at a number of points, particularly in association with a large rectangular hearth (5:63) measuring 0.5 × 1.5m, constructed from two parallel lines of stone blocks (5:54; 5:66), faced on the outside, retaining a fill of hearth debris of fire-reddened clay and small stones (5:71) (*see* Plate 1). The north side of the hearth was set in grey clay (5:57), which overlay the orange rampart sand, while to the east the flagging (5:90) was covered by a thick layer of ash and charcoal (5:79), suggesting that it may have been worked from that side. More flagging was found to the north (5:42; 5:53–4), extending towards the expansion wall, and to the east (4:54), adjoining the east wall of the workshop (4:57). To the south and east of the hearth, the flagging appeared to adjoin a cobble and clay surface (4:58; 5:48; 5:55; 5:62; 5:72), although no exact edge was detected. This workshop

was in use long enough for it to receive a second flagged floor (4:73; 5:61), with a layer of cobbling to the south (4:64), but the main hearth appears to have continued in use. Above the second level of flagging was a layer of irregular cobbles set in a dark brown clay matrix (4:61; 5:49; 6:63), which was cut to the north by the robber trench of the expansion wall and the whin pack of the subsequent rampart base; it lay directly below Revetment Walls C and F (*see below*).

Workshop 3 was defined by its western wall (7:63) and east wall (6:43), although much had been destroyed by the insertion of the later interval tower (*see below*). The east wall (6:43) was constructed of roughly dressed sandstone blocks with a total width of 0.4–0.5m, surviving to a height of four courses at the north end. The wall was 4m long and bonded to the expansion wall (6:52), dipping some 0.78m to the north over its length (a gradient of 1 in 5). The expansion wall originally continued all the way across this workshop, but had been cut at two points by the interval tower foundations. The surviving stretch within the tower (7:52; 8:69) had a very irregular appearance having both slumped southwards away from the curtain and subsided downwards especially towards its middle midway along its length. The loss of structural integrity when the wall was cut by the tower's whin foundations had probably exacerbated this slumping. Only small parts of the lower floors could be seen where the upper flagging (6:46; 7:68) was lifted. The earliest level was a hearth (7:74–5) within a pit, 0.75m wide (measured north to south) and 0.25m deep, cut into the primary rampart, and this pit was filled with charcoal and metal debris, including iron, copper, and lead. The hearth debris was sealed beneath a surface of small flagstones and cobbles (7:73), which in turn was covered by a layer of charcoal, bone, and a grey matrix (6:74; 7:72). This layer acted as makeup for an upper floor (6:46; 7:68), composed of large stone flags (0.45 × 0.25m). The expansion wall (6:89; 7:52) apparently rested on this flagging, although this is not clear from the section (Fig 4.1: Section B), and was presumably therefore constructed after the flagged floor, but perhaps in association with it (*see* discussion above). There was considerable subsidence to the south of the interval tower foundation, but earlier floor levels were identified (cobbling 6:47 beneath flagging 6:27, which may have been equivalent to the stone layer 6:25 seen in section – Section B). A wall running east-west, and possibly forming the southern boundary of Workshop 3, was discovered beneath Drain G and the revetting wall 6:14. It was a 1.4m section of double-faced wall (6:55), 0.48m broad, comprising roughly dressed sandstone blocks bonded with dark brown material.

Only the east wall (7:61) of Workshop 4 survived, and only 1.00m of that escaped destruction by the foundations of the interval tower. The total length of the workshop is not known with certainty, but was probably *c* 7.5m, since its flagged floor (8:20) continued beneath, but not beyond, the later revetting Walls B and D (8:13; 8:52). The flagged floor is well



Fig 4.5 Floors and drains in Workshop 4 with clay dump H20:7:28/8:28 and a stone mortar and lid in the background in front of later rampart revetment walls.



Fig 4.6 Hearth 8:59 with clay dump 8:60 in Workshop 4, viewed from the north.

preserved in the western part of the workshop. Two drains cut this floor, one running south-west to north-east (8:25), the other south to north (8:26) (Fig 4.5). After joining, they passed through the expansion wall and, it must be assumed, issued north of the curtain, although the outlet has not survived (Crow 1988, 67). The expansion wall (7:6; 8:30) survived to a height of four courses, although it has tipped to the south, and betrays no sign of the robbing noted in Workshop 2. A single stone flag (8:59), set on a patch of burnt clay (8:60) to the east of drain 8:26, served as a hearth (Fig 4.6), although the flagging was not found in this area, just the levelled primary rampart (7:39) and a cobbled surface (7:30) adjacent to the cross-wall (7:61).

Besides the hearths, a deposit of slag (8:21) hints at the function of Workshop 4. The slag was found on the flagged floor (8:20), partly sealed by the collapse of the expansion wall (8:30), while a stone mortar (Chapter 12: No. 110) was found associated with the later revetting Wall E, tipped on its side and accompanied by a cracked quernstone (No. 85) which had apparently served as a lid for the mortar (8:29).

As noted above, no western wall was found for Workshop 4, but the sudden change from the flagged floor, 8:20, to the cobbled surfaces further west (8:64; 9:47), plus the lack of any indication that drain 8:25 continued westwards towards the north gate, suggests that the workshop did not extend much beyond the line of the later revetment Walls B and D (8:24; 8:52). It is possible that the original west wall was completely removed when revetment B was constructed for the reinstated rampart. However, it is more likely that the west end of the workshop was open, like the south side, with the roof of the structure simply being supported by a series of timber uprights sitting on post-pads which have not survived. This would help to explain the function of drain 8:25, which would have collected rainwater flowing off the cobbled surface to the west.

To the west of the workshop, a surface of large cobbling (8:64) survived adjacent to the north kerb (8:77) of the *intervallum* street. These cobbles, which ran from south to north (unlike other floors), were cut by revetment Wall B (8:24). Further west still, the cobbled surface was more completely preserved (9:47) and ran up to the only remaining area of primary rampart (layers 9:28–31) in the angle between the curtain wall and the east guardchamber of the north gate. This surviving fragment of the rampart was edged by a stone kerb or revetment (only one course was preserved) and may conceivably have been retained to provide convenient access to the curtain wall-walk by means of steps cut into the bank, although any such steps must have been removed by later activity. Figure 4.7 shows the northern workshops in plan.

Finds

Copper alloy:

H20:5:47 101 Button and loop fastener (Fig 14.11)

Glass:

H20:4:48 462 Square-sectioned bead of blue glass

H20:5:59 494 Melon bead

Ceramic:

H20:6:74 593 Roughly cut disc of samian with a small dimple in one face

Quern and misc stone:

H20:8:29 85 Complete upper stone (Mayen lava) – reused as lid of mortar

H20:8:29 110 Mortar, largely complete but with one side missing (Fig 12.6)

Glass vessel:

H20:3:11 44 Base fragment, cup of greenish colourless glass (Fig 17.2)

The eastern defences

The rampart was also removed from the eastern defences and workshops inserted, although the evidence had been much disturbed in this area. Activity of an industrial nature was detected in two discrete areas north and south of the bakehouse, which appears to have remained in use (Fig 4.8). The remainder of the former rampart area seems to have been cobbled over. No trace of an expansion wall was found behind the east curtain, but the deep cut made by Clayton's workmen had removed all evidence for this phase in the relevant area adjacent to the curtain wall and it is therefore impossible to determine whether an expansion wall once existed along this stretch. Elsewhere, surviving remains of the expansion wall were left *in situ* by Clayton (in rampart sectors H22 and H27, for example), but such treatment may have depended on how well preserved its remains were at that stage and consequently whether they were recognised by the 19th-century excavators.

The north workshop

North of the bakehouse, a grey clay floor (H21:2:63) containing large flecks of charcoal and burnt stone was laid directly on top of primary rampart material and, in parts, an orange clay layer (2:71). The spread of workshop debris, a mixed yellow sandy layer containing charcoal, clay, sandstone and fragments of copper alloy (1:49), continued round towards the main north-south drain (1:5/6) which crossed the rampart. In this area the debris lay directly over the robber trench for the south-east wall of the primary angle tower (1:89 – see Fig 2.5: Section Sketch K). At one point, there were small round cobbles (2:68) set into this grey clay. A pit (2:70), packed with three large stones, was cut into the primary rampart and the orange clay 2:71 and this contained copper alloy fragments, slag, and bone. A possible post-setting (2:45), indicated by two upright stones at right-angles to each other (see Plate 2), marked the western edge of an area of burnt loam (2:76). Burnt loam was noted elsewhere (2:69; 2:75) and an accumulation of charcoal-rich

material (2:50) may have represented successive episodes of industrial activity, presumably including metalworking. In several places, this workshop material was covered by further layers (Fig 4.12); a flaky orange matrix with intermingled stone chippings and charcoal fragments (2:47) and a yellow sandy loam with flecks of stone chippings and clay lenses (2:78) were noteworthy in this context. Several likely hearths were found in this area, the first consisting of two flat slabs (2:54) with evidence of burning, and burnt loam and charcoal (2:55; 2:59) surrounding them. A small pit (2:49), filled with burnt brown soil, charcoal and fragments of metalwork, was also situated at the southern end of this area, cut into a dump of yellow clay (2:46). A second hearth (2:60) comprised a pit, with stones set in, cut into the orange matrix 2:47 and the underlying primary rampart material, and was filled by burnt material containing fragments of copper, slag and crucible fragments (2:44). Immediately to the north, two large flagstones (1:40; 2:67) rested directly on top of the sandy loam 2:78. A burnt deposit of dark brown clay/loam (2:26) over the flagstones was found to contain bone, with a further burnt layer to the south (2:53) also including copper alloy and charcoal fragments. After these deposits had been covered with ash and clayey material, a spread of charcoal (2:6; 1:39) suggests reuse of this hearth and may have represented the final activity in this area before the replacement of the rampart.

There was no trace of workshop side walls delimiting this workshop area, comparable to those found along the north rampart, nor even a clear set of postholes to support a lean-to roof like that covering the workshop area south of the bakehouse (*see below*). However, it is conceivable that the remains of any such walling were removed by later activity. The southern limit of these workshop deposits seems to lie in the same area as a much later V-shaped cut in the reinstated rampart (perhaps a soakaway – *see* Chapter 6), and any remains of a south wall not robbed at the end of workshop phase will have been destroyed by this later cut. In addition, the layer of angular sandstone blocks in dark loose soil (1:42; 2:41) overlying the widened *intervallum* cobbling (1:43; 2:42) to the west of the workshop, is much more likely to represent rubble from demolished workshop walls rather than a later resurfacing of the road.

Finds

Copper alloy:

H21:2:6	136	Fragment of U-sectioned binding
	204	End of a tack formed from a rolled sheet
	207	Small curved rod of circular section with globular terminal
	237	Rectangular sectioned wire, curled to form a hook
	293	Strip with straight edges and surviving end cut obliquely
H21:2:44	143	Hollow-domed boss filled with lead caulking
H21:2:49	54	Bucket or bowl handle of oval section (Fig 12.5)

H21:2:75 295 Hammered strip (Fig 14.13)

Bone:

H21:2:6 420 Roughly whittled end of a pin

The south workshop

To the south of the bakehouse, a series of six postholes was identified – two of them located 0.85m apart (4:45 and one unnumbered) close to the bakehouse wall and four more some 4m to the south – forming two east–west aligned rows. Both rows of postholes probably originally continued right up to the curtain – the more easterly examples having been removed by Clayton's excavations – suggesting a lean-to structure *c* 4 × 4m in size next to the bakehouse. Several hearths were found within the putative area of the structure, some showing more than one phase of use. Towards the southern end of the building, one of these hearths (4:52) was formed of small stones and measured 0.7 × 0.8m. It was succeeded by an area of charcoal and burnt clay (4:51). A further spread of burnt red soil and clay, including iron slag, lay to the north, extending up to the north-westernmost posthole (4:45), which was surrounded by a setting of burnt stones. Another hearth (4:26) was formed from three reddened stones (*c* 0.4 × 0.3m) and sat upon primary rampart material. This was subsequently covered by flags (4:29), which may possibly have been related to a new hearth (4:12), formed from three reddened stones, set on a flagstone and associated with reddish burnt clay, which were situated on 4:51, after the latter had been covered by a stone spread (4:13). Flagging 4:29 was in turn partially covered by spreads of soil burnt a dark maroon colour (4:46) and brown clay and loam with flecks of red clay (4:47).

Finds

Glass vessel:

H21:4:47 45f Fragment of a cup base inner coil

The bakehouse (Fig 4.9)

Immediately outside the entrance to the bakehouse, in the area of the former passageway through the rampart, a succession of cobbled surfaces were laid down over the primary cobbling (3:110). The first (3:129), composed of small cobbles, partially overlay the southern revetment wing wall (3:123) of the primary phase, but the northerly revetment wall (3:87) continued to stand proud as some form of kerb. Surface 3:129 was succeeded by a further layer of similarly sized cobbles (3:106) in a matrix of yellow-grey clay, with accumulations of charcoal up to 30mm thick filling potholes in the cobbling. This was in turn replaced by yet another metalling (3:105), formed of small sandstone cobbles and set in a matrix of brown loam and charcoal. The fact that these cobbled surfaces overlay the southerly rampart revetment wing wall would suggest that their use was contemporary with the removal of the rampart



Fig 4.9 The second and third ovens in the east bakehouse.

banking and the phase of workshop activities behind the curtain (although the rampart need never have been very substantial in front of the bakehouse west wall). Beyond the former northerly revetment kerb, 3:87, which continued to stand proud, a layer of cobbling (3:122) set on stony makeup (3:124) and laid over sand deposits (3:127) of the primary rampart was probably also contemporary with the surfaces in the former passageway. This cobbling was in turn eventually overlain by a further cobbled surface (3:82) which stretched round to the north of the bakehouse and – as 2:36 and 2:32 – ran up towards the northern group of workshops and merged with the widened *intervallum* road surface (2:37/51; 2:42; 1:43).

Inside the bakehouse, a new oven (3:88) was added in the north-west corner immediately to the west of the earlier north oven, 3:53. The fact that when it was excavated, oven 3:53 was found to lack a flag floor, may suggest that 3:53 was taken out of service at this stage and replaced by the new oven, with the flagging from the former possibly being reused in its replacement (3:65). However, apart from the loss of its flagging, the primary oven was found to be relatively well preserved and, moreover, was still deliberately included within the bakehouse when the building was subsequently remodelled, suggesting it may not have gone out of use until the end of the life of the bakehouse (*see below*). The wall of the new oven was formed from

small blocks set in yellow clay (with no indication of burning, although a layer of charcoal – 3:91 – was found on the flagged floor – *see* Chapter 19). Excavation showed that the oven walls rested on the oven floor.

The *via sagularis* (Figs 4.10–4.11)

The drain (H21:1:3; 2:9; 3:73; 4:30) constructed along the *via sagularis* consisted of two courses of faced stone capped by sandstone flags. Emerging from between Buildings XIV and XV, the drain turned north to follow a line 6.5m from the inside face of the curtain, running alongside the rampart revetment. The conduit here was 0.25m wide and 0.3m deep and, in area H21:2, was seen to rest directly on the primary road surface (2:73 – Fig 3.5: Section F2). Initially it then continued northward directly through the north-east corner of the rampart, where it took the form of two single-faced parallel walls (1:5; 1:6), constructed of four to five courses of sandstone blocks. These walls sat in the middle of a wide cut (1:32) into the primary (1:64) and redeposited (1:56; 1:60) rampart levels, the cut being packed with large sandstone blocks (1:7) on either side of the drain, which may form part of a widening of the *via sagularis* apparent elsewhere along the east rampart in this phase (cf 1:43; 2:42; 2:37/51; 3:122). Virtually at a right-angle to the drain, primary revetment wall 1:36 seems to have been left in place forming the southern limit of the surviving stone pack. The drain wall footings sat at the level of the primary road surfaces and at their north end overlay the line of the primary angle tower walls, confirming that the demolition of the latter had already occurred. No capstones were found *in situ* over the length of drain cut into the rampart, probably reflecting removal for use in its successor when this alignment was superseded. The extant remains of the drain and its associated stone side packing did not continue all the way to the curtain, but its line can be projected to a point between the primary and secondary angle towers. Apparent



Fig 4.10 The *intervallum* road drain in H21:2 with capstones lifted, viewed from the north.



Fig 4.11 Drain walls H21:1:5–6 running across north-east corner with the later realigned course visible beyond, to the south.

traces of repair to the inner face of the curtain wall, evinced by irregularities in the masonry, have been noted at this point, notably a slight break in the thin string course coupled with the use of larger, more regularly squared blocks (Simpson 1976, 129 and fig 51; reproduced as Fig 3.2 here). The repair is located above one of the narrow, and probably primary, drainage channels through the base of the curtain and might be associated with the creation and subsequent blocking of a higher, wider drain outlet at this point. The final, missing, stretch of drain 1:5/6 and stone packing 1:7 closest to the curtain had most probably simply been dug away by Clayton in the 19th century, along with most of the rampart in that area.

The level of the *via sagularis* was now raised to match the level of the top of the drain, with a 0.35m raft of angular sand- and whinstone (2:66) set in a yellow clay (2:72). The road surface on top of this consisted of compacted, small round pebbles (2:61) in an orange-yellow sandy matrix (2:65) and appeared well worn. This new road was some 4m wide and was noted running beneath the eastern end of the chalet period end of Building XIII (see Section F2, Fig 3.5).

Finds

Copper alloy:

- H21:1:7 86 Circular terminal with depressed centre (helmet reinforcing bar?) (Fig 14.9)
 H21:2:61 55 Bucket or bowl handle (Fig 14.5)

Ironwork:

- H21:1:7 327 Flat oval plate with a wide strip projecting from the edge

Dating evidence (Tables 4.1 and 4.2)

A small but significant quantity of mid- to late 2nd-century pottery was found in the rampart levels beneath the workshop floors. As was discussed above, in Chapter 3, this implies an Antonine refurbishment or completion of the rampart bank and provides a late 2nd-century *terminus post quem* for the workshop phase.

From the east rampart, the presence of a BB2 small, round-rimmed bowl and coarseware forms JA 74 and BO 50 among debris from the north workshop (H21:1:49) and on the cobbled surface over the surviving rampart deposits (3:82) is consistent with a date around the beginning of the 3rd century for the removal of the rampart bank and construction of the workshops. In the northern defences, the occurrence of late 2nd- to mid-3rd-century samian vessel types and coarseware forms (eg M 17; BO 50, 86) from the workshop floors and the contemporary surface of the *via sagularis* are also consistent with an early 3rd-century date for this phase. Also significant is the discovery of a post-hammerhead mortarium of mid-3rd-century or later date in the burnt deposit (H21:2:44) associated with north workshop hearth 2:60. Together with a group of late 3rd-century coarseware forms (JA 45; BO 5, 90) found in the makeup layer (H20:7:64) below the latest floor in Workshop 3 (see below), this provides an indication of the longevity of metalworking activity in certain areas of the defences.

Relatively little dateable material was found in contexts associated with the complex structural alterations in the north-east angle (H21/2a), and none that

Table 4.1 Ceramic assemblage associated with the workshop levels in the north defences (Phase H20/3a)

<i>context</i>	<i>description</i>	<i>coin</i>	<i>CW form</i>	<i>FVN</i>	<i>TPQ</i>	<i>samian (latest)</i>	<i>date</i>
expansion wall							
H20:3:25	1st expansion wall					D4: CG LZ 37	HEA
workshops							
H20:3:54	bakehouse: clay floor around oven					EG RH 31	L2M3
H20:5:49	Workshop 2: 3rd floor – cobbles					EG RH 33	L2M3
H20:5:55	Workshop 2: cobbles of 1st floor					EG RH dish	L2M3
H20:5:79	Workshop 2: hearth trample					CG LZ dish/bowl	H/A
H20:6:25	Workshop 3: flagged floor		M 17.0	1104	180–230	CG LZ 31R	160–90
H20:6:30	cobbled surface S of Workshop 3					CG LZ 30 or 37	ANT
H20:6:74	Workshop 3: makeup u flags 6:46	6: Vespasian 69–79				CG LZ 18/31 or 31	H/A
H20:9:47	cobbles W of Workshop 4					CG LZ– CG LZ 37	H/A ANT
via sagularis							
H20:4:38	road surface		BK 16.0	1161		CG LZ 31	MLA
H20:5:20	(as above)		BO 86.0	1477	L2C+	CG LZ 79 or Tg	MLA
			BO 50.0	1475	c 200+		
			BO 21.0	1474	M–L2C		
			BO 41.0	1476	c 160+		
H20:9:44	(as above)		BB1 plain r di	–	M2–L3C		
			BB2 lg rnd r di	–	L2–M3C		
			BB2 lg rnd r bo	–	L2–M3C		

Table 4.2 Dating evidence associated with the east rampart workshops (Phase H21/2)

<i>context</i>	<i>description</i>	<i>coin</i>	<i>CW form</i>	<i>FVN</i>	<i>TPQ</i>	<i>samian (latest)</i>	<i>date</i>
H21/2a demolition of primary angle tower							
H21:1:16	demolition layer		-	1608	L1C	CG LZ 31	MLA
			BB1 j	–	E2C		
H21:1:17	redeposited rampart layer		BB2 j	–	M2C	CG LZ 37 Style of Casurius ii	160–90
			Dr 20 am	–	2C		
H21/2b workshop features							
H21:1:49	N workshop debris		JA 74.0	1598	c 200–250	CG LZ 18/31 or 31	H/A
			JA 56.0	1600	M2–M3C	CG LZ –	H/A
			BO 23.0	1599	E–M2C		
			BB2 sm rnd r bo	–	L2–E3C		
H21:2:6	N workshop charcoal	47: Hadrian 119	BK 15.0	1574	c 100–160		
H21:2:44	burnt layer from 2:60		BO 18.0	1573	L1–E2C		
H21:2:69	N workshop burnt layer		m po hh	–	M3C+		
H21:4:52	S workshop hearth					St17: Probus ii (EG TR 33)	EMA
H21/2c bakehouse features							
H21:3:105	cobbles in front of bakehouse		JA 126.0	1641	2–3C	CG LZ 18/31R or 31R	H/A
			gr wa nmj	–	2C+		
			Dr 20 am	–	2C		
H21/2e cobbled surfaces ov rampart							
H21:1:7	via sagularis stone pack		BB2 j	–	M2C+		
H21:1:43	cobbled surface		BO 50.0	1611	c 200+	CG LZ 37	MLA
			BB1 flat r bo	–	2C		
H21:2:37	(as above)		BO 18.0	1593	L1–E2C		
H21:2:42	(as above)					St7: Lutaicus=D20: Reginus vi (see Fig 15.1)	160–90
H21:2:56	sand u cobbles 2:42					CG LZ 31	MLA
H21:3:82	cobbled surface		M 14.0	1639	130–80		

provides a sufficiently late date to confirm that the construction of the secondary angle tower was associated with the beginning of the workshop phase. Thus, the section through the *via sagularis* road produced no dateable material whatsoever from contexts relating to construction of the *via sagularis* sewer and the attendant raising of the road surface (H21:2:61; 65–6; 72). Nor was any material found in well-sealed contexts clearly linked with the demolition of the primary angle tower, such as robber trenches H21:1:89; 97. Hence, the possibility that the relocation of the angle tower occurred at an earlier stage, perhaps forming part of an Antonine phase of activity including the refurbishment or completion of the rampart bank (see Chapter 3), cannot be directly refuted on the basis of the material evidence. Much therefore depends on the stratigraphic relationships between the various associated features to tie this episode firmly in with the workshop phase.

A clear sequence for these structural events was established by the excavations in 1978–81. The demolition and robbing of the angle tower occurred prior to the construction of the *via sagularis* drain and the workshop activity (though it might have been contemporary with or even preceded by the removal of the rampart bank). The robber trench for the south-east wall of the primary angle tower (1:89) lay directly beneath a layer of workshop debris (1:49); however, the robber trench for the north-west wall (1:97) did appear to be partially overlain by a small pocket of rampart deposits (1:14; 1:17–19; 1:56; 1:60), which were in turn cut (1:32) by the stone side packing of the *via sagularis* drain (1:7). This could conceivably signify that the relocation of the angle tower occurred at an earlier stage, perhaps forming part of an Antonine phase of activity including the refurbishment or completion of the rampart bank (see Chapter 3). The *via sagularis* drain overlay the robbed remains of the primary angle tower and its construction implies the prior removal of the rampart bank since the drain's northward course directly across the angle of the rampart would really only have been feasible after the rampart had been removed. If the bank had still been present a very deep, wide cut through it would have been required and the drain would have been vulnerable to collapse and consequent blockage if any attempt had been made to reinstate the bank over it. The clear association of the drain with only the third *intervallum* road surface (2:61; 2:65), with its 0.35m high stone raft (2:66; 2:72) bringing the metalling up to the same level as the top of the new drain, provides an obvious relative chronology for the drain. Moreover the fact that much of the former east rampart area was cobbled over to form a continuous surface with the raised *via sagularis* in area H21:1 and H21:2 (compare the levels of 2:32, 2:37 and 2:62 in Fig 3.5: Sections F1 and F2) implies that construction of the latter is unlikely to have followed the removal of the rampart bank by any great interval. They are best envisaged as sequential but related components of the same reconstruction project.

In these circumstances, the rampart layers dumped beside the secondary tower (H21:1:14; 17–19; 56; 60), over the robbed remains of the primary tower north-west wall, may simply represent a small area where the rampart was deliberately reinstated after the construction of the new tower, perhaps to provide convenient access to the top of the curtain wall. It may be significant that a small pocket of primary rampart deposits (H20:9:28–31) was definitely retained during the workshop phase in a corresponding position immediately to the east of the north gate. However, the possibility of an Antonine date for these deposits and hence the secondary tower cannot be definitively excluded.

There are more general grounds for considering that the construction of the secondary angle tower was broadly contemporary with the removal of the rampart bank and erection of the workshops, although ultimately these are suggestive rather than conclusive. Firstly, in the primary layout of the fort the angle towers were apparently intended to house bread ovens for the use of the *centuria* resident in the nearest barrack block. Although demolition of the primary north-east tower had removed any remains of an oven within, the tower was certainly large enough to house an oven and it is reasonable to suppose that it did so. However, no trace of such an oven was recognised within the secondary angle tower by Simpson in 1909, and indeed space in that tower, which was smaller than its predecessor, was perhaps too cramped to accommodate an oven and its associated working area. Instead, the replacement oven was installed, probably from the start, in a purpose-built bakehouse adjacent to the tower, which appears to have been contemporary with the range of workshops to the west, the bakehouse wall (H20:3:24) being bonded into the expansion wall.

Secondly, the retention of the stretch of rampart revetment wall approaching the entrance to the doorway of the primary tower (H21:1:36) and its incorporation in the stone pack (1:7) beside the *via sagularis* drain (1:5/6) is perhaps more easily understandable if the construction of the drain and raising of the *intervallum* roadway followed rapidly on after the demolition of the tower, though, admittedly, this argument cannot be pushed too far.

Most tellingly, a plausible context for the shifting of the angle tower *c* AD 200 can be proposed. Excavation in front of the north curtain in 1984 (Area H20:10) revealed that the north gate went out of use at the end of the 2nd century, the roadway approaching it becoming covered in rubbish and clearly no longer functioning from this time onwards (Crow 1988, 73–4; 2004a, 37). The west portal was now reduced to a narrow postern (the east portal having never been used, as revealed by Simpson in 1930). Instead access to the fort from north of the Wall was now provided by a new gate through the Wall curtain in the valley of the Knag Burn 80m to the north-east. This gate formed part of a rebuild of the Wall generally assigned to the Severan period, though the characteristic very hard white mortar associated

with the Severan work elsewhere is absent here (*see* Chapter 10; Crow 1991a and 1991b). Moving the angle tower further westward to the junction of the Wall and the fort curtain will have provided better scrutiny of the northern approaches to the Knag Burn Gate and may have provided controlled access to the top of the newly rebuilt Wall, through a doorway in the outer face of the tower, for patrols proceeding down towards the gateway.

Elsewhere in the fort, there is evidence that the buildings of the central range underwent major reconstruction at some stage, probably during the later 2nd or early 3rd centuries (Crow 1989, 47; 2004a, 69–70). Restoration work in the early 3rd century is explicitly attested by a Severan dedication (*RIB* 1612; *JRS* 52 (1962): 194, no. 16; 57 (1967): 205–6, no. 17, pl xix 2; *Britannia* 37 (2006): 485–7, b; and *see* Chapter 11 for further discussion), which, given its scale and the various findspots of its many fragments, almost certainly derived from one of the buildings of the central range. This may be combined with archaeological evidence for the conversion of the single, Hadrianic, double-width granary into a pair of parallel *horrea* (the more northerly of the two being the most likely source of the Severan inscription), the rebuilding of the hospital and the *praetorium* and, less certainly, the *principia* (*see* Chapter 11). The transformation of Building XV from a barrack to a stable (H15 Phase 3) is most convincingly assigned to the early decades of the 3rd century, although there is insufficient dating evidence to be more precise (*see below*). Rebuilding of the north curtain at some stage during this period was also identified in excavation in 1984 (Crow 1988, 67). The remodelling of the defences to replace the rampart banks with areas of workshops may now also be tentatively added to this Severan programme.

Discussion: the metalworking activity in the former rampart areas

There is clear evidence that the buildings erected in the area behind the north-east defences during this phase were used to accommodate metalworking activity. This evidence took two main forms. Firstly the structural remains of several hearths were found within the workshops, as described above. Most had more than one phase with, in some cases, build-ups of ash suggesting prolonged activity. Hearth H20:5:63 in Workshop 2, in particular, was a stone faced clay structure of substantial size (*see* Plate 1) and may well have originally risen to waist height for ease of working. Secondly, material residues of metalworking – particularly copper alloy – were recovered, in the form of the scrap metal, crucibles, moulds, metal droplets and slag, described in detail in Chapter 20. The bulk of this material derived from the eastern defences and, in particular, was associated with the distinctive *intervallum* road surface composed of blue-grey limestone cobbles (H21:2:48 – the fifth in the sequence of road surfaces in this area), whereas, in contrast, the best-preserved structural

evidence was represented by the hearths behind the northern defences. This discrepancy is probably simply a result of factors of survival. It is clear that long-lasting hearths were present in the workshops of the eastern defences (2:54; 2:60; 1:40/2:67; 4:26; 4:52; 4:12) (*see* Plate 2), though none appear to have been as substantial as H20:5:63, but many of the floor surface deposits were probably removed by a deep and wide later intrusion (H21:2:18 – *see* Chapter 6), which cut through the later reinstated rampart into underlying workshop layers, and by the truncation resulting from Clayton's clearance of much of the east rampart. The walls of the northern workshop building were thoroughly demolished at the end of Fort Phase 2, leaving only a layer of angular rubble (1:42; 2:41). The absence of debris assemblages in the workshops behind the northern defences, comparable to those from the east *intervallum* road, could be explained by differences in the pattern of waste disposal in the two areas. It is conceivable that waste from the north rampart workshops was just dumped over the curtain wall and down the slope to the north of the fort. When the north berm was excavated in 1984, it was evident that this area was indeed treated as a rubbish dump (Crow 1988, 65–7). No diagnostic metalworking debris was recorded, but only a relatively limited proportion of the berm was actually excavated.

The range and quantity of the metalworking debris from the north-east defences at Housesteads is unparalleled from Roman military sites in Britain and, in conjunction with the structural evidence, suggests that manufacture, rather than simply repair of equipment, was taking place there. Examination of the moulds indicates that the objects being made were belt buckles or suspension loops (cf Bishop and Coulston 1993, fig 40.2.b, 59.15, and especially 134.3).

The Housesteads evidence thus raises important questions regarding the extent and location of metalworking activities in Roman forts, and above all the way in which archaeologists have hitherto conceptualised such activities. It is conceivable that excavators have previously failed to find such abundant evidence for metalworking because they have been seeking a distinct building type, to which the title *fabrica* could be applied. In reality, it is evident that many different types of structure could satisfactorily perform the workshop functions implicit in that term, from simple open-fronted sheds set into ramparts (as in the north-east quarter here) or located in annexes, to buildings with dimensions equivalent to those of barrack blocks occupying standard building plots in the fort interior. A convincing example of the latter type is provided by Building IV at Housesteads, which fronted on to the *via decumana* in the *retentura*, and was labelled the 'Iron works' by Bosanquet because of the iron slag and burnt clay discovered within the building (1904, 241). The structure clearly accommodated iron smelting and working during its life, although the precise date and duration of this activity are uncertain. In contrast, very

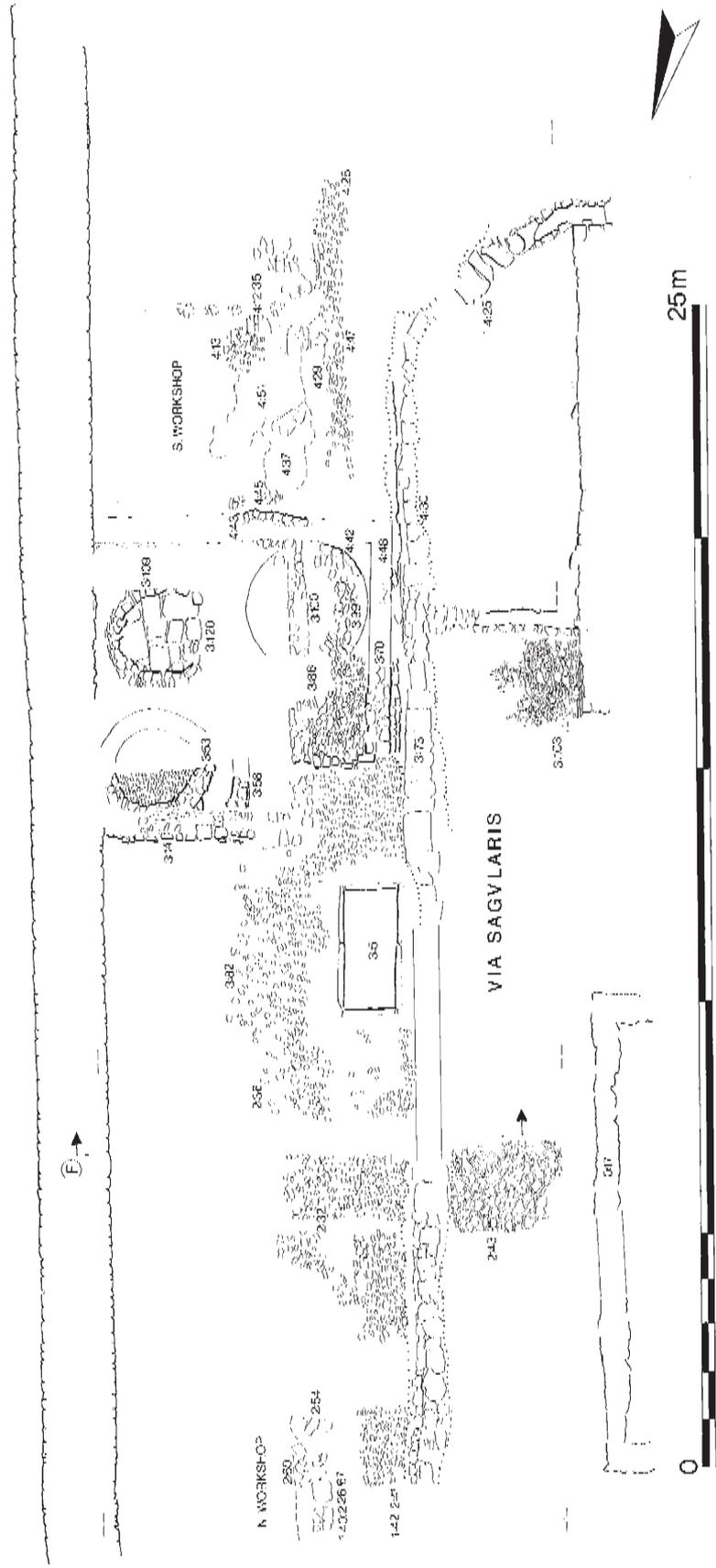


Fig 4.12 Plan of H21 Phase 2, showing later modifications to the bakehouse and workshops (scale: 1:150).

little evidence for iron smithing was found in the workshops of the north-east defences, where copper alloy working predominated instead. This may, tentatively, point towards the segregation of different metalworking activities.

Later modifications to the east defences

(Fig 4.12)

The east rampart bakehouse

At a later stage, but still prior to the reinstatement of the east rampart, the northern end of the bakehouse was reduced in size, while the remainder was extended westwards and southwards to produce an L-shaped building plan. Construction of the later interval tower, with its deep whinstone foundations, on the site of the bakehouse had removed the stratigraphic links between the two halves of that structure and prevented a conclusive interpretation of these events. Nevertheless a reasonably plausible sequence can be offered to explain the apparently contradictory developments within the bakehouse.

The north-west oven (H21:3:88) now went out of use and was largely demolished, its remains being covered by layers of sticky yellow clay (3:67), grey-brown clay (3:61, 3:64) and loose red-brown loamy soil (3:89), the grey-brown clay stretching as far as the north-east oven 3:53 and overlying that oven's outer facing stones. A north-south cross-wall (3:58), which probably represented the new west wall of the northern part of the bakehouse, was built over these levelling deposits (Fig 4.13). Three courses of this wall survived, the lowest course being formed by a single large squared block *c* 0.4m wide and 0.5m long. To the south the remains were cut by the whin foundations of the later interval tower. The superstructure of the now redundant west (3:15) and north (3:12) walls of the bakehouse, to the west of wall 3:58, was presumably dismantled at this stage and the area the walls enclosed fully levelled up by dumps of brown soil (3:62) and sticky yellowy-grey clay (3:59) – for the internal floor of the bakehouse was by this stage set below the external ground surface to the west. This reduction in area may be associated with the traces of restoration exhibited by the core and outer face of the building's north wall (3:14), east of the junction with wall 3:58, the very length that would have remained in use in this phase, whereas the stretch (3:12) west of the cross-wall displayed no such evidence. It is equally possible, however, that the rebuild of 3:14 should be attributed to Clayton who re-exposed the upper courses of the north face in the mid-19th century.

While the northern part of the bakehouse was reduced in area, the remainder was now extended westwards, marked by a new wall (3:70; 4:48), 0.6m thick and at least 2m long, and composed of dressed stones and some blocks of whin (Fig 4.14). The most substantial surviving stretch of this wall (3:70) lay 1.1m away from the former west wall of the bakehouse (3:15) and directly in front of the earlier entrance.



Fig 4.13 North side of the east bakehouse showing wall 3:58 reducing the area of the building.

A further fragment (4:48) was identified 1.4m to the south, suggesting the extension wall continued southward to a point opposite the former south-west corner of the bakehouse, before turning eastwards and running immediately to the south of the earlier bakehouse south wall (4:18). Here it survived as a 1.35m length of single-faced wall (4:43), 0.22m broad, standing three courses high and constructed of irregular free-stone blocks set in a construction trench (4:44). It had tipped slightly to the south. The space between the new facing and the old south wall (4:18) was filled by a packing of grey-yellow clay and stones (4:14). To the east the continuation of this wall as far as the fort curtain had clearly been sliced away when the rampart was dug out by Clayton, with only a spread of rubble (4:10) remaining. To the west it had probably been removed when the rampart revetment wall of Phase 3 was constructed. The position of one stone might imply that wall 4:43 turned northwards to abut the former south-west angle of the bakehouse, but this single stone may have been displaced later on when the rampart revetment of Phase 3 was cut through the line of the porch wall, partially robbing it away. The former west and south walls were presumably demolished down to their footings at this stage. The new entrance to the building faced north, reusing the former north revetment wall of the primary entrance passageway



Fig 4.14 East bakehouse showing the later extension wall 3:70/4:48 in the foreground, over the earlier revetment wall.

(3:87) as a sill for the doorway. The extension west wall overlay cobbling (3:105), which was superseded by a further layer of small cobbles (3:86) that respected the entrance sill and the extension wall (3:70) itself, passing through the old doorway into the bakehouse, where they overlay part of earlier wall 3:15.

The purpose of this westward and southward extension was probably to provide room for a further oven, possibly as a replacement for oven 3:88 to the north. At the building's former south-west corner, a single-faced arc of freestone blocks (4:42) was recognised and is most plausibly interpreted as part of the outer cladding of an oven platform. The makeup for this platform within and to the north of the arc, comprised freestone rubble packing (3:99) bonded with grey clay and a thick dump of mixed dirty clay (3:100), which were overlain by the same grey-yellow clay (3:45; 4:14) that formed the packing between the new south facing (4:43) of the bakehouse and the former south wall (4:18). The floor and superstructure of the oven would also have overlain the remains of the earlier west wall (3:15; 4:15) and were doubtless demolished and removed when the interval tower was erected during the next major construction episode. To the north, cobbling 3:86 was covered by an extensive layer of charcoal (3:83), which probably represented the rakings from the oven.

South extension wall 4:43 apparently respected or was respected by the northerly row of postholes (eg 4:45) associated with the adjacent workshop, suggesting that the remodelled bakehouse and the workshop were in use at the same time.

The *via sagularis*

A branch drain was added across the eastern *via sagularis* from Building XIV (H21:3:102), feeding into the main drain. At its eastern end, the component stones rested upon those of the main drain (3:73) while its cover slabs (3:131) were some 0.35m higher than those of the earlier drain. This new drain, which was two courses high, was first noted by Bosanquet (1904, plate XIX facing p 300) and then emptied by Wilkes (1961, 280). It was associated with *intervallum* road surface 3:118. This latter was composed of dark grey limestone cobbles which were clearly equivalent to the distinctive 'blue limestone' metalling recorded further north (2:48), on the east side of Building XIII, where it formed the fifth successive road level of the *via sagularis*. To the south of the drain, however, a surface comprising medium-sized sandstone cobbles (4:5/57), including five large stone blocks, was recorded, apparently at the same level. A significant quantity of metal-working debris, which presumably originally derived from the north workshop, was associated with cobbling 2:48 (see Chapters 11 and 20, and below).

A sixth level of metalling, comprising a mixture of well-set, large and small cobblestones (2:43), was added over the east *via sagularis*, before the two conventional barracks, XIII and XIV, were replaced by ranges of freestanding chalets. This sixth *intervallum* surface was probably equivalent to the large, worn sandstone cobbling (3:103) and medium-sized cobbling (4:56) identified further south and could also be related to the large cobbling recorded at the east end of

the street between the two barrack blocks (HSE:1:37), the lowest level to be investigated in that area (*see below*).

Finds

Later via sagularis road surfaces of H21 Phase 2

Copper alloy:

H21:2:48 183 Hollow conical stud head filled with lead caulking

H21:2:43 SF 9227, 9229 Copper alloy sheets

The east defences: dating evidence (Table 4.3)

The discovery of a post-hammerhead mortarium rim in a burnt deposit (2:44) associated with north workshop hearth 2:60 suggests that metalworking activity continued behind the eastern defences until at least the mid-3rd century, as noted above. The single sherd of residual samian ware found in contexts associated with the latest alterations to the bakehouse did not provide any useful guide to the date of that structure's remodelling. On relative chronological grounds, however, these modifications may be tentatively assigned to the mid- to late 3rd century. As regards a date for the end of this phase, a plain-rim dish in Crambeck fabric – with a date of emergence of *c* 270 – was found in association with the sixth *intervallum* road surface (3:103), the last to be associated with the workshop phase (*see* Chapter 6: Table 6.8 – H21/HSE road level concordance). This sixth *intervallum* surface clearly pre-dated the chalets as, in section (F2), further north, the equivalent level (2:43) was seen to be directly overlain by the secondary east wall of Building XIII (H13:0:6), which belonged to the very last phase of the conventional barrack (*see* Fig 3.5). More significantly, the evidence from the north rampart suggests that the workshops there remained in use into the later 3rd century, though reduced in extent. It is reasonable to suppose the eastern defences followed a similar chronological

pattern, especially as the subsequent refortification phase (H21/3 equivalent to H20/4a) displayed matching characteristics in both stretches and shows every sign of forming a single episode.

Remodelling of the north defences (Fig 4.15)

Partial reinstatement of the north rampart (Phase H20/3b)

The north rampart underwent further modification when the rampart was partially reinstated, eliminating Workshop 2 and the adjacent open area (1), with its *ascensus*, and reducing the length of Workshop 4. In the western part of this sector, the new rampart was retained by a revetment wall (Wall B) 4m south of the curtain (H20:8:24; 9:15) and turning north (8:13) across Workshop 4 to join the fort wall. Only one course of the east–west wall survived and it was damaged by later robber trenches (8:45; 9:24), whereas five courses of the north–south wall were found, bonded by grey clay and adjacent to new rampart material (8:23; 8:63). More rampart material, a hard layer of sand and grit (9:10), was associated with wall 9:15. The construction trench (9:37) for the later revetment wall (9:11) at the west end of the rampart cut this rampart bank, implying that this turn of the rampart was later than Revetment Wall B.

In the eastern half of the north defences, the workshop surfaces were covered by a layer of rubble (5:43; 6:53) and a whin pack (5:41; 6:64) which filled the depression on the south side of the expansion wall, possibly caused by the subsidence of the latter. The rubble may derive from the demolition of Workshop 2 and the expansion wall, which was partially dismantled and replaced by a bank (3:4; 4:3; 5:9; 6:9) of uniform, hard-packed, yellow-grey clay with some large stones (including facing stones). The bank was vertical in section on its south side, where small fragments of tile were found included in the clay. Its north side had largely been removed by robbing and modern

Table 4.3 Pottery assemblages associated with the later modifications to the 3rd-century east defences

<i>context</i>	<i>description</i>	<i>CW form</i>	<i>FVN</i>	<i>TPQ</i>	<i>samian (latest)</i>	<i>date</i>
H21/2f	bakehouse remodelling					
H21:3:84	cobbled patch				CG LZ dish r	H/A
H21/2e	later cobbling ov the rampart area					
H21:3:80	cobbles W of/ov bakehouse W wall	FL 17.0	1638	–		
	N workshop demolition					
H21:2:41	rubble layer	BO 27.0	2432	M–L2C		
H21/2r	later via sagularis surfaces					
H21:2:48	5th road surface (“blue limestone”)				CG LZ 33	ANT
H21:2:43	6th road surface				CG LZ 30 or 37	ANT
					CG LZ 33	ANT
H21:3:103	(as above)	Crambeck plain r di	–	L3C+	CG LZ dish	MLA
H21:3:117	makeup for 3:103	BB2 delta r di	–	160–220	CG LZ Curle 21	150–200
H21:3:121	makeup u 3:103	BO 86.0	1629	L2C+		

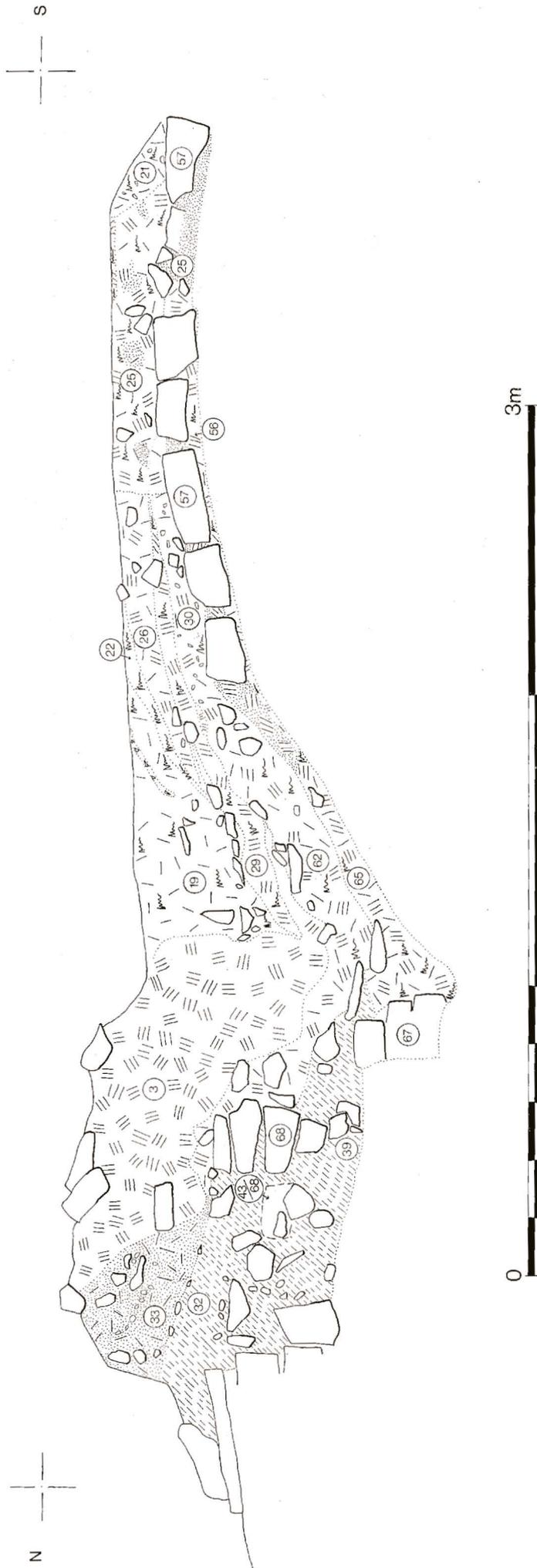


Fig 4.16 Section C showing reinstated rampart levels in H20:4 (scale 1:20).

consolidation of the fort wall, but it was clear that it had covered the remains of the expansion wall and butted against the south face of the curtain. This bank was found to survive up to a width of 1.1m.

A rampart bank of more typical composition was laid against the rear (south face) of the clay bank, over the former Workshop 2 and the *ascensus* area, and contained by another new revetment wall (C). This wall (3:23 = 4:52; 4:27; 4:51; 5:38) had suffered from later robbing (at its western end, only the robber trench 6:20–1 remained where the return wall should have been), and only one course survived. Passing eastwards from the easternmost wall of Workshop 3, the wall ran the length of Workshop 2 and Area 1, as far as the western side of the bakehouse. There it turned north and, standing on the bottom two courses of the demolished bakehouse wall (3:24), it butted up against the remains of the expansion wall, which was now neatly squared off at this point (Fig 4.15). The return of Wall C thus continued to define the area immediately west of the angle tower as a bakehouse.

A range of rampart levels were held behind Revetment Wall C (Fig 4.16), including a compact layer of orangey-brown material with charcoal and small stones (3:19; 4:19; 5:31; 6:23); an intermittent lens of charcoal with dark grey clay (4:22; 4:34; 5:32; 6:31); orangey-brown material with few stones (4:26; 4:35; 5:36; 6:48); a thick charcoal layer with flecks of grey and yellow clay (4:29; 4:36; 4:45; 5:37); and mixed clay material in the eastern part of the rampart (4:44; 4:46), 4:46 filling in a deep cut or slope behind the turn of Wall C. There were evidently three continuous layers of rampart material behind Wall C, cut on the south side by the robber trench for that wall.

The bakehouse and remaining workshops

In the remodelled bakehouse the earlier oven was now demolished and a new oven (3:32) erected over its remains. The new oven was positioned slightly further to the south than its predecessor. The base of oven 3:32 was at the same level as the base of the north–south revetment wall (3:23), the gap between the two being covered by a mixed deposit of charcoal and soil which overlay the remains of the workshop wall (3:24) and the earlier oven.

Workshops 3 and 4 also continued in use, although Workshop 4 was truncated by the new rampart. The flagged floor of the latter appears to have continued in use and drain 8:25 was found to contain a complete BB1 cooking pot with obtuse angle cross-hatching topped by a scored line, and evidence of repair using a lead rivet (JA 67 – FV 1386; *see* Chapter 16, Figs 16.13–14). A secondary phase of activity may be represented by a dumped mound of clay (7:28; 8:28), in the eastern half of the workshop, covering the stone hearth (8:59) and part of the north–south drain (8:26). The composition of this layer resembled the clay rampart dump (8:6) behind Revetment Wall D (*see below*).

In Workshop 3, the flagged floor (6:46; 7:68) was covered by a layer of mixed occupation debris, comprising grey-brown clay, stone, charcoal and bone (6:45; 7:64), probably a makeup level for the final floor surface of the workshop (*see* Fig 4.1: Section B). This floor consisted of orange-grey clay (6:44; 7:60), 0.03m to 0.05m thick, reddened with patches of charcoal. These layers were cut to the north by the construction trench for the later interval tower.

Interpretation: the clay bank (H20/3c)

The clay bank (3:4; 4:3; 5:9; 6:9) is a puzzling feature. It was termed Phase H20/3c in the initial structural phasing, although later recognised as simply a component of the rampart reinstatement (H20/3b). The cleanness, uniformity and hard-packed nature of the clay suggests that it was puddled and hence that some care was taken to obtain and prepare the material, presumably with a precise structural purpose in mind. Only a couple of pottery sherds were found within the entire deposit, both relatively early in date. Its vertical southern face suggests it must have been retained by some kind of shuttering when it was constructed, although the rampart layers which abut its southern edge were observed to merge into it, perhaps indicating that the shuttering was removed when the rampart levels were deposited. The clay cannot have been inserted into the reinstated rampart after the latter had been laid because a thin smear of the same kind of yellow-grey clay extends southward from the base of the bank (4:50; 5:39; 6:49) directly over the rubble spread and beneath the mixed clay and charcoal layers of the rampart. This smear presumably represents a thin layer of the clay trampled in when the bank was erected, demonstrating that its construction preceded the laying of the other rampart levels. The clay was perhaps intended to support a rampart walk forming a wider fighting platform behind the parapet as the hard-packed, puddled clay would provide more solid support than the ordinary, less compact rampart levels. If so, it is unclear why the expansion wall could not simply have been left standing to serve that purpose, unless the wall's structural integrity had already been compromised by subsidence owing to compression of the primary rampart levels upon which it was set.

Widening of the reinstated north rampart (H20/3d)

Revetment Wall B was superseded by Wall D. The north–south aligned revetment (8:13), marking the west end of Workshop 4, was extended by another wall (8:52) which butted against it, bringing the rampart in this sector (8:6; 8:22) 0.8m further south (*see* Fig 2.2: Section E). The new south revetment wall (8:49; 9:51) was bonded with 8:52. Like the wall it replaced, this revetment did not continue all the way west to butt up against the east guardtower of the north gate. Instead it turned round and headed obliquely north-eastwards



Fig 4.17 Rampart revetment walls C and F and the rubble base in Areas H20:4–6, viewed from the north.

towards the north curtain, as wall 9:11. Much of the surviving fabric of this wall probably represents later rebuilding, but the footings, which were composed of a single face of small sandstone blocks set in a wide construction trench (9:37), clearly belong to this phase. The construction trench cut the rampart bank of the previous phase (H20/3b), indicating that this turn of the rampart was later than revetment Wall B, and it was packed with cobbles set in sticky grey clay (9:38). This fill was scarcely distinguishable from the unworn cobble layer (9:35) deposited immediately to the west in the angle between the curtain wall and the east guardchamber of the north gate, where it covered the surviving pocket of primary rampart bank. The cobbles and clay probably represented makeup for a metalled surface, only a small worn patch of which survived (9:33). The cobbling sloped up towards the curtain and may have formed some kind of ramp giving access to the top of the curtain.

The rampart to the east of the two remaining workshops was similarly widened at this stage and revetted by Wall F (4:14; 4:15; 4:42; 5:23; 6:24) (Fig 4.17). The width of the bank here (*c* 5m) was similar to that on the west side of the workshops and was made up of a loose grey, clayey loam with charcoal, clay and stone inclusions (4:21; 4:25; 5:29; 6:29). This material filled the robber trenches where lengths of the earlier wall, C, had been removed and was contained to the south by Wall F. The line of the north–south revetment was extended southward to join the new wall. Only a single course of this north–south extension wall survived *in situ*, set on the west face of the earlier workshop wall (6:43), while the adjoining stretch of the southern revetment still stood up to nine courses high (6:24), the upper stones being quite small (0.15m square). To the east, the southern revetment was less well preserved once more, with only three courses remaining (5:23), but these were larger stones (0.3m square). It was in better

condition to the east of this (4:15), with up to six courses (*c* 0.7m if upright) remaining, but this wall had toppled to the north. Only a single course (4:42) was found immediately to the west of the water tank. It turned north (4:14) to butt against the earlier Wall C (4:27).

Interpretation

The revetment wall at the west end of Workshop 4 (8:13; 8:52) was well preserved and the structural sequence here was correspondingly clear. In contrast, the surviving remains of the north–south revetment wall, which formed the eastern limit of Workshop 3 and linked the western ends of Walls F and C, were much less substantial. Consequently, the history of the rampart in this area was more difficult to interpret. The north–south revetment was not recognised as such by the excavators and, as a result, Revetment Wall F and associated rampart deposits (4:1; 4:21; 4:25; 5:1; 5:29; 6:4) were assigned to the subsequent phase (H20/4a), rather than Phase H20/3d, as proposed here. However, it is inherently likely that both halves of the rampart were treated similarly.

Finds

H20/3b rampart deposits

Coin:

H20:8:63 1 Republican BC–

Copper alloy:

H20:4:30? 298 Several fragments of curved plate. Offcuts
 H20:5:40 242 Fragment of a circular-sectioned rod
 H20:8:63 22 Disc brooch with a central nipped umbate boss (Fig 14.3)
 146 Circular plate with a central lathe chuck mark (Fig 14.12)
 260 Fragment of a rectangular plate
 262 Fragment of a plate
 H20:4:22 210 Incomplete domed casing with a rounded edge

Table 4.4 Samian assemblage associated with the partial reinstatement of the north rampart (Phase H20/3b)

<i>context</i>	<i>form</i>	<i>origin</i>	<i>kiln</i>	<i>date</i>	<i>comments</i>
H20:3:19	30 or 37	CG	LZ	ANT	
	30 or 37	CG	LZ	ANT	
H20:3:34	33	CG	LZ	ANT	slightly burnt
	38 or 44	CG	LZ	ANT	
H20:3:46	37	CG	LZ	160–90	D9: Style of Advocisus
H20:4:19	33	EG	RH	L2M3	
	38	EG	RH	L2M3	2 sh, with 20:4:21.
	46	EG	RH	L2M3	rim as on Curle 23
H20:4:22	37	CG	LZ	160–95	D15: Style of Paternus v group
H20:4:26	31	EG	RH	L2M3	
H20:4:29	31	EG	RH	L2M3	2 sh
H20:4:30	31	CG	LZ	ANT	
	31	CG	LZ	ANT	
H20:4:35	31	EG	RH	L2M3	
H20:4:44	37	CG	LZ	160–95	D18: Style of Paternus v ^a
	33	EG	RH	160–90	St22: Suadullius
H20:4:62	18/31R	CG	LZ	EMA	
H20:4:63	33	CG	LZ	ANT	
H20:5:31	38	EG	RH	L2M3	
H20:5:32	31R	CG	LZ	MLA	
H20:5:36	30 or 37	EG	RH	L2M3	
	33	EG	RH	L2M3	
H20:5:40	37	CG	LZ	H/A	
	Curle 15 or 23	CG	LZ	H/A	2 sh
	–	CG	LZ	H/A	
	–	CG	LZ	H/A	
H20:5:43	31R	CG	LZ	MLA	
H20:5:56	–	CG	LZ	H/A	
H20:5:58	dish or bowl	CG	LZ	ANT	
H20:6:20	–	CG	LZ	H/A	
H20:6:21	31R	CG	LZ	MLA	
H20:6:44	dish or bowl	EG	LM	HANT	
H20:6:48	31	CG	LZ	MANT	
H20:6:51	30 or 37	CG	LZ	H/A	
H20:6:64	37	CG	LZ	150–80	Style of Cinnamus ii
H20:7:64	37	EG	RH	L2M3	
	–	EG	RH	L2M3	5 sh
H20:8:23	40	CG	LZ	MLA	
H20:8:63	33	EG	RH?	L2M3	
H20:8:66	33	EG	RH	L2M3	
H20:9:45	37	CG	LZ	MLA	Style of Casurius ii?
H20:9:46	38 or 44	CG	LZ	ANT	
H20:9:49	37	CG	LZ	160–90	D12: Style of Casurius ii

only latest material in each context listed

D12 etc = D(ecorated vessel No.) 12, *see* Chapter 15 for full description

^a with 20:4:19, 55 & 5:36 (10 sh)

H20:4:29	254	Incomplete triangular block		244	Slightly tapering rectangular-sectioned rod
H20:5:31	82	Dumb-bell button (Fig 14.9)			
H20:5:32	77	Pointed end of a circular-sectioned pin or needle	H20:9:45	SF	Copper alloy sheet
				8434	
H20:5:36	97	Narrow plain belt tag with a rectangular head (Fig 14.9)	Ironwork:		
			H20:4:22	359	Roughly rectangular bar (Fig 14.19)
H20:5:36	199	Small tack	H20:4:29	375	Strip
H20:5:36	SF	Copper alloy sheet	H20:5:36	318	Blade of a large spearhead
	6921		Lead:		
H20:5:37	274	Irregular strip	H20:8:63	384	Fragment of lead strip with hole
H20:6:48	171	Stud with a conical head decorated by radiating grooves	Bone:		
H20:8:23	10	Fragment of the hollow faceted bow from a knee brooch	H20:9:10	419	Long bone whittled to rough rod (Stage 1 of bone pin)

Table 4.5 Coarseware assemblage associated with the partial reinstatement of the north rampart (Phase H20/3b)

<i>context</i>	<i>reinstated N rampart</i>	<i>formcode</i>	<i>FVN</i>	<i>TPQ</i>
H20:4:3	(H20/3c) clay bank	JA 60.0	2179	L1–M2C
H20:6:9	(as 4:3)	–	1097	M2C
H20:5:43	rubble base of rampart	JA 61.0	1493	M2–E3C
		JA 56.0	1494	M2–M3C
		BO 85.0	1492	E3C
H20:5:40	matrix of whin pack 5:41	JA 15.0	1471	
		M 35.0	1495	170–200
H20:3:23	Revetment Wall C	BO 23.0	2312	E–M2C
	rampart dumps (E)			
H20:3:19	orange/brown layer	BO 23.0	2308	E–M2C
H20:4:19	(as 3:19)	JA 55.0	2422	M2–M3C
		M Stamp 2: Sarrius	–	135–70
H20:5:31	(as 3:19)	BB2 rnd r bo	–	L2–E3C
		BB2 lg rnd r bo	–	L2–M3C
		BB2 sm rnd r bo	–	L2–E3C
		JA 128.0	1228	2–3C
		M 3.0	1222	110–60
		M 5.0	1220	140–80
		BO 39.0	1227	c 160+
		JA 83.0	1223	M–L2C
		BK 19.0	1221	2/2 2C–E3C
		BO 84.0	1225	E3C
		JA 76.0	1226	E3C
		JA 103.0	1224	E3C+
		H20:6:23	(as 3:19)	BO 39.0
BO 39.0	1153			c 160+
M 7.0	1150			160–200
JA 81.0	1151			L2–E3C
JA 104.0	1155			E3C+
JA 100.0	1154			c 250+
H20:4:22	charcoal & clay lens	JA 40.0	1185	
		JA 85.0	1180	E–M2C
		BO 39.0	1184	c 160+
		BO 29.0	1188	M–L2C
		BO 25.0	1183	M–L2C
		JA 80.0	1186	M–L2C (?)
		JA 105.0	1187	E3C+
		JA 16.0	1181	E3C
		JA 16.0	1182	E3C
		H20:5:32	(as 4:22)	BB2 sm rnd r bo
M 3.0	1434			110–60
BO 29.0	1486			M–L2C
H20:4:26	orangey-brown layer	M 34.0	1147	3–4C(?)
H20:4:35	(as 4:26)	BO 91.0	1178	c 140+
		BO 39.0	1179	c 160+
H20:5:36	(as 4:26)	JA 55.0	1177	M2–M3C
		BB2 bo	–	M2C
		JA 85.0	1236	E–M2C
		JA 85.0	1240	E–M2C
		BO 44.0	1235	c 140+
		BO 43.0	1238	c 140+
		M 10.0	1230	150–200(?)
		M 29.0	1231	150–250
		BO 39.0	1234	c 160+
		M 7.0 + St 3: RBIVSII	1233	160–200
		BO 29.0	1237	M–L2C
		JA 84.0	1239	M–L2C
		BK 25.0	1232	3C
		BO 85.0	1242	E3C
		JA 47.0	1241	M–L3C

Table 4.5 (Cont'd)

<i>context</i>	<i>reinstated N rampart</i>	<i>formcode</i>	<i>FVN</i>	<i>TPQ</i>
H20:6:48	(as 4:26)	BO 38.0	1107	c 140+
		BO 40.0	1105	c 160+
		JA 55.0	1106	M2-M3C
H20:4:29	thick charcoal layer	BB1 incip flan bo	–	L2C+
		M 2.0	1195	120-60
		BO 23.0	1201	E-M2C
		BO 91.0	1200	c 140+
		BO 30.0	1198	c 140+
		JA 83.0	1199	M-L2C
H20:5:37	(as 4:29)	M 14.0	1229	130-80
H20:4:44	mixed clay layer	JA 54.0	1167	
		BO 23.0	1165	E-M2C
		BO 42.0	1164	c 140+
		BO 42.0	1162	c 140+
		BO 25.0	1163	M-L2C
		JA 61.0	1168	M2-E3C
		JA 55.0	1169	M2-M3C
		JA 16.0	1166	E3C
		M Stamp 1: Sennius	–	150-70
H20:3:46	loam till next to expansion wall	BO 32.0	2318	c 140+
H20:4:62	clay loam ov expansion wall	BO 42.0	1194	c 140+
		JA 83.0	1193	M-L2C
H20:4:63	(as 4:62)	JA 57.0	1173	L1-M2C
		JA 132.0	1172	2-3C
		BO 23.0	1174	E-M2C
		BO 36.0	1171	c 140+
		BO 25.0	1170	M-L2C
H20:6:51	sandy layer ov rubble 6:53	M Stamp 5: Iunius	1108	140-70
	rampart dumps (W)			
H20:8:23	sand & grit layer	BB2 sm rnd r bo	–	L2-E3C
		BO 132.0	1520	
		BO 42.0	1524	c 140+
		BO 39.0	1523	c 160+
		JA 83.0	1521	M-L2C
		JA 55.0	1522	M2-M3C
H20:9:10	(as 8:23)	M 3.0	1434	110-60
		BO 39.0	1436	c 160+
		BO 40.0	1435	c 160+
		BO 40.0	1649	c 160+
H20:8:44	silty soil layer	BO 132.0	1508	
		BO 31.0	1506	c 140+
		BO 19.0	1507	M-L2C
H20:8:63	red-brown rampart layer	BO 32.0	1533	c 140+
		BO 32.0	1532	c 140+
		JA 58.0	1526	L1-M2C
		JA 58.0	1552	L1-M2C
		BO 40.0	1530	c 160+
		BO 39.0	1525	c 160+
		BO 37.0	1531	c 160+(?)
		JA 84.0	1527	M-L2C
		JA 55.0	1529	M2-M3C
		JA 55.0	1528	M2-M3C
H20:8:66	grey-brown layer	m hm hh with painted dec	–	3-4C
H20:9:45	compact sandy rampart layer	BO 39.0	1451	c 160+
		JA 55.0	1449	M2-M3C
		BO 85.0	1450	E3C
	latest workshop levels			
H20:7:60	Workshop 3 final floor	1 frag Mosel bk	–	L2-E3C
H20:7:64	makeup for floor 7:60	JA 125.0	1348	2-3C
		JA 45.0	1346	M-L3C
		BO 90.0	1350	L3C
		BO 5.0	1347	L3C+

Table 4.6 Pottery assemblages associated with the widening of west end of rampart (Phase H20/3d W)

<i>context</i>	<i>CW form</i>	<i>FVN</i>	<i>TPQ</i>	<i>samian (latest)</i>	<i>date</i>
H20:8:6 clay rampart layer	BO 92.0	1416	c 140+	CG LZ 45 (2)	170–200
H20:8:22 fill of Revetment Wall B robber trench 8:45	BO 19.0	1549	M–L2C	EG RH 37	L2–M3
	BO 29.0	1548	M–L2C	CG LZ 37 style of Do(v)eccus i	165–200
	BO 37.0	1550	c 160+(?)		
	BO 39.0	369	c 160+		
	BO 86.0	370	L2C+		
	BO 86.0	371	L2C+		
	JA 20.0	1540			
	JA 55.0	1537	M2–M3C		
	JA 55.0	1545	M2–M3C		
	JA 61.0	1541	M2–E3C		
	JA 81.0	1544	L2–E3C		
	JA 82.0	1539	L2C		
	JA 83.0	1538	M–L2C		
	JA 83.0	372	M–L2C		
	JA 83.0	1546	M–L2C		
	JA 83.0	1542	M–L2C		
	JA 85.0	368	E–M2C		
	JA 16.0	1543	E3C		
	BO 58.0	1547	c 270+		
	BB2 sm rnd r bo	–	L2–E3C		
	BB1 plain r di	–	M2–L3C		
	m hm C2	–	M–L2C		
	BB2 delta r bo	–	M2–E3C		
H20:9:9 (as 8:22)	BO 50.0	1652	c 200+	CG LZ 79R	LANT
	BO 53.0	1468	c 200+		
	JA 102.0	1459	E3C+		
	JA 129.0	1465	2–3C		
	JA 63.0	1461	E3C+		
	BO 50.0	1467	c 200+		
	BO 39.0	1651	c 160+		
	BO 44.0	1466	c 140+		
	M 29.0	1458	150–250		
	JA 97.0	1460	E–M2C		
	JA 103.0	1462	E3C+		
	BO 21.0	1464	M–L2C		
	BO 86.0	1463	L2C+		
	JA 129.0	1650	2–3C		
	BB1 plain r di (2)	–	M2–L3C		
	BB2 rnd r bo	–	L2–M3C		
	gr wa plain ri di	–	L2C		
	ca gt j	–	3–4C		
	BB2 sm rnd r di	–	L2–E3C		
	BB2 lg rnd r di	–	L2–M3C		
H20:9:35 makeup for cobbled surfaces W of rampart	ca gt j (2)	–	3–4C	CG LZ 37	ANT

Ceramic:

H20:4:63? 591 Disc of Central Gaulish samian

H20:6:48 583 Roughly cut, perforated disc of Central Gaulish samian

Stone:

H20:5:32 701–2 Possible sling-stones

H20:6:50 704 Possible sling-stone

Samian:

Stamps St10, St15, St22; H20:5:36, 4:44, 4:62

Decorated vessels D9, 11–13, 15–18 – forms CG LZ 30, 37;

c 160–95 (Fig 15.1); H20:3:46, 4:29, 9:49, 5:36 + 8:63, 4:22, 4:35, 8:63, 4:19 + 4:44 + 4:55 + 5:36.

Glass vessels:

H20:6:23/48 16 Base of blue-green glass, reused as gaming piece/counter (Fig 17.1)

Graffiti (Fig 18.1):

H20:4:19 15 Sherd of a BB2 bowl (late 2nd/early 3rd century): PAIATIVS

17 Wall sherd of a grey ware jar: S E[...]

Table 4.7 Pottery assemblage from the widening of the eastern stretch of the north rampart (H20/3d E)

<i>context</i>	<i>CW formcode</i>	<i>FVN</i>	<i>TPQ</i>	<i>samian (latest)</i>	<i>date</i>
H20:4:21 Wall C robber trench	JA 54.0	1191		EG RH 30 or 37	L2M3
	JA 55.0	2425	M2–M3C	EG RH 31 St4: Hibernalis	L2E3
	JA 55.0	2426	M2–M3C	EG RH 31	L2M3
	JA 55.0	2423	M2–M3C	CG LZ 37 ^c St12: Mercator iv	160–90
	JA 81.0	1189	L2–E3C	EG RH 38	L2M3
	BK 25.0	1190	3C		
	JA 55.0	2424	M2–M3C		
	FL 16.0	1192			
H20:5:29 (as 4:21)	BB2 triang r bo	–	M2C+		
	BO 93.0	1247	c 270+	EG RH –	L2M3
	BO 29.0	1245	M–L2C	St21: Sedatianus	160–200
	JA 93.0	1246	E–M2C		
	BB1 plain r di	–	M2–L3C		
H20:4:13 Wall F foundation trench	BB2 sm rnd r bo	–	L2–E3C		
	JA 104.0	1131	E3C+	EG RH 30 or 37	L2M3
	JA 81.0	1132	L2–E3C	EG RH 31R	L2M3
	BO 141.0	1130		EG RH 37	L2M3
	BK 21.0	1136	L2–E3C		
	BO 42.0	1135	c 140+		
	JA 16.0	1134	E3C		
	JA 103.0	1133	E3C+		
	BO 84.0	1129	E3C		
BB2 triang r bo	–	M2C+			
H20:4:23 Wall F foundation trench				CG LZ 31	L2M3
H20:5:30 (as 4:23)	BK 20.0	1478	L2–E3C	EG RH 38	L2M3

Environmental sample:

H20:5:37 Charcoal layer

H20/3d rampart extension deposits**Stonework:**

H20:9:11 5 Sculptured stone
H20:4:15 6 Rectangular stone block. Partial figure in relief in centre of front (Fig 12.2)

Coin:

H20:5:30 101 Commodus 187–8

Silver:

H20:9:9 6 Fragment repoussé-decorated plate (Fig 14.1)

Copper alloy:

H20:4:21 225 Fragment of a wire ring of oval section
H20:4:21 234 Heavily tinned hook of circular section
H20:6:19 37 Oval annular ring of D-section. Finger ring or loop from a mount (Fig 14.4)
H20:6:19 43 Very small bracelet (Fig 14.4)
H20:8:22 74 Long conical terminal (Fig 14.8)
H20:8:53 258 Fragment of a rectangular plate
H20:9:9 241 Fragment of a circular-sectioned rod with a pointed end

Ironwork:

H20:4:13 372 Curved strip

Ceramic:

H20:4:13 575 Disc of grey ware. BB1?
579 Disc of Central Gaulish samian with dimple drilled in one face
584 Roughly cut disc of Central Gaulish samian
H20:9:9 551 Samian disc with an off-centre circular hole

Stone:

H20:4:21 680 End cut obliquely from a whinstone hone

Samian:

H20:4:13 St28 Incomplete unidentified stamp

Glass vessels:

H20:4:13 46 Base fragment, probable cup, clear colourless glass (Fig 17.2)

Graffiti:

H20:4:13 4 Base sherd of a Drag 18/31 R: [...]ATI
H20:4:21 9 Base sherd of a Drag 18/31 R (?), on the wall: [...]VIII
H20:9:9 2 Wall sherd: R[...] (Fig 19.1)

Worked flint:

H20:9:9 14 High-quality grey flint, possible rejuvenation flake

Dating evidence (Tables 4.4–4.7)

The latest coarseware in the rampart deposits associated with Phase H20/3b–c provides a *terminus post quem* of c 250 for the partial reinstatement of the rampart. The subsequent widening of the western half of that rampart (H20/3d) can be dated to some time after c 270, again on the basis of coarseware in the rampart dumps. However, the sherds that supply these dates form a tiny proportion of the total coarseware assemblages found in the layers. Thus the bulk of the very large number of coarseware vessels in the Phase H20/3b rampart layers could be dated as early as the

mid- to late 2nd century, but there is a significant group introduced in the early 3rd century or later. Only two vessels (FV 1154, 1241; Forms JA 100, JA 47) provide the later *terminus post quem* noted above. The 3rd-century group is listed below.

<i>H20/3b context</i>	<i>formcode</i>	<i>FVN</i>	<i>TPQ</i>
H20:5:36	BK 25.0	1232	3C
H20:4:26	M 34.0	1147	3-4C(?)
H20:8:66	m hm hh with painted dec	-	3-4C
H20:5:31	BO 84.0	1225	E3C
H20:5:36	BO 85.0	1242	E3C
H20:5:43	BO 85.0	1492	E3C
H20:9:45	BO 85.0	1450	E3C
H20:4:22	JA 16.0	1181	E3C
H20:4:22	JA 16.0	1182	E3C
H20:4:44	JA 16.0	1166	E3C
H20:5:31	JA 76.0	1226	E3C
H20:5:31	JA 103.0	1224	E3C+
H20:6:23	JA 104.0	1155	E3C+
H20:4:22	JA 105.0	1187	E3C+
H20:6:23	JA 100.0	1154	c 250+
H20:5:36	JA 47.0	1241	M-L3C

Similarly, the date of c 270+ for the widening of the western stretch of the rampart (H20/3d – Revetment Wall D) is provided by only a single vessel, a truncated, conical Crambeck bowl (BO 58 (8:22)). The deposits associated with Revetment Wall F in the eastern part of the rampart, likewise yielded a single example of a Crambeck plain rim dish (BO 93 (5:29)), which first appeared on the northern frontier c 270+. Both assemblages contained a fair number of forms that first emerged in the 3rd century (including BK 25, BO 50, 53, 84, JA 16, 63, 102, 103 104).

Given the number of recognisable 3rd-century forms in the group listed above, it is evident that the north rampart cannot have been partially reinstated before the early decades of that century and that, by its very nature, the widening of the western stretch must follow on from that. However, the significance of the two mid-3rd-century vessels present and the late 3rd-century examples in H20/3d is more difficult to evaluate. In view of the fact that they form such a small proportion of the whole assemblages and that the deposits of this phase are not sealed from the later rampart layers, it is conceivable that all four are intrusive sherds. To address this issue it is important to consider the origin of the rampart deposits and hence the coarseware itself.

Discussion: the rampart deposits

It is clear that the material to rebuild the ramparts could not have been found within the fort itself. Large volumes of earth were required, still more so as the same activity may well have been underway on other stretches of the defences. The fort interior was already largely built up and the soils on the hilltop were in any case relatively thin. The material for the ramparts must have been excavated outside the fort and then brought

within its walls. Its source is unclear. A large scoop is evident in one of the terraces north of the wall (*see* Fig 10.7), but there is no means of knowing whether this was the source of the rampart material. Indeed, since the character of the deposits within each phase of rampart differed and the defences were reinstated in several stages (with work continuing beyond the phases under consideration here and expanding to include the east rampart), it is quite possible that there was more than one source for the material.

It is worth noting that much the same process must have been carried out, in reverse, when the primary rampart was removed to make way for the workshops, around the beginning of the 3rd century. Again, these primary rampart deposits would have represented a very substantial quantity of earth which must have been dumped somewhere beyond the fort walls. There is no evidence to identify where exactly this material was deposited. Certainly there is no indication in the form of surviving earthworks that the earth was simply piled in mounds outside the fort, though this might conceivably have been its initial fate before it found some other use and was cleared away. One attractive possibility is that it was used to construct the agricultural terraces south of the fort. However, it is not utterly inconceivable that some of this material was eventually brought back inside the fort when the garrison began to reinstate the ramparts a generation or two later.

The new rampart deposits were very different in character from the surviving layers of the primary defences. The latter were clean and contained little pottery, whereas the secondary deposits were much more mixed and, therefore, probably redeposited even before they were incorporated in the north rampart. An exception was the clay packed along the inner face of the curtain (H20/3c), which was homogeneous, contained very little pottery, all of it early, and probably, therefore, derived from a relatively uncontaminated source and/or had been extensively processed by puddling.

The clay bank apart, the rampart deposits included substantial pottery and finds assemblages, as highlighted above. Two possible mechanisms may be envisaged that could explain how these assemblages came to be incorporated in the rampart levels: they might represent debris from the fort or *vicus* already incorporated in the material when it was excavated or the pottery sherds and other finds may have been deposited in the rampart during construction, as part of a process of rubbish disposal, perhaps opportunistically pursued by soldiers of the garrison. The excavators commented on the substantial size of many of the pottery fragments contained therein and noted that they did not appear to be greatly abraded or weathered from exposure in ploughsoil. Accordingly, the sherds were not considered to be residual, their initial deposition being judged, by implication at least, to be contemporary with the reinstatement of the rampart. There are significant grounds for doubting the validity of this earlier judgement, however.

As its constituent deposits were being laid down, the rampart may well have represented a convenient dumping ground for all manner of rubbish generated by the garrison. Nevertheless, it is open to question whether all the pottery came to be incorporated in the rampart during the relatively short periods that each phase of the earthen banks was under construction. As noted above, the composition and appearance of the various clay and soil layers point to a history of redeposition prior to their incorporation in the reinstated rampart. Hence, the pottery and other finds assemblages contained within these rampart layers may reflect the activity of the military community in the fort or *vicus* over a longer period than the construction event itself. This conclusion is supported by the more tightly dateable categories of finds such as the coins, the stamped mortaria and the samian ware. Thus the H20/3b and H20/3d layers produced a slightly worn coin of Commodus (No. 101), dated to 187–8, and a Republican coin (No. 1), long in circulation, while deposits (H20:4:16, 5:28) which had probably either slumped from or been washed off the H20/3d bank at a later stage, but essentially consisted of the same material, contained two Severan copies (Nos 107–8), dated to 195–6+ and 197–8+ (*see* Chapter 5). The rampart layers contained substantial assemblages of 2nd-century samian and it is inherently probable that much of the coarseware was also produced during that period, though, as with the samian ware, some (perhaps a higher proportion) may have been 3rd century in date. It is impossible to determine with any certainty what proportion of the pottery was already incorporated in the clay and soil before that material was brought into the fort and what was newly introduced during the actual construction process, but two other, much smaller, assemblages should be noted, which shed some light on the problem.

Firstly, the presence of a small but important coarseware group from the makeup for the final floor in Workshop 3 (7:64) makes it clear that the two surviving workshops (3 and 4) continued in use into the late 3rd century, before the central section of the rampart was finally constructed, together with a new interval tower, in Phase H20/4a. This final period of occupation in the workshops was presumably broadly contemporary with the widening of the rampart in Phase H20/3d. It is noteworthy that the coarseware group contained a much higher proportion of mid- or late 3rd-century vessel types than the rampart assemblages, including a plain-rim dish in BB1 (BO 90), a wide-mouth bowl or jar in East Yorkshire Grey ware (BO 5) and an everted-rim beaker probably from Yorkshire (JA 45):

<i>context</i>	<i>formcode</i>	<i>FVN</i>	<i>TPQ</i>
H20:7:64	JA 125.0	1348	2–3C
H20:7:64	JA 45.0	1346	M–L3C
H20:7:64	BO 90.0	1350	L3C
H20:7:64	BO 5.0	1347	L3C+

Similarly, the cobble and clay makeup (9:35) for the metalled surfaces laid immediately to the west of the widened rampart, in Phase H20/3d, has yielded fragments from calcite-gritted jars. Calcite-gritted wares were entirely absent from the H20/3b rampart deposits, but were present in very small quantities in the H20/3d levels. Rather than being seen as intrusive, the few calcite-gritted sherds in contexts 9:9 and 9:35 may represent pottery that was in use at the time the rampart was widened – though perhaps only just beginning to figure in coarseware supplies to the northern frontier – but not during the earlier depositional history of the material used to form the earthen bank. This would explain their apparent limited representation in the pottery assemblages associated with the H20/3d rampart. For their part, the small H20:7:64 and 9:35 pottery assemblages presumably represent material in contemporary use, incorporated in the two deposits at the time of construction. The marked contrast between their composition and that of the ceramic assemblages in the rampart layers underlines the very different depositional processes involved in the formation of the latter.

The buildings

Building XIII

The centurion's quarters (Figs 4.18 and 4.19)

The centurion's quarters underwent a number of changes from their primary state, although floor H13:1:220 continued in use. It included now a hearth made of stones and pieces of tile (*tegula*), set in a light blue clay (1:218), and measuring 0.65m north–south, although later disturbance meant that only 0.4m of its width survived. Around this hearth, patches of pink clayey ash (1:231), about 0.02m thick, occurred and there was an overall thick layer of silty material containing a lot of charcoal (1:217). To the west of the structure, a layer of mixed clay and silt (1:242) contained a *dupondius* of Hadrian (No. 49), not very worn.

Immediately south of this, a new clay floor of clean and homogeneous yellow sandy clay up to 0.07m thick was added (1:248) and deposited on this was silty material (1:237), similar to 1:217. The two silty layers were separated by a gap 0.15m wide, probably representing a partition (1:236). There was a clean clay floor to the south of this (1:213), 0.08m thick. At the northern end of the room to which this floor belonged was a stone and clay hearth (1:198), which was burnt red and surrounded by a mixed grey-blue and yellow clay layer (1:227), about 0.5m across, and a penumbra of charcoal (1:228), 0.15m wide. The hearth itself measured 0.3m in width. The floor (1:213) was covered by a level of loam, charcoal, small stones, and chips of tile (1:197), this material being slightly darker and sandier, containing additional charcoal (1:199) around the area of the hearth. In the north, another floor, of sandy clay (1:257), lay beneath a thin layer of purple silty material (1:256).

The partition wall (1:236) was 0.4m further south than it had been in the primary layout, but no other evidence of the internal plan of the centurion's quarters of this phase was forthcoming.

The next phase saw the addition of two stone internal walls to the centurion's quarters, a north-south partition (1:15; 1:117) that divided the building in two, and

a shorter east-west wall (1:45) that supplanted the earlier timber example. Grey clayey material (1:210), which covered all of the silty deposits, probably represented the daub from the demolition of the previous timber superstructure and this was about 0.1m thick. In the centre, there was a round hearth of burnt stones, 0.7m north-south by 0.4m (1:212), and this was in turn

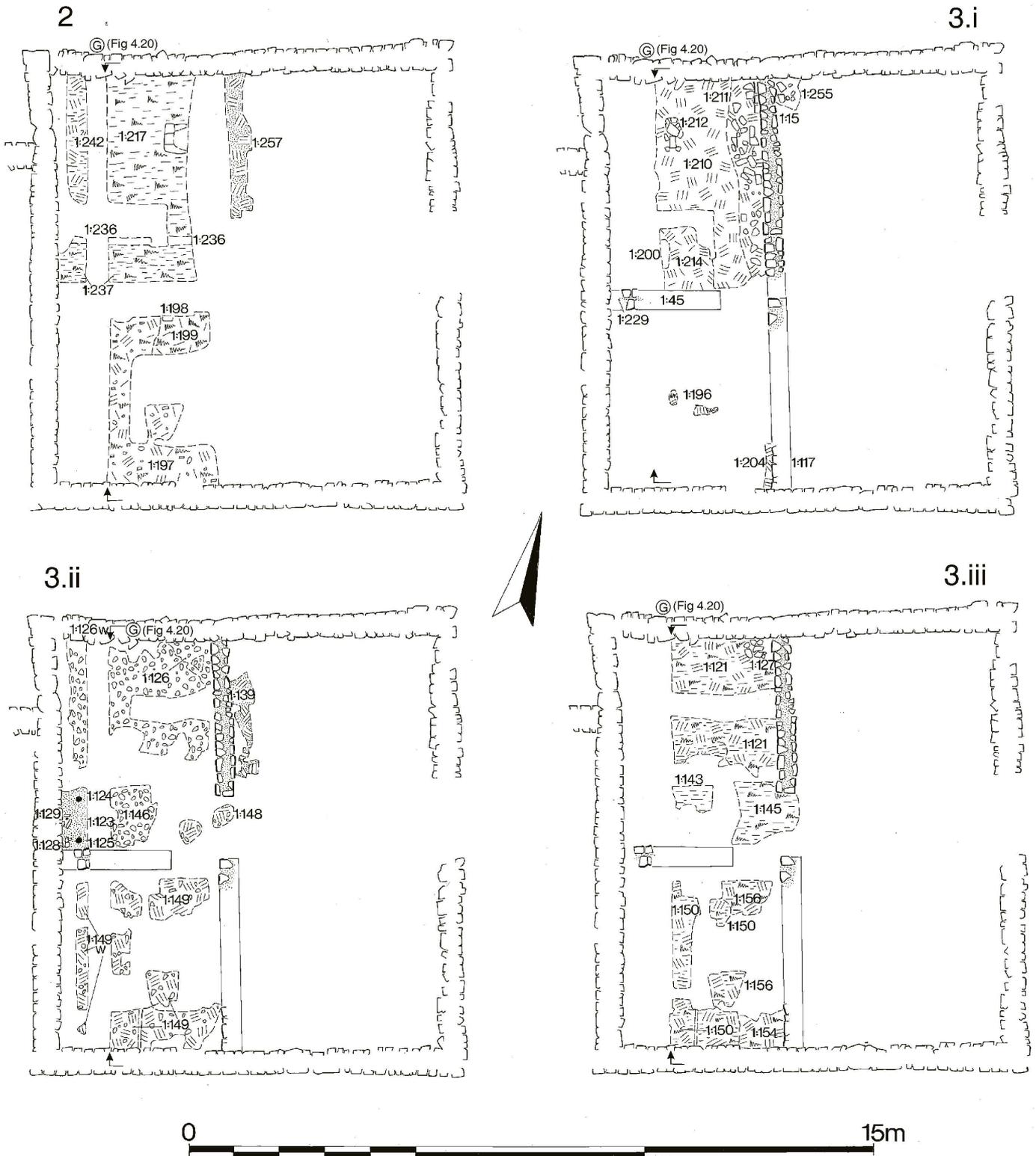


Fig 4.18 Building XIII centurion's quarters – Phases 2–3 (scale 1:125).

covered by spoil from the construction trench for the north-south wall (consisting of greyish clay and small stones – 1:207) and then, on top of that, a patchy deposit of mason's chippings (1:209), presumably deriving from the construction of the wall itself. Further south, a cleaner loam seems to have been equivalent to 1:210. The construction trench itself varied in width, but was up to 0.7m broad and filled with building and other stones and lumps of clay, set in a matrix of light grey clayey material (1:211). The north-south wall (1:15; 1:117) followed the natural slope but did not reach down to bedrock. Built on a foundation of small stones, the wall was 0.45m wide and survived up to five courses high, with an additional short length of offset wall. Its footing course ran the full width of the building, but above this level there was a gap in the wall, allowing access between the eastern and western halves of the structure. The gap was around 1.25m across, although complete certainty was not possible due to disturbance by the later, chalet period oven. The short length of the wall (1:117) that survived to the south, beneath the later chalet wall (1:9), evidently sat in a construction trench filled with blue clay (1:204). At the north end, east of wall 1:15, a patch of stone and clay (1:255), which included faced stones, may have represented construction debris and levelling material from the building of the wall.

The east-west wall (1:45) was similarly built on a foundation of small stones (1:230), but survived to only two courses deep; no construction trench was found. The wall was 0.45m broad. A possible posthole (1:229) was noted in the foundations of the wall, at its

junction with the west wall of the centurion's quarters (2:1). It was round, 0.3m deep and 0.13m in diameter, and angled down slightly to the east.

The construction trench of the north-south wall (1:211) was sealed by a layer of mixed grey clayey, silty material with frequent small stones (1:206) and this was also found in the gap in the north-south wall, over the footing course. The layer possibly represented a working surface for the completion of the new structure. Large patches of charcoal (1:196; 1:200), 0.02m thick, were also noted.

Next, there was a bedding of off-white sand, no more than 0.03m thick (1:123; 1:167; 1:172-3; 1:176-8); where this was absent, there was a series of thin and patchy layers of clay (1:165) under several layers of silty material (1:163-4). Two stakeholes (1:124-5), 0.05m in diameter and 0.1m deep, were found 0.95m apart and 0.5m from the inner face of the west wall of the centurion's quarters. That they were related to a constructional phase is suggested by the fact that they were sealed by floors of the same phase, composed of orange and yellow sandy clay and gravel (1:122; 1:126; 1:139; 1:146; 1:148-9).

Set into the sand, right against the inner face of the west wall and only 0.20m apart, was a pair of posthole-like, stone features which may have functioned as sockets in which amphorae were positioned upright. The northernmost example, a triangular setting of vertically set stone slabs and one tile (1:129), actually contained the long basal spike of an amphora (see Chapter 16: AM 2 and Fig 16.24). The other example (1:128) was



Fig 4.19 Building XIII centurion's quarters – Phases 4-5 (scale 1:125).



Fig 4.20 Section G through the floor levels of the Building XIII officer's house (H13:1); (scale 1:20).

very regular, forming an almost square cavity measuring $0.10 \times 0.08\text{m}$ and included a facing stone among its side packing. Like the stakeholes, these features were apparently sealed beneath clay and gravel floor (1:122), which would imply they belonged to a construction phase, although, functionally, it would perhaps be easier to relate them to the domestic occupation of the centurion's quarters.

On top of these floors, there were the usual grey clayey silty deposits, with varying amounts of charcoal (1:121; 1:143; 1:145; 1:150; 1:154; 1:156; 1:158). Against the north wall of the centurion's quarters, there was a hearth of intensely burnt stones, 0.5m north-south by 0.4m (1:127).

Excavation of these phases was mainly confined to the western half of the centurion's block, where it seems clear there were two rooms, while wear in the floor in the gap in wall 1:15/1:117 hints at the frequency of use of this doorway.

The fourth phase of the centurion's quarters saw the addition of another two internal partition walls around a hearth. The east-west wall (1:66) survived to two courses high and was 0.45m wide, while its companion (1:142), which was the same width, was later partly demolished and only one course survived (Fig 4.19). The walls created an L-shaped surround for a hearth, formed from one large flagstone set in a clay base (1:118). This hearth was surrounded by a narrow penumbra of burnt maroon clay 0.1m wide and measured 1m east-west overall. Its southern end lay beneath later walls and was not excavated. There was a layer of sandy brown loam (1:136) around the area of the hearth.

The room to the north of this was covered by a layer of small angular stones set in a sandy matrix (1:103; 1:147; 1:152), over which a new silt floor (1:95) was laid. This floor had been eroded to the north and there was a burnt area (1:99) with at least one stakehole (1:102) associated. A gap (1:104) between the floor surface and the wall along the eastern edge of this room suggested the presence of a moulding, similar to that found in the southern room (*see below*). Wear was again found in the southern entrance to this room and a tile fragment may have marked the point where two door leaves met.

A flagged floor (1:58) was provided in the eastern half of the building, near the gap in the central north-south partition wall, and also extended into the westward, probably as far as wall 1:142 and the doorways into the north-west and south-west rooms. The flags seem to have rested on a layer of clayey loam with a lot of charcoal, stone and tile fragments, and iron staining (1:135). Another area of flagging (0:19), which may have formed part of the same floor, was uncovered in the south-east corner of the structure. This flagging was composed of large stones laid regularly alongside the east wall of the block (0:17) and square to the external walls. However, it was not possible to trace a direct stratigraphic link between 0:19 and 1:58, nor was a full

structural sequence recorded in the eastern half of the centurion's quarters, with no investigation being possible beneath flagging 0:19, although a layer of clay and rubble (0:24) was observed in one small area where the flags were missing (*see discussion below*). In the north-east corner the picture was even less clear. Only one flag (0:50; 0:52) that might be equated with floor 0:19/1:58 was noted. In the corner itself there was a pit, possibly a cesspit.

The southernmost room in the western half of the building was covered by a layer of brown sandy loam (1:138), 0.1m deep, similar to 1:103 in the northern room. Over this was laid a floor of *opus signinum* (1:100), the matrix being a soft red tile-based mortar containing tile chips and pieces of white limestone (Fig 4.20 and Plate 3). Around the east (1:117) and south (1:2) walls of the room, there was a quarter-round moulding of red mortar (1:112). Between the moulding and the walls, there was a gap of reddish-brown material (1:113), presumably related to the original plaster covering of the walls. The moulding was cut by three rectangular postholes, one in the corner of the room and the other two along the south wall, and again these were filled with reddish-brown material. The posthole in the corner (1:114) was 0.08m square and 0.6m deep, set diagonally across the corner (where the moulding curves round). The next posthole (1:115) was 0.7m to the west and 0.1m by 0.08m and 0.6m deep, the longer axis aligned with the moulding. The third posthole (1:116) was 1.4m further west, suggesting that an intervening posthole may have been destroyed by a later drain (1:78). This third posthole had the same dimensions as 1:115. Disturbance meant that no more such postholes were found along the east wall or south-western corner of the room.

There was a thin lens of charcoal in the north room (1:97), 0.01m thick, and a dark grey silty layer around the new hearth, up to 0.1m thick (1:119).

The final occupational phase of the barrack period centurion's quarters saw further structural alteration. It is likely that it was in this phase rather than the succeeding chalet phase that the east wall of the block (0:17) was dismantled and replaced by a new wall, just to the east of it (0:6). When excavated this new wall was in poor condition, often only the foundation rubble remaining. It survived best beneath and immediately north of the chalet-period 'causeway' (Fig 4.21). Thus three courses, belonging to the 0.7m wide, central section of the wall, could be seen in elevation beneath the northern edge of the causeway. The lowest course continued 0.5m further west to overlie the remains of the earlier east wall (0:17). This central stretch of the wall had clearly subsided and tipped towards the east, a result of its inner face resting on the solid base provided by the earlier wall while the remainder was founded only on clay dump deposits (0:22; 0:28). Immediately to the north, the wall bowed out further to the east, creating a slight dogleg in both the inner and outer faces. However, this northward



Fig 4.21 NE corner of the centurion's quarters showing the primary east wall running under the masonry of the later 'causeway'.

continuation of the wall was clearly bonded to the central stretch. Again, three courses were preserved. The foundation course was composed of large flagstones, a construction technique very similar to that later used for the west wall of Chalet 1 (1:4).

In the south-east corner, the surface of the remaining stones of the original east wall was heavily worn, showing that it had been used, with flagging 0:19 of the previous phase, as a floor surface. The wear was greatest on the stones immediately opposite the new threshold (0:44) in the secondary wall. Here the inner facing of the primary wall was composed of four large flat stones. These were considerably larger than the majority of the primary wall's facing stones and had probably been inserted after the primary wall had been demolished, to replace the original facing stones and create a better surface just inside the new threshold. In the northern part of the building, there was a layer of dirty yellow-brown clay (0:22) between the old and new east walls, and this contained mid-3rd-century pottery, suggesting that the new east wall does indeed pre-date the chalet period (*see* the discussion of dating evidence below). The eastern end of the south wall (0:20) may also have been demolished down to ground level and partially rebuilt (0:5) at this stage, when it was extended (0:42) to key into the new east wall. A course of flagstones intervened between the two phases of masonry and formed the base of the secondary construction.

A new entrance was created in the north wall of the block (1:142), with a small stepped threshold (1:159) over a packing of yellowish-grey clay and cobbles (1:160) (Fig 4.22). A narrow passage, 0.5m wide, led to this entrance, formed by the addition of a further north-south partition wall (1:43), 0.52m broad and 3.4m long, resting on the flagged floor of the previous phase (1:58). Some evidence of a second course survived. A scatter of stones, including faced blocks (1:134), next to the new doorway, may have resulted from the insertion of this entrance. The whole of the passageway was covered by a mass of grey clay (1:44), while adjacent to the south ends of the two walls a large stone (1:133) was embedded in the clay, aligned with the ends of those walls. South of this there was more grey clay (1:88), which overlay the earlier flagging. The extent of this clay is unknown, but it did not occur over flagging at the end of the block (0:19).

A wall (0:27; 1:265) ran eastward from 1:43 (to which it was bonded) and this, although fragmentary, was 0.4m broad and 3.2m long, and overlay the remains of the earlier flagged surface (0:52). Immediately to the north, the pit now went out of use and was packed with flagging and clay (0:54) before the wall was led over its edge.

There was evidently a complementary corridor in the southern part of the building: a new wall (1:92) running north-south was added opposite 1:43 and beside 1:117.

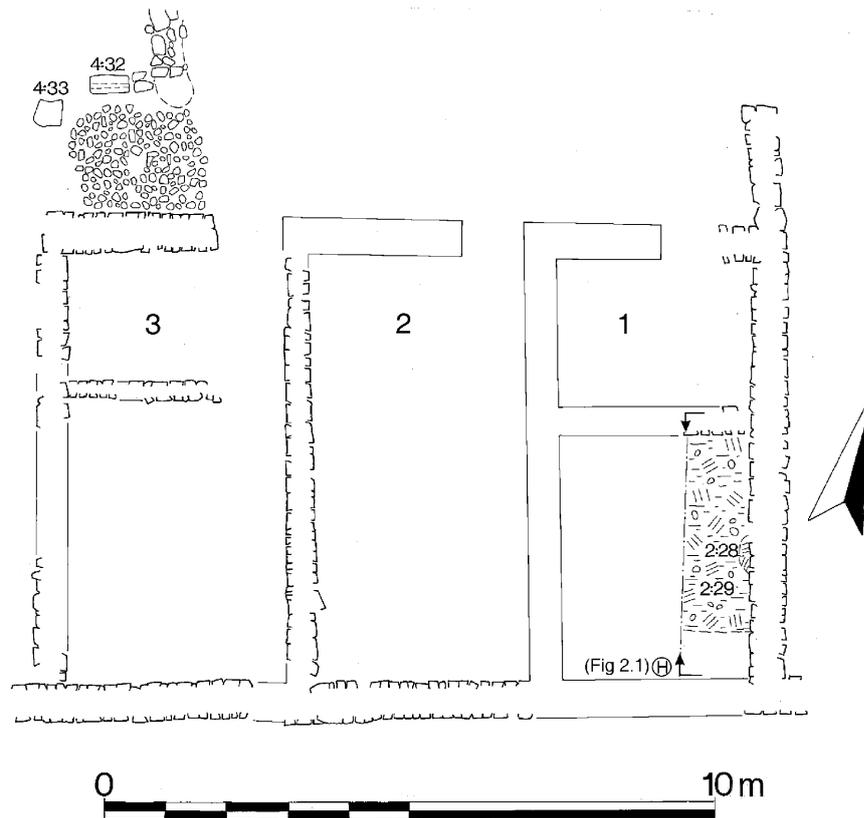


Fig 4.24 Contubernia 1–3 (scale 1:125).

One posthole (5:63), 0.3m in diameter, was cut into the floor surface. In the north room, a small stone-lined pit (5:89) was constructed in this period. Measuring 0.8m north–south (0.6m internally) and at least 0.25m east–west (this too was concealed by a later wall), it had a flagged bottom. The stones forming the uprights for this box had been notched, perhaps to receive a lid. Its construction ‘trench’ was filled with clay and stones (5:97) and then covered with flags and other stones (5:81), revetted by facing stones (5:80) around the ‘box’. The rest of the floor was a reddish-brown sandy clay loam (5:90).

In the third phase of this *contubernium*, the floor of the north room was resurfaced with grey and yellow clay (5:84), although no equivalent new floor was found in the south room; instead, a shallow pit (5:34) surrounded by two concentric gullies (5:36; 5:38) were inserted and these were filled with rough stone and earth.

The stone-lined box went out of use in the next phase and was filled with clay and flagstones (5:91). Directly above it, there was a flagged hearth (5:58), 0.4m by 0.35m, along with a clay floor (5:57). A new clay floor in the south room (5:51) did not quite reach as far as the south wall of the building, perhaps as a result of the uneven nature of the earlier floor surfaces.

The fifth phase seems to have witnessed the removal of the partition wall, the remains of which were covered by a new clay floor (5:43), although differences between the floors in the northern and southern halves may hint

at a replacement in timber. Floor 5:43 covered the northern room and was associated with a flagged hearth (5:42) over the old partition wall, while the floor to the south was a grey-brown clay (5:29) (Fig 4.26).

In the sixth and final phase of occupation of *Contubernium* 4, there were scattered areas of small stones and flagging (5:25) and two burnt flags (5:28) over the hearth of the previous phase. Several flagstones that may have belonged to the final phase of the veranda surface were noted (5:50). The demolition of the block was marked in this *contubernium* by a level of fine dark brown loam and loose rubble (5:22, 52).

Contubernium 5 evidently underwent a similar number of modifications, although it was not possible to relate these stratigraphically with those of *Contubernium* 4, so synchronicity cannot automatically be assumed for the changes in these two neighbouring *contubernia*. The second phase of *Contubernium* 5 was marked by the abandonment of the partition wall and its being sealed by a charcoal-stained floor (5:30), which extended into the room to the north. The floor was of a slightly different character further south (5:31), although still fairly mixed. There was a flagged hearth with clay (5:47–8) against the east wall of the *contubernium*, with much charcoal around it (5:40).

In its third phase, an orange clay floor containing charcoal was laid (5:26), in which there was a gully running east–west at the south end of the room, 0.25m deep (5:27). The next phase saw a new floor of

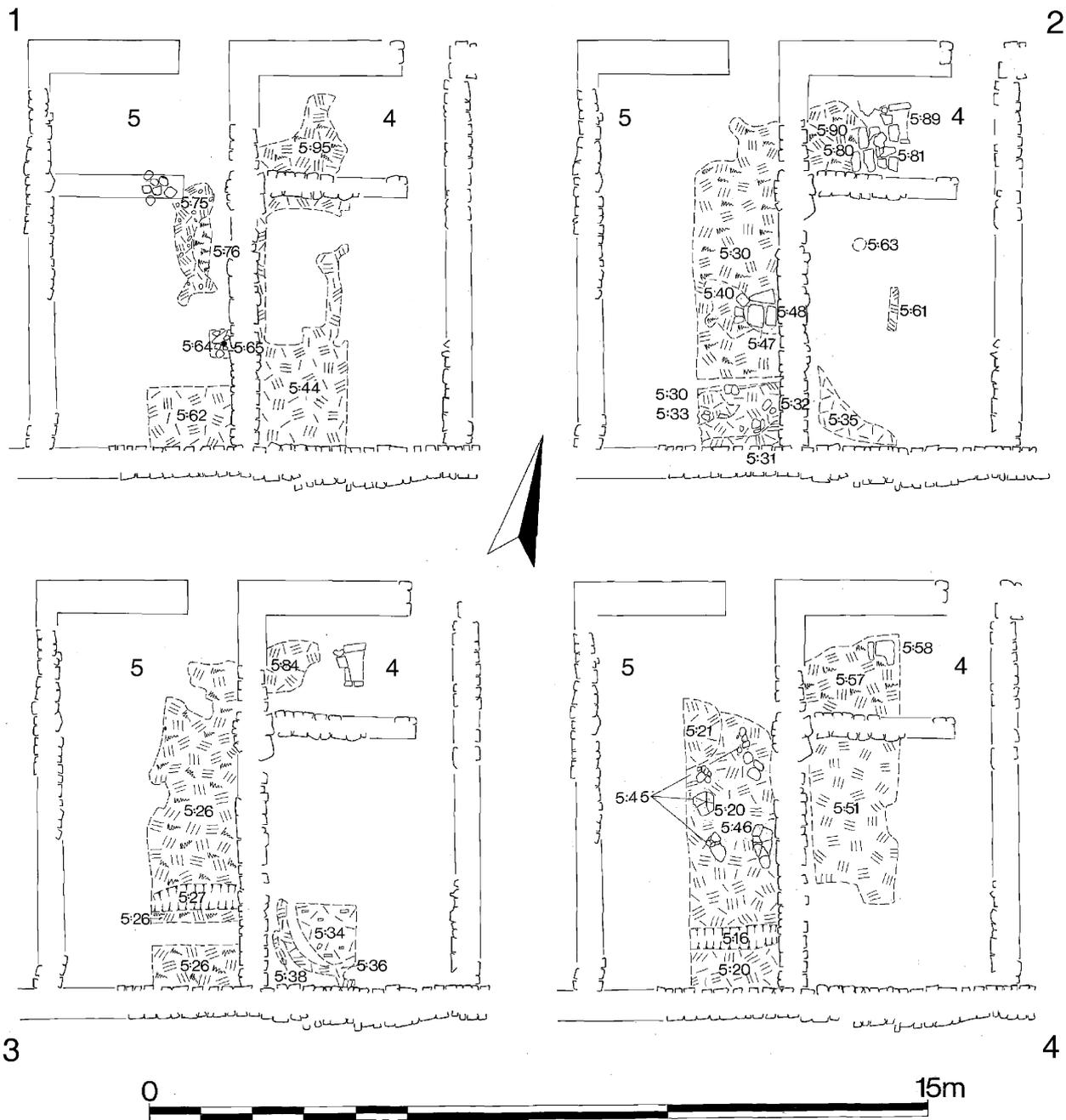


Fig 4.25 Contubernia 4 and 5: Phases 1–4 (scale 1:125).

red-brown clay and stone (5:20–1) and a similar trench to that of the previous phase, 0.3m south of its predecessor, was constructed (5:16), although the function of neither is apparent. Either during this phase or conceivably the previous one another flagged hearth (5:46) was laid against the east wall, directly above hearth 5:47–8. Patches of flagging (5:45) were also evident.

The fifth phase was evident in a floor of orange-red clay (5:14), with an area of burning measuring 1.1m north–south by 0.55m, representing a hearth (5:15). Since the hearth was fairly centrally placed, it was partly obscured by a later wall.

The sixth floor was clay again, but this time with many stones (5:8), and this too exhibited an area of

burning (5:8A), almost directly above the previous hearth. Unlike *Contubernium 4*, no demolition material was identified.

Two phases were noted in *Contubernium 6* and, as was mentioned above, the first is probably not primary. The floor of the final phase was a yellow sandy clay with some flagging (6:28) and in the south end of the north room, there was a large rectangular hearth area (6:32), 0.8m by 1.75m, formed from shattered flagstones, burnt clay, and tile fragments. Some brown earth and charcoal (6:31) next to it may have been associated with the use of this hearth (Fig 4.27). A posthole of uncertain function was also recorded; 0.3m in diameter and 0.15m deep, it was filled with dark

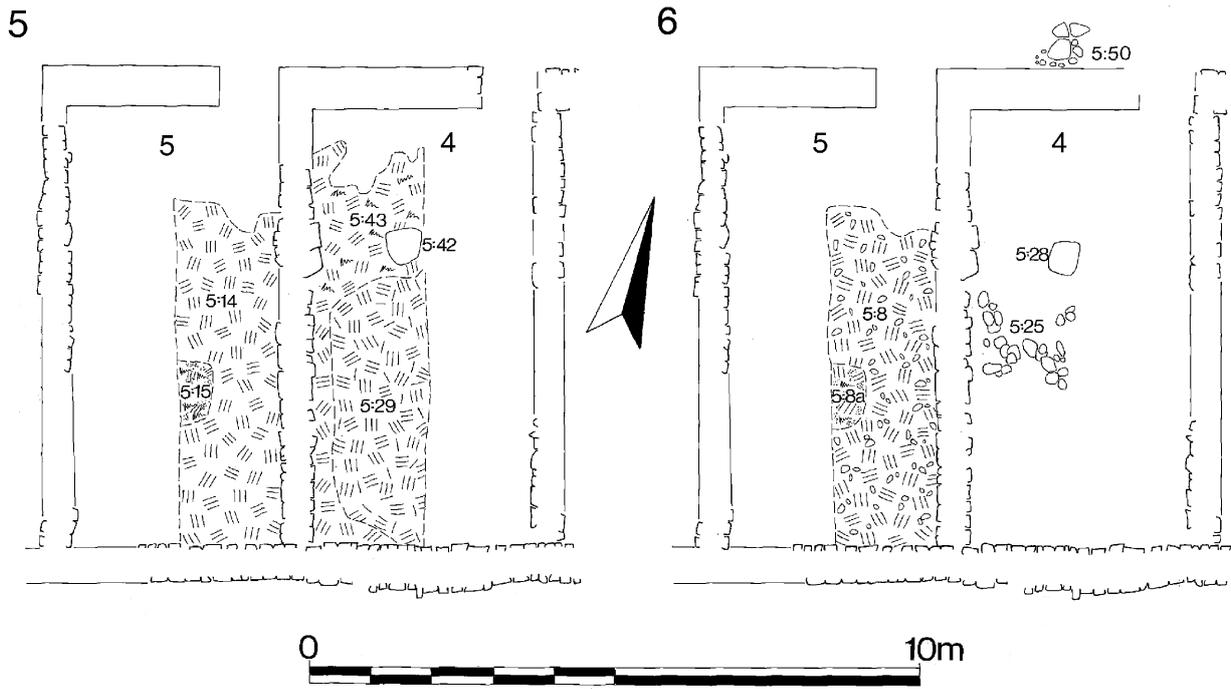


Fig 4.26 Contubernia 4 and 5: Phases 5-6 (scale 1:125).

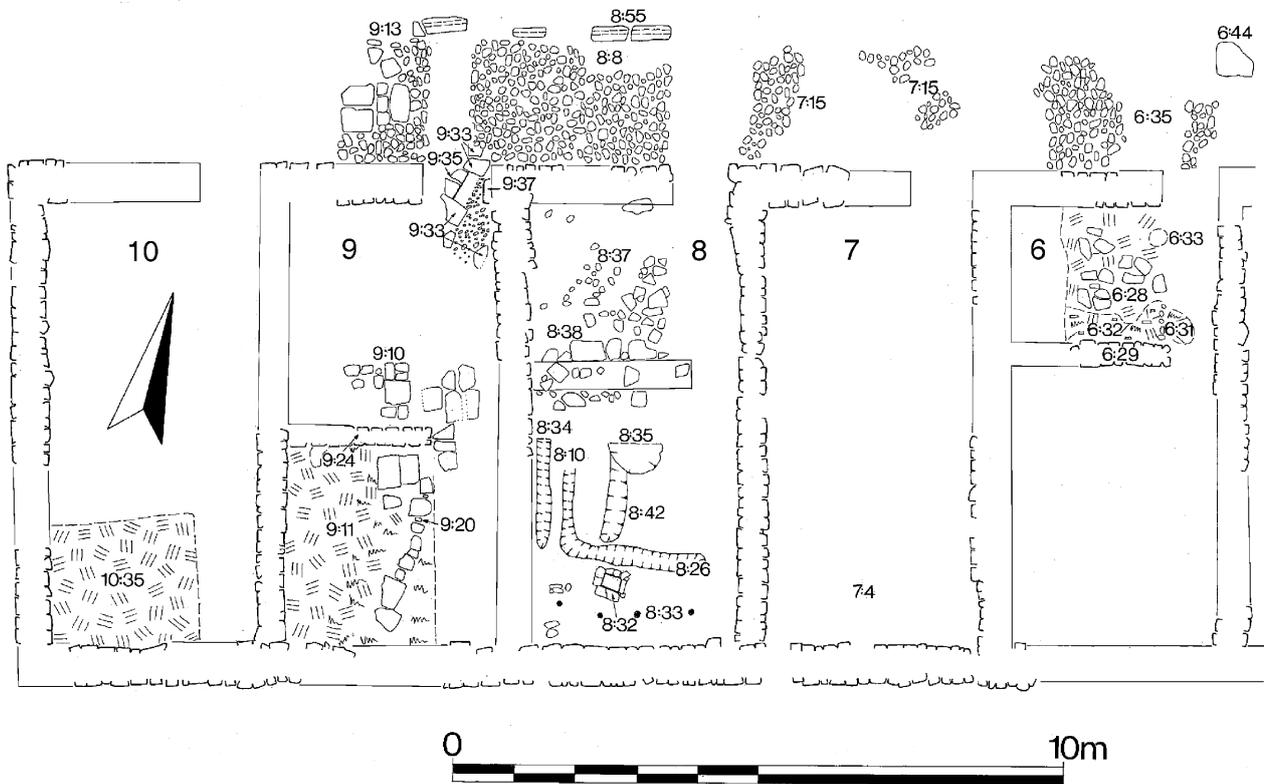


Fig 4.27 Contubernia 6-10 (scale 1:125).

brown earth and a quantity of charcoal (6:33). A partition wall (6:29), 0.43m wide, with a doorway 0.92m wide, divided the northern room from its companion to the south, where a similar clay floor was noted.

The guttering to the north of *Contubernium* 6 had been robbed, but an earlier cobble surface was noted set in yellow sandy clay (6:40) beneath this robbing, demonstrating that the stone gutter, in this sector at least, was not primary. The final phase of the veranda was surfaced with cobbles and gravel (6:35), while a large flagstone (6:44), 0.62m by 0.59m, was found 1.42m from the north wall; this was covered by green clay and may have been the remains of a setting for a veranda post.

A cobbled veranda surface (7:15), perhaps equivalent to 6:35, was also revealed beneath chalet period flagging to the north of *Contubernium* 7. The clay surface at the south end of the later Chalet 7 (7:4) may well represent a reused or truncated barrack floor.

The north wall of *Contubernium* 8 was apparently rebuilt or reinforced at some stage with an additional face (8:18) laid on the north side of the primary wall increasing its width to 0.75m. This reconstruction apparently pre-dated the secondary veranda cobbling (8:8) which was laid right against the new face and partially overlapped it. Alternatively, this structure might be interpreted as the southern face of a drain running along the north side of the *contubernium*, perhaps associated with drain 9:35 which was revealed in the doorway of *Contubernium* 9. However, no trace of a corresponding northern side wall was revealed to confirm this interpretation. Within the *contubernium*, a grey clay floor (8:39) was noted in the north room. This was replaced by cobbling and flagstones (8:37–8) and the south room was likewise surfaced (8:10). A cobbled surface (8:8), with some flagstones (8:20) set in, was laid over the veranda, which was 2m wide, a fact confirmed by a surviving piece of gutter (8:55). This surface continued northward over the *intervallum* road. An underlying clay and cobble layer (8:36) was noted beneath cobbling 8:8, perhaps corresponding to the earlier veranda surface (6:40) identified to the north of *Contubernium* 6. This metalling too continued northward (as 8:49) beyond the edge of the veranda, overlying the broad foundations of Hadrian's Wall (8:48), which formed the base of the *via sagularis*. In the south room, a stone-lined pit, similar to that known from *Contubernium* 4 (*see above*), was found (8:32). A sharp line in the northern flagging (8:38) may indicate where a medial partition had been removed. It was possibly replaced by a wall further south (8:53), which was 0.5m wide and butted against the west wall of the *contubernium* (8:7). This wall remained in use during the following chalet phase, but its position corresponded to that occupied by the partition wall in *Contubernium* 9 (9:24), suggesting it may originally have been erected at some point during the later phases of *Contubernium* 8. The internal measurements of the northern room in this final form would have been 3.6m north–south by 3.35m east–west, and the southern room, 3.45m by 3.35m.

The south room of *Contubernium* 9 had a clay floor (9:11) with a flagstone hearth (9:29) and a shallow depression in its surface. Charcoal was associated with the hearth and lay on the floor to the east and south (9:21). A line of flagstones and reused tiles (9:20) was laid on top of a burnt layer, running from the entrance to the south room as far as the south wall. These resembled the capstones of a drain but, upon lifting, no drain was revealed. The north room may have had a flagged floor during the latter stages of the *contubernium*'s life, to judge from the group of flagstones (9:10) revealed immediately north of the cross-wall (9:24). This flagging certainly remained in use in the subsequent chalet phase (*see* Chapter 5), but was clearly overlain by the east wall of Chalet 9 (9:2) and, hence, was presumably first constructed during the preceding period. A clay-lined drain (9:35), capped with flagstones (9:33), exited through the doorway of the *contubernium*, cutting through the footing courses of the north wall (9:37). The drain was set into a layer of orange clay and sandstone pieces (9:36), perhaps an early floor or makeup for the flagged surface (9:33; 9:40) which was exposed in the east side of the north room. There was a layer of light brown sandy clay loam (9:17) on the veranda, over which was a level of cobbles and flagging (9:13; equivalent to 8:8; 8:20) belonging to the final phase of occupation of the barracks. The cobbling (8:8) also extended through the doorway into the *contubernium* and continued along the eastern edge of the north room, covering the earlier flagged floor and drain (9:33; 9:40). It could represent a durable passageway floor surface leading towards the south room.

In *Contubernium* 10 the barrack period deposits had apparently been severely truncated by later, chalet phase activity and no significant modification to the primary arrangements was revealed.

Finds

Finds from the centurion's quarters fall in Areas H13:0–1; those from the *contubernia* in Areas H13:2–10.

Silver:

H13:1:85 4 Small plain disc with oval-sectioned shank (ear-ring) (Fig 14.1).

H13:8:37 2 Finger ring of beaded wires (Fig 14.1).

Copper alloy:

H13:1:54 38 Penannular ear-ring (Fig 14.4).

149 Disc stud with traces of silvering (Fig 14.12).

H13:4:16 175 Stud with hollow-domed head (Fig 14.13).

H13:5:8 73 Incomplete lute-shaped spoon bowl, heavily tinned (Fig 14.8).

H13:8:31 187 Small hollow-domed stud with an oval-sectioned shank.

Ironwork:

H13:0:9 362 Rod of irregular rectangular section which passes through a loop of oval section (Fig 14.19).

H13:0:22	315	Long leaf-shaped spearhead (Fig 14.14).
	322	Split conical ferrule (Fig 14.15).
H13:8:8	314	Oval-sectioned iron bar (Fig 14.16).
Lead:		
H13:5:8	377	Large globular lead ball pierced by two iron rods (Fig 14.20); probably intrusive from H13 Chalet Phase 1 (cf steelyard No. 59).
Bone:		
H13:0:17	414	Counter with bevelled upper edge and dished face.
H13:0:22	412	Waisted bone handle.
H13:1:121	415	Burnt counter.
Glass:		
H13:0:6	452	Cylinder bead of green glass.
H13:1:118	508	Dark green opaque bun-shaped counter or inset.
H13:1:156	509	Dark blue translucent bun-shaped counter or inset.
Ceramic objects:		
H13:5:8	534	Disc of grey ware with two holes.
H13:9:11	561	Disc of samian.
Stone:		
H13:2:25	664	Incomplete hone of pink sandstone.
H13:5:27	693	Possible sling-stone.
H13:7:4	709	Possible throwing stone/‘ballista’ ball.
H13:9:11	634	Disc bead or pendant of agalmatolite or lithomarge (Fig 14.25).
	710	Possible throwing stone.
Quern (sandstone):		
H13:10:5	93	One half of an upper stone (Fig 12.5).
Glass vessels:		
H13:0:29	9	Rim fragment, beaker of blue-green glass (Fig 17.1).
H13:5:22	18	Base fragment, pale green glass (Fig 17.1).
H13:7:4	39	Rim fragments, cup of clear colourless glass (Fig 17.2).
H13:1:63	42b	Rim fragment, cup of colourless glass.
H13:1:94	48	Base fragment, beaker or flask of colourless glass (Fig 17.2).
Graffito:		
H13:5:20	11	Drag 31: [1–3]VNTIVI[...] (Fig 18.1).
Worked flint:		
H13:1:103	15	High-quality broken flint flake.

Dating evidence (Tables 4.8–4.10)

The clearest evidence for the dating of the successive modifications to Barrack Block XIII is provided by the sequence of floors in the western half of the centurion's quarters and in *Contubernia* 4 and especially 5 (H13:5). As can be seen from Tables 4.8–4.10, these preserve a reasonable seriation of coarseware vessels. Thus the levels associated with the second of the five floors in the centurion's quarters yielded a single diagnostic form, a beaker type (BK 13) introduced in the first half of the 2nd century (in 1:213), plus a *dupondius* of Hadrian (AD 125–28; Coin No. 49; 1:242). The coin exhibited only slight wear, pointing towards a Hadrianic rather than Antonine date for the construction and earliest occupation phases of Building XIII. The third phase of the officer's quarters in turn produced a quantity of material, both samian (Rheinzaubern 33) and coarseware (BO 50; BO 83), which provided an early 3rd-century *terminus post quem*, while the third floor surface in *Contubernium* 5 (5:26) similarly contained an example of a mortaria type (M 17) introduced between 180–230. Such material may conceivably have been trampled into the beaten clay floors during their lifetime, rather than being incorporated when the floors were first laid down, and thus it can only provide a *terminus post quem* for the subsequent phase.

The sixth and final floor surface in *Contubernium* 5 was associated with a range of 3rd-century coarseware types, including examples introduced in the later (BO 13) or mid- to later (JA 47) parts of the century. This was the last floor surface to be laid in the *contubernium* before the barrack block was demolished and replaced by a row of free-standing ‘chalets’ and the presence of this material would be consistent with a late 3rd- or early 4th-century date for the introduction of the chalets. Similarly the officer's quarters must have continued in use into the late 3rd century on the basis of the coarseware bowl forms (BO 7; BO 90) found in levels relating to the fifth and final occupational phase. In contrast, the association of a coin of Constantius II

Table 4.8 Coins from Barrack XIII

context	structure	No: description, date
	centurion's quarters	
H13:1:242	NW room, 2nd floor surface	49: Hadrian, 125–8
H13:1:100	SW room, 4th floor surface	16: Domitian, 81–96
	the contubernia	
H13:2:23	<i>Contubernium</i> 1: 5th floor level	5: Vespasian, 69–79
H13:5:52	<i>Contubernium</i> 4 – demolition layer	497: Illegible, 1/2C
H13:9:11	<i>Contubernium</i> 9: S room clay floor	24: Trajan, 98–117
	the veranda	
H13:3:880	soil ov veranda u Chalet Phase 2 flags	113: Elagabalus, 218–22
H13:9:13	flagged veranda surface*	454: Constantius II, 348–50

* remained in use during the subsequent chalet phases

Table 4.9 Pottery assemblages in Barrack XIII

<i>context</i>	<i>description</i>	<i>CW formcode</i>	<i>FVN</i>	<i>date</i>	<i>samian (latest)</i>	<i>date</i>
centurion's quarters						
<i>H13 BA2</i>						
H13:1 213		BK 13.0	28	c 100–150		
<i>H13 BA3</i>						
H13:1:145		JA 59.0	616	L1–M2C	EG LM? 38	HANT
H13:1:162					CG LZ –	ANT
H13:1:172		BO 50.0	26	c 200+		
H13:1:202		BO 83.0	42	E3C		
H13:1:210					CG LZ 18/31 St32*	HAD
H13:1:211					CG LZ 18/31	HAD
					CG LZ 18/31	HEA
					CG LZ 33	H/A
<i>H13 BA4</i>						
H13:0:24	clay/rubble under flagged floor 0:19				CG LZ 37 D2 ^a	HAD
H13:1:103					CG LZ 18/31	HAD
H13:1:112		3 w sh Mosel bk	–	L2–E3C		
H13:1:100	SW room, <i>opus signinum</i> floor	BO 91.0	617	c 140+		
H13:1:136					CG LZ 15/31	MLA
<i>H13 BA4/5</i>						
H13:0:28	clay between E walls 0:6 & 0:17 u 0:22	BO 87.0	601	M–L2C		
<i>H13 BA5</i>						
H13:0:6	secondary E wall	m hm hh	–	3C+	EG RH 33, 36	L2–M3
H13:0:22	clay between old and new E walls	(see Table 4.10)		E3C	EG RH 31R	L2–M3
H13:0:29	clay fill of trench for rebuilt S wall 0:16	BO 39.0	603	c 160+	CG LZ 31R	MLA
		BO 40.0	604	c 160+		
		BK 23.0	605	3C		
		JA 55.0	602	M2–M3C		
		BB2 lg rnd r bo	–	L2–M3C		
H13:1:44	clay between walls 1:15 & 1:43				CG LZ 38 or 44	ANT
H13:1:70	NW room, <i>opus signinum</i> floor				CG LZ 31	ANT
H13:1:134					CG LZ 33?	ANT
<i>CQs demolition levels (H13 BA5+)</i>						
H13:1:51	dark grey/brown soil	BK 8.0	624	3C	EG ? 31R	L2M3
H13:1:54	dark silty loam	BO 86.0	644	L2C+		
		BO 86.0	645	L2C+		
		BO 88.0	633	L2C+		
		BO 86.0	632	L2C+		
		BO 7.0	646	L3C+		
		BO 91.0	643	c 140+		
H13:1:75	reddish soil with clay	M 20.0	649	160–220	CG LZ dish or bowl	ANT
H13:1:86	E–W slot	BK 28.0	622	3–4C	CG LZ dish or bowl	ANT
		BO 90.0	621	L3C		
the contubernia						
H13:2:25	<i>Contubernium</i> 1 – 4th floor				CG LZ 31	MLA
H13:4:16	veranda surface	4 w sh ca gt j	–	3–4C		
H13:5:8	<i>Contubernium</i> 5 – 6th clay floor				CG LZ 37 ^b	135–70
H13:5:13	(as H13:5:8)	JA 61.0	214	M2–E3C	CG LZ 45	170–200
		JA 47.0	213	M–L3C		
		BO 13.0	212	L3C+		
		BK 24.0	211	3C		
		BO 51.0	215	c 200+		
		JA 122.0	195	3–4C		
		BO 42.0	216	c 140+		
		BK 23.0	2465	3C		
H13:5:20	<i>Contubernium</i> 5 – 4th clay floor	BO 104.0	198			
H13:5:26	<i>Contubernium</i> 5 – 3rd clay floor	M 17.0	2083	180–230		
		BK 13.0	777	c 100–150		
H13:5:29	<i>Contubernium</i> 4 – S room, 5th clay floor				CG LZ 31R	MLA
H13:5:30	<i>Contubernium</i> 5 – 2nd floor	JA 57.0	778	L1–M2C		
H13:6:17	alley?				EG TR 31	200–260
H13:6:28	<i>Contubernium</i> 6 – final clay/flag floor	BO 23.0	787	E–M2C		

Table 4.9 (Cont'd)

<i>context</i>	<i>description</i>	<i>CW formcode</i>	<i>FVN</i>	<i>date</i>	<i>samian (latest)</i>	<i>date</i>
H13:6:31	hearth debris on floor 6:28	JA 55.0	788	M2–M3C		
H13:6:33	posthole in <i>Contubernium</i> 6				CG LZ 31	MLA
H13:7:4	<i>Contubernium</i> 7 – upper clay floor	BO 86.0	529	L2C+	CG LZ 31	ANT
H13:8:14	natural	JA 70.0	747	E3C+		
H13:8:22	natural orange clay				CG LZ Curle 21	150–200
H13:8:37	<i>Contubernium</i> 8 – flagged surface	JA 88.0	588	E–M2C	CG LZ 37	ANT
H13:9:11	<i>Contubernium</i> 9 – clay floor	BO 22.0	954	E–M2C	CG LZ 45	170–200
		BO 26.0	955	M–L2C		
		BO 86.0	956	L2C+		
		BO 86.0	708	L2C+		
		BB2 delta rnd r bo/di –		M2–E3C		
H13:9:21	charcoal on floor H13:9:11	JA 60.0	958	L1–M2C	CG LZ 37 D6 ^c	150–80
H13:9:25	intrusion in floor 9:11				CG LZ Lud Tx	MLA

*6 sh; join H13:1:103 & 211; Stamp 32 AV[or JAV; graffito u base, after firing

^a Chapter 15: Decorated vessel (fort) No. 2, style of Secundinus ii (Fig 15.1)

^b style of Paullus iv

^c Chapter 15: Decorated vessel (fort) No. 6, style of Cinnamus ii (Fig 15.1)

(348–50; No. 454) with the barrack veranda (9:13) only reflects the continued use of that surface to form the initial floor of Chalet 9.

Discussion: the correlation of the conventional barrack phases in Building XIII

There is no direct stratigraphic link between the surfaces in the different *contubernia* or between the *contubernia* floors and those of the centurion's quarters. Consequently it is not possible to establish definitively whether the fourth phase of alterations to one part of the XIII was strictly contemporary with the fourth phase elsewhere in the barrack block. Indeed, the fact that there are only five principal phases in the officer's quarters (albeit with multiple sub-phases in the earliest period), whereas there were six phases of floor surfacing in those *contubernia* that preserved the most complete sequences (1, 4 and 5), might imply that remodelling work in the *contubernia* was not necessarily strictly contemporary with that in the centurion's quarters. However, the demonstrable existence of six phases in all three *contubernia*, where it was possible to investigate the pre-chalet levels in any detail, does suggest that the *contubernia* floors were replaced after roughly even periods of time, every 20–30 years perhaps. If this implies some measure of overall supervision, the way that the internal arrangements – for instance the composition of the floors – differed from *contubernium* to *contubernium* in any given phase might indicate that, within the overall framework, each group of *contubernales* was responsible for refurbishing its own quarters and to some degree acted independently of its neighbours.

The periodic remodelling of the centurion's quarters involved more substantial alterations than those recorded in the remainder of the range. Modifications

to the *contubernia*, were restricted to the laying of new floors and hearths and occasionally shifting the position of the partition wall separating the front and back rooms, but left the basic layout of the range largely unchanged. In contrast, new partition walls were inserted in the centurion's quarters at various stages, significantly altering the internal arrangements, the overall standard of accommodation apparently becoming steadily more elaborate with each new phase, eventually featuring *opus signinum* floors (see Plate 3), for example. It is conceivable that these improvements simply reflected the demands of individual officers, rather than belonging to any wider programmes of reconstruction that might have embraced the *contubernia* as well. However, whatever the driving forces behind the different structural phases in the centurion's quarters, their widely spaced dates show that the successive remodellings of the officer's accommodation, like those of the *contubernia*, were periodic episodes interspersed throughout the course of the 2nd and 3rd centuries.

The later barrack and chalet construction phases in the centurion's quarters

The structural remains encountered in the eastern half of the centurion's quarters (H13 Area 0) posed a number of interpretive problems due in large part to the excavation strategy employed. The medial, north–south cross-walls belonging to the later chalet phases were not removed by the excavators so it was not possible to record a continuous stratigraphic sequence across the entire building. In addition the preservation of the chalet period 'causeway', which crossed the eastern half of Chalet 1 from east to west, severed the levels in the southern half of H13:0 from those in the northern half. Consequently, there were significant difficulties in relating the structural

sequences observed in H13:0 to the phases identified in the western half of the building (H13 Area 1), where archaeological investigation was far more intensive and where the phasing was on the whole clearly understood. Furthermore, no clear demolition layer, marking the transition between the later barrack and the subsequent chalet phases, was recognised in H13:0, again in contrast to H13:1. The distinction between these major structural phases was thus only determined by reference to the phasing in H13:1.

This problem of equating the structural sequences in the two halves of the building is particularly significant in relation to the phasing of the secondary east wall (0:6). At first glance, the demolition of the original east wall (0:17) and its replacement by one slightly further to the east, would seem, logically, most likely to belong to the construction phase of Chalet 1. It would represent the counterpart of the new west wall for Chalet 1 (1:4), which was also situated a little to the east of its predecessor, the west wall of the centurion's quarters (2:1). Together, the new walls would define a slight eastwards shift of the footprint of the centurion's quarters associated with the latter's transformation into Chalet 1. This shift would have been necessitated by the reuse of the former west wall of the centurion's quarters as the east wall of the new Chalet 2, and ultimately motivated by the desire to squeeze the longer chalet range on to the site of barrack block XIII without entirely blocking the *intervallum* road to the east or the *via principalis* to the west.

However, the new east wall (0:6) was assigned to the latest barrack phase rather than the initial chalet phase by the excavators. This interpretation was based on two pieces of evidence. A sizeable and consistent group of pottery was found in association with the secondary east wall and in particular in the clay packing (0:22) between the primary and secondary walls. The diagnostic material listed in Table 4.10 clearly provides an early 3rd-century *terminus post quem* for the construction of the secondary wall. The size (85 sherds) and composition of the 0:22 assemblage, including as it did large conjoined fragments, did not appear consistent with an obviously residual group. Coupled with the absence of Crambeck and other East Yorkshire calcite-gritted wares from the assemblage, this caused the excavators to conclude that the clay must have been deposited, and by association, therefore, the secondary east wall constructed, in the early to mid-3rd century, and certainly before the latter part of the century. It was believed, on the basis of Wilkes's excavation results from Building XIV, that the chalets were associated with Wall Period III and therefore were not erected before the end of the 3rd century, specifically as part of the reconstruction work initiated by Constantius Chlorus (297–306). It therefore followed that a secondary east wall of early to mid-3rd-century date must have been built during the latter stages of Building XIII's history as a conventional barrack block, rather than forming part of the chalet construction phase.

Table 4.10 Pottery assemblage associated with clay packing H13:0:22

<i>CW form</i>	<i>FVN</i>	<i>TPQ</i>	<i>samian (latest)</i>	<i>samian date</i>
JA 72.0	310	L2C+	EG RH 31R	L2–M3
BO 87.0	2458	M–L2C		
JA 72.0	309	L2C+		
JA 63.0	308	E3C+		
BO 50.0	305	c 200+		
BK 8.0	307	3C		
JA 66.0	306	L2C+		

Although this was a reasonable judgement based on a substantial pottery group, it was linked to the 'Wall Period' chronology still in use at the time of excavation and consequently made an implicit assumption about the dating of the chalets. This caveat is partially negated by the direct evidence for just such a late 3rd- to early 4th-century date for the Housesteads chalets, provided previously by Wilkes's excavations in Building XIV. Perhaps more problematic is the comparison with the pottery assemblages recovered from the ramparts in 1978–81, which were associated with the progressive reinstatement of the rampart bank during the course of the 3rd century and comprised large pottery groups with many conjoining fragments. As discussed above, the rampart deposits must have originated somewhere outside the fort, as, by implication, may some of the pottery contained therein. Different layers within the same structural phase of the north rampart yielded pottery groups which provided significantly different *termini post quos* (see Tables 4.4–4.7 above). This presumably reflects the variety of locations outside the fort from which the material for the reinstated ramparts was dug and the consequent difference in the character of the pottery assemblages that had already become incorporated in those deposits, perhaps as refuse from the fort or *vicus*. It is conceivable that the clay fill (0:22) between the primary and secondary east walls of Building XIII might have been obtained from a similar source outside the fort.

Despite these caveats, a point shortly after the first third of the 3rd century, as proposed above, remains the most plausible date for this reconstruction of the east end of XIII, since the conclusion derived from the pottery assemblage is supported by inferences from the limited stratigraphic evidence described previously. In particular, the likely correlation between the flagged floors in the south-east corner (0:19) and north-central area of the centurion's quarters (1:58) – the latter definitely assignable to Barrack Phase 4 – is crucial, since flagging 0:19 certainly remained in use after the demolition of the primary east wall, even if it was initially laid while the latter was still standing. If flagging 0:19 and 1:58 did form part of the same floor, this would place the building of the secondary east wall during latter stages of the conventional barrack block's life.

The relative levels of the two areas of flagging are convincing in this respect, although the lack of a direct, observed stratigraphic link between them means this evidence cannot be regarded as absolutely conclusive. Unfortunately, the east end of the east–west partition wall, 0:27, attributed to Barrack Phase 5, was too badly damaged by later drain construction to determine whether it originally overlay the primary east wall. A small fragment of masonry does sit on top of the demolished remains of wall 0:17, but its function is difficult to interpret and it may relate to one of the chalet phase structures rather than wall 0:27. There is no surviving evidence that the partition wall continued eastward to link up with the secondary wall.

Building XIV (Fig 4.28)

As has already been mentioned, the surviving fabric of the *contubernium* phase of Building XIV was interpreted as being largely secondary. The most convincing evidence was located in the centurion's quarters, the south wall of which was found to overlie a narrower, primary foundation (see Chapter 3). This secondary south wall (H14:1:5) was clay bonded and 0.8m broad, although only surviving up to two courses at the centurion's quarters. The north wall of the centurion's block (1:3) varied between 0.55m and 0.75m in width and, in the north-east corner, survived up to five courses high. There was an entrance, 0.88m wide, in the centre, with a large threshold stone (1:19). The east wall (1:4) was also five courses high at the north end varying in width between 0.65m at its lowest course to 0.42m at its highest. The west wall was continuous and did not include an entrance at its northern end as Wilkes had supposed (1961, 282), for the remains of the wall were located. There were two halves (1:6–7) to the internal north–south partition wall, although it is not clear whether they originally met. The northern half (1:6) varied between 0.54m in width at the bottom to 0.46m at the top.

The drastic rebuild that this barrack seems to have undergone meant that the *contubernium* arrangement was revised, producing slightly wider rooms. The west wall of *Contubernium* 1 was now further west and 0.5m wide, producing a room 5m by 7.15m: it is not certain that the medial partition wall was still in use in this phase. Other walls belonging to the secondary barrack phase were discovered by Wilkes and subsequently

consolidated, namely most of the west wall of *Contubernium* 2, 0.5m broad, and the west wall of *Contubernium* 3. The remains of the west wall (9:18) of the block were found by excavation in 1979, beyond the western end of the Phase 1 structure, and consisted of a spread of stones resembling the rubble core of a wall. Little trace was found of the new broader north wall of this phase, which Wilkes recorded at *Contubernium* 2 on a slightly more northerly line than its primary counterpart and only partially overlying the latter. However, a layer of medium-sized, angular stones in a matrix of light brown, sandy soil (3:18) was revealed between veranda cobbling 3:8 and the north wall (3:7) of primary *Contubernia* 2 and 3, and this may have formed part of the foundation for the secondary barrack north wall. In addition, what may very tentatively be identified as facing stones of this north wall can be seen in the alley between the later Chalets 3 and 4, beneath the consolidated chalet walls and over the primary wall. Wilkes recorded a stretch of wall, *c.* 2.75m long, at this point on his plan, showing it on a slightly more northerly line than its primary counterpart, only partially overlying the latter. This wall can be seen on one of the unpublished excavation photographs preserved in the Museum of Antiquities at Newcastle University (reproduced here as Fig 4.29). Two hearths that probably belonged to the secondary phase were also uncovered. The first, a rectangular setting of flags next to the medial wall in *Contubernium* 1, had been identified by Wilkes, while the second (3:20), set against the east wall of *Contubernium* 2, comprised a semi-circular area of orange-grey clay plus a large patch of charcoal surrounding a fire-reddened stone.

The overall length of this building was 50.05m, with a contubernial length of 40.9m, and a width across *Contubernium* 2/3 (excluding veranda) of 9m. Only three *contubernia* are known for certain, with internal widths of 5m (1), 4.8m (2), and 4.85m (3). Assuming a mean width of 0.5m for a partition wall, this would give a mean *contubernium* width of 5.38m. With a contubernial length of 40.9m, there is not enough room for eight *contubernia* of the hypothesised mean width, suggesting some variation in widths of the unexcavated *contubernia* if that number were to be incorporated in the building. Perhaps the westernmost *contubernium* was smaller than the remainder, as was the case in the primary barrack.

Table 4.11 Dating evidence from Building XIV Phase 2 (H14/2)

contexts		CW form	TPQ	samian	date
H14:9:20	<i>via principalis</i> surface	ca gt Huntcliff j	<i>c.</i> 340+	CG LZ	H/A
H14:9:21	(as above)	gr wa flan bo ca gt Huntcliff j	L3C+ <i>c.</i> 340+		



Fig 4.29 The Period II north wall of Building XIV preserved in the flagging of Chalet 3 in 1960 (photograph by John Wilkes for Durham University Excavation Committee).

Dating evidence (Table 4.11)

The only new dating evidence for Phase 2 recovered during the 1979 and 1981 work on Building XIV derived from the contemporary surface of the *via principalis* at the west end of the block and probably reflects the building's more recent history of extensive excavation and consolidation with the resultant intrusion of later material.

Discussion: Building XIV Phase 2

The evidence presented above follows the interpretative framework set out by the 1979 and 1981 excavators, which was in turn based on that previously set out by Wilkes (1961, 283–4). More recently, Bidwell has proposed an alternative interpretation of the building with particular reference to its later, 'chalet', phases (1991). This results in a more coherent, regular plan for the initial chalet phase, which resembles more closely the contemporary layout of Chalet Range XIII. Bidwell's scheme involves reinterpreting as secondary chalet structures many of the walls which Wilkes and the 1981 excavators considered to be primary chalet side walls (ie H14 Phase 3, Wilkes's period III). More significantly in this context, however, it also, by implication, transfers several of the walls which Wilkes interpreted as 'period II' *contubernium* walls into H14 Phase 3 ('period III'). In terms of Bidwell's published phase plans (1991, 11, fig 3.2) it would be far easier to envisage these as newly

built chalet side walls, which were later partially demolished when the chalets were remodelled, rather than as reused elements of the former 'period II' barrack incorporated into the initial chalet structures, although no interpretation of 'period II' is made explicit in Bidwell's descriptive outline. Bidwell's suggested layout certainly has the advantages of greater regularity and similarity to XIII, noted above, but it is difficult to argue out of existence all of the Phase 2 structural features identified above, notably the evidence for the rebuilding of the block's exterior walls. However, it is conceivable that these various features represent piecemeal repairs and partial rebuildings of certain structural elements of the barrack, rather than a single coherent reconstruction of the entire block. The evidence relating to both of the suggested chalet layouts (H14 Phase 3), which is therefore crucial to any understanding of Phase 2, is presented in the following chapter.

Building XV

H15 Phase 2

The primary walls (H15:1:133–4) on this site were robbed (trench 1:146, for example, robbing wall 1:134, with fills 1:85, 1:127) and a new structure erected. The southern wall of this new building (1:88) lay some 0.95m to the north of the previous south wall (1:133) and was 0.63m broad, its rubble core being bonded

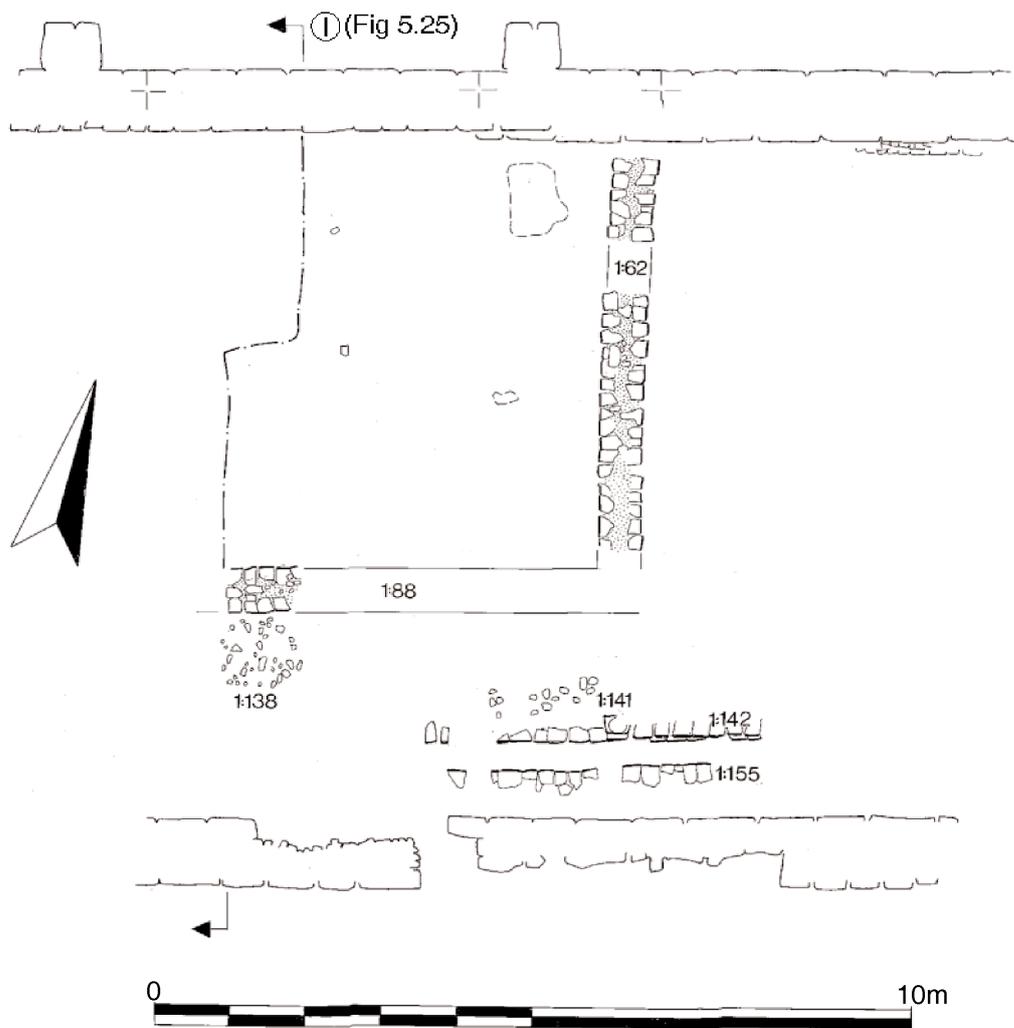


Fig 4.30 Plan of H15 Phase 2 (scale 1:100).



Fig 4.31 South side of Building XV showing the Phase 2 veranda kerb with column base set in.

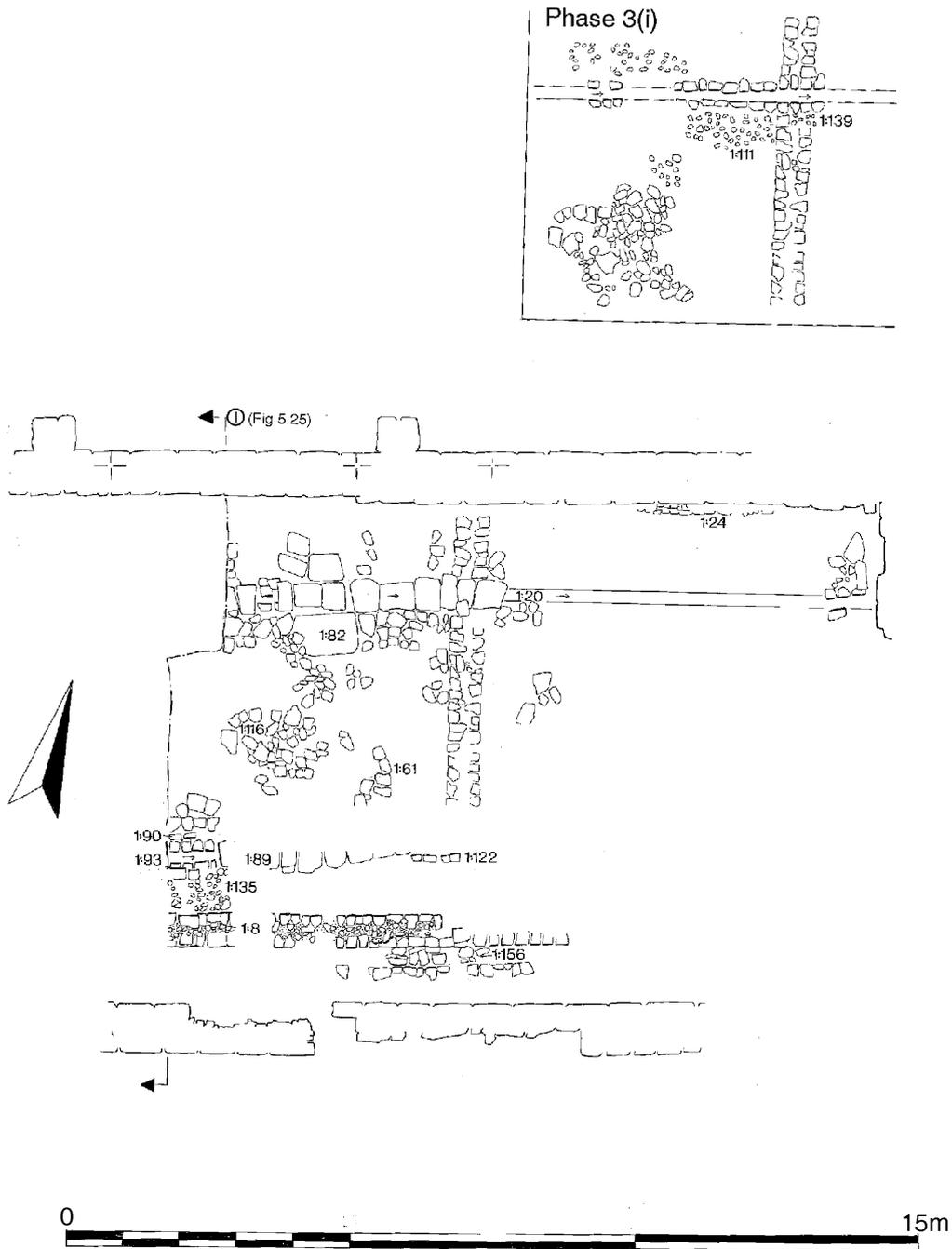


Fig 4.32 Plan of H15 Phase 3 (scale 1:100).

with blue clay. A north-south wall (1:62) of the same width and form, set in a broad construction trench (1:148), was uncovered for a length of 5.2m, presumably joining a north wall beneath the later north wall of the consolidated Building XV (Fig 4.30). The footings of the former east-west wall (1:133) now served as part of the kerb (1:142) for the veranda of the new building. This kerb was traced for at least 3.5m, being clearest to the east where two courses were visible. The lower of the two evidently represented the southern footing of the demolished wall 1:133, but the upper course of facing stones, which showed signs of wear on top, was probably relaid at this stage, being set in orange-brown sand (1:144). At the west end of the excavation, the

south face of wall 1:133 could similarly be seen, in section (I1 – see Fig 4.31), to survive one course higher than its northern counterpart and this course too probably represents kerb 1:142. Here the kerb was set in a layer of grey-yellow sand (1:140), which may be associated with the robbing of wall 1:133. The kerb formed the north edge of a gutter (1:155), which again was clearest to the east, and was presumably designed to carry away rainwater flowing off the veranda roof (Fig 4.31). One of the pillar bases which had supported that roof was found, still *in situ*, set in the kerb, and slightly recessed so that the roof overhang would have ended in line with the gutter. A layer of cobbling (1:141), presumably the metalling of the veranda, was directly

associated with the pillar base, while further cobbling (1:138), set in grey loamy sand, noted to the west, probably also formed part of the veranda surface. The interior floor associated with this building was difficult to differentiate from the subsequent Phase 3 levels and they are therefore discussed together below.

H15 Phase 3

A third phase saw wall 1:88 demolished and the south face of its lowest courses used as the north wall of a new east–west drain (1:89) (Fig 4.32). The south face of the new drain was formed by 1:93, and the whole then covered with slabs that were set between two rows of cut stone (1:90; 1:122), the latter presumably representing the surviving edges of robbed out flagging. A new wall (1:8) was built over the former veranda, roughly on the same line as the south wall of the primary building (1:133), and incorporated the *in situ* veranda pillar base from the previous phase. To the east, the south face of 1:8 was flush with the south face of the underlying earlier wall, 1:133, and veranda kerb 1:142, but to the west the new wall deviated southwards a little, overlapping gutter 1:155, which now went out of use and was filled with stone packing (1:156) (Fig 4.33). Blue clay, presumably derived from the demolition of 1:88, underlay the fill of 1:89 (1:149) and lay between the drain and wall 1:8 (Fig 5.25: Section I1), covering the lower two courses of the north face of that wall. A second drain (1:20) ran parallel to and some 4.5m to the north of the first. A 5m length of this drain was investigated, including the point at which it broke through wall 1:62, while

a further short stretch was revealed at the eastern end of Building XV. Like its southern counterpart, this drain would have flowed from west to east. The new building must have been at least 8.5m wide, its north wall, like those of its predecessors, being concealed beneath the later structure (1:24).

The interior floor, which the two parallel stone drains serviced, appears for the most part to have been flagged. The cover slabs of 1:20 were surrounded by flagging (1:82) set at the same level, while other areas of loosely set, irregular flagging (1:116; 1:61; 1:91) were noted further south and east, dipping markedly down towards drain 1:89 (Fig 4.34). The walls of the previous phase (1:88; 1:62) appear to have been reduced to the same level and incorporated in the flagging, as evinced by the signs of wear on the remains of 1:88. The flagging was laid on a variety of loose loamy (1:107; 1:109; 1:112; 1:23; 1:129) or more compact sandy (1:81; 1:91; 1:117) bedding layers. Survival of the flagging was patchy, presumably largely as a result of disturbance and robbing during demolition at the end of this phase, with some stones (in 1:116) found to be pitched on edge or in many places absent altogether. Thus between 1:116 and drain 1:89 only a thick bedding layer of grey-brown loam and charcoal (1:123; 1:129) remained, while another bedding layer of orange-yellow sand (1:117) was all that survived between 1:116 and 1:61, with a compact layer of yellow-grey sand and small stones (1:81) immediately beyond that. Between extant flagging 1:82 and 1:116, however, the surface had clearly been removed much later, by one of Wilkes's excavation trenches



Fig 4.33 South wall of Building XV Phase 3 with stone packing 1:156 in Phase 2 gutter 1:155.

(1:1; 1:115) in 1961. A number of hearths (1:60; 1:124; 1:125), denoted by patches of burnt reddened clay or dense charcoal, were set into the rough flagging 1:116 and grey-brown loam 1:123. In the southernmost part of the Phase 3 building, to the south of drain 1:89, however, the floor was apparently formed by cobbling (1:135), which was set on a mixed makeup layer of mid-brown sand, blue clay flecks and rubble (1:136). This cobbled surface dipped down slightly from the south wall towards the drain.

Interpretation: the floor surfaces of Phases 2 and 3

The interior floor associated with the Phase 2 building was more difficult to identify with certainty. The clearest sequence was observed in the area to the east of north-south wall 1:62. There, underlying the Phase 3 flagging and sandy bedding (1:91) and adjoining the remains of 1:62, a spread of blue clay (1:120), which doubtless derived from the bonding material used in that wall, probably represents the demolition of the Phase 2 structure. Sealed beneath the clay was a layer of yellow-orange sand (1:121) which was presumably associated with the Phase 2 building. At the west end of the site large cobbles can be seen in section underlying one of flags 1:82 and overlying the primary cobbling (Section I2: Fig 5.25; *see also* Fig 4.34). In addition several layers of cobbling that could not be firmly attributed to the primary phase, but clearly lay beneath the Phase 3 floor might also belong to the secondary structure. These comprise a shattered cobbled surface (1:113) set

in a reddish-brown clay matrix, which was cut by the stone-lined drain associated with subsequent Phase 3 building (1:20), and another possible worn cobble layer of sand and stone (1:131) set in a compact grey sandy loam matrix (1:130). However, the precise relationship of these surfaces to the primary floors was not recorded, either in section or by context sheet, and examination of the site photographs suggests that cobbles 1:113, at least, more probably represent elements of the primary surface (1:145) seen at an earlier stage in the excavation before 1:145 was fully revealed and their significance appreciated. More clearly secondary is a layer of cobbles (1:111) lying to the south of the Phase 3 drain 1:20. This sat directly over the robber trench (1:146) for primary wall 1:134, the fill (1:127) of this trench being composed of the same blue-grey clay used to bond the cores of secondary walls 1:62 and 1:88. The cobbles lay under the Phase 3 flagging 1:82 and the capstones of 1:20, but also overlapped the walls of drain 1:20. A thin (2–3mm) layer of dirty grey clay and charcoal flecks (1:110) – presumably an occupation deposit – covered the cobbling. To the west, another small patch of cobbles (1:139) similarly underlay flagging 1:82, but abutted cover slabs 1:20 and partially overlay the demolished remains of wall 1:62. A further worn surface (1:118) composed of rubble and thin flags lay beneath flagging 1:116. Lower flagging 1:118 and bedding layer 1:123/129 were in turn partially underlain by a layer of grey-brown sandy loam and small stones (1:126), including an area of rubble with stones pitched at angle of 45° (1:132), which may derive from the demolition of the Phase 2 building.



Fig 4.34 Stone floor and capped drain 1:20 of H15/3, viewed from the east.

Table 4.12 Dating evidence from Phases H15/2 and H15/3

<i>context</i>	<i>CW form</i>	<i>FVN</i>	<i>TPQ</i>	<i>samian (latest)</i>	<i>date</i>
H15:1:112 loam bedding for H15/3 flagged floor				D3: CG LZ 37 style of Drusus ii*	125–45
H15:1:123 (as above)	AM 1.0	2033	2C		

* joins with sherds in H20:7:17 (Fig 15.1)

These surfaces are capable of two different interpretations. On the one hand cobbling 1:111 and lower flagging 1:118 may have formed part of the Phase 2 floor. In this case 1:139 must simply represent spoil deposited to one side in Phase 3, following the cutting of drain 1:20 through the earlier cobbled surface, while the overlapping of the drain walls by 1:111 may simply reflect the tamping back into place of part of the cobbling after the drain had been cut through it. The latter option receives some support from the presence of a layer of reddish-brown loam (1:109) to the north and south of drain 1:20, stratigraphically separating flagging 1:82 and the dirty clay skim (1:110) covering cobbling 1:111. It is likely the loam layer derived from the rusty coloured subsoil in the western part of the site and it might represent a spread of spoil from the digging of the drain into natural. However, it cannot be denied that this requires rather a lot of special pleading to explain away various stratigraphic ‘anomalies’. Instead, it is perhaps more likely that cobbling 1:111/139 and lower flagging 1:118 represented an initial Phase 3 surface, subsequently replaced by the fully flagged floor (1:82, 1:116 etc). This would explain the way that cobbling 1:111 partially overlay the drain wallstones, which should imply that it was laid after the construction of the drain, and the presence of 1:139 over the remains of wall 1:62. In this case the Phase 3 building must initially have been serviced by two open drains and featured a mixed, hard surface of cobbles and thin flagging. The Phase 2 building, by contrast, may have a wooden floor, which has not survived, composed of planking laid on a bed of sand. The bedding sand (1:121) was evident in the very area where the stratigraphic sequence was clearest, to the east of Phase 2 wall 1:62, and a wooden floor surface of the kind suggested would have been appropriate for the interior of barrack *contubernia*.

Finds (Phase H15/3)

Copper alloy:

H15:1:123 186 Incomplete copper stud.

The function and dating of Phases 2 and 3 of Building XV

Only a small area of Building XV was excavated in 1981 and no chronologically diagnostic, post-Hadrianic material was recovered in the levels associated with Phases 2 and 3 (see Table 4.12). In order to understand the function and date of these building phases more fully, the evidence from the 1981

campaign must therefore be combined with the results of the previous excavation undertaken by Leach and Wilkes in 1961.

Phase 2

The 1961 and 1981 excavations demonstrated that the second phase of Building XV took the form of a range of separate rooms, roughly comparable in size with the primary *contubernia* of XIII and XIV, furnished with hearths and fronted by a colonnaded veranda (Leach and Wilkes 1962, 88). This combination of features suggests the new building most probably functioned as another barrack block. Admittedly, its veranda was narrower than those of Buildings XIII and XIV and its rooms smaller overall, being shorter (*c.* 5.7m – 19ft) but slightly wider (*c.* 3.75m – 12ft 6in.). Nor has any trace yet been found of any officer’s quarters, which characteristically would have been located at one end of the block and would have occupied the full width of the building, replacing the veranda with additional accommodation space. However, none of these objections is decisive. The different proportions of the veranda and *contubernia* adopted in this phase of XV may simply reflect the fact that it was constructed significantly later than Buildings XIII and XIV, conceivably by a different unit. Similarly XV need not have replicated the primary barracks in the positioning of an officer’s suite. In both XIII and XIV, the officers’ quarters were located at the east end of the block and Bosanquet’s plan suggests that the same was true of the three primary barracks in the southern half of the *praetentura*, XVI–XVIII. The discovery, in the 1981 season, that the veranda and possible *contubernia* of H15/2 continued further eastwards than hitherto realised means that officer’s house could not have been located at the east end of the building, but it might have been situated at the western end of the block, where the construction of a level floor for the storehouse of Phase 4 had removed all evidence for the three earlier phases.

Leach and Wilkes considered this to be the primary phase of Building XV and hence attributed a Hadrianic date to the structure. Discovery of an earlier phase in 1981 (see Chapter 3) overturned this assumption, but no dateable pottery was found in the Phase 2 contexts to help pinpoint when the rebuilding occurred. Leach and Wilkes themselves refer to only one pottery group firmly associated with this phase, ‘a flagon in orange fabric, and a cooking pot in dense black fabric, both assignable to the second quarter of the second century’ (1962, 89–90) found in a pit-like hearth in the westernmost room investigated. The vessels are not illustrated, however, and the descriptions are too vague to

be able to verify the dating today. Instead, the relationship of the building to neighbouring dateable structures and its possible context within the overall history of the fort provide the only clues. As suggested in Chapter 3, construction of a new barrack may have been related to the insertion of a second bread oven (H21:3:53) in the nearby east rampart bakehouse (see Chapter 3). A Raetian mortarium rim (FV 1627; M27/1) associated with the makeup (3:79) of this oven suggests a late 2nd-century *terminus post quem* for the latter's construction. There is evidence to suggest that each individual *centuria* was allocated its own bread oven (see Chapter 3), in which case the erection of an additional barrack block might well be accompanied by the construction of another oven. If the association between the two structures is valid it would in turn imply a late 2nd-century *terminus post quem* for Phase 2 of Building XV as well, but any such dating of H15/2 obviously remains very tentative, particularly given that the dating evidence is limited to just one rim sherd.

Phase 3 – the stable

The 1981 excavation provided a much clearer understanding of the form and hence function of this phase of Building XV than had been possible previously. Whereas Wilkes had assigned the two parallel drains to the subsequent storehouse phase (his 'period III', equivalent to Phase 4 here) it is now clear that they actually belong to Phase 3. Section I shows the drains (H15:1:20; 1:89) buried beneath 0.65m of makeup for the flagged floor (1:3) of the storehouse (Fig 5.25). The Phase 3 floor sloped down from west to east, like its predecessors, but unlike the carefully levelled Phase 4 storehouse flagging. As a result, in the building's central section, which was intensively investigated by Wilkes, the drains were much closer to the surface of the Phase 4 floor than they were at the eastern end, explored in 1981. Consequently it was far easier in 1961 to misinterpret the drains as being associated with the Phase 4 flagging.

Leach and Wilkes also suggested that this phase of the building did not run the full length of Site XV (1962, 88–9). A north–south cross-wall was located within 56ft (c 16.8m) of the surviving west wall of the Phase 4 building. This was interpreted as the west gable wall of the Phase 3 building (their period II). While it is quite conceivable that the building did not occupy the full length of the available building plot, an alternative interpretation is possible. Like XIII and XIV, Site XV sloped down from west to east, as noted above. This slope was sufficiently great to have imposed at least one and in some instances perhaps two breaks in the level of the roof ridge in all the buildings of the *praetentura*. Internally subdivided buildings such as barracks blocks (XIII, XIV or XV Phase 2) or workshop/stores (XV Phase 1) could simply use one or two internal partition walls, such as those separating the officer's quarters from the *contubernia* or one *contubernium* from another, to form the intermediate gable

walls into which could be keyed the beams of the lower roof while the higher roof to the west was carried on top. In its third phase, Building XV apparently had no need for multiple internal partitions. To support such a change in the level of the roof ridge a perhaps otherwise superfluous dividing wall would have had to be inserted. It is conceivable, therefore, that the cross-wall noted by Leach and Wilkes represented just such an internal wall rather than an end gable. It would have divided the stable in two, the western room being smaller than the eastern, but both rooms could nevertheless still have performed similar functions. No trace of the south wall of the Phase 3 building was noted to the west of the cross-wall in 1961, but such a continuation was quite probably simply obliterated when the storehouse was erected during the subsequent phase. This would have been all the easier if the south wall's footings sat at a higher level to the west of the cross wall, where the ground level was higher. Indeed, it is noteworthy that facing stones are absent at the very south-west angle formed by the junction of the south wall and cross wall (see Leach and Wilkes 1962, pl XIV.2), which would be consistent with the continuation of the south wall having been robbed out.

The third phase of Building XV is thus distinguished by two parallel drains running the full length of the interior and a flagged surface (1:116), plus perhaps a single internal division which may have had a specific structural purpose unrelated to the function of the building. This combination of features is most convincingly interpreted as a stable. The flagged floor would have provided a hard-standing, while the two parallel drains would carry away the animals' urine. A very similar structure was uncovered in the north-east corner of Wallsend fort during 1975–76 (Building 1, Stone Phase 2). This took the form of a rectangular hall, measuring 46m × 6m externally, with a flagged floor, no evident internal partitions and a single stone-lined drain that ran the full length of the building alongside the rear (south) wall. The stable was narrower than the stone barrack block which preceded it on the same site and was apparently fronted by a paved veranda, its portico being supported by timber posts. No traces of a portico were recorded in front of Building XV.3, but, even if one had existed, any evidence would most likely have been destroyed by the subsequent construction of the 1.0m wide south wall of the Phase 4 storehouse.

Both the above structures represent a marked contrast with the 'stable-barracks' (Buildings 9 and 12) identified more recently in the southern part of Wallsend fort (Hodgson 1999b, 86–8; and 2003, 37–90), on the basis of parallels at sites such as Dormagen, Ladenburg and Oberstimm on the German and Raetian frontiers (Sommer 1995). Such stable-barracks were distinguished by their use of the front room of each *contubernium* to accommodate horses, with large drainage pits to collect the animals' urine, making for a very close association between the soldier and his horse. It has been plausibly suggested

Table 4.13 Dating evidence from the mid- to late 3rd-century levels at the junction of the *via sagularis* and the street between XIII and XIV (Phase H21/2r)

<i>context</i>	<i>via sagularis surface</i>	<i>CW form</i>	<i>FVN</i>	<i>TPQ</i>	<i>samian (latest)</i>	<i>date</i>
H21:3:103	6th <i>intervallum</i> surface	Crambeck plain r di	–	L3C+	CG LZ Dish	MLA
H21:3:117	makeup for 3:103	BB2 delta r di	–	160–220	CG LZ Curle 21	150–200
H21:3:121	makeup u 3:103	BO 86.0	1629	L2C+		

that the two barracks re-examined at Wallsend comprised part of the accommodation for the cavalry component of an equitate cohort, each barrack housing a *turma* of around 30 men and their horses. By contrast Housesteads was apparently designed from the beginning to accommodate a peditate infantry cohort, and was certainly garrisoned by such a unit, the *cohors I Tungrorum milliaria*, during the 3rd century, when Building XV.3 was probably built (*see below*). The cohort was, however, reinforced during this period by Frisian irregulars (who may have comprised or at least included cavalry). The implications of both Phases 2 and 3 of Building XV for our understanding of the garrison at Housesteads in the 2nd and 3rd centuries is examined in more detail in Chapter 11.

The dating of Phase H15/3

Leach and Wilkes suggested that the Phase 3 building was perhaps erected towards the end of the 2nd century on the basis of an Antonine samian fragment in a burnt layer overlying the foundations of the previous phase (1962, 90) and their belief that the later storehouse was built during or not much later than the early 3rd century (1962, 89–90). Although no additional diagnostic dating evidence was found in 1981, the new work did permit the re-evaluation of some of the material recovered by Leach and Wilkes, notably the radiate coin minted between 259–73, which came from the southernmost of the two drains (Chapter 13: No. 254; cf 1962, 89, where it is described as ‘a coin of Tetricus (AD 270–274)’). The realisation that the drains belong to the Phase 3 stable rather than the Phase 4 storehouse in turn means that the coin cannot have entered the drain after the stable was replaced by the storehouse, and, therefore, that the Phase 3 building did not go out of use before 259 (however, the entire phase might in theory post-date 259; the coin does not provide a *terminus ante quem* for Phase 3). If the Phase 2 barrack building (Leach and Wilkes’s period I) is to be assigned to the Antonine period as suggested above, it is likely that Phase 3 should also be nudged somewhat later than previously assumed. The construction of the stable may therefore be tentatively assigned to some time during the first part of the 3rd century, perhaps during the lifespan of the Severan dynasty, and the building probably continued in use into the latter part of that century, before being replaced by the storehouse of Phase H15/4.

In this context it may also be significant that construction of the very similar stable in the north-east corner of Wallsend fort is most plausibly dated to the early 3rd century. It represented a second or third phase of building on the site, being preceded by a stone barrack block of probable Antonine date and perhaps by an even earlier timber barrack, to judge by analogy with the barracks in the southern part of that fort, where excavations in 1997–8 demonstrated the existence of a Hadrianic timber phase. It is conceivable that the construction of these stable buildings reflects one of the periodic developments in official thinking with regard to the kind of buildings that a fort, whatever its garrison, needed to be provided with to function effectively.

The street between Buildings XIII and XIV

The lowest surface revealed in 1981 covering the street between Buildings XIII and XIV (HSE) probably related to the latter stages of the conventional barrack phase. Earlier layers of metalling were not investigated here, but concordance with the adjacent levels of the east *intervallum* road indicated that this formed the sixth successive surface covering these two streets.

Road 6

This comprised a restricted area of large cobbling (HSE:1:37), which included whin boulders. The surface was probably equivalent to layer H21:3:103 – described as comprising large worn cobbles – which covered the adjacent *via sagularis* to the east, and perhaps to the medium-sized cobbling, H21:4:56, to the south-east. It can also probably be equated with *intervallum* road metalling H21:2:43, part of which was exposed and seen in section east of Building XIII (*see* Fig 3.5), and which was clearly overlain by the secondary east wall of the centurion’s quarters (H13:0:6).

Dating evidence (Table 4.13)

There was no dateable material from the street surface; however, the small assemblage recovered from the related *intervallum* road levels included a plain-rim dish in Crambeck fabric from surface H21:3:103, a type that first appeared *c* 270, implying that the sixth road surface continued in use into the later 3rd century.



Plate 1 *Hearth H20:5:63 in north rampart Workshop 2*



Plate 2 *Hearth H21:2:76 in the north workshop of the east defences*



Plate 3 Western half of the centurion's quarters of Building XIII showing the opus signinum floors and the reddening through heat in the later chalet period hypocaust flue and the oven floor

5 The chalet phase

At the end of the 3rd century, the north-east quarter of the fort witnessed major rebuilding works, involving both strengthening of the defences and the reconstruction of many internal buildings, in what was most probably an integrated programme of renovation and restoration. The defensive improvements included repairs to various stretches of the curtain wall (Crow 1988, 67–71), full reinstatement of the ramparts and construction of several interval towers (two in the north-east quarter alone), which must have given the fort a more dramatic multi-turreted aspect, plus further alterations to the gates. A series of embanked earthwork defences (*see* Chapter 10) may also have been added around the east, west and south sides of the fort at this stage, although a later 4th-century or even sub-Roman date for this work are equally possible. In the interior, the barrack accommodation was now transformed into rows of freestanding structures, or ‘chalets’, most clearly revealed by the excavation of Buildings XIII and XIV in the north-east quarter (*see below*: ‘The buildings’). Probably contemporary with this change was the demolition of the stable on Site XV and its replacement by a great storehouse, the fourth building on this site. These changes are mirrored in the

other quarters of the fort, while at the same time significant alterations were apparently made to the buildings of the central range (cf Crow 2004a, 91–2, 95–8).

The defences

The north rampart (Fig 5.4)

The fourth main phase of activity in the region of the north rampart, and the one which probably coincided with the construction of the chalets, saw the final abandonment of the remaining two workshops (3 and 4) in the centre of the defences and their replacement by an interval tower (Fig 5.1) and a further section of rampart bank immediately to the west, revetted by Wall E (H20:7:14; 7:23–4; 7:45; 8:11; 8:50). The eastern half of the pre-existing rampart was extended slightly westward to link up to the south-east angle of the new tower. Three main phases of Wall E were noted.

Ei: Two types of construction were employed here. The first (facing the eastern part of the new rampart and turning to the north to meet the south-west angle of the interval tower) consisted of well-cut, squared,



Fig 5.1 The north rampart interval tower.



Fig 5.2 Base of Revetment Wall Ei (H20:7:45) south of the tower, featuring dressed oblong blocks laid as headers and stretchers.

oblong, dressed stones, laid in headers and stretchers (Fig 5.2), and this proceeded for 3.5m west of the interval tower (7:45; 8:55). It was tied in with a north–south wall (7:14; 7:44) running from the turn up to the angle of the tower. The dressed stones were 0.55m by 0.15m on average and were bonded with a grey clay (7:26). Further to the west, however, the wall was built of roughly dressed stone blocks (8:50) similar to those of other revetment walls, and this partly overlay the western end of 8:55. It continued westward to butt against the south–east corner of the pre-existing rampart revetment (Wall D), constructed in Phase H20/3d. The wall had slipped to the north and only survived to a height of two courses. It included *spolia* within its fabric, notably a pier base and a stone mortar (8:29; Chapter 12: Nos 25 and 110). Part of the wall (8:50; 8:55) was set in a construction trench (8:54). Associated rampart layers included buff-coloured, compact, sandy soils (7:2; 8:8) mixed with layers of charcoal and clay, some of it burnt (7:26; 7:27) and an extensive compact brown soil. Immediately to the south of 7:45, the sandy clay and cobble surface (7:53) associated with the previous phase may have remained in use.

Eii: The second phase of revetting (7:24; 8:11) sat directly on top of the first, but collapsed up to 0.5m to the north from the original line, in places over the earlier clay dump (8:28), which had originally been deposited in Phase H20/3b or 3d. Up to four courses survived in the west, where the wall was more stable.

It was not possible to distinguish rampart makeup levels associated with this phase of the wall clearly, but loose dark brown soil (8:47) and reddish-brown soil (7:46; 7:49) were recorded lying among and under the stones of this wall, over the preceding sub-phase of walling, 8:50 and 7:45.

Eiii: The third phase was only noted at the eastern end of this portion of the rampart (7:23), up to 5.75m from the turn to the interval tower. It survived to four courses in height and was built slightly south of its two immediate predecessors. Again, no clear rampart for this phase was distinguished.

Further to the west, Revetment Wall D continued in use throughout these phases or sub-phases. At its westernmost limit, this wall (9:11) curved right round to run diagonally to the north–east, leaving an open cobbled area that sloped upward towards the curtain wall, as before.

The new interval tower was contemporary with Wall Ei, since the substantial foundations of the tower (6:12–13; 6:68; 7:13) were associated with the grey clay bonding (7:26) of wall 7:45 and overlain by wall 7:14, which butted against wall 7:24. Both the construction trenches (6:70–1; 7:69; 7:71) and the walls themselves survived. The tower measured 3.6m north–south and 4.75m east–west. The east wall (6:8) was 0.75m thick, but both the south (6:1; 7:12) and west (7:11) walls lacked their inner faces, so it was not possible to be certain of either respective widths or the internal dimensions of the tower, although 2.75m

north–south by 3.1m seem likely. There was a layer of what was probably makeup for the tower floor – which did not itself survive – consisting of mortar, mason’s chippings, and small stones and rubble (6:11; 7:1) over a thicker layer of rubble, perhaps builders’ debris (6:33; 7:33). On the south side, a flagged path led up to the doorway into the tower, which was positioned towards the west end of the south wall. The path was delimited by north–south revetment 7:14/45 on the west side and by a whinstone kerb (7:50) along its east edge. The entrance threshold was worn and shattered, but the rebate for the door jamb survived on the west side. The south–east corner of the tower was abutted by another north–south aligned revetment wall (6:26), the counterpart of 7:14 to the west. Wall 6:26 was attached to the earlier, Phase H20/3d, revetment wall (F), which was now extended *c* 1.5m westwards to meet it. Three postholes (7:36–8) immediately to the west of the interval tower may have been related to the construction of this tower or, perhaps more likely, a later timber tower (*see* Chapter 6 below).

A drain or gutter (G) ran from west to east, marking the interface between the southern edge of the rampart and the *intervallum* road. It was formed from two parallel kerbs (4:17; 5:22; 6:17; 7:25/63; 8:41; 9:23), mainly whinstone plus a little freestone, with an earlier road surface serving as the floor of the drain. The southern kerb (4:17; 5:22; 6:17; 7:25; 8:41; 9:18) acted as the north kerb for the contemporary road surface (3:1/39; 4:9; 5:21; 6:16; 7:8; 8:19; 9:22). The drain probably extended up to the water tank next to the north–east angle tower. Deposits of loose, dark brown soil and stones (4:16; 5:12; 5:28; 8:57), spread over Drain G and the north kerb of the road, doubtless representing material that had washed or slipped off the rampart bank during this period. These dark soil spreads were recorded both to the east (4:16; 5:12; 5:28) and west (8:40; 8:42; 8:48; 8:56–7; 8:68) of the interval tower and their deposition clearly preceded the later widening of the rampart, since, in places, they were observed to extend beneath the revetment walling of Phase H20/4b.

In the former bakehouse area at the eastern end of the rampart, between the east revetment wall (3:23) and the angle tower, a right-angled platform, composed of faced stone with a rubble core, was very likely added at this stage, over the remains of successive bread ovens (3:32; 3:56). The west face (3:31) consisted of as many as three courses of sandstone slabs and blocks, leaning slightly to the west, 2.1m long. The south face (3:18) also survived to three courses and was 1.4m long. If both faces were butted against the fort and tower walls, they would have measured 3.6m by 2.5m respectively. It was noted by the excavators that the feature had the appearance of steps, implying that the feature represented the base for access steps (*ascensus*) to the north wall of the fort, but examination of the photographs suggests it bears a greater resemblance to the enigmatic stone platforms excavated by Simpson

behind the south curtain (Rampart Sector 23) and by Clayton at the south end of the west rampart (Sector 25), subsequently consolidated by the DoE (Fig 9.5). The function of these platforms, which are also encountered at other forts (Vindolanda, for example), is unclear but they were clearly later than the rampart buildings. In this case any stratigraphical links had been destroyed by trenching around the fort curtain and angle-tower walls, and the feature could equally plausibly be assigned to the previous phase (H20/3d), rather than H20/4a as outlined here. However, it is unlikely to be much earlier given the sequence of ovens, which were contemporary with the workshops of Phase H20/3a and, most likely, with the initial reinstatement of the north rampart in H20/3b. Similarly, a later date for the platform is equally unlikely since Revetment Wall H, associated with the next phase (H20/4b), butts up against the south-west corner of the structure and appears to have been secondary to it.

Interpretation

The evidence relating to the remodelling of the northern defences, upon which the description provided above and in the previous chapter is based, was clearest to the west of the interval tower. Here the rampart was certainly reinstated in three separate stages, each of which was associated with a well-preserved revetment wall, the three walls butting up against one another to provide a set of clearly defined structural relationships. Thus, initially, a narrow bank was constructed at the west end of the rampart, revetted by Wall B (H20/3b). This was subsequently widened and retained by Wall D (H20/3d), before finally being extended eastward, faced by Wall E, to adjoin the new interval tower (H20/4a). In the eastern half of the rampart, a narrow bank, revetted by Wall C, clearly replaced Workshops 1 and 2 in Phase H20/3b, just like the bank revetted by Wall B to the west. However, the subsequent widening of this bank associated with Wall F and its slight westward extension to adjoin the tower were all attributed to Phase H20/4a by the excavators. No structures were considered to belong to Phase H20/3d here. This interpretation resulted from the relatively poor preservation of the western ends of Walls C and F, which obscured their original relationship. In actuality, the surviving remains do suggest that Wall F (6:24) initially turned northward to abut the south-west corner of rampart revetment C, in the same way that Walls B and D (8:13; 8:52) related to one another, rather than continuing westward to link up with north–south wall 6:26 and the interval tower. A single course of revetment, set on the west face of the earlier workshop wall 6:43, appeared to link the western ends of Walls F and C. In these circumstances it can be seen that the construction of Wall F was contemporary with Wall D and the final period in the life of Workshops 3 and 4 (ie Phase H20/3d). The combined north–south revetment, forming the western end of Walls C and F,

was largely demolished when the interval tower was erected in Phase H20/4a (the rubble-filled robber trench? 6:21 may represent the residue of such demolition or may even comprise the disturbed remains of the slumped revetment wall itself). This probably resulted in some H20/3b and H20/3d rampart deposits slumping to the south-west (notably 6:23). The deposits in this area were revetted by a new north-south wall (6:26), constructed in Phase H20/4a. This wall was associated with a short westward extension of the rampart bank – the counterpart of the much more substantial rampart addition revetted by Wall E – and linked the extended Wall F to the new interval tower.

Finds

Reinstated rampart

Stone relief and architectural fragments:

H20:8:50 25 Column shaft, base and plinth (Fig 12.3)

Coins:

H20:7:2 Hoard 3: purse of ‘minimissimi’, 273–86?

Copper alloy:

H20:7:2 26 Fragment of a penannular brooch (Fig 14.3)

90 Openwork mount with tinning on the face (Fig 14.9)

128 Three fragments of U-sectioned binding

243 Length of roughly cut rectangular-sectioned rod

H20:7:42 130 Length of U-sectioned binding

H20:7:49 261 Fragment of a rectangular plate

H20:8:8 20 Very small disc brooch with no obvious decoration (Fig 14.2)

41 Incomplete and fragmentary strip bracelet (Fig 14.4)

104 Triangular loop from a button-and-loop fastener

126 Broad strip, with hinge pin seating? at one end

245 Circular-sectioned rod broken at both ends

SF 7487 Copper alloy sheet

Intaglio:

H20:8:8 424 Mottled red jasper (Fig 14.22)

Glass:

H20:7:2 517 Ball of dark blue glass frit

Ceramic objects:

H20:7:2 576 Disc of grey ware. BB1?

H20:8:8 585 Burnt disc of Central Gaulish samian

Glass vessels:

H20:7:2 12 Rim fragment of a shallow plate, blue-green glass (Fig 17.1)

45e Base fragment of a cup, greenish-colourless glass

H20:7:27 45d Base fragment of a cup, greenish-colourless glass

H20:8:8 23 Base fragment of a prismatic bottle, blue-green glass (Fig 17.1)

H20:8:47 42e Cup rim fragment, colourless glass

Graffito (Fig 18.1):

H20:8:8 13 B32 bowl sherds, BELICIANI

Interval tower

Copper alloy:

H20:7:15 27 Small crossbow brooch (Fig 14.3)

H20:7:33 278 Triangular sheet carefully cut to shape

Jet and shale:

H20:6:11 622 Fragment of a shale armet, chevron effect on face (Fig 14.24)

Bone:

H20:7:33 418 Pin made from a fowl bone (Fig 14.21)

Samian:

H20:7:33 St25 Incomplete unidentified stamp

H20:7:15 D31 CG Form Déchelette 72, MLA (Fig 15.2)

H20:7:17 D3 CG 37 style of Drusus ii, c 125–45 (Fig 15.1)

Glass vessel:

H20:7:33 41 Cup rim fragment, colourless glass (Fig 17.2)

Intervallum road

Copper alloy:

H20:4:17 195 Short nail of circular section (Fig 14.13)

H20:8:75 131 Fragment of U-sectioned binding

Glass:

H20:4:17 456 Cylinder bead of green glass

Ceramic objects:

H20:3:39 589 Disc of East Gaulish samian

H20:4:9 549 Half of a samian disc with a central circular hole

Quern (Chapter 12):

H20:9:7 106 Sandstone fragment

Glass vessels:

H20:9:19 47 Beaker/jar base fragment, greenish-colourless glass (Fig 17.2)

Graffito (Fig 18.1):

H20:3:1 10 Foot-ring sherd: [...]. [1–2]VIN[...]. Perhaps [...]i[Q]uin[t ...]i

Wash/slumped deposits from H20/3d rampart

Coin:

H20:4:16 107 ‘Septimius Severus’ 195–6+

H20:5:28 108 ‘Septimius Severus’ 197–8+

Copper alloy:

H20:4:16 76 Circular-sectioned rod with baluster moulding (Fig 14.8)

H20:5:28 107 Incomplete rectangular plate, with attached panel (Fig 14.10)

273 Incomplete plate with two curved edges, pierced by rivet

Glass:

H20:4:16 461 Square-sectioned bead of blue glass

Ceramic:

H20:4:16 581 Disc of East Gaulish samian

548 Incomplete disc of samian with central circular hole

H20:5:12 580 Roughly cut disc of Central Gaulish samian

Stone:

H20:8:42 647 Sandstone disc with a rounded edge

Dating evidence (Table 5.1)

The coarseware assemblage associated with Phase H20/4a was broadly similar to those relating to the previous stages in the reinstatement of the rampart H20/3b, and in particular H20/3d. There were a few examples of later vessel forms/wares, which first emerged in the mid- to late 3rd century, but they formed only a very small proportion of the total assemblage.

There is a somewhat higher proportion of later material from the deposits associated with the construction of the interval tower and from the *intervallum* road surface, although, in the latter case, the sherds were for the most part not demonstrably sealed beneath or within the surface matrix rather than lying on it and therefore do not provide a *terminus post quem*, a point emphasised by the presence of a Huntcliff ware jar.

The bulk of the assemblage, however, provides a *terminus post quem* of no later than the early part of the 3rd century. As we have seen, this is too early on the basis of other evidence, notably the small but coherent mid- to late 3rd-century pottery group from the latest levels of Workshop 3, which preceded the construction of the interval tower. This emphasises the distinction between, on the one hand, residual assemblages brought in from outside the fort, probably incorporated in the rampart dump material, and, on the other, material actually discarded in the course of day-to-day activities.

context	formcode	FVN	date
H20:7:64	JA 125.0	1348	2–3C
H20:7:64	JA 45.0	1346	M–L3C
H20:7:64	BO 90.0	1350	L3C
H20:7:64	BO 5.0	1347	L3C+

The samian evidence deriving from the H20/4a rampart layers or contexts directly associated with the construction of the revetment walls broadly parallels the picture presented by the coarseware. It contains a significant proportion of late 2nd to mid-3rd century material.

As regards the coin evidence, the discovery of a hoard of ‘minimissimi’ was recorded in rampart layer 7:2. The coins were subsequently lost, but they are most likely to be identified with radiate copies of 273–86 (see Chapter 13). This would fit quite well with the other evidence for the H20/4a rampart. The ‘hoard’ probably represents a small purse, perhaps lost accidentally. The layer in which it was incorporated, 7:2, represents one of the large rampart deposits which made up the Phase H20/4a rampart (Fig 5.4). Soil layer 7:2 was clearly associated with the H20/4a revetment. However, it was also recorded as overlying Walls Eii and Eiii (7:23 and 7:24 respectively), the latest repairs to the H20/4a revetment, probably signifying that the rampart material had subsequently slumped forward, a pattern that appears common to most of the large rampart deposits of that phase. (Corresponding

earlier slumping or wash from the initial sub-phase of the rampart may be represented by red-brown soil layer 7:49, which underlay Walls Eii and Eiii.) The coarse pottery from 7:2 provides a *terminus post quem* no later than the mid-3rd century.

The east rampart (Fig 5.5)

Reinstatement of the rampart bank (Fig 5.3)

The eastern defences of the fort were modified in a similar fashion to those of the north. An earthen rampart was rebuilt, but its composition was quite varied: a mid-brown sandy loam with flecks of charcoal and burnt material (H21:2:16); an even spread of angular stones, again with flecks of charcoal (2:17; 2:20); an orange sandy loam (2:19); orange sandy clay (1:38; 2:5); brown material with stones (3:10); red-brown compact loam (4:36), which contained large body sherds similar to those from rampart levels in the northern defences; charcoal (4:19); and a dark brown matrix containing flecks of sandstone chippings (4:36). This rampart was revetted by a single faced wall (1:27/41; 2:4; 2:13; 2:15; 3:4; 3:6–8; 4:8; 5:10) of stones set in yellow clay (4:14). Revetment walls also protected the water tank (3:5) by retaining the rampart (3:6) and the raised road (3:7–8).

The interval tower

Like the northern defences, those on the eastern side also saw the addition of an interval tower and this too was solidly founded (3:16). The foundations butted against the west wall of the former bakehouse (3:15) and, below the level of the lowest course of that wall, were cut into the yellow-grey clay beneath (3:51). Although it had previously been investigated and consolidated, excavation showed that there was burnt clay and charcoal among the whinstones and large quantities of charcoal outside the tower doorway. A layer of burnt stones was set over the whin foundations (3:49). Above the collapsed ovens of the bakehouse and an associated charcoal layer (3:113), a level of yellow-grey clay packing (3:97; 3:108) was probably related to the construction of the new tower, as was a mortar layer (3:98). A hearth was then constructed within the tower (3:40), formed from dressed stone and flags and possibly originally D-shaped (Fig 5.6). There was a stone floor associated with this hearth (3:38), a layer of charcoal to the north (3:39; 3:94), and an area of dirty red clay with charcoal and flecks of grey clay (3:37). To the north and east of the hearth, there was a yellow clay layer (3:97), the surface of which was uneven to the north of the hearth, with cracking apparently filled with charcoal, and there was also a stakehole. The hearth may have been designed for metalworking. A pit (3:34) cut through the dirty red clay (3:37) next to the hearth contained a group of four scabbard runners and a chape (in fill 3:32; see Chapter 14: Nos 114–17, Fig 14.11), perhaps scrap ready for recycling.

Table 5.1 The pottery assemblages associated with Phase H20/4a

<i>context</i>	<i>description</i>	<i>CW form</i>	<i>FVN</i>	<i>CW TPQ</i>	<i>samian (latest)</i>	
interval tower contexts						
H20:6:33	rubble makeup in interior	BO 50.0	1103	c 200+	EG RH 30 & 37	L2M3
		BO 46.0	1102	–	EG RH dish or bowl	L2M3
H20:7:33	(as 6:33 above)				EG RH 31	L2M3
H20:7:1	makeup for tower floor	M 22.1	1295	3C	EG RH 31R, 36, 45	L2M3
		JA 16.0	1296	E3C		
		BO 86.0	1301	L2C+		
		BO 57.0	1299	c 270+		
		JA 75.0	1298	M–L2C		
		BO 155.0	1297	3C		
		BO 52.0	1300	c 200+		
		Derbys type j	–	c 250+		
		BB1 plain r di	–	M2–L3C		
H20:7:32	makeup layer in tower	JA 5.0	1294	c 250+		
		BB1 incip flan bo	–	L2C+		
H20:7:13	interval tower foundations	FL 9.0	1355	–	CG LZ 31R	MLA
H20:6:19	clay deposit S of tower	BO 40.0	1092	c 160+		
		M 17.0	1090	180–230		
		BO 54.0	1095	c 200+		
		JA 94.0	1091	E–M2C		
		JA 48.0	1094	L3C+		
		Dales/Derbys type	–	c 250+		
		Castor box	–			
		1 w sh BB1 j ^a	–	L2–E3C+		
H20:7:15	soil in subsidence S of tower	BO 86.0	1359	L2C+	EG RH 38?	L2M3
		JA 8.0	1360	c 250+		
		JA 74.0	1358	c 200–250		
		M 15.0	1356	160–220		
		BO 44.0	1357	c 140+		
H20:7:17	dark soil S of tower	BO 86.0	1352	L2C+	CG LZ 37 & 38 or 44	ANT
		JA 73.0	1351	E3C+		
		gr wa flan bo	–	L3C+		
H20:6:21	robbing of N–S revetment C	BO 90.0	1096	L3C+		
rampart layers associated with Wall E						
H20:7:2	rampart layer	JA 75.0	1324	M–L2C	EG RH 31, 31R, 33	L2M3
		BO 86.0	1328	L2C+	CG LZ 37 style of Casurius ii	160–90
		BO 44.0	1314	c 140+	CG LZ 37 style of Do(v)eccus i	165–200
		BO 19.0	1326	M–L2C	CG LZ GSM	170–200
		BK 2.0	1316	M2–M3C	EG RH dishes & bowls	
		BO 91.0	1318	c 140+		
		BO 56.0	1313	c 200+		
		JA 86.0	1322	L2–E3C		
		JA 13.0	1323	c 250+		
		JA 108.0	1325	–		
		JA 126.0	1327	2–3C		
		JA 71.0	1321	E3C+		
		BO 86.0	1320	L2C+		
		BO 40.0	1315	c 160+		
		BK 4.0	1317	E3C		
		BO 86.0	1319	L2C+		
		Dales type j	–	c 250+		
		BB1 plain r di	–	M2–L3C		
		BB2 sm rnd r bo	–	c 140+		
H20:7:24	Revetment Wall Eii	JA 73.0	1290	E3C+	CG LZ GSM	170–200
H20:7:27	rampart layer	BO 86.0	1293	L2C+		
		M 18.0	1291	180–230		
		JA 66.0	1292	L2C+		
H20:7:49	rampart layer	JA 24.0	1337	E3C	CG LZ 31	MLA
		BO 91.0	1336	c 140+		
		JA 75.0	1334	M–L2C		
		BO 86.0	1338	L2C+		
		BB1 incip flan bo	–	L2C+		
H20:8:8	rampart layer	JA 75.0	1403	M–L2C	EG RH 31	L2M3
		JA 55.0	2429	M2–M3C	EG RH 33	L2M3
		JA 55.0	2428	M2–M3C	EG RH 33	L2M3

Table 5.1 (Cont'd)

<i>context</i>	<i>description</i>	<i>CW form</i>	<i>FVN</i>	<i>CW TPQ</i>	<i>samian (latest)</i>	
		M 16.0	1396	160–220	EG RH 37	L2M3
		BO 29.0	1393	M–L2C	EG RH 38	L2M3
		JA 45.0	1402	M–L3C	EG RH dish or bowl	L2M3
		JA 55.0	1398	M2–M3C		
		JA 70.0	1392	E3C+		
		BO 86.0	1389	L2C+		
		BO 41.0	1390	<i>c</i> 160+		
		BO 40.0	1391	<i>c</i> 160+		
		BO 50.0	1387	<i>c</i> 200+		
		JA 67.0	1386	E3C+		
		BK 20.0	1399	L2–E3C		
		JA 72.0	1404	L2C+		
		JA 78.0	1401	2C		
		BO 25.0	1388	M–L2C		
		m hm C2	–	2C		
		BB1 plain r di	–	M2–L3C		
	intervallum road					
H20:3:39	intervallum road surface	BO 52.0	2313	<i>c</i> 200+	EG RH 33 or 38	L2M3
		JA 55.0	2315	M2–M3C	EG RH dishes or bowls	L2M3
		JA 83.0	2316	M–L2C		
		BO 27.0	2317	M–L2C		
		JA 61.0	2314	M2–E3C		
H20:4:9	intervallum road surface	M 23.0	2180	L2–E3C	CG LZ 31 St16: Primanus iii	160–200
H20:7:8	intervallum road surface	gr wa flan bo	–	L3C+		
H20:8:19	intervallum road surface	JA 75.0	1405	M–L2C	EG TR GSM	170–200
		ca gt j	–	3–4C		
H20:8:42	fill of Drain G	JA 105.0	1512	E3C+	CG LZ 45	170–200
		m hm hh ^b	–	3–4C	CG LZ GSM with 20 8 40	170–200
H20:9:19	N side of Drain G	ca gt Huntcliff j	–	<i>c</i> 340+		
		ca gt j	–	3–4C		
H20:9:40	road makeup	BB2 sm rnd r bo	–	L2–E3C		
	slumped deposits from H20/3d and H20/4a ramparts					
H20:8:47	dark loose soil S of Wall Eii	JA 24.0	1536	E3C	EG RH 33	L2M3
		JA 75.0	1534	M–L2C		
		JA 70.0	1535	E3C+		
H20:8:48	dark loose soil S of Wall D	BO 86.0	1519	L2C+	CG LZ 33 & dish/bowl	ANT
		BB2 sm rnd r bo	–	L2–E3C		
H20:8:68	dark soil feature S of Wall E	BO 42.0	1511	<i>c</i> 140+		
H20:4:16	loose soil S of Wall F?	JA 83.0	1121	M–L2C	EG RH 30 or 37	L2M3
		BO 42.0	1116	<i>c</i> 140+	EG RH 37	L2M3
		OT 1.1	1115	3C	EG RH 38	L2M3
		JA 55.0	1122	M2–M3C	CG LZ 45	170–200
		JA 55.0	1119	M2–M3C		
		JA 75.0	1125	M–L2C		
		JA 1.0	1120	<i>c</i> 250+		
		BO 39.0	1117	<i>c</i> 160+		
		JA 133.0	1123	3–4C		
		BO 36.0	1118	<i>c</i> 140+		
		JA 73.0	1124	E3C+		
		M 20.0	1113	160–220		
H20:5:12	as 4:16	JA 17.0	1482	E3C	EG RH 38	L2M3
		JA 70.0	1484	E3C+	CG LZ 45	170–200
		BO 35.0	1485	<i>c</i> 140+	EG RH –	L2M3
		M 18.0	1480	180–230		
		JA 83.0	1483	M–L2C		
		BK 25.0	1481	3C		
		l w sh Castor box	–			
		m hm hh	–	3–4C		
		BB1 plain r di	–	M2–L3C		
		m hm C2	–	M–L2C		
		BB2 plain r di	–			
H20:5:28	as 4:16, u H20/4b wall 5:25				CG LZ 37 style of Do(v)eccus i	165–200

^a with obtuse angle cross-hatching^b with orange painted decoration



Fig 5.3 Successive revetment walls south of the east interval tower. The first (?Hadrianic or Antonine) revetment wall is visible in the foreground, with that belonging to Phase H21/4 beyond and the H21/3 wall to the rear.

Over the remains of the bakehouse western extension, the rampart revetment reused part of the latest oven base to create a semi-circular revetted platform in front of the interval tower. The alignment of the secondary south wall of the bakehouse (4:43) had clearly been cut subsequently by the rampart retaining wall, 4:8/11, which featured rubble and reused blocks packed vertically behind the revetment facing, and which then overlaid and followed the surviving stone facing of the oven platform (4:42). The north end of the curving revetment, where it turned towards the doorway of the tower, was formed from large whinstone blocks (3:23), the largest being $0.35 \times 0.6\text{m}$ in size and these were heavily worn. Use of whinstone boulders seems to be a characteristic of this phase. The resultant platform measured 2.85m from north to south, and 1.5m east to west.

Realignment of the *intervallum* drain

It was probably also at this stage that the stretch of the *via sagularis* drain at the northern end of the east rampart was realigned to turn west (H21:1:3), running alongside the primary rampart revetment and then north through the doorway of the secondary interval tower, possibly servicing a latrine in the tower, before finally passing through the fort wall to issue immediately

behind Hadrian's Wall (Simpson 1976, figs 48 and 52). A drain (H20:2:6) emerging from the north-east corner of Chalet 1 in chalet range XIII joined the realigned *via sagularis* drain just outside the doorway into the tower. The southern end of the redundant stretch (H21:1:5/6), in the area of the former entrance passageway to the primary angle tower, was robbed out, along, in all probability, with the associated stone packing and the remains of the southern revetment of the passageway. The remains of this robbing are represented by rubble (1:35) packed in a dark grey clayey loam (1:44), the whole much looser in consistency and clearly distinguishable from the surviving earlier packing (1:7). The remainder of the redundant drain channel (1:5/6) was packed with rubble (1:4), the cover slabs having been removed, presumably for reuse on the new drain course. Rampart deposits, comprising orange sandy clay and loam with some rubble incorporated (1:8), were then dumped over the top.

The realignment may well have been inspired by a realisation that any collapse or blockage in the buried channel where it passed under the reinstated rampart would have been very laborious to repair, involving digging out the rampart to reach the problem. Rerouting through the angle tower had an additional benefit. As well as serving as a sewer for effluent from the officer's quarters in XIV, the *via sagularis* drain



Fig 5.6 *Hearth feature inside the east rampart interval tower.*

probably functioned as a storm drain, taking runoff from the roofs of Buildings XIV and XV and the intervening alley. Simpson's photographs (eg 1976, fig 52) show a wide drain channel, formed by upright slabs and squared rubble, located alongside the inner face of the tower's east wall and exiting through a wide outlet in the curtain wall. This channel may have been surmounted by a latrine that would have serviced the requirements of the ordinary *milites* in the north-east part of the fort, and which could have been flushed periodically by storm water flowing down the *via sagularis* drain.

Finds

Rerouting of the via sagularis drain

Copper alloy:

H21:1:35	19	Disc brooch (Fig 14.2)
	144	Incomplete hollow-domed boss
	206	Small rivet with a hammered head
	250	Rod of irregular section
	296	Triangular fragments of a plate
	SF 9071–2, Three copper alloy sheets	
	9186	
H21:1:44	44	Semi-oval sectioned wire (distorted bracelet)

Stone:

H21:1:35	714	Possible throwing stone
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Construction of interval tower on the site of the bakehouse; hearth inside tower

String course block:

H21:3:48	61	Small fragment possibly from a moulded string course block
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Copper alloy:

H21:3:16	147	Small disc stud with a nicked edge
H21:3:31	115	Scabbard runner (Fig 14.11)
H21:3:32	116	Scabbard runner (Fig 14.11)
H21:3:32	117	Scabbard runner terminal (Fig 14.11)
H21:3:32	114	Peltate scabbard chape (Fig 14.11)
H21:3:104	122	Oval buckle of triangular section (Fig 14.11)

Stone:

H21:3:17	717	Roughly worked 'ballista' shot
H21:3:18	718	Unfinished 'ballista' shot
H21:3:39	719	Possible ballista/throwing stone

Quern (see Chapter 12):

H21:3:16	83	Part of an upper stone (Mayen lava) (Fig 12.4)
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Samian:

H21:3:69	D7	CG 37 style of Cinnamus ii, c 150–80
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Botanical sample:

H21:3:39		Charcoal layer
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Redeposition of the ramparts with associated retaining wall

Stonework:

H21:3:8	117	Reused slab with rectangular-sectioned groove
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Copper alloy:

H21:1:8	201	Tack formed from a rolled sheet
	264	Plate with 2mm hole drilled through it
	280	Incomplete plate with cut edges and a central split (Fig 14.13)
	SF 8799–801 Three copper alloy sheets	
H21:2:5	236	Strip curved to form a loop. Clip or hook
	291	Strip with a rounded end pierced by a disc-headed rivet
	292	Incomplete rectangular sheet

Lead:

H21:1:38	395	Lead sheet with an embossed design (Fig 14.20)
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Quern:

H21:3:8	107	Reused irregular sandstone slab with conical hole
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Graffito:

H21:4:36	14	BB2 bowl, NIIVTO (Fig 18.1)
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Via sagularis road surfaces belonging to Phase 3

Copper alloy:

H21:2:3	248	Rod of semi-oval section
H21:3:41	17	Incomplete circular disc brooch with concentric rib (Fig 14.2)

Ceramic:

H21:3:41	554	Half of a burnt samian disc with a central circular hole
H21:2:3	597	Roughly cut disc of Central Gaulish samian

Glass vessel:

H21:2:10	7	Beaker rim fragment, blue-green glass (Fig 17.1)
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Dating evidence (Tables 5.2 and 5.6)

The contexts associated with this phase of the eastern defences contributed little additional evidence that was helpful in determining the date of the overall defensive remodelling. In the first place the quantity of material was much smaller than that deriving from the northern defences. Moreover, none of the coarse pottery types found in the reinstated rampart layers or in the construction levels of the interval tower need have emerged after the late 2nd or beginning of the 3rd century and all potentially pre-dated the latest forms associated with the underlying workshop levels (*see* Table 4.2), nor were there any stratified coin finds associated with these features. It is clear that the same factors that resulted in the incorporation of residual pottery assemblages in the layers of the north rampart, when the latter was reinstated (*see* Chapter 4 and above), also applied to the east rampart deposits.

The association of calcite-gritted ware with the realignment of the *intervallum* drain is noteworthy, but otherwise only the contemporary levels of the *intervallum*

road produced coarseware and coinage that certainly could not have pre-dated the late 3rd century (*see* Table 5.6). Although the quantities were very small, they included a Tetrican coin, and rim sherds from a grey ware flanged bowl and a Crambeck plain-rim dish, the latter being found in association with the road level (the sixth successive surface) which preceded the refurbishment of the defences (*see* Table 4.2). It is likely that the material deposited on the road surfaces more closely reflects the date of the phase than that which was incorporated in large dumps of clay and loam and probably brought in from somewhere outside the fort during the course of these major construction operations.

The buildings**Building XIII** (Figs 5.16–17)

A major reconstruction of this building was undertaken in this phase (H13 Chalet Phase 1), involving the transformation of the barrack block into a row of predominantly freestanding structures known as ‘chalets’

Table 5.2 Dating evidence associated with the refurbishment of the east defences (Phase H21/3)

<i>context</i>	<i>CW form</i>	<i>FVN</i>	<i>CW TPQ</i>	<i>samian (latest)</i>	<i>date</i>
Demolition of bakehouse prior to construction of interval tower (H21/2g)					
H21:3:60	–	–	–	CG LZ 31	ANT
Construction of interval tower with large internal hearth (H21/3a)					
H21:3:31	BO 86.0	1619	L2C+	–	–
H21:3:33	JA 49.0	1621	–	–	–
H21:3:69	–	–	–	CG LZ dish & Curle 23	MLA
H21:3:94	–	–	–	CG LZ 31	ANT
H21:3:108	–	–	–	CG LZ 33	ANT
H21:3:113	BB2 j	–	M2C	–	–
	gr wa j	–	M2C	–	–
Reinstatement of the east rampart (H21/3b)					
H21:1:8	BO 37.0	1604	<i>c</i> 160+(?)	CG LZ 31	MLA
	JA 132.0	1602	2–3C	CG LZ 31	MLA
	BO 42.0	1603	<i>c</i> 140+	–	–
	BO 18.0	1601	L1–E2C	–	–
	BB1 plain r di	–	M2–L3C	–	–
H21:2:4	BB2 sm rnd r bo	–	L2–E3C	–	–
H21:2:5	–	–	–	CG LZ 30 or 37	H/A
H21:2:16?	–	–	–	EG RH dish	L2M3
H21:2:17	–	–	–	CG LZ 72	150–200
H21:3:10	–	–	–	CG LZ 31R	MLA
H21:3:44	BO 33.0	1640	<i>c</i> 140+	–	–
H21:4:19	JA 55.0	2056	M2–M3C	CG LZ 37	ANT
H21:4:36	BO 36.0	2058	<i>c</i> 140+	CG LZ 37 ^a	160–95
	BK 34.0	2057	L1–E2C	D10: CG LZ 37 ^b	160–90
Re-alignment of via sagularis drain (H21/3c)					
H21:1:3	–	–	–	CG LZ 33	ANT
	–	–	–	St14: Patricius ii	140–60
H21:1:35	JA 55.0	1610	M2–M3C	CG LZ 30 or 37	ANT
	BB2 sm rnd r bo	–	L2–E3C	CG LZ 33	ANT
	ca gt j	–	3–4C	CG LZ 37	ANT

^a style of Paternus v^b style of Advocisus (Fig 15.1)



Fig 5.7 General view of Chalet Range XIII, looking west, with the western half of Chalet 1 in the foreground.



Fig 5.8 View of the west end of Chalet Range XIII, from the east, with Chalets 7, 8, 9 and 10 exposed.

(Figs 5.7–5.8). Overall, this seems to have involved the demolition of the barrack block superstructure and some of the stone footings, while other such walls were incorporated into the new design.

In the text that follows, a description of each feature is followed by an interpretation, where appropriate.

Chalet 1

Situated at the eastern end of the range, Chalet 1 was the largest of these structures, measuring 9.25m north–south by 9m east–west, and occupied almost the entire area of the centurion’s quarters associated with the earlier barrack block. It reused the previous north wall by and large, although an earlier door had, at one point (H13:1:16), been blocked and a new wall built over the top. A new west wall (1:4), 0.5m wide and resting on a foundation of flagstones (*see* Fig 4.20), was constructed some 0.55m east of the old west wall of the centurion’s quarters, forming an alleyway between Chalets 1 and 2, access to which was provided by levelling the old north wall of the barrack at this point. At its southern end, this new wall butted against the former barrack south wall (1:2), which continued in use. The east wall of the centurion’s quarters was also retained (0:6), and a new monolithic threshold (0:43) was added over the earlier slab (0:44), maintaining access to the south-east part of the building. A square block of the same width (0.4m), lay at the south end of the threshold stone and perhaps formed the sill or seating for the door jamb. The northern part of this wall may have incorporated half-timbered upper works or shuttering since the uppermost surviving course there narrowed to the width of individual square blocks

(0.45–0.5m), similar to that beside the southern threshold. Whether this was an original feature of the east wall or a chalet period remodelling is not clear. The singular form of this wall may be related to the function of the eastern half of the building.

A large stone bollard located outside the south-east corner of Chalet 1 was most probably placed there during this phase, rather than in the final phase of the conventional barrack block. The cylindrical stone block is paralleled by the large whinstone boulder situated at the north-east corner of Chalet Range XIV (Building XIV Phase 3 – *see below*), while a somewhat similar function may have been performed by the semi-circular kerb of whinstone boulders (H21:3:23) in front of the interval tower on the east defences. Both of the bollards were presumably designed to protect their respective buildings from damage by passing vehicles and were perhaps necessitated by the increased traffic circulation generated by the large storehouse to the south (Building XV Phase 4), which was also probably erected at this time. Indeed, Wilkes noted that the outer face of the whinstone boulder beside Building XIV Chalet 1 was ‘grooved as though by the wheels of passing carts’ (Wilkes 1961, 287), suggesting it performed its intended function.

In its later phases this chalet was partitioned by a series of north–south cross-walls (0:1; 1:7) and it may well have followed this general layout from the beginning, the primary partition wall perhaps being represented by the facing (1:57) which can be seen to underlie the later cross-wall, 1:7, on a slightly different orientation (Fig 5.9). This clearly served as the western side wall of a north–south drain (1:267 – *see below*), but it may also represent the footings of a demolished primary cross-wall, the remainder of which was not



Fig 5.9 H13:1 from the west with two phases of the chalet cross-wall (1:7/57) apparent in the background.

observed because of the presence of the later cross-wall. The apparent irregularity of facing 1:57, adequate for a drain but not altogether consistent with a structural partition, could conceivably be the result of damage caused by later demolition of the primary wall. The height of the lower courses certainly displayed greater regularity. Alternatively, it is possible that one or more of the partition walls from the latest barrack phase remained in use. Of the north–south partition walls, only one, 1:117, was overlain by levels associated with the demolition of the centurion’s quarters (1:54, 1:63, 1:64, 1:75). Hence there is no conclusive proof that the remainder went out of use when Chalet 1 was constructed. The surviving remains of southern partition, 1:92, in particular, were directly overlaid by the large oblong monolithic blocks (1:79), which are assigned to Chalet Phase 2, but not by any levels attributable to the primary chalet phase. The careful manner in which the drain side wall 1:266 was constructed alongside this wall implies a degree of integration into the structural phase appropriate if the partition was still functioning. In contrast, the apparent lack of care taken in the way that an east–west drain belonging to the primary chalet phase (1:268 – *see below*) was cut (1:69) through the two partitions in the northern part of the chalet (1:15, 1:43), with no attempt to rebuild them with proper facings for the drain, implies that those walls had already been demolished.

There was probably an entrance to the chalet at the northern end of the west wall and a wall (1:52), 0.45m broad and running east–west, divided the western part

of the building in two (Fig 5.10). A possible doorway between the north and south rooms was suggested by a centrally placed flagstone, in line with the facing stones of 1:52, and with a piece of iron let into it. In the north room, a drain flowed from west to east (1:268), linking up with a north–south drain 1:267 and passing under the later cross-wall (1:7), and then immediately turned north. It had been systematically robbed out and back-filled (1:53, 1:59, 1:69) in the western part of the room, where the drain was presumably lined with faced stones, and the consequent robbing cut was up to 0.75m wide. However, in the drain’s central stretch, where it cut through the two earlier partition walls and intervening solid clay dump belonging to Barrack Phase 5, side walls were unnecessary and the channel was only 0.3m wide. The east end survived (1:74), remaining in use as part of Drain 1:267. In the south room, another drain (1:78) flowed northwards from the south wall of the building to the medial wall and this had capstones 0.5m wide. The channel of the drain was 0.35m wide at the top and 0.25m at the bottom, its depth was 0.2m and it was lined with grey clay (1:83). Just before it reached the medial wall, the channel broadened into a box-like pit 0.65m across. On one side, it appeared to have been lined with a stone slab, but it had suffered during preparation for the construction of the next phase. There were traces of a surface of small flat stones (1:96) associated with this drain.

A third drain (1:267) flowed northward alongside the possible north–south partition (1:57), as noted above, crossing virtually the entire width of the chalet



Fig 5.10 South-west corner of Chalet 1 showing the primary chalet drain, 1:78, and the later hypocaust and oven.

from the south wall right up to a junction with the east–west drain. This drain was between 0.15m and 0.35m wide and 0.2m deep. The eastern side wall was formed by the line of roughly coursed stones (1:57) packed with clay (1:76) described above. The western side wall was made up of several distinct elements. To the north, an earlier passageway wall belonging to the centurion’s quarters (1:43) was reused. In its central section, where it was at its narrowest, the drain was flanked by two upright slabs (1:73), while the southernmost stretch of the side wall was composed of a single course of additional facing stones (1:266) neatly laid along the side of another earlier partition wall (1:92). The bottom was formed by an earlier level of flagging (1:58). It is unclear whether or not the drain was covered. The reuse of earlier structural elements, such as the partition walls built in the final phase of the conventional barrack and flagging laid in Barrack Phase 4, suggests that this feature belonged to the primary chalet phase, like the other two drains, although it evidently continued in use after the east–west drain had been demolished.

No distinct floor surface attributable to the primary chalet phase was evident over most of the western half of Chalet 1, and it is likely that the demolition layers that marked the transition between the conventional barrack and chalet phases – for example 1:54 and 1:63 (*see* Chapter 4) – served as the bedding for a flagged floor that has not survived.

The eastern half of the chalet received a new paved floor (0:18), which was only partially preserved. Near the southern end of the building two layers of flags were directly superimposed over the earlier flagged floor (0:19), perhaps to fill in a depression there. The depth of intervening makeup material was much greater towards the centre where another section of the flagged surface remained.

The paved floor probably continued without interruption into the northern part of the building, where a flagged surface (0:58) was found in association with a network of drains, which may have functioned as a latrine. A full understanding of the complex arrangements here was hampered by disturbance resulting from Bosanquet’s earlier investigations. Bosanquet’s site plan (1904, pl xix) suggests that he explored this corner of the building quite intensively, tracing several drains, and much of the rubble fill (eg 0:12; 0:14) removed from these features by the 1970s excavators may represent backfill or disturbance from the earlier excavations. The layout revealed by the excavations may represent more than one phase. The most obvious channel (0:11) ran from west to east, utilising the south face of partition wall 0:27 belonging to the previous phase, while its south wall was formed by a line of stone blocks (0:51). The drain contained a fill of dark brown soil (0:11). The west end of the channel was closed off by two small squared stones, although this blocking may not have formed part of the initial layout. What course the drain originally took further west is not

known. The areas immediately to the south and north of the channel were covered with flagging (0:58). That to the north of the channel sloped up markedly towards the north wall and covered the drain that entered this area from the western half of the building (0:53).

To the east, conduit 0:11 joined a north–south channel (0:9) that ran along the west side of the primary east wall of Building XIII (0:17) and may originally have extended further south under the later causeway. Three cover slabs were recorded overlying this arm of the drain, between the edges of flagging 0:58 and former east wall 0:17. At the point where the two branches of the drain (0:11; 0:9) met, it appeared that the remains of the earlier east–west partition wall (0:27), which formed the north side of channel 0:11, had been deliberately demolished (the wall was clearly much less well preserved at this point). This was presumably to allow the effluent from 0:11/0:9 to flow into a channel through the stone-packed pit (0:54) to the north, and thence through the outlet in the north wall of the building. This channel formed the northern arm of the drain system, which thus had a T-shaped layout, overall. Two large cover slabs (0:50) were found over this northern channel, set at a much lower level than those overlying the corresponding southern arm, 0:9. A small pillar of masonry set on the demolished remains of the primary east wall, which perhaps originally formed part of the east end of wall 0:27, may have been deliberately retained to perform some function associated with Drain 0:9/11. Bosanquet’s site plan suggests he regarded the gap between the primary and secondary east walls in the northern half of the building as forming another drain channel, but this interpretation was not adopted by the excavators in the 1970s, as the area was found to be packed with clay that contained much pottery (0:22) probably contemporary with the construction of the secondary east wall (0:6) in Barrack Period Phase 5 (*see* Chapter 4: Building XIII, dating evidence). Initially the effluent from Drain 0:11/0:9 was probably discharged through an outlet in the north wall of the building, just to the west of demolished wall 0:17. The drain coming from the western half of the chalet (0:53) must also have reached this outlet. A stone-capped conduit (H20:2:6) then ran north to link up with the main sewer running alongside the east *intervallum* road, releasing its effluent through an outlet in the north-east angle tower, where there was another probable latrine (*see above*).

The eastern half of the chalet was entered through a doorway in the east wall, as described above. The monolithic door sill in the east wall had a groove and hole in it, presumably related to the fittings of the door itself. At a later stage, a slightly elevated pathway or ‘causeway’ (0:7), up to 1.55m wide, was laid across the eastern part of the building to provide direct access to the western half (Fig 5.11). This occurred while the chalet’s primary floor, 0:18, was still in use and prior to the construction of the later cross-walls 0:1 and 1:7. Thus, gravel (0:33) associated with the secondary flagstone (0:15)



Fig 5.11 East end of Chalet 1 showing flagging, later 'causeway' and reused monolithic threshold.

and gravel (0:31) floor in the south-east part of the building overlapped the southern edge of the initial causeway surface, indicating that the construction of the first causeway preceded the laying of this secondary floor. However, it is unlikely that the causeway formed part of the chalet's original layout. The earliest causeway surface (0:41) was composed of a layer of neatly set stone blocks and incorporated the central section of the chalet's east wall at its eastern end, where it issued directly out on to the east *intervallum* road. The causeway entrance thus lay immediately north of the large threshold block (0:43) associated with the doorway giving direct access to the southern part of the building. Even if, as is quite likely, this threshold block was a reused stone – perhaps robbed from one of the *vicus* buildings, where sills with settings for timber shuttering and doorways are well represented – the fact that it was laid directly over the earlier threshold (0:44) strongly implies it was still being used as a door sill in Chalet 1, rather than serving merely as the base for a half-timbered wall, for instance. There was no evidence that the causeway path was actually partitioned off from the south-east room to form a separate passageway so it is reasonable to conclude that the causeway entrance replaced that relating to the threshold block, rather than

assuming that both entrances were in use at the same time, giving access to the same area, an unnecessary duplication.

When laid, the causeway clearly sat at a higher level than the flagged area to the north associated with the drain channels 0:11 and 0:9, though it had evidently subsequently subsided towards the west, where there was no convenient, solid platform available like that provided by the remains of the primary east wall (0:17). The west end of the original causeway remained hidden from view, beneath the later flagged surfaces (0:56–7) associated with the doorway into the western half of the building. Photographs showing the north side of the causeway in elevation, give the clear impression that this edge comprised two courses of revetment walling, rather than two distinct phases of surfacing – primary and secondary (see Fig 4.22). It is possible that initially this represented a raised kerb along the north edge of the causeway, retaining the primary surface and perhaps forming the base for a timber and wattle screen separating the causeway and the area to the south from the suggested latrine area to the north. Certainly no such regular face was revealed on the south side of the causeway, which suggests that the area to the north did indeed function differently from that to the south. Later this raised kerb or plinth would have acted as a revetment for the resurfacing of the causeway. Contemporary with the causeway's construction, a new flagged floor (0:59) may have been laid to the north. This flagging was in turn overlain by a hearth, denoted by a patch of clay that had been burnt a red colour (0:21), located right up against the north edge of the causeway.

Interpretation: the function of Chalet 1

The size of Chalet 1, plus the greater complexity of its internal arrangements, suggests that this structure did not fulfil the same function as the remainder of the chalets further west, and perhaps continued to provide accommodation for an officer in the same manner that the centurion's quarters had in the earlier, conventional, barrack block. Indeed the overall layout of the building was not dissimilar to the latest phases of the barrack period centurion's quarters, being divided into two main parts by a north–south spine wall. The western half probably housed the main living accommodation as had been the case previously (during Barrack Phases 4 and 5 this part of the centurion's quarters contained rooms floored with *opus signinum* and perhaps a cooking area). In contrast, the eastern half had a heavy duty flagged floor, similar to that which preceded it, and may have been used for storage or ancillary functions. The various drain channels in the north-east corner of the building may have formed part of a latrine and there seems to have been at least a latrine pit in this area during the two previous phases. Indeed the combination of these drains and a hard-standing raises the possibility that this half of the building provided stabling for the centurion's horse, similar

to that provided in the stable-barrack officers' houses revealed most recently at Wallsen (see Hodgson 2003, 58–9, 66, 98–100, 109–13).

Chalets 2–7

The chalets to the west of Chalet 1 differed from the earlier *contubernia* in extending right over the area of the former veranda to the north. In their original state, the north frontages of these buildings do not appear to have been closed off with stone walls, and it is likely that some kind of timber walling or shuttering was used instead.

Chalet 2 measured 10.25m north–south by 4.25m. Its east wall (2:1) employed the old west wall of the centurion's quarters, although a construction trench (2:27) to the east of the wall, which cut through the final floor of the centurion's quarters, indicated some restoration work on this wall. The northern 2.5m of the wall had been rebuilt using larger stones, with a particularly sizeable slab forming the wall terminal, and was aligned slightly to the west of the more normal orientation. The west wall (2:34) was 0.5m wide and was bonded with the later north wall, indicating a subsequent rebuild. The northernmost 2.5m was on the same alignment as the east wall, but the rest of the wall was a reused barrack wall. No trace of the south wall of the barrack was revealed by excavation. It had probably been removed when the orientation of the chalet was apparently reversed during a later phase. The floor in the northern half of the chalet was flagged (2:6), the stones also passing out through the entrance in the north wall. The southern part had a floor of orange sandy clay (2:8). Although no partition belonging to this phase was identified, the very straight edge between the flagged- and clay-floored areas implies these were two distinct rooms separated by some kind of timber partition.

On excavation, the extant remains of Chalet 2 gave the impression that the normal north-facing orientation of the chalets in Building XIII was reversed in its case. No trace remained of the original south wall of the barrack, suggesting that end was open, or perhaps closed by timber shuttering, while the north end was apparently walled off. However, there were some indications that this was not the original layout. In particular, the chalet's east wall was not bonded to the north wall, its uppermost surviving course being provided with the kind of large flat padstone typical of the chalet wall terminals. This suggests that this end of the chalet may originally have been open-fronted, but was later subject to more thorough rebuilding than its counterparts, which perhaps resulted in a partially rebuilt west wall being bonded to a secondary north wall. Further support for this interpretation is provided by the different flooring used in the two halves of the chalet, which appears to be a primary feature, with hard-wearing flagging found in the northern half and clay in the southern half. Within this range of chalets, flagged floors were generally more characteristic of the northern

ends, which were probably used for storage of equipment, while the inner southern ends, furnished with clay floors, perhaps represented the living quarters. The problems later experienced with the stability of the north rampart provide a tangible explanation for the suggested reversal of the chalet's orientation. Finally, it is difficult to perceive why Chalet 2 would have been treated differently from the other chalets, with respect to its initial orientation, although the possibility that it was cannot be excluded.

Chalet 3 was separated from Chalet 2 by an alleyway 0.35m wide. In its ultimate form – that uncovered by the excavators – this chalet measured 8.3m by 3.6m, but, as in the case of Chalets 4 and 5, immediately to the west, these dimensions may reflect foreshortening of the structure at a later stage in the Chalet Period (see Chapter 6). In its original form the chalet may have extended further north and been of similar length to Chalet 2 (*c.* 10m), although in this case there was no direct evidence of the kind that survived in relation to Chalet 5, for example. The chalet reused an old barrack wall as its western limit (3:2), predominantly 0.5m wide but narrowing slightly at the north end. This wall contained reused stonework and included some whinstone, while burning was noted towards its southern end. The south wall (3:7) was 0.65m wide and seemed to be of two construction episodes, possibly repairs to the fabric of the barrack phase wall. This wall extended east to Chalet 2, effectively closing off the southern end of the alleyway between the two buildings, being bonded with the west wall of Chalet 2. The east wall of Chalet 3 (3:8) was newly constructed and butted against the south wall. It was 0.62m wide and included boulders within its fabric, while some of the stones were fire-reddened. The interior of the room was flagged (3:10), with the largest stones to the south. An area of burning in the centre of the chalet indicated a hearth (3:12) and some burnt material (3:3) was found on the floor by the west wall. The north end of the building appears either to have been open or closed by timber shuttering. There was a gap of 0.4m between Chalets 3 and 4 and this was not blocked at either end.

The remains of Chalet 4 were found to be in a fairly poor condition. The chalet was 4.5m wide and in excess of 9.25m long, its north end having been truncated during the latter stages of the building's life. Its original length was probably *c.* 10m, in common with the other chalets in their primary state. Three courses of the south wall (4:28) survived above the chalet floor, showing it to be 0.65m wide and clay bonded, evidently the unaltered south wall of the barracks. Butting against this was the west wall (4:29), 0.58m wide, and with a mixture of stones, including some large ones. The east wall (4:2) was 0.58m broad and similar to the west wall in composition, and there was a gap of some 0.6m between the east and south walls, perhaps indicating there was a doorway at this point, though, equally, it could simply be a result of Bosanquet's trenching activity. The inside of the building was

flagged (4:10; 4:11). In the northern half of the chalet this flagging (4:10) incorporated the remains of a demolished barrack *contubernium* wall (4:7). In the southern part of the building the flags belonging to the primary chalet phase (4:11) were only revealed after an upper, secondary level of flagging (4:4) had been removed during consolidation. However, these two levels were never differentiated in plan.

Chalet 5 measured, externally, 5.15m in width and in excess of 9.05m in length, and was slightly broader at the north than it was at its southern end. Like Chalet 4, the length of this chalet was later reduced, and was probably *c* 10m originally. The south wall reused the barrack wall (5:11) and the east (5:10) and west (5:1) walls butted against it and were 0.6m and 0.55m broad respectively. The floor of the chalet was largely flagged (5:4; 5:9), although the quality of the work was variable, for there were medium and large slabs laid close together to the north, while further south the flags were smaller and further apart. It was suggested that the flags at the north end of the building (5:9) were originally barrack period in origin, belonging to the veranda. There was an irregularly shaped bench (5:6) butting against the west wall, but the fact that it sat directly on top of a barrack period floor implied that it was a primary feature of this chalet. There was a hearth (5:18) against the east wall, consisting of burnt flagging and clay, with a second area of burning (5:102) in the centre of the chalet at the north end.

As revealed by the 1974–7 excavations, the northern frontages of Chalets 3, 4 and 5 appeared to be recessed with respect to the rest of the chalet range. This clearly represented the final plan of these chalets. It is not certain that this arrangement corresponded to their original layout, however. There are compelling reasons, in the form of the problems later experienced with the stability of the adjacent north rampart (Phase H20/4c), which could explain why their occupants might have felt it necessary to reduce the length of the three chalets, thereby maintaining an adequate distance between the chalet frontages and the slumping rampart (*see* Chapter 6: North rampart). Direct evidence that these chalets did indeed initially extend further northwards was present only in the case of Chalet 5, however, and even here it was not conclusive. The flagging inside the chalet (5:4) was similar in character to and continuous with the flagging covering the former barrack veranda immediately to the north of the building (5:9) and both were overlain by the chalet's north wall (5:105), which was a later addition. This would suggest that 5:9 originally formed part of the internal flagging of the chalet, like 5:4. The excavators, by contrast, suggested that 5:9 may have represented the final surface of the barrack-period veranda, noting that it butted up against three surviving stones of the veranda gutter, and argued that the chalet floor, 5:4, was simply extended southward from the inner edge of this pre-existing veranda surface. However, although flagged surfaces belonging to the former veranda certainly did remain in use in Chalets 8

and 9 (8:20; 9:13), these appeared much more heavily worn and patched than 5:9, implying the latter was more likely to have been laid during the chalet period. The two pier bases, which were used to form the porch screening the doorway into this chalet later in its history, may also be significant. It was suggested by the excavators that they might have belonged to the veranda colonnade. More certainly, however, such pier bases were characteristic of the wall terminals flanking the open frontages of chalets where they may have supported upright posts of a timber-framed façade. A very similar example (7:24) survived *in situ* at the north end of the west wall of Chalet 7 and two other examples can still be seen in corresponding positions in the chalet structure that forms part of the consolidated remains of Building VII, overlying Turret 36b. In other instances (for example Building XIII Chalets 2, 6 and 8 and 9) large flat stones were present, which doubtless performed the same general function as post-pads. Hence, it is reasonable to suggest that the pier bases reused in the later porch of Chalet 5 were originally positioned at the northern terminals of the chalet's east and west walls flanking a timber-framed frontage, and that this initial chalet layout extended further northward, enclosing the flagged area, 5:9. The three surviving gutter stones may conceivably have played a structural role in this layout, as the setting for timber-framed shuttering perhaps. If this evidence is sufficient to establish that Chalet 5 initially extended further north, the same may be true of Chalets 3 and 4, with the difference that virtually all traces of the original layout at the north end of those two buildings have been erased by later remodeling. This assumes that all the chalets would have been laid out in a similar fashion unless there were clear reasons for exceptional treatment, admittedly only a supposition, albeit a reasonable one.

The external dimensions of Chalet 6 were 10.5m by 4.5m. Some rebuilding of the old south barrack wall (6:41) seems to have taken place and it varied in width between 0.6m and 0.75m, with the east and west walls butting up against it. The east wall (6:6) survived up to seven courses high, although only one course remained at its northern end, where it appeared to have spread to a width of 0.88m and a 0.9m long gutter stone, probably robbed from the barrack veranda, had been used to form the terminal. The west wall (6:42) was about 0.6m broad and was damaged at its northern end, with a 1m length having been largely removed by the later southward encroachment of the *intervallum* surfaces, plus a further 1.5m of the inner face being absent. There was a flagged floor at the north end (6:21) and in the centre of the building (6:12). The flagging was largely absent in the north-west corner of the chalet, where the latest veranda surface (6:35) was still evident, and the western edge of the remaining northern flagging 6:21 appeared to curve round from south to east (*see* Fig 5.13). This may simply represent an accident of survival, but it is possible that it reflects the presence of a curving porch-like structure of the kind which can be

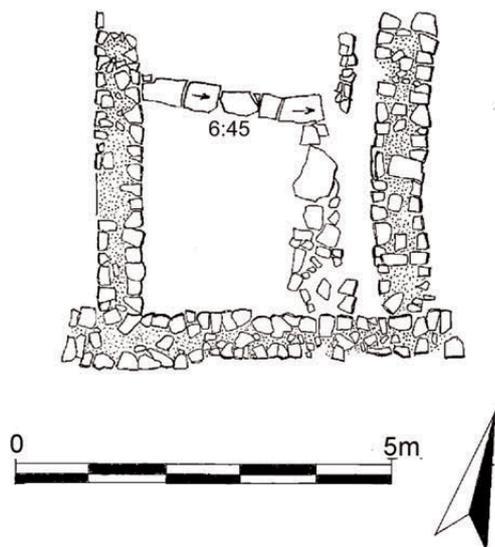


Fig 5.12 South end of Chalet 6 showing drain 6:45 (scale 1:100).

more confidently restored at the north end of Chalet 7 (see below). As in the case of Chalet 7, however, any such porch might be a secondary chalet feature. The southern end of the interior was floored with clay and some small stones (6:10), plus a few large flagstones (6:7). Photographs show that the clay overlay the surviving remains of the *contubernium* wall, 6:25, confirming that this surface was laid during the chalet period rather than being a reused barrack-period floor. Underlying the southern edge of flagging 6:12 was a line of large cover slabs for a stone-lined drain (6:45), which ran from west to east (see Fig 5.12). One end of the drain ran under the west wall of the chalet, while the other end connected with a second drain (6:15) that ran along the east side of the chalet. One side of the south–north drain was formed by east wall 6:6 and the other by reusing the east face of the earlier *contubernium* wall, 6:25. No capstones remained *in situ* over Drain 6:15. It is possible such slabs were removed by Bosanquet, whose excavation trench (6:1) ran at least part way up the east side of the chalet, or alternatively when the drain went out of use and was backfilled.

The cover slabs of Drain 6:45 were only revealed during consolidation of the chalet's remains, being covered over by the smaller flagging, 6:12. Such cover slabs would usually be laid flush with the floor surface, rather than being covered over. Yet the drain must belong to the chalet period because it connected to Drain 6:15, which certainly belonged that period, a redundant *contubernium* wall being used to form one of its side walls. This raises the possibility that flagging 6:12 actually formed part of a secondary floor level in the centre of Chalet 6, while the primary chalet floor was perhaps composed of an underlying, unrecognised clay surface that also incorporated the cover slabs of 6:45.

Chalet 7 was 10.4m long by 4.65m wide. The south wall was the barrack wall, 0.68m wide, with a 0.3m gap at its eastern end (7:20), where it was squared off and

packed with grey clay (7:19): it is not clear whether this was a primary feature of the chalet, or perhaps just a result of Bosanquet's trenching. The east wall (7:7) was 0.56m wide and butted against the south wall, as did the west wall (7:6), which was 0.47m wide and consisted of a reused barrack wall, although rebuilt and extended 2m northward to a substantial pillar base or post-pad (7:24), only the outer face of this extension (7:23) surviving. The east wall also terminated in a sizeable flat slab which presumably functioned as a post-pad. The floor was composed of well-laid paving (7:9), with the exception of the southernmost 2m of the building, where the clay floor of the barrack period (7:4) may have been retained. There were signs of burning and an accumulation of grey soil and charcoal (7:2; 7:3) on the clay. The flagging extended north (7:14) over the former veranda surface (7:15), at least on the eastern side of the chalet, although it appeared more roughly laid. The gutter blocks from the barrack phase were probably robbed out for reuse elsewhere at this stage, one block being found in the chalet interior, although it formed a secondary patching. On the west side of the chalet, a 1m length of the former north wall of *Contubernium* 7 (7:22) was apparently incorporated in the flagged floor of the chalet and appeared to mark a northern edge to the flagging here. A distinct arc of flagstones (7:25) curved round from the east end of 7:22 toward the northern end of east wall 7:7 (Fig 5.14). This arc of flagstones also appeared to delimit the extent of the main body of the flagging, although flagstones were not entirely absent to the west of 7:25 and north of 7:22.

The flagstone arc, 7:25, was clearly a deliberately constructed feature. It is most convincingly interpreted as the base of some kind of half-timbered porch. Curving walls, probably representing the bases of porches, have been recognised attached to the fronts of chalets at a number of sites, notably Milecastle 39 (see Crow forthcoming), where they are 3rd century in date, and High Rochester (Crow 2004b, 221). The former north wall of *Contubernium* 7 may also have formed the base for a half-timbered screen associated with the porch (Fig 5.14). It is less certain how such a porch and screen would have fitted into the structural sequence at the north end of Chalet 7. In general, the foreshortening of the chalets and the provision of porches are elements characteristic of the secondary chalet phases (see Chapter 6: Building XIII, Chalets 3–5), which might imply that the timber screen and porch were secondary features in this instance too. However, such an interpretation may attempt to impose too much uniformity on the development of the chalet–*contubernia*, whereas, in actuality, this style of barrack layout enabled a significant degree of variation from one *contubernium* to another. It is conceivable that the north wall and porch were primary chalet features, later demolished as part of a remodelling that saw the building's west wall ((7:23) extended northwards to frame a flat-faced, timber-framed frontage. The demolition of the original east wall of Chalet 8 (8:23) and its replacement by the



Fig 5.13 North end of Chalet 6 showing flagging for possible curving porch.



Fig 5.14 North end of Chalet 7 showing the flagged base (7:25) for a curving porch.

west wall of 7, during Chalet Phase 2, would have provided a suitable context for such remodelling. A further alternative explanation would enable both the extended west wall and the north wall/porch to be combined in a single interpretation. There is evidence – clearest in the case of Chalet 8 (*see below*) – that even though the chalets extended over the former barrack veranda, in some instances these veranda areas were open to the *intervallum* road to the north and were closed off from the rest of the chalet to the south by some form of walling or shuttering set on the remains of the former barrack *contubernium* north wall.

Chalets 8–11

From Chalet 8 westwards, there is a significant change to the pattern of freestanding independent structures hitherto described, with Chalets 8, 9, 10 and 11 all sharing partition walls like the earlier barrack *contubernia* and presumably, therefore, covered by a single, pitched roof similar to the preceding barrack block. All four thus lack the defining structural feature of ‘chalets’. However, they do possess many of the other characteristic elements of the later barrack rooms, notably the open or, more likely, timber-framed frontages, and it is therefore convenient to apply the same label to them here. Chalets 8 and 9 were later interconnected, with the result that their internal arrangements were relatively complex and difficult to disentangle.

On excavation, Chalet 8 appeared to consist of a small rectangular building, 4.8m by 3.5m, sitting within a courtyard that covered the area between Chalets 7 and 9, a layout very different from that of any other chalet. It is likely, however, that much of this apparent distinctiveness was a distorted impression created by later alterations, in particular, the removal of nearly all the chalet’s east wall by a later robber trench (8:9; 8:24; 8:25). In its original form, Chalet 8 probably resembled the other chalets of Building XIII more closely, though it did have a number of unusual features. Only a short stretch of the west face (8:23) and disturbed rubble foundation (8:47) remained of the east wall, but, judging from the extent of the robber trench, this initially stretched the full length of the chalet, from the south wall of Building XIII (8:16) northward, continuing over the former barrack veranda. Further evidence of later disturbance (8:28) between this east wall and the west wall of Chalet 7 may indicate the position of a drain running north–south along the intervening alley, the west side wall being formed by large whinstone boulders. In contrast, the building did not have a continuous west wall that was structurally separate from the neighbouring chalet, as was the case with the chalets further east. Instead the east wall of Chalet 9 (8:13; 9:2) formed a party wall separating 8 and 9. The central section of this wall was later removed to allow access between the two buildings, but it is unlikely that there was any link

during the initial chalet phase. The northern half of an old barrack wall (8:7), which had previously separated *Contubernia* 8 and 9, probably demarcated a corridor along the west side of the building. The evident wear on the extant upper face of wall 8:7 implies that it stood no higher than its footings by this stage and probably just supported a narrow timber partition, although the rather irregular appearance of its east face, which incorporated a reused centurial stone (Chapter 12: No. 2), suggests it may have been partially rebuilt to support the partition. The wear was observed to be greatest at the south end of the wall, implying there was a doorway into the northern room of Chalet 8 at this point.

The former barrack north wall (8:51) was retained, though possibly rebuilt (8:15), to serve as the north wall of Chalet 8 (Fig 5.15), leaving the northernmost part of the chalet open at the front. In this area the old barrack veranda surface (8:8) was reused, being composed of heavily worn cobbles patched by flagging (8:20) along its northern edge. The cobbling also continued for 3m along the side passageway, as far as an area of flagging (9:10) that had previously formed the floor of the north room of *Contubernium* 9. The former veranda cobbling was in turn covered by a layer of red-brown soil (8:3; 8:54) that probably represented trample, perhaps derived from material washed off the rampart and carried into the front area of the chalet. To the east, the reddish-brown layer extended up to, but not over, the robber trench (8:9) for the chalet’s east wall, demonstrating that the material spread into the chalet during this phase before the east wall had been demolished and robbed out. The soil layer also stretched as far south as wall 8:15, but not further into the chalet, implying that 8:15 was indeed a standing structure.

The interior of Chalet 8 was subdivided into two rooms by a medial partition wall running east–west (8:53). This wall was 0.5m wide and butted against former barrack wall 8:7. It is likely that it was originally constructed at some point during the later phases of barrack *Contubernium* 8 since its position corresponded to that of the partition wall in *Contubernium* 9 (9:24), which definitely belonged to the preceding conventional barrack phase, and stone partition walls do not feature elsewhere in XIII as part of the primary chalet layout. The northern room measured 3.6m by 2.3m internally. The earlier cobble and flag floor (8:37; 8:38) may have continued in use here. An entrance from the passageway on the west side was indicated by heavy wear on the uppermost surviving course of the wall 8:7. The room at the southern end of the chalet measured 3.4m by 3.35m internally. Paving continued around the corner of walls 8:7 and 8:53 to provide access into this southern room. The earlier flagged floor (8:10) may have remained in use here as well, but the west side of the room was roughly surfaced cobbles and small flags (8:6) which sat at a higher level than flagging 8:10. The cobbles and rough flagging sealed the demolished southern half of the former *contubernium*



Fig 5.15 North end of Chalet 8 showing ?rebuilt reused barrack north wall 8:15, with the later Chalet Phase 2, kerb (8:21) in the immediate foreground and associated post sockets (8.50) cut in underlying flagging 8:20.

wall, 8:7, being separated from it by a layer of grey clay (8:27), and appeared to form a raised pathway along the west side of the chalet, which may have linked the passageway further north with a possible doorway in the chalet south wall. There may conceivably have been a timber-framed partition marked by a straight edge or groove towards the east side of this cobbling, screening off the southern room from the paved corridor in the same way that the north room was probably screened by a partition resting on the remains of wall 8:7.

The external measurements of Chalet 9 were 10.6m by 4.5m and the interior was slightly broader at the north end than it was to the south. The barrack wall (9:4) continued in use as the south wall of the chalet, being 0.64m wide, although much of its eastern half had been robbed away. The west wall, 0.57–0.67m wide (9:5), was of one build with the south wall of Chalet 10 and clearly post-dated wall 9:4. There was clear evidence of later rebuilding in the northernmost 4m of this wall, the upper two surviving courses being noticeably narrower than the underlying one, and of a very rough character, including two coping stones or string course blocks and describing a shallow arc in plan (see Chapter 7). The east wall (9:2; 8:13) was 0.6m wide and was shared with Chalet 8. Much of its central section had been demolished and replaced by

flagging (9:6) later in the life of the building, but originally it was probably a continuous wall. Traces of a north wall were noted (9:14; 9:16), which survived up to two courses high and incorporated an earlier veranda pier or column base towards its west end. The wall was unusually narrow at 0.2m and probably formed a low stone plinth supporting half-timbered shuttering, rather than a wall proper.

Only relatively small areas of the primary chalet floor were visible because of the presence of extensive later flagging (9:6), which covered about two-thirds of the interior of the building. The primary floor (9:10) was composed of a mixture of flagstones, evident especially in the central part of the chalet, and worn and shattered cobbling. The surviving southern stretch of east wall 9:2 clearly overlay the flagstones, suggesting the latter represented a reused barrack-period floor, in the same way that the flagging of the earlier veranda surface (9:13) remained in use, with some patching here and there, at the north end of the building. This mixture of flags and cobbling was also extended over the remains of the north wall of *Contubernium* 9 (9:26), confirming that the earlier veranda surface did indeed remain in use after the replacement of the traditional barrack by the chalet range. No flagging was present in the southern third of the chalet and the earlier clay floor (9:11) was visible here. The same

pattern of flagged surfaces to the north and clay at the south end is evident in some of the other chalets, for example Chalets 2, 6 and 7. The clay floor may have been retained at this end of the building, or conceivably covered by a perishable surface such as timber boarding. It is noteworthy that there was no sign of wear on the extant upper surface of the demolished barrack-period cross-wall (9:24), which was on the same level as flagging 9:10 immediately to the north, implying that the remains of the wall were protected in some way. A drain (9:12) ran north along the west side of the building, between the west wall and the old wall that had divided *Contubernia* 9 and 10, thin upright stones (9:27) being inserted against both of these walls, presumably to support capstones. Further north, a more elaborate side wall was recorded, consisting of two courses of neatly dressed stonework. The drain flowed north, splitting near the northern limit of the building, one branch carrying straight on and another, possibly later, turning and heading north-east. No capstones remained in place over the drain in the southern part of the chalet, where, as noted above, there was little or no trace of a flagged floor. However, the characteristics of the drain's side walls indicate it must originally have had some form of covering – either flagstones or wooden planks. Further north the drain was capped by secondary flagging (9:6), but this stretch too must have been covered during Chalet Phase 1 (Figs 1 and 2).

Chalet 10 was, along with Chalet 3, the narrowest of these structures, with an external width of 3.5m (c 2.3m–2.5m internally), and was 10.8m in length. As has already been noted, its south wall (10:22) was of one build with the east wall (9:5; 10:3) and the west wall butted against the southern one, which continued west of Chalet 10 for some 3.9m. The west wall was formed by rebuilding the old barrack west wall (10:5) and extending it northwards by a further 2m. Like its neighbours the chalet was perhaps open-fronted initially, since the north wall (10:27) butted up against the west wall and appeared to be of rougher construction. Orange clay layers (10:6; 10:26) covering the central area of the interior may represent floor surfaces associated with this phase.

Beyond Chalet 10 there was a further room, 11. There was no evidence to indicate that this structure was provided with a west wall, suggesting that it too was probably open-fronted, or shuttered, but in this case faced west onto the *via principalis*. Its east wall was shared with Chalet 10, as described above. The north wall (11:41), which was set on a clay and cobble foundation (11:13), was probably 3.5m in length, although this was uncertain because the wall was later almost totally demolished. A carved door lintel (CSIR 416) was set at the edge of the contemporary road surface (11:14) and may have been reused as a padstone for an upright post at the end of the wall. The interior of the room was covered by flagging (11:10) bedded on a grey-yellow clay and stone layer (11:27–28).

Finds

Architectural fragments:

H13:2:16	8	Roughly dressed block with semi-circular opening on one face – manhole or window head? (Fig 12.3).
H13:4:9	13	Column shaft broken at probably both ends.
H13:5:1	21	Reused column shaft with base and plinth (Fig 12.3).
	22	Reused column base and plinth, possible plough mark (Fig 12.3).

String course blocks:

H13:2:13	45	Fragment.
H13:3:10	46	Reused moulding.
	55	Reused type?
H13:9:5	54	Reused type II or III.
H13:10:3	49	Reused type III.
	67	Reused type III.

Coins:

H13:2:8	64	Sabina, 117–38
H13:6:12	507	Illegible, C2

Copper alloy:

H13:1:2	69	Hollow tapering tube with two flanges at mid point (Fig 14.8).
H13:1:109	9	Solid knee brooch with a high angular knee (Fig 14.2).
H13:2:8	176	Stud with hollow-domed head and wide rectangular shank (Fig 14.13).
H13:4:9	113	Fragment of a curved sheet. Part of a scabbard chape?
H13:5:4	59	Steelyard of oval section tapering to a domed end (Fig 14.6).
	63	Incomplete lock bolt with squared end (Fig 14.7).

Ironwork:

H13:0:12	347	Small hand hammer (Fig 14.19).
H13:5:22	374	Iron bar.
H13:8:13	331	Two wide iron strips.
H13:10:6	323	Long split conical iron ferrule with traces of wooden shaft (ash).
H13:10:22	316	Spearhead – trace of willow or poplar shaft (Fig 14.14).

Lead:

H13:5:23	386	Tapered lead strip.
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Glass:

H13:1:59	507	Dark blue translucent bun-shaped counter or inset.
H13:2:5	446	Cylinder bead of blue glass.
H13:5:4	484	Globular bead.
	492	Melon bead.
H13:6:27	460	Square-sectioned bead of blue glass.

Ceramic:

H13:9:23	542	Disc of grey ware with a central circular hole.
H13:2:27	566	Disc of Central Gaulish samian.
H13:5:23	564	Disc of grey ware.
H13.6.27	556	Disc of samian with two small dimples and a circular hole.

Stone:

H13:2:8	654	Block of a fine green stone with bands of limestone.
H13:5:4	675	Fragment of an oval-sectioned hone of fine sandstone.

Querns (sandstone) – see Chapter 12:

H13:2:8	102	No description
H13:2:11	89	Upperstone from beehive quern
H13:4:11	92	Fragment of an upper stone (Fig 12.4)
H13:5:9	94	Reused fragment of upper stone face
H13:3:10	99	Complete upper or lower stone

Glass vessels:

H13:2:8	19	Square bottle, clear blue-green glass (Fig 17.2)
H13:5:22	18	Heavy base fragment of pale green glass (Fig 17.1)
H13:8:5	45b	Base fragment of a cup, greenish-colourless glass

Graffito:

H13:4:15	12	Wall sherds of a Drag 31R (Fig 18.1)
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Worked flint:

H13:2:1	19	Exhausted flint core (Fig 21.1)
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Dating evidence (Tables 5.3 and 5.4)

The assemblage of material from the primary chalet period contexts reflects the initial occupation of the chalet range. It includes a significant quantity of coarseware types with a date of emergence during the later 3rd century, or even later, but the majority of the material could have been manufactured considerably earlier and much of it may be residual. The question of the date of the chalets of Building XIII is considered in more detail at the end of the chapter, within the context of full discussion of the chronology of this type of structure at Housesteads, which takes into account the evidence yielded by Wilkes's excavations of Building XIV in 1959–60 as well as that specifically deriving from the three buildings in the north-east quarter and the adjacent roadways in 1974–81.

A small assemblage of 3rd- to 4th-century pottery and coinage was associated with the former barrack veranda surface, including a coin of Constantius II (Chapter 13: No. 454; 348–50) from the north end of Chalet 9 (9:13) and a plain-rim dish in BB1 (form BO 90), which can be no earlier in date than the late 3rd century, deriving from veranda surface 7:15. These finds reflect the continued use of that surface as part of the initial floor in several chalets. This was very clear in the case of Chalet 9, for example, where the site notebook (H13:9, *see* contexts 13 and 39) makes clear that the coin and other finds attributed to 9:13 were actually found immediately above the surface.

The *via principalis* and Building VII

A new cobbled road surface (H13:11:14) was laid down on the *via principalis* at the beginning of the chalet period. Beyond this, the remains of the north-east corner of Building VII were revealed and these too probably belonged to Chalet Phase 1. The east wall (11:21) was up to 0.8m wide and, roughly midway along its length, was pierced by a 1.3m–1.4m wide doorway. Substantial stone paving, consisting of large oblong blocks and more irregular slabs, formed the threshold (11:46) and

continued for a further 1.3m beyond the doorway, towards the *via principalis*. There was no evidence for the existence of a north wall, suggesting that the building may have been open fronted, like the chalets of Building XIII, with half-timbered shuttering perhaps used to close off this side of the range. A flagged floor (11:48) was visible in the interior of the building.

Interpretation

The remains of another part of Building VII were uncovered further to the west by Richmond and Simpson during the excavation of Turret 36b in 1946. The consolidated remains are still visible to the south of the turret and take the form of a single, open-fronted chalet-type structure overlying what may be part of an earlier conventional barrack block (*see* Chapter 11).

Finds**Copper alloy:**

H13:11:14	16	Fragment of a Langton Down brooch (Fig 14.2)
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Dating evidence (Table 5.5)

Coins on the latest surface of the *via principalis* (H13:11:14)

No. 61:	Hadrian (134–8)
No. 96:	Faustina II M (161–75)
No. 146:	Claudius II (268–70)
No. 168:	'Claudius II posth' (270+)
No. 169:	'Claudius II posth' (270+)
No. 181:	'Victorinus' (270+)
No. 184:	Tetricus I (270–73)
No. 186:	Tetricus I (270–73)
No. 189:	Tetricus I (270–73)
No. 190:	Tetricus I (270–73)
No. 212:	'Tetricus I' (273+)
No. 219:	'Tetricus I' (273+)
No. 239:	'Tetricus II' (frags, 273+)
No. 242:	'Tetricus II' (273+)
No. 266:	Radiate? (259–73)
No. 290:	Radiate copy frag (273+)
No. 336:	Carausius (287–93)
No. 383:	Constantine I (330–31)

There were 18 coins, ranging in date from a very worn Hadrianic example (134–8) to one of Constantine (330–31), scattered over the latest *via principalis* road surface (11:14), between Buildings VII and XIII. The excavators considered at least some of these might represent a hoard. Sketch plans in the site notebook for Area H13:11 (p 38) indicate that seven of these were found in one spot near the north-east corner of, and possibly even just within, the open Chalet 11, while another two were found together on the west side of the road, with the single Hadrianic example close by. The remaining eight were not located on any plans and it is impossible to determine whether they might represent dispersed examples belonging to these two groups or simply individual coin losses.

Table 5.3 The pottery assemblage from Building XIII Chalet Phase 1 (H13/CH1)

<i>context</i>	<i>description</i>	<i>CW form</i>	<i>FVN</i>	<i>CW TPQ</i>	<i>samian (latest)</i>	
H13:0:9	drain	FL 7.0	294	–	EG RH dish or bowl	L2M3
		JA 124.0	293	2–3C		
		2 w sh ca gt wa	–	3–4C	–	
H13:0:30	clay lining? of drain 0:9	–	–	–	CG LZ –	H/A
H13:0:11	fill of E–W drain 0:27/51	BO 86.0	297	L2C+		
H13:0:12	disturbed area	JA 30.0	301	L3–4C	CG LZ 31R	MLA
		BO 42.0	300	c 140+	–	
		BO 90.0	299	L3C	–	
H13:0:23	clay/stones u flags 0:10	BO 64.0	311	c 250+	CG LZ 37 style of Paternus v grp	160–95
		1 b sh ca gt j	–	3–4C	–	
H13:1:2	Chalet 1 S wall	M 11.0	41	130–80	–	
H13:1:82	Chalet 1 – fill of drain 1:78	BO 86.0	610	L2C+	–	
		BK 8.0	611	3C	–	
H13:1:83	clay lining of drain 1:78	–	–	–	CG LZ 31R	L2M3
H13:2:1	Chalet 2 E wall (ex cent qtrs W wall)	BB2 sm rnd r bo	–	L2–E3C	CG LZ –	H/A
		BB1 flan bo	–	c 250+	–	
H13:2:8	Chalet 2 clay floor in S room	JA 30.0	734	L3–4C	CG LZ 18/31 or 31	HAD?
		BK 13.0	1000	c 100–150	–	
		JA 11.0	733	c 250+	–	
		JA 70.0	729	E3C+	–	
		BO 5.0	728	L3C+	–	
		BO 42.0	731	c 140+	–	
		BO 42.0	730	c 140+	–	
		BO 86.0	732	L2C+	–	
		ca gt Huntcliff j	–	c 340+	–	
		ca gt j	–	3–4C	–	
H13:3:2	Chalet 3 W wall (reused barrack wall)	JA 126.0	920	2–3C	–	
H13:4:4	Chalet 4 flagged floor	BO 54.0	826	c 200+	EG TR 36 & 45	L2M3
H13:4:9	layer of burning	BO 13.0	825	L3C+	CG LZ 37 style of Advocisus	160–90
		JA 106.0	832	E3C+	–	
H13:5:4	Chalet 5 flagged floor	JA 8.0	200	c 250+	EG RH – counter	L2M3
		JA 75.0	775	M–L2C	–	
		JA 49.0	776	–	–	
		BO 44.0	774	c 140+	–	
		JA 74.0	199	c 200–250	–	
		BB2 hook down r bo	–	c 140+	–	
H13:5:24	<i>Contubernium</i> 4 demolition layer	1 w sh bk, or shiny bl cc	–	–	–	
H13:5:52	<i>Contubernium</i> 4 demolition layer	1 w sh cc Hunt cup?	–	L2–E3C	–	
H13:6:12	Chalet 6, flagging in N part of	BO 58.0	581	c 270+	CG LZ 37 style of Do(v)eccus i	165–200
		BO 12.0	2086	L3C+	–	
		BO 64.0	2085	c 250+	–	
		15 w sh ca gt j	–	3–4C	–	
		BB2 sm rnd r bo	–	L2C+	–	
H13:6:27	Chalet 6, makeup for flags	BO 86.0	786	c 140+	EG RH 31 & dish	L2M3
		JA 41.0	785	–	–	
H13:8:5	Chalet 8 clay surface	BO 91.0	741	c 140+	CG LZ 37	MLA
		JA 56.0	740	M2–M3C	–	
		JA 48.0	743	L3+	–	
		BO 86.0	739	L2C+	–	
		JA 63.0	736	E3C+	–	
		JA 16.0	745	E3C	–	
		BO 85.0	742	E3C	–	
		BO 51.0	746	c 200+	–	
		BO 23.0	738	E–M2C	–	
		JA 110.0	737	–	–	
		BB1 j wavy line on neck	–	L1–M2C	–	
H13:8:18	Chalet 8 N wall	BO 54.0	366	c 200+	CG LZ 31	MLA
H13:8:27	clay makeup in SW part of Chalet 8	–	–	–	CG LZ 31 & 33	ANT
H13:9:12	Chalet 9 drain	JA 63.0	709	E3C+	CG LZ dish or bowl	H/A
		JA 121.0	711	3–4C	–	
		JA 8.0	710	c 250+	–	
H13:9:18	Chalet 9, base of shuttered frontage?	–	–	–	CG LZ 31R	MLA
H13:11:5	Chalet 11 S wall	4 w sh ca gt	–	3–4C	–	

Table 5.4 Dating evidence from the reused veranda surface of Barrack XIII

<i>context</i>	<i>description</i>	<i>coins</i>	<i>CW form</i>	<i>FVN</i>	<i>TPQ</i>
H13:3:880	soil ov veranda u Chalet Phase 2 flags	113: Elagabalus (218–22)	–	–	218
H13:4:16	veranda surface	–	4 w sh ca gt j	–	3–4C
H13:7:15	veranda surface	–	BO 90.0	950	L3C
		–	BK 28.0	952	3–4C
		–	JA 25.0	951	–
H13:9:13	veranda surface	454: Constantius II (348–50)	–	–	348

Table 5.5 The pottery assemblage associated with *via principalis* surface H13:11:14

<i>context</i>	<i>CW form</i>	<i>FVN</i>	<i>CW TPQ</i>	<i>samian (latest)</i>	
H13:11:14	BO 50.0	888	c 200+	EG RH 36	L2M3
	BO 86.0	594	L2C+		
	BO 128.0	592	–		
	Crambeck flan bo	–	L3C+		
	ca gt Huntcliff j	–	c 340+		

Table 5.6 Dating evidence associated with the H21/3r *intervallum* road levels

<i>context</i>	<i>intervallum road level</i>	<i>coin</i>	<i>CW form</i>	<i>FVN</i>	<i>CW TPQ</i>	<i>samian (latest)</i>	
H21:2:3	Road 7	–	M 33.0	1560	3–4C (?)	CG LZ Curle 11?	HAD?
H21:2:10	Road 7	–	BO 85.0	1562	E3C	–	–
H21:2:10		–	BB2 sm rnd r bo	–	L2–E3C	–	–
H21:3:41	Road 7	238: ‘Tetricus II’ (273+)	gr wa flan bo	–	L3C+	CG LZ –	H/A
H21:3:103	Road 6	–	Crambeck plain r di	–	L3C+	CG LZ dish	MLA

- Group 1: No. 169: ‘Claudius II posth’ (270+)
 No. 181: ‘Victorinus’ (270+)
 No. 184: Tetricus I (270–73)
 No. 186: Tetricus I (270–73)
 No. 219: ‘Tetricus I’ (273+)
 No. 239: ‘Tetricus II’ frags (273+)
 No. 242: ‘Tetricus II’ (273+)
- Group 2: No. 189: Tetricus I (270–73)
 No. 212: ‘Tetricus I’ (273+)
 ?No. 61: Hadrian (134–8)

The street between Buildings XIII and XIV

Road 7

At the east end of the street between Buildings XIII and XIV (HSE), which was investigated in 1981, the second in the sequence of road surfaces probably related to the chalet phase. Concordance with the adjacent levels of the *via sagularis* east (H21:3:41; 4:55; 2:3) indicated that this formed the seventh successive surface covering these two streets. The direct stratigraphic links between this road level and the chalet phases of Buildings XIII and XIV had been removed by previous

excavation of those buildings in 1974–77 and 1959–60 respectively, but, despite this disturbance to the integrity of the road surfaces, examination of Section F2 across the east *intervallum* road, in Area H21:2, indicates that surface H21:2:3 lay at the appropriate level to be contemporary with the chalets (*see* Fig 3.5). The preceding surface (2:43) appears to underlie the secondary east wall of Building XIII (H13:0:6), which was constructed during the latter stages of the conventional barrack, but remained in use during the chalet period as the east wall of Chalet 1.

The metalling of the street between the two chalet ranges sat upon makeup of small rubble with light grey/blue limestone and shattered and burnt pink limestone (HSE:1:36). The surface metalling itself (1:35) consisted of large cobbling at the east end. Adjacent to the north wall of Building XIV, Chalet 1 (H14:1:3), there was small, tightly packed cobbling set in light brown sandy clay, with an even surface of small flat stones, shattered. To the west, tightly packed rounded cobbling with a less regular surface than that to the east was identified. This level partly overlapped the gutter of Building XIV (1:5).



Fig 5.20 Building XIV Chalet 1, looking eastward towards the *intervallum* road.

Dating evidence (Table 5.6)

Although there was no dateable material that could provide a direct *terminus post quem* for this level of the street, late 3rd-century coinage and pottery was found in association with the related surface on the east *intervallum* road (H21:3:41). Moreover, a plain-rim dish in Crambeck fabric, with a date of emergence of *c* 270, was recovered from the previous road surface in the same area (H21:3:103).

Building XIV

Building XIV underwent a similar transformation to that encountered in Building XIII, resulting in a range of independent structures, now labelled chalets, of roughly equivalent size to the preceding barrack *contubernia* (Figs 5.18–5.19). These faced north like their predecessors, mostly extending over the former veranda area and, like their counterparts in Building XIII, were unwallled on this north side (apart from Chalet 1, equivalent to the former centurion's quarters). Clear traces of timber shuttering or screen walls were identified, however, indicating the chalets were not actually open to the elements to the north.

Chalet 1 of this building utilised the north, south, and east walls of the old barrack building, but was given a new west wall, which it shared with Chalet 2 (Fig 5.20). Wilkes supposed that the 'hearth' built against the partition wall belonged to the old barrack phase (1961, 282), but the fact that it was evidently cut through the partition, and occupied a similar position



Fig 5.21 North end of Building XIV Chalet 6 showing the slot for timber shuttering.

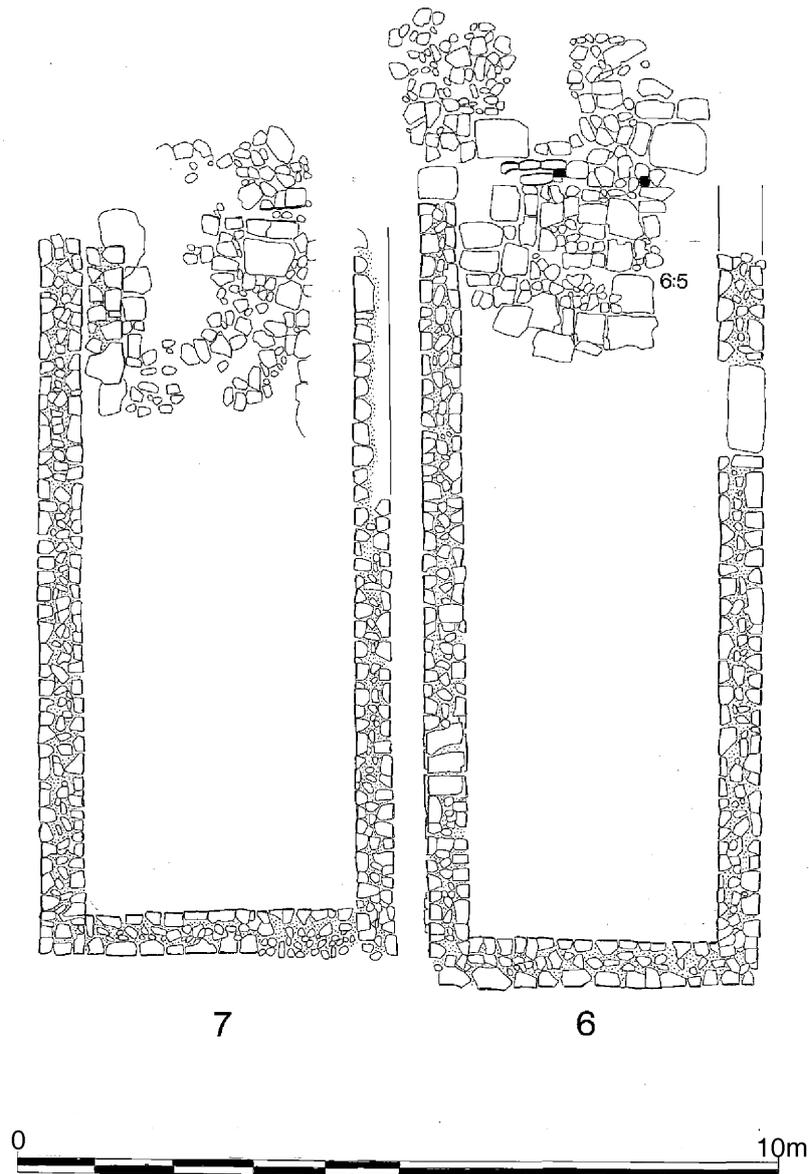


Fig 5.22 Plan of Chalets 6 and 7 showing the slots and post settings for shuttering (scale 1:100).

to the oven in Building XIII, would seem to indicate that it belonged to the primary chalet phase. The 'latrine' identified by Wilkes (*ibid*, 280) can then be identified as the flue for this oven. Similarly, the north-west/south-east drain that ran across the area can now be seen as belonging to the chalet, since it too cuts the partition wall of the barrack-phase centurion's quarters. The entrance in the north wall was either blocked or the threshold raised to match an increase in floor height, a modification represented for four facing stones on the south side of the threshold (H14:1:15). A dark yellow clay (1:16) was common to this blocking and the upper course of the north wall eastwards from that point, implying that wall 1:3 was rebuilt when the entrance was blocked or raised.

Within Chalet 2, the flagged floor and hearth originally revealed by Wilkes was uncovered, as also was a bench located against the west wall, reusing a primary, barrack *contubernium* wall for its east face. In Chalets 6

and 7, possible indications of the original timber shuttering closing off the north end of these structures were identified (Fig 5.22). To the north of Chalet 6, a layer of flagging (6:5) was uncovered that contained two postholes, 1.1m apart and framing what was presumably the entrance to the building, while four stones on edge, to the west of this doorway, marked the line of the shuttering itself (Fig 5.21). The flagging sat on a layer of mixed brown sandy loam (6:6), which had been used as makeup for the floor. A linear gap in the flagged floor at the north end of Chalet 7 may likewise have marked the position of timber shuttering.

Outside Chalet 9, excavation revealed rough flagging to the north (9:4), as well as traces of what may be the metalling of the *via principalis* (9:5). A large number of small finds, mostly nails and iron fragments, was recovered from this surface. The flagging to the south of the chalet had evidently been laid over the demolished remains of the westernmost *contubernium*.

A shallow pit (9:10), 0.45m in diameter, was filled with dark material and contained a large number of iron-stained stones and two pieces of metal.

Discussion: the form of Building XIV Phases 2 and 3

The structural phasing and interpretation of Building XIV set out in Chapters 4 and 5 is essentially that set out in the Level 3 archive report and follows the scheme proposed by Wilkes on the basis of his 1959–60 excavations of the building. Wilkes's reconstruction of the initial chalet layout was apparently based on the relationship of the walls to the flagged floors; those chalet walls which were abutted by flagging, rather than resting on top of it, were considered to belong to the first structural phase of the chalets. Although this was perfectly reasonable, it must be admitted that the resultant structure was rather odd, very different from the relatively regular aspect of the first structural phase of Chalet Range XIII.

More recently an alternative interpretation of the initial chalet layout has been proposed (Bidwell 1991 10–11; 1997), based on a re-examination of Wilkes's published plans. This provides a convincing and coherent plan for Chalet Range XIV, much closer in the regularity of its form to the contemporary chalet phase in Building XIII. However, this layout reinterprets as chalet side walls the very walls identified by Wilkes as forming the *contubernium* dividing walls of Phase 2 (Fig 5.23). If these were built new as part of the initial chalet remodelling, as Bidwell implies, the entire existence of Phase 2 of Building XIV may be called into question. The re-excavation of parts of the building in 1979 and 1981 did reveal further evidence to support the existence of Wilkes's Phase 2, notably indications, in the form of a narrower primary foundation (1:18), that the south wall of the block had been rebuilt at some stage. Nevertheless, it is undeniable that the 1979/81 excavators were working in a situation where a clear structural phasing for the building had already been set out and consequently there was a natural tendency to fit their results into that scheme (although this did not prevent them from making significant alterations and additions to Wilkes's phasing of the adjacent Building XV in 1981), just as Wilkes himself was working within a firm framework of four Wall Periods.

It is now very difficult to disentangle these alternative interpretations retrospectively. Both possible layouts for the initial chalet phase are therefore depicted here (Figs 5.18 and 5.19) and readers may judge for themselves.

The suggested alternative layout would also require reassigning to the final phase of alterations to Building XIV many of the chalet side walls which Wilkes regarded as forming part of the initial chalet layout. The implications of this further revision are discussed in the next chapter.



Fig 5.23 The consolidated remains of the east side wall of Building XIV Chalet 7.

Finds

Copper alloy:

H14:3:5 184 Hollow-domed copper stud head filled with lead caulking

Glass:

H14:9:5 490 Globular bead

Dating evidence (Table 5.7)

The 1974–81 excavations provided very little new evidence for the construction date of the chalets in Building XIV. John Wilkes's excavations in 1959–60 and the subsequent programme of consolidation had inevitably resulted in a degree of disturbance to the surviving upper levels in the building, the very levels that were subsequently re-examined in 1979 and 1981. A wide range of coarseware forms were found, particularly in Area H14:9, most of which were relatively late, including Huntcliff jars in calcite-gritted fabric which first emerged *c* 340, but none of the contexts from which this material derived were sealed. The most significant new material was a hoard comprising four Radiate copies, which was uncovered in Chalet 4 (Hoard 2, SF 9396). The soil layer (4:7) from which the coins derived must have underlain the flagged floor in the interior of the chalet before the flags were

Table 5.7 Dating evidence associated with Building XIV Phase 3

<i>context</i>	<i>coins</i>	<i>CW form</i>	<i>FVN</i>	<i>samian (latest)</i>	<i>TPQ</i>	
H14 3 5	construction trench	–	JA 83.0	2072	–	M–L2C
H14:4:7	soil layer u flagging	Hoard 2*	–	–	–	273+
H14:9:4	flagstones	–	gr wa flan bo	–	–	L3C+
		–	ca gt j	–	–	3–4C
		–	ca gt Huntcliff j	–	–	c 340+
H14:9:5	<i>via principalis</i> surface	–	BO 111.0	1644	–	c 270+(?)
		–	m po hh	–	–	M3C+
		–	m hm hh with painted dec	–	–	3–4C
		–	m hm hh	–	–	3C+
		–	gr wa flan bo	–	–	L3C+
		–	ca gt Huntcliff j	–	–	c 340+
		–	–	–	CG LZ 45	170–200

* Hoard 2 (9396): 4 Radiate copies (273+)

removed to expose earlier levels during the 1959–60 excavations. The coins making up this hoard seem comparable to the other coins found by Wilkes beneath the flagged floors of Chalets 3 or 4.

Building XV (Figs 5.24–5.25)

The reconstruction of Building XV as a massive, buttressed structure, interpreted as a storehouse (*see* Chapter 11), also occurred during the initial chalet phase and it seems to have followed on rapidly from the demolition of its predecessor of Phase H15:3. A thin layer of grey and brown sandy loam (1:92; 1:96), no more than 1–3mm thick, encountered in the area where the flagging belonging to the previous phase (1:82) was not present, may represent small amounts of rainwash which had accumulated after parts of the Phase 3 floor had been robbed out and before deposition of the first makeup for the storehouse. Excavation at the east end suggested that construction began with the south wall (1:100) (*see* Fig 5.25: Section I). A layer of sand (1:99), situated between the south wall and the remains of the south wall of the previous building (1:8), overlay the lowest course of wall 1:100 and filled the construction cut for that wall. The east end was then levelled up with layers of yellow- or orange-grey clay and rubble (1:19/31/59/63/86; 1:67; 1:65; 1:77; 1:87; 1:97). This clay–rubble makeup overlay the sand, 1:99, and butted directly against the south wall, thus forming a revetted terrace, but to the north the makeup sloped downwards, presumably a deliberate measure to leave a wide trench for the construction of the north wall (1:24), which must have constituted the next stage. Sand and masons' chippings (1:38), lying at the base of this trench or depression and abutting the lowest course of the north wall, probably represents material associated with that wall's construction. The depression was filled, and the levelling up completed, by a further mixed layer of sand, sandstone and yellow-grey clay (H15:1:4; 1:23; 1:68), including a lens of orange sandy material (1:52).

On top of the makeup, and some 0.7m above the flagged surface of the previous building, a new layer of flagging (1:3) was laid down on a thick bedding of sand (1:14). This flagging was laid with great care to form a level surface and was very heavily worn, with much cracking from long use, a feature also noted by Wilkes further west in the building in 1961. Much of the interior of the east end of the building was removed during the next phase, when the baths were inserted, and no direct stratigraphical relationship was established between the north (1:24), east (1:72), and south (1:100) walls and earlier material. However, a large monolithic post-setting was located above the makeup for the floor, but overlain by the floor itself. The socket was designed to take a post 0.18m square, presumably one of a central row intended to support either the roof or perhaps an upper floor. Although the post-pad was not completely recorded, it would have measured about 1.15m by 1.2m, if the socket was centrally placed (Fig 5.26).

Finds

Silver:

H15:1:4 5 Small silver stud with disc head and short curled shank (Fig 14.1)

Graffito:

H15:1:4 18 Sherd of Crambeck Parchment Ware mortarium [...]P (Fig 18.1)

Dating evidence (Table 5.8)

The makeup levels for the flagged floor revealed by the 1981 excavation at the east end of Building XV were relatively clean, producing little diagnostic pottery and only one stratified coin (H15:1:4, No. 13: Titus). A single rim sherd of a Crambeck Parchment Ware bowl or mortaria form (BO 151) with a graffito (Chapter 18: No. 18) was found in makeup layer H15:1:4, which would provide a *terminus post quem* of as late as c 360 for the construction of this building. However, the



Fig 5.26 The east end of Building XV from the west; note the socket stone at the bottom right.

sherd could well be intrusive since the east end of the storehouse was later demolished to make way for a small bath-house, with the result that the makeup deposits for the storehouse floor were not fully sealed in that area. Such an assumption would seem preferable to trying to compress the construction of the storehouse, its subsequent partial demolition and the associated construction of the bathhouse, all into the period after 360.

Thus the dating of the storehouse is still largely based on the evidence produced by Wilkes's 1961 excavation. The implications of these findings will be considered in more detail below, in conjunction with the dating evidence relating to the construction of the chalet ranges.

Discussion: the date of the chalet ranges and Building XV

The similarity of the reconstruction undergone by Buildings XIII and XIV – essentially transforming the two barrack blocks into ranges of freestanding *contubernia* and officers' quarters – strongly suggests that they formed part of the same overall remodelling.

Accordingly, the principal pieces of evidence for the date of the chalet construction phase in both buildings are set out together here.

As noted in the previous chapter, the 1974–81 excavations yielded useful ceramic sequences from the pre-chalet levels of Building XIII, in particular from successive floor surfaces in the western half of the centurion's quarters and in *Contubernia* 4 and especially 5 (H13:5). Although the quantities of pottery were not large, they did display a reasonable seriation of types, culminating in a few coarseware vessels that first emerged in the late or mid- to late 3rd century (wide-mouth jars or bowls in grey fabrics probably deriving from either Crambeck or Throlam: BO 7 and BO 13, a plain-rim dish in BB1: BO 90, and a beaker or jar with everted rim: JA 47; see Chapter 4 and Table 5.9).

However, there were no stratigraphically significant coin finds from Building XIII which could materially help to narrow down the date of the chalet phase. In contrast, Wilkes's 1959–60 excavation of Building XIV did reveal a number of coins in clay deposits sealed beneath the chalet phase flagged floors (H14 'period 3'). These mainly comprised Radiate copies (Chapter 13: Nos 268, 273–5, 277, 280), plus one genuine and one copied issue of Claudius II (Nos 143, 154). The bulk of this assemblage – all but one of which was recovered in 1959 – must derive from Chalets 3 and/or 4 since excavation in that year was restricted to those two structures (see Wilkes 1960). In addition, the 1981 re-excitation of the consolidated remains uncovered a small hoard of four Radiate copies in Chalet 4, as noted above (Hoard 2, SF 9396). In his second report (1961, 287) Wilkes also refers to 'a small group of early 4th-century coins' found on the surface of a small area of *intervallum* road cobbling at the east end of XIV. No further details are provided and it was not possible to identify this group when compiling the coin catalogue. Certainly a significant number of coins were found during that season of excavation, including several early to mid-4th-century examples minted by Constantine and members of his dynasty (Nos 364, 391, 408, 460, 465), as well as Allectan and Tetrarchic issues (Nos 342–3, 350, 353), but, with one exception (No. 143), no specific provenance was provided for any of the coins recovered in 1960.

Finally, the evidence for the date of the large storehouse – Phase 4 of Building XV – the third major building in the north-east corner – should be considered alongside the material from the chalet ranges. As noted above, the dating of this structure is still crucially reliant on the material previously recovered during the 1961 excavation, in particular the coin of 259–73 (No. 254) sealed in the drain of the H15 Phase 3 stable. This provides a *terminus post quem* of 259 for the Phase 4 storehouse, although the coin may of course have been lost at any stage in the life of the stable building and need not closely date the end of that building phase and the construction of the storehouse. It is unfortunate that the coins trodden into the flagging of the storehouse are

Table 5.8 Dating evidence associated with Building XV Phase 4

<i>context</i>	<i>coin</i>	<i>CW form</i>	<i>FVN</i>	<i>CW TPQ</i>	<i>samian (latest)</i>	<i>date</i>
H15:1:4 levelling deposit for flagged floor 1:3	13: Titus (79–81)	LI 1.0	2015	–	CG LZ 31 St29: J MIMI?	ANT
	–	BK 14.0	2018	<i>c</i> 100–160	–	–
	–	JA 126.0	2014	2–3C	–	–
	–	BO 151.0	2017	<i>c</i> 360+	–	–
H15:1:40 levelling deposit for flagged floor 1:3	–	BK 15.0	2026	<i>c</i> 100–160	–	–
H15:1:52 levelling deposit for flagged floor 1:3	–	–	–	–	CG LZ 18/31	HAD
H15:1:75 levelling deposit for flagged floor 1:3	–	BK 14.0	2030	<i>c</i> 100–160	–	–
H15:1:97 levelling deposit for flagged floor 1:3	–	BO 23.0	2032	E–M2C	–	–

Table 5.9 The latest coarseware types found in association with the conventional Barrack XIII

<i>context</i>	<i>description</i>	<i>CW formcode</i>	<i>FVN</i>	<i>TPQ</i>
H13:1:54	centurion's house demolition level	BO 7.0	646	L3C+
H13:1:86	centurion's qtrs E–W slot, demolition phase	BO 90.0	621	L3C
H13:5:13	<i>Contubernium</i> 5 – 6th clay floor	BO 13.0	212	L3C+
		JA 47.0	213	M–L3C

so illegible that they can provide no more than a 3rd- to 4th-century date, and that few other coins from the 1961 excavation can be assigned a firm provenance.

Thus, none of the pieces of evidence cited need have been deposited much later in date than 273. This would fit with recent suggestions that at some sites at least chalet-type structures were constructed somewhat earlier in the 3rd century. In defence of this theory it may be noted that, in contrast to the abundant Radiate coin issues and copies from the fort, there is rather a dearth, though not a complete absence, of Tetrarchic coinage from Housesteads. However, two substantial caveats need to be inserted at this point. Firstly, there is a paucity of Tetrarchic coinage from all the Wall forts, including Birdoswald where building work in that period is firmly attested by epigraphic evidence (*RIB* 1912). Still more significantly, there is similar epigraphic evidence for Tetrarchic activity at Housesteads itself, in the shape of the dedication, *RIB* 1613. Although only a few small fragments of this dedicatory slab survived, sufficient remained to demonstrate that this was a very elaborately carved stone (see Fig 11.11; cf *CSIR* 412; Crow 2004a, 89–91) with a distinctive surround incorporating four rows of leaves (*squamae*). Crow has persuasively argued that this dedication may even have originated from Building XV, itself, although other candidates are possible. Moreover, a similarly ornamented piece was recently found at Birdoswald as well (Coulston 1997, 315–17, no. 283), pointing to the close links between these two sites, although no trace of an inscription was preserved in this case (see Chapter 11 below). In sum, we have a relative abundance of Radiate coins, but very few Tetrarchic examples, counterbalanced by significant epigraphic evidence for Tetrarchic activity. In these circumstances it seems at

least conceivable that the paucity of Tetrarchic coinage at Housesteads and the other Wall forts was due to broader factors of monetary supply, perhaps associated with Diocletianic fiscal reforms, rather than an absence of garrison troops or significant building activity. It is well known that the system of levying supplies in kind was regularised under the Tetrarchy, being greatly extended in scope and linked to a series of equivalent units of tax assessment (*iugatio et capitatio*) to ensure it was applied broadly equitably to the entire tax-paying population (Jones 1973, 61–8, 453–6).

A Tetrarchic building phase in the north-east quarter is therefore a distinct possibility, but even so there is no guarantee that it embraced all the work described in this chapter and, in particular, included the construction of the chalet ranges themselves. The evidence from the north rampart demonstrates that the strengthening of those defences took place in three successive stages (Phases H20/3b–c; H20/3d and H20/4a), perhaps beginning as early as the middle of the 3rd century, when some of the workshops were demolished and the rampart was partially reinstated. Hence, by the same analogy, it is conceivable that the chalet ranges were erected at an earlier date than Building XV, perhaps in the 270s or 280s. However, it is noteworthy that the bulk of the defensive restoration – involving the construction of the interval towers, the full reinstatement of the ramparts and the rebuilding of the curtain wall (cf Crow 1988, 67–72; 2004a, 104–7) – was associated with the last of the three stages and it is equally possible that all three of the principal buildings in the northern *praetentura* were reconstructed at the same time. At any rate, it is likely that it was under the Tetrarchy and the years immediately following that the north-east part of the fort took on its definitive late Roman form.

6 Modifications to the chalet phase

The defences

The north rampart (H20 Phases 4b–e)

The reinstated north rampart was substantially widened later in the 4th century. These widened defences were to prove unstable. The steepness of the gradient down from west to east, on which the rampart levels were deposited, resulted in the revetment being overtopped by material creeping eastwards downslope, particularly in Areas H20:4 and 5. A series of structural responses endeavouring to contain this problem are evident both in the north rampart itself and in the neighbouring chalets of Building XIII with the bank gradually broadening until, at its east end, it almost reached the building.

The Phase H20/4b rampart (Wall H)

The pre-existing rampart was widened and revetted by Wall H (H20:3:9; 3:41; 4:7; 4:40–41; 5:14–15; 5:24–5; 6:14; 7:10; 8:10; 9:13), which survived up to five courses in height (0.6m), possibly six in Area 8, but had tipped over at an angle of 45 degrees. This wall had been built directly onto the *intervallum* road surface (3:1/39; 4:9; 5:21; 6:16; 7:8; 8:19; 9:7) or, in places, on an overlying deposit of loose, dark brown soil and stones (4:16; 5:12; 5:28; 8:57), which doubtless represented material that had previously washed or slumped off the rampart bank. A gap was left to permit access to the interval tower opposite the pre-existing threshold. Towards the west, the reconstructed wall (9:13) incorporated a reused column base (Fig 12.9 E; see Chapter 12 No. 26). The rampart was at its broadest immediately to the east and west of the interval tower where it bulged southward noticeably.

The earlier causeway with its paving (7:19; 7:50) was probably retained. The west side revetment was probably similarly retained and extended southward, though this extension survived only poorly. To the east, however, a new side wall (7:51) was constructed, running northward from the western terminal of rampart revetment 6:14 to meet the tower's south wall just to the east of the doorway, thus enveloping much of the south side of the tower in the rampart bank and creating an approach passageway only 1.5m wide. For the most part only one course remained of this side revetment.

At its east end, the revetment wall continued to respect the water tank and probably still made use of the earlier return wall (4:14; 4:27), but probably extended a little further east (3:9; 3:41) to butt up against the south face of the stone platform attached to the angle tower.

Rampart material survived to the north of the revetment wall (3:13; 4:1; 5:1; 6:4; 6:28; 7:22; 8:2; 8:7; 8:16; 8:40; 9:2) and extended over the levels of the earlier rampart bank. Access to the interval tower was blocked (7:21) when the tower was demolished, after the initial construction of Wall H but before Wall Jii was built. Further alterations were made to Wall H, probably as repairs (8:35; 8:37; 9:14) and these were seated on an earth matrix (8:38–9), not directly onto the road, as was generally the case with the original wall. To the east, revetments 4:40 and 5:24 may represent equivalent rebuilds of 4:41 and 5:25 respectively. Revetment H varied in distance from the inner face of the curtain wall, between 4.5m and 6.75m.

There was some confusion in the excavation records over the phasing of some north rampart deposits. In particular, the uppermost layer of tightly packed, clayey grey-brown soil (3:13, 4:1, 5:1, 6:4) attributed to Phase H20/4b in the structural report was also associated in the same document with the initial widening of the rampart bank (originally considered to form part of H20/4a, but now reassigned to H20/3d), albeit with a number of caveats. The layer lay directly beneath the topsoil and extended from the interval tower eastward over the layers unambiguously associated with the earlier rampart bank of Phases H20/3b and H20/3d. The information in the primary site archive is contradictory and lacking in detail, with no explicit record of the crucial relationships between this rampart layer and the two phases of revetment wall F and H, for example. One of the sketch plans (H20:5 Sketch Plan 1) shows level 5:1 extending as far south as Wall H, which appears to retain the soil, but the equivalent sketch plans for Areas H20:4 and H20:6 indicate the southern limit of 4:1 and 6:4 lay on the approximate line of the H20/3d revetment, F, a clear discrepancy. The latter two levels are not depicted as being clearly bounded by any of the revetment walls. One possibility is that this material was indeed deposited as the upper layer of the H20/3d bank and had either slumped southward or had been deliberately redeposited behind the new revetment during Phase H20/4b. However, the layer has instead been assigned to the later phase here, in view of the evident uncertainty expressed in the structural report regarding the attribution of the deposit to the earlier phase of rampart widening. The implication is that the rampart was both widened and heightened in this phase. Indeed the very intention of widening the bank was probably to enable a corresponding heightening, perhaps to counteract settling of the earlier deposits, while maintaining a relatively gentle slope in an effort to avoid compromising the stability of the earthen structure.

Rampart expansion in Phase H20/4c (Walls Ji and Jii) (Figs 6.1–6.2)

This rampart bank seems to have suffered a serious slump to the east of the interval tower (H20:5), marked by a series of short parallel revetting walls (5:13; 5:18; 5:17; 5:16), collectively labelled Wall Ji. These were staggered one to the south-east of the other, with the most southerly length (5:16) being positioned the furthest east. They were built on soil deposits (presumably slumped rampart material), rather than directly on the road surfaces as with the initial phases of Revetment Wall H, and appear to represent a series of *ad hoc* emergency responses, attempting to contain the problem before a more thoroughgoing reconstruction was initiated. From there (length 5:16), a measure of stability appears to have been achieved and the new revetment wall, Ji, ran continuously eastward for at least another 8m (4:4; 3:14). Here the rampart achieved a maximum width of 8.5m, the south face standing no more than 1.5m to the north of Chalets 1 and 2. It is unclear how the revetment related to the angle tower; specifically, whether access was still provided to the entrance into the tower at this stage. No trace of the revetment was found in the eastern part of Area H20:3 or in H20:2 which had been disturbed by previous excavation trenches dug by Clayton and F G Simpson.



Fig 6.1 View of Revetment Walls H and Ji immediately north of XIII Chalets 1 and 2, looking eastward.

The final major alteration to the defences widened the rampart west and south of the interval tower to match the broad bank to the east. The expanded rampart was retained by another single-faced wall, Jii (6:15; 7:9; 8:9; 9:12), which survived up to eight courses, although it had slumped to the north (*see* Fig 4.1: Section B). Assuming it originally had only a slight batter, this revetment would have risen to a height of 1.1m. Judging from the orientation of this revetment wall, it is possible that this phase too was a response to slumping of the previous rampart bank, with material perhaps creeping eastwards down the slope. From its junction with Wall H near the ramp at the west end of the defences, Wall Jii headed, somewhat erratically, in a more south-easterly direction than its predecessor, its course steadily diverging until, opposite the interval tower (wall lengths 7:9; 6:15), it stood 1.6m south of Wall H. To the east of this point, the wall was in a much poorer state of preservation when excavated, surviving as little more than a single course or kerb (6:22). However, it clearly continued south-eastward for another 4m before turning sharply northward to link up (5:19) with the short lengths of revetment described above (5:18; 5:17), which retained the rampart slump to the east of the tower. Opposite the entrance to the interval tower, the wall incorporated a large sandstone block, 1.5m long by 0.5m broad.

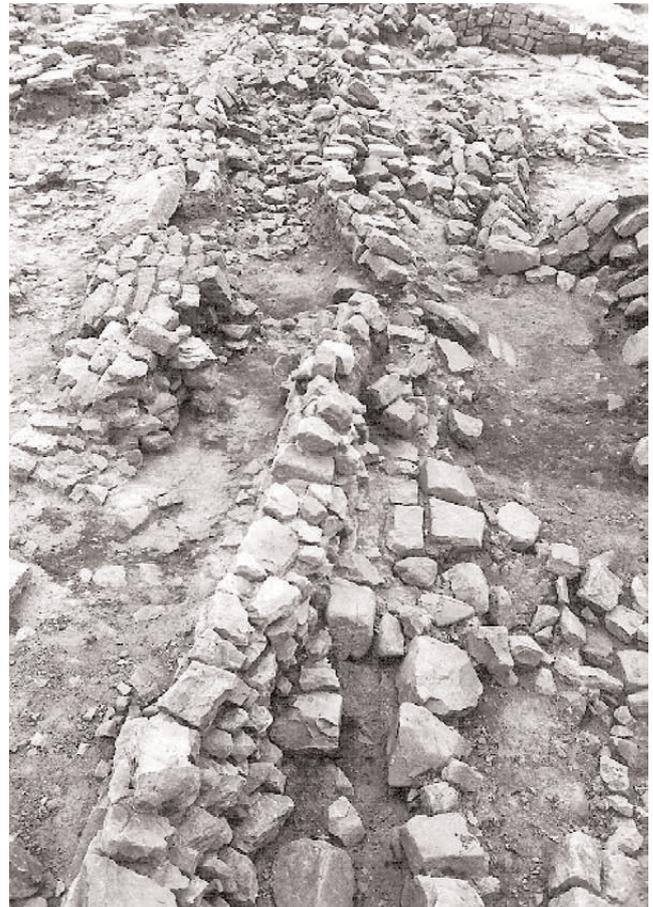


Fig 6.2 View of Revetment Walls H and Jii in Area H20:6–8, looking westward.

The use of such a large slab at this point suggests it may represent some kind of threshold for a higher level causeway leading to the tower, or perhaps a subsequent blocking of that approach. There were also indications of later refacing to the wall, as photographs of Areas H20:6–8 reveal two faces of Wall Jii, one in front of the other and presumably a repair of it. A variety of rampart deposits behind these walls was noted (3:20; 4:10; 6:18; 7:3; 7:29; 7:43; 8:12; 8:36; 8:33–4; 9:5–6; 9:17; 9:39), including a continuous band of brown loamy soil (3:10; 4:2; 5:8; 6:2; 7:4).

The timber interval tower

Within the area formerly occupied by the stone interval tower, three post-pits were found in the north-west (7:35), south-west (7:34) and south-east (6:41–2) corners of the tower, which may have belonged to a four-post timber tower, the uprights of which may have been about 0.18m in diameter, to judge by 7:34. The postholes cut the flagging beneath the stone interval tower (7:68) and the south-east example contained an upright packing stone. The fact that the postholes were positioned so accurately within the angles of the stone tower suggests that the tower had been demolished, but its remains were still apparent when they were dug. A spread of stone blocks and architectural *spolia* (H20:6:3) lay immediately to the east of the tower and may have derived from the dismantling of the stone tower (see Fig 12.9 F). At least some of the carved stonework, which included a monolithic windowhead

and two column shafts, one complete with base and plinth (see Chapter 12: Nos 12, 14, 24, 42, Fig 12.9 F), may originally have derived from entirely different structures – a barrack veranda for instance – and later been reused in the construction of the tower.

Extension of the rampart westwards (Fig 6.3)

At the west end of the rampart bank, the gap between revetment wall 9:11 and the east tower of the north gate, which had been occupied by the cobbled ramp (9:16), was next blocked by a single-faced wall (9:26), signifying that the ramp had gone out of use by this stage to be incorporated in the rampart bank. The wall was composed of whin and sandstone blocks, with possible evidence of repair (9:25) using fragments of roofing slabs (of 12 found, three were pierced – cf Fig 12.12). These slabs may conceivably have derived from the adjacent gatetower. The character of this wall was very rough. At some stage during this overall phase of modifications revetment wall 9:11 was provided with an inner (east) face making it unique among the retaining walls of the north rampart in being faced on both sides. The purpose of this alteration was unclear however.

Flagged surfaces over the *intervallum* road

To the south of Wall J, areas of flagging were laid down between the rampart and Building XIII (H13:3:15; H20:4:37; 6:22; 7:20; 8:14–15; H13:6:13; H13:7:11).



Fig 6.3 West end of north rampart revetment wall H20:9:13 and late blocking wall 9:26.

Although these surfaces evidently all belong late in the structural sequence of the northern defences, they weren't necessarily laid at the same time. To the east, for example, virtually the entire area north of Chalets 2 and 3 of Building XIII was covered by well-laid, sizeable flagstones (H13:3:15; H20:4:37). This surface was clearly contemporary with the late occupation of those two chalets (*see* Building XIII below). The progressive expansion of the late rampart had brought it to within 1.5m of Chalet 2 reducing the *via sagularis* to a narrow flagged alley at this point. Subsequently, the alley was further narrowed by yet another small bulge of revetted rampart – presumably a response to further soil creep – and finally blocked by a spur of revetment walling, which branched off to abut the north-west corner of Chalet 2.

Further west, however, an extensive area of flagging (H20:8:14; H13:6:13; 7:11), measuring 6.3m east–west by 3m north–south, encroached over the north end of Chalets 6 and 7, suggesting it was laid after those two chalets had been at least partially abandoned (Fig 6.4). The flagstones were set on a thick layer of dark brown soil (H13:6:20; 7:12–13; H20:8:17–18), at a level some 0.30m–0.35m above the *intervallum* road surface (8:19) and the floors of the chalets themselves (Fig 6.4). The significance of these attributes for the possible date of the flagging is discussed in more detail in the following chapter.

Interpretation

In 1984, after the work on the north rampart had been completed, an area of the berm north of the fort curtain wall was excavated, in the course of removing the farm track that crossed the northern defences. This revealed that part of the curtain wall on the west side of the interval tower had collapsed, probably at some point in the second half of the 4th century (Crow 1988, 71). It was further apparent that this stretch of curtain was never restored thereafter, although the surviving courses would have continued to provide a kind of outer revetment for the rampart. Instead, the conventional curtain and rampart defences were probably replaced with a wider rampart, with its parapet perhaps set back at the point where the curtain had collapsed, to accommodate the sloping batter of the now unrestrained rampart face.

Only a relatively short stretch of the north curtain can be shown to have fallen at this stage (although Clayton's restoration work would perhaps have removed any comparable evidence elsewhere). Even so, given its position, the demonstrable collapse could have had a severe impact on the stability of the interval tower and either brought it down or required its dismantling. The spread of stone blocks and architectural *spolia* (H20:6:3) on the east side of the tower may be a residue of such dismantling. This would certainly



Fig 6.4 The relationship between the latest phases of revetment wall, the earth washed or slumped off the north rampart and the flagging over the *intervallum* road in H20:8.

have necessitated some remodelling of the northern defences and it was presumably at this stage that the stone tower was replaced by a timber tower.

It is clear that the collapse of the curtain wall must be related in some way to the series of revetment walls that delineated the repeated widening of the north rampart, but there is no conclusive stratigraphic evidence to determine whether it was most directly associated with the initial rampart widening and Wall H (Phase H20/4b), on the one hand, or the later more irregular expansion (Wall J; Phase H20/4c) on the other. It is possible that this collapse was the catalyst for the initial widening of the rampart in association with Revetment Wall H. However, it is noticeable that the east rampart, where there is no indication of any wall collapse, was also widened during the 4th century (Phase H21/4b), possibly at the very same time as the north rampart (*see below*). This might imply that the initial widening of the north rampart (H20/4b) was part of an earlier, more widespread action, perhaps intended to enable the height of the bank to be raised or to counteract settling in the existing deposits. Certainly, access to the interval tower was essentially unaffected when the enlarged H20/4b rampart was first constructed, with Revetment H being linked to the tower by new or extended retaining walls (eg 7:51) on either side of the paved passageway, suggesting that the tower was still fully functioning at this stage. Subsequently the access passage was closed off by a blocking wall (7:21), which may mark the demise of the stone tower. Thus, if the H20/4b rampart was a direct response to the problems experienced with the north curtain wall, it would appear that the interval tower was not immediately affected by them. More generally, it could be argued that the failure to repair the curtain wall properly was more in character with the final phase of rather irregular modifications to the rampart. Even so, the relationship between the collapse of the curtain and the construction of the final (H20/4c) phase of the yet further expanded rampart, associated with Revetment Walls Ji and Jii, was not necessarily a straightforward one.

As noted above, it is likely that the collapse of the north curtain caused the parapet on the west side of the tower to be set back from the former line of the curtain wall, perhaps gradually diverging in a south-easterly direction, paralleling the line of the late revetment wall, Jii. The interval tower would have projected forward of the line of this parapet and this would have continued after its replacement in timber. Further east, on the other hand, there is no direct evidence of the curtain wall collapsing and it is conceivable that the curtain wall was still standing, complete with its parapet. The new tower could have provided the articulation between these two disparate sections of the defences. Nevertheless this does not necessarily imply that the H20/4c rampart was an immediate and integral component of this readjustment of the defences. The width of the H20/4b rampart would appear to have been sufficient to accommodate a parapet that was set back in this way. However, repositioning the

parapet may have contributed to destabilising the rampart, with the softer rampart-back deposits, rather than the wall itself and the compact, puddled clay (H20/3c) bank immediately behind, now having to support the pressure of activity along the parapet.

There is abundant evidence that the late rampart was very unstable. Both to the east and west of the interval tower additional revetment had to be provided (Walls Ji and Jii) and the orientation of these walls strongly suggests that they were designed to contain material creeping eastwards and south-eastwards down the slope. A large part of the problem probably relates to the steepness of the gradient on which this stretch of the north rampart was constructed. Thus as well as having to retain the dumped material from slumping southward, the revetment walls also had to cope with material creeping down the slope from west to east. When combined with the added pressure of the repositioned parapet walk and the high rainfall for which Housesteads and the central crags of Hadrian's Wall are renowned, which would have helped to loosen the deposits, this resulted in Wall H being continually overtopped by rampart material eroding from the bank in a south-easterly direction. The response was a determined, albeit rather irregular, effort to contain this problem, in the shape of Walls Ji and Jii. The position of the interval tower would have acted as a barrier to some of this soil creep – even after the stone tower's collapse the lower courses were left embedded in the rampart bank – and this may partly explain why the broad irregular rampart featured two separate bulges of slumped deposits and associated revetment, beginning to the east and west of the tower. The more easterly revetment (Ji) appeared to be abutted by the western one (Jii), suggesting it was the earlier of the two to be erected. Here the widened rampart must represent efforts to deal with the instability of the pre-existing H20/4b bank rather than to accommodate a setback parapet (assuming there had not been a collapse of the curtain wall next to the corner tower, of which we are unaware). This would accord with the existence of the multiple short, parallel stretches of revetment just to the east of the interval tower, in Area H20:5, which give the impression of being initial, *ad hoc* attempts to cope with the slumping emergency before a more thorough solution was attempted.

The problems encountered with the north rampart also provoked a structural response at the north ends of the chalets forming part of Building XIII, which were probably closed off with masonry walls at this stage, replacing the earlier timber shuttering. Particularly telling is the manner in which the course of Wall Ji, heading diagonally across the line of the *intervallum* road, quite clearly lies parallel to the alignment of the wall closing off the north end of Chalet 4 (H13:4:30). Moreover Chalets 3–5, which stood directly opposite one of the widest stretches of rampart, appear to have been truncated in length to maintain an adequate distance from the unstable bank, while Chalet 2 may have been reorientated to face southwards.

Finds**Wall H**

Architectural fragment:

H20:9:13 26 Column shaft, base and plinth (Fig 12.3)

Silver:

H20:6:14 3 Fragments of a silver strip finger ring

Glass:

H20:6:14 445 Segmented bead in turquoise glass

Glass vessel:

H20:6:75 45c Base inner coil, greenish-colourless glass cup

H20/4b rampart deposits associated with Wall H

Stonework:

H20:4:1 118 Tip of a moulded slab with single flattened bead

Copper alloy:

H:20:5:1 185 Incomplete hollow-domed stud head filled with lead caulking

H:20:5:1 197 Small onion-headed rivet or nail

H:20:5:1 51 Fragment of a large vessel with a high straight neck (Fig 14.5)

H20:6:4 83 Peltate terminal from an openwork belt plate

H20:8:16 129 Fragment of U-sectioned binding

H20:9:2 88 Two armour scales joined by copper alloy wire (Fig 14.9)

Ironwork:

H20:6:4 338 Iron latch lifter (Fig 14.18)

Glass:

H20:4:1 638 Annular amber disc bead

H20:4:1 455 Cylinder bead of green glass

H20:4:20 459 Square-sectioned bead of blue glass

H20:5:26 513 Irregular disc, opaque dark blue glass with herringbone inlay

H20:6:28 457 Cylinder bead of green glass

Pipeclay:

H20:8:7 531 Base of pipeclay Venus figurine

Ceramic objects – perforated discs:

H20:4:1 577 Disc of grey ware with a small central hole

H20:5:1 570 Disc of Central Gaulish samian

H20:5:1 571 Disc of grey ware; BB2? post c 140

H20:5:11 582 Roughly cut disc of East Gaulish samian

H20:9:8 550 Fragment of a samian disc with a central circular hole

586 Roughly cut disc of grey ware with cross-hatched decoration

Jet and shale:

H20:4:1 616 Small jet melon bead (Fig 14.24)

Stone:

H20:5:1 677 End of a large hone of fine sandstone cut obliquely

Samian stamps:

H20:4:1 St26-7 Incomplete unidentified stamps

H20:4:20 St33 Incomplete unidentified stamp

H20:5:1 St3 Dagodubnus, mid- to late Antonine

H20:5:11 St11 Materninus iii, L2-E3C

Samian – decorated vessel:

H20 6 4 D14 CG LZ 37 style of the Paternus v group, 160-95 (Fig 15.1)

Glass vessel:

H20:4:1 25 Base fragment, bottle of clear blue-green glass (Fig 17.1)

26 Rim fragment, bottle/flask of blue-green glass (Fig 17.1)

29 Base of unguent bottle/flask, blue-green glass (Fig 17.2)

40b Rim fragment, cup clear colourless glass

H20:6:4 17 Base fragment blown blue-green glass (Fig 17.1)

50 Three-ribbed handle – blown colourless glass (Fig 17.2)

H20:8:38 38 Rim, colourless glass bowl (Fig 17.2)

Demolition and reconstruction of the interval tower in timber

Architectural fragments:

H20:6:3 12 Just under half a monolithic window head (Fig 12.3)

14 Column shaft broken off towards the narrower end

24 Column shaft, base and plinth (Fig 12.3)

42 String course stone – fragment of a corner piece

String course block:

H20:7:35 76 Type III

Copper alloy:

H20:6:3 23 Foot from a brooch with decorated strip bow (Fig 14.3)

75 Fine circular-sectioned pin shank lacking its head

H20:6:20 224 Fragments of a corroded strip ring

Ironwork:

H20:6:3 340 Iron stylus (Fig 14.18)

Retaining Walls Ji and Jii; water tank out of use (H20/4c)

Inscribed stone:

H20:5:13 1 Fragment of block with possible letter A inscribed (Fig 12.1)

Stone relief:

H20:4:10 4 Naked male figure holding buckler, right hand resting on an altar (Fig 12.2)

Architectural fragment:

H20:4:10 15 Reused column shaft broken at both ends

Other stonework:

H20:4:10 113 Small uninscribed altar (Fig 12.6)

H20:4:4 115 Reused dressed circular-sectioned shaft (Fig 12.6)

Copper alloy:

H20:3:10 181 Stud

H20:3:11 137 Triangular terminal

H20:4:4 68 Stylus with a tapering rectangular-sectioned shank (Fig 14.7)

H20:4:11 208 Narrow tube of circular section

H20:6:18 223 Annular ring of oval section (Fig 14.13)

H20:7:3 212 Small penannular collar, convex outer face

H20:8:12 172 Peltate end of a stud or belt plate

H20:9:5 229 Fragment of a wide flat ring or washer

H20:9:6 119 Trilobate terminal from a scabbard runner, leather attached

125 Incomplete buckle pin of oval section nipped at both ends

Ironwork:

- H20:6:2 320 Flat barbed and tanged arrowhead (Fig 14.16)
 H20:8:12 324 Fragments of dagger or knife blade

Glass objects:

- H20:4:11 492 Melon bead.
 H20:6:2 433 Biconical blue glass bead (Fig 14.23)
 H20:7:3 486 Globular bead
 H20:8:34 466 Square-sectioned bead of green glass

Tile:

- H20:6:2 529 Incomplete disc of tile with central circular hole

Ceramic objects – perforated discs:

- H20:4:2 547 Fragment of a grey ware disc with a central circular hole
 H20:6:2 572 Disc of grey ware
 H20:7:4 578 Roughly cut disc of grey ware
 H20:8:36 587 Disc of grey ware with rouletted decoration
 H20:9:5 588 Disc of Central Gaulish samian with rosette decoration

Stone objects:

- H20:4:10 679 Fine micaceous sandstone hone
 H20:9:4 713 Possible throwing stone/‘ballista’ ball

Repair of Wall J facing (H20/4d)**Copper alloy:**

- H20:3:8 194 C/A looped rivet

Blocking of ramp at west end of the defences (H20/4e)**Copper alloy:**

- H20:9:26 110 Hollow dome with four projecting rings (Fig 14.10)

Dating evidence (Tables 6.1 and 6.2)

There is a significant difference in the character of the coarseware assemblages associated with the two phases, H20/4b and H20/4c. For the most part the coarsewares found in the rampart levels associated with Revetment H are similar to the assemblages found in the rampart deposits of the preceding phase (H20/4a) and even in the H20/3d rampart before that. There is perhaps a slightly higher proportion of forms and wares that first emerged in the mid-3rd century (for example BB1 flanged bowls and Dales Ware type jars – JA 11, 8, 10), but this pottery does not provide any later *terminus post quem* for the remodelled rampart of H20/4b than that already established for Phases H20/3d and H20/4a. The exception is represented by an assemblage associated with the extensive layer of tightly packed soil (4:1; 5:1; 6:4) that covered the earlier rampart deposits in the eastern part of the rampart. This yielded a range of forms that probably first emerged in the mid- and late 3rd century, including single examples of a Crambeck plain-rim dish (BO 93) and a Crambeck truncated conical bowl (BO 60), both types first appearing *c* 270+, Dales-type lid-seated jars (JA 1, *c* 250+), Hartshill Mancetter mortaria (M 39) and a grey ware wide-mouthed jar. However, it also included single examples of two later types – a Crambeck Parchment ware bowl (BO 118) and a Huntcliff-type jar that appeared to lack calcite grit.

Sherds belonging to Huntcliff-type calcite-gritted jars were also present in context 9:3, which represents the soil level immediately above the *intervallum* road

Table 6.1 Pottery and coin assemblages associated with Phase H20/4b

<i>context</i>	<i>description</i>	<i>CW formcode</i>	<i>FVN</i>	<i>CW TPQ</i>	<i>coin</i>
levels associated with Revetment Wall H					
H20:4:1	rampart deposit	BO 37.0	2127	<i>c</i> 160+(?)	
		BO 42.0	2109	<i>c</i> 140+	
		BO 86.0	2153	L2C+	
		BO 86.0	2152	L2C+	
		BO 54.0	2167	<i>c</i> 200+	
		BO 52.0	2129	<i>c</i> 200+	
		BO 50.0	2122	<i>c</i> 200+	
		BO 54.0	2115	<i>c</i> 200+	
		BO 50.0	2091	<i>c</i> 200+	
		JA 16.0	2108	E3C	
		BO 37.0	2125	<i>c</i> 160+(?)	
		BO 37.0	2101	<i>c</i> 160+(?)	
		BO 42.0	2165	<i>c</i> 140+	
		BO 86.0	2121	L2C+	
		BO 23.0	2098	E–M2C	
		BO 52.0	2112	<i>c</i> 200+	
		BK 8.0	2190	3C	
		BO 118.0	2140	<i>c</i> 360+	
		JA 45.0	2150	M–L3C	
		BO 42.0	2124	<i>c</i> 140+	
		JA 148.0	2134	<i>c</i> 100–160	
		BO 42.0	2100	<i>c</i> 140+	
		BO 42.0	2106	<i>c</i> 140+	
		BO 35.0	2102	<i>c</i> 140+	

Table 6.1 (Cont'd)

<i>context</i>	<i>description</i>	<i>CW formcode</i>	<i>FVN</i>	<i>CW TPQ</i>	<i>coin</i>
		BO 91.0	2103	c 140+	
		BO 91.0	2104	c 140+	
		BK 22.0	2188	3C	
		JA 55.0	2130	M2–M3C	
		BO 35.0	2128	c 140+	
		BK 23.0	2185	3C	
		BO 42.0	2107	c 140+	
		JA 19.0	2099	E3C	
		BK 25.0	2187	3C	
		JA 55.0	2113	M2–M3C	
		BO 86.0	2157	L2C+	
		JA 149.0	2166	3–4C	
		BK 36.0	2133	M2–E3C	
		BK 22.0	2189	3C	
		M 28.0	2136	2/2 2C	
		M 28.0	2135	2/2 2C	
		JA 126.0	2111	2–3C	
		M 17.0	2141	180–230	
		M 29.0	2137	150–250	
		BO 60.0	2131	c 270+	
		JA 70.0	2093	E3C+	
		JA 16.0	2171	E3C	
		JA 16.0	2170	E3C	
		JA 16.0	2169	E3C	
		JA 16.0	2168	E3C	
		JA 16.0	2126	E3C	
		M 30.0	2138	150–250	
		JA 83.0	2163	M–L2C	
		BO 86.0	2156	L2C+	
		BO 86.0	2154	L2C+	
		BO 86.0	2158	L2C+	
		BO 86.0	2159	L2C+	
		BO 86.0	2162	L2C+	
		JA 83.0	2092	M–L2C	
		M 39.0	2139	240–350	
		BO 25.0	2096	M–L2C	
		JA 83.0	2148	M–L2C	
		JA 133.0	2147	3–4C	
		JA 83.0	2146	M–L2C	
		BO 27.0	2123	M–L2C	
		JA 23.0	2110	E3C	
		JA 83.0	2095	M–L2C	
		BO 133.0	2172	–	
H20:5:1	rampart deposit (as 4:1) ^a	BB1 plain r di (3) ^b	–	L2C+	
		BB1 groove r di	–	M2–L3C	
		BB1 incip flan bo	–	L2C+	
		BB2 plain r di	–	M2C+	
		BB2 rnd r bo (5)	–	L2–E3C	
		BB2 j	–	M2–M3C	
		ca gt j	–	3–4C	
		Dales type j	–	c 250+	
		m hm hh (4)	–	3–4C	
		gr wa wmj	–	L3C+	
		JA 149.0	–	3–4C	
		Huntcliff j no ca gt?	–	c 340+?	
		Mosel bk r	–	L2–E3C	
H20:6:4	rampart deposit (as 4:1)	JA 75.0	1073	M–L2C	
		BO 39.0	1062	c 160+	
		BO 44.0	1063	c 140+	
		JA 81.0	1070	L2–E3C	
		JA 124.0	1069	2–3C	

Table 6.1 (Cont'd)

<i>context</i>	<i>description</i>	<i>CW formcode</i>	<i>FVN</i>	<i>CW TPQ</i>	<i>coin</i>
		JA 93.0	1065	E-M2C	
		JA 64.0	1072	E3C+	
		JA 63.0	1071	E3C+	
		BO 85.0	1075	E3C	
		JA 23.0	1066	E3C	
		JA 22.0	1067	E3C	
		BO 85.0	1064	E3C	
		JA 55.0	1074	M2-M3C	
		m late C2 hm	-	L2C	
H20:6:3	<i>spolia</i>	JA 63.0	1059	E3C+	
		BO 85.0	1058	E3C	
		JA 64.0	1056	E3C+	
		JA 101.0	1057	-	
		m po hh	-	M3C+	
H20:6:28	fill of Drain G	BK 26.0	2441	L2-E3C	
		JA 70.0	1470	E3C+	
		BB2 sm rnd r bo	-	c 140+	
		m hm hh C3	-	3C	
H20:6:56	soil assoc with revetment wall 6:14	M 25.5	1098	240-350	
		JA 106.0	1101	E3C+	
		JA 11.0	1100	c 250+	
		M 8.0	1099	-	
		Crambeck flan bo	-	L3C+	
		BB1 plain r di	-	M2-L3C	
H20:6:75	consolidation of revetment wall 6:14	M 22.1	1109	3C	
		BO 86.0	1112	L2C+	
		JA 68.0	1111	E3C+	
		BO 2.0	1110	c 220+	
H20:7:4	rampart layer	BO 155.0	1303	3C	
		BK 3.0	1304	M2-M3C	
		BO 45.0	1308	-	
		BO 86.0	1309	L2C+	
		JA 70.0	1307	E3C+	
		JA 10.0	1306	c 250+	
		JA 63.0	1302	E3C+	
		JA 45.0	1305	M-L3C	
		1 frag Castor box	-	-	
		BB1 plain r di	-	M2-L3C	
		BB1 incip flan bo	-	c 200+	
		gr wa flan bo	-	L3C+	
H20:8:2	rampart deposit	JA 63.0	1373	E3C+	
		JA 73.0	1374	E3C+	
		JA 8.0	1375	c 250+	
		BO 86.0	1372	L2C+	
H20:8:7	rampart deposit	JA 55.0	2427	M2-M3C	
H20:8:16	rampart deposit	BO 56.0	1419	c 200+	
		JA 70.0	1418	E3C+	
		BO 50.0	1420	c 200+	
		BO 86.0	1421	L2C+	
		1 frag Castor box	-	-	
		BB1 plain r di	-	M2-L3C	
H20:8:40	dark loose soil in & u Wall H (8:10)	BO 86.0	1513	L2C+	
		BB1 flan bo	-	c 250	
		BB2 lg rnd r bo	-	L2-M3C	
H20:9:2	rampart assoc with revetment 9:13	BO 42.0	1444	c 140+	
		BO 39.0	1443	c 160+	
		BB1 incip flan bo (2)	-	c 200+	
		BB1 flan bo (2)	-	c 250+	
H20:9:8	soil u tumble of wall 9:12	BB1 plain r di (2)	-	M2-L3C	
H20:9:11	NE-SW revetment wall	JA 55.0	1456	M2-M3C	
		JA 108.0	1455	-	

Table 6.1 (Cont'd)

<i>context</i>	<i>description</i>	<i>CW formcode</i>	<i>FVN</i>	<i>CW TPQ</i>	<i>coin</i>
H20:9:13	Wall D (later rebuild/heightening)	M 25.2	1452	3–M4C	
H20:9:3	soil ov upper <i>via sagularis</i> surface	BO 7.0	1445	L3C+	176: Victorinus, 268–70
		gr wa flan bo (2)	–	L3C+	
		ca gt Huntcliff j (2)	–	c 340+	
	repairs to Revetment Wall H				
H20:4:20	revetment wall repair	M 16.0	1175	160–220	
H20:5:11	soil ov road, u collapsed repairs	BO 14.0	1255	L3C+	
		BO 86.0	1254	L2C+	
		M 25.3	1252	3–M4C	
		BO 63.0	1253	c 250+	
		FL 3.0	1256	–	
		Derbys type j	–	c 250+	
		BB1 flan bo	–	c 250+	
		m hm hh	–	3–4C	
		BB1 plain r di	–	M2–L3C	
H20:5:26	dark soil u revetment 5:16	JA 63.0	1496	E3C+	
H20:5:27	dark soil u revetment 5:13	JA 39.0	1251	–	

^a coarseware assemblage not examined in detail; recognisable diagnostic forms listed here from initial records

^b intersecting arc decoration

Table 6.2 Pottery and coin assemblages associated with Phases H20/4c–e

<i>context</i>		<i>CW form</i>	<i>FVN</i>	<i>CW TPQ</i>	<i>coins</i>
H20/4c	rampart levels associated with Revetment Ji and Jii				
H20:3:10	rampart layer behind Revetment Ji	BK 23.0	2283	3C	
		JA 70.0	2284	E3C+	
		BK 4.0	2282	E3C	
		JA 70.0	2286	E3C+	
H20:3:11	fill of cistern (3:12)	BK 21.0	2292	L2–E3C	
		BO 91.0	2294	c 140+	
		JA 63.0	2303	E3C+	
		JA 62.0	2300	L1–M2C	
		JA 70.0	2297	E3C+	
		BK 19.0	2293	2/2 2C–E3C	
		M 17.0	2290	180–230	
		JA 70.0	2298	E3C+	
		BO 86.0	2295	L2C+	
		M 24.0	2289	240–350	
		M 24.0	2291	240–350	
		JA 70.0	2296	E3C+	
		JA 55.0	2302	M2–M3C	
		JA 16.0	2304	E3C	
H20:4:2	(as 3:10 above)	JA 141.0	2173	2–3C	
		BO 86.0	2178	L2C+	
		BO 86.0	2177	L2C+	
		JA 19.0	2175	E3C	
H20:5:8	(as 3:10 above)	BO 35.0	1490	c 140+	
		BO 86.0	1488	L2C+	
		BK 32.0	1491	3C(?)	
		BO 94.0	1489	c 270+	
H20:6:2	rampart layer behind Revetment Jii	BK 18.0	1045	–	
		BO 126.0	1038	c 360+	
		M 25.2	1039	3–M4C	
		BO 91.0	1046	c 140+	
		BO 40.0	1053	c 160+	
		BO 56.0	1044	c 200+	
		M 25.3	1041	3–M4C	
		BO 57.0	1042	c 270+	

Table 6.2 (Cont'd)

<i>context</i>	<i>CW form</i>	<i>FVN</i>	<i>CW TPQ</i>	<i>coins</i>
	JA 63.0	1051	E3C+	
	BO 12.0	1052	L3C+	
	BO 19.0	1054	M-L2C	
	JA 61.0	1048	M2-E3C	
	JA 13.0	1047	c 250+	
	JA 45.1	1049	M-L3C	
	BO 71.0	1043	c 270	
	BO 138.0	1050	-	
	BB1 flan bo	-	c 250+	
	BB1 plain r di	-	M2-L3C	
	m hh	-	3-4C	
	Crambeck flan bo	-	L3C+	
H20:7:3 (as 6:2 above)	M 24.0	1333	240-350	
	JA 74.0	1345	c 200-250	
	JA 1.0	1343	c 250+	
	JA 10.0	1344	c 250+	
	BO 62.0	1332	wavy line c 360+	
	JA 68.0	1330	E3C+	
	M 24.0	1333	240-350	
	BK 30.0	1342	L3-4C	
	BO 55.0	1331	c 200+	
	JA 63.0	1329	E3C+	
	gr wa flan bo	-	L3C+	
H20:8:12 (as 6:2 above)	JA 123.0	1408	3-4C	
	JA 38.0	1410	c 100-160	
	M 25.5	1406	240-350	
	JA 1.0	1407	c 250+	
	JA 11.0	1415	c 250+	
	BO 85.0	1409	E3C	
	ca gt j	-	3-4C	
	ca gt Huntcliff j	-	c 340+	
	gr wa flan bo	-	L3C+	
H20:7:43 dark soil assoc with Wall J (7:9)	BO 96.0	1339	c 270+	
H20:8:33 rampart layer	JA 83.0	1509	M-L2C	
	JA 30.0	1510	L3-4C	
H20:8:36 soil in & u revetment wall 8:9	M 25.6	1518	240-350	293: Radiate copy, 273+
	gr wa flan bo	-	L3C+	
	gr wa plain r bo	-	M2-L3C	
	m po hh	-	M3C+	
H20:9:4 rampart layer betw walls 9:12 & 9:13	BO 7.0	1445	L3C+	
	BO 64.0	1647	c 250+	
	gr wa flan bo	-	L3C+	
	ca gt Huntcliff j (2)	-	c 340+	
H20:9:6 rampart layer similar to 9:4	BO 94.0	1447	c 270+	
	BB1 plain r di (2)	-	M2-L3C	
H20:9:39 rampart layer u 9:6	JA 61.0	1432	M2-E3C	
	BO 86.0	1433	L2C+	
layers over the <i>via sagularis</i>				
H20:3:20 rubble & dark soil ov latest road surface	JA 70.0	2309	E3C+	178: Victorinus, 268-70
	JA 70.0	2311	E3C+	
H20:4:10 (as 3:20 above)	JA 49.0	1144	-	68: Antoninus Pius, 138-61
	BO 13.0	1145	L3C+	147: Claudius II, 268-70
	JA 126.0	1146	2-3C	248: Radiate, 259-73
	M 24.0	1138	240-350	
	BK 22.0	1142	3C	
	JA 125.0	1143	2-3C	
	ca gt j	-	3-4C	
	Crambeck flan bo	-	L3C+	
H20:4:11 as 3:20 & 4:10, but sealed u flags 4:37	JA 8.0	1128	c 250+	379: Constantine I, 330-31
	BK 7.0	1127	3C	
	M 24.0	1126	240-350	

Table 6.2 (Cont'd)

<i>context</i>	<i>CW form</i>	<i>FVN</i>	<i>CW TPQ</i>	<i>coins</i>	
H20:4:37	flagging N of XIII Chalet 2	BO 27.0	2436	M-L2C	
		BO 23.0	2435	E-M2C	
H20:6:18	soil ov upper <i>via sagularis</i> surface 6:16	JA 108.0	1078	–	118: Julia Soaemias, 218–22
		JA 63.0	1076	E3C+	
		BO 7.0	1079	L3C+	
		BK 21.0	1077	L2–E3C	
H20:6:22	kerb/flags ov soil 6:18, against Wall Jii	BO 98.0	1086	–	
		BO 77.0	1085	c 270+	
		JA 11.0	1088	c 250+	
		BO 94.0	1087	c 270+	
		ca gt j	–	3–4C	
H20:8:34	soil immediately ov road surface 8:19	BO 57.0	1515	c 270+	55: Hadrian, 134–8
		BO 93.0	1516	c 270+	
		M 25.2	1514	3–M4C	
		BO 96.0	1517	c 270+	
H20:9:5	soil ov lower soil 9:3 & road surface 9:7	BO 86.0	1441	L2C+	
		BO 71.0	1438	c 270	
		BO 39.0	1440	c 160+	
		M 25.3	1437	3–M4C	
		JA 121.0	1439	3–4C	
		ca gt j (2)	–	3–4C	
		BB1 flan bo (2)	–	c 250+	
		BB1 plain r di (2)	–	M2–L3C	
H20/4e	rebuilding the tower in timber and revetting the west end of the defences				
H20:7:34	posthole in SW corner of interval tower	BO 42.0	1341	c 140+	
		JA 51.0	1340	L3C+	
		1 r sh(?) gr wa flan bo	–	L3C+	
H20:9:26	revetment wall betw N gate & N rampart	JA 5.0	1430	c 250+	

surface (9:7) laid during the preceding phase. The Huntcliff types formed part of a small, uniformly late coarseware group. The deposit is itself overlain by another, darker layer (9:5), more like topsoil, and hence is assigned to Phase H20/4b, but it must be emphasised that there is no firm stratigraphic association between this layer and the structural alterations to the rampart. Equally, however, it is entirely possible that quite different assemblages could have been incorporated in the levels immediately over the road, on the one hand, and in the rampart expansion, on the other. The former could represent occupation material, perhaps originating from the chalets to the south, which then accumulated on the road surface, while the latter might have been incorporated in soil deposits imported from outside the fort or in some cases reflect the redeposition of layers associated with preceding phases of the rampart bank.

A further piece of evidence relating to the H20/4b rampart widening may be supplied by the reported discovery of a coin of Constantius II, of the mid-4th-century *Gloria Exercitus* type, in the upper part of Phase H20/3d rampart layer 9:9 (the fill of the robber trench for the H20/3b Revetment Wall B). The context record for 9:9 specifies that this coin was ‘perhaps part of 9:13, rather than 9:9’, implying that it was found in

close association with the H20/4b revetment wall. In chronological terms this would certainly appear to provide a more appropriate structural context for the coin than the late 3rd-century, H20/3d rampart. Unfortunately the coin was lost during the excavation before it could be subjected to expert examination and dated precisely.

The presence in the H20/4b deposits of Crambeck Parchment and Huntcliff-type wares, in very small quantities, plus the coin of Constantius II, might indicate a mid-4th-century date for the construction of the enlarged rampart, contemporary with the initial appearance of these two types on the northern frontier. The layer that contained the latest pottery was overlain by topsoil and the possibility that the sherds were intrusive cannot be excluded. However, the likelihood that some of the material associated with this phase was made up of earlier H20/4a and H20/3d deposits which had slumped forward means that it would be unwise to draw any chronological conclusions from the *absence* of Huntcliff-type jars, Crambeck Parchment Ware or other diagnostically late forms from the H20/4b contexts. Furthermore the pottery associated with any deposits newly brought into the fort, to provide material to widen the bank, would be subject to the same uncertainties regarding the depositional

processes that could have given rise to such material – rubbish from the fort or from the *vicus*? – which have been highlighted previously (see the discussion of the north defences in Chapters 4 and 5).

In contrast, the deposits associated with Revetments Ji and Jii did contain a higher proportion of the later forms and wares, including calcite-gritted Huntcliff jars, an East Yorkshire flanged bowl with a burnished wavy line (BO 62), Crambeck Parchment Ware (BO 126), as well as a wide range of types that first emerged in the later 3rd century. The latest vessels all derived from the western half of the rampart, in the deposits associated with Wall Jii. This appears to be structurally later than the corresponding eastern bulge, where the problems with the stability of the H20/4b bank perhaps first emerged, although the character of the work is very similar. Thus the coarseware assemblages provide reasonably convincing evidence that the western half of the north rampart was not widened before the later 4th century.

Rim sherds belonging to Huntcliff-type jars were found in the berm deposits immediately north of the fort, sealed beneath the collapsed stonework of the curtain wall, and in the rubble collapse itself, while the rampart deposits that had slumped forward over the rubble contained an example of a Crambeck Parchment Ware bowl (Crow 1988, 72; Dore 1988, 84, 88, nos 33 and 60). This would indicate that the wall cannot have collapsed before the middle decades of the 4th century.

The coins belonging to Phase H20/4c derive from the various soil layers over the latest *via sagularis* road surface (which is assigned to H20/4a). These deposits probably represent material which has slumped down from the upper levels of the H20/4a and H20/4b phase ramparts and spread across the road (Fig 6.5). The H20/4c revetment walls were simply built into the back of these slumped layers with further, new material then presumably heaped on top. The coins may originally have been deposited in rampart material that later slumped over the roadway, or alternatively were dropped on the roadway and then covered by later rampart slip. One example, the Constantinian coin (No. 379), dated to 330–31 and sealed under the late flagging (4:37) over the *via sagularis* north of Chalet 2, provides a *terminus post quem* for the laying of that flagging.

The east rampart

The widened rampart bank

Some time after the rampart bank had been reinstated along the eastern defences, it was widened by c 0.8m–0.9m, a measure paralleling the alterations to the northern defences described in the previous section. The widening was marked by a new single-faced retaining wall (H21:4:6), which still survived to two courses in parts to the south of the interval tower and

revetted a dark brown rampart soil (4:7) that overtopped the surviving wall courses. The existence of this secondary revetment was much less clear to the north of the tower, but was convincingly recorded in section (2:30 – see Fig 3.5: Section F1) and in one or two surviving fragments in the same area (H21:2). Elsewhere the revetment wall had been robbed out and was represented by little more than a line of rubble (2:30) and a shallow construction trench (1:67; 2:57; 2:34), plus a sandy, loamy orange rampart deposit (2:11; 2:12) immediately to the east (Fig 6.6).

The interval tower

Within the interval tower, a new layer of makeup was put down (3:30; 3:95–6) and then a flagged floor (3:29) laid, and this contained much reused material, some of the flags being semicircular in section; there were reused cornice slabs in the threshold. These flags varied in thickness between 0.07m and 0.13m. On the eastern side, the flagging seems to have been damaged by later robbing of the fort wall.

The V-shaped cut

At some point, a large V-shaped feature (2:18) was cut across the rampart, north of the interval tower, ranging in width from 1.6m to 3.5m; it was 5.7m long and contained a series of stony fills. A layer of rounded cobbles (2:38), set in the clay of the primary rampart levels in the bottom of the cut, was covered by a grey soil (2:35) and a stone spread (2:29). Over these was a further layer of angular stones, mostly sandstone, with some limestone and a few blocks of whin (2:18), set in a dark brown clayey loam with a very small amount of sand (2:28).

Interpretation

The V-shaped feature was in line with the latest course of the latrine drain in the north-east corner of Building XIII Chalet 1 (H13:0:11; see below) and was probably associated with the reorientation of the latrine outlet to run eastward instead of northward. Instead of a conventional, stone-lined channel, drainage of the outflow through the east rampart was apparently achieved by means of a rubble-filled soakaway represented by the V-shaped feature. Certainly no trace of an outlet for the drain is apparent in the fabric of the east curtain wall today, although consolidation work from the 19th century onwards might conceivably have obscured such an outlet. While distinctions were noted between the various fills in the cut, it is likely that these contexts were all associated with a single construction event. At any rate, the V-shaped cut is the latest structural feature identifiable along the eastern defences until the excavations of the 19th and early 20th century, since it not only cuts through the initial revetment for the reinstated rampart (see Chapter 5), but also the line of the later retaining wall described above.

Finds

Rampart deposits (H21/4b)

Copper alloy:

H21:4:7 11 Fragment of a simple knee brooch (Fig 14.2)

H21:4:10 57 Curved hollow rod with a central rib (Fig 14.6)

Lead:

H21:4:2 408 Several fragments of waste

Ceramic object:

H21:4:2 553 Disc of coarse red ware with a central circular hole

Samian:

H21:4:7 St13 FPatillus

H21:4:2 St24, Unidentified and incomplete stamps
St35–6

Glass vessel

H21:2:11 32 Base, shallow buff-colourless glass bowl (Fig 17.2)

Flagging inside interval tower (H21/4a)

Stone relief:

H21:3:26 7 Oval shaft with fine vertical grooving

String course block:

H21:3:29 59 Type III reused as a threshold stone

Quern:

H21:3:29 96 Reused part of lower sandstone quern

Botanical sample:

H21:3:25 Charcoal layer

V-shaped cut

Stone:

H21:2:29 715 Possible 'ballista' shot

Dating (Table 6.3)

The coarseware assemblages associated with the widening of the east rampart resembled those from the equivalent phase of the north rampart (H20/4b – Revetment Wall H) and, similarly, differed very little from those of the preceding phase (H21/3b). They predominantly comprised forms that could conceivably have emerged as early as the 1st or 2nd centuries. Certainly none of the material provides a *terminus post quem* any later than the suggested late 3rd- to early 4th-century date of the previous phase, yet it is reasonable to suppose that the widening of the adjacent north and east ramparts occurred at the same time, perhaps towards the middle of the 4th century.

The coarseware found in the deposits in the V-shaped cut into the rampart bank contained a higher proportion of types that first emerged in the late 3rd century (although the total assemblage is relatively small), but this is of little assistance in specifying the date of this structural event, which must post-date the widening of the bank.

The coinage and pottery from the east *intervallum* road surfaces were more informative, however, with a number of 4th-century coin issues and coarseware types, particularly from Road Level 9. The implications

of these assemblages are analysed in greater detail in conjunction with the material from the equivalent levels of the street between Buildings XIII and XIV.

The buildings

Building XIII

Chalet 1

Initial modifications

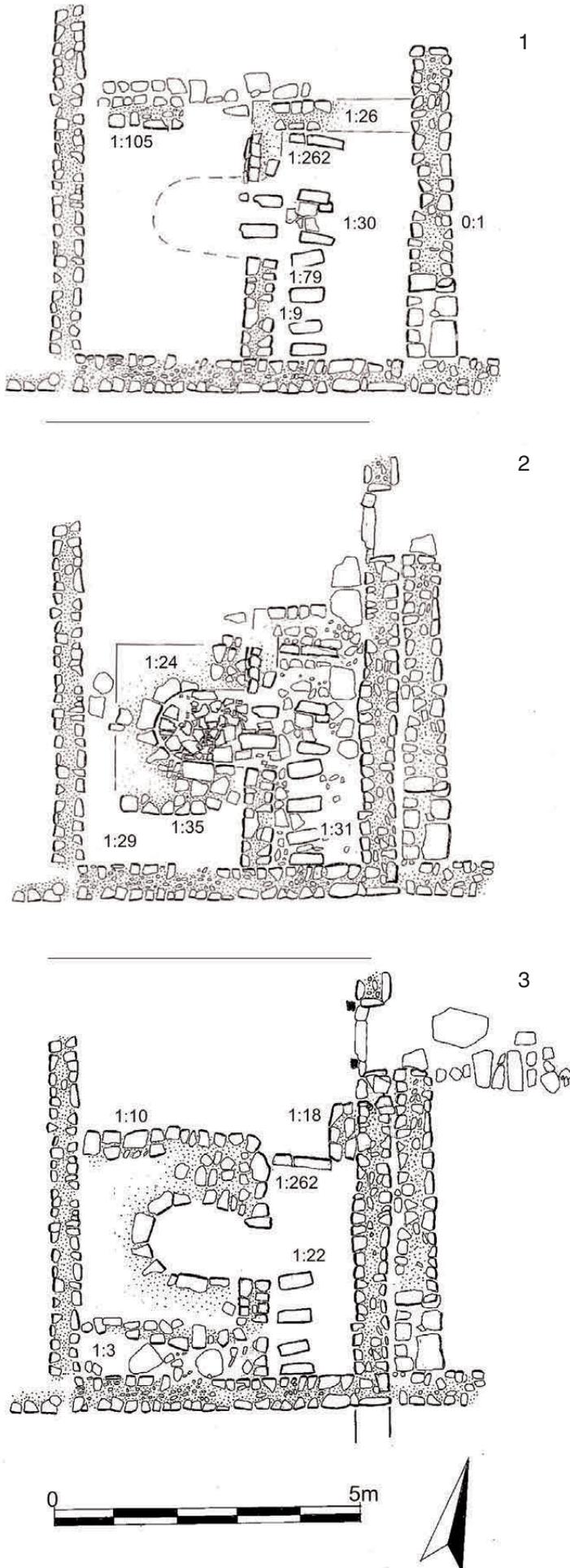
The original north–south partition (H13:1:57) of Chalet 1 was demolished down to the level of its bottom two courses and a new wall (0:1, 1:8) was constructed to the east of it. The new partition was 0.63m wide and survived to a height of two courses. It was only present in the southern half of the building, stretching as far north as the central causeway, and as a result it was initially interpreted as a bench-like structure, set against the east side of the later cross-wall 1:7. However, 0:1/1:8 was clearly faced on both sides, logically implying it was a freestanding wall rather than a bench, and it is likely that the northern half of the wall was simply removed by later activity. Indeed, a small fragment of masonry walling that might form part of the missing northern stretch was preserved, butting up against the north wall of the chalet (0:60), where it was incorporated in a later layer of flagging (0:8). The lower course was composed of large, finely dressed, square and oblong blocks that may have been reused from elsewhere (perhaps the demolished eastern half of Building XV; *see below*).

Two of the drains (1:78; 1:268) put in during the chalet's primary phase were also demolished, the northern one (1:268) being packed with stone and earth (1:53, 1:59, 1:69). Drain 1:267 continued to function, however. Where it changed direction to enter the eastern half of the building, a square pillar stone was inserted in the angle between north side wall 1:74 and the new blocking (1:69) of channel 1:268, to improve the drain's flow. The rest of the western room was flagged (1:13, 1:33) and the doorway in the north-west corner (*see above*) may now have been blocked (1:261). The previous east–west medial wall (1:52) was demolished down to its bottom course and a new partition built on a slightly more southerly line. In the south-west room, the box at the end of the north–south drain was dismantled and packed with stone and earth (1:109), so that it could carry the south face (1:105) of the new partition wall. No trace of a corresponding north face survived, although it might conceivably have overlain the south face of the earlier wall (1:52). This would give the rebuilt wall a width of 0.5m. More probably, however, the single extant course of 1:105, plus the clay and rubble packing between it and the old south face, simply provided a firm base for a timber-framed partition. This is suggested by the way that the single remaining course of the earlier wall 1:52 was apparently incorporated in its entirety in the flagged floor of the north-west room, to judge from the wear evident on both faces of the wall.

Table 6.3 Pottery and coins associated with the late modifications to the east defences (Phase H21/4)

<i>context</i>	<i>description</i>	<i>coin</i>	<i>CW formcode</i>	<i>FVN</i>	<i>CW TPQ</i>
H21/4a	alterations to the interval tower				
H21:3:26	cobbles W of tower	–	m hm hh	–	3–4C
H21/4b	widening of the rampart bank				
H21:2:11	rampart deposit	–	BO 18.0	1573	L1–E2C
		–	BK 17.0	1564	c 100–160
		–	JA 55.0	1572	M2–M3C
		–	JA 145.0	1563	–
		–	FL 6.0	1566	–
		–	BK 19.0	1565	2/2 2C–E3C
		–	BB1 plain r di	–	M2–L3C
		–	BB1 plain r di ^a	–	L2C+
		–	m hm hh	–	3–4C
H21:2:12	rampart deposit (as 2:11 above)	–	BO 86.0	1577	L2C+
		–	BO 91.0	1576	c 140+
		–	JA 60.0	1575	L1–M2C
H21:2:30	rampart revetment	–	FL 8.0	1587	–
		–	FL 5.0	1588	–
		–	BO 88.0	1592	L2C+
		–	BO 44.0	1589	c 140+
		–	BO 27.0	1590	M–L2C
		–	JA 92.0	1591	E–M2C
?H21:5:11	rampart deposit	–	BK 20.0	2063	L2–E3C
H21:3:8	revetment wall, W side of cistern	–	JA 81.0	1555	L2–E3C
		–	gr wa flan bo	–	L3C+
H21/4b+	V-shaped cut in rampart				
H21:2:18		–	BO 40.0	1595	c 160+
		–	BO 27.0	1594	M–L2C
		–	BO 94.0	1597	c 270+
		–	BO 86.0	1596	L2C+
		–	BB1 plain r bo	–	M2–L3C
		–	m hm hh	–	3–4C
H21:2:28		–	BO 90.0	1557	L3C
		–	M 24.0	1558	240–350
H21:2:29		–	BO 36.0	1570	c 140+
		–	JA 106.0	1569	E3C+
		–	BB1 plain r di	–	M2–L3C
H21/4r	via sagularis surfaces				
H21:3:47	Road level 8	128: Valerian I, 258	–	–	–
		144: Claudius II, 268–70	–	–	–
		236: ‘Tetricus II’, 273+	–	–	–
H21:4:4	road level 8	148: Claudius II, 268–70	BK 28.0	2050	3–4C
		151: Claudius II, 268–70	–	–	–
H21:3:18	road level 9	218: ‘Tetricus I’, 273+	BO 56.0	1624	c 200+
		240: ‘Tetricus II’, 273+	gr wa flan bo	–	L3C+
		249: Radiate, 259–73	–	–	–
		307: Radiate copy, 273+	–	–	–
		535: Illegible fragment, 3/4C	–	–	–
H21:3:18	(makeup)	419: Constantine II Caesar, 334–5	–	–	–
H21:4:2	road level 9	416: Constantine II Caesar, 330–35	BO 71.0	2043	c 270
		–	M 32.0	2044	180–240
		–	BO 153.0	2047	c 360+
		–	BO 111.0	2046	c 270+(?)
		–	JA 27.0	2042	c 340+
H21:4:53	makeup for Road 9	121: Severus Alexander, 222–8	–	–	–
		162: Claudius II posth, 270	–	–	–
		163: ‘Claudius II posth’, 270+	–	–	–
		174: Victorinus, 268–70	–	–	–
H21:4:54	makeup for Road 9	195: ‘Tetricus I’, 273+	–	–	–

^a intersect arc dec



The major innovation introduced at this stage occurred in the south-west room, which was subdivided and its eastern half transformed into a small heated room, with a pillared hypocaust (Fig 6.7: 1). The heated room was enclosed on its west and north sides by new partition walls (1:9; 1:26), composed of two faces of normal-sized building stones with a clay and rubble core, and on its east side by the chalet's main dividing wall (0:1), giving the chamber internal dimensions of 3.7m by 2.0m. The junction between the north and west walls had been obscured by the revetment wall (1:10) of a later bread oven. The west wall was 0.46m wide (1:9) and featured a 1.0m wide opening roughly midway along its length which formed the stokehole for the hypocaust. The north wall (1:26) presumably originally butted up against the chalet's main dividing wall (0:1), but had been cut at its east end by the partition wall (1:7) belonging to the subsequent phase. One doorway into the room may have lain in the south-east corner, where there was evidence of a stepped threshold at the south end of wall 0:1/1:8. The western half of the former south-west room housed a furnace pit from which the hypocaust was fired.

The room contained a series of well-cut oblong monolithic blocks (1:79; 1:262), laid on edge, which must have supported a raised floor probably composed of large flagstones. The blocks were similar to those used in the bottom course of partition wall 0:1/1:8 and probably originated from another building. In the centre, intruding into the opening in wall 1:9, four of these blocks were laid in two parallel rows, apparently defining a narrow flue, and were burnt to such a degree that their sandstone fabric was beginning to disintegrate. Immediately to the south, a row of four much better preserved blocks (1:79) were present, while two blocks laid end to end (1:262), totalling 0.95m in length, were located close to wall 1:26 at the north end of the room. A gap in the flagging midway between 1:262 and the 'flue' hinted that another block may once have stood there. Later activity on the east side of the room had removed any similar monolithic supports there. Flagging, rubble and clay (1:30; 1:31) were packed around the base of these blocks. In the main this probably belonged to a later remodelling but, particularly in the centre, on the floor of the flue, and to the north, there appeared to be more than one level of the flagging and the lowest flags may form part of this phase, or conceivably were even part of a primary chalet floor.

As revealed, the oblong blocks would not have provided a great deal of elevation for the floor – though they still stood proud of the later clay and rubble packing (see Fig 7.2) – and it is possible that they originally stood upright in the normal manner of pillar stones and were only laid on their side later on when the raised floor was demolished. Alternatively, additional blocks

Fig 6.7 Successive phases of alterations in the south-east corner of XIII Chalet 1 (hypocaust and ovens); scale 1:100.

may have been laid on top of the surviving examples, later being removed and reused elsewhere. It seems likely, however, that the arrangements in the flue formed part of the initial layout of this room. The location and arrangement of the two blocks laid end-to-end (1:262), at the north end of the room, might reflect their later function as a threshold and represent deliberate repositioning of these stones to facilitate such reuse, but even this is not certain. It is conceivable that the positioning of the two blocks was an original feature of the room and it was simply a matter of chance that this facilitated their later adaptation as a threshold.

A furnace pit (1:24) was positioned on the east side of the stokehole. It is unclear how much of the structure described here belonged to this phase as opposed to the subsequent oven (*see below*). The pit was horseshoe-shaped, measuring 1.1m by 1.5m internally, and was cut (1:65) into a makeup layer of yellowish clay and small stones (1:23). It was revetted with a variety of facing stones, one of which was similar in size and form to the monolithic floor supports. To the south and north, this pit lining was enclosed by rubble packing which was faced externally. The facing survived better on the south side, where a single course, 1.6m long, remained (1:35). The 0.8m wide gap between this facing and the chalet's south wall was covered by burnt material (1:28).

The structure described above was at first interpreted as the initial phase of a kiln, or more likely a bread oven, performing the same function as those that had earlier been located in the rampart areas. The furnace area was certainly later remodelled to form part of an oven. The surrounding faced rubble structure appears more elaborate than would be required for a stoking pit and was probably also associated with the conversion of the pit into a bread oven, as suggested below. However, although the precise significance of the monolithic blocks was not recognised during the excavation, they can only be plausibly interpreted as part of a hypocaust for a heated room. The combination of a hypocaust-equipped room and an apparently apsidal addition even raises the possibility that this part of the building served as a small bath suite. On balance, however, the lack of evidence that the room was fired from anywhere other than the opening in wall 1:9, where the impact of the heat was clearly evident on shattered sandstone blocks defining the 'flue', suggested that the horseshoe-shaped feature, 1:24, which enclosed the firing area, represented a furnace pit rather than the base of an apse containing a bath. The existence of a hypocaust in part of Chalet 1 has important implications with regard to the status of the building's occupants.

In the eastern half of Chalet 1, a new floor of gravel (0:31) and flags (0:15) was laid to the south of the causeway, evidently at the same time as the north-south partition wall was constructed. The wall directly overlay the gravel makeup (0:31) and, towards the north, part of the earlier flagged surface, 0:18. The secondary layer of flags (0:15) for the most part butted against the

face of the wall, but one slab was overlain by the partition. The stone causeway itself was resurfaced. A layer of rubble (0:40), bonded with yellow clay (0:36), was deposited to level up the structure and a new surface of stones (0:39) was laid over this. A small hearth (0:37) was incorporated in the surface and might have been associated with the construction work. It was represented by an area of charcoal-rich material adjoining three stones that had been burnt red. The causeway led across the chalet towards a gap in the partition wall that provided access to the western half of the building. The area around this doorway was covered with flagging (0:56), which was contemporary with the secondary partition, although its exact relationship to the various levels of the causeway was unclear. A lower level of flagging (0:57) was also noted at one point in this area, hinting at still greater structural complexity.

At the other end of the causeway, stones associated with the new surface clearly overlay the north end of the large threshold stone (0:43) in the east wall that belonged to the primary chalet phase, demonstrating that, whatever distinction might previously have existed between the causeway entrance and the doorway into the southern room, none was being observed by this stage. As a result a stretch of the east wall at least 3m in length was probably open, or closed only by timber shuttering. At some point, probably somewhat later in the development of the building, this process was taken further, with the demolition of the east wall and much of the south wall and their replacement by a series of piers (0:45-9) supporting upright timbers to create an open-ended, veranda-like structure (*see below*).

Later changes to Chalet 1

Chalet 1 underwent further alteration (Fig 6.8). Rather than envisaging this as a third distinct phase in the building, it is more convincingly interpreted as consisting of a series of distinct modifications that took place over a prolonged period. A new north-south partition wall (1:7), which was 0.65m wide and clay bonded, was constructed along the west side of the preceding cross-wall (0:1). The upper courses of the new cross-wall clearly rode up over the lower courses of the chalet's south wall (1:2) and were keyed into the upper course of that wall only on the west side, with a neat continuous face on the east side suggesting that the south wall was no longer standing to that side.

There was a gap, 1.05m wide, midway along this wall, corresponding to that in the secondary partition. The earlier flagged surface (0:56), continued in use at the west end of the causeway and extended into this doorway, which also featured a threshold stone (1:263). At the north end of the wall, another doorway, only 0.8m wide, was evident.

Little remained of the northern half of the previous partition, its removal probably being associated with substantial alterations to the drains in the north-east corner of the building (Fig 6.9). This involved rerouting drain 0:11 to exit through the east, rather than the

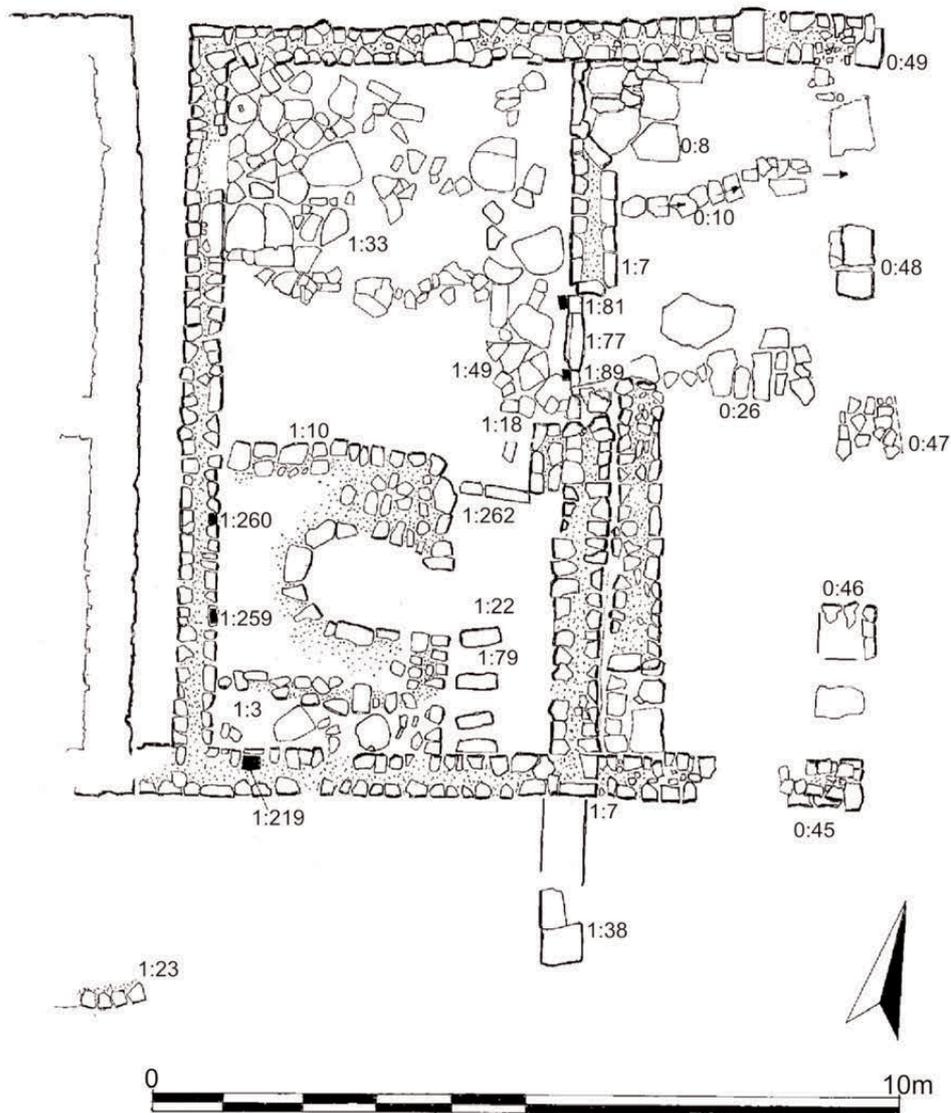


Fig 6.8 Building XIII Chalet 1 Phase 3 (scale 1:100).

north, side of the building. The north and south arms of drain 0:9 went out of use and were backfilled, while drain 0:11 was now extended to cut through the chalet's east wall (0:6). The line of capstones (0:10) and fragments of the side walls relating to this phase of the drain were recognised, although these remains had probably been disturbed when this corner of the chalet was investigated by Bosanquet's excavators in 1898 (cf Fig 1.4). The wide drain cut had clearly removed a stretch of east wall 0:6 between 1m (lower courses) and 2m (upper courses) in length. From there, the drain effluent was perhaps either emptied manually or allowed to flow in a gully across the *intervallum* road into a wide, deep, rubble-filled cut in the east rampart (H21:2:18). Stratigraphically, this cut was the latest pre-modern feature in the east rampart and it presumably represented some kind of soakaway.

Perhaps as a result of the reconstruction of drain 0:11, the eastern half of Chalet 1 may have been transformed into a largely open, veranda-like structure

(or pair of structures). The northern half of the east wall would have been cut in two by the rerouted drain. The surviving fragments (0:48; 0:49) on either side of the drain may simply have supported a single upright timber each. Little remained of the east wall to the south of the causeway, suggesting this stretch too had largely been demolished, but the survival of three pockets of masonry, on the south edge of the causeway (0:47), the south-east corner of the building (0:45) and midway between (0:46), was interpreted as the evidence for a series of pier bases that supported upright timbers and varied between 0.6m and 0.75m square. The south wall (0:5), too, had apparently undergone drastic alteration. A stretch some 2m in length, west of the south-east corner pier, had been removed completely. However, the north wall of the chalet (0:4) survived in much better condition than its southern and eastern counterparts, when excavated, and could conceivably have remained standing along its full length.



Fig 6.9 North-east corner of Chalet 1 showing the causeway (left), the drain channels for a possible latrine and the buried primary east wall.

The open-ended structure created by the demolition of the south and east walls was presumably covered by a pentice roof supported by the row of five piers and the north wall, with the upper end of the roof perhaps resting up against the new partition wall (1:4). This would certainly be the simplest arrangement. However, there is no clear indication that the southern half of the earlier partition wall (0:1) was demolished at this stage, since it survives to virtually the same height as the replacement wall, with two courses remaining. If this half of the earlier wall (0:1) did remain standing, it may have formed part of a separate lean-to structure or shed, open on all but the west side, while the northern half of the eastern room, with the remodelled drain, was still attached to the western half of the chalet, forming an L-shaped structure. The causeway between these two areas could have been open to the elements. Some support for this argument may be provided by the lack of uniformity in the spacing of the piers, but this is scarcely conclusive evidence.

The bread oven in the south-west corner

In a further major change, the furnace pit for the hypocaust-heated room of Phase 2 was converted into an oven, while the room itself now became a working area in front, occupying a smaller area owing to the construction of the new medial partition wall, 1:7.

The plan of the oven in its ultimate form is very clear (see Fig 6.7: 3), but there was evidence to suggest that it was initially a smaller structure. The initial

phase of the oven may have utilised the stone base around the former furnace pit, including the south revetment 1:35, which appears more substantial than would be required simply by a stoking area (see Fig 6.7: 2). Periodic rebuilding was a common feature of bread ovens as a result of the severe heat they experienced.

A horseshoe-shaped revetment (1:24) was either constructed as part of the initial phase of the oven or adapted from an earlier furnace pit associated with the underfloor-heated room (Fig 6.10). Its facing stones included one block that was similar in size and form to the monolithic floor supports. This revetment formed the base of the oven's internal wall. A flagged floor was laid within the pit itself. On either side, to the south and north, the oven was enclosed by rubble packing which was faced externally. The exterior facing of the oven survived best on the south side, where a single course, 1.6m long, remained (1:35), but scarcely anything was left of the west side and the original arrangements on the north side had probably been obscured by the oven's later remodelling. It was uncertain whether the burnt material (1:28) covering the 0.8m wide gap between the oven's south face and the chalet's south wall related to this phase or to the earlier hypocaust firing. Wall 1:9 was also partially retained to form the front exterior wall of the oven.

Later the oven was substantially remodelled. East wall 1:9 was bonded to a new, single-faced revetment wall (1:10), which was built over the remains of the previous east-west medial wall (1:105) and enclosed



Fig 6.10 Chalet 1 showing hypocaust blocks, stokehole and pit later reused as oven base.

the oven on its north side. To the south, another new wall (1:3) was erected and again tied into east wall 1:9. This south wall was poorly preserved, but, despite being only *c* 0.35m wide, was clearly faced on both sides. It followed a parallel alignment to wall 1:10, with neither being square to the west wall of the chalet (1:4), providing additional confirmation that the two walls, 1:10 and 1:3, were contemporary and related. The narrow alley between the oven and the south wall of the building was covered by rough flagging. If the exterior of the oven was revetted with stone walls, the interior probably comprised a stone base with a clay and wattle and daub superstructure, to judge from the collapsed debris within the oven (1:6), which doubtless required frequent repair and rebuilding.

Contemporary with the initial phase of the oven, the raised floor over the former hypocaust was dismantled and a new surface created by packing flagging, rubble and clay (1:30; 1:31) around the monolithic hypocaust piers. The flagstones may have derived from the previous raised floor. Over this floor there was a spread of burnt debris from the oven, comprising clay, mixed with charcoal and wattle-and-daub (1:22), which may have formed a new surface by a process of continual trampling. Four of the stone monoliths (1:79) still protruded through the clay spread in front of the oven. It is not clear whether they still fulfilled any specific function.

The north wall (1:26) of the hypocaust room was demolished and partially covered by a new level of flagging (1:49). These flagstones extended from the central

doorway (1:77) in medial wall 1:7 southward to the threshold of the oven-working area, which was formed by the two hypocaust piers laid end to end (1:262). This may have been contemporary with alterations to the central doorway, which received a new sill of two stones (1:77) one of which proved to be a trimmed column shaft. At either end there were postholes (1:81; 1:89), each 0.15m square, presumably for wooden door jambs. The associated flagging (1:49) extended no further than 1m west of wall 1:7 and covered the southern end of the north-south drain, which had been filled with brown earth (1:62/67) and overlain by a layer of burnt clay and charcoal (1:61). The flags were set directly on a layer of black loamy soil (1:50) up to 0.05m thick, resembling topsoil. This black loamy soil could indicate a period of dereliction, but may simply represent a layer deliberately laid to provide bedding for the flags. The flagging was evidently intended to facilitate access to the oven-working area from the east. The causeway leading towards threshold 1:77 from the east was also resurfaced with large stones (0:26) at this stage. No equivalent layer of flagging was present in the remainder of the north-west room, only debris from the later collapse of the oven in the form of a mass of burnt clay (1:12).

At a later stage, perhaps contemporary with the rebuilding of the oven, medial wall 1:7 was altered, narrowing the entrance to the working area. This involved demolishing a short stretch of the wall, immediately to the south of threshold 1:77, and attaching instead a short stub wall (1:18), 0.35m long and 0.9m wide, to its new terminal, just to the north of the

threshold blocks 1:262. The wall stub acted as a door jamb on the west side of the narrowed entrance to the working area. It was built over the layer of flagstones (1:49) leading from the doorway through the medial wall into the eastern half of the building. In addition, three postholes, which were found set in the south (1:219) and west (1:259; 1:260) walls of the chalet, may also have been associated with the oven, given their location on two sides of it. Each was filled with clay and stone, and perhaps originally supported some kind of shelter over the oven. The need for such a shelter would suggest that by that stage, perhaps very late in its structural history, this part of Chalet 1 was no longer roofed over. However, the laying of the new sill in the medial wall doorway makes it clear that the building's walls (1:7 in particular) were still standing to a significant height at that stage. Later, when the entrance to the working area (1:18) was narrowed, the stretch of the medial wall to the north may have been allowed to decay, but the walls around the oven itself were probably still maintained.

The evidence that the oven had more than one distinct structural phase represented by the apparent alterations to the threshold area (1:49; 1:18) and successive floor surfaces in the working area (1:30/31; 1:22), as well as the rebuilding of the fabric of the oven itself, implies that the oven continued in use over a prolonged period. It is clear that by this stage Chalet 1 no longer served as accommodation for an officer, but it does appear to have provided certain communal services for the use of the full complement of Chalet Range XIII, with activity now centring on the oven in the south-west corner and conceivably the drain in the north-east, which perhaps still functioned as some kind of latrine.

The southward extension of the chalet range

There are some indications that the western half of the chalet was extended 2.2m southward, over the road surface (Fig 6.11). Two well-cut, rectangular slabs (HSE:1:38) were set on the final road surface (HSE:1:12), directly in line with wall H13:1:4, and appeared to form a continuation of that wall. The larger and more southerly slab, which probably represented the terminal of the extended wall, was almost square in shape, measuring 0.55m × 0.50m, and was thus comparable in size and form to the large padstones recorded at the northern terminals of several of the chalets' long-axis walls. The intervening stretch of the wall had evidently been removed, probably in the course of earlier excavation and consolidation of Building XIII itself. Further evidence suggests the presence of structures belonging to this period over the road surface south of Chalet 2. An alignment of four facing stones (HSE:1:23), which may represent the south face of a badly damaged wall, was uncovered directly to the south of the east wall of Chalet 2 (H13:2:1) some 3.8m to the west of HSE:1:38. Too little remained of this wall to determine what relationship this may have had to wall 2:1, or the Chalet 1 extension. The latter extension must post-date the construction of wall 1:4, but was probably earlier than the final phase of the oven, which was apparently covered by some kind of timber shelter suggesting much of the chalet was unroofed by then.

The final activity in Chalet 1 is discussed in the following chapter, as it incorporates elements very different in character, notably the apparent transformation of the north-west corner of the building into a small oval structure.



Fig 6.11 Fragment of wall face indicating the southward extension of Chalet 1 over the street.

The other chalets also witnessed significant alterations to their initial layout. Much of this remodelling appears to have been prompted by the instability of the north rampart (*see above*), which must have caused considerable problems at the north ends of the chalets, particularly in the eastern and central parts of the range.

Chalet 2

A number of changes were made to the internal arrangements of Chalet 2. A cross-wall (2:7) was added to divide this chalet into two rooms, leaving a doorway 1.3m wide. Surviving to three courses 0.5m high, the width of this varied between 0.48m and 0.78m. It was bonded to a bench-like structure (2:9), which extended south from its west end for a distance of 1.53m. This bench was 0.63m wide and three courses high (0.41m), but neither it nor the cross-wall were keyed into the west wall of the chalet, although the bench was contiguous with it along the whole of its length. At the east end of the cross-wall, there was a posthole for a door jamb, 0.1m east–west by 0.35m, and this was packed round with small stones (2:12). In the centre of the doorway, and in line with the south face of the new partition wall, there was another posthole, packed with vertical stones and filled with brown material (2:22), the overall diameter of which was 0.35m and the dimensions of the post 0.08–0.1m. The function of the latter was not clear. South of the bench, there was a depression (2:13), 0.5m square and between 0.1m and 0.2m deep, bounded by various vertical and horizontal stones including a reused piece. There was a platform of flat stones, 0.9m east–west and 0.7m north–south, and one course deep, in the angle between the bench and the cross-wall. Some of these stones had been burnt and between them was a white clayey ash and some coal (2:14). In front of this platform, a circular depression, 0.6m in diameter and 0.05m deep, was filled with ash, burnt clay, small stones, and lumps of iron and coal (2:15). A quernstone had been placed over this fill, although it may be unrelated. A wooden partition ran north–south to the east of the platform and the depression. This partition, which ran parallel to the bench and butted against the east end of the cross-wall, was delineated by a double row of vertically pitched stones, 0.3m across and stretching for 1.8m and cutting into the clay floor (2:11). As was the case in the north room, coal was found immediately above the floor surface.

The orientation of Chalet 2 may have been shifted from north-facing to south-facing in this phase (as noted in Chapter 5), a measure perhaps related to the problems posed by the instability of the north rampart. If so, this was a different response to that employed in the chalets immediately to the west, which were effectively shortened and withdrawn southwards in the face of the collapsing rampart. The new north wall (2:33) was about 0.55m in width and survived to at least five courses in height. At its centre, there was a doorway (2:36), 0.85m wide with postholes, about 0.15m square, for the

jambos recessed into the north side of the wall (2:38–9). The new wall butted up against the chalet's east wall (2:1), but was bonded to the building's west wall (2:34), signifying that the north end of wall 2:34 was rebuilt at this stage. At the same time the original south wall must have been demolished and the south ends of the two long axis walls rebuilt to create an open front to the south, presumably closed off with timber shuttering.

The doorway in the north wall was eventually blocked, perhaps at the same time as the narrow alley between the final phase of north rampart revetment (H20:4:4) and the chalet was itself closed off by a spur of revetment walling that abutted the north-west corner of the chalet. The doorway blocking took the form of a single upright slab in front of the opening – perhaps representing an initial attempt to screen the entrance and prevent the ingress of slumping rampart deposits – and a line of sandstone facing stones and rubble (H13:2:46) within the doorway itself. It is conceivable that by this late stage slumped rampart material was lying up against the north wall of the building.

Perhaps contemporaneously, the southern end of Chalet 2 was closed off by a roughly built wall (2:35), which butted against the earlier chalet walls at either end and did not survive in very good condition. It included a doorway, 0.70m wide, with flagged flooring (2:16), which did not reach beyond the north face of the wall, and this door led onto a causeway 1.1m broad. The west side of the doorway incorporated a reused windowhead. The construction of this wall was much inferior in quality to that of the north wall, suggesting there was a significant chronological gap between the two.

Outside the south wall, a small drain (2:47), 0.3m wide, flowed south, but this did not appear to originate inside the chalet. In addition, the layout of the remaining stonework along the southern limit of the excavation trench seems to indicate that the south wall may have been remodelled to follow a more oblique course, with the upper courses apparently diverging southwards, notably on the east side of the doorway. So little of these arrangements was uncovered, however, that the inference must remain very tentative. Further activity, in the form of an east–west alignment of four facing stones (HSE:1:23), 2.7m to the south of the chalet (*see above*), may be associated in some way. This short fragment of wall facing was directly in line with the east wall of Chalet 2 (H13:2:1) and sat on layers of mid- and dark-brown sandy loam (HSE:1:24; HSE:1:26) overlying the latest surviving road surface in this area (HSE:1:12). A spread of rubble (HSE:1:11) to the south and south-east, much of which was pitched southwards and consisted of obvious facing stones, showed that the wall had collapsed outward over that road surface and suggested the wall had continued at least some distance to the east. Aside from the collapsed stonework, all trace of the remainder of the wall to the north and east, plus any associated surfaces, had been removed by modern disturbance, while the remainder of the street to the west was not investigated in detail. Consequently, it was not

possible to determine the wall's precise relationship to Chalets 1 and 2, but, as was noted above in relation to the comparable remains south of Chalet 1, it probably indicates that this part of the chalet range was extended over the street to the south at some stage.

Chalet 3

In Chalet 3, a new north wall (H13:3:9) closed off that end of the building and probably truncated the north-south length of the chalet by *c.* 1.5m to 8.5m. Measuring between 1.2m and 1.7m in width, the thickness of this wall was particularly striking, as was the way that, in its final form, the outer face appeared to curve round to the north to link up with the north wall of Chalet 2 and block the intervening alley. This final appearance was the result of repeated alteration involving perhaps three structural phases (Figs 6.12–6.13). In the first of these, a centrally placed door sill (3:11), consisting of a long narrow stone placed slightly to the west of the centre of the wall, with a flagged passage to the north, was clear. The wall lay over the interior flagging (3:10) and butted against the east and west walls. In its final state it was remarkably thick, as noted above, but straight alignments of stonework within the body of the wall may conceivably represent earlier faces and indicate that the wall was originally narrower and was later reinforced. Alternatively it may signify internal benches were added to the structure. A bench (3:5) was certainly added next to the west wall. Surviving one course high and measuring 0.54m by 2.6m long, the bench was clearly a secondary feature as it was set on the flagged floor and abutted the north wall. In the centre of the chalet an area of burning indicated a hearth (3:12) and some burnt material (3:3) was found on the floor by the west wall. A new layer of heavy flagging composed of large slabs (3:15) was laid to the north of the chalet. This flagging clearly sat at a higher level than the internal floor and could be seen to extend right up against the west wall of Chalet 2. Perhaps somewhat later, the alley between Chalets 2 and 3 was blocked by a rubble wall (3:17), which was roughly in line with the new north wall.

The north-east corner of the chalet was in turn overlain by another layer comprising five large flagstones (3:19), which probably represented a further remodelling of the chalet's entrance, repositioning it further to the east. The flags arced round from west to north, linking the north wall of the chalet with a spur of walling (3:16) that was attached to the north-west corner of Chalet 2. Together the wall spur and flagstones formed a curving structure linking the north ends of Chalets 2 and 3 (Fig 6.12: 2).

The purpose of this curving structure was not immediately apparent. However, there were several clear indications that the flags formed part of a new threshold rather than simply serving as the footing course of a wall connecting the two chalets.

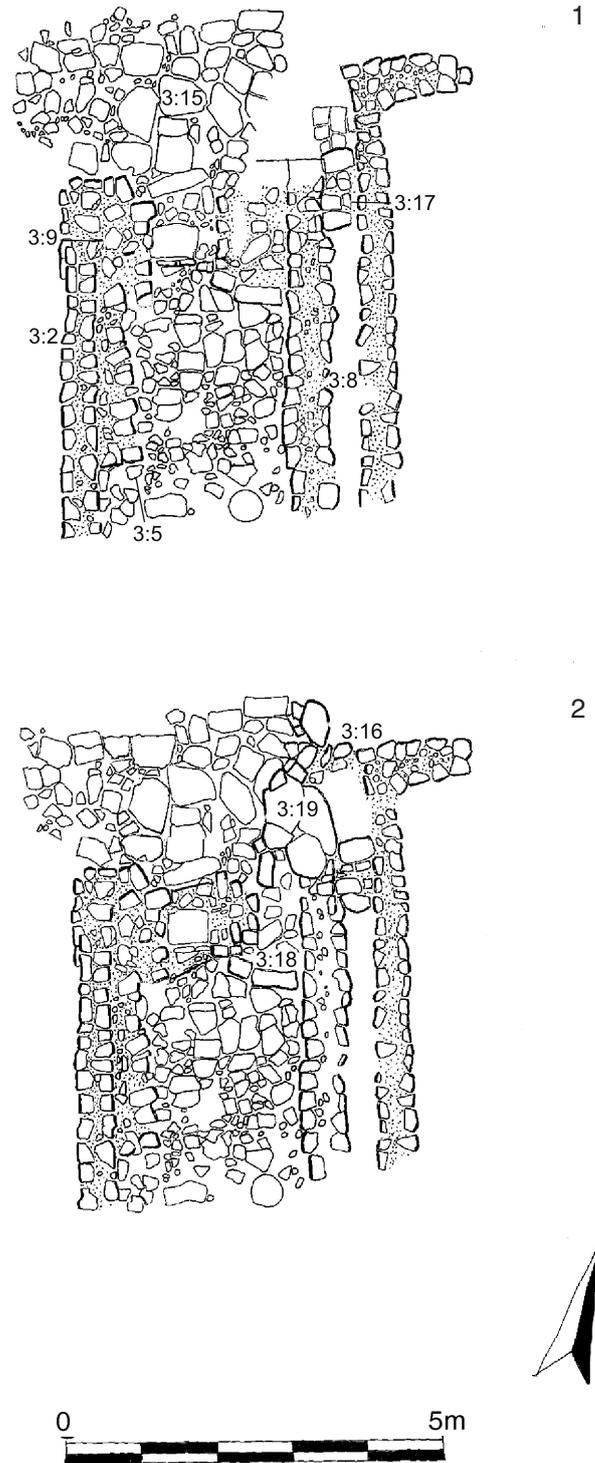


Fig 6.12 Two phases of alterations to the north wall and doorway of Building XIII Chalet 3 (scale 1:100).

Immediately to the south of the flagstones, the west jamb (3:18) of the new doorway was preserved as an alignment of three facing stones incorporated within the body of the north wall, but standing proud of it, suggesting that the eastern half of that wall had been partially demolished and rebuilt. The short spur wall, which overlapped the northern edge of the flags, may have acted as a porch wall sheltering the new west-facing entrance. The positioning of the doorway at the



Fig 6.13 Chalet 3 from the north (composite image).

east end of the north wall is directly paralleled in secondary phases of Chalets 4 and 5, while the latter was also furnished with a porch to transform a north-facing entrance into an oblique west-facing passageway. Such porches perhaps provided more shelter from the worst of the weather and helped to shield the doorways against soil washed off the rampart bank. The original entrance in the centre of the wall was presumably blocked at this stage although no clear trace of the blocking survived. One further implication of this interpretation should be noted. The secondary flagged threshold clearly overlay the chalet's east wall, implying that wall had been demolished by this stage. It is noteworthy that for most of its length only one course of the east wall survived and the top of this was virtually flush with the level of the flagged floor. Only at its south end did the wall rise markedly higher than the flags. It is possible, therefore, that the west wall of Chalet 2 now also served as the east wall of 3, the intervening alley having been absorbed by Chalet 3, with the remains of the former east wall conceivably being used to form a bench, of the kind evident in the north-east corner of the building, for example. The blocking at the north end of the alley (3:17; *see above*) may now have functioned as the east jamb of the new doorway, but was perhaps constructed somewhat earlier. Indeed this blocking may mark an intermediate phase involving the demolition of the chalet's east wall and the extension of its north wall to butt up against the west wall of Chalet 2.

Chalet 4

The major alteration to Chalet 4 during this phase probably involved foreshortening the building, reducing its length to 9.25m. It was provided with a north wall (4:30). The doorway into the chalet lay at the east

end of this wall, as was the case in Chalet 5 and the final layout of Chalet 3. The north wall was bonded to the north end of the west wall and continued to the west, blocking the alleyway between Chalets 4 and 5. It terminated in a porch which incorporated two stone pier bases and sheltered the doorway into Chalet 5. The alignment of the outer face of this wall and the porch of Chalet 5 paralleled that of the latest rampart revetment to the north. This apparent association is probably significant both in establishing why Chalets 3, 4 and 5 were reduced in length during the later stages of their life and in providing a relative date for this event. The east wall of the chalet (4:2) was found to be in a very poor state of preservation when excavated and, as was the case in Chalet 3, the top of the surviving remains was flush with the level of the flagged floor (4:4 – itself a secondary surface laid over primary flagging 4:11). This suggests that this wall too may have been demolished during the later stages of the chalet's life, perhaps when the north wall was constructed with its doorway towards the east. The evidence is not quite as compelling as was the case with regard to Chalet 3, however. While the doorway into Chalet 4 would have been relatively narrow if the east wall was still standing (0.5m), it would, equally, have been relatively wide if the east wall had now been demolished and the west wall of Chalet 3 was functioning as a party wall between the two chalets in its stead (1.45m). It is also noteworthy that the gap in the south wall of the chalet, opposite the alley, was not blocked, as one might have expected if the area of the alley had been incorporated in the chalet interior. However, it is possible that the former alley had now been adapted to serve as an internal drain channel, of the sort identified in Chalets 6 and 9, and was deliberately left open at either end.

Chalet 5

The next chalet to the west, Chalet 5, was also probably reduced in length at this stage, in a similar fashion to Chalet 4 (*see* Chapter 5 for detailed discussion of the supporting evidence). The chalet's north wall was, again, probably a secondary feature (5:101), since it rested on the earlier flagged floor (5:4; 5:9). Although this wall was recorded as being bonded with the west wall of the structure (5:1), examination of the site photographs suggests that such bonding was actually fairly minimal. There was a 1.4m-wide doorway at the east end of the north wall. The doorway was screened by a porch constructed using two large pier bases (5:104) which ensured that an oblique passage was the only way in, with two long rectangular blocks, orientated north-east to south-west, acting as a threshold (5:103). As discussed in Chapter 5, the pier bases may originally have stood at the north terminals of the chalet's side walls, supporting upright timber posts. When incorporated in the porch screen wall, the pier bases continued the same alignment as the outer face of the north wall

of Chalet 4, implying the rebuilding of the two chalets formed part of a single co-ordinated operation. A second bench-like feature was added to this chalet (5:7), lying against the east wall and only 0.52m wide. This partially overlay the earlier clay and flagged hearth (5:18). Three stones to the north of it appeared to form a short projecting wing, suggesting the structure may represent some kind of alcove, but whether it was designed to modify and enclose the hearth or perform some other function is not clear.

Interpretation – changes in the layout of Chalets 3, 4 and 5

The secondary modifications to Chalets 3, 4 and 5 display a number of elements of commonality, including the possible shortening of the buildings – clearest in the case of Chalet 5 – the replacement of the original timber-framed frontages by stone-built north walls, the positioning of the chalet doorways at the east side of the front walls and the provision of some of the entrances with porches (Fig 6.14). These were all probably responses to the problems being experienced with the stability of the north rampart and perhaps to provide greater protection from the elements, particularly when stormy weather was coming from a northerly direction. Retracting the frontages of the chalets would have maintained an adequate distance between the buildings and the bulging rampart, while the porches would not only have sheltered the doorways from rain, sleet and

snow, but would have helped to prevent soil washed off the rampart bank from entering the chalets. However, there were also elements of individuality, for example the thickness of the north wall of Chalet 3, the central positioning of the earlier phase of the doorway (in which it resembled its neighbour Chalet 2) and the curving threshold of its later entrance. This is another aspect of the variability that is so characteristic of the history of each chalet range.

Chalets 6 and 7

A cross-wall (6:9), apparently without any clay bonding, was inserted into Chalet 6, resting on the earlier flagged floor and dividing the building into two rooms, 4.75m (north) and 3.25m (south) long (Fig 6.15). Virtually an entire grey ware jar (FV 2459, form JA 126, context 6:8) was found partially sealed in a layer of earth beneath this wall and over the primary flagging. No clear evidence for a door was found, but it probably lay at the east end where the primary drain passed through and was presumably originally furnished with flagstone cover slabs or some wooden equivalent. Near the south end of the chalet, a doorway (6:42A), about 0.7m wide, may have been inserted in the west wall, although the south wall blocked access to the alleyway between Chalets 6 and 7. This doorway was later blocked.

Chalet 7 underwent few structural changes. The west wall now formed a party wall shared with Chalet 8 and certainly extended to the north edge of the

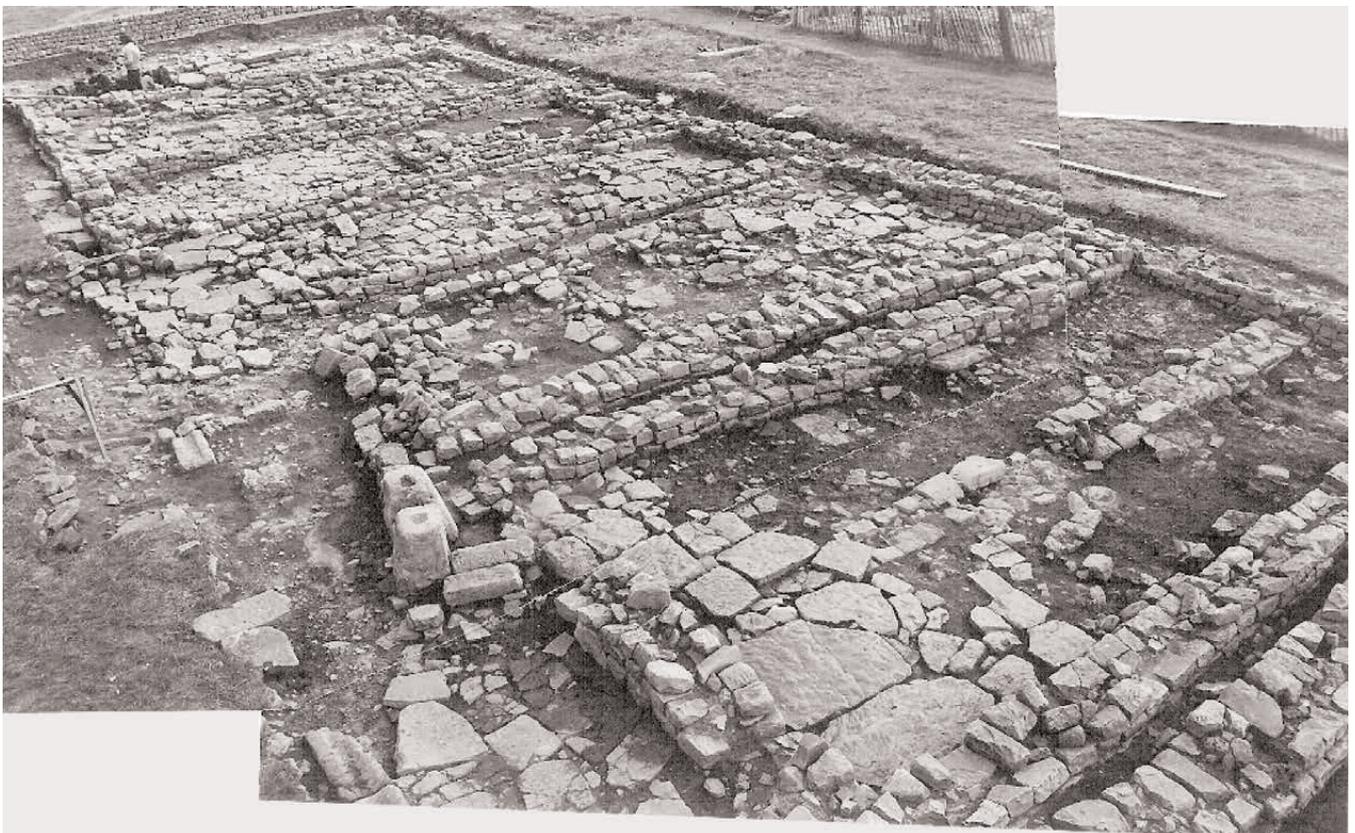


Fig 6.14 Chalets 1–5 showing the alignment of the north wall of Chalet 4 and the flagging in front of 3 (composite image).



Fig 6.15 The south and central parts of Chalet 6 viewed from the north, showing the roughly built cross-wall 6:9.

former barrack veranda by this stage, even if it had not earlier. The southern part of the floor of this chalet, originally left unmetalled, was now at least partially surfaced with flags (7:10) laid over the clay floor.

The final activity in the area of Chalets 6 and 7 was represented by a 6.3m by 3m surface of large well-laid flagstones over the *intervallum* road (H20:8:14; H13:6:13; 7:11), which encroached over the north ends of the two chalets. This flagging was some 0.30m–0.35m above the level of the chalet floors and the *intervallum* road surface (8:19) and was laid on a thick layer of dark brown soil (H13:6:20; 7:12–13; H20:8:17–18), the presence of which may indicate that this part of the site was abandoned for a significant interval prior to the construction of the flagged surface (see Chapter 7 below for further discussion).

Chalets 8 and 9

In Chalet 8, the east wall (8:23) was robbed out leaving a rubble-filled trench (8:9; 8:25; 8:28). Presumably the west wall of Chalet 7 (7:6) now served as the east wall of this chalet as well, in much the same way that west wall (8:13/9:2) already functioned as a party wall between Chalets 8 and 9. Two postholes (8:52; 8:56) were cut into the base of the robber trench just to the south of wall 8:15. Their function was uncertain, but may imply the presence of a partition screening the drain next to wall 7:6, although it is also possible that the drain was removed at the same time as wall 8:23.

On the other side of the chalet, the central stretch of wall 8:13, some 3.5m in length, was demolished to permit direct access between Chalets 8 and 9. A strip of yellow clay (8:17), 0.5m wide, was laid along the former passageway and alongside the north end of wall 8:13. This clay overlay the spread of reddish-brown material (8:3; 8:54), which covered the original cobble surface (8:8) at the north end of the building and may have represented the lining of a drain running northward between Chalets 8 and 9. There was no trace of a secondary floor surface over 8:3, although one could conceivably have been robbed out, perhaps to provide stone for the late flagged surface to the north of Chalets 6 and 7. The north end of the enlarged chalet was closed off by a single-faced wall or kerb (8:21) (see Fig 5.15), which was set on top of the reddish-brown soil (8:54). This ‘wall’ may have supported or protected the base of some kind of timber shuttering. In the centre of the wall, where the main kerb was absent, there may have been an entrance. Here at least three small post sockets (8:50), 0.2–0.3m apart, 0.05m in diameter, and 0.01m deep, were observed, cut into the underlying flagging (8:20) of the earlier surface. These perhaps represented housings for entrance shutters. Later on, this entrance appeared to have been closed off by rough stone blocking, immediately to the north.

A new floor surface was laid in Chalet 9, comprising well-constructed flagging (9:6) that covered around two-thirds of the interior. This sealed a thin layer of dark earth (9:23) – perhaps an occupation deposit – which sat

on the primary chalet surface. In the centre of the building about 3.5m of the east wall was demolished (8:13/9:2) and the flags extended across its line, to provide access into Chalet 8. The structural evidence thus implies that the laying of the new floor and the linking of Chalets 8 and 9 were part of a single remodelling. There is, however, some indication that the form of the doorway may have been subject to later alteration or disturbance. In particular, the secondary flagging immediately adjacent to the south side of the opening appeared to respect the projected line of wall 9:2 – although the latter no longer survived intact at that point – suggesting that a short stretch of the wall may have been robbed out at a subsequent date. As noted above, a strip of clay (8:17) laid in the former passageway along the east side of flagging 9:6 and wall 8:13 perhaps formed the lining of a drain channel, which utilised the edge of secondary flagging 9:6 and the north end of wall 8:13 as one side wall and the west face of ‘wall’ 8:7 as the other side. This putative drain would have been located in the centre of the combined chalet building. The secondary flagging did not extend over the southern third of Chalet 9. However, it is noteworthy that there were no capstones covering Drain 9:12 at this end of the building, despite the presence of the supporting side-slabs (9:27) that imply their existence. This hints that both the capping and, by association, the flagging may formerly have been more extensive than is now apparent. In the north-west corner of the chalet, an additional branch, flowing to the north-east, was added to Drain 9:12, cutting through the north wall or plinth. There were two areas of burning (9:30–1) on the new flags, which may represent the positions of hearths.

The final activity for which there is evidence in this building, which apparently involved the transformation of the northern part of the chalet into a sub-circular structure, is described in the following chapter.

Chalet 10/11

The north end of Chalet 10 was closed off by a roughly built wall (10:27) with a 0.8m wide doorway on the east side. A gully (10:7; 10:9), lined in places with upright slabs, ran from the western jamb of the doorway southward. This may represent a setting for a half-timbered partition separating a side passageway from a long narrow room occupying the northern and central areas of the chalet. The internal dimensions of the room were *c.* 6.5m by 1.4m. Further south, an east–west aligned gully (10:13) may reveal the position of another partition which closed off the southern third of the chalet to form a chamber measuring, internally, *c.* 2.5m square. The 0.8m wide gap between the north–south and east–west gullies may represent the site of the doorway into the northern room.

Further alterations, probably associated with the remodelling described above, involved the demolition of the southern end of the medial wall (10:5) to create an L-shaped room incorporating the southern third of

Chalet 10 and all of room 11 to the west. A rubble layer (10:31; 11:18), present on either side of the medial wall, represented the demolition of the wall and both the rubble and the three surviving courses of the medial wall were overlaid by a layer of orange-brown silty makeup (10:8; 11:4) raising the floor in the new east wing to a higher level than that in the reduced Chalet 10 to the north. Presumably the east–west orientated partition (10:13) separated these two areas. A flag-lined oblong pit (10:32; 11:6), 0.8m wide and 4.2m in length, was set into the makeup deposits some 1.6m from the south wall, cutting through the demolished remains of the medial wall (10:5). At its east end, where clear evidence of a flagged base to the feature survived, traces of burning were noted, suggesting it functioned as some kind of hearth, but, morphologically, some kind of drain sump associated with the stabling of baggage animals or mounts is also a possibility.

A doorway, about 1.75m wide, was inserted in the south wall with a flagged threshold which appeared to be associated with a more extensive floor of heavy flagging (10:4; 11:9) (*see* Fig 7.10). This flagged floor covered most of the south end of 10 and continued north-west into 11, where it overlaid the earlier flagged floor (11:10), and rested on a bedding layer of stony clay (11:8; 11:11). The flagging clearly overlaid the sunken stone-lined feature, which was presumably backfilled with brown soil and charcoal (11:19), stone blocks (10:33) and clay deposits (11:20; 11:6) at this stage, implying that the doorway and flagged floor were a later development than the sunken feature.

The west side of the L-shaped room may have been open, with a series of piers supporting the eave. One or two possible pier bases were tentatively identified towards the north end of the area, but these could simply reflect differential survival of the uppermost flagging. Wall 10:3 between Chalets 9 and 10 is shown to extend further north towards the gatetower on Bosanquet’s plan (1904, pl xix, reproduced here as Fig 1.4). This could not be conclusively verified by the 1974–7 excavations because the limit of excavation coincided with the north end of the chalet, but the second course of the wall did appear to continue beyond the lowest visible course, as if rebuilt and extended at some stage, suggesting that Bosanquet’s plan may well be correct. If so the extension is most plausibly assigned to this phase. It might also be associated in some way with the demolition and robbing of the north wall of 11, although this may have occurred in the post-Roman period.

Later activity at the western end of XIII

Traces of significant later activity were identified at the west end of the chalet range, including Chalet 9 and stretching across the *via principalis* as far as the east end of Building VII. Despite the fragmentary nature of this evidence, it is clear that whereas the modifications hitherto described respected the basic rectilinear layout of the chalet range, subsequent alterations incorporated

curving or irregular wall alignments that do not conform to the established pattern. Their appearance suggests that elements from a different building tradition, closer to the longstanding round-house architecture of northern British rural communities, were being adopted during the final major structural phase in the north-east quarter. This phase of activity is therefore discussed in the following chapter.

Finds

String course blocks:

H13:9:6	51	Reused type II or III
	74	Reused type II
	77	Reused and fragmentary

Ironwork:

H13:10:7	371	Fragment of curved iron sheet, possibly piping.
H13:10:31	346	Square-sectioned iron rod lacking one end (Fig 14.18)
H13:11:11	332	Pair of dividers (Fig 14.17)

Lead:

H13:10:24	378	Lead weight in the shape of an acorn (Fig 14.20)
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Glass objects:

H13:0:1	442	Segmented bead in turquoise glass (Fig 14.23)
	464	Square-sectioned bead of green glass
H13:1:56	510	Dark blue translucent bun-shaped counter

Ceramic – pottery discs:

H13:1:56	565	Disc of Central Gaulish samian
H13:10:20	563	Small disc of East Gaulish samian
H13:11:11	544	Disc of grey ware with a central circular hole. BB2?

Jet and shale:

H13:1:13	625	Fragment of a shale armlet of oval section
H13:11:20	623	Fragment of a shale armlet of semi-oval section

Stone:

H13:8:28	699	Possible sling-stone
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Querns (see Chapter 12)

H13:1:33	101	Reused sandstone quern
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Glass vessels:

H13:1:13	8	Rim, blue-green glass beaker
H13:1:46	27	Rim, clear blue-green glass flask (Fig 17.1)
H13:8:25	28	Rim, clear blue-green glass flask (Fig 17.1)
H13:8:24	36	Rim, colourless glass beaker (Fig 17.2)
H13:10:8	40a	Rim, clear colourless glass cup
H13:11:4	31	Rim, shallow colourless glass bowl/plate (Fig 17.2)
H13:11:4	43	Base, greenish-colourless glass cup (Fig 17.2)

Worked flint:

H13:10:20	2	Flint flake
H13:10:24	17	High-quality white flint flake

Alley deposits

String course block:

H13:1:17	62	Type III
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Stonework (miscellaneous):

H13:1:17	112	Small uninscribed altar (Fig 12.6)
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Copper alloy:

H13:1:80	62	Incomplete lock-bolt with a stepped end (Fig 14.7)
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Ironwork:

H13:5:12	321	Iron ferrule with short pyramidal head and long shank (Fig 14.14)
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Glass vessel:

H13:1:80	45a	Base inner coil, greenish-colourless glass cup
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Later modifications to Chalet 1 (H13|CH3)

String course blocks:

H13:1:7	44	Reused fragment
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Copper alloy:

H13:1:39	67	Hollow circular statuette base (Fig 14.7)
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Lead:

H13:0:34	380	Undecorated oval disc
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Glass objects:

H13:1:22	434	Globular white glass bead enclosing gold foil (Fig 14.23)
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H13:1:56	510	Dark blue translucent bun-shaped counter
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Tile objects:

H13:1:22	530	Circular lid cut from a tile
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Ceramic – pottery discs:

H13:1:56	565	Disc of Central Gaulish samian
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Dating evidence (Tables 6.4–6.6)

The bulk of the dateable material derived from Chalet 1, where the structural sequences were most complex, and from Chalet 10 plus the adjacent Area 11, where there was also a significant remodelling. In the majority of the chalets, relatively little material was recovered from their interiors in direct association with secondary structural modifications. Furthermore, none of the coarseware vessels which, for example, were sealed under the secondary cross-wall (6:9) in Chalet 6 (6:8 – JA 126) or contained in the fills of the robber trench for the original east wall of Chalet 8 (8:23) provided a *terminus post quem* any later than the date already established for the opening of the chalet phase. The same is true of the material associated with most of the secondary alterations to Chalet 1 (Chalet Phase 2).

The largest single assemblage was found in association with the secondary north–south cross-wall (0:1=1:8) which divided the southern half of Chalet 1. This included a range of the latest coarseware forms and fabrics, comprising a significant proportion of Huntcliff-type jars (JA 27, 33) and a Crambeck Parchment ware flanged bowl (BO 118), as well as other calcite-gritted (JA 30) and Dales-type jars, Crambeck plain-rim dishes (BO 93, 96) and flanged bowls (BO 59), plus four coins, ranging in date from 273+ to 350–51. The last is an issue of Magnentius (No. 373), which represents one of the very latest coins from the 1974–81 excavation assemblage. However, the precise nature of the association between all this material and wall 0:1 is not recorded and it is not altogether apparent what that relationship might have been,

Table 6.4 Coins associated with the modifications to the Building XIII chalets (H13/CH2)

<i>context</i>	<i>description</i>	<i>no: description, date</i>
H13:0:1	N–S orientated dividing wall	301: Radiate copy, 273+ 328: Radiate copy, 273+ 421: Constantine I, 335–7 473: Magnentius, 350–51
H13:1:22	clay & debris E of oven	117: ‘Elagabalus’, 218–22
H13:1:39	burnt debris u oven wall 1:10	191: Tetricus I, 270–73
H13:1:46	soil layer W of wall 1:7	241: ‘Tetricus II’, 273+
H13:1:59	backfill of robbed-out drain	93: M Aurelius, 161–80
H13:7:16	robbing fill of verandah gutter	106: ‘Septimius Severus’, 194–8+
H13:9:13	Chalet Phase 1 surface, N end Chalet 9	454: Constantius II, 348–50
H13:10:31	rubble – demolition S end of wall 10:5	12: Titus, 79
H13:11:4	makeup u late flagging 10:4/11:9	168: ‘Claudius II, posth’, 270+

Table 6.5 Pottery assemblages associated with the modifications to the Building XIII chalets (H13/CH2)

<i>context</i>	<i>description</i>	<i>CW formcode</i>	<i>FVN</i>	<i>TPQ</i>
Chalet 1	secondary modifications (CH2)			
H13:0:1	N–S dividing wall Chalet 1	FL 18.0 JA 108.0 JA 55.0 BO 59.0 Crambeck flan bo ca gt Huntcliff j ca gt j	277 279 275 276 – – –	– – M2–M3C c 270+ c 270+ c 340+ 3–4C
H13:1:8	(same as H13:0:1)	BO 101.0 JA 55.0 BO 28.0 M 22.1 BK 4.0 JA 45.0 BO 93.0 BO 96.0 JA 30.0 JA 33.0 JA 27.0 BO 118.0 Dales type j ca gt Huntcliff j	719 726 724 713 722 725 720 721 718 717 716 723 – –	– M2–M3C L2–3C(?) 3C E3C M–L3C c 270+ c 270+ L3–4C c 340+(?) c 340+ c 360+ c 250+ c 340+
H13:0:13	clay/stone layer ov CH1 flags 0:18, u CH2 flags 0:15	BO 86.0 BO 64.0	303 302	L2C+ c 250+
H13:0:14	collapsed rubble in NE corner – Bosanquet disturbance?	BO 86.0	304	L2C+
H13:1:13	(same as flags 1:33 and 1:49)	JA 128.0 JA 128.0 JA 121.0	9 10 8	2–3C 2–3C 3–4C
H13:1:14	clay associated with flags 1:33	M 22.1 ca gt j	615 –	3C 3–4C
Chalet 1	later modifications (CH3)			
H13:1:29	yellow clay S of oven revetment 1:35	JA 63.0	25	E3C+
H13:1:35	oven – S exterior face, initial form	BO 70.0	618	c 270
H13:1:56	fill of N–S drain 1:267	BO 144.0 JA 1.0 BO 68.0	635 620 619	– c 250+ c 250+
H13:1:61	loam/daub/charcoal ov fills 1:62/67 of drain 1:267	JA 96.0	648	E–M2C
H13:1:67	fill of N–S drain 1:267	3 w sh Mosel bk 2 frags m hm	– –	3C L2C
H13:0:21	clay hearth N of the ‘causeway’	JA 125.0	973	2–3C
H13:1:50	loam u flags 1:49	JA 33.0	2451	c 340+(?)

Table 6.5 (Cont'd)

<i>context</i>	<i>description</i>	<i>CW formcode</i>	<i>FVN</i>	<i>TPQ</i>
Chalets 2–9 secondary modifications (CH2)				
H13:5:17	Chalet 5 – soil u bench 5:7	BO 86.0	173	L2C+
H13:6:8	pot u secondary cross wall H13:6:9	JA 126.0	2459	2–3C
H13:6:15	drain fill – E side of Ch 6	BB1 flan bo	–	c 250+
H13:6:38	lower clay fill of drain 15	BO 42.0	780	c 140+
H13:7:3	pocket of black soil in chalet floors 7:9 & 7:4	JA 11.0	527	c 250+
Chalet 8				
H13:8:3	layer of earth ov N end of chalet	BO 60.0	359	c 270+
		JA 42.0	360	–
		BO 93.0	362	c 270+
		M 25.1	356	3–M4C
		M 25.2	357	3–M4C
		BO 29.0	361	M–L2C
robbing of E wall of Chalet 8				
H13:8:9	fill of rob tr for wall 8:23	JA 63.0	365	E3C+
		JA 11.0	364	c 250+
H13:8:25	lower cut/fill of rob tr 8:9	M 25.1	748	3–M4C
H13:8:28	dark fill, base of rob tr 8:9	BB1 incip flan bo	–	c 200+
		JA 1.0	373	c 250+
		JA 60.0	375	L1–M2C
		BO 90.0	376	L3C
modifications to Chalet 10/11				
H13:10:7	Chalet 10 – gully fill	JA 43.0	433	–
		BO 39.0	431	c 160+
		JA 52.0	432	L3C+
		BB2 sm rnd r bo	–	L2–E3C
H13:10:20	soil band along E edge of Ch 10 – Bosanquet trench?	BO 86.0	944	L2C+
		JA 107.0	943	E3C+
H13:10:30	dark soil band in SE corner of Ch 10 – Bosanquet?	BO 86.0	961	L2C+
H13:11:8	makeup u later flagging 11:9 & (11:10?)	BO 83.0	886	E3C
H13:11:11	cobbles u flags 11:9	JA 65.0	887	M2–E3C
		Crambeck flan bo	–	c 270+
H13:10:8	stony clay makeup (=H13:11:4) u late floor 10:4/11:9	BK 11.0	436	3C
		JA 36.0	435	c 100–160
		BO 39.0	437	c 160+
		BO 40.0	962	c 160+
		JA 27.0	434	c 340+
H13:11:4	(same as H13:10:8)	BO 50.0	883	c 200+
		BO 42.0	884	c 140+
		BB1 plain r bo	–	M2–L3C
H13:11:19	E fill of stone-lined pit	BO 23	890	E–M2C
		BO 32	889	c 140+
H13:11:20	lower fill of stone-lined pit	BO 50.0	891	c 200+
		BB1 plain r bo	–	M2–L3C

particularly in view of the size of the assemblage. If the pottery and coinage were incorporated in the wall core or perhaps found in the narrow gap between this wall and the immediately adjacent, parallel cross-wall (1:7), which probably belonged to the subsequent phase, it would certainly be significant, but this is nowhere stated. Since wall 0:1 was not removed the assemblage cannot have underlain it. Thus the material cannot be used to establish a clear *terminus post quem* for the structural alterations with which the wall was associated. Most likely the assemblage was simply found in the process of revealing the wall and clearing it of debris,

that is to say the material probably lay immediately over and alongside the surviving wall courses. This would effectively imply that the assemblage formed a sub-set of that contained in the rubble and soil (0:2) which overlay the eastern half of Chalet 1 and should essentially be treated as another dereliction deposit.

Of more specific use is the presence of a rim of a Huntcliff-type jar in the layer of dark loamy soil (1:50) beneath the flagging (1:49) that led to the north of the working area in front of the bread oven. This implies that the construction of the oven did not pre-date c 340. Similarly, the discovery of another Huntcliff-type

rim sherd in the layer of clay makeup (10:8, equivalent to 11:4) beneath the flagging 11:9=10:4 suggests that the remodelling of the west end of the range, which involved partitioning off the southern end of Chalet 10, raising its floor level and demolishing that end of west wall 10:5 to link through to Area 11 and so create an L-shaped room, did not occur before the middle of the 4th century. The bulk of the pottery assemblage from the makeup suggests a much earlier date, however, and probably represented residual material, reflecting the redeposited nature of the clay dump.

One other piece of evidence has already been cited in Chapter 5. A coin of Constantius II, minted between 348–50 (No. 454), was found in 1977 on the surface of the Chalet Phase 1 flagging (9:13) at the northern end of the building, which had originally been laid as a secondary veranda surface for the earlier conventional barrack block. The site notebook (H13:9, see contexts 13 and 39) makes clear that the coin and other finds attributed to 9:13 were actually found immediately above the surface. This area, investigated in 1977, lay within the north end of the chalet, but was not covered by secondary flagged floor 9:6. The coin is not, therefore, sealed by the secondary flagging and for that reason does not provide a *terminus post quem* for the latter, but it may offer a tentative pointer to the minimum range of occupation in the chalet.

The alley deposits

It might reasonably be assumed that the deposits in the narrow alleys between the chalet–*contubernia* represented material that had accumulated there during the life of the buildings. Those contexts explicitly designated as upper fills, such as 6:4, should also reflect the decay and eventual collapse of the building. However, the composition of the dateable assemblages, such as

that associated with clay deposit 1:80 (a BB1 plain-rim dish and a coin of Faustina I dating to 141–61), would suggest that much of the material was residual. In some instances this may reflect the deliberate deposition of clay, perhaps to line the alleys that essentially functioned as rainwater gullies.

Discussion – the development of Chalet Range XIII

Changes to the officer's accommodation

The complexity of the structural sequences in Chalet 1, in comparison to the rest of the range, makes it very apparent that its function was different from that of the other chalets. Initially, that function was almost certainly to house an officer and the building simply represents a successor to the centurion's quarters of the earlier, conventional barrack block, which it resembled in size and proportions. This is confirmed by the insertion of a hypocaust for an underfloor-heated room in the secondary remodelling of the building. This event cannot be closely dated but certainly occurred after the initial construction of the chalet range. A date during the first third of the 4th century might be tentatively envisaged. The provision of a heated room of such elaboration, albeit one of very limited area, is an eloquent testament to the continuing high status of the cohort's subordinate officers during the later empire.

Subsequently, however, there was a dramatic change in the character of the building, marked by the construction of a horseshoe-shaped oven, probably for baking bread, in the south-west corner. This reused the stoking pit revetment, associated with the former hypocaust, to form the base of the oven's interior face. The construction of the oven may be related to the demolition of Chalet 1 in Range XIV, which had previously contained an oven. The latter event can be

Table 6.6 Dateable material in the alley deposits

<i>context</i>	<i>description</i>	<i>Formcode</i>	<i>FVN</i>	<i>TPQ</i>	<i>coin (no: description, date)</i>
H13:1:17	alley fill between Chalets 1 & 2	BO 29.0	974	M–L2C	
		BO 75.0	24	c 250+	
		M 25.4	19	3–M4C	
		BO 86.0	22	L2C+	
H13:1:80	clay deposit in alley between Chalets 1 & 2	BB1 plain r di	–	M2–L3C	87: Faustina I posth, 141–61
H13:2:10	alley between Chalets 2 & 3	JA 38.0	940	c 100–160	
		JA 8.0	941	c 250+	
H13:4:18	soil at N end of alley 4:12	JA 106.0	607	E3C+	
		BK 20.0	609	L2–E3C	
		BO 86.0	608	L2C+	
H13:5:12	alley between Chalets 5 & 6	JA 55.0	174	M2–M3C	
		JA 27.0	176	c 340+	
		ca gt j	–	3–4C	
		2 w sh indent bk	–	3C	
H13:6:4	alley betw Chalets 6 & 7 – upper rubble/soil fill	BO 86.0	2084	L2C+	
		JA 69.0	471	E3C+	
		BO 86.0	470	L2C+	

firmly dated after the first third of the 4th century, on the basis of coinage sealed in the makeup for the road surface associated with the demolition and on the surface of the preceding metalling (*see below* – Building XIV), the latest example being a coin of Constantine II, Caesar, dating to 334–5 (No. 419 – H21:3:18). This oven was itself later substantially rebuilt. All this implies a significant alteration to the internal command structure of the regiment during the latter half of the 4th century. Either there were fewer centurions or they were accommodated elsewhere in the fort, perhaps in rooms in the buildings of the central range, such as the *principia* or the south granary. Conceivably a combination of factors applied. This change might reflect a reduction in the size of the garrison or conceivably the prevalence of the sort of abuses recorded by literary sources whereby unit commanders kept dead men on the rolls and pocketed their pay and rations (Themistius *Or* x 136b; Proc *HA* xxiv 5–6; cf Jones 1973, 644–5, 676). Failing to replace retired officers was especially lucrative because they received higher pay and multiple ration allowances. There is no indication that the rest of Building XIII was abandoned after the insertion of the oven in the former officer's quarters and the remainder of XIV clearly remained in use after the demolition of Chalet 1 in that range.

At the west end of the range alterations of some complexity were also carried out during this period, although not on the same scale as in Chalet 1. These had the effect of turning 8 and 9 into a larger integrated unit and conversely of reducing the size of 10 and linking its former south end with the open-fronted room to the west (11), which faced onto the *via principalis*. The purpose of these alterations is not clear. The combined Chalet 8/9 could conceivably have provided alternative accommodation for an officer, but there is no particular indication of luxury in the arrangements.

Chalet Range XIII and the north rampart

The other alterations to Building XIII, particularly to the north ends of the chalets in the centre of the range, were predominantly related to the problems being experienced with the stability of the north rampart opposite. The manner in which the north ends of the central group of chalets (3–5) were slightly recessed to the south of their counterparts to the east and west, to give the entire range a shallow U-shaped form in plan, is probably a response to the late expansion of the north rampart and not the original pattern. Initially it is likely these chalets stretched as far north as their neighbours, the north ends of their north–south walls later having been truncated slightly. The chalet walls were easily removed leaving scarcely any trace, but some implicit evidence of the original form does survive. Thus the two monolithic pier bases incorporated in the secondary porch of Chalet 5 may originally have been placed at the primary north ends of the chalet's north–south walls, in the corresponding position to that occupied by a similar pier base at the north end of the west wall of Chalet 7.

The secondary walls closing off the north ends of Chalets 3–5 followed a virtually parallel course to the very latest phases of north rampart revetment, which ran diagonally, north-west to south-east, over the *intervallum* road. The alignment of the north wall façade of Chalet 4 (4:30), which was continued to form a porch for the doorway into Chalet 5, is particularly striking in this respect. The north wall of Chalet 3 continued and straightened up this alignment, but initially featured a central doorway and was fronted by heavy, well-laid flagging. In the north wall's final form, however, after the doorway had been repositioned to the east side as in Chalets 4 and 5, the new threshold curved northward to link up with the north face of Chalet 2. The effect was apparently to create a shallow curving bay or recess in front of Chalet 3, covered by the earlier heavy flagging. This construction also had the effect of closing off the north ends of the alleyways between Chalets 2 and 3, 3 and 4, and 4 and 5. The possibility that the east walls of Chalets 3 and 4 were largely demolished at this stage, linking 2, 3 and 4 together in the manner of a traditional barrack block, has been noted above. In its definitive form this part of the range would therefore resemble the western end where Chalets 7–11 were linked together (and in the case of 8–11 had been from the initial construction of the chalet range). Closing off the north end of the chalets, building porches and laying heavy flagging over the *intervallum* road must have been designed, like the revetment walls themselves, to cope with the wash of unstable rampart material downslope and prevent it entering the chalets.

The end of occupation in the building

The virtually parallel course followed by the secondary walls closing off the north ends of Chalets 3–5, and the latest phases of north rampart revetment would suggest that fairly intensive occupation of Building XIII continued for as long as the northern defences were actively maintained. However, by the time the heavy flagging (H20:8:14; H13:6:13; 7:11) was laid in Area H20:8, over the slumped or wash deposits that covered the *intervallum* road, it is clear that the northern parts, at least, of Chalets 6 and 7 must have been abandoned.

It is difficult to determine when the chalet range went out of use. There is no later 4th-century coinage from Building XIII, in contrast to XIV which has produced two Valentinianic coins (Nos 483, 487). However, the quantities of the latest pottery types – Crambeck Parchment Ware and calcite-gritted Huntcliff jars for example – in the topsoil (*see* Chapter 16: The coarseware, Blocks 12 and 17) and associated with the adjacent late structures at either end of the range suggest occupation continued in the fort as a whole until the end of the Roman period. The assemblages associated with the collapse and dereliction of Chalet 1 also contained a significant proportion of Huntcliff-type jars.

It is possible that the range was abandoned gradually, with occupation maintained much longer in some chalets than others, something the structural individuality of

the chalets would facilitate. It is also likely that habitation reorientated and then contracted southwards in response to the problems being experienced with the north rampart, perhaps even extending over the street between XIII and XIV. Some indication of this last phenomenon is evident in the case of Chalet 1. Reorientation is also possible in the case of Chalet 2 (assuming it did initially face north), while the drystone construction of the cross-wall (2:7) and bench (2:9) and the even rougher nature of the south wall points to a late date for the final structural alterations there. The late cross-wall and bench were so substantial that they can be readily envisaged as the north wall of a truncated dwelling within the chalet, the north half of the building perhaps ultimately serving as an open yard. Similarly, in Chalet 6, the equally crudely built cross-wall (6:9) might conceivably signal the blocking off and abandonment of the northern half of the chalet, where dark soil deposits encroached into the chalet and were subsequently covered by the substantial flagged surface (6:13). Secondary flagging at a higher level (7:10) is also evident at the very south end of Chalet 7, particularly in the south-east corner, and this too might indicate some residual form of occupation at this end of the building while the northern end had become uninhabitable. Chalet 3 may have remained fully occupied for longer than some. The north wall (3:9), which represents a slight contraction of the chalet in the face of the bulging north rampart, was remarkably thick and appears to have undergone further alterations. In its final state it was provided with a flagged threshold and porch which curved round to link the east end of wall 3:9 with the north-west corner of Chalet 2 and seems more to resemble the organic forms of upland stone-built settlements of the late prehistoric and Romano-British periods than they do the conventional clay-bonded masonry walls employed at the north end of Chalet 2, for example. The complex history of Chalet 1 would point to long-maintained use of that structure, as a bakehouse at least, but intriguing hints of even later remodelling are evident in the north-west corner.

The sub-circular form hinted at there (wall 1:47) echoes the adaptation of the northern part of Chalet 9, the structures overlying Chalet 10/11 and the *via principalis* and those built over the east end of the inter-barrack street (Fig 6.16). The evidence relating to this last group of structures and the dereliction deposits in Building XIII is reviewed in more detail in the following chapter.

Building XIV

Little new information was added by the 1979 and 1981 excavations in Building XIV regarding the latest Roman phase of occupation (Fig 6.17), although it does seem that Chalet 1 was demolished down to road level early in the 4th century, the surviving wall tops showing signs of wear similar to that found on neighbouring cobbling and on the road surface between

Buildings XIII and XIV (*see below*). Nails that may derive from the demolition of this chalet were also found on the road immediately to the north. A coin of Constantine II, Caesar (No. 419) sealed in the make-up for this road surface (H21:3:18) provides a *terminus post quem* of 334 for the demolition (*see below*).

One additional piece of evidence is provided by Wilkes's unpublished drawing of the section through Chalet 4, a copy of which is held in the National Monument Record and is reproduced here in simplified form (Fig 6.18). This shows that the south end of the chalet was apparently levelled up by as much as 0.6m at some point during the building's later history. Wilkes described this as 'a stone-revetted bench, raised to a height of 2 ft. above the main floor level' (1960, 63). No trace of the floor over this levelling was preserved in Chalet 4, but a flagged surface did survive over the corresponding 'bench' in Chalet 3 and this was perhaps part of a more general pattern in this range. The small stone 'platforms' which Wilkes identified against the rear walls of Chalets 5, 6 and 7 (*see Wilkes 1961, plan 2*), one of which (in Chalet 7) has been consolidated *in situ*, were probably just the fragmentary surviving remnants of flagged floors, laid at a higher level, which covered the south ends of these chalets in their final state (Fig 6.19). These higher floor platforms were presumably revetted by the cross-walls which, in the case of all three chalets, partition off the southernmost 3m or so from the remainder of the chalet interior to the north. There is no indication that the floor level to the north of the partition wall was raised in any of the chalets and the reason for raising the southern floor level so substantially is unclear. It may have been intended to prevent problems of flooding when the rainwater gutter between Buildings XIV and XV overflowed, as it may periodically have done during storm conditions. Alternatively, or additionally, the higher floor could conceivably represent some kind of raised dais, which perhaps in turn, by means of a short ladder, gave access to an attic level over the rest of the chalet.

Discussion: the modifications to the layout of Building XIV

The lack of significant new information from the 1979 and 1981 reinvestigation of Building XIV, aside from the demolition of Chalet 1, means we are essentially still reliant on Wilkes's excavations of 1959–60 for evidence regarding the pattern of later modifications to the chalet range (Wilkes 1960; 1961). Wilkes's plan shows an apparently *ad hoc* series of alterations to the chalets, including cross-walls in Chalets 3–7 and a repositioned side wall in Chalet 7. More recently the chalet phases of this building have been subject to substantial reinterpretation by Bidwell (1991, 10–11) as noted in the previous chapter. Bidwell argued that the initial form of the chalet range was much more regular than that proposed by Wilkes. As discussed in Chapter 5

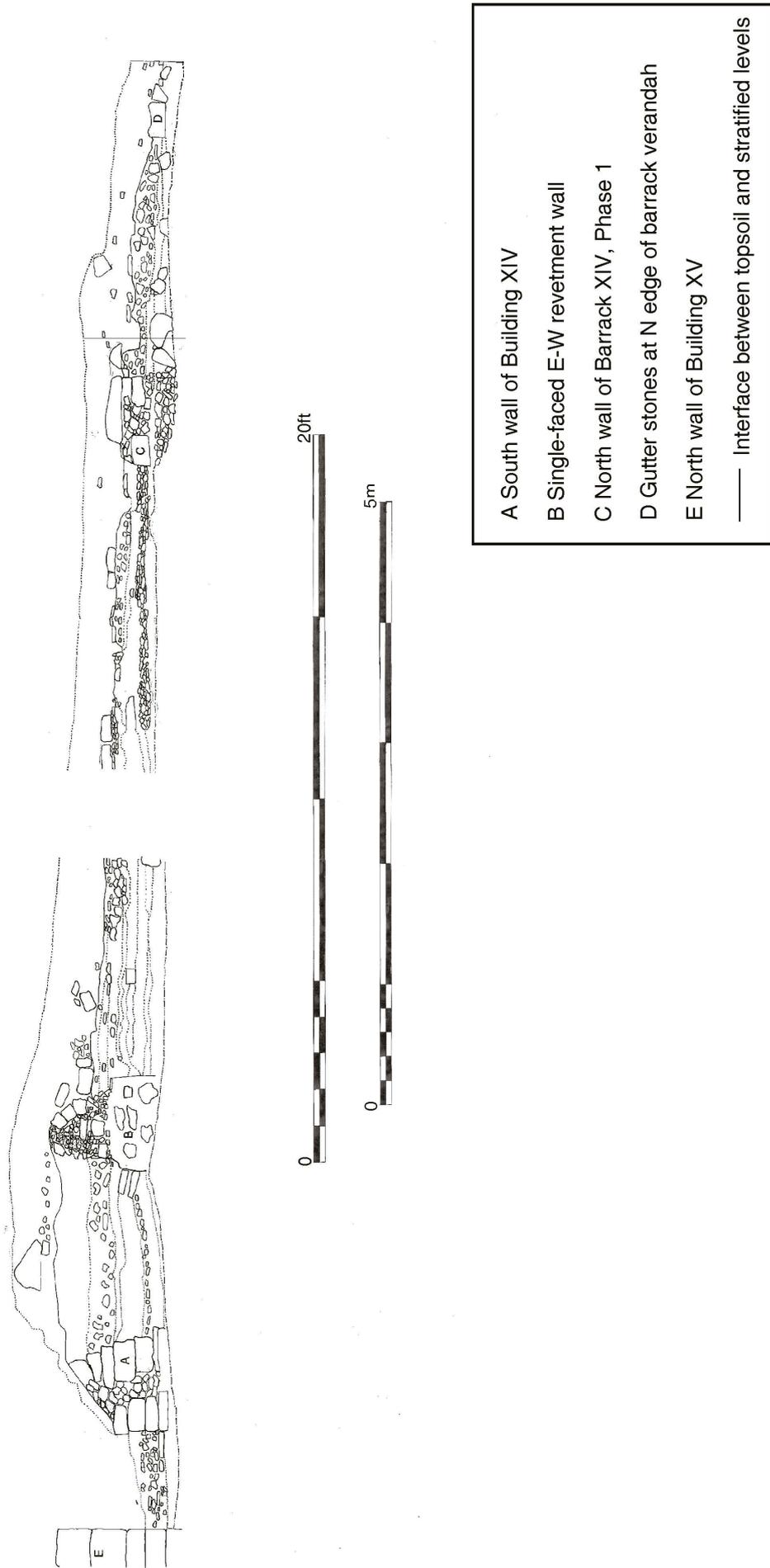


Fig 6.18 Wilkes's (unpublished) N-S section through Building XIV Chalet 4, showing the levelling up at the rear (south) end of the chalet.



Fig 6.19 The surviving fragment of the secondary higher flagged floor at the south end of Chalet 7.

this restoration is inherently plausible (the initial layout of Chalet Range XIII was likewise fairly regular), although it involves reassigning to the initial chalet phase (H14 Phase 3; Wilkes's 'period III') most of the walls which Wilkes interpreted as belonging to 'period II', in the process virtually abolishing the 'period II' barrack altogether. A further consequence of the proposed revision, if it is accepted, is that many of the north-south walls that Wilkes considered to be the initial chalet side walls, that is 'period III' (H14 Phase 3), must be regarded as secondary chalet features (H14 Phase 4; Wilkes's period IV). Bidwell suggested that the resultant combination of secondary side walls and cross-walls represented a coherent overall remodelling of the chalet range designed to create side passages and front and rear rooms, which would have had the effect of converting the range back into a more conventional, unified barrack block.

The argument that some groups of chalets were reunited is quite plausible. As we have seen above, in relation to Range XIII, Chalets 8-10/11 were never separate, and the alley between Chalets 7 and 8 was later absorbed into 8, with 7 now being attached to 8 as well. There are even some indications that Chalets 2-4 were joined back together during the latter stages of their life, although no attempt was made to convert the former intervening alleys into side passages. Indeed the only evidence for the presence of a side passageway in XIII is along the west side of Chalet 8. This later appears to have been modified to give access into Chalet 9 as well as the rear of 8, when the central part

of the wall separating the two chalets was demolished. However, the suggestion that the entire range of chalets in Building XIV was remodelled to become a unified barrack block is more controversial. This would have been a complex undertaking, particularly with regard to the work needed to reroof the whole range.

Wilkes explained the secondary arrangements in the range by suggesting that some of the chalets were reduced in size (4 and 7), the southern end being abandoned, while others were divided into front and rear rooms (3, 5 and 6). There are plausible grounds for a reduction in the length of any of Chalets 3-7. It is easy to imagine that the southern ends of these chalets could have become too damp to be habitable as a result of the penetration of rainwater running off the roof of the adjacent Building XV. The large expanse of roof covering XV would have collected a substantial volume of rainwater and deposited it perhaps not only in the intervening gutter, but also on the rear gable walls of the adjacent chalet range. However, if the length of some chalets was indeed reduced on such grounds, it is difficult to explain why this was not achieved simply by constructing a wall across the full width of the chalet and retaining both existing side walls. Instead, in virtually every case, the alley seems to have been widened for at least part of its length, narrowing the northern and sometimes central portions of the chalet on one or (in the case of 5) both sides. The simplest explanation for the form of the alleys, as modified, is as side passageways, giving access either directly into the north room (as in the case of 5 and 6) or

into the south room or dais area (3, 4 and 7). Only the alley between Chalets 7 and 8 seems to have retained its original layout and function. The adoption of side entrances into the north rooms of Chalets 5 and 6 may represent a response to the severe weather conditions often experienced at Housesteads, since side entrances would have been much less exposed to wind and rain than a doorway in the north wall. No trace of stone walling is evident at the north end of these chalets but whatever kind of timber shuttering filled those gaps was now presumably permanently closed up, at any rate in winter.

Rather than envisaging a one-off transformation into a conventional barrack block, a more piecemeal development is perhaps more likely. Chalet 1 was demolished at some point after 334. Wilkes refers to a higher level of flagging in a small area of the chalet (1961, 288), which might represent a secondary reflagging, but this is not precisely located either in his text or on plan, and there is no other evidence that Chalet 1 was ever included in the remodelled layout of XIV. Equally there is no indication that Chalet 8 at the other end of the range was ever joined to its neighbours to the east, although the small workshop, 9, was probably attached to the west side of 8 as a lean-to structure from the start. Quite how the modified arrangements in the remainder of the range from 2 to 7 were roofed is unclear. However, if the alleys were indeed being used as side passages this would tend to rule out gabled roofs covering individual chalets, with the ridges running north–south. These would have shed rainwater into the alleys which would then have become very muddy and churned with the constant traffic in and out of the buildings. Perhaps a series of gabled roofs stepping up the slope, with their ridges running east–west, and each covering groups of two or three chalets, should be pictured. Alternatively, roofs that sloped in only one direction (that is from south to north or north to south), again covering more than one chalet, might be envisaged.

Thus, even in its remodelled form, Chalet Range XIV continued to display that combination of overall planning and individual variation which is also characteristic of the chalets in Building XIII. There were clearly a set of common responses to what were doubtless considered to be generalised problems by the occupants of the range, presumably all related to a desire to achieve greater protection from the frequent bad weather experienced on the site. These agreed responses included shifting the position of doorways round to the side of the chalet – which in turn involved creating a side passageway – and raising the level of the internal floors at the south ends of the chalets. The selection of these measures may have involved the intervention of a centralised authority such as a centurion or other officer. However, there was clearly considerable scope for variation in the choice of the precise layout adopted in each individual chalet–*contubernium* – including elements such as the length of the side passage, the precise

means of access into the front and rear room, and the size of the raised rear room – which appears to be a defining feature of these late barracks.

Building XV

The large buttressed building of the previous phase was now modified to incorporate a bath block in its eastern end (Fig 6.20). The flagged floor (H15:1:3) and much of its makeup was taken up for about 14m from the east wall, which was itself dismantled. A north–south cross-wall, recognised by Wilkes in 1961 (Leach and Wilkes 1962, 86), was built 23m from the former east end and this presumably formed the new east wall of the storehouse. It is worth emphasising that even in its truncated form the storehouse remained a substantial structure, over 26m in length.

The bath building itself was built in a series of recognisably distinct stages, the first of which involving the three walls of the *caldarium* (Room B). The east and west walls were butted against the already standing south wall of the previous phase (1:100) and gaps were left in the east and north walls. The west wall (1:102) was 6.2m long and 0.6–0.7m in width, the lowest course being the broadest point, while the north wall (1:79) was 3.85m long and 0.9m wide, with a gap 0.7m wide which formed the stokehole (Fig 6.21). Room A, the *frigidarium*, was added next on the west side, along with the hot bath (1:44) on the east. The north wall of Room A (1:16) was 6.2m long and between 0.75m and 0.6m wide. The west wall (1:15) was bonded to 1:16, but butted against the south wall (1:100). A cold plunge bath was added in the north-east corner of the *frigidarium*, its west wall (1:17) being 1.45m long and 0.48m wide, while the south wall (1:18) was 2.1m long and 0.6m broad, forming a bath 1m by 1.6m. Immediately to the north of this, in the junction of walls 1:16 and 1:102, a buttress was added, measuring 1.3m × 1.35m. To the north of Room B, a flue with a paved floor was built flanked by revetment walls (1:30; 1:46), which extended 1.3m to the north and retained the rubble packing of the vaulted furnace. Fragments of tufa, presumably related to the construction of the vaulting, were found in 1:79, on the west side of the flue, and in the north face of the retaining wall 1:46. Elements of eight pilae were still in place in Room B, while a patch of mortar (1:57) suggested a possible location for another one. There were fragments of flagging in this room, particularly in the area of the hot bath (1:32), and remains of a stone bench or step at the east end of that bath (1:34). The upper flags (1:35) of the bench had previously been consolidated, presumably by the DoE in the 1960s, while two large paving slabs in Room A (1:53) had similarly been disturbed. Perhaps at a significantly later date another near-square stone buttress (1.3m by 1.45m) was added to the east wall of the baths some 1.05m south of the hot bath. The later date is indicated by the fact that the base of the consolidated masonry of the buttress lies at

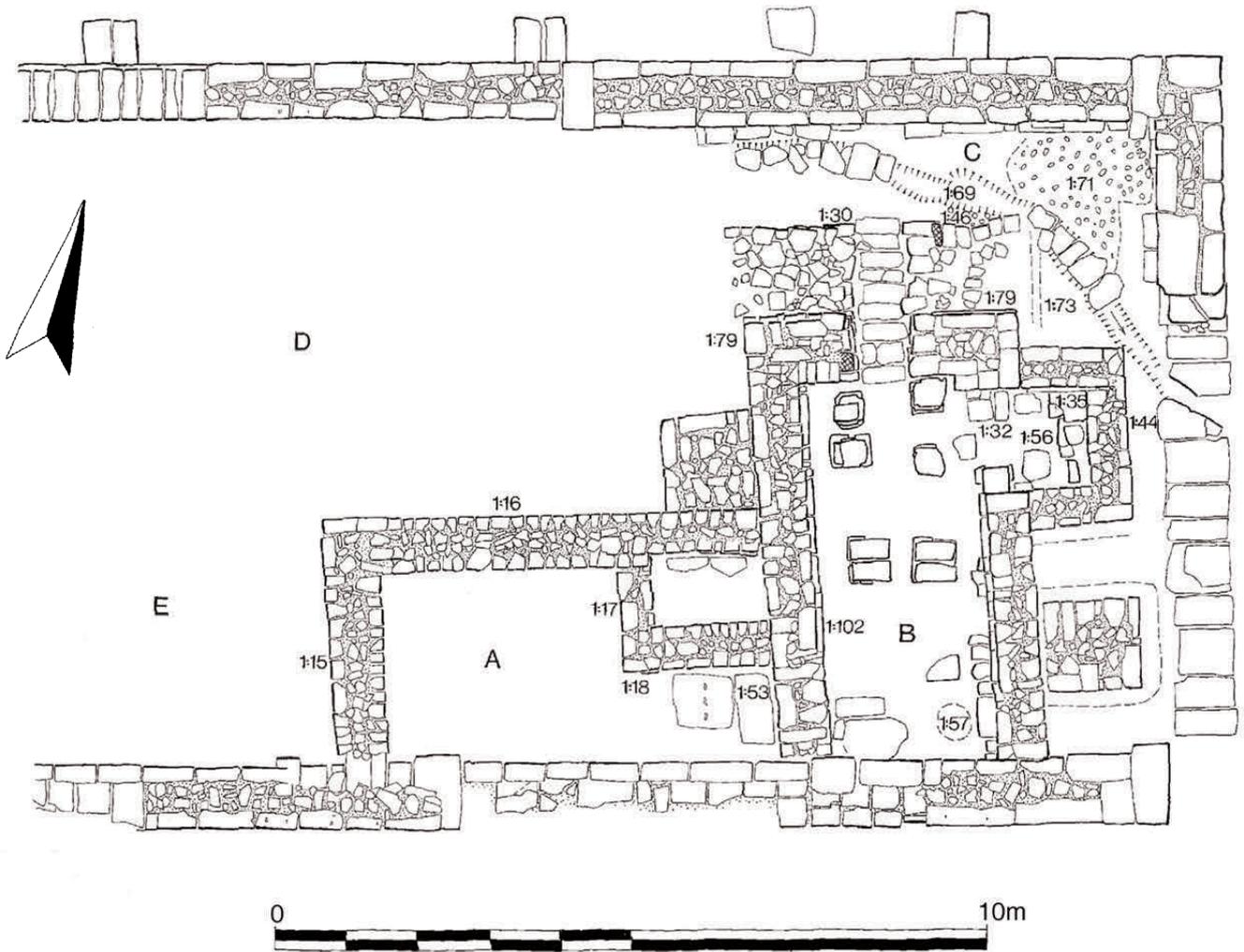


Fig 6.20 Plan of the bath-house at the east end of Building XV (H15 Phase 1); scale 1:100.



Fig 6.21 North side of the bath-house with stokehole.



Fig 6.22 Consolidated remains of the late buttress added to the east side of the bath-house.

a markedly higher level than the footings of the bath-house's west wall, the DoE masons being obliged to set the buttress on a rubble base to maintain it at the level found (see Fig 6.22). Presumably, the east wall began to lean outward and the buttress represented a reaction designed to prevent the wall collapsing.

North of the baths block, a covered drain (1:69) ran in a south-westerly direction, exiting Building XV through the demolished east wall. The drain was formed of a simple channel cut into the underlying material and then covered by a dark brown matrix with numerous charcoal flecks (1:64) and mortar and *opus signinum*. The drain was fed by a small gutter running northwards from the baths (1:73). Next to the drain, and underneath 1:64, there was a cobbled surface of small stones set in yellow sand in the north-east corner of the building (1:71).

Dating

context	formcode	FVN	TPQ
H15:1:64 dark brown layer ov drain 1:69	JA 27.0	2027	c 340+

The presence of a Huntcliff calcite-gritted jar (FV 2027–JA 27) in the dark brown matrix (1:64) overlying the drain, which may be associated with the construction or conceivably the demolition of the bathhouse, suggests a *terminus post quem* of c 340+ for the latter structure.

The street between Buildings XIII and XIV

A succession of new road surfaces were laid over the street separating chalet ranges XIII and XIV during this period (Fig 6.23). These corresponded to surfaces recorded over the *intervallum* road to the east and south-east (in Areas H21:3 and H21:4), leading towards the east gate (*porta praetoria*). However, no further levels of metalling were recorded overlying that associated with the chalet phase (H21:2:3; H20:4:9; 5:21; 6:16; 7:8; 8:19; 9:22 – see Chapter 5) on the *intervallum* road further north, around the east and north sides of Building XIII. The repeated need to resurface the street between XIII and XIV and the *intervallum* road east of XIV and XV – but no further north – may be explained by the impact of wagon traffic circulating around the large storehouse (Building XV). Such traffic would presumably have entered the fort via the east gate – the easiest approach and one of only two gates still fully functioning during the later Roman period – and proceeded along the *via praetoria*, the *via principalis*, the inter-barrack street and the *intervallum* road to exit through the same gate, resulting in significant wear on the surfaces of all those roads. The demolition of Chalet 1, at the east end of Range XIV, some time after Road Level 9 had been laid, would also have eased the passage of this traffic.

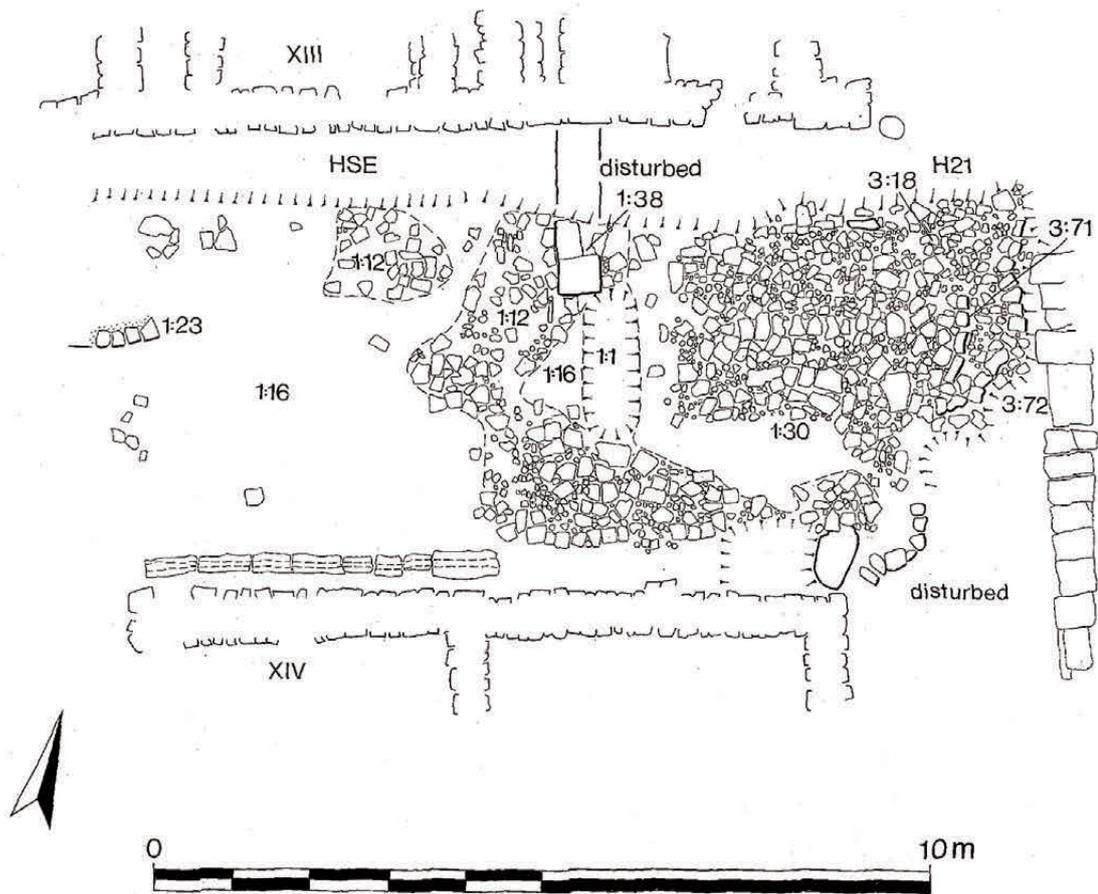


Fig 6.23 Fourth-century road surfaces on the street between Buildings XIII and XIV (scale 1:100).

Road 8

The makeup of the third road level to be investigated at the east end of the street consisted of a light brown sandy matrix, 0.05–0.07m deep (HSE:1:34). The road surface (1:33) was formed from an uneven surface of cobbling (0.28 × 0.15m to 0.2 × 0.22m), most of it reused building stone with small cobbling. There were worn, shattered flagstones of sandstone to the south, set in grey/yellow clay. To the north was worn, large cobbling, a stone (0.48 × 0.4 × 0.11m) and rubble set in the makeup (1:34). To the west, 1:33 continued as a layer of packed uneven cobbling set in dark grey/brown material and 1:34.

Finds

Copper alloy:

H21:3:47 124 Incomplete rectangular buckle (Fig 14.11)

Quern:

H21:3:47 87 Part of lower stone of Mayen lava

Dating evidence (Tables 6.7 and 6.8)

Finds included a coin of Constantine of 323–4 (No. 372), as well as a group of late 3rd-century Gallic empire radiates. Although listed under context HSE:1:33, the road surface, the context notes indicate

the Constantinian coin was found in the underlying makeup layer (1:34), or even on the surface of Road 7 (1:35).

Road 9

The makeup for the next road was a dark grey/brown matrix (1:32). Above this was a well-worn road surface of large rounded stones, including some reused building stone (1:30 – including one string course slab), which continued eastward over the *intervallum* road (as H21:3:18). Some of the large stones at the junction of the *via sagularis* and the inter-barrack street were laid in arcing lines or kerbs (H21:3:71; 3:72), each of which formed a distinct step in the surface of the street which climbed steeply towards the west. Scattered over this surface was a large number of iron nails, thought to be associated with the demolition of Chalet 1 of Building XIV (*see above*). To the west, this metalling continued as small rounded cobbling (HSE:1:16), with no large boulders or reused material.

Finds

Copper alloy:

H21:3:18 200 End of a tack formed from a rolled sheet

Table 6.7 Dating evidence from the levels of the street between XIII and XIV (HSE) and the adjacent areas of the east *intervallum* road

<i>context</i>	<i>description</i>	<i>coin</i>	<i>CW formcode</i>	<i>FVN</i>	<i>CW TPO</i>
Road 8					
HSE:1:33	surface of Road 8	179: Victorinus, 268–70 224: Tetricus II Caesar, 270–73 233: ‘Tetricus II’, 273+			
HSE:1:33 ^a	(see note)	372: Constantine I, 323–4			
H21:3:47	Road Level 8	128: Valerian I, 258 144: Claudius II, 268–70 236: ‘Tetricus II’, 273+			
H21:4:4	Road Level 8	148: Claudius II, 268–70 151: Claudius II, 268–70	BK 28.0	2050	3–4C
Road 9					
HSE:1:16	surface of Road 9	216: ‘Tetricus I’, 273+ 220: ‘Tetricus I’, 273+ 234: ‘Tetricus II’, 273+ 351: Constantine I, 300 358: Constantine I, 310			
HSE:1:30	(same as HSE:1:16)	230: ‘Tetricus II’, 273+			
HSE:1:32	makeup of Road 9	432: Constantine II Caesar, 324–5			
H21:3:18	Road Level 9	218: ‘Tetricus I’, 273+ 240: ‘Tetricus II’, 273+ 249: Radiate, 259–73 307: Radiate copy, 273+ 535: Illegible fragment, 3/4C	BO 56.0 gr wa flan bo	1624 –	c 200+ L3C+
H21:3:18	(makeup)	419: Constantine II Caesar, 334–5			
H21:4:2	Road 9 surface	416: Constantine II Caesar, 330–35	BO 71.0 M 32.0 – – –	2043 2044 2047 2046 2042	c 270 180–240 c 360+ c 270+(?) c 340+
H21:4:53	makeup for Road 9	121: Severus Alexander, 222–8 162: Claudius II posth, 270 163: ‘Claudius II posth’, 270+ 174: Victorinus, 268–70	– – – –	– – – –	– – – –
H21:4:54	makeup for Road 9	195: ‘Tetricus I’, 273+	–	–	–
Road 10					
HSE:1:12	surface of Road 10	171: Postumus, 259–68 246: Radiate, 259–73 374: Constantine I, 323–4 459: Constans/Constantius II, 346–8 476: ‘Magnentius’, 350+	BO 93.0 – – – –	1659 – – – –	c 270+ – – – –
HSE:1:31	makeup of Road 10	135: Gallienus frags, 260–68 232: ‘Tetricus II’ frags, 273+ 399: Constantine I, 330–35	ca gt Huntcliff j gr wa flan bo –	– – –	c 340+ L3C+ –
Structures and soil deposits (mostly unsealed) over road surfaces in the W half of HSE:					
HSE:1:23	wall face ov 1:12	–	BO 63.0	1665	c 250+
HSE:1:24	soil layer u 1:23, ov soil 1:26	133: Gallienus, 260–68 136: Gallienus frags, 260–68 183: Tetricus I, 270–73 205: ‘Tetricus I’, 273+ 231: ‘Tetricus II’, 273+ 251: Radiate, 259–73 316: Radiate copy frags, 273+ 323: Radiate copy, 273+			
HSE:1:26	soil level ov 1:12, u 1:24	247: Radiate, 259–73 331: Radiate copy, 273+			
HSE:1:17	dark humic soil ov 1:16	– – –	JA 59.0 gr wa flan bo ca gt Huntcliff j	1661 – –	L1–M2C L3C+ c 340+

^a Coin No. 372 was recorded under context HSE:1:33 but context notes indicate it was found in Road 8 makeup layer, 1:34, or possibly on Road 7 surface, 1:35

Table 6.8 Concordance of the east *intervallum* (H21:2-4) and HSE road levels showing latest coarseware forms and earliest/latest coins (total coins per context in brackets)

Phase	Road	Description	HSE (W)	HSE (E)	H21:3	H21:4	H21:2
5	11: Latc structure	flagging makeup	(rubble 1:11) 1:22	1:18 1:19			
		flagging makeup	('wall' 1:13)	1:3 1:21 1:25	= 3:115		
		flagging makeup		1:28			
		structure makeup	(wall face 1:23) 1:24	(12) E 268-70, L 336 BO 122 c360+; JA 27 c340+			
		makeup	(8) E 259-73; L 273+ 1:26				
		surface	(2) E 259-73; L 273+ 1:12				
		makeup	(5) E 259-68, L 350+	1:31			
		surface	(3) E 260-8, L 330-5; ca. gt. Humcliff; c340+	= 1:30			
		surface	1:16 (5) E 273+, L 310	(1) 273+ = 3:3/18 (5) E 259-73, L 273+			
		makeup		(makeup) (1) 334-5			
3	8	surface	(4) E 268-70, L 323-4*	1:33 L 323-4*	3:47 (3) E 258, L 273+	4:4 (1) 273+ (4) E 222-8, L 273+ (2) E/L 268-70	
		makeup		1:34			
		surface		1:35	3:41 (1) 273+; gr wa flan bo L3C+	4:55	2:3 M 33 3-4C
		makeup		1:36			
		surface		1:37			
2	6	makeup					
		surface					
		makeup					
		surface					
		makeup					
		surface					
		makeup					
		surface					
		makeup					
		surface					
1	7	chalet construction					
		primary rampart					
		surface					
		makeup					
		surface					
1	9	surface					
		makeup					
		surface					
		makeup					
		surface					
		makeup					
		surface					
		makeup					
		surface					
		makeup					

* Recorded in context HSE:1:33 but context notes indicate the coin of 323-4 (No. 372) was found in the makeup layer (1:34) for Road 8, or on the surface of Road 7 (1:35)

Dating evidence (Tables 6.7 and 6.8)

A range of Constantinian coins, as well as the ubiquitous Radiate assemblage, were recovered from Road 9. Still more significantly, however, this level was associated with the latest coarseware forms, notably the Huntcliff cooking pot (JA 27) and a dish with thickened rim in Crambeck Parchment Ware (BO 153), the latter emerging as late as *c* 360+.

Road 10

The surface of the fifth road rested upon a dark red/brown loam (1:31). The surface itself (1:12) was formed of small cobbling (0.05–0.07m diameter), large reused building stone (0.15–0.25m across), and some larger flags. The surface was worn and may possibly be identified with surface 1:9, located in the north part of the area, although the latter could also correspond to 1:16/30. Several structures overlay the northern part of this road surface, including two well-cut rectangular slabs (1:38) that were directly in line with the late medial partition wall of Chalet 1 in Range XIII (H13:1:4) and appeared to form the terminal of an extension to that wall, as described above. The intervening stretch of the wall had been removed by modern disturbance. Some 3.8m further west and 2.7m from the south wall of Building XIII, an alignment of four facing stones (HSE:1:23) was uncovered, which may represent the south face of a badly damaged wall. This fragmentary wall facing sat on layers of mid- and dark-brown, sandy loam (1:24; 1:26). Again, virtually all trace of the remainder of the wall had been removed by modern intrusions to the north and east. As a result, it was not possible to determine whether this east–west aligned structure formed part of some late southward extension to Chalets 1 and 2. However, a spread of rubble (1:11) to the south and south-east, much of which was pitched southwards and consisted of obvious facing stones, showed that the wall had collapsed outward over road surface 10 (1:12) and suggested the wall had continued at least some distance to the east.

Finds

Copper alloy:

HSE:1:17 31 Triangular-sectioned bow from a crossbow brooch

Ceramic objects – perforated disc:

HSE:1:23 555 Fragment of a samian disc with a central circular hole

Stone objects:

HSE:1:23 640 Incomplete slate palette (Fig 14.25)

HSE:1:31 650 Disc of slate

Dating evidence (Tables 6.7 and 6.8)

A range of early to mid-4th-century coinage was associated with Road 10 – the latest example of which was a copy of a Magnentian issue (No. 476 – AD 350+) – plus

a small number of coarseware forms with late 3rd- and mid-4th-century dates of emergence. An even later Crambeck Parchment Ware form (BO 153) was associated with Road 9, suggesting the date of Road Level 10 could be pushed into the later 4th century; however, this part of Road 9 was not sealed by later metalling.

The structures revealed overlying road surface HSE:1:12 in the western half of trench HSE were probably associated with the latest alterations to the chalets at the east end of Range XIII, although the possibility cannot be excluded that they formed part of even later structures erected over the street surfaces after the chalets had been abandoned and fallen into dereliction. Evidence for such later structures, which perhaps dated to the period after formal military occupation had ceased, was encountered in the eastern and central parts of the same trench (eg 1:28; 1:3; 1:18; 1:13).

General comments

The detailed evidence from the east end of the street between Buildings XIII and XIV is listed in Table 6.7, while Table 6.8 provides an overall summary of the material from both the street and the equivalent levels of the east rampart *via sagularis* roadways (H21) in the form of a chart. It sets out the suggested relationships between all the recorded levels of these roads and focuses on the chronological data provided by the numerous coin finds. The road levels are treated in stratigraphic order, that is to say the latest road at the top. Significant dating evidence associated with each specific context is noted, including the number of coins (in brackets) with the dates of the earliest and latest examples to indicate the range of material in each assemblage.

The earliest road level with substantial quantities of Constantinian coinage associated is Road 9, which includes such examples both on the surface and in the makeup layers. The latter provides a *terminus post quem* of 334 for the demolition of Building XIV Chalet 1 (Coin No. 419 of 334–5 found in the makeup for road surface H21:3:18), since numerous nails, which are most plausibly interpreted as reflecting the demolition of the chalet, were found scattered on this road surface. It is worth noting that this may not represent a very close date since a coin of 323–4 (No. 372) was already present in the makeup for the preceding surface (Road 8 – HSE:1:33; based on a specific note in the context record). It could, perhaps, be argued that No. 372 was intrusive, on the basis of its isolation from the main stratigraphic concentration of Constantinian material, but there is no indication of this in the context record.

It is also noteworthy that a substantial quantity of earlier material – predominantly radiate coin issues – was mixed in with Constantinian coinage in these later levels, rather than all being neatly sealed on or beneath the earlier road surfaces, perhaps the result of repeated disturbance to earlier levels in which the later 3rd-century coinage had initially been stratified.

7 Post-Roman occupation in the north-east quarter

The late Roman to early medieval transition

Introduction

Evidence for a further phase of activity in the north-east quarter, at the east and west ends of Chalet Range XIII and overlying the adjacent road surfaces, was revealed by the 1974–81 excavations. This activity has been tentatively assigned to the early medieval period, rather than the latest phases of Roman military occupation, on the basis of the character of the surviving remains. Parts of Chalets 9, 10 and 1 appear to have been converted into or overlain by sub-circular structures. A complex group of structures was erected over the northern part of the *via principalis*, which was reduced to a narrow passageway between two buildings, while at the east end of the street, between XIII and XIV (HSE), the flagged floor of a probable oval structure was uncovered.

The final occupation in Building XIII

The secondary structural features in the chalet-*contubernia* of Building XIII can be closely associated with the latest modifications to the north rampart defences. The alignment of the walls closing off the north end of Chalets 3–5 quite clearly lie parallel to the

latest alignment of the north rampart revetments, which spread diagonally across the line of the *intervallum* road. This is particularly clear in the case of the north wall of Chalet 4 (4:30) and implies that the chalet range was still fairly intensively occupied at the time the last identifiable maintenance of the northern defences was undertaken.

Dereliction layers

When first exposed, Building XIII was covered by layers of rubble representing the collapse and dereliction of the range of chalets (Fig 7.1). Examination of the photographs suggests there were variations in this material that might conceivably be significant in terms of possible post-Roman occupation or activity. However, it was not possible to discern anything meaningful during excavation. By the time the structures described below were being erected and occupied it is likely that most of the chalet range was abandoned and in a state of decay.

Finds – dereliction layers

Copper alloy:

H13:0:2	178	Disc-headed stud
H13:3:1	213	Oval ring of circular section



Fig 7.1 View of Chalets 6 and 7, looking north-east, showing the rubble collapse of the dereliction phase.

H13:4:3	177	Stud with a disc head and a rectangular-sectioned shank
	255	Strip of lopsided triangular section
H13:5:3	15	Incomplete brooch with reeded bow and cylindrical spring (Fig 14.2)
	21	Incomplete disc brooch with silver repoussé plate (Fig 14.2)
	89	Openwork disc with circular loop projecting from back (Fig 14.9)
H13:8:1	28	Crossbow brooch lacking pin, terminal and one arm (Fig 14.3)
Ironwork:		
H13:3:1	366	Oval-sectioned iron bar
H13:4:3	329	Strip of iron with curved ends. Edge of spade sheath (Fig 14.15)
	376	Annular iron ring of oval section
H13:5:3	353	Double-spiked loop (Fig 14.19)
H13:7:1	343	Chisel with a wide spatulate blade (Fig 14.17)
Lead:		
H13:0:2	379	Plain disc
H13:2:2	397	Large lead lump
H13:5:3	398	Two fragments of lead
Glass objects:		
H13:0:2	431	Globular 'black' opaque glass bead (Fig 14.23)
H13:0:2	469	Hexagonal-sectioned green glass bead (Fig 14.23)
H13:2:2	443	Segmented bead in turquoise glass
Ceramic – pottery discs:		
H13:2:2	559	Disc of worn East Gaulish samian
H13:4:1	558	Disc of East Gaulish samian
H13:6:5	560	Disc of worn samian
Jet and shale:		
H13:0:2	629	Shale ?armlet fragment
H13:5:3	614	Flat jet bead of semi-circular shape (Fig 14.24)
Stone objects:		
H13:2:2	660	Whinstone pebble used as a hone
H13:2:2	663	Hone made from micaceous sandstone pebble
H13:2:2	664	Incomplete pink sandstone hone
H13:2:2	667	Hone of fine sandstone
H13:4:3	658	Large hone of micaceous sandstone
H13:5:3	661	Sandstone hone of rectangular shape and section
H13:6:5	665	Incomplete hone of micaceous sandstone
	666	Long oval-sectioned hone of fine sandstone
H13:7:1	669	Incomplete whetstone of pink sandstone
H13:8:1	696–8	Possible sling-stones
Samian:		
H13:0:2	St1	Stamp of Amandus v
H13:6:11	D28	EG TR 37, Afer/Dubitatus-Dubitus/Paternianus style
Glass vessels:		
H13:0:2	42a	Rim fragment, colourless glass cup
H13:2:2	24	Base fragment, clear blue-green square bottle (Fig 17.1)
H13:5:3	21	Base fragment, dark blue-green prismatic bottle (Fig 17.1)
H3:8:11	33	Yellowish colourless glass fragment, figured decoration (Fig 17.2)

Dating evidence

The dating evidence is shown in Table 7.1.

The eastern end of Building XIII and adjacent road surfaces

Chalet 1

The final activity in Chalet 1 revealed by the 1974–7 excavations possessed certain characteristics that were shared by the latest structural alterations elsewhere in the north-east quarter. The dereliction levels in the western half of the building comprised a mass of burnt clay (1:6; 1:12), some areas being compact and undifferentiated, up to 0.04m thick. Wattle impressions were plainly visible. These deposits probably represented the collapse of the oven in the south-west corner of the building (Fig 7.2). The clay had spread northward from the oven, over the central part of the chalet, gradually thinning out, but did not extend into the northern third of Chalet 1. Here the earlier flagged floor (1:33) remained in use and the area seems to have been transformed into an oval dwelling. The clearest evidence of this was provided by a length of walling (1:47) that ran on a north-west to south-east alignment (*see* Figs 7.3–7.4) from the chalet's west wall (1:4) towards the centre of the earlier north room. This wall was composed of rough stone facings with an earthen fill (1:21). To the north, the inner facing of the chalet west wall (1:4) had been cut away, but the outer face was retained, continuing the line of the inner face of 1:47 in a gentle curve. Rubble fill in the alley to the west perhaps formed the remaining thickness of this wall. Further east, much more fragmentary remains, in the form of a short length of rough facing (1:36) and patches of earthen fill (1:19; 1:20), may represent a further length of this wall running up towards the doorway at the north end of wall 1:7. Similarly, along the chalet's north wall, the inner facing appears to have been largely demolished, but the outer facing was present, suggesting that it now formed the inner face. The remainder of the north wall had not survived. To the north of wall 1:47, an area of flagging (1:33) had been removed to insert a hearth (1:40), 0.5m across. Traces of burning were evident on the surrounding flags. The doorway at the north end of wall 1:7 may have continued in use, as evinced by the intrusion of a further layer of flagstones (0:8) into the east face of the wall at that point. Overlying the entire north-west corner of Chalet 1 was a layer of stone blocks, rubble, burnt wattle-and-daub and charcoal (1:11). This included a large number of sandstone roofing slates and presumably represents the collapsed remains of the latest building.

Interpretation

The substantial deposits of burnt clay debris, which extended over much of the interior of Chalet 1, were probably associated with the final collapse of the oven, as noted above. Some of this oven debris, composed of

Table 7.1 Coarseware pottery and coinage from the dereliction layers over Building XIII (H13/CH3+)

<i>context</i>	<i>description</i>	<i>CW formcode</i>	<i>FVN</i>	<i>TPQ</i>	<i>coin no: description, date</i>
H13:0:2	rubble & soil ov E half of Chalet 1	BK 8	971	3C	
		BO 4	286	L3C+	
		BO 59	284	c 270+	
		BO 70	282	c 270+	
		BO 70	285	c 270+	
		BO 86	280	L2C+	
		BO 86	287	L2C+	
		BO 96	290	c 270+	
		BO 117	288	c 360+	
		JA 9	289	–	
		JA 27	972	c 340+	
		JA 63	283	E3C+	
		JA 66	281	L2C+	
		other flan bo	–	c 270+(?)	
		ca gt j	–	3–4C	
		BB1 flan bo	–	c 250+	
		H13:2:2	rubble ov Chalet 2	BO 94.0	936
JA 126.0	931			2–3C	
JA 138.0	932			3–4C	
JA 30.0	938			L3–4C	
BO 93.0	935			c 270+	
JA 27.0	939			c 340+	
BO 118.0	933			c 360+	
FL 4.0	934			–	
JA 36.0	930			c 100–160	
ca gt j	–			3–4C	
m po hh	–			M3C+	
ca gt Huntcliff j	–			c 340+	
gr wa flan bo	–			L3C+	
H13:3:1	brown soil over and betw flags 3:10			M 1.0	915
		JA 27.0	918	c 340+	
		BO 136.0	919	–	
		BO 75.0	917	c 250+	
		ca gt Huntcliff j	–	c 340+	
H13:4:3	collapsed rubble	gr wa flan bo	–	L3C+	
		JA 27.0	808	c 340+	52: Hadrian, 134–8
		BO 133.0	814	–	91: M Aurelius Caesar, 153–4
		BO 134.0	813	–	
		BO 13.0	825	L3C+	
		BO 86.0	824	L2C+	
		JA 64.0	817	E3C+	
		JA 70.0	815	E3C+	
		BO 74.0	809	c 250+	
		JA 1.0	819	c 250+	
		JA 8.0	818	c 250+	
		JA 14.0	812	c 250+	
		BO 64.0	811	c 250+	
		BO 67.0	810	c 250+	
		M 21.0	823	160–220	
		M 4.0	820	130–60	
		JA 71.0	816	E3C+	
		ca gt Huntcliff j	–	c 340+	
		Dales or Derbys type j	–	c 250+	
H13:5:3	topsoil & rubble ov Chalet 5	BO 86.0	194	L2C+	
		JA 122.0	195	3–4C	
		BK 7.0	182	3C	
		BO 50.0	192	c 200+	
		BO 2.0	189	c 220+	
		JA 8.0	185	c 250+	
		BO 64.0	188	c 250+	
		JA 95.0	209	E–M2C	

Table 7.1 (Cont'd)

<i>context</i>	<i>description</i>	<i>CW formcode</i>	<i>FVN</i>	<i>TPQ</i>	<i>coin no: description, date</i>
		JA 96.0	196	E-M2C	
		JA 70.0	191	E3C+	
		JA 70.0	190	E3C+	
		BO 86.0	186	L2C+	
		BO 88.0	187	L2C+	
		JA 45.0	181	M-L3C	
		BO 45.0	180	-	
		JA 70.0	208	E3C+	
		BB1 plain r di	-	M2-L3C	
		BB1 flan bo	-	c 250+	
		ca gt Huntcliff j	-	c 340+	
		BB1 plain r bo	-	M2-L3C	
		BB2 sm rnd r bo	-	L2-E3C	
		ca gt j (context is 3A)	-	3-4C	
H13:6:3	soil layer, ov N part of Chalet 6	ca gt Huntcliff j	-	c 340+	
H13:6:5	rubble ov S half of Chalet 6	BO 64.0	579	c 250+	112: 'Caracalla', 205+
		JA 140.0	570	2-3C	124: Severus Alexander, 222-8
		BO 66.0	576	c 270+	380: Constantine I, 330-35
		JA 63.0	573	E3C+	
		JA 63.0	574	E3C+	
		BO 86.0	566	L2C+	
		BO 9.0	577	L3C+	
		BO 3.0	580	L3C+	
		BO 3.0	571	L3C+	
		BO 45.0	572	-	
		M 25.1	568	3-M4C	
		M 25.3	563	3-M4C	
		Crambeck flan bo	-	L3C+	
		m hh and later	-	3-4C	
H13:6:11	rubble ov N half of Chalet 6	JA 70.0	474	E3C+	
		BO 73.0	473	c 270	
		BO 64.0	475	c 250+	
		BO 11.0	472	L3C+	
		ca gt j	-	3-4C	
		ca gt Huntcliff j	-	c 340+	
		m hh or later	-	3-4C	
H13:7:1	rubble ov Chalet 7	BO 95.0	521	c 270+	160: Claudius II, posth, 270
		JA 11.0	526	c 250+	161: Claudius II, posth, 270
		M 25.3	514	3-M4C	227: Tetricus II Caesar, frags, 270-73
		BO 97.0	519	c 270+	243: 'Tetricus II', 273+
		BO 57.0	517	c 270+	253: Radiate frag, 259-73
		BO 115.0	516	c 270+(?)	347: Diocletian frag, 294-305
		BO 98.0	523	-	
		BO 98.0	522	-	
		BO 3.0	525	L3C+	
		JA 30.0	512	L3-4C	
		JA 37.0	524	L3C+	
		BO 86.0	520	L2C+	
		JA 27.0	513	c 340+	
		ca gt j	-	3-4C	
		ca gt Huntcliff j	-	c 340+	
H13:8:11	rubble collapse, SE corner of Chalet 8	JA 11.0	364	c 250+	
H13:8:1	rubble ov S part of Chalet 8	JA 11.0	2453	c 250+	
		BO 57.0	2452	c 270+	
		JA 55.0	2454	M2-M3C	
H13:8:2	rubble & loam ov N half of Chalet 8	JA 131.0	355	2-3C	258: Radiate frag, 259-73
		BO 86.0	2456	L2C+	
		BO 76.0	354	c 270+	



Fig 7.2 The south-west corner of Chalet 1 showing the final phase of the oven and associated features.

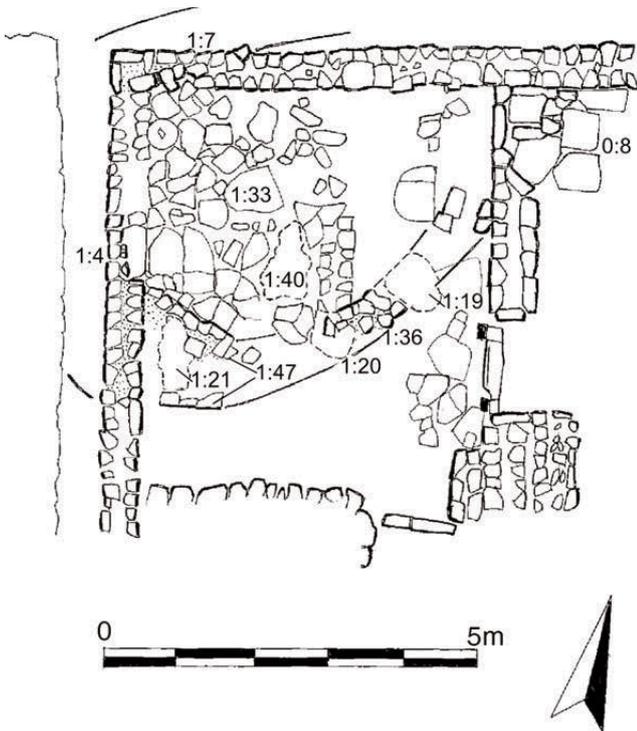


Fig 7.3 Plan of the sub-circular structure in the north-west corner of Building XIII Chalet 1 (scale 1:100).

mixed loam containing a lot of charcoal and daub (1:48), was found sealed beneath wall 1:47, suggesting that construction of the oval or keel-shaped structure in the north-west corner of the chalet post-dated the oven's final abandonment. No equivalent clay debris

was found in the interior of the structure and if that deposit had once extended into the northern part of the chalet it was presumably removed when the oval structure was inserted. Although some of the evidence for this oval building is very tentative, its overall form and the manner in which the pre-existing chalet fabric was adapted are consistent with the other very late structures identified in association with Building XIII, for example at the north end of Chalet 9 and over the roadway between XIII and XIV.

Finds

String course blocks:

H13:1:6 63 Type III (3+)

Copper alloy:

H13:1:6 157 Bell-shaped stud, Type 1

192 Flanged knob

H13:1:12 50 Small vessel with an incomplete narrow flared base (Fig 14.5)

72 Incomplete spoon with a large oval bowl (Fig 14.8)

156 Bell-shaped stud, Type 1

H13:1:21 56 Oval-sectioned strip, fragment of a handle? (Fig 14.6)

158–60 Type 1 bell-shaped studs (Fig 14.12)

Ironwork:

H13:1:12 328 Spade sheath (Fig 14.15)

330 Flat iron strip (Fig 14.15)

369 Bar with parallel sides

Bone objects:

H13:1:6 411 Bone rod of rectangular shape (Fig 14.21)

H13:1:12 413 Small disc of burnt bone with a convex face



Fig 7.4 View of Building XIII in 1975 with the late walling (1:36; 1:47) in the north-west corner of Chalet 1 evident.

Glass object:

H13:1:6 506 Counter cut from a fragment of window glass

Ceramic – pottery discs:

H13:1:11 538 Disc of burnt samian with a central circular hole

H13:1:11 562 Disc of Central Gaulish samian

Stone objects:

H13:1:6 637 Flat disc of lithomarge

H13:1:11 662 Incomplete hone of micaceous sandstone.

Samian:

H13:1:21 D29 EG TR 37, style of Succio

Dateable material

The dateable material is summarised in Tables 7.2–7.3.

The street south of Building XIII

The uppermost surface recognised on the street between XIII and XIV was more complex than any of its predecessors (Fig 7.5). Makeup layers (HSE:1:25–7, 29) underlay various stone elements, which may represent one or more surfaces. 1:25 was a dark red/brown sandy matrix, while 1:26 was a mid-brown compact sandy loam; 1:27 was a black/grey matrix, and 1:29 a deep layer of dark red-brown material, which was similar (but not identical) to another layer of makeup (1:2). Layer 1:29 was up to 0.25m deep and contained a number of coins – the latest giving a *terminus post quem* of 336 (see Tables 6.8 and 7.4) – possibly a scattered hoard.

Three successive components can be made out for this surface material. The lowest is 1:28, a set of flags resting upon 1:29. There were fewer large flags in this

Table 7.2 Coarseware associated with the sub-circular structure in the north-west corner of Chalet 1

H13:1:20	earthen fill assoc with facing 1:36	JA 93.0	35	E–M2C
		JA 128.0	36	2–3C
H13:1:21	earth fill of wall 1:47	BK 7.0	13	3C
		BO 59.0	11	c 270+
		BO 113.0	15	c 270+(?)
		BO 88.0	14	L2C+
		ca gt j	–	3–4C
H13:1:48	loam & oven debris u wall 1:47	15 w sh ca gt j	–	3–4C

Table 7.3 Collapse and dereliction over Chalet 1 (H13/CH3+)

<i>context</i>	<i>description</i>	<i>CW formcode</i>	<i>FVN</i>	<i>CW TPQ</i>	<i>coins: no./identification/date</i>
H13:1:6	collapsed debris of oven 1:24	FL 14.0	43	–	229: 'Tetricus II' frag, 273+
		JA 124.0	29	2–3C	
		4 w sh ca gt j	–	3–4C	
		1 w sh ca gt j	–	3–4C	
H13:1:12	debris N & ?E of oven 1:24	JA 125.0	231	2–3C	
		JA 124.0	232	2–3C	
		FL 11.0	228	–	
		JA 29.0	3	L3–4C	
		JA 124.1	233	3–4C	
		JA 121.0	219	3–4C	
		JA 4.0	224	c 250+	
		JA 5.0	225	c 250+	
		BO 59.0	223	c 270+	
		BO 65.0	222	c 270+	
		JA 27.0	4	c 340+	
		JA 32.0	5	L3–4C	
		JA 137.0	227	2–3C	
		BO 145.0	220	–	
		JA 22.0	230	E3C	
		5 w sh ca gt j	–	3–4C	
		33 w sh ca gt j	–	3–4C	
H13:1:11	rubble collapse ov oven debris 1:12	BO 94.0	47	c 270+	
		JA 27.0	965	c 340+	
		JA 27.0	964	c 340+	
		JA 27.0	963	c 340+	
		BO 79.0	45	c 270+(?)	
		BO 72.0	46	c 270	
		JA 98.0	48	c 100–160	
		M 25.3	51	3–M4C	
		JA 27.0	54	c 340+	
		ca gt j	–	3–4C	
	Crambeck flan bo	–	L3C+		

and greater use of building stones, including some with a diagonal dressing, and there is little wear evident on the stones (Fig 7.6). Some of the stones were very thin and brittle and unlikely to have borne any weight; the possibility that they were roofing slabs is negated somewhat by the absence of nail holes and the likelihood that they would shatter if they fell from a roof. The layer had a distinct 'keel' shape to it in plan. It was separated from the next surface (1:3) by an indeterminate layer (1:21 – not described in the site records) and, in part, a dark red-brown sandy soil (1:25). 1:3 was an area of flagging, irregular and uneven, and some stones are not very worn. This was covered by a dark brown humic layer (1:19), and then on top of that were the uppermost flags (1:18), large sandstone flagstones 0.06–0.1m thick. The presence of vertical stones suggests that this activity on the former road surface may represent some sort of occupation, probably the floor of a building.

To the west of the flagged surface there was evidence for other structures overlying the street. A roughly built wall (1:13), with rather irregular faces, was orientated NNW–SSE. The surviving fragment was 2m in length and 1m in width, and had clearly tumbled westward over road cobbling 1:12 (Fig 7.7).

This wall may have arced round towards the north-east, where two large flagstones, set one on top of the other over the southern end of chalet extension wall 1:38, could form another surviving fragment of it. An additional alignment of facing stones, orientated WNW–ESE, was visible in the extensive rubble spread (1:11) that covered the earlier cobbling, hinting at further structural complexity. Rubble 1:11 probably represented the demolished remains of whatever structure was associated with the short wall face 1:23 described in Chapter 6, perhaps a southward extension of Chalet 1. At its western end, the new alignment overlay the surviving course of 1:23 and may have formed one face of a disturbed wall, conceivably even part of the same wall as 1:13, although there was no direct connection between the two.

Interpretation

It is logical to assume that the flagged surfaces represented the interior of a small structure erected over the end of the street (Fig 7.8). However, the walls associated with such a structure were more difficult to identify. Excavation by Bosanquet in 1898 and Wilkes in 1959–60 had disturbed the area between the flagging

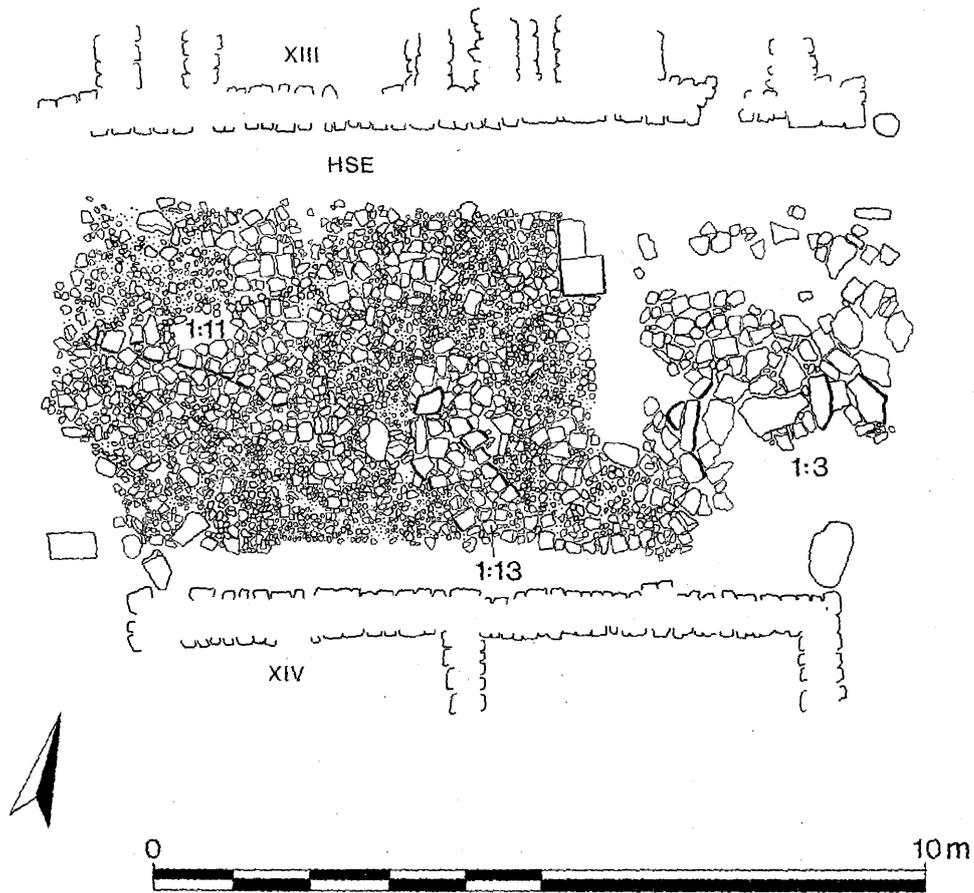


Fig 7.5 Plan of the late structure over the east end of the street between Buildings XIII and XIV (scale 1:100).



Fig 7.6 The late structure over the east end of the street between Buildings XIII and XIV with the uppermost flags removed.



Fig 7.7 Collapsed walling (HSE:1:13) associated with the west end of the structure over the street, viewed from the north.

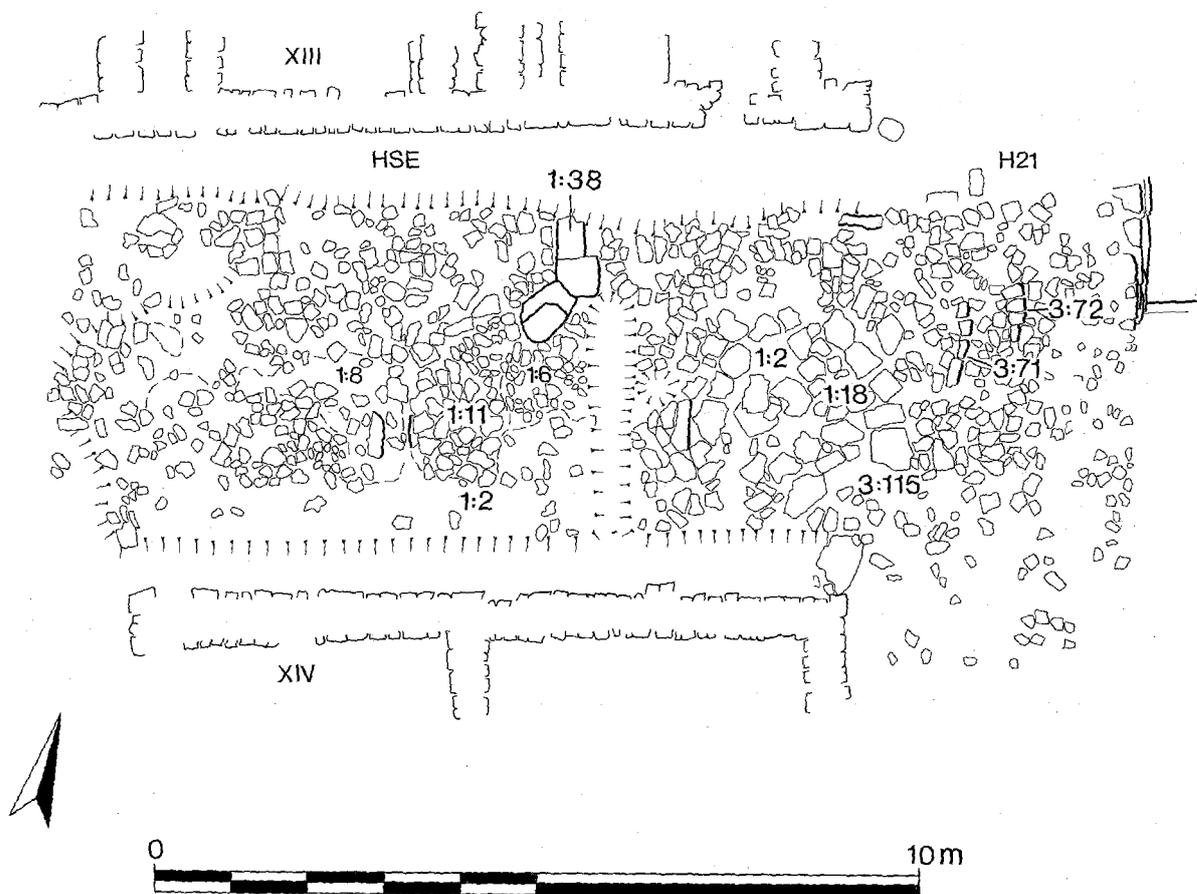


Fig 7.8 Plan of the east end of the street after removal of turf and topsoil (scale 1:100).

and Building XIV, removing any trace of the structure's south side, while another north–south aligned excavation trench (1:14; fill 1:15) and a small pit dug by the Ministry of Works' masons had obscured the arrangements to the west, although fragmentary traces of walling, in the form of upright slabs, did survive here. To the east, the flags appeared to descend the slope towards the east rampart in a line, suggesting the building was approached from this direction. On the north side, an east–west aligned band of dark loamy soil, largely devoid of stonework, was noticeable. This could possibly be interpreted as the earthen core of a wall with a stone facing on either side, although it must be admitted that the stonework along the north face, in particular, is not hugely convincing as a wall face. Owing to the degree of disturbance to the remains of this phase, the relationship of rubble wall 1:13 to the flagged surfaces to the east was unclear, but it could represent an annexe to the main flag-floored structure.

Finds

Silver:

HSE:1:13 1 Two fragments of fine wire brooch spring

Copper alloy:

HSE:1:2 53 Annular ring with oval-sectioned strip around shank

HSE:1:29 65 Small human foot which ends at the calf (Fig 14.7)

HSE:1:29 166 Bell-shaped stud Type 1, missing all its iron shank

Lead:

HSE:1:29 405 Fragment of strip

Glass:

HSE:1:2 515 Fragment of a greeny-blue translucent bun-shaped inset or counter

HSE:1:29 478 Blue biconical bead

Stone objects:

HSE:1:2 683 Oblique end of a hone of fine micaceous sandstone

684 Rectangular block of fine sandstone with untrimmed faces

685–7 Incomplete hones of pink sandstone

655 Fragment of a burnt slate block

708 Possible sling-stone

Querns (see Chapter 12):

HSE:1:11 84 Small fragment of Mayen lava upper stone (Fig 12.4)

HSE:1:21 100 Small fragment of a sandstone quern

Samian:

HSE:1:28 St6 Stamp of Lupus iv, L2–E3C

HSE:1:29 D19 EG LM 37, c 130–60 (Fig 15.2)

Dating evidence (Tables 6.8 and 7.4)

The oval or keel-shaped structure post-dates the latest *terminus post quem* – c 360+ – which can be provided by dateable Roman coarse pottery (Crambeck Parchment Ware bowls or mortaria). Moreover, the latest coarseware typea form a substantial proportion of the total

assemblage. The building could conceivably therefore be sub-Roman or early medieval. The possibility that it represents a later medieval shieling cannot be excluded – several are known in the immediate environs of the fort (see Chapter 10) – but the flagged floor is somewhat more elaborate than those generally provided in shielings, and so an earlier date may be preferable. The characteristics of the dark, loamy deposits that underlay the flagging of the structure (HSE:1:25; 1:29; 1:21; 1:19) are consistent with the build-up of soil during a prolonged phase of abandonment and dereliction. However, this hypothetical formation process is contradicted by the fact that the deposits underlay each successive layer of flags. Seasonal usage, comparable to the shielings of the medieval and early modern periods, is one possibility, but the deposits may simply represent makeup layers or bedding for the flagged floor that was renewed periodically.

Dereliction?

All of the above surfaces lay beneath a layer of rubble (1:6), composed of small and medium-sized stones in a dark grey/brown matrix.

Flagging over the north *intervallum* road

Encroaching over the north end of Chalets 6 and 7 was a surface of large well-laid flagstones (H13:6:13; 7:11) resting on a thick layer of dark brown, loamy soil (6:20; 7:12–13; H20:8:17–18) containing patches of charcoal flecking (Fig 7.9). These flags extended northwards (as H20:8:14), over the *intervallum* road (H20:8:19), towards the north rampart revetment, covering an area some 6.3m east–west by 3m north–south (see Fig 6.5). The surface overlay the northern ends of walls H13:6:42 and 7:7 and clearly sat at a significantly higher level than the internal floors of the chalets and the road surface (c 0.30m–0.35m). A little further west there was another patch of surfacing (H20:8:15), much more limited in extent and composed of smaller stone blocks, but clearly on the same level. The dark loamy earth layer underlying the flags extended over a wider area of the *intervallum* road, resting up against the lower courses of the latest rampart revetment to the north. To the south it continued into the interior of Chalet 6 (as H13:6:14; 6:18), as far as the partition cross-wall (6:9), overlying the earlier flagged floor (6:12), to a depth of as much as 0.125m. This deposit was overlain by a mass of fallen rubble (6:11) indicating it had formed before the chalet walls had collapsed. It was not recorded to the south of the cross-wall. There was no record of a similar deposit in Chalet 7, however. Photographs taken in 1975, during initial clearance work, show a concentration of stone blocks along the south-west edge of *intervallum* road flagging 7:11. Allowing for some later disturbance of the stonework, this might conceivably represent some kind of rough revetment, perhaps similar to the kerbing that

Table 7.4 Pottery and coins associated with the latest structures over the street between XIII and XIV

<i>context</i>	<i>description</i>	<i>coins</i>	<i>CW formcode</i>	<i>FVN</i>	<i>CW TPQ</i>
late flagged structure over the street					
HSE:1:2	dark soil layer ov & betw upper flags 1:18		M 22.1 BO 70.0 BO 109.0 JA 27.0 JA 27.0 BO 117.0 BO 122.0 ca gt Huntcliff j (2) gr wa flan bo ca gt j	1681 1680 1675 1673 1674 1676 1678 – – –	3C c 270 c 270+(?) c 340+ c 340+ c 360+ c 360+ c 340+ L3C+ 3–4C
HSE:1:19	dark soil u upper flags 1:18		JA 59.0 ca gt j	1661 –	L1–M2C 3–4C
HSE:1:25	soil level u flags 1:3		BO 70.0 gr wa flan bo ca gt Huntcliff j	1663 – –	c 270 L3C+ c 340+
HSE:1:29	makeup u flagging 1:28 of late structure	152: Claudius II, 268–70 158: Claudius II posth, 270 209: ‘Tetricus I’, 273+ 211: ‘Tetricus I’, 273+ 354: Licinius I, 313–14 369: Constantine I, 320–21 384: Constantine I, 330–31 394: Constantine I, 330, with bronze ring 397: Constantine I, 330–35 422: Constantine II Caesar, 335–7 427: Constans Caesar, 336 467: House of Constantine, 330–35	BO 122.0 BO 34.0 BO 91.0 BO 94.0 BO 62.0 JA 27.0 M 12.0 gr wa flan bo ca gt Huntcliff j painted Crambeck bo m hh or po ca gt j	1672 1668 1669 1670 1667 1666 1671 – – – –	c 360+ c 140+ c 140+ c 270+ c 270+ c 340+ 130–80 L3C+ c 340+ c 360+ M3C–4C 3–4C
structures and soil deposits (mostly unsealed) over the road surfaces in W half of HSE trench					
HSE:1:11	rubble spread	–	ca gt Huntcliff j m hm hh gr wa plain r di	– – –	c 340+ 3–4C M2–L3C
HSE:1:22	stone & soil spread ov 1:12 & soil 1:27	–	gr wa flan bo m po hh painted Crambeck bo ca gt j ca gt Huntcliff j	– – – – –	L3C+ M3C+ c 360+ 3–4C c 340+
HSE:1:27	soil level u rubble 1:11, ov 1:12	170: ‘Claudius II posth’, 270+ 245: ‘Tetricus II’ frags, 273+ 506: Illegible, 1–3C			
HSE:1:13	rubble wall?	–	BO 69.0	2447	c 250+
HSE:1:10	clay & stone deposit ov Road 10 (1:12)	–	JA 27.0	1660	c 340+

closed off the north end of Chalet 8 (8:21), retaining the underlying spread of dark soil over which the flagging was then laid (*see* Fig 7.9). However, it could also be interpreted simply as tumble from the chalet’s northerly walls.

Discussion

The area of flagging was initially assigned a post-Roman date when first revealed at the north edge of site H13 (6:13; 7:11), although this was revised when the

equivalent flagging (H20:8:14) over the *intervallum* road was uncovered during the investigation of the north rampart, a date at the end of the late Roman sequence being assumed instead. Despite this equivocation, there are significant grounds for supposing that this phase of *intervallum* surface post-dated the occupation of the adjacent chalets. No surfaces lying at an equivalent level were recorded inside the chalets, except perhaps in the south-east corner of 7 where a number of large flagstones (H13:7:10) were laid over the initial chalet clay and flag floor (7:4; 7:9). The continuation of



Fig 7.9 Flagging (H13:6:13; 7:11) over the north intervallum road to the north of Chalets 6 and 7.

the dark earth (6:14), right into the interior of Chalet 6, at any rate as far as the partition cross-wall (6:9), suggests that at least the northern half of this chalet was abandoned by the time the flagging was laid. It is more difficult to determine whether Chalet 7 was still occupied by this stage. No dark earth deposit was identified here and the concentration of smaller blocks, visible along the south-west edge of *intervallum* road flagging 7:11, might conceivably represent some kind of revetment, as noted above. However, even if the north end of the chalet was screened off in some way, the existence of an external street surface at a higher level than the internal floor might well have caused problems in the form of rainwater runoff from the street into the building, which would have made its habitation difficult.

Any assessment of how much time elapsed between the end of the chalets' occupation and the laying of the flagging, depends crucially on what interpretation of the formation process of the underlying dark soil deposits is adopted. The description of the deposits – rich dense dark brown soil – is consistent with a gradual build up of humus over the roadway, which would imply a prolonged period of abandonment and disuse of the northern *intervallum* road before the flagging was laid. However, the material could also plausibly be interpreted as the result of slumping or erosion of deposits from the rampart, in which case the material might have been formed relatively quickly and, by association, the flagging could have been laid soon after occupation of Chalet 6 had ceased. Moreover, occupation may have continued in Chalet 7 – at least

in an attenuated form, as perhaps evinced by flagging 7:10 – and even conceivably at the south end of Chalet 6. The cross-wall (6:9) that divided the latter chalet in two was evidently a secondary feature, displaying notably irregular drystone and earth infill construction with no evidence of clay bonding. It might have been built to shut out deposits washing off the rampart, marking a reduction of the chalet to half its previous size. The doorway (6:42A) inserted in the west wall at some stage would have facilitated direct communication with the south end of Chalet 7. Continued occupation of the southern half of Chalet 6 would explain the lack of any record of the dark earth there, although it is also possible that even after the building had been completely abandoned the cross-wall acted as an effective barrier to the further ingress of material that had originally slumped from the rampart.

The *intervallum* flagging most probably indicates the continuing or resumed use of the northern *intervallum* route after the abandonment of some or all of the chalets. However, it is not clear in that case why it only covered such a relatively limited area of the *via sagularis*, unless the rest of the flagging had simply been robbed away at a subsequent date. In view of the degree of effort and care that apparently went into laying this flagging, it is conceivable that it served as the floor of some kind of post-chalet construction built over the uncluttered area of the *intervallum*, comparable to the structure at the east end of the street between Buildings XIII and XIV (see above). This would, however, require the assumption that all trace of walling had either subsequently been removed or was formed

of perishable materials such as timber or turf, which left no trace. Nor was there any indication of a hearth or other evidence of interior domestic occupation that would confirm that this flagging formed part of an interior floor. This explanation must, therefore, be considered the less likely of the two.

Finds

Architectural fragments:

H13:6:14 9 Fragment with one curved edge bordered by two grooves or beads

H20:8:14 34–7 Four coping stones

Copper alloy:

H13:6:20 256 Plate with no surviving edges and one 2.5mm hole

Glass objects:

H13:6:13 432 Square-sectioned rectangular bead of light blue opaque glass (Fig 14.23)

Stone objects:

H13:6:13 694 Possible sling-stone

H13:7:13 695 Possible sling-stone

Quern:

H20:8:14 88 Sandstone saddle quern?

Dating evidence (Table 7.5)

A range of pottery forms, spanning virtually the full period of Roman occupation, were present in the soil over the *intervallum* road. There was no predominance of the very latest forms and this may suggest that much of this assemblage had previously been deposited in the rampart bank and reached its final provenance as a result of rampart material slumping over the road surface.

Structures over the western end of XIII and the *via principalis* (Fig 7.10)

Chalets 9 and 10

The final activity in Chalet 9 apparently involved the transformation of the northern part of the chalet into a sub-circular dwelling, in character with other very late constructions at the east and west ends of Building XIII and the adjacent roadways (Fig 7.11). A rough partition wall (9:7), containing a doorway 1m wide, was built over the latest level of flagging (9:6) and hearth deposit 9:31. This cross-wall was linked to the northern end of the west wall (9:5), which was rebuilt in a similarly rough manner, its inner face describing a shallow arc and incorporating reused stonework. On the east side of the doorway, the new wall was linked to a reinstated stretch of the chalet's east wall (8:13; 9:2), which also appeared to curve round to the north. As a result of rebuilding part of the east wall, the doorway immediately to the south, leading through to Chalet 8, was narrowed to 1.5m. The arrangements around the north side of the structure were not revealed, but the overall effect was to create a sub-circular structure over the northern part of the chalet. In the centre of the room there was a roughly circular area 0.7m in diameter where flagging 9:6 was missing, similar to the late hearth in the north-west corner of Chalet 1. No trace of burning was noted in or around this feature, however, and it is possible that it represented the setting for an upright timber post supporting the roof.

The fate of the southern part of the chalet in this very last phase is unclear. At some stage the eastern half of the south wall (9:4) was entirely robbed out (9:28). If this was a deliberate structural action – rather than a much later sporadic episode of robbing – it may

Table 7.5 Pottery and coinage associated with the flagging over the north *intervallum* road

<i>context</i>	<i>description</i>	<i>coin (No: identif, date)</i>	<i>CW formcode</i>	<i>FVN</i>	<i>CW TPO</i>
H13:6:13	flagging N of Chalet 6		BO 86.0 JA 10.0	584 582	L2C+ c 250+
H13:6:14	dark soil ov chalet flags 6:12		JA 34.0 ca gt Huntcliff j	476 –	L3–4C c 340+
H13:6:20	dark soil u flagging 6:13		BK 28.0 M 22.1 BK 39.0 BO 65.0	481 479 482 480	3–4C 3C – c 270+
H13:7:12	dark loamy soil u late flags 7:11		ca gt j	–	3–4C
H20:8:17	dark soil ov upper road surface 8:19, not sealed by flags	173: 'Postumus', 268+	JA 93.0	1412	E–M2C
H20:8:17			M 13.0	1411	130–80(?)
H20:8:17			BO 57.0	1414	c 270+
H20:8:17			BO 42.0	1413	c 140+
H20:8:17			m hm hh	–	3–4C
H20:8:17			BB1 flat r bo	–	E–L2C
H20:8:18	dark soil u flags 8:14		m hm? or po hm	–	E3C



Fig 7.10 Plan of the post-Roman structures over the west end of Building XIII and the via principalis (scale 1:100).



Fig 7.11 View looking north, showing the latest alterations to the north end of Chalet 9.

have been intended to transform the southern room into a yard opening onto the street to the south. The capstones over drain 9:12 may have been removed as part of the same process to create an open drain. The site photographs also reveal a concentration of large facing stones overlying the northern part of Chalet 8. Although nothing coherent can be discerned, the distribution of this stonework hints at the existence of some kind of structure, perhaps the collapsed and scattered remains of another wall extending eastward into the area of Chalet 8.

Traces of activity were identified over the remains of Chalet 10 and the *via principalis* that were perhaps broadly contemporary with that in Chalet 9. The remainder of west wall 10:5 was demolished at this stage, as were the south and north walls. The threshold flagging associated with the earlier doorway through the south wall was retained, although the disposition of the surviving flagstones further north (10:4; 11:9) probably reflects the layout of the structures erected during this phase to a significant degree. Overlying the flagging and the footings of the earlier walls were structures of a more irregular character, much of which had been removed by later robbing or disturbance. The site of the earlier doorway through the south wall of Chalet 10 probably continued to serve as the entrance into the new structure, though much altered in form and now opening towards the south-east rather than the south. An exterior wall face (10:40), only five stones of which survived, curved round from the direction of the doorway towards the former east wall of the chalet (9:5).

The inner face of the wall and part of the east jamb of the entrance was represented by rough footings (10:41) along the edge of the flagged threshold. This would make the wall between 1.3m–1.5m thick. Further north, 10:40–1 may have run alongside the west wall of Chalet 9, perhaps even reusing part of its facing, and adjoined the south-west corner of the late structure at the north end of the chalet. Several short lengths of facing stones (eg 10:28 and, most convincingly, 10:29), which were uncovered overlying the northern part of Chalet 10, may have formed part of the north wall of the building, although preservation here was too fragmentary to provide a clear understanding of how the various features related to one another. To the west, the alignment of wall 10:40/41 was continued by parallel wall faces 10:42 and 10:43 and a spread of collapsed rubble (11:1; 10:11). Two courses survived of the inner face (10:43) while the south face (10:42) rested on the flagging of the earlier threshold, indicating that the entrance associated with this phase had been reorientated towards the south-east. Within the entrance itself, a line of blocks, incorporated in the flagging, may have marked a new inner threshold. The distinct wall faces were traceable for no more than 1.7m; however, the dense mass of rubble (11:1; 10:11), which probably represented the collapsed remains of the wall, curved round to the north-west, running along the west edge of flagging 11:9 (see Figs 7.10 (plan), 7.12 and 11.17). A spread of rubble and squared blocks visible to the west of 10:42/43 appeared to form a road surface outside the building, providing a further indication of the line of the



Fig 7.12 Late structures at the south end of Chalet 10 with the flagged floor in section.

exterior wall face. A 1m-wide gap was evident between the edge of the rubble surface and flagging 11:9, both of which followed a parallel curving alignment. This gap corresponded to the location of the building's outer wall. Some 5m from 10:42, the outer face of the late structure (11:15) was again preserved and followed a NNW-SSE orientation, overlying the earlier surface of the *via principalis* (11:14).

The *via principalis* (Fig 7.13)

Wall-facing 11:15 was one of a number of structures (11:22; 11:17) recorded over the northern end of the *via principalis*. The chalet-phase road metalling was directly overlain by 0.1m of humic material (11:24–5). A series of walls (11:17; 11:22; 11:15), rested on this humic layer. Roughly parallel with the east end of Building VII was a single-faced wall (11:22). The space between this facing and the earlier east wall (11:21) of that building was filled with rubble and it appeared to represent a very substantial widening of wall 11:21, or perhaps a revetment designed to contain

the collapsed remains of that building. The wall followed a gently curving alignment, bowing out towards the centre of its course, where a paved entrance gave access to Building VII. The entrance probably originated during the chalet phase, but continued in use during this phase when it was apparently narrowed on the north side (11:45). The north end of wall 11:22 ran parallel to wall 11:15 for at least 7.5m, apparently lining an alley or passageway only 1.5m wide, which was orientated towards the postern in the west portal of the north gate. The narrow passageway was all that remained of the north end of the *via principalis* by this stage. To the south, walls 11:15 and 11:22 diverged. Here the passageway was closed off by a roughly built, east–west aligned wall (11:17). This was 2m in length and 0.8m wide. Its west end abutted wall 11:22, but there was a gap of *c* 0.8m between its east end and the line of wall 11:15, which presumably marked the site of a doorway between the passageway and the area to the south. This area south of wall 11:17 may conceivably have formed another enclosed chamber, but its southern limit lay outside the excavated area.



Fig 7.13 The revetted pathway leading to the postern through the north gate (composite view). Cross-wall 11:17 is visible in the left foreground.

There was evidence for a series of later modifications to the layout described above. A roughly triangular stone buttress projected from the face of wall 11:22, some 0.7m north of wall 11:17. This was most likely designed to create a small alcove on the north side of 11:17. Indeed, it is possible that wall 11:17 was itself a secondary addition and that these two structures were built at the same time. A group of flagstones (11:16) was laid over an accumulation of rubble in the alleyway, just to the north of the paved entrance to Building VII, implying that the alley remained in use over a prolonged period and perhaps even after some or all of the adjacent structures had collapsed, as suggested by the underlying rubble layer. To the south of this flagging, an alignment of three facing stones (11:44) may mark the position of a projecting door jamb or porch wall framing both the north side of the entrance to Building VII and the west side of the alleyway. Towards the north end of the alley, another poorly preserved wall face or revetment (11:43), with rubble infill behind, ran in front of wall 11:22, suggesting that the alley had been further narrowed later in its life, to as little as 0.4m in width. This facing appeared to have tipped forward towards the east.

Interpretation

The restoration proposed above is inevitably tentative, given the fragmentary state of the surviving remains. It should be regarded as one potential interpretation of the evidence, which seeks to incorporate all the extant elements. The layout was clearest at the south end of the structure and on the west side. Only a few scattered traces were identified to the north and east, adjacent to



Fig 7.14 Detail of H B Richardson's watercolour of the north gate showing the late postern.

the structure in the northern part of the former Chalet 9, and it was difficult to integrate all of these into a single coherent scheme. Nevertheless, the undeniable presence of curving wall alignments, notably wall face 10:40, is difficult if not impossible to fit into the traditional rectilinear layout of a Roman fort, while the apparent modifications to the layout indicated a prolonged structural history in this part of the site.

The location and alignment of the passageway at the north end of the *via principalis* suggests that the postern in the north gate remained open until the end of the fort's life (Fig 7.14), perhaps to provide access to the spring under Housesteads Crags later known as Mr Magnay's bath, after a late 18th-century tenant of Housesteads Farm (cf Hodgson 1840, 288).

Dating evidence (Table 7.6)

Many examples of the latest Roman pottery forms – Huntcliff jars and Crambeck painted ware – were associated with the dense spread of collapsed walling (11:1), while the dark soil layer sealed beneath wall 11:15 also contained Huntcliff ware. These mid- to late 4th-century wares formed a high proportion of the overall group, with relatively little material that could potentially have been manufactured before the 4th century, pointing towards a late 4th-century or even later date for this phase of activity. One rim of a possible medieval vessel was found in association with the collapsed walling 11:1.

Building XIV

Wilkes recorded a small post-Roman structure overlying Chalet 5 of Building XIV (1961, 289). It consisted of a rectangular building, measuring *c* 5.75m by 3.5m ('18 ft. by 10 ft.'). It was constructed of large, roughly dressed blocks set on edge, end to end, the thickness of the walls being no more than a single block at any point. It is shown on Wilkes's plan of the chalet range ('Housesteads 1959–60 Barrack No. XIV Periods III & IV' facing p 300) and its east end can also be seen in one of Wilkes's unpublished site photographs, which is reproduced here (Fig 7.15). The photograph shows the stone blocks of the post-Roman structure were set on the remains of Chalet 5. The lines of stone blocks may have provided the footing course for a small timber-framed structure, although the way they are set on end is rather curious.

Building XV

Traces of late occupation were also identified at the west end of Building XV in 1961 (Leach and Wilkes 1962, 86, pl xii.2). A line of three large stone blocks had been laid end to end on the flagged floor of the storehouse, roughly opposite the west doorway (Fig 7.16). These may represent the base for a timber wall or partition. Large, irregular stone slabs, presumably

Table 7.6 Pottery and coins associated with the latest features over the *via principalis*

<i>context</i>	<i>description</i>	<i>coins (no: identif, date)</i>	<i>CW formcode</i>	<i>FVN</i>	<i>CW TPQ</i>
H13:9:1	rubble ov Chalet 9	–	ca gt Huntcliff j	–	c 340+
H13:9:3	soil layer ov flagging 9:6, u rubble collapse 9:1	164: ‘Claudius II posth’, 270+	ca gt Huntcliff j	–	c 340+
		167: ‘Claudius II posth’, 270+	JA 27	699	c 340+
			JA 27	702	c 340+
			JA 33	698	c 340+(?)
			JA 30	700	c 340+
			JA 30	701	c 340+
			M 22	696	3C
			M 25	695	3–M4C
			BO 86	707	L2C+
			BO 86	706	L2C+
			BO 86	704	L2C+
			BO 86	703	L2C+
			BO 91	705	c 140+
H13:10:11	rubble & fine black soil, ?same as H13:11:1		BO 57	446	c 270+
			BO 57	447	c 270+
			BO 86	449	L2C+
			BO 96	448	c 270+
			BO 110	445	c 270+
			JA 10	452	c 250+
			JA 27	453	c 340+
			JA 27	454	c 340+
			JA 27	455	c 340+
			JA 143	442	MED
			ca gt j	–	3–4C
			Huntcliff ca gt j	–	c 340+
			m hh and later	–	3–4C
H13:11:1	rubble collapse – v disturbed walling	175: Victorinus frag, 268–70	BK 29	882	4C
		373: Constantine I, 323–4	BO 13	880	L3C+
			BO 57	869	c 270+
			BO 60	867	c 360+
					wavy line
			BO 62	868	c 270+
			BO 112	860	c 270+(?)
			BO 117	863	c 360+
			BO 117	864	c 360+
			BO 117	595	c 360+
			BO 119	865	c 360+
			BO 120	865	c 360+
			BO 121	866	c 360+
			BO 125	861	c 360+
			JA 5	881	c 250+
			JA 10	878	c 250+
			JA 27	870	c 340+
			JA 27	875	c 340+
			JA 30	874	L3–4C
			JA 31	877	L3–4C
			JA 31	876	L3–4C
			JA 33	871	c 340+(?)
			JA 33	872	c 340+(?)
			JA 33	873	c 340+(?)
			JA 56	879	M2–M3C
			ca gt Huntcliff j (2)	–	c 340+
			Crambeck flan bo	–	L3C+
			other Crambeck m	–	L3C+
			?Crambeck painted wa	–	c 360+
			ca gt j (2 + many w sh)–	–	3–4C
H13:11:24	dark soil layer u wall 11:15		JA 27.0	892	c 340+
			ca gt Huntcliff j	–	c 340+



Fig 7.15 1959 site photograph showing the post-Roman building overlying Building XIV, Chalets 4 and 5 in the top right-hand corner (taken by John Wilkes for Durham University Excavation Committee).

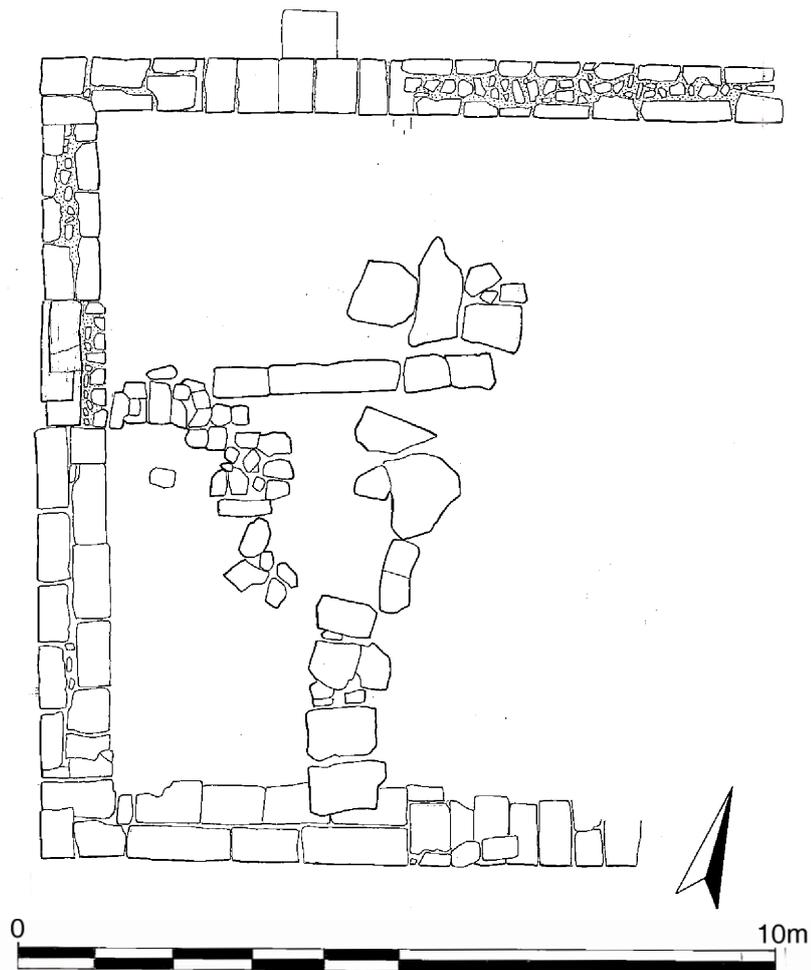


Fig 7.16 Plan of features at the west end of Building XV (scale 1:100).



Fig 7.17 Late features at the west end of Building XV revealed in 1961 with the blocking of the west doorway evident in the background (photograph by John Wilkes for Durham University Excavation Committee).

representing areas of paved flooring, were evident on either side, those on the south side straggling in a rough alignment towards the south wall of the storehouse. Wilkes's unpublished photographs suggest one of these slabs overlay the remains of the south wall, implying the latter may have been levelled by this stage. The west doorway was blocked either at this time or somewhat earlier (Fig 7.17). No finds were recorded in association with these remains in the published report.

It is difficult to discern a fully coherent pattern to the features. Much of the flagging may already have been robbed, but a predominantly timber structure in the north-west corner of XV, perhaps reusing part of the north and west walls, should probably be envisaged. The long slabs laid end to end and the surviving remains of the walls may have served as the base plates for a timber superstructure, perhaps similar to the construction method used in the small apsidal building revealed overlying the *praetorium* courtyard at Vindolanda, which has tentatively been interpreted as a church (Birley *et al* 1999, 20–22).

Discussion

A significant quantity of dateable material was found in association with the structures described above, which indicated that this phase of activity could not have predated the latest period of Roman occupation. Furthermore, there are grounds for believing that this phase may post-date the end of the formal military

presence. Admittedly only one sherd of identifiable post-Roman pottery was recovered and that was from an unsealed context. However, the reconstruction of parts of Chalets 9, 10 and 1 as sub-circular structures does appear to signal the adoption of a different building tradition from the regular rectilinearity of a Roman military base, one closer to that long maintained by the rural communities of northern Britain, featuring the use of circular houses, less formality and more 'organic' settlement forms. The encroachment of buildings on to the surrounding streets likewise marks a distinct loss of formality in the plan of the site, with occupation no longer neatly confined to the well-established building ranges of the Roman fort. It may also imply that the road surfaces were now favoured locations for occupation because they were less encumbered by the mounds of rubble resulting from the collapse of earlier buildings. This pattern of erecting buildings on what were previously street surfaces, which had the advantage of not being covered by the collapsed remains of earlier buildings, is paralleled in early medieval occupation of other Roman sites, for example the Saxon phases in the fortress at Chester (cf Ward 1994, 45–51).

If a post-Roman date is accepted, a further question may be posed as to whether this phase belongs to the period immediately following the collapse of Roman rule and essentially reflects continuity of occupation into the sub-Roman era, or alternatively represents a period of abandonment and subsequent reoccupation at some stage later in the medieval period. One rim

sherd of a strap-handled jar or jug (JA 143) of probable medieval date was recovered from a layer of rubble and fine black soil (H13:10:11; probably equivalent to 11:1), perhaps representing collapsed walling, west of the entrance into the late building erected in areas H13:10–11. However, given the degree of disturbance to the rubble, it is unclear whether the sherd was associated with the life of the building or represents a much later intrusion, perhaps associated with continued use of the passage through the north gate to gain access to the interior of the fort during the medieval period.

The possibility that the site was abandoned when formal Roman military use ceased, perhaps at the beginning of the 5th century, and later reoccupied, is also suggested by the dark, loamy deposits (H13:11:24–5) which separated the walls over the *via principalis*, 11:15; 11:17 and 11:22, from the underlying road surface, 11:14. Such layers might represent the build-up of soil during a prolonged phase of abandonment and dereliction. However, the similar deposits, which underlay the flagging of the structure built on the street between XIII and XIV (HSE:1:25–26; 1:29; 1:21; 1:19), are more difficult to explain in this way since they underlay each successive layer of flags. As was argued above, these deposits are more likely to represent makeup or bedding layers for the flagged floor, which was presumably repaired periodically.

As far as can be ascertained from their fragmentary remains, none of the structures identified appear to resemble medieval or early modern shielings, which tend to be sub-rectangular in form. D-shaped structures, which might represent an early medieval form of shieling, have been identified in the vicinity of Sycamore Gap (Crow forthcoming) and could form a closer structural parallel for the building erected over the west end of Building XIII, for example. The earliest of the medieval buildings at Sewingshields milecastle (MC 35), Building B Phase 1, which was assigned to the 13th century on the basis of associated pottery (Haigh and Savage 1984, 59, 65) was somewhat similar in form.

The form of the walls that close off the north end of Chalets 2–5 in Range XIII do appear to provide a typological bridge between the regular layout of the chalets and the oval and sub-circular structures built over the roadways and into the chalets described above. Particularly striking in this regard is the thickness of the north wall of Chalet 3 (H13:3:9) and the flowing curve traced by the threshold flagging in the secondary doorway that linked 3:9 with the north wall of Chalet 2 and blocked the intervening alley, as well as rough construction of some of the latest alterations to the chalet range, notably the south wall of Chalet 2 (2:35) and the partition wall in Chalet 6 (6:9). The erection of the typologically transitional north walls was evidently contemporary with the latest modifications to the northern defences. The overall layout of the north face of the chalet range in its secondary phase clearly ran parallel to the latest alignment of the north rampart revetment walling opposite, both of which followed an

oblique course relative to the long axis of the chalet range and the line of the north curtain. Thus, these architectural forms began to be adopted at a time when the chalet range was still extensively occupied – as evinced by the need to provide walls to screen the northern end of the chalets in the first place – probably by the longstanding garrison force, which was simultaneously engaged in a determined, if not altogether effective, effort to maintain the fort's defences. This may reveal something about the regional origins and cultural affiliations of the resident troops by this stage, but also implies potential continuity with the later phase of activity exemplified by the structures erected over the roadways.

The general cessation in the supply of new coin issues and pottery forms – hitherto the most common categories of dateable material – at Housesteads, just as at sites right across northern Britain, means it is impossible to answer definitively the question of continuity versus abandonment and reoccupation. Moreover, even if the dark loamy layers over the *via principalis* have been correctly interpreted as reflecting humic build up over a period of time, this need not imply total desertion of the site. As the population of the fort declined, parts of it may become temporarily derelict while others were still in use. The abandoned areas may themselves have then been reoccupied, with settlement perhaps shifting across the site. The fact that there was occupation at all in the less hospitable northern parts of the site forms a marked contrast with the situation in the late medieval and early modern eras, when settlement clustered along the level, south-facing terrace formed by the south rampart. It suggests there was a more sizeable community residing at Housesteads when these structures were erected than was the case later on, although the crest of the ridge would have provided any settlement in the north-east quarter with some leeward shelter from the prevailing south-westerly winds.

One further attractive hypothesis would involve associating this late activity in the north-east part of the fort with the west-facing apsidal building that was uncovered by Bosanquet (1904, 242; HWA 5057), further to the west. The apsidal structure was set on the *intervallum* road and encroached over the north-east corner of Building I and the north-west corner of VII. It featured a rough flagged floor incorporating massive reused building blocks, laid on top of a dark earth layer, which covered the earlier road surface to a depth of some 0.2m–0.25m ('eight to ten inches'). In close proximity lies an east–west orientated cist burial, inserted in the water tank south-west of the interval tower on the north curtain. Such a juxtaposition of cist burial and apsidal building raises the possibility that the latter may actually be a church, as suggested by Crow (2004a, 114–18). The building might conceivably represent a late 4th-century garrison chapel rather than a post-Roman church. However, the presence of the cist burial within the fort circuit implies continued

vention of the site and its possible use as a religious focus for the district after formal military occupation had ceased at Housesteads. Moreover, the apparent disregard for the pre-existing layout of the fort is very reminiscent of the structures erected over the north end of the *via principalis* and the street between Buildings XIII and XIV and suggests a similar date of construction.

Medieval and later activity

Trackway across the north rampart – H20:8:3

Excavation of the north rampart revealed the rutted surface of the long-established trackway providing access into the north part of the fort. The trackway (H20:8:3) ran north–south through a gap in the curtain wall, where a modern farm gate was located. Two distinct layers were uncovered. The lower was well made, with dark cobbles set in dark soil similar to the topsoil. Wheel ruts were noted. The upper surface was less well preserved and was composed of larger, more angular stones that showed signs of wear and wheel rutting. Just to the south of the curtain, two postholes (8:4; 8:5), set 3m apart, were revealed on either side of the metalling. These formerly held stone posts supporting the gate through the stone dyke that ran along the top of the rampart from the north gate to the north-east angle. The dyke was recorded on the 1st edition Ordnance Survey (*c* 1860) and subsequently figured in a succession of photographs from the late 19th century onwards, often in the background of views of the north gate (eg NRO C7/13 and C7/17 (*c* 1890); NRO C7/20 (1930);

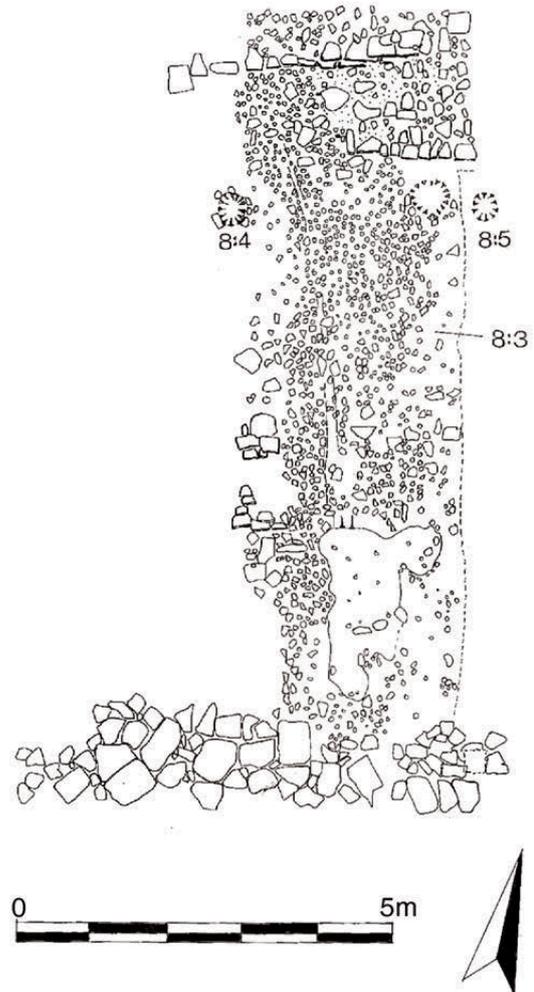


Fig 7.18 Plan of the trackway over the north rampart (scale 1:100).



Fig 7.19 View of the rutted trackway crossing north rampart area H20:8, from the north.

Table 7.7 Pottery associated with the trackway across the north rampart (H20:8:3)

<i>context</i>	<i>description</i>	<i>CW formcode</i>	<i>FVN</i>	<i>TPQ</i>
H20:8:3	trackway	M 31.1	1378	240–300
		JA 78.0	1383	2C
		BK 7.0	1385	3C
		JA 1.0	1384	c 250+
		JA 83.0	1381	M–L2C
		JA 142.0	1376	MED
		M 16.0	1377	160–220
		BO 26.0	1382	M–L2C
		BO 8.0	1380	L3C+
		m hh or later	–	3–4C
		Derbys type j	–	c 250+
		gr wa flan bo	–	L3C+

cf also NCL 1471 (1923) from the Knag Burn Wall curtain). It was dismantled by the Ministry of Works' masons, under the supervision of foreman Charles Anderson, when the stretch of the north curtain immediately to the east of the north gateway was consolidated and straightened in the 1960s (Figs 7.18 and 7.19). A stone-filled hollow, conceivably relating to an earlier phase of the field gate, was also identified beside the easterly posthole (8:5). Further west, a thin lens of stones (9:21) recorded in section, just below the surface in Area H20:9, may have formed part of the same late road. This would imply that, having crossed the northern defences, the track turned westward to follow the line of the northern *intervallum* road towards the centre of the fort.

The trackway gained access into the fort by means of a gentle ramp formed by the collapse of part of the curtain, probably during the later Roman period, as discussed above (*see* Chapter 6). This area was fully excavated when the ramp and gate were removed in 1984 (*see* Crow 1988).

Dating evidence (Table 7.7)

In addition to an assemblage of residual Roman pottery forms, one diagnostic rim sherd of probable medieval date (FV 1376; JA 142) was found in association with this trackway, one of only two medieval vessels identified in the entire 1974–81 excavation assemblage.

The trackway clearly remained in use right up until the early 1980s, providing access through the field gate into the northern part of the fort. However, the recovery of a piece of medieval pottery from this part of the site suggests that the route may have much earlier origins. The partial collapse of the curtain, probably

during the mid- to late 4th century, left a pile of slumped debris that would eventually provide a convenient alternative to the north gate postern as a means of access into the northern part of the fort enclosure.

Ploughing

Further evidence of post-Roman activity in the north-east part of the fort is represented by traces of ploughing on stones in Buildings XIII and XIV, notably on the upper surfaces of the post-pad stones used to form one side of the 'porch' at the doorway into Chalet 5. These plough marks were tentatively assigned to the medieval era by the excavators and associated with two corn-drying kilns located in the south granary and in the south gate east guardchamber. Medieval occupation, perhaps associated with the 13th-century climatic optimum, cannot be ruled out since multiple phases of activity were noted during excavation on the terraces by the museum. While medieval pottery was recovered from the trackway over the north rampart (H20:8:3), as noted above, it is clear that the kilns themselves belong much later, in the 17th to 18th centuries. They slot into a sequence of farmsteads situated in the southern part of the fort and over the hospital, which were probably occupied from the very late medieval era onwards (*see* Chapter 11 below). The ploughing could thus be associated with any one of these farmsteads, beginning with the longhouse that was situated just inside the fort beside the south gateway and continuing into the 18th century when arable cultivation was finally completely abandoned at Housesteads in favour of livestock rearing. It need not have been a very long-lasting episode and it is difficult to believe that the collapsed rubble of the barracks can have been particularly productive for the plough.

8 Excavation and survey of the *principia* and the gateways

Introduction

This chapter describes two additional programmes of investigation that were undertaken at the fort.

In 1954, David Smith undertook various small-scale investigations in the *principia* to answer specific questions that had been raised with regard to the form and development of the Headquarters. The most significant of these took place on the east face, where a secondary verandah covering the western part of the *via principalis* was revealed. These results were important in clarifying the nature of the secondary modifications to the *principia*, which may be tentatively associated with a more extensive remodelling of the buildings of the central range during the early 3rd century (see Chapter 11). The report (Smith 1954) was finished, but never published. In view of its significance, it was therefore thought appropriate to reproduce it here, in order to complete the publication of those pieces of archaeological research at Housesteads that were associated with Newcastle University or its predecessors.

A full analytical survey by Peter Hill of the dressed stonework in and around the fort, principally focusing on the masonry of the gates, was commissioned in 1995 when the programme of post-excavation analysis and reporting was resumed. This yielded significant information regarding the initial construction of the gateways in particular and, by extension, the fort in general.

Excavations in the *principia*, 1954

(Fig 8.1)

D J Smith

Introduction

In 1954 limited excavation was carried out along the east front of the *principia* to investigate a number of questions left unresolved by Bosanquet's work in 1898. The plan resulting from the latter programme (Bosanquet 1904, pl xix facing p 300; see Fig 1.4 in this volume) shows an 8ft wide 'stepped platform' along the outer surface of the east wall of the building; it is not described in the report. Of the east wall itself there remained only some of the foundation course, or 'traces of foundations' according to the plan, and of the entrance to the building 'only some pavement, including one slab with a pivot-hole' (1904, 209). These features were all still visible, in whole or in part, in 1954.

Not recorded on the 1898 plan, or mentioned in the report, was a large square pier (Fig 8.2) which, in 1954, stood opposite the south end of the 'stepped

platform' and which had been taken for the sole relic of a monumental portico fronting the building (Richmond 1947, 114).

The east wall of the *principia*

Remains of what appear to have been the foundations of the east wall of the *principia* north of the presumed position of the entrance were uncovered in 1898 and left exposed (Fig 8.3). They consist of stones, 2ft to 3ft in length, laid as 'headers' and in the manner characteristic of the building. Immediately south of the entrance, foundations on the same alignment were discovered to be still intact for a distance of 10ft 3in. Here, however, they consisted of dressed sandstone blocks, some 2ft 4½in. across and approximating to 1ft in depth but varying in length from 1ft to 2ft in length. On either side was a compact bed of masons' chippings. Although differing in character from the foundations to the north of the entrance, there is no doubt that they are foundations for the same wall. The differences may be explained with reference to the nature of the site, which begins to slope steeply southwards from about the position of the entrance. On such a slope a foundation of headers would have been too insecure and one of more solid construction, very carefully laid, was required and provided.

The 'stepped platform'

In 1954 this feature was only visible at its south end, for a length of 15ft 6in. Here, unfortunately, most of it had already been robbed by 1898 and it was then rebuilt, at least in part. It is not absolutely certain, therefore, how much of it can be regarded as original, but the drain and the lowest two, or even three, courses appear to be *in situ*. Just over 5ft further up the hill five headers and part of a sixth were discovered on the same alignment and evidently *in situ* (Fig 8.3), but thereafter all traces of the feature had disappeared for a distance of 37ft 6in. It then reappeared, again as a line of headers, until, making a right angle, it came to an end just short of the east wall of the *principia* at its north-east corner. Here, at the north end, there remained five headers in a second course, three of which are considerably worn on their upper surface (Figs 8.4–8.5). It was presumably this fact that prompted the excavators of 1898 to interpret this feature as a platform along the front of the *principia*, stepped to follow the slope of the ground on which the building is sited. There is no reason to query the suggestion of a platform. However, the evidence for the stepping of the platform is not apparent, and is not given in the report, and it seems more likely, in fact, that the platform would have consisted of a level terrace,

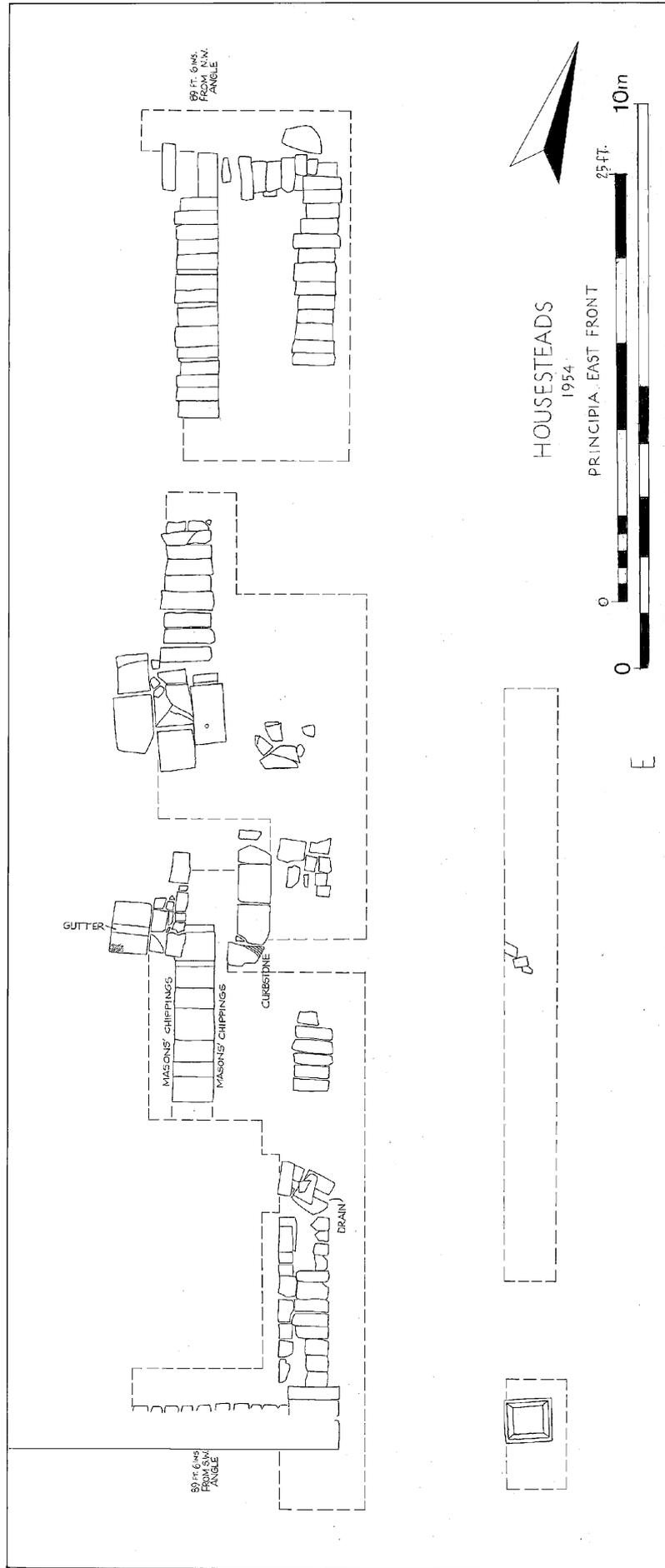


Fig 8.1 Plan of the 1954 excavation of the principia east face.



Fig 8.2 View of the south-east corner of the principia from the south showing the façade and the ex situ pier (Hadrian's Wall Archive).



Fig 8.3 The principia façade south of the entrance; note the squared stone blockwork of the main east wall and the header blocks of the portico platform (Hadrian's Wall Archive).



Fig 8.4 The north end of the façade, showing both the east wall and portico platform, from the south (Hadrian's Wall Archive).



Fig 8.5 The north-west corner of the portico from the west showing the differing degrees of wear on the upper stones (Hadrian's Wall Archive).

purposely designed to carry a portico such as fronted the *principia* in certain forts elsewhere. Here, particularly, a portico erected on a level platform in front of the *principia* would have had the very desirable effect, from an architectural point of view, of concealing or at least reducing the unsatisfactory appearance that any important building on such an inclined site would otherwise present.

The pier

A large pier, 2ft 7½in. by 2ft 6in. stands on ground at a distance of 9ft 7½in. opposite the south end of the platform and at a slight angle to it. On examination it proved to have no adequate foundation and there is no sign of foundations or emplacements in the rock for similar piers in line with it, parallel to the north-south axis of the *principia*. It does not appear therefore to be *in situ*, and the fact that it is not shown on the detailed 1898 plan of the *principia* must signify either that this was already known to the excavators or that it has been placed in its present position since that date. It is not matched by any of the other fragments on the site and its original position may now never be determined. But the only buildings likely to have required a pier of such proportions are the *principia* and, possibly, the granaries. Of these two alternatives the first must be preferred, on grounds of proximity, since so weighty a stone can hardly have been moved, still less have rolled, far from its place of origin. This suggests that it may have belonged to the portico which, it has been proposed, fronted the *principia*, and the most probable position for a square

pier in such a case would be at the end of the portico. This is supported by the presence of a small square hollow, evidently made to take one end of a wooden railing, in one face of the pier. Such a railing would not have been out of place at the south end of the portico, where the platform must have stood some 7ft above ground level. And it is worth noting that, at the north end, there is room for a square pier of the same dimensions at the outer angle of the platform, where the two easternmost headers remaining in the second course show no traces of wear, which can only be accounted for by assuming that something such as a pier stood upon them (Fig 8.5).

The entrance to the *principia*

Of the entrance to the *principia* there are indications but no certain remains. The 'pivot-hole' recorded in 1898 and still to be seen, is in fact too small to have served as such and has no channel for sliding in the pivot; it is probably a natural hole. Nevertheless, the entrance undoubtedly occupied the centre position in the east wall of the building, and though its width is uncertain it was presumably not wider than the entrance from the courtyard to the crosshall, namely *c* 12ft 6in. The approximate position of its south jamb is suggested by what appears to be a much worn curb-stone close to the foundations of the east wall.

Dating evidence

There were no small finds of any description, with the exception of some fragments of green glass (?beer) bottle. These are not altogether without significance, for they were found in close association with the makeshift foundations of the pier, and may therefore be taken to add weight to the conclusions, already given, concerning the present position of this feature. The absence of other small finds can be attributed to the fact that this part of the fort has already been twice excavated with some thoroughness (1822, 1898).

Architectural features in the *principia*

P R Hill

The threshold

Measuring 1470 × 540 × 210mm, this is the threshold of the door in the north wall of the basilica; it is very worn and weathered. It has two pivot holes, with a 270mm-wide step on the south and a threshold upstand 150mm-wide to the north. The doors thus opened inwards. Slots for monolithic jambs are at 70mm from each end of the stone; the western slot is 80mm wide, the eastern 95mm wide. Both slots are 45mm deep.

The step, which is 30mm below the top of the threshold, is considerably worn down especially towards the right-hand end. Separating it from the eastern jamb

slot is a raised area level with the top of the upstand. The 80mm diameter pivot hole is cut into the east side of it, but no deeper than the base of the slot, and the south end of the east side is cut away to a maximum of 30mm wide and down to the base of the slot.

At the west end the pivot hole is cut into the step at the side of the jamb slot; the maximum diameter (it is rather rough) is 100mm, and the depth 45mm. This may represent a re-cutting, as it is no deeper than the east pivot hole but begins at the level of the step rather than at the level of the upstand. There is no raised area at the west end, but the surface is uneven as though stone has been worked off.

This threshold is interesting for several reasons. First, it had monolithic jambs, as evidenced by a slot at each side. Secondly, the raised bar at the east end separating the step from the pivot may well have been left as a result of working off an original, perhaps worn, surface to form the present step.

Another interesting feature is that the wear now seen on the step is concentrated towards the east end, suggesting that only one leaf of the door was open for most of the time; the modern route for visitors is, however, towards the right-hand side, which may have had some effect on the pattern of wear.

The column bases

There are six bases in the *principia*; four in the basilica (CB1–4) and two in the courtyard (CB5–6). They are numbered from the north in each case.

Although they are all much weathered and somewhat damaged, it seems that the workmanship and skill differed from base to base. The basilica bases were probably better than those in the courtyard, especially CB1 which was probably very good Roman military engineering.

The courtyard bases were part of the verandah colonnade, less well worked and to a different design, with a considerable length of shaft worked on them; the basilica bases all have no more than 100mm of shaft worked on them. All the basilica bases show *anathyrosis* on the shaft joints, with consequent pressure fractures of the sides. The use of *anathyrosis* indicates a degree of sophistication and desire for tight joints which is not borne out by the finished work.

All the bases were worked rather than turned.

The portico base

This consists of a square base, between 400 and 460mm above the turf, reducing with a horizontal and vertical fillet, a chamfer and the lower part of a square shaft. It is tilted to the south. It was investigated by D J Smith in 1954 (*see above*).

This piece is of monumental appearance but not well executed. The profile of the fillets and chamfer suggests that it was worked by eye rather than based on measurement of a pre-drawn profile. The variation in treatment of the sides of the base is inexplicable.

The gateways – technical survey of the masonry

P R Hill

Introduction

The purpose of this assessment, carried out between August and October 1995, was to examine the tool marks and methods of working in order to gain precise technical information about the standards of workmanship, the ability of the builders, and the standard of supervision or overall direction of the work. The survey was made on an objective basis, in isolation from archaeological contexts.

The results of the survey appear here in summary form only; the detailed stone-by-stone report is available in the site archive at Corbridge Roman Museum.

Definitions

Measurements of all stones are given in the order length of face × depth into the wall × bed height. All worked surfaces were checked against a straight-edge and a square as an aid to an objective assessment of the quality of work. Details of both method and results appear in the full report. Surfaces that have been heavily worked with a punch or are rock faced are not normally measured but described by their visual appearance, backed by a judgement based on the author's masonry skills. The approximate boldness or otherwise of a rock face is indicated by the use of the prefixes bold, shallow, and flat; the latter indicates little or no projection on a face which is natural or roughly worked off. The description 'natural' indicates a surface that may either be derived from splitting the stone or may be a natural bed. Where no comment is made on a particular aspect of a stone, this indicates that there is nothing useful to be said. Squared rubble facing stones have been commented on only where there is some value in so doing.

'Blade' means either chisel, axe, or adze, and is used where it is not possible to discriminate. The width of the blade is given where this could be read. 'Broad chisel/blade' with no size given indicates the use of a blade in excess of about 30mm but where the exact size could not be determined.

The term 'marking-out lines' is used to describe the lines cut into the top bed to show the position of the next, set back, course. It is used in preference to 'setting-out' lines to avoid any confusion with the geometrical setting-out of masonry for which there is little or no substantive evidence in Roman military engineering in this country.

Standards

At a number of points, reference is made to the 'average' quality of Roman military engineering (RME); this somewhat indeterminate standard is

based on observation and measurement both along the line of the Wall and at other roughly contemporary sites elsewhere. The ideal RME stone is a large squared block, with at least the quoins defined by a worked margin of approximately constant width, which may not be perfectly worked or even parallel to the wall line, but which adequately and sharply delineates the angle. Joints should be reasonably straight and vertical to the eye, and beds worked to within two or three millimetres of straight and with a range of no more than 3–5mm. The faces may be finished in any manner, but a reasonable degree of consistency within each face is to be preferred. There should be some evidence of skill, as well as a measure of care for the finished appearance. This broad description is by no means the same thing as ashlar masonry, where all margins are worked straight and square to the adjoining face and all lie in exactly the same plane, all joints and bed joints are parallel and no more than 2mm round at most, and the face is worked in a totally uniform manner both within a single face and from stone to stone, whatever the style of finish may be.

The Roman stone mason was quite capable of this standard of work, but it is very rare indeed to find it in military engineering on the Wall. The reason is partly due to the fact that most of the work was carried out by legionaries who had received only minimum training in dressing stone. The term 'mason' is used in the following pages as a convenient shorthand for those who carried out military building work. On the rare occasions on which the work of a highly skilled and trained stone mason appears he is noted as such; this denotes a legionary (or auxiliary) whose trade within the army was clearly that of stone mason.

In practice the standard generally varies from mediocre to poor, and it is comparatively rare to find both ends of a moulded stone showing the same profile. The judgements may seem over-harsh, considering that the army building was carried out by the legionaries, who were not usually trained masons. However, occasional examples of good, professional workmanship are found, and it is important to be able to discriminate between these and the general run of work. Even the best work can be variable, and again discrimination is essential. It is clear that all those engaged in building works were aiming, with wildly varying degrees of skill, motivation, and supervision, at a standard in which all quoins were square and all margins were straight and complete; the common failure to achieve this does carry some significance, even if the reason is not immediately apparent.

Pier and stone references (Fig 8.6)

For ease of reference the piers at the four corners of the gates are given as SW, SE, NE, NW, with the *spina* treated separately as north *spina* pier, south *spina* pier etc (NS, SS, ES, WS). The several faces of each pier are identified by letter as follows: the outer face of the

The sub-foundations show good workmanship on most stones but when compared to the north *spina* sub-foundations the beds and joints are not quite as tight, and the margins are a little less well defined and worked, especially above the bottom course. The quality is very good, and better than required, but lacks a certain care for the appearance, and perhaps a little less skill was present.

North *spina* pier

There are two courses of the pier, the top one of which may have been placed there in post-Roman times. There are four courses of sub-foundations. The lowest course has three stones with natural, shallow rock faces; there are no chiselled margins, but the arrises are well defined and the joints are tight. The course is completed on the right by two rough slabs that project from the general line. The next three courses are made up of almost identical stones, having bold, natural rock faces with broad, well-defined margins, and tight, well-fitting beds and joints. The margins are all worked with a punch, generally straight. The beds are generally straight. All the faces are natural except NSSF2/7, which is punched with vertical furrows.

The sub-foundations are remarkable for the quality of the workmanship. Relative to their function they are far superior to anything else seen in the fort. The bold rock faces are a little less bold than on the north-east pier foundations.

The scant remains of the pier are difficult to assess. The quality is clearly very variable, but was never particularly good. The poor quality cannot be due to rebuilding, unless both portals were in use for a considerable period, as face Ce is present. Faces Cw and Ce appear anomalous in their size, 400–500mm, but this is the first course and the second course will presumably have been set back, as on the north-west pier, to give a face C of around 200mm.

South *spina* pier

This pier, five courses of which remain, is not good. There are occasional attempts at careful workmanship but mostly little care has been taken, although some effort has been made to define the quoins. The beds and joints are about the same quality as the SW pier, less good than the SE pier; the differences are not great. This pier is, however, much better than the two *spina* piers of the west gate.

The passage walls

Both east and west passage walls are in the usual squared rubble; there is nothing noteworthy about either.

The portals

The sills of the portals have not survived. The north elevation reveals large blocks, mostly roughly squared but lacking good beds and joints, to make up the road beds. There is one interesting stone in each of the portals.

In the west portal is a stone 840mm long which tapers from 380mm at the west to 345mm at the east. The wider end is slightly convex, and the narrower end is concave, and the stone has a flat face, giving it all the appearance of a very large voussoir. However, calculating from these measurements gives a span of 16.56m (54ft). An arch of this span does not readily fit into any known location in a Roman fort, so either the stone was rejected owing to a gross error in working or the resemblance to a voussoir is coincidental.

Abutting the *spina* foundation in the east portal is a flat slab 1145 × 430 (to turf) × c 150mm. The top bed of the stone is approximately level with the top of the foundation course of the *spina*, and occupies the position of the sill. The present top bed seems to be natural, as is the face; the bottom bed is worked with a punch to a flattish face, not accessible for measurement. It has a hole at either end, both of which are very neatly cut and inexplicably reduced in diameter close to the present top bed; it is usually interpreted as the upper pivot stone serving both portals. It is worth comparing this stone with the similar slab at Chesters south gate. There the holes are very much bigger, very crudely cut, and run straight through the stone; they widen out gradually but considerably to the visible face.

Of note, the pivot slab does not form part of the blocking wall but is at about the level of the missing sill.

North gate, general summary and discussion

It has long been remarked that the foundations of this gate are remarkable, and this is amply confirmed by the survey. The north-east and north *spina* sub-foundations are in a class of their own as regards quality of workmanship on this site. The slight difference between the work on the two is almost certainly due to separate gangs working on each, but under the same supervision and sharing a common standard of quality control.

The north-west pier sub-foundations are noticeably less good. In place of rectangular stones with broad, well-defined margins and very bold rock faces, as seen on the north-east and north *spina* foundations, the builders used squarer stones of greater bed height and shallow rock faces for that part of the sub-foundations beneath the pier. The foundation course has indications of a change of design. The pier is of a similar standard, adequate but not outstanding.

The inner piers are roughly comparable with the inner piers at the other gates; the south *spina* pier is rather less good. The poor quality north *spina* pier seems to have been interfered with.

It is clear that there are at least two, and possibly three, phases of work on this gate. The sub-foundations of the north-east pier and north *spina* piers fall into one phase, the north-west pier and the inner piers into another, and the *spina* piers possibly, but not certainly, into a third.

There is some difficulty with the double pivot block in the east portal. The fact that, apart from the break

on the western hole, the two holes are identical in the lack of wear and lack of evidence for removal of a collar, must raise a question mark over the traditional view that the east portal was never used. But the lack of wear on the presumed pivot block at the Knag Burn (p 263) suggests that we do not fully understand how these blocks were used.

Another point is that the pivot block is not part of the blocking of the portal but replaces the missing sill, forming the foundation of the blocking wall; this suggests that the portal was not blocked until the pivot was taken down as part of the late dismantling of the gate. It could also have been broken during working, and discarded for use at foundation level beneath the blocking wall. Equally, it could be that the block was never fixed, but this would mean that another, single, block was worked for the east leaf of the west portal.

The south gate

The south-east pier

Part of this pier is covered by the later bastle house. While the pier has been subjected to considerable weathering and wear, it can never have ranked very highly in terms of workmanship, and it is unlikely that there was much regard for the appearance of the finished work. The only real effort was made on faces C, where working had to allow for the door to fit and swing; the finish here is in fact above average.

North-east pier

The foundation course just appears above ground level, with five courses of the pier. Most of the faces are weathered and lichen-covered. Face C formed the reveal to the door of the gate chamber, now hidden by the blocking of the doorway. The weathering on this pier makes judgement less than easy, but it is clear that it was not worked to the highest standards. It seems that face B was intended to be worked to a flat finish, but this was not consistent as some stones have a shallow rock face. The appearance of the beds and joints is not especially good.

North-west pier

This consists of three courses totalling six stones; the foundations are hidden below the modern ground surface. This pier is less good than the NE pier. There has been the same attempt to give flat faces and, apart from face B of the lowest stone NW1/1, this has been more consistent, but the overall standard is not good. The impression is of men lacking any real skill working under inadequate supervision.

South-west pier

Three incomplete courses remain, on a foundation course made up of eight blocks of large squared rubble

under the face of the tower and, under the pier proper, large block-in-course stones. Work on this pier was adequate for its purpose, but no more. The cracked stone indicates uneven loading, which in turn suggests poorly worked beds or uneven spreading of the mortar. There appears to have been no great degree of skill or motivation present.

South *spina*

Three courses remain: the sub-foundation, the foundation course and one course of the pier. Although the rebate worked on the front may have been an attempt to introduce some sophistication into the design of this pier, the execution is poor. There is little evidence of any real skill, and the concern of the directing authority was more with quantity than quality. As usual in Roman military engineering, however, the beds are rather better than the faces.

North *spina*

The top surfaces of two foundation blocks are visible. It is possible that the lowest course was intended as the foundation course, but as this is not certain it is numbered with the pier. The workmanship on this pier is very poor; little effort has been made to produce a presentable finish. Even if some of the stones are not in their original places, they are individually notable for their lamentable lack of skill and care.

The passage walls

Both passage walls are in squared rubble; nothing in either is worthy of comment. The blocking wall to the door into the east guard chamber reuses a section of column 285mm diameter, broken cleanly across the axis

The sills

The east portal

The eastern half of the sill is a single block with an upstand 190mm wide and which was once up to 100mm high; the upstand has been worn away apart from a small length against the central stop block. It has a shallow depression worn in the middle.

The western half of the sill once had an upstand 230mm wide, now gone except for the west end where it is about 100mm high; there is a small trace at the east end against the stop block. There is a 90mm deep rut in the middle, which is 1110mm (43³/₄in.) from the centre of the depression on the east side of the portal.

The stop block has a 40mm-deep step on the north side about 20mm above the east sill and 160mm from the top of the block. There is no obvious reason for this.

Although this sill is at the original level, that is at a level to suit the pivot hole, the markedly unequal wear on the two halves cannot easily be reconciled with

Roman use; the Romans did not have the wheelbarrow. If the sill is original, the unequal wear could possibly be due to the removal of excavation spoil in the 19th century, or could be related to medieval use of the gate.

The west portal

No sill remains here, only a roughly squared block 980mm long, 500mm deep, standing 120mm above the modern paving; it is worn on the top, but this is likely to result from modern visitors. Its size makes it unlikely that it was any part of the Roman sill arrangements; it might represent a late blocking wall as a second stone appears on early photographs.

South gate, general summary and discussion

The four main piers on this gate exhibit no more than average levels of skill and motivation. Although all show signs of weathering, damage, and wear, they were never particularly good. Apart from the cracking of stones of the south-west and south-east piers, they appear to have been solidly built and represent adequate Roman military engineering. The two *spina* piers, especially the north, show a noticeable drop from even this standard. The differences may be sufficient to indicate two building phases.

A Roff tilting level was used to check the relative levels of the two *spina* pivots and the south-west pivot; the levels were taken from unworn portions of the stones. With the pivot at the south-west pier as a datum, the pivot on the west side of the *spina* is at plus 58mm, and the pivot on the east side of the *spina* is at plus 62mm. This difference in level of 58mm across the pivots of the south portal is a little surprising, and suggests that the lower edges of the two leaves of the gate did not form a straight line; the upstand of the missing sill will probably have masked this. There was no obvious evidence of subsidence of the south-west pier sufficient to account for the discrepancy.

The peculiarities noted in the east portal sill suggest that post-Roman alterations have taken place, and that at least some of the wear is also post-Roman.

The cutting away of part of the foundation of the south-west pier is discussed below, *Cutting away of foundations*, p 216.

The east gate

Nothing is visible of the western piers.

North-east pier

The pier itself is missing. What remains is three courses of the outer quoin, which rests on a foundation course of two stones beneath the pier and eight blocks of large squared rubble running beneath the curtain wall. In addition there is a secondary pivot block. This quoin and foundations show generally third-class workmanship, although the picture is a little blurred as the

result of wear and weathering. There is no sign of the missing pier having been bonded into face B¹, and no gap where the passage wall would have abutted it. This, together with the occasional signs of damage, the very poor termination of faces A¹ of the quoin, and the divergence between the marking-out lines and the face of the quoin, all suggest that the whole of the quoin and passage wall were rebuilt in late-Roman or post-Roman times. There is nothing in the style of the rebuilt quoin to indicate the date at which this occurred.

The foundation blocks beneath the quoin and beneath the missing pier are less good than is usual for such stones, suggesting that the original workmanship was poor and that quality of appearance was not a high priority. The present state of the south face of the quoin foundation is perhaps due to it being cut away rather roughly to accept the inner end of the missing foundation block. It could also be related to a late timber support; this is discussed below, *Cutting away of foundations*, p 216.

South-east pier

This pier consists of five stones in two courses that would have been above ground level; the remainder is foundation and sub-foundation work. The blocking wall closing the south portal at its outer end masks a full view of many of the stones.

The pier is built up on heavy foundations, in which attention has been paid to the working of the bed joints in order to achieve the stability needed to support the superimposed arches, but the level of skill and motivation present was probably not high.

The stones of the pier proper, although better finished, show no more effort relative to their purpose and position. Only stone SE2/4 shows any real care for appearance.

There is a stone with a pivot hole, partly buried under the south passage wall; its relationship to the fort gateway is doubtful. It is smaller than a gate pivot and is little worn.

East *spina* pier

Only the eastern *spina* has survived. Of this, nothing remains but a sub-foundation course of three blocks and the foundation course. Although these stones are not of the best quality RME, they are in general to an acceptable standard; minor variations from stone to stone represent no more than the variation between different partly trained men. The fact that, other than the stones visible on the east elevation, little more than the top surfaces are exposed, and many of those well-worn by the feet of visitors, makes comment difficult. The pattern of marking-out lines is being worn away by foot traffic.

The pivot hole on the north side of the southern portal appears to be quite unworn as though it has never been used; this raises questions about the use of this

portal that will be considered further in the summary of the gateway as a whole. The rebate cut into the east face is discussed on p 216, *Cutting away of foundations*.

The passage walls

North passage wall

There is no sign of a gap where the missing pier would have run behind the squared rubble passage wall, suggesting, in conjunction with the absence of bonding between the quoin and the pier, that the whole has been rebuilt in Roman or post-Roman times. The north face shows only two courses, straight jointed to the curtain wall.

South passage wall

This squared rubble wall partly covers the southern pivot hole, making it certain that it was rebuilt either in Roman or post-Roman times. The north face is straight jointed, as is the lower part of the south face.

The sills and roadways

North sill and roadway

The sill consists of three slabs set on edge, the centre one, which serves as the gate stop, standing about 300mm above present ground level. This form of sill is not that usually found in Roman fort gateways. The gate stop is of a coarser gritstone than the other two stones. The two outer slabs forming the sill stand about 200mm above present level at their highest points. All three slabs show signs of wear, some of this original and resulting from both wheeled and foot traffic, the rest more likely the result of visitor wear. The northern part of the northern sill has been broken off at some time in the last 100 years or so, but the constant foot traffic has removed all signs of the fracture and it is now smooth and rounded on the top. There are very few signs of working left on the tops of the slabs; all three shows signs of the use of a punch on the inner and outer faces.

The wheel ruts in the sills are of particular interest. They are both about 200mm below the highest point of the sills, and this has been taken as indicative of the amount of traffic using this gate in the Roman period. However, as pointed out by the present writer in his report on the Birdoswald gateways, a 200mm stone sill is ideal for preventing the passage of wheeled traffic.

It is highly probable that the ruts are mostly the result of the sills being deliberately worked down to allow the passage of wheeled traffic. The damaged and worn northern part of the sill reveals little in this respect, but the south end of the southern stone is only 75mm above ground level, and this may represent the height after working off. From this point the sill tapers down towards the middle, culminating in a rut only 30mm deep, which is probably a truer indication of the degree of use. It is only on the north side of this rut,

against the gate stop, that the sill reaches its maximum height of 200mm. The shallowest part of the northern half is about 20mm below the damaged outer end, and this, though less clearly, may again represent the true amount of wear. Particularly on the southern sill, there are very faint traces of the use of a punch where the stone comes down from its highest point into the rut. The inner edges of the ruts are about 1270mm apart; the southern rut is about 120mm wide, suggesting a gauge of 1390mm (just under 4ft 7in.).

The difference in design between this sill and that of the southern portal may indicate that this sill is not original; it may be contemporary with the secondary pivot block, but there is no evidence to support this.

The gates were opened and closed very frequently, as shown by the wear in the pivot holes but this is not reflected in the roadway. Heavy wear by wheeled traffic, to the extent indicated by the 20mm and 30mm ruts in the sills, would have had a corresponding effect on the road surface, which would be likely to result in resurfacing and a consequent raising of the roadway; the effect may be seen in the east portal of the south gate at Chesters. In fact, the wheel ruts are below the level at which one would expect to find the Roman road surface. One possible explanation is that the road surface will have tended to wash sideways down the hill rather than building up; one has only to look at the modern chippings laid inside the fort to see the effect of traffic on a sloping surface.

The moulded stones reused as paving outside the gateway show some signs of wear, but nothing to correspond with the wear on the sills. It is quite possible that this reuse of stone is relatively modern.

The reused mouldings in north roadway

The roadway to the east of the sill is paved with reused stones, four of which carry mouldings. Three have a quirk and circular moulding, one of them forming a return. From the wall line of the quirk to the outer part of the moulding (so far as it could be seen without excavation), the three stones are reasonably consistent at about 50mm. They are all very weathered, losing all toolmarks except occasional signs of a punch in the quirks; the rolls are now approximately straight. The return is approximately square.

The south sill and blocking wall

The sill consists of five long blocks, aligned east-west, with an upstand. One block appears to be missing from the south end, where there is a gap beneath the blocking wall; a small stone at the base of the blocking wall may represent a second missing sill stone. There are no obvious signs of use by wheeled traffic, although all the stones are somewhat worn and damaged; this seems to be partly the result of weathering and partly the feet of small visitors as they peer over the blocking wall (personal observation). There seems to be wear or weathering on the parts of the upstand beneath the blocking wall, so far as can be seen.

The part missing from the middle of the five surviving stones seems to be due to damage rather than to wear. The sill stands at the right level (*see below* East gate: summary) in relation to the foundation of the *spina* (which appears to be original), that is with the long tails of the stones level with the foundation course and the upstand above this to act as a continuous gate stop, and thus appears to be the original sill. It matches the form of the sill in the south portal of the west gate.

The west face of the 960mm-thick blocking wall now consists of two-and-a-half courses of roughly hammer-dressed stones, resting on the upstand of the sill; the inner side of the upstand of the sill projects from the blocking wall by 100mm at the south end and 60mm at the north end. The east face comprises two part courses of roughly squared rubble resting on two complete courses of large squared rubble.

There is no sign of the roadway outside the gate, but this could have been removed by the 19th-century excavators. More significantly, there is no sign of any road surface beneath the blocking wall. The sill stones appear to be original, in that they match the design of those in the south portal of the west gate and are at the right level in relation to the original pivot block on the north side of this portal. The roadway outside is likely to have met the sill at the same level as on the inside, that is, at the level of the top of the foundation course.

From the outer, east, side of the sill to the east face of the blocking wall is 740mm. If the slope of the original road surface from this point to the sill were 1 in 10, then the road surface would have dropped to about 74mm below the top bed of the foundation course at the point it emerged from beneath the blocking wall. If the slope were 1 in 5, definitely steep for horse-drawn vehicles, then the road, at the same point, would be about 150mm below the foundation. In either case, the top of the roadway, if not the base, would be hidden behind the blocking wall. However, the bottom of the east face of the blocking wall is in fact 470mm below the top of the foundation course, and it is difficult to believe that the builders of the blocking wall would have dug through up to 395mm of compacted road surface in order to begin building. It is much easier to believe that the road surface did not exist.

There are flat slabs beneath the blocking wall that could be regarded as the original road surface. However, the slope from the top of the slabs to the level of the sill would be, including the thickness of the mortar bed below the blocking wall, approximately 1 in 1.7, an impossible gradient.

This, in conjunction with the unused northern pivot and the little-worn southern pivot, suggests very strongly that the roadway was never laid and that this portal, although it may have been completed, was never open to traffic. Against this it must be noted that the top beds of the projecting stones SE1/2 and SE1/3 are worn even where they are covered by the blocking wall. This could be for the reasons suggested in the general summary under *Wear on projecting top beds*

(p 217), but this may be stretching the evidence too far. Close examination does indeed suggest some mechanical action, but the evidence is not clear

As the pivot on the north side of the portal was unused, it is unlikely that the south pivot was ever used for holding one of the fort gates, and in any case the origin of the latter as a gate pivot is doubtful. It was perhaps the threshold for a doorway giving access to the guard chamber, even though the door would be in an unusual position. If the gate were never finished as such, the guard chamber would have become just another room, with the doorway arranged to suit. It has already been noted that the passage wall has been rebuilt in late Roman or post-Roman times.

East gate, general summary and discussion

The south-east pier and what remains of the east *spina* pier are similar in construction and workmanship; adequate for their purpose but with no very high regard for appearance. The foundations of the north-east pier may suggest some lowering of standards during the building programme.

Received opinion is that the pivot blocks in this gate were renewed at some point, after which the south portal was blocked. There is, however, very little evidence to support this. The *spina* foundation has every appearance of being original, and therefore the pivot holes in it also are original. The levels were checked at the highest points of the individual stones, using a Roff tilting level, with the following results.

Taking the top of the north-east foundation block NEF/10 as a datum, the top of the north pivot of the *spina* (ESF/6) is 2mm higher; the top of the south pivot of the *spina* (ESF/5) is 25mm lower; the pivot against the south-east pier is 49mm lower. This shows that the north and south pivots of the north portal were put in at the same level, and are presumably therefore contemporary. The north pivot of the south portal is lower, but 25mm is not an amount likely to relate to renewal. The level of the south pivot of the south portal, 24mm below the north pivot, is irrelevant as it has been argued that this is not a gate pivot.

There were clearly alterations. The top bed of the south pivot block of the north portal was worked down by 20mm, presumably to allow better clearance for the gate. The north pivot block was cut away by 120mm at which level the pivot was cut; this may be an original pivot or it may be an alteration, perhaps as the road surface washed down. It could equally have been altered as a result of that leaf of the gate having been made too large; it is easier to alter a stone than to remake heavy, framed doors. This would have meant that one leaf of the gate hung 120mm lower than the other, but this may not have bothered the builders. A similar, if lesser, problem may have occurred at the south gate (p 210). The relationship of the secondary pivot block NEF/11, with the pivot centre 195mm from face C, to the use of the portal is obscure.

These possible reasons for alterations are speculation, but it seems likely that the pivot blocks in the north portal and the north pivot in the south portal are probably contemporary, and are at the right level in relation to the lowest course of the south-west pier which, as has been argued, appears to be original. The unused condition of the north pivot in the south portal, together with the lack of evidence for a roadway, make it highly probable that this portal was never completed as a usable entrance.

The west gate

The south-east pier

Four courses of the pier are standing, with part of the foundation block visible; so little of the latter can be seen that no comment can be made. All the pier stones are worked to flat faces, as is usual with the inner piers on this site. In general, there are no distinct chiselled margins. All stones are more or less weathered. This pier is of a fair standard, apart from the one or two exceptions noted. It is unlikely that any great degree of skill was present, but there has been a determination to achieve a presentable appearance. The use of thin slips in the third and fourth courses suggests either inaccurate planning, inaccurate measuring, or difficulty in obtaining stone of the right size.

The projection of the second course is discussed in the summary of the gate as a whole.

North-east pier

Four courses remain, totalling nine stones. Two foundation stones can be seen. The pier stones are worked to flat faces, with a punch, unless otherwise noted. In general, there are no distinct chiselled margins. All stones are more or less weathered.

This pier is very similar to the SE pier, in that there was not a great deal of skill available, but considerable motivation. It is let down by NE3/7, with its rock face on face C, and by NE4/8 and 4/9, especially the former. These three stones may represent something of a change in the organisation of direction of the work.

North-west pier

Six courses of the pier are standing, a total of thirteen stones. All are worked with a punch and normally have effective chiselled margins on the quoins only. A small part of a foundation block is visible.

This pier stands out among all others on the site as having a degree of care taken with its appearance. In particular, the quoins are very well defined, even where the working of the faces leaves much to be desired. There was a certain amount of skill present, although this was probably not great, but more important is the effort made to produce stones of a good appearance. However, there is a clear falling-off of standards

towards the top, especially in the top two courses. The variations present in the first four courses might be explained by variations in ability, but the top two show an inclination to regard near enough as good enough, rather as though time were of the essence.

South-west pier

Five courses or part courses of the pier are left, 12 stones in total. Below these is a sub-foundation course.

At the base of face C is the weathered remains of the pivot stone; it is so far decayed as to be beyond comment. It is clear that the hole is too close to the passage wall to have functioned, and this is discussed under *passage walls*, below. From the level it would appear to be secondary.

This pier is markedly weathered as compared to the north-west pier, and the few chiselled margins are rarely measurable. Few of the faces are finished with any real degree of care, and many of them have a half-finished appearance. The joints are almost all uneven, and the beds are generally not well defined.

Despite the weathering it is clear that the pier was never of anything like the same quality as the north-west pier, although it is noticeably better than the *spina* piers.

The changes to the design, as evidenced by the redundant marking-out lines on the foundations, seem to have come before any of the pier was built as there is no evidence of *in situ* alterations to the stonework of the pier. It may be that the foundation was worked and marked out before fixing, and possibly was not laid until after the change in design. In the latter case, however, perhaps the lines would have been erased in favour of the correct ones to avoid confusion, and so perhaps the foundation was in place before the change in design. It is unfortunate that the foundation of the north-west pier is not available for comparison; this would have allowed the relative chronology of the two piers to be established with a greater degree of certainty. Despite this, by analogy with the changes in standards at Birdoswald, it is likely that the north-west pier was built before the south-west.

West *spina* pier

Four courses of the pier survive standing on one visible course of foundation. This pier is of interest because of the alterations made during building, which in turn give some clue about the way in which the work was organised. The redundant marking-out lines on WSF4 and WSF6 were most probably put on when the stones were being worked, otherwise they would presumably have been marked in the correct place to line up with face C of the outer piers. This strongly suggests that the masons were working to drawings or a set of measurements, rather than working each stone to fit the place it was immediately to occupy; this is no great surprise, but it is good to have confirmation. From the

way in which joints worked at an angle are matched on adjacent stones, it is clear that some adjustments were made on site, but the major work was carried out independently of the fixing of the stones.

Once the foundation was laid, the courses of the pier were set in position, and only after at least three courses were in place (to judge by the roughness of the work) was face C cut back to give the proper alignment. If the mistake, which seems to be the laying of the foundation in the wrong place, had been discovered immediately, the pier could have been moved forward by the necessary 75–80mm without overlapping the west edge of the foundation. On the other hand, faces B, as now presented, are about the same length as face B on the NW and SW piers, almost as though the *spina* had been designed independently of those piers.

This pier is also interesting for the appalling standards exhibited. Few stones are finished to any extent, and it is clear that as long as everything more or less fitted the builders were content. The crudity of the cutting of the hole for the locking bar is remarkable.

The rebate cut in face A of the foundation course is not unlike that in the south-west pier of the south gate and the east *spina* pier of the east gate. These features are discussed below, *Cutting away of foundations*, p 216.

East *spina* pier

Three courses survive, standing on a complete foundation course. The pier stones are all rock faced, with no chiselled margins except where specifically mentioned. Measurement was difficult as the stones are much weathered and lichen-covered.

The ‘foundation’ is named as such because it resembles the foundation of the west *spina* in the way it projects on all sides and because it is at about the same level. It is below ground level on Collingwood Bruce’s sketch of the west gate. The severe wear on the angles does not seem entirely to bear out the interpretation of a buried foundation, but the foundation of the west *spina* is clearly such as it has the pivot holes for the gates and, from the evidence of the sills, must have been buried to a greater extent than now. All foundation courses were visible for perhaps 75–100mm.

The foundation sits on a sub-foundation course, just visible on the east face. It consists of a roughly squared stone at each of the eastern corners, with two pieces of coursed rubble between them. As so little is visible they are not commented on individually.

The best that can be said about this pier is that it is slightly better than the west *spina*. It has suffered noticeable weathering on the quoins, but they were never worked with any serious degree of care or skill. The joints are at best fair, and the beds are not particularly clean or close.

Damage to the quoins is greatest on the south side, where the second and third courses are at about the right height for being struck by wheel hubs; this may indicate that traffic used the south portal more than the north.

The passage walls

North passage wall

The squared rubble passage wall has a socket for the locking bar for the gates. It would have accepted a bar of a maximum size of 150mm wide by 200mm high. The socket is centred about 1100mm over the presumed level of the foundations. The wall is bonded-in to the fort wall on the north side, and is probably largely original.

South passage wall

The passage wall, of typical squared rubble is clearly too close to the remains of the pivot for the latter to have functioned. It is very likely that the wall has been rebuilt, either in late Roman times or by Clayton.

Cut into a squared rubble is the left-hand half of a neatly cut hole. This seems on the small size for a locking bar.

The sills

South portal

This sill consists of six stones. In the centre is a stop block 400 × 270 × 320mm to ground level. It is very much a natural, roughly square block, now leaning to the east. The three southern stones are very much worn, leaving only slight traces of the upstand. The other three stones, immediately north of the stop block, are less worn. There are no signs of any wheel ruts, and the wear may be largely attributable to foot traffic.

The type of sill is identical to that in the south portal of the east gate; they are both at Hadrianic level. The degree of wear makes assessment difficult, but it does not seem likely that this sill was ever of high quality.

North portal

The sill in this portal is of a different design, consisting of three stones with an upstand 180–200mm wide. The wear, although heavy enough to remove almost all toolmarks, is nowhere near as much as the south portal sill, and the upstand is a reasonably consistent 100mm. Again there is no sign of wheel ruts. On the outer faces of the stones there are signs of work with a heavy punch. The southern block has cracked through just behind the upstand. There is no central stop block.

The sill is at the right level to be Hadrianic in date; the reason for the different designs used for the two portals is obscure, but may relate to the change in design seen on the south-west pier. The workmanship is perhaps better than on the south sill, but was probably not of a very high standard.

West gate, general summary and discussion

In some ways this is the most interesting and informative of the gates.

The north-west pier was begun to a relatively good standard; there was perhaps not much skill available but the motivation, or the drive of the directing mind, was strong. Towards the top the standard deteriorates somewhat. The north-east and south-east piers, while not as good, are quite acceptable work so far as they survive. The south-west pier shows a marked reduction in standard, as though a different mind was directing the work. The *spina* piers are so poorly worked as to be almost beyond comment; the cutting of the sockets and runways for the locking bars is butchery rather than skilled work.

The lowest course of the south-east pier projects on face B as do the western piers, but on the north-east pier does not. This may indicate rebuilding, but may equally be further evidence of a change in plan.

These changes in style and quality, linked to the reasonably clear evidence of a change of design at the south-west pier (it could have been simple error), suggest that a different directing mind was now in control. This may indicate simply a change of legion for administrative reasons, or they may show resumption of work after a hiatus, as at Birdoswald.

The sills show little evidence of wheeled traffic as seen at the east gate. The different designs of sill in the two portals could be evidence of refurbishment, removing all signs of traffic, but they are both at the right level to be Hadrianic. The differences are more likely to be related to a change in design, although one would have expected them to be the last part of the gate to be built, after the changes to the pier designs had taken place.

For the reasons noted above, the south passage wall seems to have been rebuilt, but the north passage wall is probably largely original.

The cutting away of the outer face of the west *spina* pier is discussed in *Cutting away of foundations*, p 216.

The four gateways – general discussion

Building phases

From this detailed survey, there emerges clear evidence of three building phases in the gateways.

The first phase covered the sub-foundations of the north-east and north *spina* piers of the north gate; probably the majority of the north-west pier of the west gate, and possibly the foundations of the south-west pier of the west gate. This phase is marked by the relatively high quality of the workmanship and the care for the appearance of the finished work, even though it would not always be visible.

The second phase included the north-west, south-west, and south-east piers, and perhaps the south *spina* pier, of the north gate; the south-east pier and east *spina* pier of the east gate, and perhaps the foundations of the north-east pier of the east gate; the four main piers of the south gate; the south-east, north-east, the start of the south-west and the upper part of the north-

west piers of the west gate. The characteristic of this phase is run-of-the-mill, average Roman military engineering, solidly built with good beds but not much care for the final appearance.

The third phase was the completion of the gateways, that is perhaps the north-east pier foundations of the east gate (unless part of phase two); the *spina* piers of the south gate; the *spina* piers of the west gate; perhaps the *spina* piers of the north gate; and the upper part of the south-west pier of the west gate. This phase is recognisable by the frequently execrable quality of the work, the lack of any serious motivation or skill, and the carelessness of the directing mind as to the quality of appearance. This corresponds very closely to the third phase at Birdoswald, which was equally careless of results; this is, of course, not to say that there is necessarily any chronological correspondence between the two sites.

Later rebuilding and repairs may well have slightly obscured the picture of the original work, but it is very unlikely that, for example, the *spina* piers of the west gate were rebuilt from the foundations up, and at the Hadrianic level. Equally, rebuilding of the north-east quoin of the east gate is not likely to have involved complete replacement of the foundation blocks at the Hadrianic level. It is similarly unlikely that replacement of sills to a different design from the norm would have involved removal of the original sills and their replacement at the original level. Almost every anomaly in the gateways occurs or begins at the Hadrianic level; this must mean that the anomalies are related to the original building. If not original, then at this fort alone all later work began with the removal of the original work.

One minor problem is evident in the above phasing. The north-west pier of the west gate is to the same design of the south-west pier which was built to a design changed at foundation level, as shown by the redundant marking-out lines. A possible explanation is that the foundations for both piers were put in at the same time, and the design changed before building began on the north-west pier in the first phase. On the other hand, what little can be seen of the foundations of the south-west pier does not suggest high-quality work such as would go with the first phase on the north gate. It is not impossible that the marking-out lines on the south-west foundation were an error; there are certainly more lines than can readily be explained. The problem cannot wholly be solved without full excavation of the foundations of the west gate.

Another possibility is that the design of the gateways may have been changed very early on in the second phase. There is a hint that the north-west pier of the north gate may have been started to a design in which the pier face was flush with the curtain wall; the evidence from NG/NWF/2 and NG/NW1/2 gives tentative support to this.

The last stone of the sub-foundation on the south-east pier of the east gate, SEF3/15 is set back 150mm from the previous stone as if the builders were aware of

the A¹/B¹ quoin to be built above. The upper course of the sub-foundation of the north-west pier of the north gate runs straight through, as though the pier were to be flush with the curtain wall. The unusual quality of the lower part of the north-west pier of the west gate might then be the result of work on them having been started by the phase one builders and altered before fixing by the phase two builders. This is again tentative, but faces A¹ and B¹ are somewhat rougher than the rest and the internal return on NG/NW3/6 is distinctly less carefully worked than might have been expected, given the quality of the lower courses of the gate.

The above is very much a tentative hypothesis, but it does have some basis in the physical evidence. It certainly fits what is clearly a change of plan that lacks absolute and distinct boundaries. It would certainly not be impossible for stones partly worked in phase one to be fixed in phase two; it is in fact very unlikely that the phase one builders would have fixed all the stones they had worked. Building is an ongoing continuous process; at any given moment some stones would have been worked and fixed, some worked but not fixed, and some stones partly worked.

One hypothesis that might be expected to explain the change from phase one to phase two is that the most highly skilled men began the building of the gateways, in order to set out their positions, before handing over to less skilled gangs. If this were the case one would expect the skilled gang to put in the foundations and the first courses of all six piers on each gate but this is not what happened. The north gate foundations were not completed in phase one, in that the north-west pier foundation was not begun, yet the north-west pier of the west gate was largely completed. The appearance is of two or more gangs at work, with the intention of completing the gateways to at least the level of the capitals; it seems that some event took them off their work, which was completed in two further phases with decreasing skill and care for quality.

It is not possible to put any sort of timetable or chronology to the three phases. They may have followed very quickly, or may have been separated by months or years as the similar phases at Birdoswald appear to have done. What is clear is that the work was started to a high standard, continued at a lower but still acceptable level, and then deteriorated to a significantly lower standard where the speed of completion, or the almost complete absence of skill, became the governing factor.

Cutting away of foundations

One anomaly common to the south, east, and west gates is the cutting away of the foundations on the outer side in a manner that suggests the insertion of an upright timber close to the face of the pier above (pp 210, 214). It has been suggested that this relates to late Roman timber gateways or supports, but this feature

appears, so far as can now be seen, on only one pier of each gate. It is just possible that the alterations to the foundation of the north-east pier of the east gate is due to the insertion of a second post, but in the absence of excavation there is no evidence to support this. On the east gate at Birdoswald, face A of the east *spina* pier has two sockets cut into the face which may have held fastenings to secure a vertical post; this is somewhat speculative as their precise function is not known.

A curious feature of these cut-outs in the foundations at Housesteads is that at the south and east gates they appear on the left-hand side (as viewed from outside the gate) of the portal which remained in use after its twin had been blocked. At the west gate, the south portal seems to have been used more than the north, which suggests that the north was blocked first, which again puts the putative timber to the left of the portal in use. One could speculate that they were decorative rather than functional, perhaps holding the statue or emblem of an Emperor. This is a pure flight of fancy, but until more evidence is available their function as supports for timber gateways cannot be verified.

The use of the portals

There is little physical evidence from the south gate to show which portal had been used to the greatest extent. They both seem to have seen considerable use, although the east portal was blocked at some point in the Roman period. The steepness of the slope of the *via principalis* makes the use of wheeled traffic through this gate unlikely.

The west gate has a little more to show, but nothing that is beyond doubt. The south-east angle of the east *spina* pier and the north-east angle of the south-east pier have both been damaged at a height appropriate to cart hubs; similar damage is absent from the equivalent parts of the north portal. The south portal sill is more heavily worn than the north, but the differences in design of the sill may indicate that one or both have been renewed; on the other hand, they are both Hadrianic, to judge by their levels in relation to the pier foundations. The projecting lower course of the south-west and north-west piers are both worn on the top beds in a similar way, and to a similar extent. The south-east and north-east angles of the west *spina* foundation are both worn to the same extent by removal of the locking bars. The thorough excavation of the later roadways may have removed later evidence of wear. On balance the south portal may have been used more than, or for longer than, the north.

At the north gate there is no evidence of wear on the east side of the north *spina*. The evidence from the double upper pivot block is equivocal; in isolation, the physical remains suggest that either both portals were used, or neither. The wear on the foundations of the west portal is notable, but is certainly not all due to wheeled traffic. There is good evidence for a large part of the missing stone having been deliberately cut away.

The east gate presents the greatest problems. There is ample evidence for long use of the north portal, but no evidence at all for the south portal ever having been open. The north-east pivot and the two pivots on the *spina* are at approximately the same level (p 212) and must all be contemporary and original; the *spina* pivot serving the south portal was never finished. There is no evidence for the laying of the roadway. The pivot block at the south-east pier is almost certainly unrelated to the gate.

Only the east gate shows evidence for the use of wheeled traffic.

Wear on the projecting top beds

Unusual patterns of wear were noticed on the projecting beds of many of the stones at the base of the piers. Such wear is often ascribed to knife sharpening, and some of it may be due to this, but there is another possible cause. Even though the stones of the piers were almost certainly worked off the site, minor adjustments would be

needed and evidence for some of these has been mentioned above. The stone is extremely abrasive and constant sharpening of chisels and punches will have been necessary. It is very likely that stones already fixed would be used for this purpose, and perhaps more likely than constant knife sharpening by passing soldiers.

Conclusion

This report poses a number of questions related to the use of the gateways and the alterations that may or may not have been made to them during the occupation of the fort. Some of the questions could be resolved by excavation of the gateways, which (the north gate aside) have not been examined seriously since the 19th century. Other questions could be answered if it were possible to recover the details of the way in which the gateways were built. At present one can only speculate on the organisation of the work, although detailed examination, especially where alterations have been made, is beginning to reveal some small details.

9 The development of the defences and rampart areas

Introduction

The excavations in the north-east corner of the fort between 1978 and 1981 uncovered a fifth of the total rampart area available at Housesteads. Earlier work, by Simpson in the south-east corner (Sector 23 and part of 22) and by Clayton behind the west curtain (Sector 25, fully exposed again during Anderson's consolidation work in the late 1950s–early 60s) had already investigated a considerable extent of rampart, though inevitably without the full stratigraphic understanding possible through current excavation methods. However, the two trenches cut by Tait across the south rampart in Sector 24, to the west of the south gate and between the south curtain and the south wall of the *praetorium*, produced detailed sections that may be compared with the results of the 1978–81 campaign. The detailed phasing resulting from the 1978–81 excavations makes it possible to interpret and phase the less well understood remains in the other rampart sectors. In turn the work at Housesteads enables a clearer understanding of comparable evidence from other forts on the northern frontier, much of it again recovered in the 19th and early 20th centuries (Fig 9.1). It thus provides the best opportunity to understand the changing function of the rampart areas and their associated structures.

The combined phasing of the excavated rampart stretches, H20 and H21, can be summarised as follows:

1. The 3.35m (11ft) broad whinstone foundations of Hadrian's Wall were the first Roman structures on this site, preserved beneath the north *intervallum* road.
2. Construction of the primary Hadrianic fort defences followed, comprising the primary north-east angle tower, fort curtain and rampart banks. Water tanks were set into the inner face of the north rampart bank near the angle and the east rampart just to the north of a bakehouse. In the north rampart two short lengths of revetment wall were recognised, one approaching the site of the angle tower doorway. More extensive lengths of east rampart revetment were uncovered, but this was seen to be preceded by a stone kerb, and may even be Antonine rather than Hadrianic. The bakehouse probably contained a single oven, initially to serve the troops quartered in Building XIV.
3. The ramparts were probably relaid in the Antonine period following compression and settling of the turf layers in the primary bank. Another oven may have been inserted in the east rampart bakehouse, possibly to serve the troops quartered in Building XV following the latter's reconstruction as a bar-rack (H15 Phase 2).

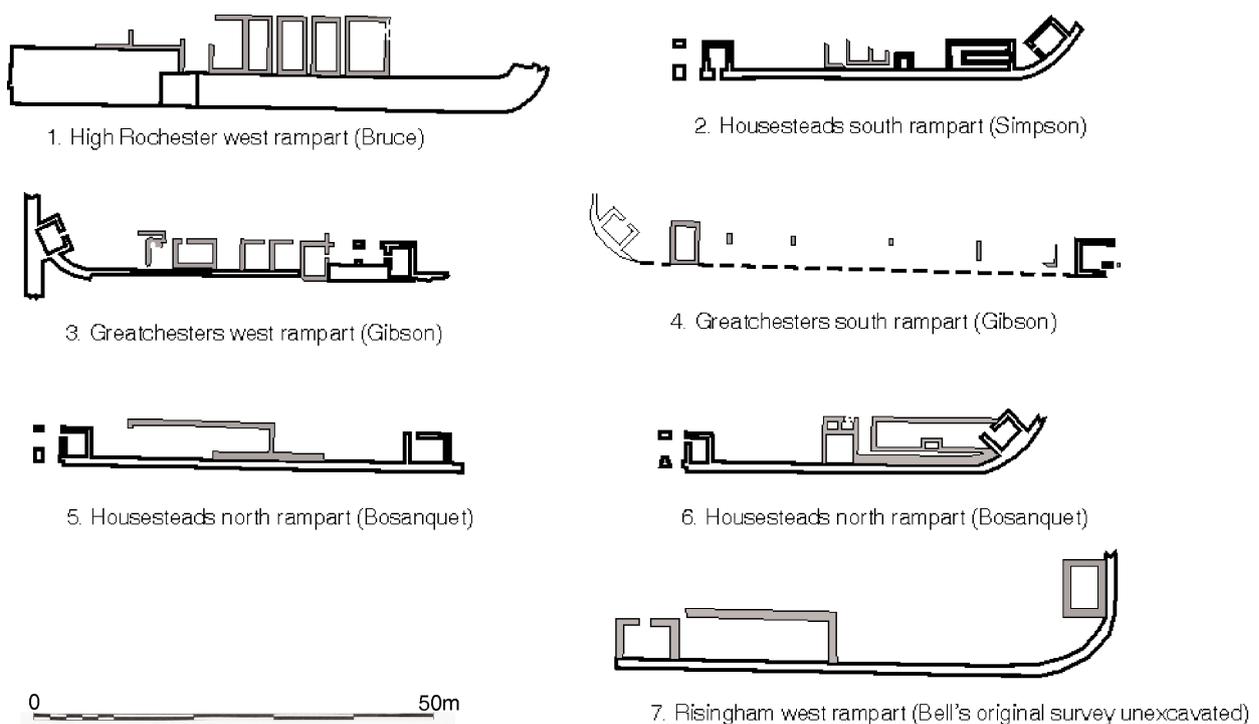


Fig 9.1 Comparative plans of rampart-back structures at Housesteads and other northern frontier forts (after Daniels 1980).

4. At the beginning of the 3rd century the rampart banks were removed and a series of workshops built in the vacant areas. Three workshops with large metal-working hearths were identified in the area previously occupied by the north rampart. The side walls were bonded to a reinforcing wall built against the inner face of the primary curtain to broaden the wall walk and compensate for the removal of the rampart. The outer face of the curtain may have been repaired at this stage also. Construction of the secondary angle tower and demolition of its predecessor was probably associated with these changes and with the Severan rebuilding of the Hadrian's Wall curtain. A bakehouse, containing a single bread oven, was located against the west side of the tower, probably to replace an oven within the primary angle tower.

In the east defences, workshops with metalworking hearths were also built in the vacant space both north and south of the bakehouse. No trace survived of a reinforcing wall built against the inner face of the curtain here. The bakehouse itself underwent a succession of alterations, culminating in its rebuilding as an L-shaped structure with a large new oven platform in the extended south-west corner. Relocation of the angle tower was probably contemporary with the removal of the rampart. A drain taking runoff from the alley between Buildings XIV and XV ran northwards alongside the east edge of the *intervallum* road, which was substantially raised, crossing the site of the demolished primary tower to discharge its effluent through the curtain at the north-east angle.

5. Probably around the middle of the 3rd century, the north rampart was partially reinstated to the east and west of the two workshops in the centre of the area, which remained in use. The expansion wall was largely demolished and covered by a clay bank. A new oven was built. Somewhat later on, the rampart bank was widened and retained by a new wall.

6. In the late 3rd or early 4th centuries, the rampart was fully reinstated and an interval tower constructed over the former workshops midway along. To the east, a solid stone platform was built over the oven in the angle formed by the circuit wall and the angle tower. (Alternatively this could have occurred a little earlier, contemporary with the widening of the reinstated rampart bank.) To the west, the sloping area beside the gatetower was left open and cobbled over. An open drain or gutter ran along the north edge of the resurfaced *intervallum* road. At the same time the curtain wall was probably rebuilt again, to a narrower width.

The east rampart was also reinstated at this stage and an interval tower constructed over the remains of the bakehouse. A large stone hearth plus metal-working scrap was found inside the tower. The *intervallum* drain was realigned to exit through the secondary angle tower.

7. Around the mid-4th century, the north rampart was widened with new revetment constructed over the gutter. The access to the interval tower was narrowed.

Around the same period, the east rampart was also widened with new revetment constructed. A flagged floor was laid in the interval tower.

8. The new north rampart never seems to have fully stabilised. A series of further revetments represent attempts to contain the slumping rampart. The problem was most dramatic to the east where the rampart became very wide, almost reaching Building XIII, presumably as a result of the material slumping down the pronounced west-east slope. It was probably during this phase, or perhaps the preceding one, that part of the north curtain collapsed. Indeed this may have been the source of the problem, perhaps prompting an over-ambitious heightening of the rampart to compensate for the failure to rebuild the curtain. This stretch of earthen defences may have had a timber parapet set back from the line of the curtain. The interval tower had probably also collapsed or had to be demolished when the curtain fell and was apparently reconstructed in timber, as evinced by large postholes in the corners of the stone tower.

The latest feature in the east rampart is a V-shaped rubble-filled cut in the bank, probably a soakaway for a drain issuing from a latrine in the easternmost chalet (1) of Building Range XIII.

9. The final phase of the north *intervallum* street was represented by a heavy flagged surface, overlying a thick layer of dark soil (probably slumped or eroded rampart material).

10. A trackway crossed the northern defences just west of the interval tower, passing through a gate in the field wall that ran along the crest of the north rampart. The association of a medieval pottery sherd with this farm track suggests it may have a long history as an access route into the fort.

Together these can be used to interpret the other stretches where the extant structures can only be relatively dated as a result of earlier, less systematic, investigation.

Fort curtain

Description

The original height of the fort curtain wall can be estimated by projecting upward the line of the stone stairs found behind the south curtain to the west of the latrines (Crow 2004a, 30). This indicates that the wall-walk was at least 4.2m (c 14ft) above the outer ground surface. This estimate is similar to that recently suggested from South Shields based on the slope of the rampart bank (approximately 4.5m (15ft)). Evidence from the standing Roman fortress walls at York and

Chester and from the fort at Worth in Germany, where the full extent of a collapsed wall was uncovered, all broadly concur with this estimate from Housesteads. The wall is relatively narrow, at only 1.30m (4ft 3in.) in width, in common with other fort circuits of the period, and would have been topped by a parapet at least 0.30m (1ft) wide, leaving a very narrow walk. This narrowness would have been compensated for by a turf, earth and clay rampart sloping up from the interior of the fort allowing a broader walkway or fire platform. The wall's current freestanding appearance is the result of clearance in the 19th and early 20th centuries, which has largely removed the rampart bank behind the curtain as well any collapsed debris in front. Only at the south farm gate, which allows access by vehicle into the fort, can some impression of the appearance of the circuit prior to Clayton be gained.

The wall was built with roughly shaped sandstone blocks bonded with lime mortar and similar to those used on Hadrian's Wall. These facing stones had a square face and a long tail projecting into the core of the wall. There was an offset foundation at the base of the wall, normally one to two courses high. The core of the wall was of sandstone rubble bonded with lime mortar. A feature of the primary fort construction, which can also be seen at Milecastle 37 (Housesteads) and in an early phase of Hadrian's Wall at Sycamore Gap, is the use of a course of thin flat sandstone slabs used as a levelling course at intervals of 1.2–1.5m (4–5ft) in the Wall face. This string course is to be seen at a few places on the outer face of the consolidated curtain of the fort. However, it is far more common on the inner face, where it features along extensive lengths of all four sides. Indeed the outer face presents a much less homogeneous appearance than the inner, revealing how extensively the exterior fabric was repaired and reconstructed during the Roman occupation. Particularly distinctive are the long blocks incorporated at many points around the circuit, most notably along much of the length between the east gate and the south gate, at the south-west angle and the north-west angle (Crow 2004a, 105, illus 56; Daniels 1978, 147–8; F G Simpson 1976, 139–40). They also figure on the north quoins of the east gate. These clearly demonstrate the curtain was rebuilt from a relatively low level at these points.

Structural history

The best understood curtain wall sequence derives from the excavation of a stretch of the external face and berm to the east of the north gate in 1984 (Crow 1988). Three main structural phases were recognised:

1. Hadrianic construction of the fort wall; the north and south sides show that there was a shallow construction trench for the footings of the wall and it is not surprising that the wall proved to be unstable over the next three centuries.
2. Major repairs were carried out towards the end of the 2nd century, at the same time as the new buildings were being constructed against the interior of the fort wall.
3. On the north rampart, a narrow curtain wall was built about AD 300 and a new rampart bank was constructed against the interior. There was evidence for further repairs before part of the north curtain wall collapsed after the middle of the 4th century AD. This collapse was not repaired; the lower courses were left as a kind of revetting wall for a wide rampart behind.

The thin levelling course is probably the clearest indicator of Hadrianic work. Its occurrence implies that the inner face of the curtain underwent very little rebuilding. Presumably the support provided by the rampart bank during the 2nd and 4th centuries, and by the replacement 'expansion wall' during the 3rd century, would have protected the inner face, preventing the curtain from collapsing inward. The circuit walls were relatively stable to the north-east and west, but elsewhere, and especially at the corners and on the south and north sides where the walls were built on a slope with the weight of the rampart bank behind them, frequent and extensive repairs were needed, most clearly demonstrated by the long blocks. Most vulnerable of all were the southern angles, where the weight of a substantial proportion of the east or west ramparts on the slope above was pressing down against the curtain. Periodically this must have caused the curtain to lean forward, bringing the parapet and most of the outer facing crashing down. However, the inner facing, and presumably therefore much of the core, apparently remained upright, providing a basis for repair. The long stone blocks do not feature in the dated sequence excavated on the north curtain, but presumably represent material derived from buildings using similar stones either within the fort or, perhaps more likely, the *vicus* (such blocks are characteristic of the quoins of *vicus* Building V outside the south gate, for example). Hence, their use in the curtain is unlikely to be earlier than the late 3rd century.

Rampart Sectors 22–27: introduction

A sector by sector summary of what is known from earlier work on the other stretches of rampart at Housesteads is provided below, followed by a discussion of the structural phases. The summary proceeds in a clockwise direction around the circuit, beginning with Sector 22.

Rampart Sector 22 (east gate to south-east angle tower) (Fig 9.2)

Description

Part of this area was cleared during the 19th century to reveal the curtain wall, while the south-east bastle was entirely removed at some point between 1860–95.

Further work was undertaken by Simpson in 1910–11 as part of the investigation of the south-east angle and latrine. The stretch around the south-east angle, comprising Rampart Sectors 22 and 23, contains the most complex structural sequence yet revealed outside the north-east angle and is rivalled only by Rampart Sector 25.

Immediately south of the east gate a length of expansion wall set against the curtain, noted by Bosanquet in his 1898 plan, has been fully consolidated. It stands up to four courses high, and tapers towards the south. The ground surface between this feature and the east walls of Buildings XVI and XVII is level, suggesting the *intervallum* road deposits are probably undisturbed here. To the south, however, there is a steep cut and the modern ground surface slopes steeply from the east side of Buildings XVII and XVIII, an indication that this area was cleared in the 19th century, either by Clayton or Bosanquet. A Gibson photograph (NRO C8/40 = 61) of the large latrine cistern being emptied in 1898 shows only the expansion wall was clear on the east curtain at that stage, but Bosanquet's overall plan suggests structures such as the late interval tower were eventually revealed in this sector. Moreover, photographs of Simpson's excavation shows a similar profile as seen today (F G Simpson 1976, fig 59; HWA 5911). No trace can now be seen of the sub-rectangular structure shown on Bosanquet's plan between the expansion wall and the interval tower. This may have been another of the solid stone-faced platforms which abutted the inner face of the curtain wall at various points along this circuit.

The interval tower midway along this stretch is fully exposed and stands up to eight courses high on its north side. It was consolidated by the Ministry of Works, but the expansion wall south of it is unconsolidated and is capped in turf. Below it an earlier wall, shown on Simpson's plan (F G Simpson 1976, pl 13 and fig 59) may still be seen, but is in an unstable and ruined condition. Because of the clearance of the inner face of the curtain only a part of the later *intervallum* road abutting Buildings XVII and XVIII is likely to survive.

Structural history

The extant features in this area are comparable to some of those recorded in recently excavated Sectors 20 and 21 and can be phased accordingly.

The exposed wall beneath the southerly expansion wall probably forms the north wall of a primary bakehouse. Traces of a bread oven that would have been housed by this bakehouse were revealed by Simpson just over a metre to the south. These remains were later overlain by the most northerly flushing tank for the latrines. The two lengths of expansion wall presumably reflect the removal of the rampart bank in the 3rd century while the late interval tower and perhaps the stone

platform reflect a progressive refortification in the later 3rd or beginning of the 4th century, like the comparable features added to the north-east defences. However, the degree of preservation of the expansion wall might indicate that the rampart was never fully reinstated in this sector.

South-east angle tower

Description

The south-east tower was initially cleared by Clayton in the 1850s and thoroughly investigated by Simpson in 1911–12 (F G Simpson 1976, 138–9). Smith dug a small sondage in the west corner in 1968 to investigate the footings (Smith 1968). It possesses a number of unusual features with respect to the other angle towers at Housesteads. The doorway of the primary tower was placed in the centre of the inner wall rather than in the normal position and can easily be distinguished despite the neat blocking. The replacement doorway was located at the north end of the south-west side wall and was itself blocked when that wall was rebuilt. The surviving course of the reconstructed south-west wall can clearly be distinguished sitting on top of the broader primary wall (Simpson's 1911–12 excavation photographs show two surviving narrow courses but one has been consolidated as a wide course), and is of the same narrow width as the secondary outer wall. The latter is set back from the line of the curtain, essentially transforming the tower into a freestanding structure.

Structural history

The history of this tower is linked to two factors: firstly, the development of the latrines and their complex water supply arrangements, and secondly, problems with the stability of the curtain wall on the steep slope. In its earliest phase, the tower contained a bread oven in the east corner of the ground floor. The original doorway was blocked and replaced by one in the south-west side wall when a large water tank feeding the latrines was sited right beside the tower's inner wall, preventing access on that side. Replacement of the primary oven by another overlying it perhaps occurred at the same stage. More radical remodelling of the tower, to form a freestanding structure behind the curtain, was undertaken during the later Roman empire, perhaps at the end of the 3rd century or later in the 4th century (cf Crow 2004a, 110). This was presumably designed to prevent the structural integrity of the tower being compromised by any further collapse of the circuit wall around the angle, and was probably contemporary with the repairs to the curtain manifested by the long blocks incorporated in the exterior facing around the south-east angle. In addition, a flagged floor was probably laid over the remains of the earlier bread ovens at this stage.

The latrines (Site XIX)

The latrines in the south-east corner of the fort are perhaps the most memorable structures at Housesteads. They were excavated in 1898 (Bosanquet 1904, 249), 1910–1911 (F G Simpson 1976, 133 ff) and 1968 (Smith 1968, with unpublished Simpson photographs) and consolidated in 1963. The sewer outfall beyond the curtain wall was located in 1911 and excavated in 1932 (Birley *et al* 1933, 92, pl 3); a glass slide from this excavation shows the trench outside the SE angle (NU Box 'Housesteads'). The long-lived building underwent repeated modifications, mostly associated with attempted improvements to the water supply. This complex structural history has been analysed in detail by Smith (1968, reproduced in F G Simpson 1976) and Crow (2004a, 41–5) and requires no repetition here, other than to note the impact of these modifications on the adjacent tower and rampart areas.

The primary arrangement relied on rainwater flowing through the fort drains to flush the latrines. This system would only have been effective during or after rain. To alleviate this problem during dry spells, the large cistern next to the angle tower was added. The cistern's construction resulted in the blocking of the original doorway into the angle tower and necessitated the construction of a new one in the south-west wall, opposite the latrine entrance. A stone channel led from the base of the cistern to the north-east corner of the latrine and there is a notch in the top of the slab above the channel to allow the overflow to run into the latrines. The smaller tank set into the rampart back to the west of the latrines appears to have been connected by a stone channel at the same time as the large cistern. Later an additional cistern was constructed to the north of the angle tower. This was of similar size to the south cistern and was constructed into the rampart bank at its south end and over a bakehouse with two ovens to the north. The cistern was lined with clay and only had slab sides to the south and west; a system of conduits led to the southern cistern. No trace of this water tank is visible today.

During consolidation of the latrines in 1963 it was seen that the western end wall had collapsed, probably at the same time as the fort wall, and that a new entrance was constructed in the west partly to reduce the weight at this point. The new fort wall was rebuilt on a slightly extended radius and the alignment of the first wall survives as a footing above the sewer outfall.

Rampart Sector 23 (south-east angle tower to south gate) (Fig 9.2)

Description

Several structures can be seen in the area immediately west of the latrines (*HCP*: A22) comprising from east to west:

Steps: Four treads remain, belonging to a set of stone steps that originally must have been set into the rampart bank and have ascended to the curtain wall walk (the concreted rubble on which they are presently set is the result of modern consolidation). Each tread is composed of three oblong blocks similar to the construction of the steps that ascended the east end of the 3rd-century expansion wall in Rampart Sector 20 (*see* Chapter 4). Projecting the rise of these steps upwards shows the height of the curtain wall-walk above the outer ground surface was at least 4.2m (*see HCP*: A27).

Stone platform: A solid rectangular stone platform similar to the examples encountered in Rampart Sectors 20, 24 and 25 butted up against the inner face of the curtain just west of the steps. It stands six courses high.

Bakehouse: Immediately north of the stone platform two walls, three–four courses high, set at right angles were identified by Simpson as forming the east and north walls of a bakehouse. Three stones arranged in a slightly curving alignment set against the north face of the platform may form a surviving fragment of the side wall of a bread oven within the bakehouse, as suggested by Simpson.

Water tank: A stone water tank lies immediately north of the bakehouse. This was one of the tanks feeding the latrines (*see HCP*: A22). It was similar in size to the tanks recognised along the east and north ramparts and beside the north gate (cf *HCP*: A32–33, A39, A26) and was around a third of the size of the main tank next to the south-east angle tower.

Interval tower: To the west of the platform an interval tower can be seen abutting the inner face of the curtain. The size and form of this example are typical of the late interval towers added elsewhere along the eastern half of the curtain (Rampart Sectors 20–22, cf *HCP*: A32–34). Its walls stand eight courses high and the doorway is in the normal position.

Rampart buildings: No trace can now be seen of the open-fronted, rampart buildings uncovered by Simpson in 1911 to the west of the interval tower (F G Simpson 1976, 149 and fig 61). This area was probably backfilled following excavation, but the remains of the rampart buildings may be preserved beneath the turf. Originally, the range probably extended further eastwards, this end being lost when the interval tower was constructed. Within the main building, two short partition walls and a couple of hearths were located. To the west, the walls of an extension were not bonded to the remainder of the building and lacked outer facings, suggesting that they were set into the existing earth rampart. The room contained two levels of flagged flooring and a central hearth. West of the interval tower, a trench has been cut to reveal the lower part of the fort wall and will have destroyed any structural relationships with the rampart back.

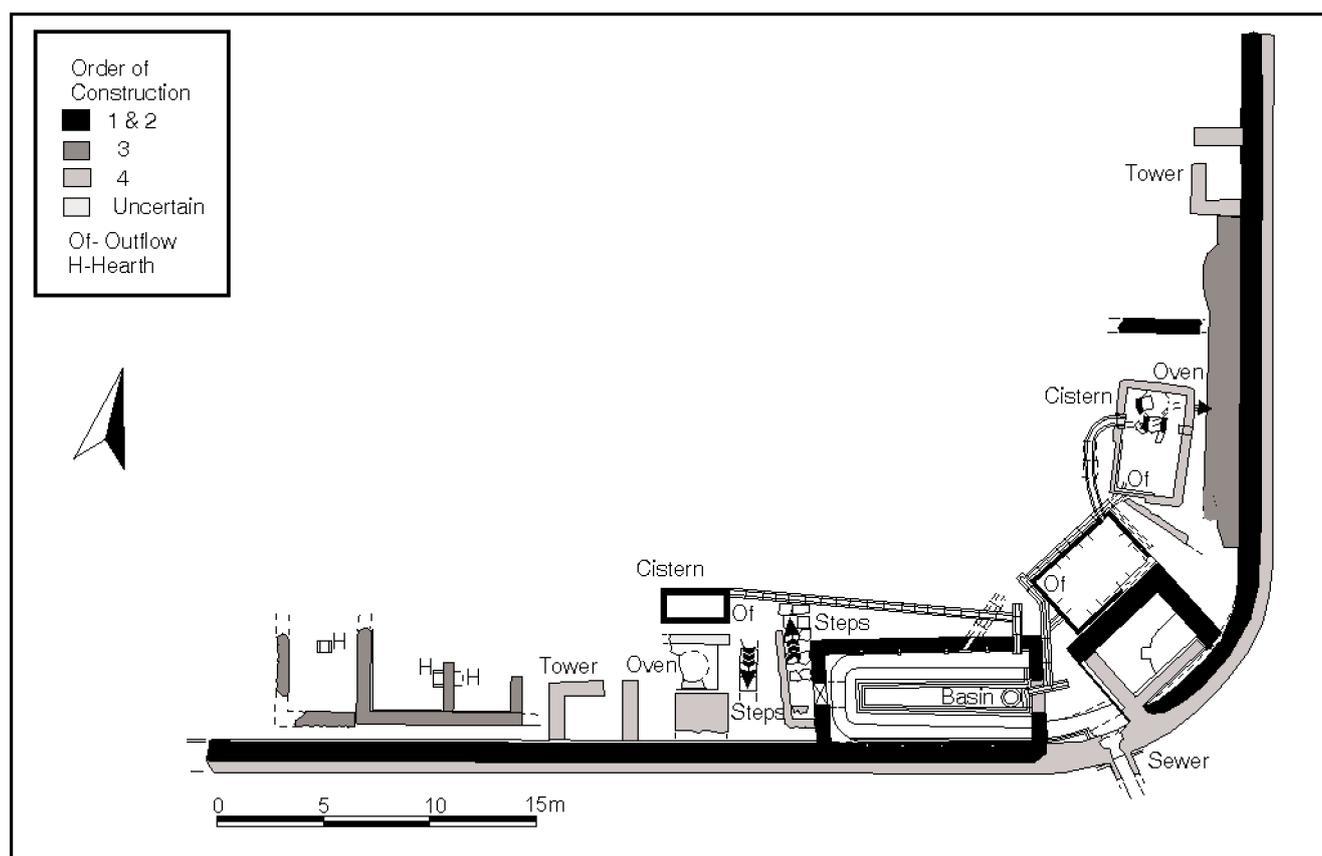


Fig 9.2 Plan of structures around the south-east angle (Rampart Sectors 22 and 23).

Structural history

Simpson's excavations enable a partial structural sequence to be established for this area. The rampart buildings resemble the workshops excavated in north Rampart Sector H20 in 1978–9 and most likely belong to the same early 3rd-century remodelling of the rampart areas, although it is unclear whether they too accommodated metalworking activities, like their north-eastern counterparts. Similarly the interval tower and stone platform are paralleled in the late 3rd- to early 4th-century phases of the north-east defences. The steps may belong to broadly the same phase, set into a short stretch of late rampart bank between the latrines and the stone platform. The bakehouse is more problematic. The south end of its east wall apparently butts up against the north-east corner of the stone platform, implying the bakehouse was broadly contemporary with or later than the platform. However, this neat relationship could conceivably be the result of modern consolidation rather than the original structural sequence, in which case the bakehouse may have been demolished to make way for the platform.

Simpson reported that 'a little medieval flagging' was found on top of the west wall of the rampart building. This was presumably associated with the long-house or the south gate bastle.

Rampart Sector 24 (south gate to south-west angle tower)

Description

Investigation of this sector has been very limited. Some clearance of the rampart bank was presumably undertaken by Clayton to reveal the curtain west of the present access gate. The cut along the inner face of the curtain recorded in Tait's section (1963) may well also represent the efforts of Clayton's workmen to reveal and repair the wall. The interval tower was discovered and planned by Bosanquet (1904, 246). Thereafter the only work known to have taken place in this area was the excavation of two trenches through the rampart deposits by Tait in 1962, south of the *Praetorium* (Building XII), at distances of 7.5m (25ft) and 27.6m (92ft) west of the west tower of the south gate (Tait 1963).

This sector preserves the longest undisturbed length of rampart surviving in the fort. It is bisected by the vehicle access ramp. An interval tower is located to the east and partly below the farm road into the fort and was the only detail in this stretch shown on Bosanquet's published plan. Traces of the east wall and doorway could be seen in the road surface until the early 1980s, but were then covered over. Between the field gate and the south-west angle tower the inside face of the curtain wall has been cleared and up to



Fig 9.3 Line of altar bases in the south defences – Sector 24 (1898) (*Hadrian's Wall Archive 6498*).

eight courses of masonry are displayed. East of the interval tower up to the south gate only one or two courses of the inner face of the curtain are visible and these are tipped outward, which suggests the inner face of this wall has neither been re-set nor consolidated. Traces of rampart buildings may be seen in this area, including a length of wall with the outer face 1.5m from the curtain, similar to the south wall of the rampart buildings west of the interval tower in Sector 23. In addition, there is a short length of wall at right-angles to the curtain, and also a rectangular base or platform faced on the outside only. None of these features has been consolidated.

An early photograph from Housesteads (HWA 6498) shows three altar bases side by side (Fig 9.3) and a note in J P Gibson's album attributes the bases 'from previous excavations' following Dickie's comments in Bosanquet 1904, 271–2. Dickie notes they 'were found lying in a line inside the camp near the south-west tower'. They were 'quite near the surface' and he argued they had probably been collected during earlier excavation but had then been buried and forgotten. They were later moved and an Anderson photograph shows them leaning against the south-west angle tower. Subsequently they were to be found among the carved stonework in the 'stone park' laid out just south-east of the west gateway, which was all removed in 1989 to the stone store in the Dutch barn at Housesteads farm.

Despite Dickie's comment, it is possible that the bases were *in situ* in the south-west corner of the fort, associated with two altars of *Deo Huitri/Veteribus* found in Building VI (*RIB* 1603, 1604).

Structural history

The section drawing from the more westerly of Tait's trenches was incorporated in his report (1963) and represents the only published example from the fort interior prior to the appearance of this volume. Together with the work in the north-east corner of the fort, the sequences recorded by Tait in this area provide the best guide to the history of the ramparts. In the light of the evidence from the north-east defences, the stratified sequence may be summarised as follows from bottom to top.

1. Bedrock with buried soil cut into by the curtain wall construction trench. The bedrock rises by 5ft (1.5m) over 38ft (11.2m) between the curtain wall and the south wall of the *praetorium*.
2. Curtain wall, 12 courses in height over the foundations (7ft – 2.15m), backed by a primary rampart of turf with a stone kerb 15ft 6in. (4.2m) from the curtain. The kerb is 5ft 3in. (1.6m) below the modern turf line. No trace of an associated road surface is described.

3. A secondary rampart bank of sand with a kerb 17ft 6in. (5.1m) from the curtain; it is 4ft 3in. (1.3m) below the surface. Antonine pottery was found in this layer.
4. A black, greasy, layer which sealed 3; in it was a late 2nd-century pottery bowl.
5. A makeup layer of earth and clay for large stone flags (a workshop surface?) that extended across the earlier rampart. The flagging abutted the *intervallum* road. An expansion wall, 6ft (1.8m) wide, with a single wall face and a clay and rubble pack, lay behind the curtain. It is 1ft 3in. (0.4m) below the modern surface.
6. The rampart bank was reinstated and the first of the late rampart kerbs is located above the large flagstones of 5 at a depth of 2ft (0.6m). The kerbs lies 17ft (5.2m) from the curtain wall. A late 3rd-century dish was found in the bank material.
7. A later, higher retaining wall is located 15ft 6in. (4.75m) from the curtain wall, 1ft 3in. (0.4m) below the surface.
8. North of the rampart, a flagged surface, 8ft (2.45m) wide, overlay a deposit of dark soil, 'several inches' thick, which covered the previous *intervallum* road surface. This flagging probably represents the latest structural feature in this part of the southern defences.
9. Against the inside of the curtain wall is a trench 3ft 9in. (3.2m) deep, 3ft 3in. (1m) wide, which cuts through all levels down to the base of the secondary rampart (3); all subsequent construction levels associated with the later rampart banks have been destroyed.

The known structures may be integrated into this sequence. The interval tower that interrupted this long stretch formed part of the primary defences of the fort (2), like the corresponding example in Sector 27 in the north defences (*HCP: A39*), which was bonded to the curtain. The wall parallel with the curtain to the east of the interval tower probably represents the south wall of a rampart building contemporary with the expansion wall and flagged flooring observed in Tait's trench, and signifying the removal of the primary/secondary rampart banks in the early 3rd century (5). Finally the rectangular base or platform forms one of a group of such structures also visible in Sectors 20, 23, 25, and perhaps 22, which appear to form part of the progressive refurbishment of the defences in the late 3rd to early 4th century and may represent '*ballistaria*' (6).

South-west angle tower

Description

The remains were uncovered by Clayton in 1854–55 and consolidated by the Ministry of Works in 1952. Inside the tower, a secondary expansion wall is set against the inner face of the fort curtain. This inward widening would have enabled the upper levels of the tower's outer wall to be set

back from the outer face of the curtain to provide greater stability on the difficult slope. No evidence for a bread oven has yet been uncovered within the south-west tower.

Structural history

The tower evidently underwent substantial reconstruction, probably during the later empire, necessitated by instability of the curtain wall at the angle. Clear evidence of repairs to this stretch of the circuit is provided by the distinctive long blocks used in the outer facing (*see HCP: A27*). The resultant arrangement, with the outer face of the tower presumably set back, resembles that adopted at the south-east angle, with the difference that there the tower was given a freestanding outer wall leaving it independent of the curtain.

Rampart Sector 25 (south-west angle tower to west gate)

Description

The southern half of west rampart sector, H25, contains a complex group of structures of more than one phase. The south-west angle tower and adjacent rampart structures were cleared in 1855 (*PSAN* 1, 51) and planned by Bosanquet in 1898. The extant remains north of the tower were consolidated in the 1950s. Anderson has provided an invaluable, detailed photographic record of that work, showing the monuments with the turf covering removed prior to consolidation (*Anderson, Housesteads Album I*, nos 194–213; *see* Figs 9.4 and 9.5 here). This complex group of structures has never been adequately recorded archaeologically, with stone by stone plans and elevation drawings.

Expansion wall: A low, single-faced wall up to four courses high runs parallel with and just over 1m from the curtain wall (Fig 9.4). This represents another length of expansion wall.

Rampart building: In front of the expansion wall is the west wall of a rampart building which runs northward from the angle tower to butt up against a bakehouse. This survives best at its south end where it abuts the north-west wall of the angle tower and stands up to six courses high. The east (inner) wall of this building, which is shown on Bosanquet's plan running along to the north-east wall of the angle tower (*see* Fig 1.4), is no longer visible. The north-west corner of the building overlies the south wall of the bakehouse.

Stone platform: A solid rectangular stone platform, five courses high with two offset courses, is built against the inner (east) face of the workshop west wall. A 2m long section of single-faced wall, three courses high, set directly against the inner face of the curtain, lies parallel with the platform and may originally have formed part of it.



Fig 9.4 The expansion wall face or narrow rampart revetment south of the bakehouse in Sector 25, looking north.

Bakehouse: At the north end of this group of structures lies a bakehouse (Fig 9.5). Like its counterparts in Sectors 21 and 26, this structure clearly witnessed a great many alterations during its existence. Slight traces of two low wing walls can be discerned in front of the bakehouse, designed to retain the rampart on either side of the original entrance. The remains of two circular ovens are visible inside. The more southerly example is half-buried behind a later retaining wall. The second oven is much clearer, with a flagged floor and reddened stones set on a platform in the north-west corner. There is room for another example in the north-east corner on the same platform (traces of this third oven are visible on one of Anderson's photographs). The south side of the building was truncated when the rampart building was erected, turning it into a slightly L-shaped structure. Anderson's consolidation photographs reveal evidence for several phases of remodelling, but the precise form of these is difficult to interpret fully.

North of the early bakehouse, no structures are shown on Bosanquet's plan. The curtain has been cleared to display 11 courses of stonework. If there were any rampart buildings, perhaps of timber, these will have been extensively damaged by this clearance of the fort wall.

Structural history

The bakehouse is probably a primary structure. With its pair of wing walls it has a very similar plan to the excavated bakehouse in the east rampart sector, H21. Its walls feature the thin levelling course seen in the Hadrianic curtain.

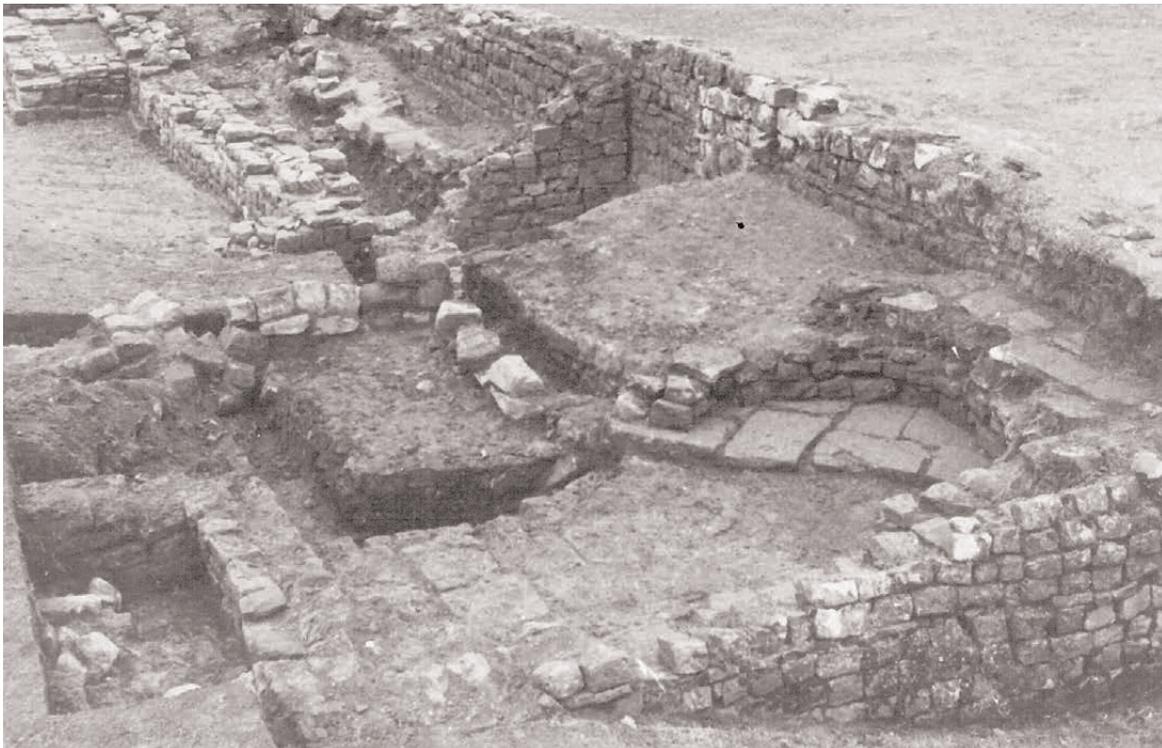


Fig 9.5 The bakehouse and other structures uncovered by MoW consolidation work in Sector 25.

The expansion wall and rampart building wall probably belong to the 3rd-century phase involving the removal of most of the rampart bank and construction of workshops in the vacant area behind the curtain, which has been recognised along most other stretches in one form or another. The bakehouse clearly underwent some reduction in size in this period and many other minor alterations, with the southern oven going out of use and evidence for a flagged floor at a high level overlying even the northern oven.

The rectangular stone platform forms one of several such structures associated with the late 3rd- to early 4th-century phase of defensive refurbishment.

Rampart Sector 26 (west gate to north-west angle tower)

Description

The inner face of the curtain was cleared by John Clayton and survives to a height of about 14 courses. Two, much lower, unconsolidated walls abut at right-angles to the curtain and form the north and south walls of a bakehouse, recorded more fully on Bosanquet's overall site plan (1904, pl xix; reproduced here as Fig 1.4). One of these walls is also depicted in a sketch made from a contemporary Gibson photograph (HWA 5083; Bosanquet 1904, fig 21 – note that this is incorrectly captioned and shows the fort wall north of the west gate, not the east gate).

Structural history

Very little is known of the history of this rampart sector and much of the stratigraphic evidence is likely to have been destroyed or damaged by 19th-century clearance. Bosanquet's plan of the bakehouse presents a confusing impression and clearly represents more than one phase of development, suggesting the building had a complex structural history, like its counterparts in Sectors 21 and 25. There is no evidence to support the existence of the interval tower which Bosanquet infers on his overall plan, immediately to the north of the bakehouse. No archaeological investigation is documented in this area after Bosanquet's work in 1898.

North-west angle tower

Description

The north-west angle tower is the only one to retain its primary form substantially unaltered. Its walls stand eight courses high. The present floor of the tower is well below the level of the ground surface in the interior of the fort to the south. This reflects the build up of archaeological deposits within the fort and the drastic manner in which the defences were uncovered by

Clayton's workmen. The upper course of a bread oven wall can still be seen projecting through the modern gravel surface in the interior.

Structural history

The tower was partially cleared by Clayton in the 1850s, but virtually all that is known of the history of this structure results from F G Simpson's excavation in 1909 (Simpson 1976, 126, pl 12, fig 46). The published photographs show that Simpson dug to a depth of three courses below the present surface. Typically, the primary tower housed a single bread oven located in the north-west corner of the chamber, furthest from the doorway. This was later covered by a secondary flagged floor, fragmentary traces of which were noted by Simpson. An early photograph shows the doorway into the tower blocked up (NRO C8/117), evidence that agrees with Hodgson's description of the towers having been filled up (Hodgson 1840, 187, *see also* Bruce 1863, 123), and suggests that the ground-floor room may have been turned into a solid platform at a late stage.

Rampart Sector 27 (north-west angle tower to north gate)

Description

The inner face of the curtain, including the interval tower, was cleared by Clayton in the 19th century to a maximum depth of seven courses of stonework. This is reflected in the sharp dip in the present interior ground surface down to the base of the curtain. Clayton's trench removed much of the fabric of the interval tower situated midway along this stretch. The scars left by the removal of the east and west side walls can be seen in the consolidated inner face of the curtain. The interior of the tower has been emptied, leaving the inner faces of its walls visible. It is uncertain when this occurred. The tower was not noted by either Clayton or Bosanquet (and hence is omitted from Bosanquet's plan – 1904, pl xix) despite being cut through by Clayton's trench along the inside of the fort wall, and there is no earlier record of the scars in the curtain. It is, however, marked on the 3rd edition Ordnance Survey map of 1925, so it may have formed part of F G Simpson's work on behalf of the Clayton estate. The south wall and doorway of the interval tower survive to a height of four courses. In the centre of the tower is a stone setting for a post supporting the floor above. South-west of the tower is a stone-lined water tank filled with a later cist burial (*HCP: A15*). Several trenches were dug along the southern limit of Sector 27 by Richmond in 1945 to investigate the original course of Hadrian's Wall. The water tank may have been uncovered and emptied at this stage like Turret 36b.



Fig 9.6 Surviving expansion wall behind the north curtain in Rampart Sector 27 (Hadrian's Wall Archive).

Further east towards the north gate, stone rampart buildings and an expansion wall can be seen built against the curtain (Fig 9.6). These were found during the clearance work carried out by Clayton before 1857 and probably represent the best-preserved length of expansion wall – rivalled only by the unconsolidated length in Sector 22 – and the most complete rampart building currently visible at Housesteads. The west wall of the rampart building is bonded into the expansion wall and survives six courses high at that point. The other two cross-walls and the south wall are lower. The latter rests on modern underpinning over the north wall of Turret 36b. The expansion wall itself stands up to ten courses high. From the early description, the expansion wall was identical in form to that more recently excavated in north Rampart Sector H20, with a single outer face and a core of clay and rubble (Bruce, *PSAN* 1, 1855–57, 257). Its west end has been consolidated with a gradually ascending ramp-like form, which conveys a misleading impression that the wall was intended to provide access to the wall top. A photograph taken *c* 1898 shows this structure prior to consolidation (NU glass slide box 68; *see* Fig 9.6). Further trace of internal buildings is suggested by the unconsolidated wall to the west of Turret 36b. Some undisturbed floor levels may survive within the rampart buildings east of the expansion wall, but further east, towards the north gate, the interiors have been lowered and cleared to show the inner face of the curtain. A circular hearth was described by Bruce close to the north gate and probably lay in this lowered area (*PSAN* 1, 257; Bruce 1867, 149).

Structural history

Bruce records that in 1850 a cremation burial was found in the north-west part of the fort and among the grave goods was a coin of Hadrian. This burial predates the construction of the fort (Bruce 1851a, 425; 1853, 408), but its exact location is not specified. The Broad Foundation of Hadrian's Wall was laid along the ridge, roughly in the area of the later *intervallum* road.

The interval tower was clearly a primary structure. The scars left in the inner face of the curtain by Clayton's removal of the east and west side walls of the tower demonstrate these walls were bonded into the curtain. This is not the case with any of the secondary interval or angle towers added at various points along the defences during later refortification. The water tank may well also have been an early structure, set into the inner face of the rampart, by analogy with those excavated in the north-east defences.

The other features recognised along this stretch, the expansion wall and the rampart buildings, are characteristic of the 3rd-century phase which, again, has been documented in detail in the north-east defences. The presence of a hearth may indicate these rampart buildings functioned as workshops, like those along the north-east defences. As in Rampart Sector 22, the degree of preservation of the expansion wall here might indicate that the rampart was never fully reinstated in this area.

The latest activity recognised in this sector is the insertion of a cist burial into the water tank and the erection of an east-facing, apsidal building, perhaps a church, immediately adjacent (*see* Chapter 7; *HCP*: A15), probably in the early medieval period.

Discussion

The structural sequences in the north-east ramparts have been detailed in Chapters 3–6. This closely matches the best stratified sequence previously recorded from the ramparts at Housesteads, namely the sections cut by Tait in 1962 through the south rampart sector, H24, west of the south gate.

The 2nd-century rampart has been characterised as a distinct ‘transitional zone between the fort’s defences and the garrison’s daily requirements of food and hygiene’ (Crow 2004a, 38). Apart from the defensive gates and towers, the rampart areas were reserved for a very restricted range of structures, namely bakehouses, located there because of fire risk perhaps, and hydraulic installations – cisterns and latrines. This to a large degree segregated the functions of large-scale food-processing, water supply and sanitation from the accommodation and storage buildings of the interior on the other side of the *via sagularis*.

This formality was apparently preserved in the Antonine phase of the defences, which involved widening the rampart by *c.* 0.60m. This may have been designed to counter settling in the bank as the lower turf layers gradually compressed under the weight of the material above. It may be speculated that the top of the rampart bank had settled well below the top of the curtain wall and hence no longer provided convenient access to the wall-walk. The Antonine phase of the rampart in the north-east sectors, H20 and H21, was not recognised at the time of excavation, but it is implied by the pottery found within the rampart deposits, and was clearly identified by Tait in the sections he cut across the south rampart.

The subsequent, rampart-back structures in the north-east corner were shown to be early 3rd century in date, apart from the east rampart bakehouse, which, like the latrines in the south-east corner, was probably erected in the primary (Hadrianic) phase. A 3rd-century date accords with the limited evidence for the buildings behind the other stretches of fort curtain, in particular the building revealed by Simpson between the south gate and the latrines (cf Daniels 1980, 187). The construction of these structures was thus not contemporary with the building of chalet-type barracks. Moreover, there probably wasn’t even any overlap in use in the north-east corner, the buildings against the curtain there being replaced by a reinstated rampart with new interval towers at the same time as the chalets were erected.

The buildings along the north-east defences clearly functioned as workshops for metalworking. A series of large stone hearths (eg H20:5:63) were constructed in both rampart sectors, and saw repeated modifications. Analysis of the substantial quantities of metalworking debris, comprising scrap metal, crucibles, moulds, metal droplets and slag, demonstrates these workshops were principally devoted to copper alloy working and indicates that the full-scale manufacture of equipment

was taking place in the rampart areas of the fort during the 3rd century. To judge from the moulds recovered, the objects being made were belt buckles or suspension loops (cf Bishop and Coulston 1993, fig 40.2b, 59.15, and especially 134.3). By contrast, only limited evidence for iron-smithing was recovered (and most of this derived from modern or unstratified contexts).

In its range and quantity, the metalworking debris from Housesteads exceeds that from other Roman military sites in Britain. Its discovery raises the question of whether similarly abundant evidence for metalworking has been missed at other forts because excavators have been looking for distinctive *fabricae* – represented by a specific building type – rather than *ad hoc* workshops set into the ramparts, or located in annexes (see Chapters 11 and 20 for further discussion). There is much less evidence regarding the function of the rampart-back structures along the other stretches of the defences, although they too probably functioned as workshops or sheds. The buildings excavated by F G Simpson in Sector 23 certainly featured well-preserved hearths, but they and the similar structures identified in H25 and H27 could have served a variety of manufacturing, repair or storage functions.

The construction of the rampart buildings appears to mark a reorganisation of some significance around the beginning of the 3rd century, though not necessarily a change of garrison since it is not matched in the adjacent barrack block, XIII. It is, moreover, perhaps paralleled at Vindolanda (Bidwell 1985, 72–4). The new structures are discordant with that earlier formality of fort layout. The underlying causes of this reorganisation are difficult to interpret. There is no clear evidence to link it directly to the arrival of the German units attested at Housesteads in the 3rd century. Indeed it seems to form part of a more general pattern as rampart-back buildings are known at other forts in northern Britain, notably Greatchesters, High Rochester, Risingham (cf Daniels 1980, 187–8), Vindolanda (Bidwell 1985, 46–7, 72–4) and Birdoswald (Wilmott 1997, 179–83), and it is likely that more will come to light as further work is carried out. As far as may be determined, the dates of the rampart-back activity at these sites concur with those at Housesteads. Construction of rampart-back workshops might reflect contemporary changes in the *vici*, with some activities now being taken ‘in-house’ and undertaken by the troops themselves, or perhaps indicate altered patterns of equipment supply and maintenance. Alternatively it may indirectly reflect overcrowding within the forts caused by the stationing there of additional units (*numeri*) requiring the demolition of the workshops that had previously occupied some of the main building ranges of the fort (eg IV and XV at Housesteads) and the erection of barracks or stables in their stead. Building XV had probably functioned as a workshop in the primary phase of the fort but was subsequently rebuilt, first as a barrack and then as a stable in the later 2nd and 3rd centuries.

The workshops probably continued in use until the mid- to late 3rd century. The evidence from the north-east quarter shows that the ramparts were initially only partially reinstated in a somewhat piecemeal fashion. This work took place in three successive stages. However, the last of these stages, involving the complete reinstatement of the rampart bank, formed part of a major rebuilding programme involving the reconstruction of many internal buildings – barrack accommodation, the central range and the great storehouse on Site XV – as well as strengthening the defences. The latter comprised repairs to various stretches of the curtain wall (Crow 1988, 67–71), the full reinstatement of the ramparts plus the addition of interval towers – these last two both well illustrated by the excavations in the north-east quarter. The blocking of the remaining portal of the west gate and the construction of embanked earthwork defences on the east, west and south sides of the fort (*see* Chapter 10), could also plausibly be attributed to this programme of renovation, although the earthworks, in particular, could just as convincingly be assigned a later date.

Also associated with refortification of the fort was the construction of stone platforms against the inner face of the curtain wall and probably rising to the full height of the curtain. The best known is that revealed in the 1978–9 excavations (H20:3:18/31), built in the angle formed by the curtain and the secondary north-east angle tower, but several others are known at Housesteads alone. One example on the west curtain, near the south-west corner (Sector 25), was consolidated by Anderson for the Ministry of Works. Another was revealed by F G Simpson behind the south curtain in Sector 23 (Simpson 1976, facing p 144, pl xiii); a third is shown on Bosanquet's plan in Rampart Sector 22 (Bosanquet 1904, pl xix), and a fourth has been identified behind the south curtain in H24 (Crow 1989, 26–7 (fort plan)).

The distribution of these platforms is not restricted to Housesteads. A very similar structure has been recorded in the north-east angle at Vindolanda (cf Bidwell 1985, 45, fig 17). It consisted of a stone-faced platform of rubble and earth adjacent to and perhaps originally abutting the north-west side of the north-east angle tower, a position that corresponds remarkably closely to H20:3:18/31 at Housesteads. Although the facing was unmortared and many of the stones were only roughly worked, some care was taken in its construction. It was set on a solid foundation of whin boulders and sandstone rubble, which supported a flagged base pecked with setting lines for the superstructure, while well-cut, possibly reused, stone blocks were used at the west corner of the structure where greater strength might have been required of the facing. A second such platform may have existed at Vindolanda, at the north-west angle (Bidwell 1985, 40), although its construction technique was somewhat different. In this case, its stone revetment skin was faced on both sides, and the structure was set right

at the angle, with no evidence for the presence of a conventional angle tower. It is possible therefore that this example could simply represent the solid clay- and rubble-filled base of a small tower, even though it was labelled the 'gun platform' by the excavator (Birley 1932, 217). This is paralleled by a rather larger example at Binchester (Dobson and Jarret 1958, 115–17). At Halton Chesters, however, another solid base of pitched stone and clay was found set into the north rampart, east of the north gate, in 1936 (Simpson and Richmond 1937, 167–8). A similar feature may have existed on the west curtain of the *praetentura*, where the wall was found to be nine feet thick at one point, according to Bruce's informant, when it was revealed during the 1820s (Bruce 1851a, 160; 1867, 106).

Comparable structures – solid platforms faced with stone – have also been revealed at Risingham (Bruce 1851a, 160) and High Rochester (Richmond 1936, 180–1; cf Bruce 1867, 323). These were interpreted by Bruce and Richmond as solid, elevated platforms for torsion artillery, and labelled *ballistaria*, adopting the term mentioned in two inscriptions of earlier 3rd-century date from High Rochester (*RIB* 1280, 1281). This interpretation of the term has been questioned by Campbell (1984, 75–84) and Donaldson (1990, 210–13). The former has argued that the term *ballistarium* should be translated as 'a sheltered emplacement for light arrow shooters', while Donaldson suggested that 'a magazine and workshop for the garrison's *tormenta*' was signified. However, Donaldson (1990, 210), unlike Campbell (1984, 82–4), does not reject the possibility that the stone platforms were intended to provide emplacements for missile-discharging engines at wall-walk level.

It is difficult to determine a firm absolute date for these structures, given the period and circumstances in which most were revealed. Even the recently excavated example next to the north-east angle tower did not seal any diagnostic pottery or coinage. Instead they can only be given a relative date based on their relationship to other structures. Thus the stone platform in Sector 25 clearly stratigraphically overlay and cannot have functioned at the same time as the rampart-back (workshop?) building in that area, which can be assigned an early 3rd-century date by analogy with the similarly located workshops in the north-east corner. The platform in H23, near the south-east angle, cannot be phased in relation to the rampart-back buildings, but apparently either respects or is respected by the oven in the small bakehouse immediately to the north, on the evidence of the consolidated remains and F G Simpson's plan (1976, pl xiii). In contrast, the example in the north-east corner overlay two phases of oven in the north bakehouse, both of which appear to be 3rd century in date, contemporary with the life of the workshops. Thus it is likely that a later 3rd-century date should be applied to these structures at Housesteads. They may form part of the definitive phase of defensive refurbishment (H20/4a, H21/3),

which should probably be attributed to the Tetrarchy and has traditionally been associated with the work of Constantius Chlorus, but a slightly earlier date (equivalent to Phase H20/3d) is also conceivable, before the complete removal of the workshops and full reinstatement of the ramparts.

Their function is uncertain, but these solid stone structures are most plausibly interpreted as platforms designed to support heavy torsion catapults. For the most part they were too small to represent the bases of towers and, although they predominantly lay close to the angles of the fort enceintes, with the odd exception they were not positioned right on the angle. In other words they were too small and too close to the existing angle towers to represent new interval towers, yet not ideally located to serve as replacements for the original angle towers. This is particularly clear in the case of the two examples at the north-east corners of Housesteads and Vindolanda, both of which probably adjoined the pre-existing tower. Thus, whether or not they were originally designated *ballistaria*, the existence of these stone platforms as a distinct structural type, which has been found virtually wherever extensive areas of fort ramparts have been excavated on the northern frontier, certainly merits wider recognition.

The two interval towers that were excavated between 1978–81 in the north-east quarter were matched by a pair of corresponding towers along the south-east defences, in Sectors 22 and 23. It is clear that these were all secondary additions and may be assigned to the late 3rd- to early 4th-century restoration of the defences. None were bonded to the curtain wall, unlike the primary angle towers or the two primary interval towers on the long stretches between the south gate and south-west angle (H24) and the north gate and north-west angle (H27). However, no comparable towers have been identified along the other stretches of the curtain apart from the two primary interval towers. While it is conceivable that a late interval tower could lie undiscovered in Sector 24, given the minimal investigation yet undertaken there, it is much more difficult to explain the apparent absence of any such towers on the western defences in this way. An extensive range of structures, including a bakehouse, a curtain expansion wall, a rectangular building (workshop?) and a stone platform, were revealed in Sector 25, between the south-west angle and the west gate, by Clayton's workmen and later re-exposed and consolidated by Charles Anderson's Ministry of Works team. It is apparent that neither of the bakehouses identified behind the curtain to the north and south of the west gate was overlain by a tower in a similar manner to their counterpart in H21.

The absence of any secondary towers on the western defences is significant, since this side of the fort was tactically the weakest, the only one that was overlooked from higher ground. Logically, one might expect that this would have received the greatest defensive attention. The location of all the new interval towers around

the eastern sector of the enceinte, rather than the tactically weaker west side, suggests that they were positioned in relation to the east gate, the *porta praetoria*, which remained the principal entrance into the fort. The relative importance of this gateway had probably increased by this stage. The north and west gates were completely blocked save for narrow postern entrances. One carriageway of the south gate remained open, but the demise of the *vicus* may have correspondingly reduced the significance of even this entrance. The positioning of the new interval towers appears to have been designed to create an imposing multi-turreted façade flanking the *porta praetoria* and stretching round the angles towards the north and south gates. The size of the whinstone foundations of the two interval towers investigated in the north-east corner suggests these structures were intended to rise to a considerable height and it is reasonable to suppose that the pre-existing angle- and gatetowers underwent a matching refurbishment at this stage.

Thus it is clear that, as with so many Tetrarchic fortifications, the new defences were, in large part, intended to convey, in stone, the power and authority of the empire. A similar concern for the visual impact of the defensive enceinte is demonstrated in work of this period at Birdoswald, where a striking band of white coral was included in the facing of the east curtain (Wilmott 1997, 185, 192, 202). The turreted east façade at Housesteads makes an intriguing comparison with the rebuilt riverine frontage of the legionary fortress at York, with its elaborate array of projecting polygonal towers. Whereas the latter was executed using the new military architecture found throughout the empire, the defences at Housesteads employed the more traditional architectural idiom typical of the conservative British *exercitus*, but the overall aim may have been the same and the visual impact of the densely turreted façade would nonetheless have been striking.

The evidence relating to the latest phases of the fort's north-east defences are discussed in detail in Chapters 6–7 and 11, with reference to similar features at other sites where relevant. These were characterised by the widening and perhaps heightening of the rampart. The final alterations to the northern defences, in particular, display an increasingly irregular form, with the earthen bank spreading wider and wider as a result of the slumping of rampart material and the collapse of a stretch of the north curtain wall. The curtain was never apparently repaired after its collapse, with reliance instead apparently being placed on the widened rampart, possibly with a timber parapet. Construction in timber seems to have become a more prominent feature, with not only the interval tower in H20 being rebuilt in this manner but also some of the gates, to judge from the slot cut into piers of the east, west and south gates. The final external appearance of the fort will have been very different from the very formalised primary fort, though perhaps no less functional.

These changes were probably reflected along other stretches of the defences, although the same problems with the stability of the rampart were not necessarily experienced there. Hodgson recorded the final form of this rampart (before its widespread removal by Clayton) as ‘a terrace, made of earth and clay, which ran from tower to turret along the inside of the wall to the height of about 5 feet above its foundation’ and observed that the insides of the gate-, angle- and interval towers had been filled up with clay to the same level (1840, 187). No trace of such filling remained in any of the towers along the north-east defences because of earlier clearance. A photograph of *c* 1898 shows the doorway of the interval tower in H21 was blocked at that stage, but Hodgson’s own sketches suggest it was open at the time of his excavations in 1833, so it is possible that the tower was blocked later in the 19th century, perhaps for reasons of site and livestock management (*see* Chapter 1). However a photograph of similar date (NRO C8/117), showing the north-west angle tower, reveals the doorway of that tower was also blocked at that stage, which would accord with Hodgson’s description. While the later modifications to the north and east defences involved widening the rampart (which would also have enabled heightening) the corresponding alterations to the south defences, as revealed by Tait’s sections in Sector 24, differed in that the new revetment wall was actually closer to the curtain than its predecessor, but was set at a higher level, its footings standing on or cutting into the tail of the previous phase of rampart (equivalent to Phases H20/4a, H21/3b). In both cases, however, the overall aims were probably identical, namely to achieve a higher and more stable rampart bank.

It is unclear whether the external earthwork defences (*see* Welfare in Chapter 10 below) were erected in the late 3rd to early 4th century, contemporary with the new interval towers and full reinstatement of the rampart, or were constructed later in the 4th

century, reflecting the increasing reliance on earth and timber defences from that time on.

Maintenance of the north-east defences, however irregularly executed, appears to have continued for as long as the adjacent barrack range (XIII) was occupied. Thus, the latest phases of north rampart revetment, Walls Ji and Jii, and the secondary north wall of Chalet 4, traced parallel courses, and the frontage of Chalets 3, 4 and 5 was recessed in relation to the remainder of the range of chalet-*contubernia*, corresponding to the very area where the rampart bank attained its greatest width. The final structural episode associated with the northern defences was represented by the areas of heavy flagging laid over the thick deposit of dark earth – perhaps material that had slumped or washed off the rampart bank – which covered the *intervallum* road. This flagged surface actually extended over the north ends of Chalets 6 and 7, implying that those two chalets at least were abandoned or partially abandoned by then. Once again the laying of large flagstones over a dark soil deposit covering the *intervallum* road is paralleled along the southern defences in the sections cut by Tait in H24. The precise function and significance of these areas of flagging is uncertain. There is no indication – in the form of hearths, postholes or associated walls – that they represented the internal floors of structures erected over the *intervallum* road, but neither did the surviving flagging in H20 form a continuous resurfacing stretching the full length of the *via sagularis* in this sector. Perhaps other sections of the flagging had been robbed at a later date. Nor is it clear whether this feature forms part of a continuing sequence of uninterrupted activity in this part of the fort or, conversely, represents renewed occupation after a hiatus of unknown duration. At any rate the flagging certainly reflects prolonged activity in the *intervallum* zone, and it is not unreasonable to envisage this stretching into the 5th century, or even beyond, if there was a hiatus in occupation.

10 Investigation in the environs of Housesteads, 1976–1995

This chapter is devoted to several programmes of field-work conducted in the immediate environs of Housesteads fort during the 1970s and 1980s, namely the landscape survey carried out by the Newcastle office of the Royal Commission on Historical Monuments (RCHME) and the excavations conducted by J G Crow. An initial summary of previous investigations is provided, followed by a retrogressive analysis based on the Royal Commission's landscape survey and reports on the 1987 Housesteads Farm and 1988 Knag Burn Gate excavations and the water pipe trench beside Chapel Hill monitored in 1976. The chapter concludes with a discussion of the present state of knowledge regarding the chronology and, in particular, the date of abandonment of the *vicus*, drawing specifically on the coin evidence presented in Chapter 13.

Previous work in the *vicus* and environs (Table 10.1)

The 19th century

Work in the *vicus* began in 1822, with the unearthing of the west end of the *mithraeum* by Gibson's field-dykers. Their discoveries were recorded by Hodgson (1822, 273–5, fig 4 facing p 263); 1840, 190 and facing plan). However, it is not altogether easy to equate his plans and description with those revealed by Bosanquet's work (1904, 260–1).

The Knag Burn gateway was first excavated by Clayton in 1856 (Clayton 1855–7, 51–3, 186–8). In 1857 the stretch of the Wall between the gateway and the fort north-east angle was cleared (Bruce 1857, 234–5). The entire area around the fort was mapped by MacLauchlan between 1852–4 as part of his survey of the Wall. The course of the Military Way, the Vallum, and the south-east approach road from the Stanegate are clearly marked, as are several features associated with later land use – stack stands and such like. Both columns south-east of the fort are marked on the revised edition of the map in Bruce 1867.

The settlement in the valley bottom near Chapel Hill was investigated by Clayton in 1884, following the discovery of an altar and pieces of a carved arch (*CSIR* 159–61; *RIB* 1593–4) at the foot of the north slope of Chapel Hill in November 1883. Close comparison of Clayton's description (Clayton *et al* 1885, 170) with that provided by Bruce (1885, 152; cf also 1884, 142): shows excavation here was restricted to the apsidal building enclosing a Roman well, just north of the findspot:

Clayton: On opening out the grass-grown ruins of the Temple of Mars ... was found ... some [building stones] and a large heap of rubbish.

Bruce: The spring ... had been concealed by loose stones and herbiage.

Bruce is clearly paraphrasing Clayton, who evidently considered the apsidal building to be the shrine of Mars Thincsus and the Alaisiagae, surely correctly, the spring within having been previously concealed by collapsed stonework ('building stones'/ 'loose stones') and vegetation ('rubbish'/ 'herbiage'). This conclusion has several important implications. It ties the surviving well and apsidal structure to the shrine's important epigraphic and stonework assemblage and to the Frisian troops, whose presence at Housesteads during the early to mid-3rd century is recorded by that epigraphic assemblage (*see* Chapter 11). Secondly, it suggests that the 'crudely built' circular building, subsequently found overlying a *vicus* workshop to the south-east and identified by its excavator, R E Birley, as the shrine (1962), should instead be interpreted as a post-*vicus* structure, most probably a stone roundhouse of the kind used by the rural population of northern Britain throughout later prehistory and the Romano-British period.

In addition 'several exploratory trenches were cut in various parts of the Chapel Hill' (Clayton *et al* 1885, 171). The latter trenches failed to uncover any structural traces, except perhaps robber trenches. Further trial trenches were opened in the valley bottom, between the well and the *mithraeum*, in 1898, as part of Bosanquet's programme of work (*PSAN* 2 ser 8, 1898, 213; Bosanquet 1904, 205). Waterlogged deposits, containing leather and woodwork, floor surfaces and traces of walling are recorded.

However, the principal element of Bosanquet's work outside the fort, in 1898, was complete excavation of the *mithraeum* (1904, 255–63). North-east of the fort, the Knag Burn well was cleaned out (1904, 253–5), and the 'amphitheatre' trenched north-south and east-west, establishing its true function as a quarry (1904, 252–3).

The 20th century

A decade later, in 1909, the interior and mouth of the lime kiln, west of the Knag Burn, was excavated by Simpson (*PSAN* 1909–10, 3 ser 4, 95–6, 152–3; F G Simpson 1976, 152–9).

After the burst of activity in the late 19th to early 20th centuries there was then a lull until the next major phase of work in the 1930s. Limited excavation of the *vicus* between 1931 and 1934 established a plan and layout of the settlement core, south of the fort. Fully documented evidence for the chronology was lacking, however, since most of the pottery remained unpublished (but *see* Chapter 14 for the coins). Of 18 known

buildings only 6 were fully excavated and the remaining 12 were partially traced (Birley and Charlton 1932, 226–32; Birley *et al* 1933, 85–91; Birley and Charlton 1934, 185–93; Birley and Keeney 1935, 247–57).

The course of the Vallum, from the Knag Burn – where it ceases to be obvious on the ground – to the *vicus*, was traced by seven trenches, including one revealing the causeway directly south of the south gate (Birley and Charlton 1932, 225–6; 1934, 185–90; Birley *et al* 1933, 91). These also suggested that the creation of the terraces belonged to the Roman period (as above; Birley and Keeney 1935, 241–2).

In 1932 several additional trenches were opened in areas outside the central built-up core of the settlement (Birley *et al* 1933, 91–2). One was dug to test the length of the bath-house beside the Knag Burn. Other trenches were put in further south, on the west side of the Knag Burn close to the recumbent column, in the area where numerous carved stones and inscriptions were reported by the 18th-century antiquarians. Occupation levels were identified, but no structural remains. On Chapel Hill, one trench was cut along the crest of the hillock, and another at its foot on the north side, but again, no buildings were found. The Knag Burn gateway was excavated in 1936 (Birley 1937, 172–7).

The next major programme of excavation was the investigation of the settlement in the valley bottom, directed by R E Birley in 1960–61 (R E Birley 1961; 1962). The well enclosed by the apsidal Mars

Thincsus shrine, first uncovered by Clayton in 1884, was re-examined, together with a large hall building, a workshop, strip buildings and roadways of the valley settlement. Overlying the workshop, 20m south-east of the well, was a smaller and more crudely built circular structure, perhaps a later roundhouse (*see above*). The area was extremely waterlogged and further work was shelved.

Two trenches were also put across Chapel Hill, uncovering a north–south aligned earthen rampart (or clearance feature), and one into a probably modern (17th to 19th century?) clearance cairn ‘near the Knag Burn, 30 yards north of the corner of the field walls that limit the fort field in its south-eastern corner’ (R E Birley 1962, 126).

Only limited work has been carried out outside the fort since 1961.

Under the supervision of I W Stuart (then Inspector of Ancient Monuments), a section was cut across the Wall, 25m to the east of the eastern guardchamber of the Knag Burn gate, preparatory to consolidation in 1975. A maximum of six Roman courses was revealed remaining under the drystone Clayton Wall (interim note in *Britannia* 7 (1976), 309; *see* Crow forthcoming). The western half of the gate itself was examined by J G Crow before the construction of new access in 1988 (*see* Crow below; interim note in *Britannia* 10 (1989), 273). The stonework of the gateway and curtain has been recorded in detail by A Whitworth. The corresponding

Table 10.1 Excavation, survey and discoveries in the environs of the fort

<i>date</i>	<i>nature of investigation</i>
1822	W end of <i>mithraeum</i> revealed, recorded by Hodgson
1852/4	MacLauchlan survey – roads and marsh column marked
1856	Knag Burn gateway excavated by Clayton
1857	Wall cleared from fort NE angle to Knag Burn gate
1883–4	Mars Thincsus altars, well and apsidal shrine, Chapel Hill trenched.
1898	Amphitheatre, Knag Burn well, <i>mithraeum</i> , trenches in area SW of valley-bottom well (Bosanquet)
1909	Lime kiln excavated (F G Simpson)
1920	Second Alaisiagae altar (<i>RIB</i> 1576) found just W of first
1931–4	Excavation of the <i>vicus</i> around the S gate; trenches along the course of the Vallum (Birley, Hedley, Keeney)
1932	SE area by the Knag Burn, Chapel Hill and the length of the Knag Burn bath-house trenched
1934	<i>CSIR</i> 30 discovered SE of the fort
1936	Knag Burn gate re-excavated
1960–1	Valley-bottom settlement excavation – well, large hall, workshop, circular building, area to SW, Chapel Hill, roadway to E, and cairn to E
1965	Repairs to Knag Burn curtain, E of gate?
1975	Section across the Knag Burn curtain E of the gate. AML geophysical survey and auguring W and S of fort
1976	Consolidation of the Knag Burn curtain, E of the gate
1976	Watching brief in the valley settlement SW of the well
1982	<i>CSIR</i> 349 discovered in car-park.
1986	RCHME survey of Housesteads <i>vicus</i> and environs
1987	Terrace between the farm and museum excavated
1988	W side of Knag Burn gate passageway investigated
pre-1993	Masonry of Knag Burn gateway and curtain recorded
1994	Masonry of the Wall curtain from NW angle to wood recorded
1999	Excavation for a drain along front of <i>Vicus</i> Buildings I and II
2003	Magnetometry and resistivity survey S and W of the fort

stretch of Wall curtain on the west side of the fort from the north-west angle to Housesteads Wood was similarly recorded in spring 1994.

A watching brief was carried out by J G and J A Crow during 1976, in the valley bottom settlement area, during the laying of a water-pipe south-westwards from the well (*see below*). Again, exceptionally well-preserved organic deposits, including fern floor-coverings and a shoe (*see Chapter 14: The leather*), were recorded.

After clearance of the site for the National Trust Information Barn, beside the B6318 car-park, a fine relief carving of two female figures was found (Blagg 1985 – sadly the sculpture was destroyed when the Information Centre was gutted by fire in 1984).

Two trenches were dug by J G Crow 1987, in advance of car-park construction, to examine the terrace running between the farm and the museum (*see Crow below; Britannia 19* (1988), 434; Daniels 1989, 55). A number of successive features – palisade, gully, fences, etc – were identified that preceded the construction, possibly during the 3rd century, of the terrace revetting wall. More recent reuse of the terraces was also indicated.

The most significant programme conducted in this period was undoubtedly the detailed field survey of the earthworks and field systems in the environs of the fort completed by the Newcastle Office of the RCHME in 1986. This provided a framework within which any future excavation or environmental work outside the fort may be integrated and is incorporated below. It was complemented by a geophysical survey (resistivity and magnetometry with augering for comparison) undertaken in 1975, but the results from the latter were disappointing. Resistivity showed features visible on the surface, but no previously unknown sub-surface features; while the magnetometry was inhibited by the high remanent magnetism of the Whin Sill (*AML report*). Most recently a narrow trench was excavated for drainage purposes along the frontages of *Vicus Buildings I and II* by Newcastle University Archaeological Practice (Archaeological Practice 1999). A paved road surface was noted. In April 2003, geophysical survey was undertaken to the south and west of the fort (Biggins and Taylor 2004). This principally employed magnetometry techniques with only a small area of resistivity, and yielded significantly better results than those obtained by the earlier geophysical survey programme. The information provided regarding the layout of the *vicus* may be considered in conjunction with the aerial photographic data and the results of the 1930s excavations.

Survey of Housesteads environs

H G Welfare

Geology and landscape form (Fig 10.1)

The geological structure of the area around the fort has not only been a factor in shaping the land into a rhythmic succession of scarps but has also, in large part,

determined the formation of the soils and the way in which the slopes have been exploited. Indeed, when compared with the plan of the earthworks, the geological diagram (Fig 10.1) illustrates just how closely the structure is related to the archaeology.

In the succession of scarps the strata have been tipped steeply southwards and have subsequently been eroded differentially to form a landscape characterised by a series of rocky crests and troughs, like ocean rollers. The most prominent crest is that formed by the Whin Sill. An igneous intrusion, composed of dense dolerite, it is much more resistant to erosion than the surrounding strata, and provided ideal natural defences for the Roman frontier. However, it is impervious and only poor, thin soils (not suitable for arable cultivation) have formed over it. At Housesteads the lower slopes of the hill below the fort consist of a limestone (the Shotto Wood limestone: Frost and Holliday 1980, 36) into which the dolerite was intruded and over which good fertile soils have developed. This occupies most of the southern half of the field and – together with the southerly aspect – accounts for its attractiveness to farmers and thus for the formation and extent of the terraced fields of former arable. The south-eastern corner of the field, where the terraces have not been formed, lies on thick sandstone (overlying the Shotto Wood Limestone), which is also the basis for Chapel Hill and the ridge leading to the west. On either side of Chapel Hill the solid geology (soft shales) is deeply overlain by drift deposits and, on the south side of the Hill, by peat, all of which has very poor natural drainage. Farther south again, the crags and the ridge occupied by the Military Road and the Information Centre are again of sandstone.

Apart from affording natural defences for Hadrian's Wall and for Housesteads fort, this geological variety provided sandstone for the face of the curtain wall, dolerite rubble for the core, and lime for the mortar. The scarpland topography also gave the long and fertile dip slope below the fort, which provided the only good conditions for arable agriculture in the immediate vicinity. This conjunction of circumstances had profound implications for the later use of the landscape.

The remains of arable agriculture

Viewed from the ground or from the air, the dominant features of this landscape – apart from the fort and the Wall – are the remains of arable agriculture. Survival is exceptionally good but, in consequence, it is also extremely complex; many periods and phases are evidently represented – from the two terraces proven to be of the Roman period (*see below*, p 249) to the Inclosure of 1797 (NRO QRA 50: Thorngraston, reproduced as Fig 10.2 here) – although all too few elements can be adequately dated without further excavation. Some older assumptions were untested and were unsafe; eg it was unwise and misleading to assert (Birley and Keeney 1935, 241–2) that all the terraces were of one period.

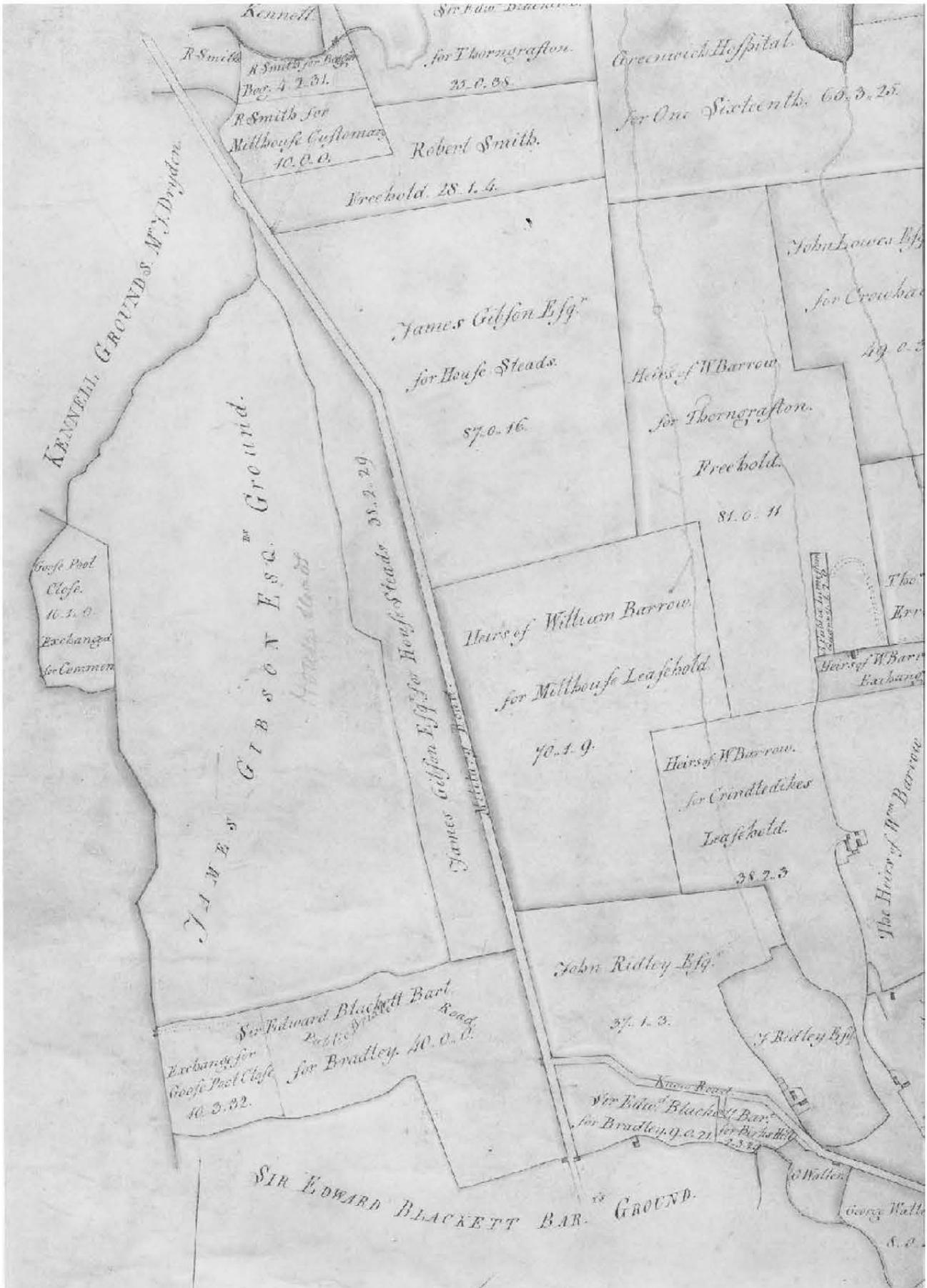


Fig 10.2 Housesteads field as shown on the Thorngraston Inclosure map, 1797 (NRO QRA 50 – reproduced with permission of Northumberland Collections Service).

Nevertheless, analytical survey has revealed a number of relationships. The sequence that is emerging will be sketched out retrogressively, by and large, beginning with the most recent phases, in order to identify and isolate those features that may be contemporary with the fort and its *vicus*.

The inclosure of Thorngrifton parish was made in 1797 (Inclosure Award and Map, NRO QRA 50; see Fig 10.2); this, marking the shift from an arable regime to a pastoral one, probably only confirmed a change that had already taken place before the height of the agricultural Improvements. Some of the field walls probably date from this time, or comparatively soon thereafter, including the one along the north side of the Military Road, then a generation old, which the landowners, the Gibsons (Hodgson 1840, 394–5), were charged to ‘make, erect and maintain’ (Inclosure Award, NRO QRA 50).

The cultivation of Housesteads had still been in full swing in the early years of the 18th century. In 1702, Christopher Hunter wrote that at Housesteads he had found, and transcribed, part of an altar: ‘... I am in hopes of recovering the other part as soon as Harvest is over, this part having been tore up by the Plough’ (Hunter 1704, 1131). Except for the negative implication that the altar (*pace RIB* 1609) was not found on Chapel Hill, there is no indication of a more exact provenance.

The cultivation is likely to have been intensive. In 1694, Thomas Armstrong of Housesteads was involved in litigation about the lease of part of Housesteads ‘now occupied by Thomas Armstrong, adjoining and intermixing Dale by Dale with a tenement at Housesteads in possession of Nicholas Armstrong’ (NRO 2219/70). (The word ‘dale’ or ‘dole’ is ‘a strip dealt out or allotted, or a strip of pasture left between furrows of ploughed lands’: Heslop 1892, 224, 242.) There is no reason to suppose that this intensity of cultivation had not been continuing for some considerable time; Nicholas Armstrong, and his brothers, were arable farmers but they were also horse-thieves and receivers of stolen goods (Scott 1814, xciv–v, xcix). No doubt their predecessors – such as the horse-thief Hugh Nixon of Housesteads, who escaped from Newcastle gaol in 1620 – found that their thefts (documented in Ornsby 1878, 445, 458) were a profitable way of filling the slack periods in the arable calendar. As early as 1604, it was recorded in the royal survey of ‘the Debateable and Border Lands’, that Nicholas Crane ‘houldeth *parte* of House Steeds’ (Sanderson 1891, 56), with the strong implication that the land supported more than a single household. These historical notes are of importance because they highlight the fact that this is a *multi*-period landscape: the ground that helped to support the Roman garrison was also the ‘infield’ of the post-medieval farmsteads.

Ground observation and examination of the best aerial photographs (especially CUCAP K17 – AU 28–9 and K17 X 4–6) strongly point to the fact that

the latest episode of ploughing – the last in the sequence of ridge-and-furrow – ran along the contours. It cut through the fossilised line of the north mound of the Vallum (just to the east of the most southerly extant *vicus* building: see below) and obliquely across the scarps of two terraces, of which only the western stumps now remain (No. 1 on Fig 10.7; all subsequent numbers in brackets in the text of this section refer to this detailed survey of earthworks). All of this late ploughing survives in the form of gently curving ridge-and-furrow, rather irregular in width but generally about 3.5–5.0m across. Its form must, in part, be dictated by the earlier phases on the site and is probably best interpreted as another variety of broad rig; ie it pre-dates the age of Improvement and Inclosure (here of 1797) in the later 18th and 19th centuries (Parry 1976; Dixon 1994, 35–41). This is also what the antiquarian history of the site would lead us to expect. In each case it seems that the ridging along the contour cuts across other ridges that extend up and down the slope; this contour ridging is thus the latest phase. The time interval between the contour ridging and that which cuts across the contours – typologically so similar – is, however, not known; it might only have been a matter of a few decades, if that. Again, the late date of the contour ridging is no surprise: the preference for the easiest physical option is a normal final response to increased marginality. However, it does not follow that the terraces on which this ridging has been made are also so late in the sequence (see below).

From the postulated south side of the Vallum a series of approximately parallel west-facing scarps runs down the slope, fading out close to the southern wall of the fort field (2). These scarps vary in size, the most prominent being up to 1.3m high. Rubble and some boulders, presumably the results of field clearance, are visible. One of the westernmost of these cross-contour earthworks is a bank, up to 1.1m high, which bears so much rubble that it may represent the line of a former wall, or a particularly well-established linear spoilheap. Comparable cross-contour ridging (3) survives in the same relationship to the putative line of the south mound of the Vallum immediately to the west of the metallated access road to the present farm.

The cross-contour ploughing to the south-east of the fort (apparently cut by the ridges immediately to the north), is itself evidently of several phases. For the most part the surviving ridging lies to the south of the line of the Vallum. In the east, however, it evidently crosses over at least one earlier contour lynchet (4) about 30m to the north of the wall bounding the south side of the fort field. The impression given is that the large field of curving narrow ridging to the east and north-east, although of more than one phase itself – the southern 30m being abandoned first – is comparatively late in the sequence of surviving ploughing. It is, nevertheless, crossed by the angular boundary bank (5) which may pre-date the drystone wall of the field.

Within this bank (ie to the south and east) the ridging is now greatly abraded; this area appears to have been subjected to pasture improvement in the 1930s.

To the west, due south of the present farmstead, there is little more real clarity about the chronological place of the five prominent lynchets (6) surviving there. However, the sequence appears to be repeated: the eastern ends of the lynchets, bearing some late ridging, are cut by the cross-contour ploughing, and are overlain by a bank-and-ditch (7) – probably the line of a hedge – which is itself intersected by the existing field-wall. These terraces will be discussed further below in relation to the extent of the *vicus* and the course of the Vallum.

Other elements in the agricultural sequence are traceable to the east and south-east of the fort. Here some stony banks, up to 0.5m high, may be hedge-lines, although they appear to be associated with the fragmentary line of walling beside the Knag Burn which, in the late 18th century, was the boundary between Housesteads and Moss Kennels (NRO QRA 50: Thorngraston Inclosure map 1797; Fig 10.2). At least one sub-rectangular field (8) of about 0.6ha (opposite the Roman baths) is bounded by these hedge-lines; within it the ground is more broken although even here there is further narrow curving ridging, albeit poorly defined. The hedge-lines (if such they were) appear to be respected but abraded by the latest contour-ridging. One may have been disturbed by the robbing of the *vicus* buildings outside the east gate of the fort (*see below*) but may have extended originally into the interior of the fort, crossing diagonally the site of Building XVI (CUCAP: K 17 X5; CLY 13). Horsley (1732, 224) refers to hedges within the fort.

To the west of the fort, on the dolerite of the Whin Sill, any agricultural sequence is markedly less clear. Here there are enclosures on either side of the Military Way (9) but there is no evidence of arable and the function of these enclosures (*see below*) must have been altogether different. To the north-east of the fort another variation can be seen. On the hillside between the east gate and the Knag Burn gateway is a series of small terraces (10), bounded on the east by the Military Way (*see below*) with which they would appear to be contemporary. (It seems less likely that they should post-date the roadway.) Given the segmented form of one of them it is not impossible that they represent building-platforms for the *vicus* but by normal morphological analogy they appear to be lynchets from former arable. If this were so, it would itself be surprising for two reasons: this is a climatically hostile north-facing slope, and one might expect that the soils over the dolerite would be too thin to sustain cropping. On the latter point it is evident that there is an appreciable depth of soil here; either the solid geology has not been fully investigated and understood here, or the glacial or post-glacial drainage pattern (perhaps naturally dammed where the Knag Burn has now broken through the Sill as a gorge) led to the deposition of alluvium or drift.

Chronologically there is another possibility which is intriguing. This rests on the fact that one (or perhaps two) of the terraces on this north-eastern side of the fort (11) appears to continue *to the north* of Hadrian's Wall, broken only by the degraded remains of the ditch. (Unfortunately, consolidation of the Wall has destroyed the stratigraphical relationships on either side.) If this is an agricultural terrace its development in such a position, on a northerly slope, is surprising but not impossible. It would, however, pre-date the Wall and the fort itself. Given the relative fertility of this hillside, such a prehistoric phase should not be dismissed. The two late prehistoric settlements at Milking Gap (NY 77246779) and at Bradley (NY 77596818) are only 500m apart and both are well placed to take advantage of the southerly dip-slope and of access to the better soils. Just over 1km to the east there are the remains of a third settlement (12), less well defined, lying on a small crest immediately to the north-west of the farm road only 400m south-west of the south-western angle of the fort. Some arable agriculture would now be expected in association with this dense distribution of settlements.

On the eastern side of the burn, between the Wall and the Vallum, there are a number of irregular angular terraces (13) that appear to be agricultural in origin: fields that might be described as qualitatively prehistoric. There are, however, no obvious analogies for them in the prehistory of Northumberland and they may rather be related to the structures (14) inconclusively excavated on the north side of the Vallum in the 1960s (Dornier 1968; 1969). Their restricted distribution, between the Wall and the Vallum, may argue for a Roman date; if some of the terraces along the contours to the south of the fort were constructed in the Roman period (Crow, *below*) this might suggest that these smaller fields (if such they were) date from another phase altogether, although total uniformity over a period of three centuries should not be expected. The possible distorting effect of differential survival – determined, not least, by the extent of later cultivation – has to be taken into account.

The Vallum

To the east of the Knag Burn the earthworks of the Vallum (15), including the 'marginal mound' on the southern lip of the ditch, are comparatively well preserved, although the north mound is surmounted by a field wall. A hollow on the steep slopes of the left bank of the narrow valley marks the line of the ditch, but the corresponding hollow on the right bank is larger and more amorphous; here only its northern portion is liable to have originated as the ditch. To the west the earthworks have been levelled by the plough and do not survive on the surface in a readily distinguishable form for a distance of nearly 1.1km (reappearing at NY 78396831). Trenching by Haverfield (1899, 356–9) confirmed the line of the ditch, cut down into

the limestone, but to the east of the boundary wall between Bradley and Housesteads it had apparently been removed by cultivation and he failed to trace it.

To the south of the fort, further light was shed by the excavations of 1933 (Birley and Charlton 1934, 186–9) when the ditch, cut down into the limestone, was apparently traced in two sections and the causeway opposite the south gate of the fort was revealed. The position of the causeway was recorded, approximately, in the composite plan of the excavations (Birley and Charlton 1934, pl xxviii, facing p 192; Birley and Keeney 1935, pl xxii, facing p 258) but the location of the other sections was not published. The description, together with the alignment of the surviving earthworks to the east, may provide some pointers to the scant remnants. The southern edge of the lowest of the terraces immediately to the east of the consolidated *vicus* buildings is marked by a series of distinct mounds (16), their southern scarps standing up to 1.4m high. These appear to be the last vestiges of the south mound of the Vallum. The line of the north mound is represented by a scarp (17), averaging over 2m in height (but broken by one of the oblique terraces which bears some of the latest plough-ridges) about 35m to the north. The scarp of a parallel intermediate terrace, 2.3m high, may have had its origins as the north slope of the Vallum ditch. (Interpretation here is complicated by the report of the excavations in the 1930s, which suggested that the construction of the terraces had necessitated a considerable amount of earth-moving and levelling in this area: Birley and Charlton 1934, 188.) Three of the putatively early terraces end abruptly (18) where the stone footings of the *vicus* buildings survive; as mentioned above, some of the latest ploughing seems to have swung south as if to avoid this unploughable land.

The excavators in 1931 were misleading when they stated or implied (Birley and Charlton 1932, 225) that the Vallum continued in a straight line from the Knag Burn past the fort. The remnants to the east and west suggest that the alignment of the earthworks was altered by a few degrees to the south (cf MacLauchlan 1857, sheet III). The point at which this re-alignment was made is not yet known, but normal Roman military surveying practice (cf Welfare and Swan 1995, 15) would suggest that this would have been where the line of sight was interrupted by a crest. In this case, such a crestline almost certainly existed to the south of the fort but the alterations to the hillside since the 2nd century make this point difficult to determine on the surface. As the ditch has been cut down into the limestone (cf Birley and Charlton 1932, 225–6) it might be possible to trace its line across the whole hillside by means of seismic survey (cf Goultly and Hudson 1994; Goultly *et al* 1990).

The earthwork defences of the fort

The ditch of the fort, provided only to the north of the east and west gates (Birley *et al* 1933, 83–4; Charlesworth 1971a) are levelled but have been tested

by excavation; in contrast, the remnant earthwork defences of the fort, visible round the south-west angle and on the east side have received extraordinarily little attention. Indeed, until they were surveyed and interpreted by RCHME in the 1980s they had been mentioned in print but twice. The excellent John Hodgson (1840, 187) arrived at the correct interpretation: that the west gate had ‘a triple barrier of ditches and ramparts of earth thrown up before the gateway, which was probably closed as we found it, when these ditches were formed’. The defences were also depicted by MacLauchlan (1857, sheet III; Fig 10.6 here), and by Percy Hedley (1931, 352), but drew no comment. Bosanquet (1904, 242) dismissed them within the space of a single sentence. Although they are not closely dated they illustrate an important phase in the later history of the fort, and perhaps of the Wall as a whole.

They consist of two parallel banks (19), up to 0.8m high and with their centres 5–6m apart, thrown up about 10m and 15m from the external face of the wall of the fort. No associated ditch is apparent. On the south side of the fort they have presumably been destroyed by the late 18th-century farmhouse (20) and by post-medieval activity around the south gate. The relative chronology of these defences is apparent in two very different ways. On the west they cut across the line of the Military Way as it approaches the west gate, and then cease abruptly. The gate was blocked, in two phases, in the 4th century (Birley 1937, 177–80; Daniels 1978, 149), and it seems likely that the earthwork defences are to be associated with one or other of these episodes. On the east (where only the south portal of the gate seems to have been blocked – as, initially, on the west) the sequence that is visible on the surface is particularly interesting. Here the banks survive but have been dug into (21) by those who robbed the stone footings from two of the *vicus* buildings there. The robber-trenches are shown on the plan as parallel dashed lines. The sequence, therefore, seems to have been as follows. The stone buildings of the *vicus* were constructed (in the late 2nd or 3rd century) outside the east gate, some arranged at right angles to the Military Way, others parallel to it. At some subsequent date the buildings were demolished, but their footings were left behind and the earthwork defences were thrown up over them. (Without excavation it is unclear whether these two actions were part of a single episode or whether they were quite separate from one another.) Later still the footings of the walls of the *vicus* buildings were robbed away, presumably for building-stones. (Considering the amount of stone immediately available elsewhere, this itself is surprising.) The method was very economical, the walls being ‘chased’ by means of narrow trenches (visible on the surface, and as much as 0.3m deep), three of which extend across the line of the earthwork defences. On a site where much of the later stratigraphy has been destroyed, these defences may therefore be the last Roman (or even sub-Roman) phase that is still visible on the surface.

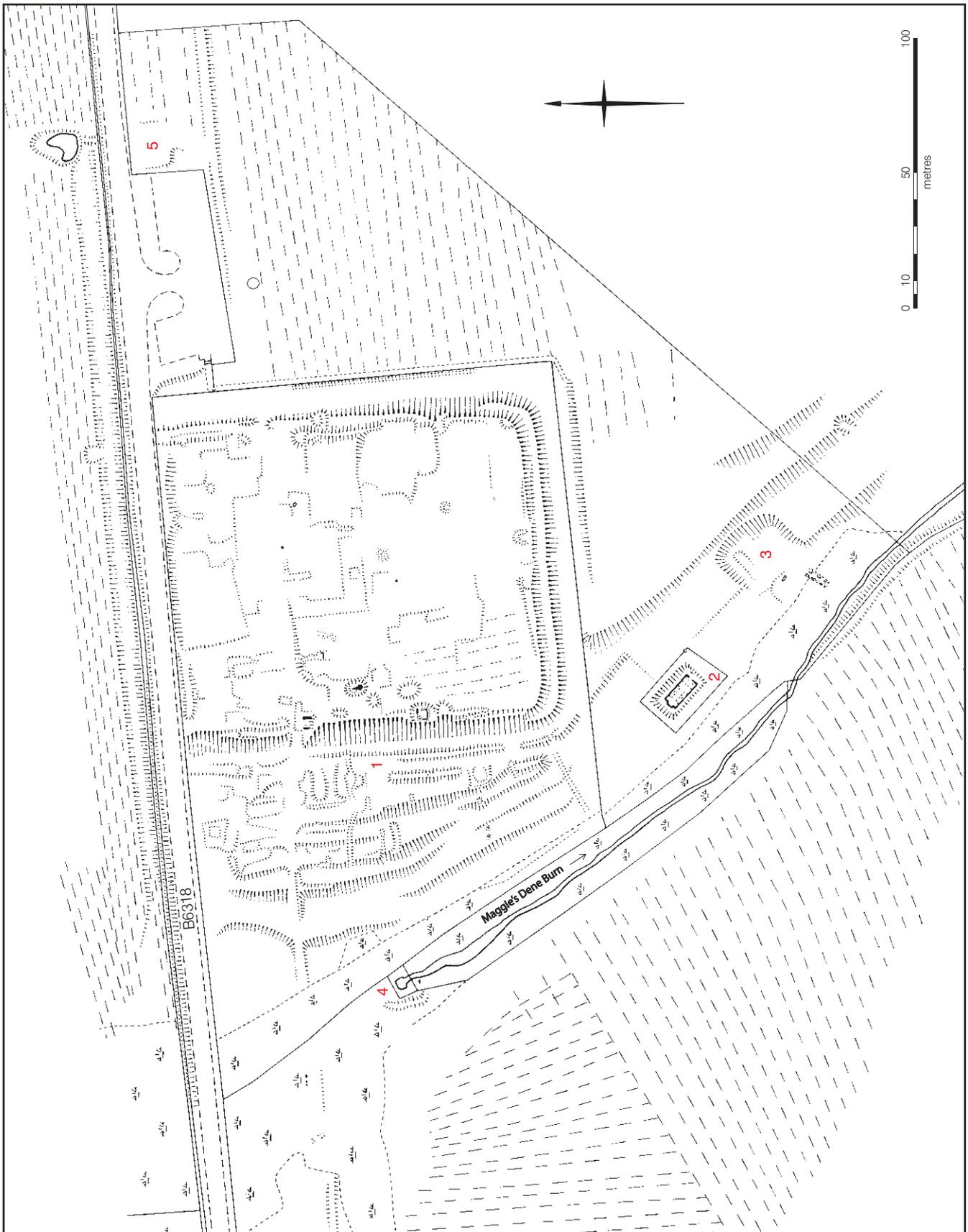


Fig 10.3 RCHME survey of Carrazoburgh fort showing late earthwork defences.

This interpretation is considerably strengthened by the fact that defences of this type – in the same sequence relative to the buildings of the *vicus* there – has also been recorded by the RCHME on the west side of the fort at Carrawburgh (Fig 10.3: 1). The same defensive arrangements may also, conceivably, have been constructed outside the (blocked) west gate at Great Chesters, although the interpretation there is rendered more difficult by the presence of ridge-and-furrow parallel to the wall of the fort; no relationship to any external building can be seen (NMR NY 76 NW 11). In each of these three cases the defensive banks are about 6m apart and were constructed at distances from the wall of each fort that are broadly comparable.

Apart from the relative dating that is evident from the earthworks, the chronology of these developments and the consequences for the rest of each *vicus* remain unknown. Further excavation is required if light is to be shed on these issues.

The extent of the *vicus*

The multiplicity of periods evident in the surviving earthworks has obscured the true extent of the built-up area of the *vicus*. In addition to the buildings traced in the 1930s (Birley and Keeney 1935, pl xxii), the robber-trenches on either side of the Military Way at the east gate suggest the presence of at least six more, lying at right-angles to the road and parallel with it (just as the extant consolidated footings do on the south side of the fort). Further away, excavations in 1960 and 1961 revealed buildings on either side of the well (22) to the north of Chapel Hill (R E Birley 1961; 1962). The long duration and intensity of the later cultivation of the hillside to the north has buried the Roman surfaces under as much as 2.4m of hillwash at the foot of the slopes, although it is clear that the surviving walls of some of the buildings are close below the surface (R E Birley 1961, 304; 1962, 119).

The early antiquaries (and their interpreters) have suggested that the settlement might stretch as far east as the Knag Burn and for some distance to the west of Chapel Hill (eg R E Birley 1962, 128), but hard evidence for this is scant. Even John Hodgson, who pointed to ‘the remains of considerable buildings’ (1822, 272) on the western side of the Knag Burn where it emerges from the gorge, may have been misled by the amount of Roman sculptural, epigraphic, and architectural material here, which – like the column fragments (23, 24) still lying in the marshy ground – was probably *ex situ* and may only have been debris cleared from the fields to the north. The antiquarian reports should be treated with caution; as should be expected – bearing in mind the depth of the hillwash – there are no unequivocal signs of Roman structures on the surface in this area. On Chapel Hill itself, most of the earthworks on the gentler slopes appear to be agricultural in origin; two pairs of grooves, at an oblique angle to one another (CUCAP

K17 X5–6) may be robber-trenches indicative of the former presence of buildings or may be remnants of Clayton’s excavations (Clayton *et al* 1885, 171). Two trenches dug here in 1961 proved unproductive (R E Birley 1962, 126–7).

All in all, the earthworks (even when supplemented with aerial photography) are of little assistance in assessing the maximum extent of the *vicus*. It is clear that it spread round the south-east angle of the fort and that its footings almost certainly lie beneath the site of the late 18th-century farm (20) to the west of the south gate. To the south it was built across the line of the Vallum; here it was probably more than 100m wide along the contour. There may have been some ribbon development along the road to the south-west and to the south; it is likely that the *vicus* extended to the foot of the hillside. The presence of footings may have discouraged ploughing, at any date, and this may be traceable in the earthworks. The eastern end of the five prominent lynchets (6) down the slope from the existing farm buildings may offer some indications of this, but the east side of any such block of buildings is quite unclear (cf CUCAP K17 X5–6).

To the west of the fort the earthworks are little understood but they evidently do not represent the remains of buildings. Low stony banks (9) enclose irregular areas of ground; high on the thin soils of the dolerite, these do not seem to have been arable fields but appear more like stock enclosures. As to their chronology, their lay-out is based upon the Military Way, which was presumably still in use to some degree, although this must have been subsequent to Roman military discipline as the banks encroach upon the line of the road. The banks are more distinct than the scarps to the south of the road on this western side and it may be that they were associated with the post-Roman occupation of the fort, most of the evidence for which has been cleared away. More work is required to elucidate this area.

The baths and wells

The bath-house (25) for the garrison, an essential provision, stood on a narrow shelf (NY 79256887) immediately above the eastern bank of the Knag Burn, 90m east-north-east of the east gate of the fort. Here the burn falls rapidly through a short gorge, dropping nearly 2m over a distance of 25m. The site has never been excavated archaeologically and the earthworks on the shelf offer little coherence. It is evident, however, that the normal plan of a Hadrianic bath-house (cf Chesters and Vindolanda) would probably require some modification to fit into the space available. Nevertheless, the impression survives of a building subdivided into a number of rooms. The markedly rectangular robber-trench biting into the hillside towards the north-western end may represent the position of the changing-room; if so the furnaces (and thus the hotter rooms) would have been on the south-east.

Writing in about 1821, the historian John Hodgson (1822, 269–70) recorded some of the stone-robbing:

The ruins of the Bath are on the east side of the brook, which divides the Kennell and Housesteads estates. Mr. Dryden, the proprietor of Kennell, told me, that a quantity of stones were ‘won’ out of it about forty-three years since [*c* 1779], when a fine inscribed altar was found in it, and taken away by Mr. Bullock, then steward to Mr. Errington of Beaufront. The flues of the hypocaust were full of soot, and there was an iron grating in the front of it, and in other parts much iron soldered into the stone with lead. Nearly all its walls to the foundation have been taken up, and the stones of them used in the field walls to the south-east of it. Much of its interior, in a sadly ruined state, is still remaining. In 1810, the floors of its basins appeared on the edge of the brook, composed of the usual cement [*opus signinum*] found in Roman baths, and laid alternately with two layers of thin freestone slates, the under surface of the lower of which was black with fire. A great flood, occasioned by the rain that fell in a thunder storm in the hot weather, in June, 1817, broke up the foundations of this building, both in the channel of the brook, and in Mr. Gibson’s side of the wall,* and swept them away into the inges [low-lying meadows] below. These foundations were of very large ashlar laid on fine clay. The whin rock had been quarried away to a plain surface, to make room for the area of the bath, and for the sake of commencing all its walls on the same level. ... The tyles found in it are red, and intimately mixed with coarse sand. ... There are also found in it ... considerable quantities of limestone, having partly the character of stalagmite, and partly that of such cellular [*sic*] stone as forms about the mouths of petrifying wells. Some of it is in amorphous lumps; but the greater part of it has been either sawn into rectangular pieces, or formed in a fluid state in moulds [probably tufa voussoirs; cf the baths at Chesters].

[*ie the west side, owned by George Gibson of Stagshaw (1770–1834). This is a puzzling reference; the baths are on the east bank, then belonging to Dryden of Mosskennels. It may be that other substantial structures were exposed in the west bank which Hodgson supposed to be part of the baths. The limekiln (below; F G Simpson 1976, 152–7) was immediately adjacent.]

Two generations later, Robert Bosanquet (1904, 255) was less pessimistic about the site’s potential, although he too had more damage to report: ‘A few years ago some workmen prospecting for lead made an experimental cutting here and exposed some well-built

Roman walls which disappear into the face of a steep bank of accumulated debris’. The trench that the prospectors cut, parallel to the burn and still 0.7m deep, is the major scar across the site. A small excavation in 1932 ‘showed that the bath-house extended some 15 feet (4.5m) farther north than the surface remains indicated’ and that one wall still stood ten courses high (Birley *et al* 1933, 92).

Despite the problems of space, the position chosen evidently met the overriding demand: a constant supply of water close to the fort. The actual source can be demonstrated only by excavation; it could have been the burn itself, or the well (26) 45m to the north-west of the baths, or a combination of the two. This well was constructed round a spring, close to the east bank of the Knag Burn, which was encased in masonry to form a shallow rectangular basin, 1.7m by 2.0m across and 1.5m deep. There is a lower sill along one side and two intakes in the opposite corners. A ‘line of stone channelling’ is recorded south of the well, halfway between it and the site of the baths (Birley and Keeney 1935, 253–5), and almost certainly represents at least part of the means of supply to the latter.

A second well (22), discovered in 1884 by Clayton (Clayton *et al* 1885, 171), is still visible 180m to the south-south-east of the fort. It is supplied by a strong spring that became the water-supply to the present farmstead. The water issues into a stone-lined tank, 1.6m across and 1.4m deep, within a small apsidal structure, apparently a shrine [*Editor’s note*: probably the shrine of Mars Thincsus and the Alaisiagae, *see above*, p 233], measuring only 3.0m by 3.7m internally. This shrine was part of the complex of buildings discovered within this southern area of the *vicus* (R E Birley 1961, 302–3, 308–9; 1962).

At the base of the northern escarpment below Hadrian’s Wall, amidst scree, is a well-constructed, stone-lined basin (27), still containing water. It measures 1.2m north–south by 1.1m transversely and is 0.4m deep. According to Hodgson (1840, 187), this well was used as a bath when the Magnay family were living in the farm at Housesteads. William Magnay is recorded at Housesteads in 1777 (NRO 65/41: Haltwhistle Church Wardens Accounts 1718–92); the family had apparently gone by 1804 (*ibid* 1792–1812).

The *mithraeum*

The site of the temple (28) to the Persian god Mithras (NY 79046846) is marked by an oval platform about 11m across which is terraced to a depth of 1.1m into the foot of the slopes close to the south-western skirts of Chapel Hill. The temple was discovered in 1822 by workmen collecting suitable stone for a wall a short distance to the west. They struck the top of an altar dedicated to ‘the invincible Sun-god, Mithras, Lord of the Ages’ (*RIB* 1599; *CSIR* 129); this proved to be standing in its original position within a broad recess at the west end of a rectangular building (Hodgson 1822, 273–91).

Hodgson's account is somewhat confusing, for the excavations were confined to the west end of the building which was not to be fully excavated until 1898 (Bosanquet 1904, 255–63).

The builders had dug out a platform measuring about 15m from east to west by 6m transversely and had lined it with rough stone walls, bonded with clay, which were faced only on the inside. The roof over this simple rectangular building was probably of thatch although a few tiles were discovered. The whole effect should have been like a dimly lit cave akin to that in which the god killed the bull at the dawn of time, releasing all the forces of Creation. The internal arrangements were similar to those displayed in the *mithraeum* outside the fort at Carrawburgh (Fig 10.3: 2), 7km to the east. An east vestibule opened into a narrow nave, paved with stone slabs (later covered with planking) and flanked by dwarf walls which formed the edges of raised aisles, floored with stamped clay. Sunk into the pavement on the northern edge of the nave was a stone box, made of flags luted with clay, within which a spring rose. (This spring was not drained until 1809: Hodgson 1822, 274.) Parallel gutters were provided along the length of the nave. Three small statues, badly damaged when found, stood beside the aisles: a man in a short tunic (possibly Aeon: Daniels 1962, 113–14; *CSIR* 125), and the familiar attendants, Cautes and Cautopates (*CSIR* 111, 114), the former with his torch raised symbolising dawn and life, the latter (with his torch lowered) represented sunset and death.

In the east sanctuary, explored in 1822 but robbed away by 1898, two altars (*RIB* 1599, 1600) stood facing down the nave; they were dedicated to the god by Litorius Pacatianus, a legionary who was probably on a special supervisory assignment, and by a centurion. One probably dated to around the early 3rd century and the other to AD 252. Between the altars stood a relief (*CSIR* 126), within a pierced egg-shaped frame of Mithras ('born in space before the creation of the world') emerging from an egg, a symbol of eternity (Daniels 1962, 108–10; Smith 1962). In his hands he holds a torch and a short sword; the piercing of the frame allowed light from a lamp placed behind him to surround the god as a halo. The sculpture and the inscriptions from the *mithraeum* have been discussed by Daniels (1962). The all-embracing tolerance of Roman religion is attested by the discovery of two altars to the native god Cocidius found at the west end of the *mithraeum* and approximately in the nave, and another to Mars and Victory (*RIB* 1577, 1583, 1595; Bosanquet 1904, 262–3; Bruce 1875, 93–4; Daniels 1962, 106).

Roads and tracks

The best known Roman road in the area of the fort is the Military Way (29), built as a link between the forts and milecastles, facilitating the movement of troops and supplies along the line of the Wall – yet it was an

afterthought, constructed upon the reoccupation of Hadrian's Wall after the abandonment of the Antonine Wall in the later 2nd century (E Birley 1961, 111–14; Breeze and Dobson 2000, 131–2). Just to the east of Housesteads some evidence of relative dating is apparent: Turret 36a (Kennel Crags) is approached by a road from the Military Way, which is thus likely to have been in use by the third quarter of the 2nd century.

Wherever the terrain made it possible, the Military Way runs close behind the Wall and in doing so it flouts all the familiar characteristics of Roman road-planning, tackling steep slopes in its necessarily sinuous course. For many kilometres on either side of Housesteads, from Sewingshields to Cawfields, the road is in exceptionally good condition and is clearly visible. On the gentle south-facing slopes below the crest of the Whin Sill it survives as a gently cambered terrace about 5m to 6m across. Some cobbling can occasionally be seen and its south side is defined by a kerb of closely set small boulders as much as 0.6m high. In order to cross the marshy ground immediately east of Rapishaw Gap (NY 78286859), 600m to the west of the fort, the road (30) is built up as a causeway, 0.3m high. Farther east, a short and less distinct branch (31) leads northwards to the south gate of Milecastle 37.

A road of such quality was bound to continue in use long after its original purpose had disappeared. In the 1570s Christopher Ridley noted that 'betweyne the wall and the ditches [the Vallum] hath ther bene a fair way paved all along the wall' (Hodgson 1840, 273–4). All the gates through the 18th-century field-walls are set along the line of the Roman road and it probably began to fall into its final decline only when the Hanoverian Military Road (*see below*) was built through the lower ground to the south in the 1750s. Bruce (1863, 137) noted that the Military Way was 'in use not very long ago. The family of Wright were hereditary carriers between Newcastle and Carlisle for more than 100 years, and so continued until driven off the road by the rail'.

In the field immediately west of the fort the line of the road is encroached upon on its northern side by some irregular enclosures (9; *see above*); the approach to the west gate is blocked by two, or possibly three, banks which seem to have been late defences (*see p 239*). The sequence here can only be resolved by excavation; there is no certainty that the short west bank of the three is contemporary with the other two but it is clear that the enclosures on the north side post-date the original design of the road. Later travellers evidently turned downhill immediately to the west of the double banks, just as the modern farm vehicles do, although the lack of any clear well-worn line here indicates that the use of the road can never have been heavy.

From the east gate of the fort the Military Way curved north-eastward between buildings of the civil settlement (21) and down the hillside to cross the Knag Burn within a few metres of the 3rd/4th-century gate

through the Wall. On the east bank the course is poorly defined, visible only by the fragments of the scarp on the downhill side where the road was terraced into the slope. Ascending the contours obliquely, it passes through the south end of Housesteads Plantation to resume its course roughly parallel to the Wall. On the south-facing slope of Kennel Crag it appears once more as a cambered terrace measuring about 4m wide, with a south scarp as much as 0.8m high.

A second road (32), that appears to have gone out of use before the Military Way, can be traced running eastward from the south end of Housesteads Plantation. The relative dating of the two routes is clear because the southern scarp of the Military Way evidently overlies this minor road where they meet beside the plantation; 500m to the east the course of the road merges with the north mound of the Vallum, a position frequently occupied by the Military Way itself. Thereafter the course is uncertain. It is conceivable that this is an earlier route of the Military Way before the more sinuous course, closer to the Wall, was decided upon across King's Hill and Clew Hill. Another explanation might be that this was an alternative course at one time, by-passing the much steeper slopes to the north. Whatever its context, the northward diversion from the line of the Vallum was necessary because of the gorge of the Knag Burn; this could be negotiated by the builders of the Vallum but would have been a major obstacle to any road.

The surviving portion of this early road (32) across the southern slopes of Kennel Crag and Clew Hill has been damaged by the ridge-and-furrow that overlies it,

and by more recent drains. Defined on its south side by a scarp up to 1.2m high, it is visible on the surface as a terrace about 4.5m wide. Trial excavation in 1967, immediately east of the junction with the Military Way, suggested that the metalling was as much as 7.5m wide (Dornier 1968, 3, and pers comm). The parching of the grass over this road is usually less marked than over the line of the Military Way (eg CUCAP DS 27, RC8 HB 236; NMR NY 7968/13/207–12, 7969/4/32–4, 7969/9/42–3). This may indicate that resurfacing was carried out over a shorter period (indeed the excavation indicated that the metalling may have been of only one period), but also must reflect the effects of cultivation over the more southerly of the two roads.

In contrast, a lane within the *vicus*, paved with flagstones, is still partly exposed between the bastle (33) and Building I (cf Figs 10.4, 11.8). It runs roughly parallel with the south wall of the fort (Birley and Charlton 1932, 234; Birley *et al* 1933, 91) and a branch might have continued north-eastwards from the south-east corner of the fort to join the Military Way but there is no evidence for this (*pace* Birley *et al* 1933, 91); any relationship to the late Roman defences is unknown. There are no surface indications whatever that a similar road linked the Military Way on the west side of the fort with the southern portion of the *vicus* (*pace* Birley and Keeney 1935, 227–8).

It was suggested by MacLauchlan (1858, 39–40; 1857, sheet III; see Fig 10.6) that a road ran south-eastward from Housesteads in a somewhat sinuous course to join the Stanegate 4km away at Grindon Hill Farm. The first section of the road, leading out of the



Fig 10.4 The paved lane in the vicus in front of the south curtain.

south gate of the fort, through the *vicus* and down to the Vallum crossing (34) is known from excavation (Birley and Charlton 1934, 185–90; Birley and Keeney 1935, 227–9; cf Fig 11.8), although even in this stretch the road's exact dating and development is not fully understood. South of the Vallum there is no evidence to prove or disprove a Roman date for the road suggested by MacLauchlan. The line is represented by a farm-track (now the visitors' path) but ascended the steep scarp north of the car-park obliquely, as a narrow terrace (35), in order to run immediately to the south of Beggarbog. Farther east, between Beggarbog and Grindon, a track was certainly in use until the mid-18th century, when it was surveyed in preparation for the construction of the new military road. (An original copy of *A Survey of the Country between Newcastle and Carlisle*. ... by Dugal Campbell and Hugh Debbeig 1749, is in NRO – SANT/PLA/7/2/1/1A; see Fig 10.5 here, cf Lawson 1973, 177.)

Yet another road was tentatively identified in the early 18th century (Horsley 1732, 148), leading south-westward from Housesteads towards Vindolanda. The only indication readily visible is immediately south-west of the south gate of the fort where one of the *vicus* buildings (V) was designed with its south-east angle markedly chamfered as if to ease the passage of traffic along such a road (Birley and Keeney 1935, 226–7). The direction taken is well to the west of the known Vallum crossing (34); unless it was provided with another (earlier) crossing, this road (assuming that it was more than just a lane in the *vicus*) is unlikely to be earlier in date than the slighting of the Vallum (p 000). Subsequently the easiest course of this putative road (of which no certain indications survive) would have been to follow the present farm access-road – which, on the evidence of the terraces, seems to be of some antiquity – towards Deafley Rigg, passing Grandy's Knowe, and joining the Stanegate about 1km north-east of Vindolanda.

The Military Road, now the B6318, was constructed in 1751–7 to improve communications between Newcastle and Carlisle. The military stimulus had been Field Marshal Wade's disastrous failure to march from east to west so as to intercept Bonnie Prince Charlie on his march into England in November 1745 (Lawson 1966). For much of its course this new road followed the line of Hadrian's Wall which was demolished and spread out to form a hard foundation of good quality. However, in this central sector, where the Wall was built upon the undulating crest of the Whin Sill crags, the 18th-century engineers chose a lower route to the south (Lawson 1973). Opposite Housesteads (in a stretch of what was then still unenclosed, open country) they seem to have followed the route of an existing road or track, long since disused, which from the crossing of the Knag Burn headed east past Grindon Mill Hills (NY 804685) to Settlingstones on the Stanegate (NY 845682); see Fig 10.5.

Cemeteries

Extraordinarily little is known of the cemeteries along Hadrian's Wall. Normal Roman practice would have been to bury the dead beside the roads leading to the fort, but of those that must have existed around Housesteads only the most shadowy records exist. Bruce (1863, 131) recorded that 'numerous human remains' were found when the marsh to the south of the fort was drained in the mid-19th century but there is no other evidence of burials here (*pace* Birley and Keeney 1935, 234–5; Birley *et al* 1933, 92). A number of tombstones and sculptures (*RIB* 1618–23; Smith 1968) have been uncovered at the foot of the hill below the fort and 'on the ridge in the hollow of the field' west of the *mithraeum* (Hodgson 1840, 194–5), but at best they only offer the most general indication of the position of a cemetery.

The only sculpture of which the provenance is known was a good-quality relief (*CSIR* 349) of two seated women (probably produced in a Carlisle workshop), found in 1982 when the ground was cleared to build the Information Centre (36). However, it is not certain that it was a funerary carving and may not have been in its original position (Blagg 1985).

Understandably, Roman law forbade any burials to take place within a settlement but there were at least three in the civil settlement: two in the 'murder house' (37), and an isolated example about 30m to the west, the context of which is unclear (Birley and Keeney 1935, 236). A cremation found in the north-west quarter of the fort (Bruce 1851a, 425) should belong to the short interval during the construction of the Wall when the foundations of the curtain and of Turret 36b had been laid out but before the building of the fort began.

Immediately south of the Information Centre, on the southern side of the road, is a large barrow (38), a burial mound apparently composed entirely of earth. Standing about 4m high it must originally have been about 26m in overall diameter; there is no sign of a surrounding ditch or of retaining kerbstones, either of which might be expected. It has been trimmed on the north (along the edge of the Military Road) and by small-scale digging on the south and east. However, the most prominent damage is a broad excavation trench, partly backfilled and only about 1m deep, which is up to 3m wide and cuts across the mound from east to west. This trench had already been dug by 1769 (Wallis 1769, 37) but nothing is known of any discoveries. Barrows of this size are exceptional in Northumberland; large burial mounds (usually cairns of stones) are normally found to contain Bronze Age material although some may be Neolithic in date. Roman barrows are known elsewhere in Britain, although those identified so far in Northumberland are much smaller and of a distinctive type (Charlton and Mitcheson 1984). Nevertheless, this mound could conceivably be contemporary with the occupation of the fort, from which it would have formed a prominent feature on the ridge to the south.

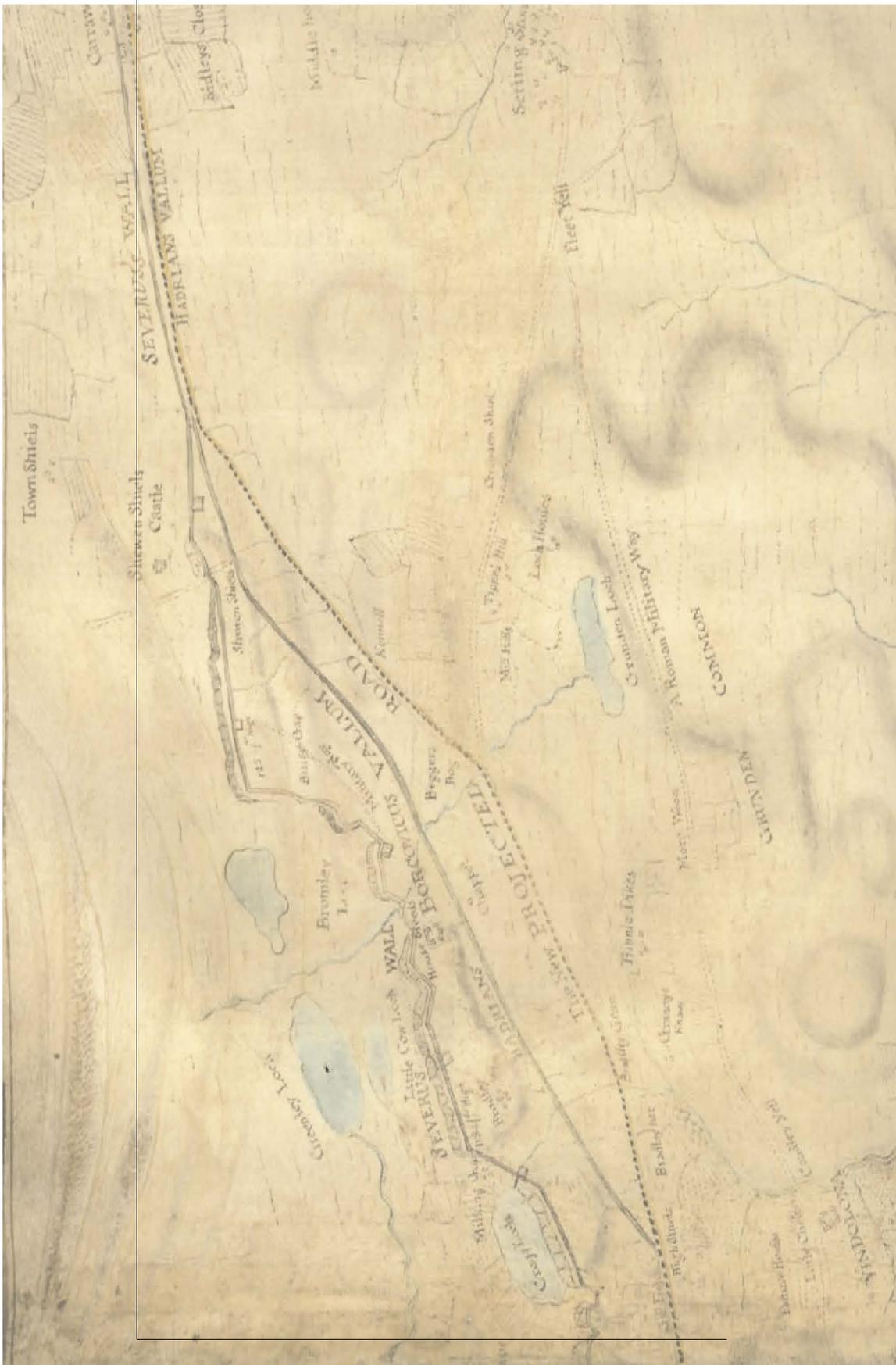


Fig 10.5 The survey for the Military Road, 1749; note the earlier track between Grindon and Beggarbog (NRO SANT/PLA/7/2/1/1A – courtesy of the Society of Antiquaries of Newcastle upon Tyne).

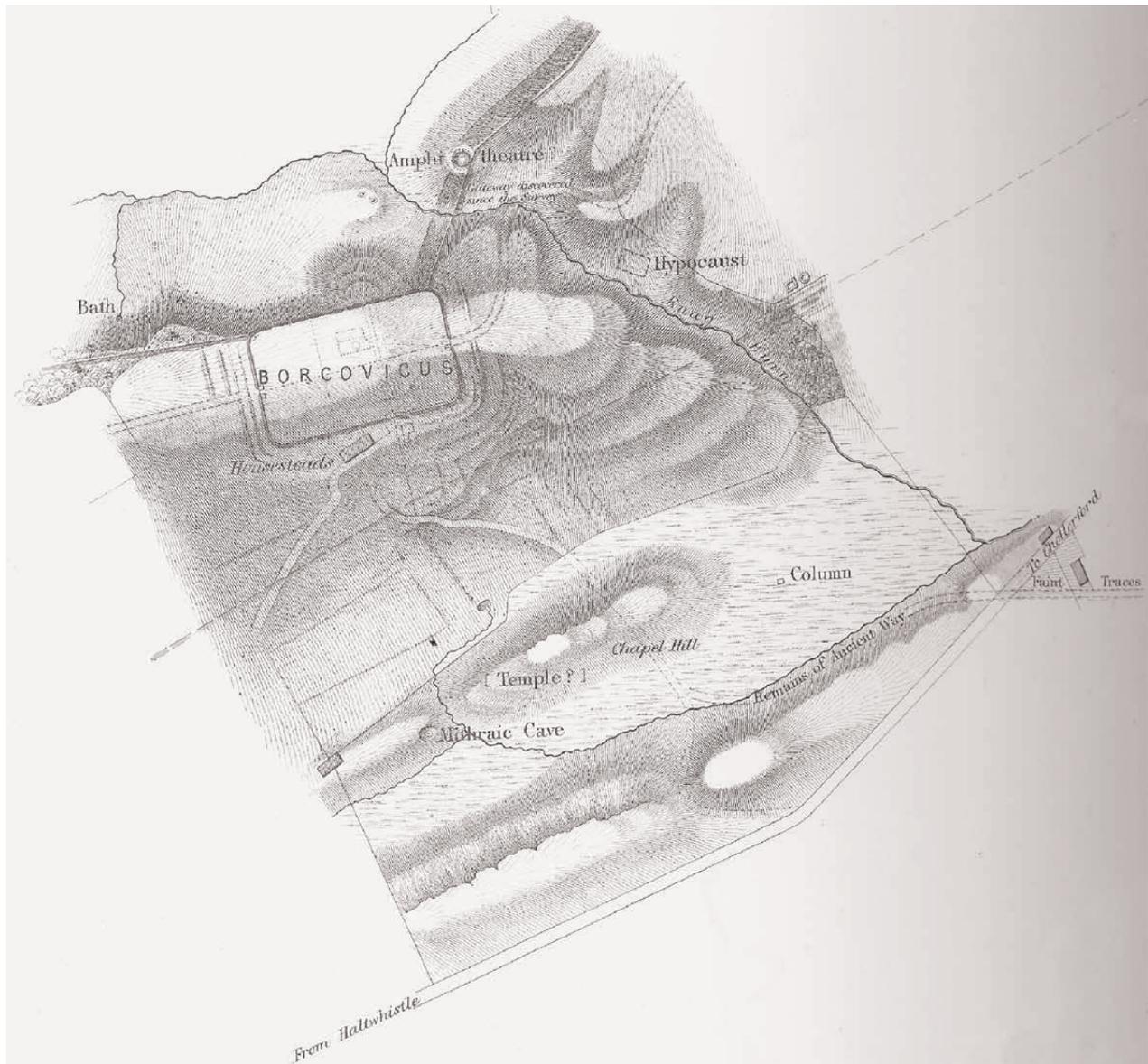


Fig 10.6 MacLauchlan's plan of Housesteads (1857, Sheet III extract) showing possible roads.

Column fragments

The early antiquaries visiting the site all commented upon the quantity of inscriptions and architectural fragments lying around, especially at the foot of the slopes close to Chapel Hill. All the sculptures and inscriptions have been removed to museums and the readily usable dressed stones have been carted away. Two short sections of Roman column (each with mortice-holes intact) still survive: one, close to the Knag Burn (24), is 1.2m long and 0.6m in diameter; the other (23) measures 0.75m in length and is 0.5m in diameter. They lie on the surface and are evidently some way from their original position. Stukeley (1776, 61), who visited in 1725, commented upon the evocative local name of 'rollers' given to column drums, and Wallis (1769, 38) mentioned how common they were on and around Chapel Hill. The position of the more westerly one was recorded by MacLauchlan in 1853 (MacLauchlan 1857, sheet III; see Fig 10.6), but,

surprisingly, he omitted the larger eastern fragment. Both were mentioned by Bruce, in passing (1863, 131) and subsequently depicted on the revised version of MacLauchlan's plan published in the 3rd edition of *The Roman Wall* (Bruce 1867). The proximity to the burn of the eastern fragment suggests that it may have come from the bath-house, swept down by a flood similar to that in June 1817 when some of the foundations were torn up and deposited in these marshy meadows (Hodgson 1822, 269).

Extractive industries and processing

To the north-east of the Knag Burn gate, on the north side of the Wall, is a large depression (39) up to 4.6m deep and measuring 33m from north-east to south-west by 28.5m transversely. The suggestion by early antiquaries (with varying degrees of confidence) that this was an amphitheatre was tested by Bosanquet

(1904, 252–3) in 1898. He confirmed the more prosaic explanation – that it was a quarry. (Despite Bosanquet’s reference to ‘freestone’ – a term that usually equates with sandstone – the British Geological Survey (Fig 10.1) has identified an outcrop of limestone in this position.) The scraps of Roman pottery that he found in the topsoil provide no chronological guide. However, his sections suggest that the quarry destroyed any stretch of the ditch that may have been cut here; if so, the quarrying is unlikely to have been related to the initial construction of the Wall; it could have been opened during the Roman period or may belong to a much later date.

Changing needs led to the opening of a large number of much smaller quarries into the outcrops of sandstone and limestone. The majority are relatively shallow surface workings, mostly confined to the crests of the sandstone scarps; looking south from the Whin Sill these have a distinctly nibbled appearance.

In the environs of Housesteads the greatest concentration of quarries is on the scarp lying parallel to and just north of the modern road. Here the largest quarries (40) are cut into the face of the scarp, especially in the stretch approximately opposite the fort. Farther to the west, the workings (41) spill across the level crest and down the southern dip slope. Unsystematic in their arrangement, these are small in size, ranging from about 3m across up to a length of 35m and a depth of 3.5m. Several tracks and hollow-ways are apparently associated with various phases of extraction. A bank (42), up to 0.8m high and as much as 4m wide, constructed along the crest from just north of the Information Centre and extending for about 220m to the west, skirts around some quarries and is cut by others; this demonstrates that more than one phase of quarrying occurred, although the bank itself is not readily dateable. The only indicator is that this bank seems to have gone out of use as a property boundary before 1797 when the ditch and bank (43) at the foot of the scarp was the more significant division (NRO QRA 50: Thorngrifton Inclosure Map, 1797; Fig 10.2).

The next escarpment to the north, of which Chapel Hill forms the eastern end, is also of sandstone; it has been less extensively quarried but here again extraction was largely confined to the easily worked outcrops on the north face. It is noticeable that the quarries stop abruptly (44) about 390m west of the point where the farm access-road crosses the east end of the escarpment. Here the sandstone changes markedly in character, becoming thinly and unevenly bedded, and thus unsuitable as a building stone.

The dating of any quarrying activity is notoriously difficult but common sense suggests two principal phases. The building of Hadrian’s Wall and of the fort at Housesteads consumed enormous quantities of sandstone which was principally required for the facing-stones. In this area all of the stone came from the long parallel outcrops exposed on both sides of the Wall. Quarrying activity in the Roman period north of

the Wall close to Housesteads is suggested by the discovery of an inscription cut on a quarry-face by two centurions and an *optio* (second in command of a century) who were probably in charge of the workmen (*J Roman Stud* 51 (1961), 194), and possibly also by the record of a carved figure close by (Hodgson 1822, 268; 1840, 288). There has been no petrological analysis to trace which sandstones the Romans exploited and preferred.

In the post-Roman period little or no quarrying was necessary; local needs would have been amply supplied by the imperial debris. Nevertheless, the building of the Military Road in the 1750s, and the demand for unprecedented lengths of drystone walling following the Inclosure Act of 1797, would have created sufficient demand to justify reopening some of the Roman quarries and the establishment of the small surface workings (41) close to the modern road. Drystone walling, known to be taking place here in the late 18th century, probably also provides the context for the sandstone quarries (45) in the southern half of Mosskennels Plantation, east of the Knag Burn. That some of the workings are earlier than this period of activity is demonstrated by the notes of John Horsley, visiting Housesteads in the 1720s, who mentions ‘some old wrought quarries now overgrown with grass’ south of the fort (Horsley 1732, 148). It is conceivable that the strange series of fourteen contiguous horse-shoe-shaped scoops (46) cut into the slope 20m north-north-east of the Information Centre, and divided by banks no more than 0.4m high, may be related in some way to the quarrying of the sandstone.

The limestone has been extracted in various places where it outcrops, especially around the two 18th-century lime-kilns 750m south-west of the fort (NY 78186380; 78306836); to the west of Rapishaw Gap and of Milecastle 37 even the immensely resilient quartz-dolerite seems to have been exploited (NY 78006858, 78406865).

At the foot of the hillside, south-east of the fort, a flat-topped, pear-shaped mound (47), 1.8m high, projects into the marsh (NY 79416865). It is the spoil from a drift-mine, the adit of which lay about 40m to the north. Immediately north of the field-wall is a hollow, 4m across, now choked with stones. This could be an air-shaft but may only mark a collapse into the workings. Despite being a relatively recent development the mine seems to have no recorded history. (It is not shown by either MacLauchlan (1857, sheet III; Fig 10.6) or on the Ordnance Survey 1st edn 6-inch (1861), but the mound does feature on the 3rd edition published in 1922.) It was likely to have been opened sometime towards the end of the 19th century (Bosanquet 1904, 255), when prospectors dug through the site of the bath-house, and was probably an unsuccessful attempt to extract lead ore. Cubes of galena have frequently been found hereabout (Hodgson 1840, 187; Dornier 1969). A vein is said to outcrop close to the fort (Smith 1923, 7).

A line of four small pits (48), probably shallow shafts opened by prospectors for coal, are still visible (NY 79086836) at the foot of the crags 100m south-south-east of the *mithraeum*. Three of them are marked (as disused) on the OS 1st edn 1:2500 map (1860). The nearest outcrops of coal are on Little Shield (NY 789678), 550m to the south-south-west.

A kiln, probably for burning lime and possibly associated with a quarry, was excavated in 1909 (F G Simpson 1976, 152–7, pls xv–xvi, figs 63–4) on the steep north-eastern scarp opposite the bath-house (25). Opening onto the slope, the splayed mouth of a flue was 4.5m long, and narrowed as it led upwards into an oval kiln-chamber, 3m across, cut into the rock. Up to eight courses of masonry survived, bonded with clay that had been fired in the heat of the kiln. The date of the structure is not known; a *terminus post quem* is indicated by the Roman pottery of the late 3rd to mid-4th century (common enough in this field to have been incorporated at any date) which was found overlying it but also within it. The presence of burnt lime suggested that this was a lime-kiln (cf Jackson *et al* 1973; Dix 1979; Rogers and Roddham 1991); it is conceivable that limestone could have outcropped at this point on the edge of the burn (Fig 10.1) although this would have provided only a limited supply. Any adjacent quarries must have been masked by later cultivation.

Shielings and other buildings and enclosures

On Kennel Crags there are traces of a group (49) of five simple buildings of a type usually identified as medieval shielings: houses for the shepherds in the higher, summer pastures (Ramm *et al* 1970). The two better-preserved structures stood on separate terraces north of the Wall. Measuring up to 19m in length overall and up to 6m in width, they appear exceptionally large and from surface remains alone they are difficult to distinguish from more permanent medieval farmsteads; however, the likelihood is that these are shielings with a small yard or pen attached (*see: Medieval Archaeol* 30 (1986), 159–61). Their unusual position, on the exposed north face of the crag but sheltered from the prevailing wind, reinforces the suggestion that they were used in summer only.

More typical are the poorly preserved remains, difficult to see, just to the east of Housesteads Plantation. Here two shielings abut onto the south face of the Wall, making the most of the shelter and the ready supply of stone that the Roman masonry offered. Shielings in a comparable position are displayed 3km to the west, immediately east of Milecastle 39 (*ibid*); it is likely that many more were swept away elsewhere by those excavating and consolidating lengths of the Wall in the late 19th and earlier 20th centuries. On Kennel Crags they measure 7m by 4m over their rubble walls, although one has a western extension. A third building, of comparable size, has a low field boundary extending from its north angle to the line of the Wall.

To the west of the Roman fort are two isolated buildings of medieval or post-medieval date. One, 120m east-south-east of Milecastle 37, measures 13.6m by 5.4m; its walls, 0.9m thick, are reduced to a basal course (50) of neatly placed heavy blocks, broken for opposed doorways in the north and south walls (Fig 10.7). From the north-east corner a stony bank, perhaps part of an associated enclosure, extends northward for a short distance. The remains of a broadly similar building (51) lie only 10m west of the milecastle; it seems to have had a doorway in the south side but the western end of the building is not discernible. Fragmentary stony banks, which may represent former enclosure walls, survive to the north-west and to the north-east within the angle formed by the milecastle. These reinforce the impression – made by the comparative quality of their construction – that these buildings were not seasonally occupied shielings but that they may have been small farmsteads.

To the north of the Wall and west of the Knag Burn gate, in a field formerly known as Goose Pool Close or Grospoolhole (Hodgson 1822, 270), are two small subcircular enclosures (52). The more south-easterly of the two is formed by a low earthen bank, 2.5m wide, which surrounds a featureless interior up to 7.2m across. There are faint traces of an external quarry-ditch on the south-west. A gap through the bank on the north-east is almost blocked by a semi-recumbent slab 1.15m long, 0.45m wide and 0.15m thick. This, the ‘Fairy Stone’, may have formed one side of an entrance; it was still standing in the 19th century when it was illustrated, somewhat fancifully, by Bruce (1863, 116). Its use is unknown; it could have been a pen for geese beside a pool in the Knag Burn, partly dammed by the Wall, but its original function was already long forgotten in the 1820s when Hodgson recorded the tradition that its form derived from fairies’ moonlight revels (1822, 270; 1840, 288n). A similar circular enclosure, measuring 9m across internally, lies immediately to the north-west. There may have been an entrance on the north-east.

Excavations around the fort

J G Crow

Housesteads Farm

The excavation was undertaken as part of the development of the farm buildings at Housesteads as an education room by the National Trust and English Heritage. A new car park was planned in the wood west of the Dutch barn and this required an access road leading down from the current road beside the museum. Since the new road cut across the area of the ancient cultivation terraces it was decided to carry out an excavation in advance of the developments. The work was carried out by the National Trust’s Hadrian’s Wall excavation team under the direction of the writer; Ralph Mills was site supervisor and draughtsman.

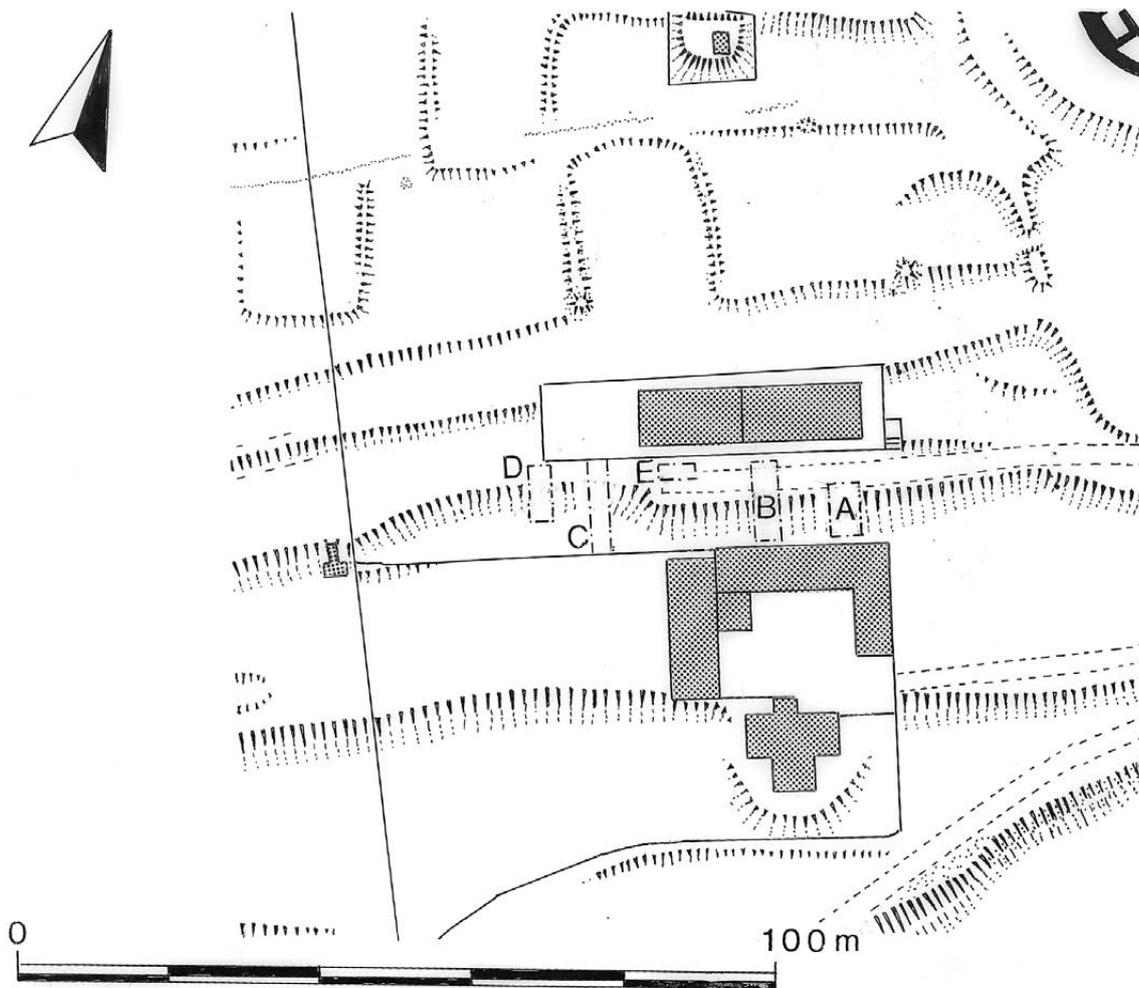


Fig 10.8 Housesteads Farm terraces, location plan.

The line of the new access road was excavated using an MF200 drott and, as expected, it crossed the line of recent dumps of soil from the construction at the museum building between 1935–50. The spoil from the road-making was dumped and levelled in the new car park within the wood.

Five areas were investigated (Fig 10.8). Two were located to the east of the road (Trench A and Trench B). Trench A extended from the north wall of the byre and revealed only a modern terrace wall and stone-lined drains and ceramic pipes. The wall of the byre was seen to rest directly on the whinstone bedrock. Trench B was deturfed and trowelled to examine the slope north of this terrace wall; some redeposited Roman material was recovered and the trench was fully excavated with the drott. No significant early features were noted. Trench E was opened on the north-east side of the access road and was found to be mostly modern make-up for the parking outside the museum. Undisturbed deposits survived in the west section, including pottery dateable to AD 120.

The two most informative trenches, C and D, were located west of the new gate into the car park and revealed important new evidence about the chronology and development of the terrace system at Housesteads.

They were cut across the slope of the cultivation terrace running west to east immediately south of the museum. Between Trenches E to A it was clear that the terrace was masked by modern build-up for the museum. To the west the line of the terrace was undisturbed. The excavations were intended to examine the level 'cultivated' area and also the break-in slope where terrace walls might be expected to survive. Excavation was by hand only and was fully backfilled on completion.

Trench C (Figs 10.9–10.12)

This trench was located south of the garden wall around the museum. Excavation showed that the earliest features were two alignments running east–west cutting into the natural soil (62). The earliest of these was probably a band of stakeholes (74), *c.* 1.00m wide (Fig 10.11 (photo 87/84 28)). The individual stakeholes were between 0.05–0.20m in diameter and probably formed a stockproof palisade of thorn bushes.

Relatively soon after the construction of the latter a V-shaped gully (61) was cut on the north side of the band of stakeholes. Before the gully was able to silt up a pit (60) was cut to the north of it (Fig 10.12 (photo 87/84 17)). This was only partly revealed on the west

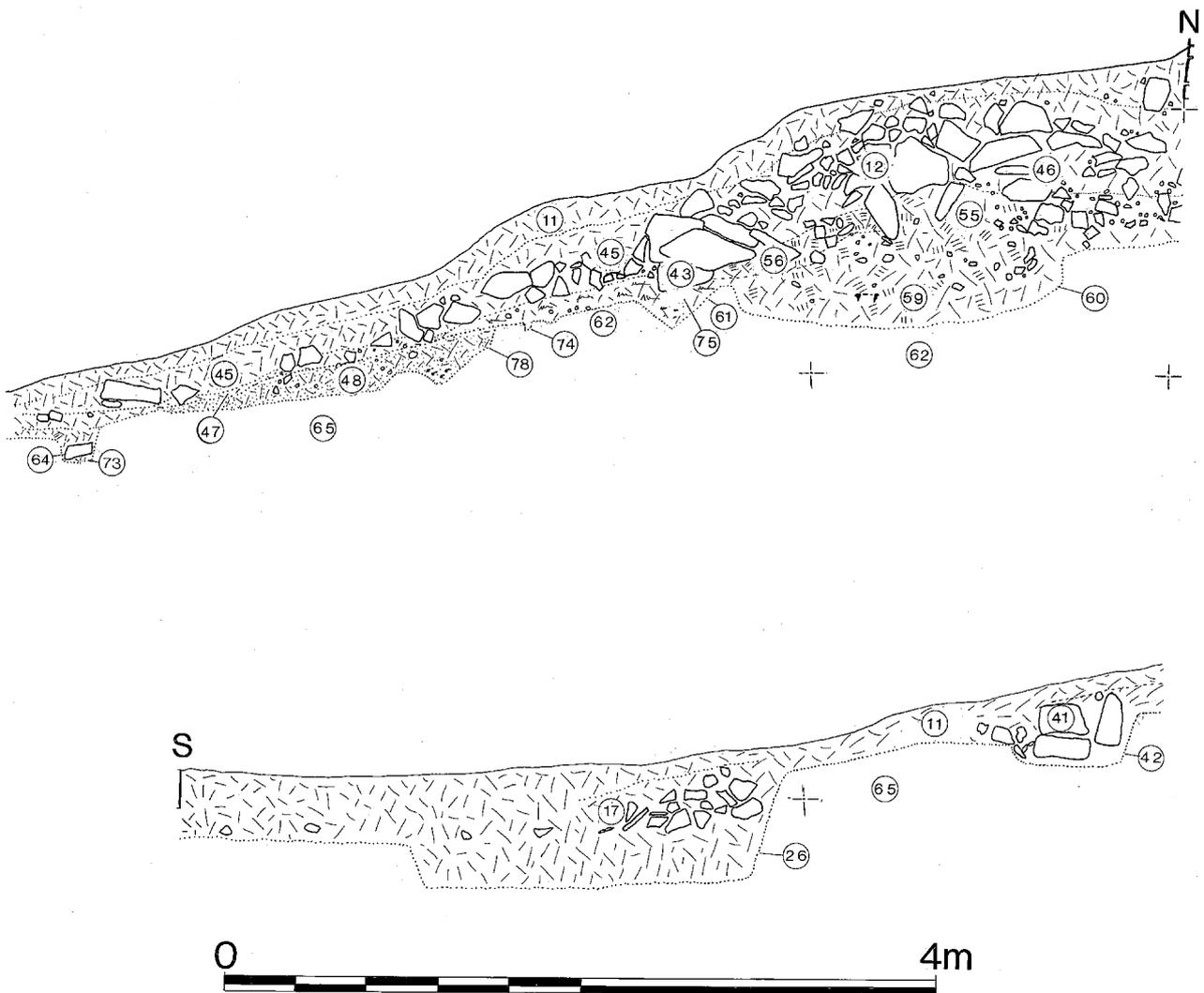


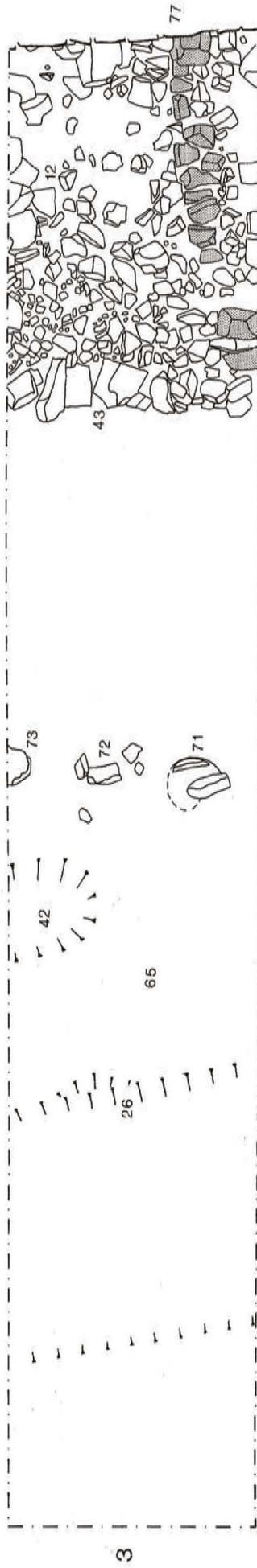
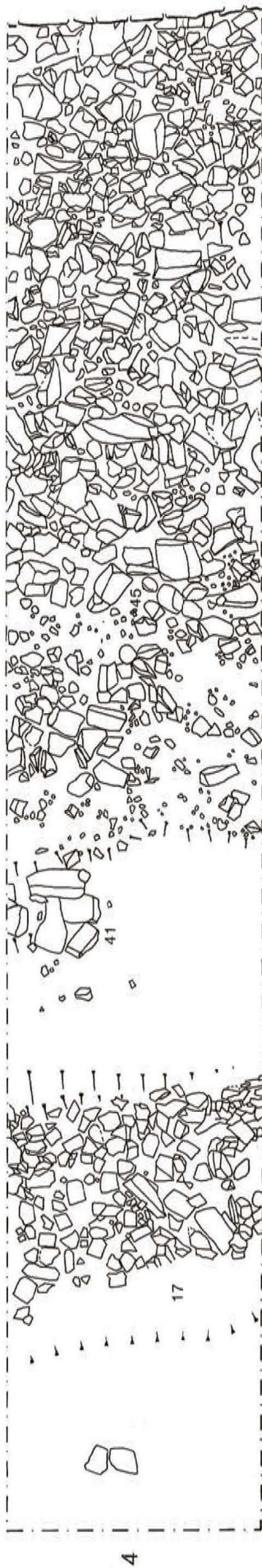
Fig 10.9 Trench C, section; scale 1:40.

side of Trench C and was 1.90m from north to south. It was filled with debris including ash and charcoal (55, 59), material that also spread in to the gully (75). The fill of the pit was the last activity on the site before the construction of the single face of the terrace wall (43). This was entirely constructed of whinstone boulders between 0.30–0.40m wide and survived up to two courses in height; in section it can be seen to be at least three courses high. It had slumped into the fill of the gully. The wall had collapsed to the south and north (section: Fig 10.9; plan: Fig 10.10: 2).

An alignment of three postholes (71, 72, 73), 2.80m south of this feature, was parallel with the terrace wall (Fig 10.10: 3). These probably represented the line of a wooden fence. The packing of sandstone blocks survived in the postholes (49, 63, 64) but since no traces of post-pipes survived it would indicate that the posts had been removed rather than rotting *in situ*. The postholes were overlain by a layer of grey-brown soil with small stones (47), seen to extend in section as far as the hedge/palisade. The relative chronology of these two features is unclear since there was a cut (80) immediately south of the 'hedge/palisade', although

the fence is likely to be later than both the 'hedge/palisade' and the terrace wall that was constructed over the gully (61). Significantly, the terrace wall was only constructed of whinstone boulders, whereas the postholes contained sandstone blocks. This may be considered to be an indication of later Roman and post-Roman activity since whinstone is the native rock at Housesteads, together with outcrops of limestone, whereas sandstone blocks are brought in some distance from quarries to the south and north and are often reused from nearby buildings.

On the east side of the trench there was a clear alignment of whinstone (Fig 10.10: 3), with an edge or kerb (77) running north–south within 0.70m of the east side of the trench. This was later than the terrace wall and may represent the foundation of a building constructed on the terrace, it could be associated with the fence to the south of the terrace, but there is no direct association. Over both features was the final phase of the terraces, represented by a distinct pile of stone (12, 45). This was heaped from the terrace edge (see Fig 10.10: 4) and could be seen to extend as far as the field wall, which represented the northern limit of excavation.



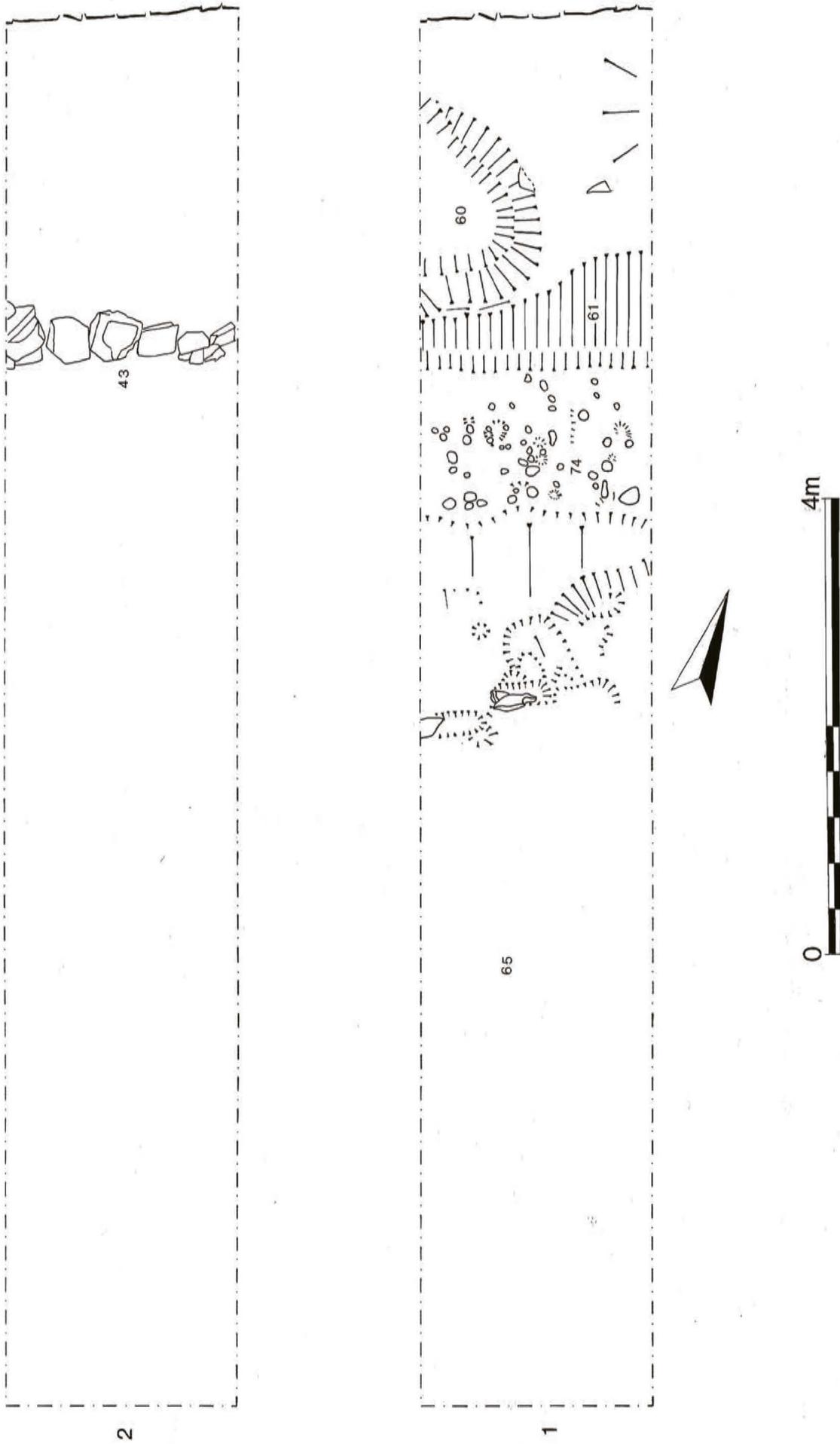


Fig 10.10 Trench C, phase plans (1-4); scale 1:50.



Fig 10.11 Trench C, showing the stakeholes (74) and gully (61) from the east.



Fig 10.12 Trench C – the pit (60) with the remains of the overlying terrace wall (43) evident in section.

It is likely to represent field clearance after the collapse and slump of the terrace initial wall (43) and overlies the foundations (77). This phase is possibly medieval or later in date, but no artefacts were recovered.

Later features in Trench C included a broad trench (26) at the south end 2.20m wide; the fill included slate (17), indicating a date in the late 19th century or later. Another late pit (42) was located to the north of it; significantly, this was filled with sandstone blocks (41).

Dating

The fill (59) of the pit (60) included dateable pottery providing a mid-2nd century *terminus post quem*. Material from the associated gully fill (55) gave a *terminus post quem* of c AD 160. This evidence in turn provides us with a *terminus post quem* for the construction of the terrace wall (43) of c AD 160 and gives the clearest evidence yet available to suggest that the system of terraces at Housesteads is certainly Roman in date and probably can be located around AD 200. Later changes could not be dated.

Trench D (Fig 10.13)

A similar sequence was found in this trench although it was badly disturbed on the east side by modern intrusions, including an electricity trench. In the south part of the trench the natural soil was a black silty clay (70), immediately overlying an outcrop of limestone (54), whereas in the northern part the earliest cut feature was a pit or gully dug into an orange-grey sandy clay (66). In section, two narrow gullies (78, 79) filled by orange sandy clay (67) were seen, similar to the gully (61) in Trench C. The layer of soil above this (58) was cut into by a wide ditch (57) filled with mixed soil with charcoal and ash and pottery. The terrace wall (69) was disturbed in the east half of the trench, but survived up to 0.80m wide and had slumped to the south; it appeared to be faced on both sides. A broad band of rubble (29) was located above and to the north of the line of the terrace wall and sealed a deposit of soil (39).

Later intrusions included a wide pit (36, 37) filled with dark loam, a large whinstone boulder and modern debris; an electricity line crossed the south-east angle of the trench (35).

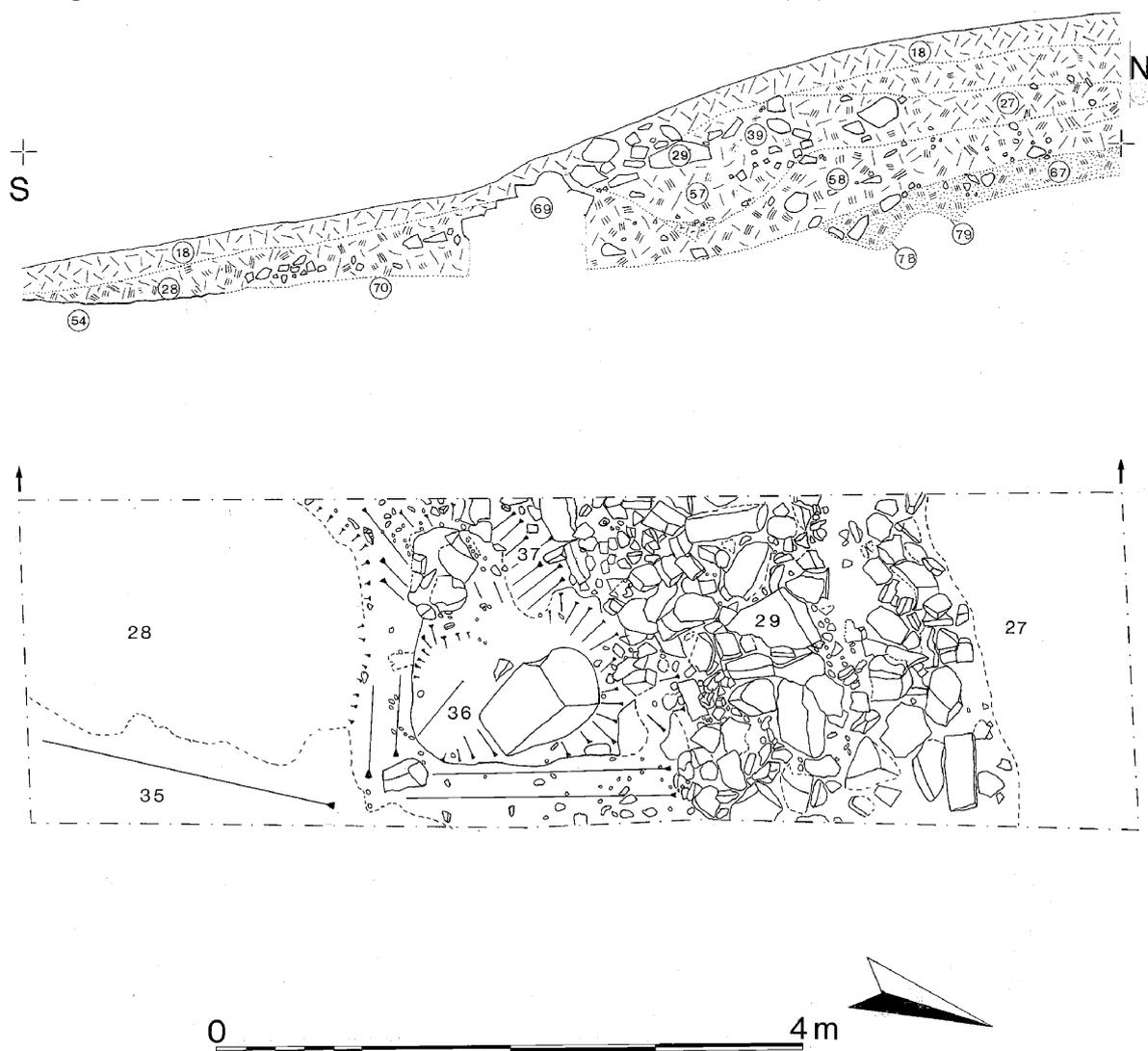


Fig 10.13 Trench D, plan and section; scale 1:50.

At the south end of the trench the limestone natural (54) was very close to the current ground surface, reflecting the effect of earlier ploughing across the slope. Over time this would have had the effect of moving the ploughsoil down the slope and reinforced the terracing process.

Dating

The wide gully pit (57) was filled with material similar to 55 and 59 in Trench C. Pottery from 57 and mixed material above 39 included a group of pottery with a *terminus post quem* of c AD 160. The gully and fill (57) are clearly earlier than the construction of the terrace wall and the layer above 39 probably represents the same deposit disturbed by the later collapse of the terrace wall. The overall date range is the same as in Trench C.

Discussion

It is possible to summarise the sequence from Trenches C and D as follows:

1. The earliest features were a series of boundaries running east to west across the slope. In Trench C a palisade or hedge, which would have formed part of a stock-proof enclosure, was erected. Following this, in C a gully was cut on the north side of the palisade/hedge. A similar gully was seen in section in Trench D, but no trace of the palisade was located. The narrowness of the two trenches meant no associated alignments running down the slope were identified.
2. The construction of the stone terrace, a substantial stone feature that can be expected to be found within many of the terraces at Housesteads.
3. In Trench C there was some evidence for a later phase incorporating a stone foundation associated with a line of posts defining a fence. It is not clear whether this is Roman or later in date.
4. Late stone clearance on the line of the terraces with clear dumps on the down-hill side, well defined in C and apparent in D, probably medieval or later in date.
5. Later pits and gully filled with modern debris associated with the farm or the construction of the museum early in the 20th century.

The only other excavated evidence for the date of the terraces derives from Birley's excavations of the Vallum crossing at Housesteads (Birley and Charlton 1934, 186–8; Birley and Keeney 1935, 241–2). The terrace was clearly later than the construction of the Vallum, but earlier than a road dated to the 4th century (*ibid*, 241). Birley's chronology for the *vicus* may be questioned in the light of the reassessment of the coins from the site. However, the recent excavations broadly agree with a Roman date for the cultivation terraces although the pottery evidence from our excavations suggests an earlier date than was suggested. There is a

surprising quantity of pottery in both Trenches C and D, suggesting that there were dwellings outside the fort in some close proximity to the trenches when the pits were filled; alternatively the pottery may derive from manuring the small fields indicated by the palisade enclosures below the terraces. Overall this small insight from the terraces provides an indication that a wide area around the fort was actively managed by the soldiers and settlers at Housesteads from an early period of the Roman occupation. The indications of later reuse of the terraces is in agreement with the general complexity of the field systems described in the report on the RCHME survey of the landscape around Housesteads (*see Welfare above*).

Coarseware (Fig 10.14)

J N Dore

While the date range of some of the pieces extend into the first half of the 3rd century AD, it is entirely possible that the whole assemblage is confined to the 2nd century.

Context: 17 (Trench C)

- 1 A wall sherd from a mortarium in sandy orange fabric. Heavily abraded. Probably from northern England. 2nd century. Not illustrated.

Context: 20 (Trench D)

- 2 1 rim sherd bowl in BB2 fabric (possibly COL BB 2). Mid-2nd to early 3rd century.
Also: 3 wall sherds modern glazed pottery

Context: 25 (Trench E)

- 1 wall sherd modern glazed pottery
- 3 wall sherds Dressel 20 amphorae.

Context: 27 (Trench D)

- 3 1 rim sherd bowl in BB2 (probably COL BB 2); late 2nd to mid-3rd century.
- 4 1 small rim sherd beaker in sandy orange rough-cast fabric (WIL OX); probably same vessel as 19; not illustrated.
- 5 1 rim sherd cooking pot in BB1; probably same vessel as 7; early to mid-2nd century. Not illustrated.
- 6 1 rim sherd cooking pot; sandy grey; early to mid-2nd century.

Context: 34 (Trench E)

- 7 1 rim sherd cooking pot in BB1; early to mid-2nd century.

Context: 39 (Trench D)

- 8 1 small and heavily abraded rim sherd mortarium in sandy buff fabric; 2nd century. Not illustrated.
- 9 1 rim sherd cooking pot in BB1; probably the same vessel as FV 694; mid-late 2nd century. Not illustrated.
- 10 Bowl in sandy grey ware; 2nd century.

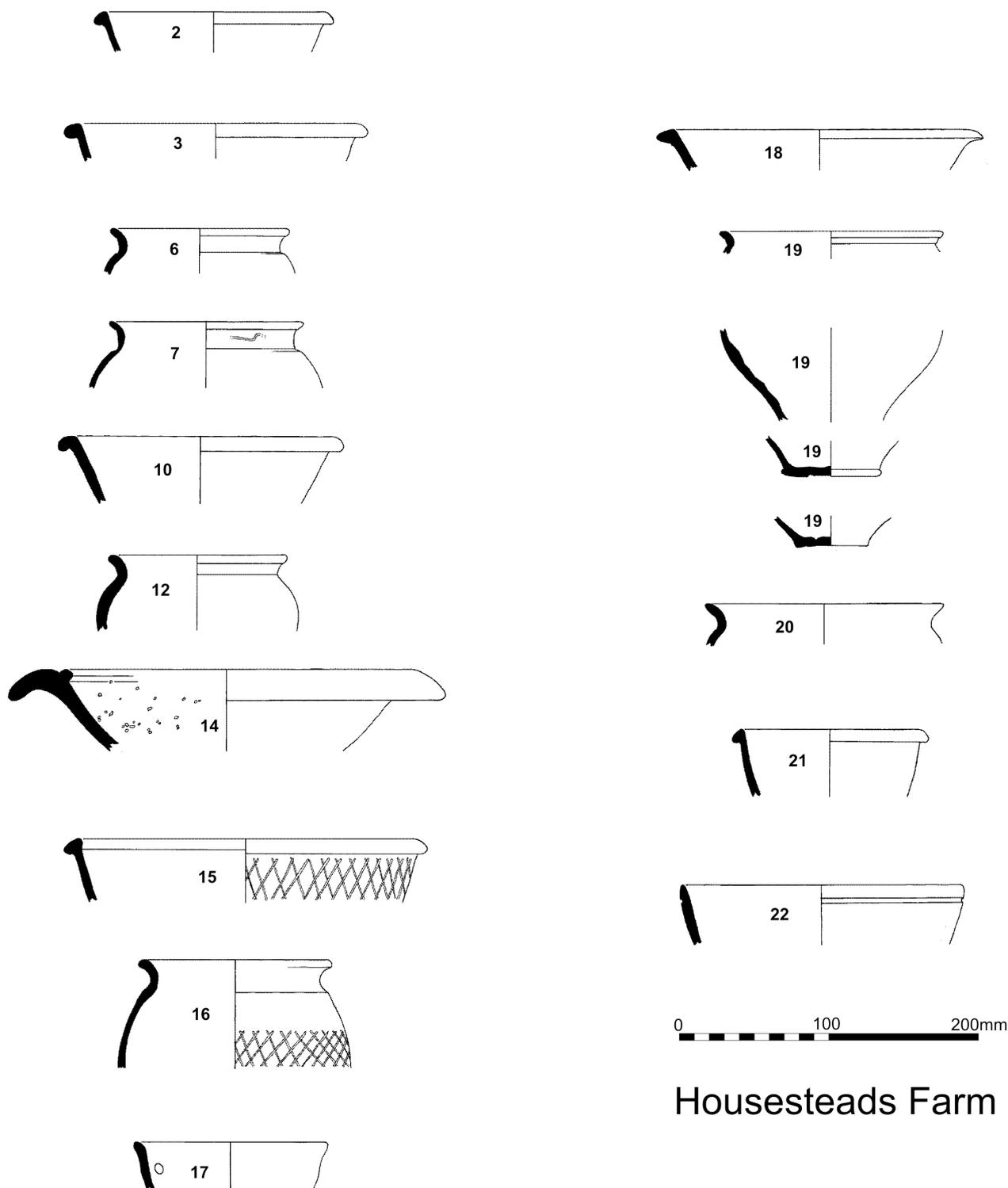


Fig 10.14 The coarseware: featured vessels (scale 1:4).

Context: 46 (Trench C)

- 11 1 rim sherd mortarium; the form is that typically made by Bellicus at Corbridge (*see* the main type series M9 in Chapter 16). Late 2nd century. Not illustrated.

Context: 55 (Trench C)

- 12 1 rim sherd from small cooking pot in BB1; mid-late 2nd century.

- 13 1 base sherd from a beaker in Lower Nene Valley fabric. Not illustrated.

Context: 57 (Trench D)

- 14 1 rim sherd mortarium; sandy buff fabric with traces of a cream slip; trituration grits are quartz and dark red fine-grained rock fragments mostly 3–5mm. Double stamp: SETIBO[GIVS] (Fig 10.15). A stamp from the

Housesteads Farm

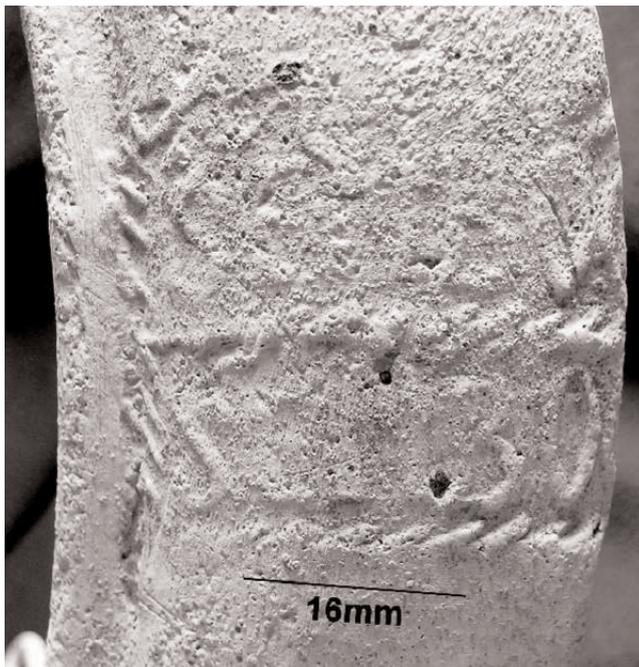


Fig 10.15 The mortarium stamp of *Setibogius*.

same die is known from Halton Chesters (Hartley 1960, 159). *Setibogius* was an associate of the prolific potter *Sarrius* and vessels stamped by both potters are known (see Hartley 2002, 342, MS67). He worked (probably entirely) at Rossington Bridge. Hartley (ibid, 341) gives a fuller discussion. Dating is by association with *Sarrius* for whom a range of AD 135–70 is suggested.

- 15 1 rim sherd bowl in BB2; mid-2nd to early 3rd century.
- 16 1 rim sherd cooking pot in BB1; mid-late 2nd century
- 17 1 rim sherd bowl in sandy grey fabric.
- 18 1 rim sherd bowl in sandy pale grey fabric with darker grey surface.
- 19 1 rim sherd, 1 body sherd and two base sherds constituting a minimum of two vessels; Wilderspool fabric (WIL OX); rough cast surface. Mid-late 2nd century.

Context: 59 (Trench C)

- 20 1 rim sherd cooking pot in BB2; mid-2nd to early 3rd century.
- 21 1 rim sherd bowl in BB2 (Possibly MUC BB 2); mid-2nd to early 3rd century.
- 22 1 rim sherd bowl in BB2 (possibly COL BB 2); mid-2nd to early 3rd century.

Housesteads water pipe

In April 1976 the water pipe from the Roman well north of Chapel Hill to the ram pump feeding Housesteads Farm was re-excavated. It was proposed to lower the level of the pipe by 0.60m to increase the water flow into the ram and a watching brief was carried out, supervised by Judy Crow and assisted by the writer. The pipe trench runs in a south-west direction around the west flank of Chapel Hill (Fig 10.16). The line of the trench lies to the west of the area of Civil Settlement excavated by R E Birley in 1960–1 (1961;

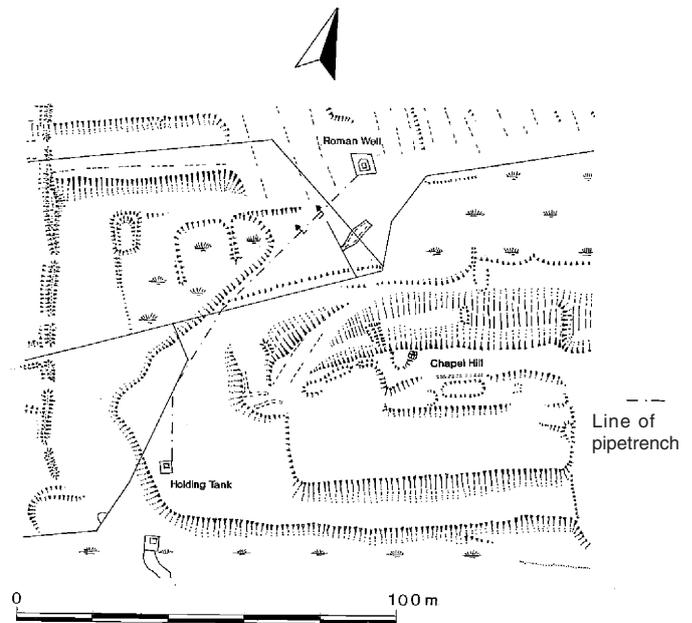


Fig 10.16 Location of the 1976 waterpipe trench.

1962). Initially the trench was excavated by hand but the flow of ground water on the dip slope of the Whin Sill was so great that it was necessary to use a JCB and a water pump. The well was cleared out without any significant finds and initially the trench was dug as far as the boundary fence. No structural features were noted.

At a distance of 13.20m south-west from the well, clear traces of Roman levels with distinct floors survived 0.90m below the modern ground surface (see Fig 10.17). Conditions were very difficult owing to the weather and the constant flowing ground water but it was possible to recognise in section the remains of two superimposed flagged floors over a layer of black organic deposits. These included fern leaves, wooden pieces and several shoes and sandals (see Mould: 'The Leather', in Chapter 14) and it is clear there is exceptionally good organic preservation in these waterlogged soils. No certain structural features were seen in this part of the trench, but to the south-west, close to the crossing with a stream and near the west-east field wall (54.80m from the well angle) a layer of mixed mortar and rubble was noted, suggesting the robbed walls of a more substantial stone building. Beyond the field wall the trench cut through natural sandstone and no further traces of Roman structures or occupation were encountered.

Any conclusions are limited by the circumstances of the excavation. Previous excavations by R E Birley west of the well had identified north-south walls of two buildings (1962, fig 1, 124–5). The water pipe clearly passed to the south of these, but the floors noted in section (Fig 10.17) can be located east of the east wall of IV. This is shown as a possible road on Birley's plan, although the nature of the flagged floors suggests that they were inside or associated with a building.

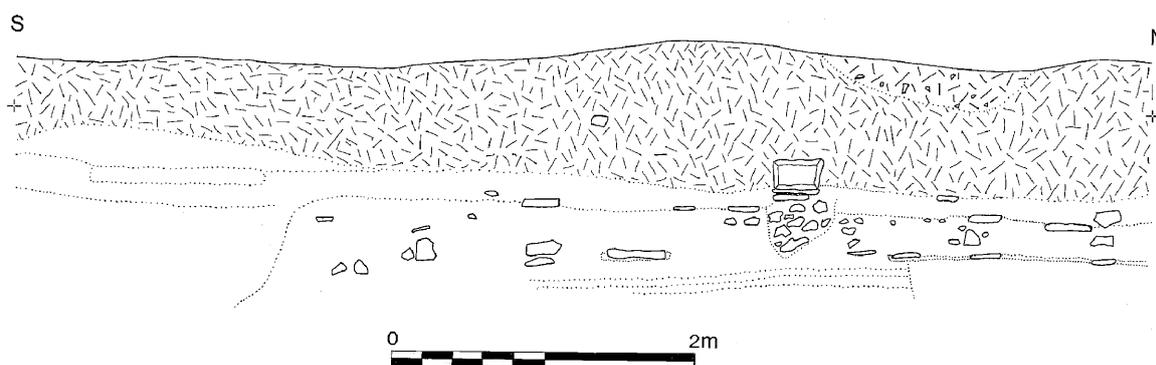


Fig 10.17 Section drawing of 1976 waterpipe trench; scale 1:50 (location marked on Fig 10.16).

There was no indication of another structure south of IV. Despite these reservations, the 1976 trench showed once again the potential for the survival of important organic remains and finds in this part of the civil settlement at Housesteads (*PSAN* 2 ser 8, 1899, 213; Bosanquet 1904, 205).

The Knag Burn Gateway 1988–1989

(Fig 10.18)

The re-excavation of the west half of the central roadway and east wall of the west guardchamber of the Knag Burn gateway arose from the need to create a new footpath through the gateway as part of a 'bypass' right of way along the north side of Housesteads Fort. Because of problems of waterlogging in the low-lying gate, the new path was to have a surface of pitched stones. At the same time the field gate was replaced and a new gate-post was inserted on the west side of the Roman gateway. The watching brief was undertaken by The National Trust's Manpower Services Team and was supervised by David Crawford and directed by the writer. The work was carried out during the winter months of 1988–9 and, like Birley's excavations in the winter of 1936, we fully appreciated the low-lying nature of the gateway's location (1937, 173).

Initially we wanted to establish how far the new pitched path was likely to disturb any remains of a Roman road surface within the gateway and secondly to find a location for the new gate-post that would cause as little damage as possible to undisturbed Roman deposits and structures. It was soon established that any cobbling in the gateway was modern in origin, laid down after Birley's excavation in 1936 (the extent of this work can be seen in Birley 1937, pl xxiv, fig 1 – reproduced here as Fig 10.19) and that traces of the blockwork foundations for the south arch survived just below the turf. The surviving core of the Narrow Wall phase of Hadrian's Wall was re-excavated to half the width of the Roman gateway (see Fig 10.18) and part of the sondage cut in 1936 against the east face of the west guardchamber was emptied to allow detailed record drawings of the east elevation.

The excavation confirmed the observations of the 1936 excavations concerning those elements of Hadrian's Wall constructed before the gateway. A line of whinstone slabs was found below the Narrow Wall and represented the south face of a fragment of Broad Wall foundation, offset by 0.52m south of the Narrow Wall. This conforms with the alignment of the fragment of Broad Wall located in 1936 within the east guardchamber *c* 18 inches (0.45m) south of the inner face of the tower (Birley 1937, 173, fig 1). The north face of the Broad Foundation has not been located at this point. Excavation of the curtain wall 25 yards (*c* 22.5m) east of the gateway in 1975 recorded foundations with a total width of 3.24m, although rather surprisingly the published note reported that 'No trace of Broad Wall foundation was found' (Goodburn 1976, 309; see Crow forthcoming for more detailed publication of this work, which was directed by Ian Stuart (Inspector of Ancient Monuments)). These dimensions are comparable to those located by Simpson on the exterior of the north-east angle of the fort where he recorded a total width of 3.35m (11ft) (F G Simpson 1976, 128, fig 48, where it is stated that 'fig. 48 shows the flag footing of the Broad foundation *riding over* the lowest foundations of the fort wall,' (my italics) which is not claimed elsewhere). This width is also indicated by the wide foundation of the culvert through the curtain wall west of the gateway, which must also belong to the Broad Wall phase and, unlike the culvert in Peel Gap, it appears to have continued in use throughout the Roman period, a reflection of the continuous water flow of the Knag Burn. It would appear that in the Knag Burn gap the Narrow Wall was constructed within the overall width of the Broad Foundation; an unusual response since the north faces of the two phases of the wall were normally identical and the variable off-sets of Broad and Narrow Walls are found on the south side. It should be noted, however, that on Sewingshields Crag to the east the Broad footings extended 0.34m north of the Narrow Wall foundations (Crow and Jackson 1997, 61).

Within the gateway the Narrow Wall survived to a height of two courses of sandstone blocks with an overall width of 2.40m (7ft 10½in.) and the lower course

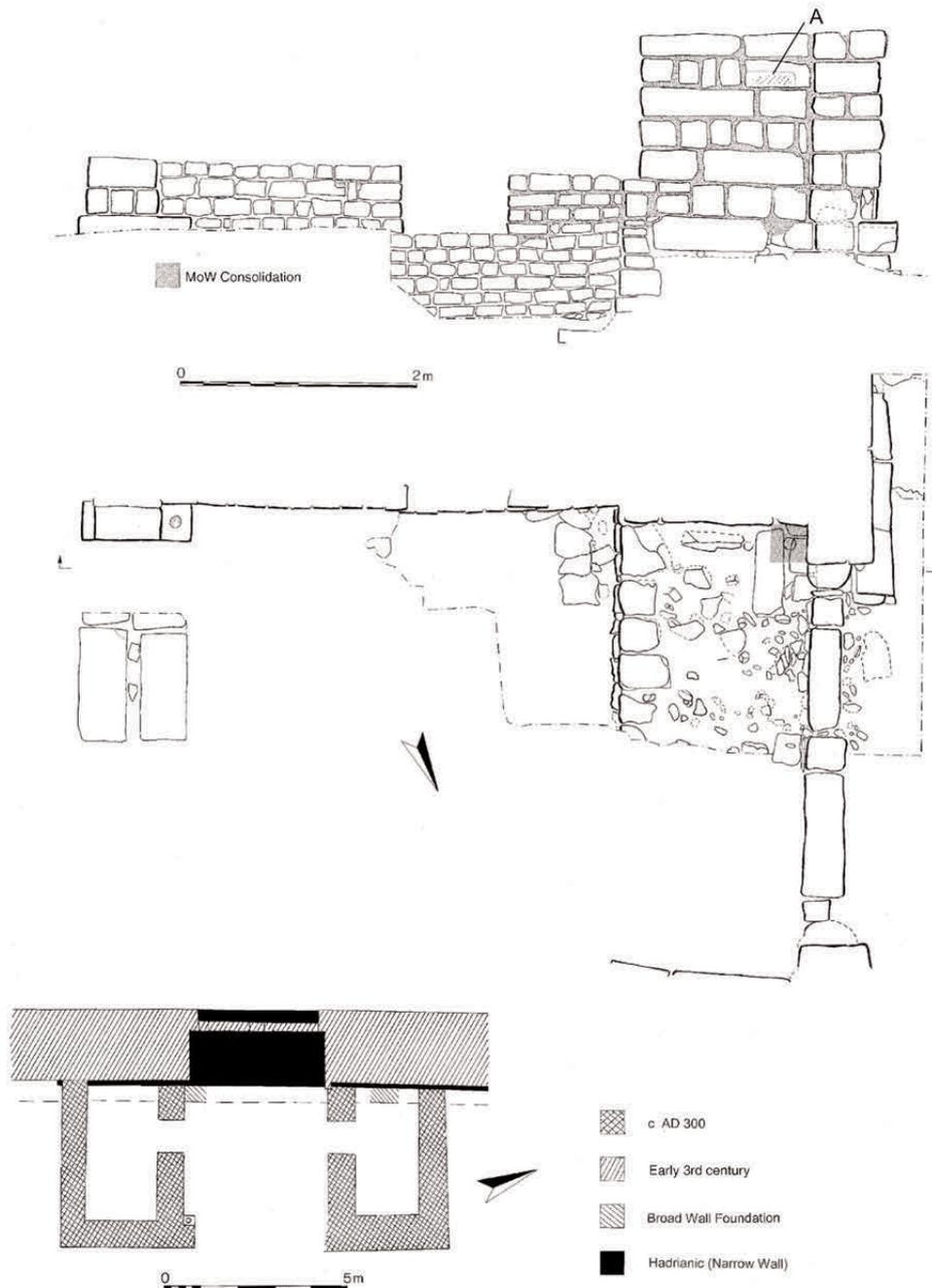


Fig 10.18 Knag Burn Gate excavation 1988: plan and elevation with interpretative phase plan (scale: main plan and elevation 1:50; phase plan 1:150).

offset by 0.20m. The core of the wall comprised yellow-brown clay with sandstone rubble. Mortar is unlikely to survive in such wet conditions, but it is probable that the footings of the wall were always constructed with clay because of the damp situation. Both phases are likely to represent Hadrianic Wall since a later phase of Extra-Narrow Wall 1.98m (6ft 6in.) wide was reported by Clayton after work in 1856 (Clayton 1855–1857, 186). Stuart reported similar widths for Narrow and Extra-Narrow Wall east of the gateway, 2.50m and 1.94m respectively (Goodburn 1976, 309; see Crow forthcoming). Neither account makes any mention of different core between the Narrow and Extra-Narrow phases.

As Birley observed (1937, 176) the gate-stop and sill-stones of the later gateway rest directly on the Narrow Wall; however, it is significant that the sill shows little sign of wear and more particularly that there is no trace of wheel ruts, which are very pronounced in the east and south gateways of the fort (Clayton 1855–1857, 186–7; Crow 2004a, 34–5, fig 16). The implications of this are considered below.

The principal surviving remains at the gate were originally cleared by Clayton's work staff in 1856 and described in detail by Birley following re-excavation in 1936 (Clayton 1855–1857; Birley 1937). Re-examination in 1988–9 allowed a reassessment of these

observations and conclusions. Birley showed that the gate was inserted after the construction of the Broad and Narrow Walls. In addition he suggested that much of the surviving masonry dates from the reconstruction following Clayton's clearance of the Wall east of the fort. Of this work Birley wrote 'In the north archway ... above the (footing) course, as may be seen in plate XXIV 2, though Roman masonry has been employed intelligently, the existing structure must be ascribed to John Clayton' (1937, 176). Archaeologists on Hadrian's Wall are frequently faced with the problem of defining earlier restoration, although it is apparent that not all generations are as scrupulous in observing the scale of these interventions. In 1931 Parker Brewis and Birley trenched the line of Hadrian's Wall to the east of the Knag Burn and concluded that, 'the original wall had been completely destroyed, and the existing structure assignable to John Clayton's workmen' (Birley 1937, 173). However, Stuart reported that before consolidation of this length of Wall in 1975, a maximum of six Roman courses survived below the modern drystone wall (Goodburn 1976, 309). Few records survive from these early works and later interpretation needs to be questioned and reassessed. In practice, the misattribution of restoration work which in reality was original Roman construction was a common theme in the 1930s; *see* Hunter Blair's comments on Milecastle 37 (Hunter Blair 1934) and Grace Simpson's corrections (F G Simpson 1976, 120). At the Knag Burn much of the surviving evidence within the structure was destroyed during consolidation of the walls using cement-based mortars after 1950; however, from detailed recording it is possible to draw new conclusions about the structural history of the Roman gateway.

Roman stones that have clearly been repositioned can be recognised in the elevation of the east face of the gateway. In Fig 10.18 a stone marked 'A' has the outline of a groove for the socket of the sliding bar that secured the gate. The upper stone that fitted with this is missing, and to function as at Housesteads Milecastle (F G Simpson 1976, fig 43) both stones needed to be aligned in the opposite direction. It is clear that although part of this elevation has been restored, the stone has not been moved far from its original position, since the closing bar was located immediately behind the responds. An explanation for its present position is that it was reset by Clayton's men and turned over in the process but that it is still very close to its original location. If this analysis is accepted then we can question Birley's assertion that the structure was totally rebuilt by John Clayton. It also brings into question the published plan of the Knag Burn gateway (Birley 1937, fig 1). This indicates that the passage wall of the gateway is directly aligned with the east wall of the west guardchamber. This detail was also shown in Clayton's plan of the gate (reproduced in Birley and Keeney 1935, 245). Both plans omit a significant detail of the west and east sides of the gate, for

as Fig 10.18 shows, the inner walls of both guardchambers are inset and do not continue the passage walls of the gateway. On the west side the passage is inset by 0.15m and there is a clear change in construction apparent in both elevation and plan between the guardchambers and the curtain wall and gate.

On the inner face of the curtain within the west guardchamber an offset continues on the line of the Narrow Wall found below the gateway, and this was shown as part of Hadrian's Wall in Birley's plan (1937, fig 1). Above the offset this consolidated wall is 1.95m wide, which is the same width as the Extra-Narrow Wall reported by Clayton and Stuart (*see above*) in the Knag Burn gap. It would appear therefore that the gateway is either contemporary or later than the Extra-Narrow Wall phase. Although the junction between the surviving angle of the gateway passage wall, the first Narrow Wall and the guardchamber is compromised as evidence because of 19th- and 20th-century restoration and consolidation, it is most unlikely that the masons would have created the complex junctions we can still see in the stonework. Rather we should reject the earlier published plans as a simplification of the evidence and consider the implications of the structural surviving structural phases. These may be summarised as follows:

1. Broad Wall Foundation with culvert located to the west of the site of the gateway
2. Narrow Wall reusing culvert
3. Extra-Narrow Wall constructed across the gap either with the gateway or the gateway inserted through the wall at a later time.
4. Addition of guardchambers and rear gateway.

As a result of earlier interventions, no stratigraphic evidence of construction trenches or deposits survives to be able to date these basic structural changes, but we should at least question the published plan of the gate and consider the alternative explanations for the gate's structural history. The structural evidence described above may indicate that there are two periods of construction at the gate, and as an alternative to the traditional interpretation we can suggest that initially there was a simple gate associated with the Extra-Narrow Wall, which is generally thought to date to the early 3rd century (*see* Bidwell 1999, 25–6), and secondly the additional defence of the gate by the provision of guardchambers, presumably with towers and a rear gateway. The rear wall of this secondary work is built on distinctive foundations, including the use of large blocks laid across the width of the wall (*see* Birley 1937, pl xxiv, fig 1; reproduced as Fig 10.19 here). Similar work can be recognised within the fort, especially on Building XV and is dated to the late 3rd century (Crow 2004a, 92–4 and above, Chapter 5) which also accords with Clayton's late coins from the site. Whether these two phases are accepted depends solely on the interpretation of the consolidated remains but it



Fig 10.19 The Knag Burn gateway as revealed in 1936, showing the long blocks used in the footings (Birley 1937, pl xxiv fig 1).

does take into account the evidence for the Extra-Narrow Wall. In its first phase the gate either cut through or was constructed as part of the overall renewal of Hadrian's mural barrier in the early 3rd century; it was a simple gateway similar to one of the quintan gates known from Chesters or Birdoswald. Although the masonry of the gate is substantial, it is significantly narrower from north to south than a mile-castle gate and so probably did not carry a tower. Like the gates of the Hadrianic and Antonine wall forts, the responds and arch are set forward within the gate passage. This practice may be contrasted with later (probably Severan) gates at Risingham and High Rochester (Crow 1999, 193) where the impostes and gate are set back and flanked by the curtain and gate towers (Richmond 1940, fig 14). At the Knag Burn gateway the later guardchambers have deep foundations and probably supported towers. At the rear of the gate passage there were responds showing that there was an inner gate, although pivot blocks have not been reported from earlier excavations. The overall impression is one of security and the need for greater defence in a position isolated from the fort. These conclusions may be drawn from a reassessment of the structural evidence from the gate or, alternatively, we may conclude, like Birley, that 'the superstructure does not fit

systematically on the foundations, but that happens so frequently in Roman work that there is no need to assume a difference of periods' (1937, 174).

The Knag Burn gateway is unique as a gate through Hadrian's Wall since it is located neither in a fort nor at the crossing of a major military highway like the Port Gate. In the third edition of *The Roman Wall* Bruce suggested that the gate was constructed to provide access to the 'amphitheatre' located north of the wall, although it is clear from the report to the Newcastle Antiquaries that this explanation was not universally accepted (Bruce 1867, 150; cf Clayton 1855–1857, 187). The traditional view expressed in the *Handbook to the Roman Wall* following that advanced by Birley (1937, 176–7) was that the gate served 'civil as opposed to military traffic' and that the arrangements of a double gate represented the needs of frontier control 'so that parties could be admitted for examination and the payment of tolls' (Daniels 1978, 137–8). Breeze and Dobson remain more equivocal and while they accept the early 4th-century date suggested by Birley, they also consider the possibility that the gate may have simply replaced the north gate of the fort (2000, 228). This suggestion was originally made by Mann, who argued that the north gate needed to be replaced 'when the ramp outwards from that became

inconveniently steep in consequence of raising the threshold' (quoted by Salway 1965, 89, n 1). Excavations by Crow outside the north gate of the fort in 1984 showed that the approach road was probably abandoned by the late 2nd century (1988, 74) to be replaced by the more accessible Knag Burn gateway located beside the Military Way leading up to the main east gate of the fort. Birley's excavation revealed no new dating evidence for the gate and he argued that the gate should date to the period of Constantius Chlorus' reconstruction, in part based on Clayton's discovery of coins of Claudius Gothicus and Constantius Chlorus (Birley 1937, 176) (*see* Chapter 13, p 376). No new dating evidence emerged from our work but the revised structural sequence may be seen to reflect the changing needs of access and security throughout the 3rd and early 4th centuries. Like many north gates from forts and milecastles on Hadrian's Wall, the gate's threshold shows little sign of wear. This is in contrast to the east main gate at Housesteads and it is likely that the Knag Burn served a mainly military function for patrols and access beyond the wall rather than witnessing any regular cross-frontier traffic of civilians and their flocks.

The pivot stone (*contribution by P R Hill*)

Lying to the south of the gate is a long stone with what appears to be a pivot hole towards one end. The hole is centred 130mm from one edge and 250mm from the end. So far as could be seen it is worked in fine pecks, and runs through at a constant diameter of 100mm; this is unlike the double pivot stone at the north gate of the fort. No signs of damage or wear were visible, but on the upper surface is a slight circular depression offset 20mm from the hole; this might indicate that an offset part of a rotating pivot was pressing against the face, although how this could have been achieved on an upper pivot stone is not clear.

The stone is 1100mm long, 370mm wide, and 205mm to the turf; the end away from the hole is a fracture. The present upper surface and the long edges appear to be natural with occasional punch marks. At the south end, where the hole is, the end of the stone is roughly worked to a subcircular form; it is not clear why this should have been done unless the stone had been reused as a gate post, which it much resembles.

The size of the hole suggests that the stone may have been an upper pivot stone from the Knag Burn gateway. It seems to be unnecessarily long for the purpose, but no information is available about the typical size of single upper pivot stones. Its size is more appropriate for a double pivot, but if there was a second hole this has been lost beyond the fracture. To judge by the double pivot at the north gate, where the holes are at 980mm centres, any hole would have been centred about 130mm beyond the break, with another 80mm of stone between the fracture and the edge of the hole.

One would expect the stone to have broken through the hole, a point of weakness, but stone is unpredictable.

A double pivot would not have been needed for the Knag Burn Gate, and if this were indeed a double pivot, for which there is no extant evidence, it must have come from one of the fort gateways.

The 'House of the *Beneficiarius Consularis*' (Vicus Building V)

P R Hill

The visible part of the building consists of two courses of facing stone and one foundation course. Probably the whole of the south elevation and just over half of the east elevation can be seen, together with the south-east elevation formed by cutting off the right-angle between the east and south elevations.

As the north end of the east elevation and perhaps the west end of the south elevation are both a little uncertain, numbering of each course of facing stones begins at the squint quoins and the three elevations are numbered separately. At each quoin the stone that has the quoin worked on it is numbered 1 and numbering runs to the left and to the right on the south and the east elevations respectively. The stones of the south-east elevation, between the quoins, are numbered from the left. In all cases stones are numbered separately within each course. The foundations are jointed at the angles, and numbered from the joint, to the left on the south elevation and to the right on the other two elevations.

The survey was made in heavy rain.

Description

The foundations

The foundations are almost all large, roughly squared stones resembling poor-quality, hammer-dressed squared rubble with many natural faces. They project 50–75mm, occasionally 100mm, from the course above. The beds are poor, but the upper arris is indicated in a few places. They are mostly not worth describing individually.

There are three exceptions. Stone 1 on the south elevation is a rough slab 1670mm long; two similar slabs make up the south-east foundation, the left-hand 2300mm (now cracked in two) and the right-hand 1800mm. All these slabs show slight signs of work with a punch on both face and bed, but are mostly natural, laid more or less as they came from the quarry. The use of such large slabs, weighing perhaps half a tonne, implies the use of heavy transport and numbers of men not entirely justified by the end results.

The foundations are not typical of Roman military engineering, in that the beds are uneven and the top of the course varies in height.

The south elevation

The bed heights on the lower course vary to suit the uneven foundation course; stones 1/1 to 1/7 are 300–320mm, stone 8 increases from 300 to 350mm; stones 1/9–1/16 are between 310mm and 350mm. The dimensions given below give the length of the face.

None of the stones has a chiselled margin, but the arrises are well defined and in elevation the joints are straight and tight unless otherwise noted. The faces are all worked with a punch in small pecks, now somewhat weathered and much obscured by lichen.

The west elevation

North of the quoin S1/16 can be seen part of a stone with a more or less straight but natural split face; this was probably not visible owing to the slope of the ground, and will have formed part of the foundation. Above this is a part-course of two natural-looking blocks, which may or may not belong in their present position. Above these is a single, entirely natural block with a very uneven natural top bed, which rises by 100mm to the west. This does not belong in its present position.

The east elevation

The bed heights on the lower course vary between 315mm and 260mm to suit the uneven top bed of the foundation course. The given dimension is the length of face.

None of the stones has a chiselled margin, but the left-hand, right-hand, and lower margins are generally worked more carefully than the centre of the face; this is most noticeable on the second course. The arrises are well defined and in elevation the joints are straight and tight unless otherwise noted. The faces are all worked with a punch in small pecks, now somewhat weathered and much obscured by lichen.

To the north of the numbered stones this elevation is made up of two courses of roughly squared stones, which were presumably originally underground and were part of the foundation. At the north end the final foundation stone, a long one running into the turf, rests on the cut-away end of the course beneath, showing clearly that it was a stepped foundation. Above this are two courses of very good squared rubble. The lower course has two stones, followed by the long foundation stone referred to above; the second course has four stones, ending at the visitors' path to the south gate.

Summary and discussion

The south and south-east elevations are worked with some degree of care, having clean, square joints on elevation and reasonably good more or less flat faces. The care taken with the angles of the squint quoins is a little

unusual in Roman military engineering; it is probable, although not certain, that they were worked to a template of some sort rather than being dressed *in situ*.

The east elevation shows a greater degree of care than the south and south-east. The margins, although not distinct, are more carefully worked on the left-hand, right-hand and lower edges, and this was clearly the main façade and as such intended to have an imposing appearance. Almost certainly, the two lowest courses to the north of the threshold were originally underground. The good squared rubble, unless a modern intrusion, may have been underground, although they are much better worked than the rest of the foundation, or may represent the only remnants of a superstructure that was in squared rubble, albeit very good, rather than the heavy blocks which now are all that is left of the rest of the building. The use of squared rubble for the superstructure would explain the very poor beds of the second course, which are well below the standard of the faces, which is the reverse of normal Roman military work.

The west elevation is very different, with a very poor quoin stone which could never have looked good; to the north of the quoin the lowest course at least was probably buried. This elevation will have been the back of the building, and as such of small importance.

The foundations are surprisingly poorly finished, although quite adequate for their purpose.

It is unfortunately not possible to identify the builders; they ought to have been from the army, in view of the proximity to the fort and the indications, from the relatively high quality of the visible work, that it was an official building. Also, the size and weight of the facing stones as well as the foundation slabs certainly indicate a large, organised builder. On the other hand, it could equally well have been the property of a successful merchant or army contractor determined to show his status, using local labour. The present writer is not aware of any hard evidence of the existence of local building contractors capable of producing such a building.

We are clearly as far into the realms of speculation as the designation of the building as belonging to the *beneficiarii consularis*.

Discussion: the fort and *vicus*

(Figs 10.20–10.22)

The detailed coin evidence relating to the end of the *vicus* at Housesteads is set out below in Chapter 13. It strongly implies that occupation in the civil settlement ceased *c* 270. The coin sequence from the *vicus* actually continues up to 348–50. However, the latest issues all derive from the buildings immediately outside the south gate of the fort and most probably, therefore, represent casual loss generated by traffic entering and leaving the fort or perhaps by market activity immediately outside the gate, of the sort recognised in recent excavations on the roadways just inside the minor west gate (*porta*

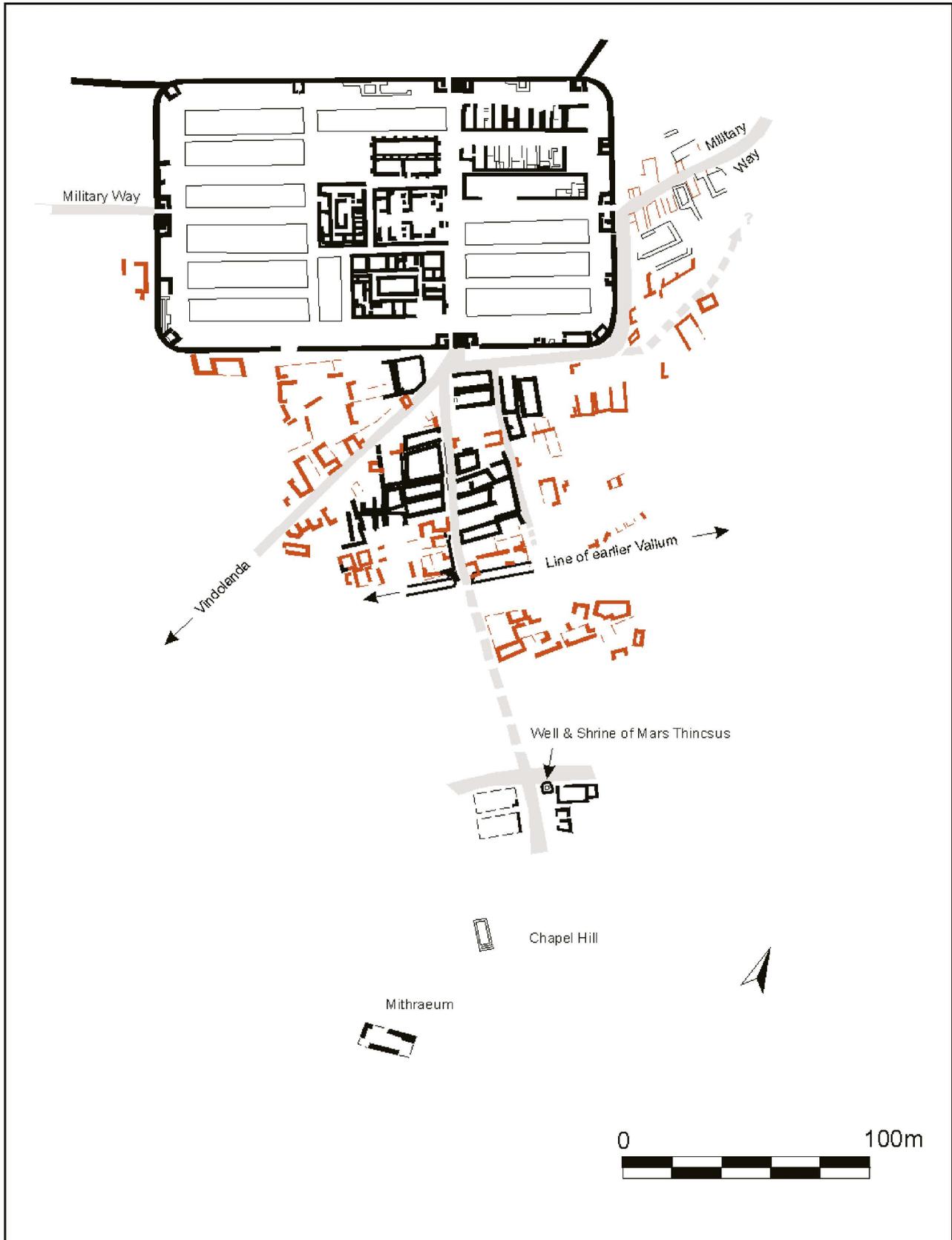


Fig 10.20 Plan of the fort and vicus based on excavation data (shown in black) and aerial photographic evidence (in red – cf Figs 10.21–22).



Fig 10.21 Aerial photograph of the fort and vicus from the east taken in July 1949 during drought conditions (CUCAP DS 31 – original photograph held at Cambridge University Collection of Air Photographs, Unit for Landscape Modelling).

quintana sinistra) at Wallsend fort (Hodgson 2003, 17–18, 166–7, fig 116). In the valley bottom, the well inside the shrine of Mars Thincsus may have continued in use, in some form, into the 4th century (see Chapter 13, pp 376–7). The latest coin found there is a Constantinian issue of 316–17 (No. 812), but there is nothing to suggest that the remainder of the civil settlement at the bottom of the hillside continued this late.

This absence of demonstrable 4th-century occupation in the civil settlement at Housesteads conforms to the pattern observable at other *vici* along Hadrian's Wall. This phenomenon was first identified by Daniels (1980, 190) and has since been elaborated by Bidwell

(1991, 12, 14) and most particularly by Snape (1991, 468). Thus, a similar picture is presented by the most extensively excavated of the northern frontier *vici*, Vindolanda, which seems to have been abandoned in or about the early 270s to judge from the coin evidence, again. Radiate copies – so common on sites of the later 3rd century – are virtually absent from the *vicus* list while a hoard cut through the latest levels of *vicus* period II terminates with issues of 270 (Bidwell 1985, 88–92; Casey 1985, 105). The very few later coins found in the area of the civil settlement probably represent casual loss by through traffic to and from the fort, as at Housesteads. A further phase of the



Fig 10.22 The fort and vicus viewed from the south during the 1949 drought (CUCAP DI 78 – original at Cambridge University Collection of Air Photographs, Unit for Landscape Modelling).

Vindolanda *vicus* (III) has been postulated (Birley 1977) but the evidence for this is very unclear. Excavation of timber structures, road surfaces and other features south of the fort at Rudchester in 2001 has produced another assemblage of pottery restricted to the 2nd and 3rd centuries (John Dore, pers comm).

The same pattern is echoed at other less extensively investigated sites. On the western side of the Pennines no coinage later than *c* 270 has been found in the *vicus* at Old Penrith and the pottery likewise suggests occupation ceased in the mid- to late 3rd century (Austen 1991). At Watercrook the east *vicus* seems to have petered out even earlier, being apparently in

decline from the beginning of the 3rd century and largely abandoned by *c* 220, on the basis of the pottery (Potter 1979, 193–5), while the finds from the *vicus* area at Lancaster similarly suggest little or no 4th-century occupation. Burgh-by-Sands has likewise produced no mid- to late 4th-century pottery.

The picture was not universal, however. Malton, North Yorkshire, continued to flourish in the 4th century, while activity at the Greta Bridge *vicus* probably persisted longer than other known examples further north or west. The current evidence from South Shields, on the other hand, could conform to the pattern documented elsewhere along Hadrian's Wall,

although it is not yet conclusive. The investigation of buildings and two stone-lined wells to the west of the fort showed occupation there ended before the late 3rd century (Breeze 2006, 129), but excavation 240m south of the fort, in 1993, revealed a cemetery that continued in use until the mid-4th century (Snape 1994; 1995). However, this continued late Roman use of the cemetery could conceivably be associated with the inhabitants of the fort, rather than those of a surviving *vicus*. The presence of eight granaries in the northern part of the fort implies that South Shields continued to function as a port for the eastern half of the Wall, and the same may also have been true, to some extent, of Newcastle and even Wallsend, both on the lower reaches of the Tyne. If so these sites will still have required riverine harbour facilities, at least, but it is unclear whether this would have necessitated the maintenance of associated buildings, such as warehouses and, if so, how extensive such ancillary development might have been. A pattern different to that encountered in the *vici* of Hadrian's Wall is indeed conceivable in the eastern lowlands, at the hinterland sites, garrisoned from the later 3rd century onwards by the higher grade of frontier troops (classified as *ripenses* or *riparienses* in late imperial legislation), but has yet to be demonstrated.

Thus most *vici* along the northern frontier display very little evidence of 4th-century occupation and seem to have been abandoned perhaps as early as the 270s, in some cases, at least, beginning to decline from the mid-3rd century. As noted below, the date of abandonment of a great many *vici* would not conflict with the hypothesis of a *vicus*-chalets transfer on the part of the civilian population and in particular of military dependents, but acceptance of that married-quarters hypothesis does entail making the unsubstantiated assumption that the over-riding function of *vici* was to house soldiers' families and that their removal inevitably caused the implosion of the settlement. In reality the causes of this process are likely to have been more complex, with other factors, such as the switch to levying all supplies, equipment and materials in kind, playing an important role. The increasing regularisation of this procedure, which grew from a series of somewhat *ad hoc* crisis measures into the principal element of imperial fiscal

machinery based on minute calculations of all the state's requirements, was made manifest in the construction of great storehouses to hold the collected taxation in kind, like Phase 4 of Building XV at Housesteads. This impressive structure may therefore hold more of the key to understanding the abandonment of the *vicus* at Housesteads than do the chalets, which scholars have long associated with that process.

Despite the desertion of the *vicus* this does not mean that the environs of Housesteads were empty during the 4th century and subsequently. R E Birley's excavation of the lower *vicus* revealed one stone roundhouse built over the remains of a *vicus* workshop and therefore presumably post-dating the abandonment of the formal extra-mural settlement. There is no reason to suppose that this roundhouse represents the 3rd-century temple of Mars Thincsus, as Birley assumed, or was even contemporary with the latter. Scrutiny of Clayton and Bruce's separate accounts of unearthing the Roman well (*see above*) demonstrates that the carved pillar and monolithic arch of the temple's doorway and an associated inscribed altar were found by Clayton in very close proximity to the well and hence that the small apsidal building enclosing the well should be presumed to form the shrine of Mars Thincsus. Although it is unclear by how much the roundhouse post-dated the *vicus* – it might conceivably be later than the Roman military presence – its discovery does raise the possibility that the land south of the fort was turned over to the local peasantry once again from the beginning of the 4th century. Similarly, on the east side of the Knag Burn, a more extensive settlement excavated by Dornier in the 1960s may conceivably be of late Roman or early medieval date, though the results were inconclusive (Dornier 1968; 1969; and *see Welfare above*). In Chapter 11 it is suggested that this may reflect a degree of symbiosis between the garrison and the surrounding rural population, with the terraces below the fort, which may have formed part of the latter's *territorium*, perhaps now being leased out to local farmers. If a real phenomenon, such symbiosis would potentially have been very significant as imperial rule drew to a close and the soldiers and farmers of the northern frontier faced a set of radically new challenges.

11 Discussion: aspects of the site's history

Introduction

This chapter is designed to show how the results of the excavations in the north-east quarter and the other programmes of research and investigation detailed in this volume fit into the broader historical context of the fort and its environs.

It is not, however, intended to provide a conventional narrative history for Housesteads. The literary and documentary sources are too sparse to enable such an undertaking, at least before the 16th century. Moreover, excavations at Housesteads have failed to find any evidence for the barbarian invasions that form the principal focus of those ancient historical sources that do refer to the northern frontier. While such events form a general backdrop, the detailed history of the site must be deduced from the evidence of the surviving structures, excavation data and epigraphy. A full, integrated structural history of the north-east quarter can now be written, based principally on the results of the 1959–61 and 1974–81 excavations (*see* Chapters 2–7), although areas of uncertainty still remain, particularly with regard to the precise chronology of certain structures. This in turn serves as a detailed archetype for an overall structural history of the site, which may be assembled from the results of the numerous campaigns of excavation and survey conducted in the fort and its surroundings during the last two centuries. Certain particularly intensive phases of activity can be recognised, notably in the Severan era and the later 3rd to early 4th centuries (*see* Chapters 4 and 5 and below), perhaps reflecting periods of imperial interest in and patronage of the northern frontier, a conclusion supported by surviving building inscriptions. Other features are more difficult to fit into such phases and may form part of a succession of less substantial alterations made over a broader timespan. The dating of such alterations, based on ceramic typologies and occasional stratified coin finds is often relative and tentative rather than absolute. Despite these caveats, we may sometimes be able to discern, indirectly, the wider actions and motivations of previous inhabitants of Housesteads, through the monuments and artefacts they left behind.

Evidence for prehistoric occupation

The Roman army was perhaps not the first to occupy the site of Housesteads and recognise the particular advantages of its location. Difficult though it may sometimes be for visitor and excavator alike to recognise, given its often inclement weather, Housesteads is actually a very favourable spot within its marginal upland environs. The distinctive scarpland topography,

which culminated in the great ridge of Whin Sill where igneous dolerite was extruded through a limestone strata, gave rise to the long, south-facing dip slope below the fort. The lower part of the slope, comprising most of the southern half of Housesteads field, consists of a limestone over which good fertile soils have developed. This combination of fertile soils and south-facing aspect provided the only good conditions for arable agriculture in the immediate vicinity, attractive to successive generations of farmers, perhaps stretching as far back as prehistory, and thus accounts for the complex palimpsest of agricultural features around the fort (Chapter 10).

The discovery of residual Mesolithic and Neolithic flint tools during excavations in the south rampart and north-east quarter of the fort (*see* Chapter 21), points to some hunter-gatherer activity in the locality, as might be expected. The assemblage also hints at domestic occupation in the vicinity by the late Neolithic period. Still more intriguingly, it has been suggested that actual traces of later prehistoric agricultural activity can be recognised outside the fort, on the hillside between the east gate and the Knag Burn gateway (*see* Welfare in Chapter 10). Here lie a series of small terraces, bounded on the east by the Military Way, which probably represent lynchets from former arable cultivation. One or two of these terraces appear to continue to the north of Hadrian's Wall, broken only by the remains of the ditch, in which case they must pre-date the Wall and the fort itself. Given the relative fertility of this hillside, the possibility of such a prehistoric phase should not be dismissed. Late prehistoric settlements are known elsewhere in the environs at Milking Gap (NY 77246779) and Bradley (NY 77596818), only 500m apart, at Little Shield (NY 79156789; cf Gates 1999 (NY76NE P)), with the remains of a fourth situated on the north side of the farm road only 400m to the south-west of the fort (NY 78706836).

It would be surprising to find such terraces only on a climatically more hostile north-facing slope, although it is sheltered from the prevailing south-westerly winds. They may represent an outlying fragment of a much more extensive pattern of prehistoric agriculture that once covered the southern slopes as well. Indeed these terraces may even hint at the presence of another prehistoric settlement even closer to the fort, swept away by the subsequent Roman and later phases of activity. Although no ard marks were revealed beneath any of the fort structures, a number of short gully features were found beneath *Contubernia* 1 and 8 of Building XIII, some of which might represent fragments of cord-rig cultivation and be related to the possible pre-Roman occupation noted above. Isolated areas of cord

rig lying to the south of the B6318, at NY 79106813 and NY 79676800, have also been identified through aerial photography (Gates 1999 (NY76NE U and S)).

In the wider area, land division, perhaps during the Bronze Age, is attested by the presence of early boundary walls running from Sycamore Gap west along the tail of Peel Crags (*HCP*: A139; Woodside and Crow 1999, 130 (Site 1)), at the foot of Kings Crags (Woodside and Crow 1999, 130–1 (Site 2)) and perhaps at Cuddy's Crags (Northumberland County SMR 6679). Prehistoric funerary activity is also evidenced by the round cairn near East Crindledikes (NY 78816777) and less certainly by the barrow on the south side of the B6318, opposite the Housesteads Information Centre (cf Welfare above, p 245; *HCP*: A80).

Housesteads environment in the early 2nd century

Organically rich waterlogged deposits were sealed at the base of (H21:2:40) or incorporated within (H20:5:94, H20:6:73) the primary rampart, suggesting the surrounding environment was open grassland and heather moorland, with very wet ground nearby and a little hedge scrub as well as weed growth typical of disturbed ground. Similar deposits (H21:1:79, H21:1:80) were found at the bottom of one of the robber trenches of the primary north-east angle tower, but these may conceivably have been associated with the removal of the primary tower, probably in the early 3rd century, rather than representing a Hadrianic rubbish dump. The botanical samples provided little evidence for cereal cultivation in the area (*see* Chapter 19).

The earliest Roman military structures

Turret 36b and Broad Wall foundation

The very first elements of the Wall to be constructed on Housesteads ridge were Turret 36b and the foundation for the Broad Curtain of the Wall. Both these structures were traced by Simpson, Hepple and Richmond in 1945 (Richmond and Simpson 1946). However, the excavations along the north rampart in 1978–9, which identified Broad Wall foundations directly beneath the *intervallum* road and further east under the bread oven beside the secondary angle tower, indicated that the line predicted by Richmond and Simpson (1946, fig 9) needs slight modification (*see* Chapter 2).

The subsequent construction of the fort entailed the demolition of Turret 36b. It also made redundant the stretch of Wall foundation already laid within the area of the fort, since the north curtain wall of the fort was actually off the crest of the ridge and lay some 7m north of the line of the Wall foundation. Great significance has been attached to these modifications, which,

in conjunction with similar evidence from other sites such as Chesters, have long been thought to indicate that the addition of the forts to the line of the Wall represented a change to the original scheme (cf Bidwell 1999, 19–21; Breeze and Dobson 2000, 47–50). Recently, however, this theory has been challenged by Crow (2004a, 15–18), who has argued that it was the intention all along to station the units actually on the Wall. Certainly, the traditional theory does rest on the implicit assumption that alterations of this kind must be the result of deliberate changes of plan rather than straightforward planning errors. Given the technical constraints faced by the Roman army, which lacked accurate topographic maps of the region, let alone modern communications systems, some degree of waste, such as the building of unnecessary turrets, could perhaps be anticipated in a construction project of this scale.

The Hadrianic fort

Construction of the fort

The full analytical survey of the dressed stonework of the gateways undertaken by Peter Hill (*see* Chapter 8) suggests the construction of the fort was interrupted several times. Three distinct phases in the overall primary construction of the gateways were identified, marked by a deterioration in the quality of the workmanship at each stage.

The first phase comprised the sub-foundations of the north-east and north *spina* piers of the north gate, probably the majority of the north-west pier of the west gate, and possibly the foundations of the south-west pier of the west gate. This phase was distinguished by relatively high-quality workmanship and evident care for the final appearance of the work. The second phase included the north-west, south-west, and south-east piers, and perhaps the south *spina* pier, of the north gate; the south-east pier and east *spina* pier of the east gate, and perhaps the foundations of the north-east pier of the east gate; the four main piers of the south gate; the south-east, north-east, the start of the south-west and the upper part of the north-west piers of the west gate. The work executed in this phase was essentially run-of-the-mill, Roman military engineering, solidly built, but without much care for the final appearance. The third phase involved the completion of the gateways, perhaps including the north-east pier foundations of the east gate (unless part of Phase 2); the *spina* piers of the south gate; the *spina* piers of the west gate; perhaps the *spina* piers of the north gate; and the upper part of the south-west pier of the west gate. This phase was characterised by the frequently extremely poor quality of the work, the absence of any serious motivation or skill, and a lack of regard for the quality of appearance on the part of those directing the work. It corresponds very closely to the third phase at Birdoswald.

It is difficult to interpret the significance of these phases, particularly in terms of the chronology of the construction process. They may have followed in quick succession, or may have been separated by months or years as the similar phases at Birdoswald appear to have done (Wilmott 1997, 56–60). It is, in any case, unlikely that building work would have continued over the winter seasons as frost action will cause newly laid lime mortar to fail, although it is possible that building materials were still being delivered and stockpiled at the site during the off season (Taylor 2000, 25). Moreover, conditions would have been very harsh for troops living on site in tents before permanent accommodation had been built. It is conceivable, therefore, that the breaks between the masonry phases might simply represent seasonal breaks, with the original work team being replaced by progressively less competent squads of masons as each new building season commenced. If, however, the intervals were of longer duration then the pronounced decline in the quality of the workmanship might reflect increasing impatience and even desperation to complete the project. What is clear is that the work was started to a high standard, continued at a lower but still acceptable level, and then deteriorated to a significantly lower standard where the speed of completion, or the almost complete absence of skill, became the governing factor.

Other traces of the construction process were recognised during the 1974–81 excavations and provide further evidence for the methods used to erect the different structural components of the fort. Surfaces (H13:1:238, 244), and a posthole (1:241), associated with the site of what was possibly a small hut, were revealed beneath the centurion's quarters. This hut or tent emplacement may have provided shelter for the builders. Four stakeholes (8:33) parallel to the south wall of the barrack in *Contubernium* 8 may represent traces of scaffolding poles. In the north rampart a layer of crushed sandstone and mason's chippings (H20:6:81) identified in section, 1.1m above the foundation course of the north curtain wall, may represent a working surface used in the construction of the curtain, suggesting the rampart was added in stages as the height of the wall increased. The organic deposits from the base of the north and east ramparts and the north-east angle produced leatherwork, including pieces of tentage, at least some of which might represent rubbish generated during the construction phases of the Wall or the fort (*see* Mould: 'The leather' in Chapter 14).

The Hadrianic fort plan

The outline of the fort took the familiar playing-card shape, 5.5 acres (2 hectares) in area, but it differed from the standard format of Hadrian's Wall forts, in that its long axis was aligned east–west rather than north–south, so that it could fit on a dramatic site astride the Whin Sill escarpment.

The basic internal layout of the primary, Hadrianic, fort is known with some certainty (Breeze 1983, fig 1), as a result of Bosanquet's work in 1898. The buildings were arranged in three blocks, the central range (*latera praetoria*), which contained the principal administrative buildings of the fort, plus the *praetentura* to the east and the *retentura* to the west, which each comprised a row of six buildings, mostly barrack blocks. The two main roads, the *via praetoria* which led from the east gate (*porta praetoria*) up to the headquarters or *principia*, and the *via principalis*, which ran between the north and south gates (*porta principalis sinistra* and *dextra*) along the east side of the central range, intersected in front of the *principia*. The *via decumana* led from the west gate (*porta decumana*) to the rear of the central range, and probably provided the principal access route to the granary. The central range included the *principia* (Building X in Bosanquet's numerical sequence), the commanding officer's house (*praetorium* – XII) and the granary or storehouse (*horreum* – VIII). In addition there was a long building (VII) north of the granary whose function is uncertain – perhaps an additional barrack block – and may not be primary. The central range also contains two buildings set behind the *principia* and *praetorium*, a hospital (*valetudinarium* – IX) and a possible baths (XI) for the commanding officer. The four main buildings have all been excavated. The *principia* was thoroughly investigated by Bosanquet in 1898, the *praetorium* and hospital by Wilkes and Charlesworth between 1967–73, while the granary was cleared with only minimal record by the National Trust in 1931–2. All four have recently been discussed in detail by Crow (1989, 17–25; 2004a, 47–57). It is clear that they underwent later reconstruction that substantially modified their original form. In particular, the Hadrianic granary was a single wide building with two aisles, rather than the pair of granaries that can now be seen (*cf* Crow 1989, 17–19; 2004a, 55–7; Peter McGowan Associates *et al* 2002, 2, 115–17), while excavation of the *praetorium* in 1967–69 suggested that only the north, west and part of the east wings of this building were constructed in stone initially (Charlesworth 1975, 18). It is uncertain whether the Hadrianic *praetorium* was completed in timber. The later rebuilding of these structures, which may very cautiously be attributed to the Severan period, is discussed below.

Little is known about Building XI. It is unclear whether it was part of the primary layout of the *praetorium* or a later addition. Additional wings of this kind are paralleled in commanding officers' houses elsewhere, notably at Caernarfon (*Segontium*), which bears a striking overall resemblance to the *praetorium* at Housesteads, although the additional wing at the former site is separated from the main house by a large, enclosed yard and is parallel to the long axis of the building rather than the short axis as at Housesteads (Boon 1963, 12). It is interpreted as a workshop or *fabrica*, whereas Building XI has been tentatively identified

as a bath suite for the commanding officer's family, on the basis of the apsidal chamber marked on Bosanquet's plan (Crow 2004a, 54), but Bosanquet described XI as being of the same poor construction as the barracks (1904, 239; Peter McGowan Associates *et al* 2002, 2, 120).

The barracks of the *praetentura* and *retentura*

To the east and west of the central range, the *praetentura* and the *retentura* each contained six buildings, all of which were aligned east to west, so they could be terraced across the hillside, and faced either south or north. The excavations of the two barracks in the north-east quarter, XIII and XIV, have clarified the primary form of such structures and fragments of this Hadrianic building plan can be recognised in other barracks on Bosanquet's plan. On this basis it is possible to show that the earliest fort had at least ten barracks (cf Peter McGowan Associates *et al* 2002, 2, 121–6, 130–9, with five each in the *praetentura* (XIII–XIV, XVI–XVIII) and *retentura* (I–III, V–VI). Two buildings in the *retentura* and *praetentura*, IV and XV respectively, seem to have had a different function in the initial phase. Building IV, fronting on to the *via decumana*, was investigated by Bosanquet, who described it as 'the Iron Works' (1904, 241), and was probably a workshop used for iron smelting and metalworking (*see below*). Re-excavation of Building XV in 1981 demonstrated that it cannot have been a barrack in its primary phase either. Crow (2004a, 60) has suggested that it was perhaps a store building or armoury, conveniently situated facing on to the principal street (*via praetoria*). An inscribed altar to Mars and Victory set up by an armourer (*custos armorum*) is known from Housesteads (RIB 1596). The building may have been transformed into a barrack in its second phase, however.

One problem does remain, however, in estimating the number of primary barracks, namely Building VII, at the north end of the central range. A small part of this building was revealed by the excavation of Turret 36b in 1945 and subsequently consolidated by the Ministry of Works. These extant remains, coupled with the evidence of Bosanquet's plan, show that a conventional barrack block may have preceded the chalet period structures that are the most obvious elements today (Peter McGowan Associates *et al* 2002, 2, 127–8). Hence there remains some doubt whether there were ten or eleven barracks in the primary layout of the fort. Ten centuries would be sufficient for a standard military peditate cohort, which, as discussed below, would appear to be the most likely garrison of the fort, but it is conceivable there was an extra barrack block, either because the regiment was overstrength or to hold a small detachment of troops from another unit, for instance. However, it is equally possible that the north end of the *latera praetorii* was initially left as an open area to allow access to the granaries of the fort

immediately to the south, and was only later built on to provide the extra accommodation required to house additional units or detachments, such as the legionary soldiers and the Frisian irregulars recorded on several inscriptions.

The excavation of Buildings XIII and XIV confirmed that the standard form of the early barracks was a long building, subdivided into ten units (*contubernia*), with separate larger apartments for the centurion at the end facing the *intravallum* street. Thus each barrack was probably designed to hold a century (*centuria*) of about 80 infantrymen, assuming a notional eight men per *contubernium*. In front of the *contubernia*, facing onto the street, was a verandah supported on timber or stone piers with moulded stone bases, and a gutter beyond, marking the position of the eaves-drip above. The centurion's quarters projected beyond the *contubernia* up to the limit of the verandah, giving the barracks a shallow L-shape. The barracks were constructed with low walls of sandstone rubble, bonded with clay, supporting half-timbered upperworks consisting of timber uprights and frame, filled with wattle-and-daub. The rooflines of the barracks in the north-east quarter of the fort must have stepped down, because of the pronounced slope down to the east. Each *contubernium* was subdivided into a front room (*arma*) for storing equipment and a rear room (*papilio*) for sleeping. Although few of the rooms were fully investigated, in some (1, 4 and 5) up to six changes in floors were evident, with new hearths and traces of charcoal where braziers may have stood. The floors were mostly of beaten clay, though it is possible that some of these were covered by wooden planks that have left no trace. Flagged floors are also present. The centurion's quarters would have housed the officer himself plus household slaves and possibly his family. The primary arrangements in the centurion's quarters attached to Building XIII were somewhat more spartan than was later the case, with timber partitions and clay floors. These were subsequently progressively replaced by stone (dwarf) wall partitions (but probably still supporting timber upperworks) and, eventually, *opus signinum* floors in some rooms, plus a possible latrine in the north-east corner and a kitchen alcove, resulting in a greater overall complexity in the layout of the rooms.

The early Antonine period: continuity or abandonment?

The status of Hadrian's Wall forts, such as Housesteads, during the reign of Antoninus Pius is unclear. It is generally presumed that Hadrian's Wall was abandoned following the Roman military advance into Scotland and the construction of the Antonine Wall (Breeze and Dobson 2000, 90–2). The linear barrier with its associated components – turrets, milecastles, Vallum etc – was presumably redundant and there is some evidence that access through it was opened up, with the milecastle gates possibly removed and causeways constructed

across the Vallum. However, there is more uncertainty with regard to the fate of the forts along the Wall in the early Antonine period. It has been suggested, on the basis of epigraphic evidence, that at least some of these were garrisoned by legionary 'care and maintenance' detachments. The significance of that epigraphic evidence, particularly the inscriptions found at Housesteads itself, is considered in more detail below, in the context of a wider discussion of the site's garrison history.

Following Hodgson's recent reconsideration of the archaeological evidence from Antonine sites in Scotland (Hodgson 1995), it is now considered most likely that the new frontier barrier was only occupied until about 155, a period of less than two decades, before Hadrian's Wall was once more occupied in force. In the central sector, there is archaeological evidence for contemporary rebuilding of the Wall curtain at Sycamore Gap, two miles west of Housesteads, comparable with the epigraphic evidence from the eastern end of the barrier (*RIB* 1389, cf also 1388). Two fragmentary building inscriptions of probable 2nd-century date, found at Housesteads itself (*RIB* 1615; *JRS* 52 (1962): 193–4, no. 15 = Leach and Wilkes 1962, 95, no. 1), might indicate rebuilding at this stage. One in particular (*RIB* 1615, cf also *add and corr*; *CSIR* 239), has been attributed to the reign of Antoninus Pius, although largely on stylistic grounds such as letter form, and the evidence is far from conclusive. No indication of which building was affected is preserved (if it was ever recorded on the dedication in the first place) and the possible date range could actually fall virtually anywhere in the 2nd century from Hadrian onwards.

Structural evidence

The clearest structural evidence is provided by Building XIII. There is no indication of a hiatus in occupation or a major reconstruction of this barrack block until the complete transformation of the block into a range of free-standing *contubernia*, or 'chalets', around the end of the 3rd century. Those *contubernia* that were investigated most intensively and contained the best-preserved deposits, namely 1, 4 and 5, displayed an unbroken sequence of six beaten-clay floor surfaces with replacement hearths and occasionally repositioned partitions. Similarly, the centurion's quarters revealed a pattern of repeated alterations to the internal arrangements, but no phase of dereliction prior to the demolition of the conventional barrack block.

A more substantial reconstruction of Barrack XIV was identified by Wilkes, but this rebuild was assigned to the Severan period on the basis of the stratified pottery associated with the primary phase. A review of the dates proposed for the published pottery broadly confirms Wilkes's dating, and would certainly rule out a date for Phase 2 as early as the mid-2nd century, that

is to say the rebuilding cannot reflect restoration immediately after a putative reoccupation of the fort in c 155/160. Building XV was certainly completely demolished and rebuilt to an entirely different plan on several occasions. The first of these saw XV transformed from a possible store building or armoury into a probable barrack block, subdivided into a range of rooms with a shallow colonnaded verandah in front. However, this phase (H15 Phase 2) cannot be firmly dated and it would be pure speculation to link its construction either to the need to accommodate a legionary care-and-maintenance detachment during the early Antonine period or to a putative refurbishment of the fort following reoccupation of Hadrian's Wall in the late 150s.

Some refurbishment of the defences, in particular the rampart bank, may have taken place at this time, as mid- to late 2nd-century pottery was recovered from what were initially considered primary rampart levels. These deposits were clearly sealed beneath, though not intruded by, the later workshop surfaces, but were located above the layers at the very base of the rampart. A similar phenomenon was recognised by Tait, who recorded a clear distinction between the primary turf rampart bank and subsequent Antonine layers composed of 'brown soil' above, in the two trenches he cut through the south rampart (Sector 24) in 1962 (cf Tait 1963, 40). However, the significance of the heightening of the rampart is difficult to determine. The lower levels of the rampart contained numerous layers of turf, peat or other organic material, which must have undergone substantial compression over time, leading to a settling of the rampart bank. The additional layers could simply represent a response to the natural process of settling of the primary rampart deposits. It is even possible that the ramparts had never been fully completed in the first place. It need not reflect restoration after a hiatus in occupation.

The samian assemblage

In Chapter 15 attention is drawn to the very small amount of early Antonine material as a proportion of the overall assemblage of samian ware from the 1974–81 excavations and it is suggested that this might reflect an abandonment of the fort contemporary with the occupation of southern Scotland. Such a conclusion, of course, directly contradicts the structural evidence from Building XIII strongly implying continuity in the use of the barrack. It is noteworthy, however, that the quantity of Hadrianic samian in the total assemblage is almost equally tiny. Both the Hadrianic and the early Antonine groups are statistically greatly outweighed by comparison with the mid- to late Antonine and later material. In other words, it might be possible to argue on the basis of this evidence that the fort was not occupied before the mid-Antonine period, but it is more difficult to use it to make the case that there was a hiatus in occupation under Pius.

The small quantity of Hadrianic and early Antonine material may be explained by the relatively limited investigation of the earliest levels undertaken in 1974–81. Moreover, where they were investigated, it was clear that these levels were relatively devoid of artefacts. The depositional characteristics of the recently established fort appear to differ markedly from those relating to the site's later phases, with no large accumulations of earlier discarded material present in the earlier stages. In particular, a large proportion of the later pottery, both samian and coarseware, was retrieved from the layers of the ramparts that were reinstated in stages from the mid-3rd century onwards and this pottery may have been transported into the fort with the dump material. Hence, depending on where exactly the various secondary rampart deposits were originally quarried from, such assemblages might reflect the history of the *vicus* as much as that of the fort (*see* Chapter 4 for further discussion of these layers).

It is, however, conceivable that the fort was not fully occupied during the early Antonine period. Thus some barrack blocks, like Building XIII, may have remained in use, while others were not required and fell into dereliction. Thus, if the milliary *cohors I Tungrorum* did form the Hadrianic garrison of Housesteads, as has been suggested (Crow 2004a, 61–5), part of the unit could conceivably still have been stationed in the fort under Pius, while the remainder was at least temporarily deployed forward to Castlecary on the Antonine Wall, where the cohort is recorded undertaking building work at this time (*RIB* 2155). This is far from being the only possible interpretation of such evidence, however. This and other issues relating to the identity and history of the garrison are examined in much greater detail below, in the context of a full review of the epigraphic, structural and artefactual evidence.

The Severan reconstruction phase

The later 2nd and early 3rd centuries were clearly a time of considerable upheaval on the northern frontier, with repeated outbreaks of warfare recorded in the fragmentary surviving accounts of ancient historians. However, no trace of these, in the form of destruction deposits or the like, has been found in excavation at Housesteads and consequently these events cannot be used to define the structural history of the fort. Nevertheless, in contrast to the difficulties faced in defining any distinct Antonine structural phase (or phases), a widespread Severan rebuilding programme has been identified by earlier excavators, involving radical alterations to many of the buildings of the central range, as well as to Buildings XIV and XV. This rebuilding programme constituted the second of the four main Wall Periods envisaged by previous generations of scholars studying Hadrian's Wall.

A major refurbishment of the northern frontier during the reign of Septimius Severus is indeed attested by literary and epigraphic sources. Rebuilding work is

recorded by imperial dedications from a number of forts in northern Britain, particularly under the governor Alfenus Senecio (collated by Mann *nd*, nos 93–6, 98–108). Most notable, perhaps, is *RIB* 1909, which was found during the seminal 1929 excavations at Birdoswald and commemorates the construction of one of the fort's *horrea* under Senecio's term of office. Following its discovery, this dedication rapidly became an epigraphic totem for Wall Period 2, just as *RIB* 1912, which was found at the same time, came to symbolise Wall Period 3 (Wilmott 1997, 9). Furthermore, later Roman historical sources even credit Severus with erecting the Wall itself, an exaggeration of course, but an excusable one in the light of the archaeological evidence for extensive rebuilding of the Wall at this time, represented by substantial stretches of extra narrow curtain, *c.* 1.80m wide (6ft), bonded by a distinctive, exceptionally strong white mortar (*cf* Crow 1991a; 1991b).

Fragments of what have hitherto been interpreted as two Severan dedications attributable to Alfenus Senecio have been discovered at Housesteads itself (*RIB* 1612 and *JRS* 52 (1962): 194; *JRS* 57 (1967): 205–6, no. 17), on the second of which a reference to the *praetorium* was restored. The Severan date of these epigraphic fragments does appear secure, although the number of inscriptions to which they belong and their reading has recently been re-evaluated. In contrast, the dating evidence recovered through archaeological excavation is far less helpful in evaluating whether the fort was included in a Severan restoration programme. Investigation of the *praetorium* and hospital by Wilkes and Charlesworth between 1965 and 1973 yielded disappointingly little well-stratified dateable material. With regard to Building XIV, the problems in conclusively distinguishing Wilkes's 'period II' – to which he assigned a Severan date (1961, 284–5) – from the initial chalet phase have been discussed above (*see* Chapter 5). Similarly, excavation in 1981 showed that the phase of Building XV that Wilkes attributed to the early 3rd century (his 'period III'; H15 Phase 4) cannot in fact have been built before 259 and probably belongs to the late 3rd to early 4th centuries (*see* Chapter 5). The 1981 excavations also demonstrated that there were two intermediate phases – a probable barrack block and then a stable – either of which could belong to the Severan period, while the examination of the north-east defences between 1978–81 yielded pottery assemblages consistent with an early 3rd-century date for the substantial secondary modifications to the defences, which included a new angle tower, the widening of the curtain wall and the replacement of the rampart bank by metalworking sheds. However, in the absence of the greater chronological precision that might have been provided by fortuitous stratified coin finds, the pottery can only offer an approximate date for these alterations to the defences. One of the problematic legacies of the Wall Period paradigm is the bias it fostered in favour of grouping such imprecisely dated

building operations together into tightly defined periods, when they might equally plausibly be distributed over a wider time-frame. This caveat applies with particular force to the suggested Severan building phase, given the considerable epigraphic evidence that building activity continued apace in the forts of northern Britain throughout the first half of the 3rd century (cf Mann *nd*, nos 160–84). In view of this, the evidence for Severan construction work at Housesteads merits detailed re-examination, beginning with the fragmentary epigraphic evidence which provides the narrowest chronological parameters for this activity.

Dating evidence: the Severan dedication

A total of six stone fragments relating to one or more Severan imperial dedications have been found inside the fort at Housesteads (Fig 11.1). Four of these are registered in *RIB* as inscription no. 1612, and were discovered in the *principia* (Bosanquet 1904, 279 no. 4) and the south granary (Birley 1932, 233) during the 19th and early 20th centuries (one stone is not closely provenanced). Two further fragments were recovered subsequently. One (*JRS* 52 (1962): 194, no. 16), found in Building XV in 1961 (cf Leach and Wilkes 1962, 96, no. 3), was recognised from the start as belonging to the same inscription. However, the later find (*JRS* 57 (1967): 205–6, no. 17), which had been reused in a large oven of probable 4th-century date in the kitchen of the commanding officer's house (Charlesworth 1975, 21–2), was considered part of a separate inscription by its editor, R P Wright. Wright's rationale was based solely on the assumption that *RIB* 1612/*JRS* 52 (1962): 194, no. 16 must originally have recorded work on the *principia*, because of the provenance of the surviving fragments, whereas the fragment found in 1966 apparently referred to the restoration of the *praetorium*. This is clearly a very weak argument. The surviving text of *RIB* 1612/*JRS* 52 (1962): 194, no. 16, does

not preserve any reference to a specific structure, and it is quite conceivable that the fragments of that dedication could originally have derived from a neighbouring building, having subsequently become redundant and been broken up for reuse.

The six fragments, which are all now in store at Corbridge Roman Museum, were assembled and examined by the author, with the assistance of Georgina Plowright and Sarah Lawrence, the museum's curators, to determine whether *JRS* 57 (1967): 205–6, no. 17 could belong to the same slab as the remainder. Although the inscription could not be properly reassembled because three of the fragments – the earliest to be found – had previously been mounted on flat blocks for display, the thickness, lettering and general appearance of the different stones were noted and all the fragments were photographed, both individually and together. The photographs of the individual fragments were then combined and rectified digitally to create an image of the restored dedication (see Fig 11.1). The fragments were subsequently reassessed by R S Tomlin, in 2006, as part of the work to produce a new edition of *RIB*, and a revised reading published ('Inscriptions: *addenda et corrigenda*' in *Britannia* 37 (2006): 485–7). Four (those comprising *RIB* 1612) preserve a cable border along the top edge of the stone, while the fifth fragment (*JRS* 52 (1962): 194, no. 16) reveals part of a triangular *ansa* in relief to the left of the inscription text. Significantly, the slab from the *praetorium* preserves an identical cable-moulded border along its bottom edge. The size and style of the lettering (all *c* 80–85mm high) are identical and the thickness of the stones falls within the same general range (*c* 0.10m). There is no obvious overlap in the surviving text, which would demonstrate more than one dedication is represented, but nor is there a surviving join between the slab from the *praetorium* and the other fragments, which would prove that they form a single inscription. There is some difference in

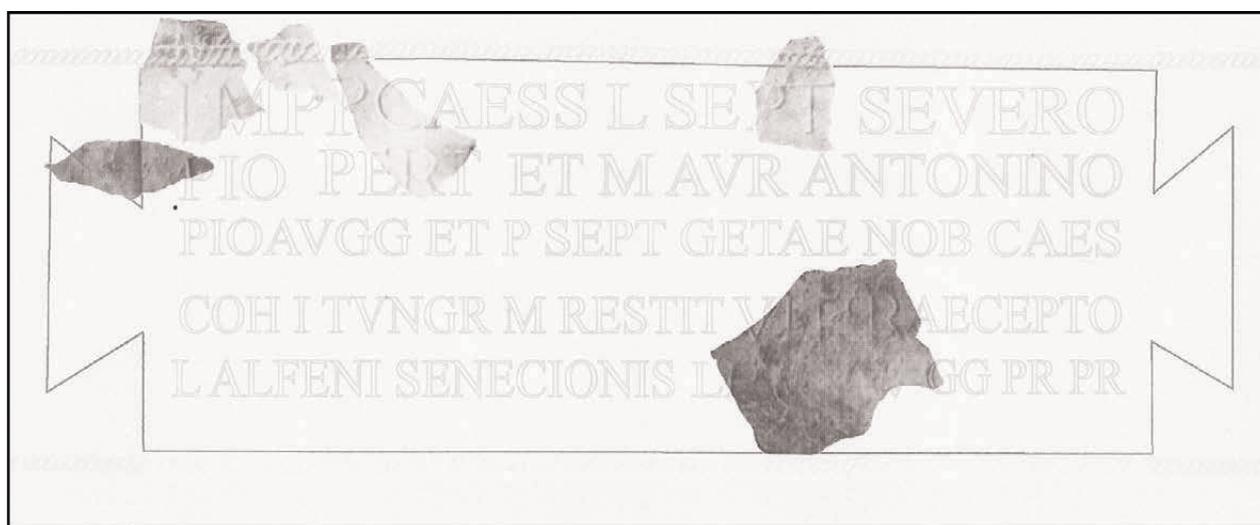


Fig 11.1 The Severan dedication showing the surviving fragments in relation to the restored text.

colouration, the stone from the *praetorium* having a red-pink hue. However, this is doubtless a result of the stone's reuse in the oven. It is noteworthy that another of the stones (*RIB* 1612a) is also discoloured in a somewhat similar manner, with a pinky-orange hue particularly along the top edge, and may likewise have been exposed to heat during its later history. Hence, these stones could all have belonged to a single original slab. The lack of obvious duplication in the surviving text is a strong argument in favour of a single inscription being represented here, but not a conclusive one, given the potential length of imperial building inscriptions and the restricted amount preserved here. It is conceivable that very similar inscriptions, carved with near identical lettering, could have been set up on several buildings rebuilt at the same time. Thus the multiple gateways of Roman forts, fortresses, or city walls, newly built or restored, were sometimes provided with identical texts (for example *CIL* VIII 20834 and 20835 – from the west and east gates of town walls built at Rapidum in Mauretania Caesariensis in 167). However, there is no valid reason to assume that more than one inscription *must* be represented in this case, and a single inscription is the most economical explanation. The text of a combined inscription was restored by R S Tomlin as follows (*see also* Fig 11.1):

IMPP CA[ESS L SE]PT [SEVERO]
P[IO P]ERT [ET M AVR ANTONINO]
[PIO AUGG ET P SEPT GET]AE [NOB CAES]
[COH I TVNGR M RESTIT]VIT PRA[ECEPTO]
[L ALFENI SENECONIS L]EG A[VGG PR PR]

*Imp(eratoribus) Caes(aribus) L(ucio) Se]pt(imio)
[Severo] / P[io P]ert(inaci) [et M(arco) Aur(elio)
Antonino / Pio Aug(ustis) et P(ublio) Sept(imio)
Get]ae [nob(lissimi) Caes(ari) / Coh(ors) I
Tungr(orum) m(illiaris) restit]uit pra[cepto] /
L(uci) Alfeni Senecionis]leg(ati) A[ug(ustorum)
pr(o) pr(aetore)]*

For the Emperor–Caesars Lucius Septimius Severus Pius Pertinax, Augustus, and Marcus Aurelius Antoninus Pius, Augustus, and for Publius Septimius Geta, most noble Caesar, the First Cohort of Tungrians, one thousand strong, restored (this building) by order of Lucius Alfenus Senecio, imperial *propraetorian* legate.

Tomlin's revision of the text thus removes the apparent reference to the *praetorium* in the 1966 fragment, replacing it instead with the term *praepropto*, 'by order of'. Moreover, the allocation of all six fragments to a single dedication means that there is actual direct epigraphic evidence for Severan work on only one building of the *latera praetorii*. The inscription should date to 205–8 when Alfenus Senecio was governor of Britain. The location of the fragment found in the *praetorium* indicates that the dedication had been broken up for

reuse by the time the kitchen oven was rebuilt, perhaps in the 4th century. This implies that the building concerned must not only have undergone significant restoration under Severus, when the inscription was first put in place, but must also have undergone further reconstruction, demolition or collapse, which could explain the break-up and reuse of the dedication as surplus building material during the later Roman period. Although the *principia*, the *praetorium* and the south granary all underwent remodelling of one sort or another during the later empire (*see* Crow 2004a, 91–2, 95–8 for a summary), none of this work appears to have been substantial enough to necessitate the removal of the inscription, which, given its scale and significance, must have stood over the main entrance to the building concerned. Only the north granary has an appropriate structural history. The available evidence suggests the building collapsed at some point in the Roman period and was never rebuilt, being left as a ruin. Indeed the almost complete absence of wear on the door threshold of this granary might imply that it had a relatively short life before it collapsed, and was thereafter effectively used as a quarry. The recorded provenance of the various fragments in the *principia*, the *praetorium*, the south granary and Building XV would thus merely reflect the circumstances of later reuse rather than the original location of the inscription to which they belonged. It is possible that the south granary may once have been adorned with a comparable dedication, however.

The structural evidence: the central range

These conclusions may be compared with the results of earlier excavations in the fort, which have demonstrated that the principal buildings of the central range – the *praetorium*, hospital, granary and, with rather less certainty, the *principia* – all underwent radical alteration at some stage after their initial construction, but before the 4th century. In the case of two of these buildings, the *praetorium* and the hospital, the reconstruction involved the distinctive use of massive southern revetment walls composed of long blocks laid as headers and stretchers. Similar techniques were also employed in two structural phases of the *principia*, where the chronological implications are more debatable.

The *praetorium*

The commanding officer's house (XII), occupies an awkward site between the *principia* and the south gate, where the gradient slopes steeply upward from south to north and, less dramatically, from east to west. To cope with these difficulties, the building was terraced into the slope, resulting in a highly complex structure with several changes in level. The south wall displays a clear break between the west and south wings, implying that they belong to two distinct construction phases. To the east of this point, a different building technique was

employed, featuring large oblong blocks laid as headers and stretchers (cf Charlesworth 1975, 18, pl II.2). On this basis, only the north range, west wing and the northern part of the east side of the house were assigned to the initial building phase. The excavator noted that a courtyard house was clearly intended from the start and the interval of time between the completion of this first phase and the construction of the remainder of the building may have been negligible (Charlesworth 1975, 18). However, a number of irregularities, evident in plan at the junctions of the two parts of the building, suggest that two distinct phases were represented, rather than a brief hiatus in a single overall construction process. It is possible that the south and west wings of the courtyard were completed in timber in this primary phase (Crow 1989, 24; 2004a, 52). Unfortunately, no stratified dating evidence was recovered in the course of the 1967–9 excavations to show when the south and east wings were constructed in stone. It is worth emphasising, however, that the revised reading of the dedicatory inscription, provided above, has removed the need to identify a Severan phase of works in this building, to match Wright's original interpretation, although the possibility that there was structural activity during this period cannot be excluded.

The hospital

Excavations in 1971–3 (Charlesworth 1976) again revealed clear evidence for two main building phases in the large courtyard building (IX) located immediately to the west of the headquarters, which is generally identified as a hospital (*valetudinarium*). The primary building was represented by the south and west walls, which were clearly overlaid by later cross-walls, and the east wall, which was retained in the later phase. These primary walls were constructed in the usual manner, with two faces bonded with a rubble core. A latrine in the south-west corner also originated in this period. The hospital later underwent complete reconstruction, which involved slightly extending the building to the south and west and remodelling all the internal rooms, to such an extent that the primary internal arrangements are unclear, though the overall layout was probably similar. The three lowest courses of the new south wall were composed of large oblong blocks laid as headers and stretchers, like the external wall of the *praetorium* south range (Charlesworth 1976, 17–19, pl IV.2). Of the primary external walls, only the east wall remained standing to any height in the new layout. It may also have been at this stage that the latrine drain was diverted through the adjacent room in the south range; it saw repeated modification thereafter. Very little stratified pottery or coinage was recovered to date this major rebuild, but the similarity between the construction method employed here torevet the south side of the building and that adopted in the *praetorium*, may be significant.

The *principia*

There is considerable controversy over the extent of Severan rebuilding of the *principia*. Until relatively recently the extant remains of the Headquarters Building were considered to be essentially Severan in date (cf Daniels 1978, 141–2). A lower foundation of large blocks on the south side of the *aedes*, which clearly did not form part of the same layout as the rest of the *principia*, was interpreted as the remnant of an earlier Hadrianic headquarters. However, Crow (1989, 19–20; 2004a, 51) has argued that building is essentially Hadrianic, albeit with many additions and alterations. The anomalous foundation of large blocks south of the *aedes* might simply represent a change in the alignment of the headquarters during the course of construction, of the kind revealed by recent excavations at the forts of Wallsend and South Shields. That so little is left of this previous phase – whether a complete Hadrianic *principia* or simply an aborted layout – may well be due to the very thin depth of soil at this spot. The structure was probably built directly on the whin bedrock with little need for subsurface foundations, which would otherwise have revealed its outline more fully.

Because of the awkward nature of its site in the centre of the fort, the building was set on a narrow platform, terraced into the hillside on the north side and built out on the south side. The use of fine monumental blocks along the south face, partly restored by Bosanquet's workmen in 1898, to retain this artificial platform of whin and sandstones, is somewhat similar in principle to the technique adopted in the secondary south wall of the hospital and the south wing of the *praetorium*. The quality of the stonework is superior in the case of the *principia* revetment, however, with large flat square blocks set at the angles and in the base course plus rows of narrow headers above. Clear evidence of subsequent modifications to the *principia* survives, including a platform fronting onto the *via principalis*, constructed with distinct, rougher ashlar laid as headers, similar to those used in the *praetorium*. This must have supported a colonnade along the main façade (see Chapter 8). The walling-in of the forecourt portico to create additional offices and the fine courtyard paving that butts up against the walled-in portico in the north-west corner are also clearly additions, and may conceivably be contemporary with the *via principalis* colonnade.

The granaries

The granaries occupy the highest part of the fort, astride the level crest of the Whin Sill escarpment, and were recognised as distinct structures from the 18th century onwards. Despite forming the most impressive and prominent buildings in the fort, very little is known about their detailed history as a result of unsupervised clearance of their interiors in the early 1930s.

However, examination of the standing remains makes it clear that their present form – a pair of structures, aligned east–west, parallel to one another – reflects a secondary remodelling of a single, double-width, primary granary. As discussed above, of all the buildings of the central range, the north granary is the most likely candidate to represent the original site of the Severan dedication, and the reconstruction of the *horrea*, described below, would provide an appropriate context for the inscription.

The primary, Hadrianic granary took the form of a wide single hall measuring internally 23.75m long and 13m wide, and divided into two aisles by a row of six large stone piers, up to 0.63m², which supported a double span roof over the building. The external walls are very substantial – strong enough to have supported an upper storey – and are solidly buttressed on the exterior, probably to support a wide eaves-drip which would have kept the base of the walls dry. The two primary entrances were located at the west end of the building, where there was an open area for carts to unload and turn. The height of the threshold and the vents in the exterior walls point to a raised timber floor, probably supported on the same monolithic stone pillars that were used in the next phase. These *pilae* fill the interior of the north granary and the east half of its southern counterpart. The way they all line up, in both the later granaries, suggests they were laid out at a time when both areas formed part of a unitary whole (unless this is a result of 20th-century restoration). Pillars made redundant by the subsequent division of the granary into two parallel structures can be seen built into the base of the south wall of the northern granary.

The original aisled granary was later altered by the addition of two closely spaced cross-walls, running the length of the building on either side of the centre-line, which transformed the structure into a pair of parallel granaries with separate ridged roofs and reduced the total floor space by some 18%. The central piers were dismantled down to their bases, but curiously these six moulded stones were left in place between the two walls, several with their capitals still resting upturned on top. The footings of the north dividing wall partly include the bases of the former central piers. This would suggest the pier bases and capitals performed some function in the new arrangement. Consequently, it has been suggested that the north granary was built some time before its southern neighbour, with the piers serving as buttresses supporting overhanging eaves along the new south wall (Crow 2004a, 56). A smaller single granary of this kind could in turn imply that there was a period when less than half the granary storage was required. It might therefore indicate the granary was rebuilt at a time when the size of the garrison had been significantly reduced, perhaps to a caretaker force, stationed in the fort during the period when the Antonine Wall was held, for example. Similarly, the provision of a second granary might represent the garrison brought back to full strength some

time later in the 2nd century. However, this seems unlikely. The two granaries are so similar in layout with identical sub-floor construction, for example, that they are most probably contemporaneous. As regards the changed function of the pier bases, it is noteworthy that the area between the two granaries is walled in at either end and there is no evidence of a drain or any means of removing rainwater that fell into this space. Indeed the pier bases would have obstructed the flow of water down the passage. If the area had been open to the elements this would have posed a major risk of ponding water and damp, especially problematic for a granary, and it is unlikely that such a situation would have been tolerated. It is probable, therefore, that there was a single eave-level gutter along the bottom of the valley formed by the twin granary roofs, which completely covered the intervening alley and was perhaps supported by upright posts standing on the former pier bases and upturned capitals. This would account for the retention of the latter.

Discussion: the buildings of the central range

The epigraphic evidence clearly demonstrates that one building of the central range was rebuilt during the Severan period, but does not necessarily show that the contemporary rebuilding programme was any more extensive than that, given the strong likelihood that all the surviving fragments of Severan imperial epigraphy belong to a single building inscription. On the basis of the later structural history of these buildings, the north granary represents the most plausible candidate as the site of the Severan dedication, since it appears to have collapsed and been abandoned by the later stages of the 3rd century, releasing its stonework, including the fragments of the inscription, for reuse in neighbouring buildings.

There is compelling structural evidence for secondary remodelling in all the buildings of the *latera praetorii*. The single double-width, Hadrianic granary was clearly rebuilt as a pair of parallel *horrea*. The hospital and commanding officer's house also appear to have required substantial rebuilding at some stage in the 2nd or 3rd centuries, and the marked similarity between the construction technique used in the south wing of the *praetorium*, featuring long blocks laid as headers and stretchers, and that employed in the secondary south wall of the hospital is particularly noteworthy (cf Charlesworth 1975, pl II.2; 1976, pl IV.2). By contrast, remodelling of the *principia* may have been rather less substantial. In the absence of more extensive evidence for an earlier phase, Crow's argument that the extant layout essentially represents that of the primary Hadrianic headquarters, rather than a rebuild of Severan date, is the most convincing. Instead of forming part of the same building programme, it is possible that the way the *principia* was initially constructed, on a relatively small, but massively revetted platform, may

have influenced subsequent reconstruction of the commanding officer's house and the hospital. Both the *praetorium* and the hospital, like the *principia*, occupied exceptionally difficult, steeply sloping sites and it is quite likely that, as a result, problems were experienced with the stability of these two buildings which eventually necessitated their partial reconstruction. Thus the structural sequence evident in the *praetorium* might well reflect the replacement of a primary south range, possibly of timber construction, with new stone-built ranges, using large blockwork, composed of long headers and stretchers, to provide a more solid, stable base, which has removed or masked any traces of the earlier structure. A row of similar headers was used in another obvious secondary work, forming the base of a platform for a probable portico along the front of the *principia*, facing on to the *via principalis*. It is possible that other secondary modifications to the *principia*, notably the repaving of the courtyard and the walling in of the courtyard portico to create offices, were contemporary with the *via principalis* portico, but this cannot be definitively confirmed. No comparable use of long headers or stretchers was encountered in the secondary phase of the granary, but no such retaining or stabilising walls were required here since the building occupied a level site on the crest of the Whin Sill ridge.

In summary, there are convincing grounds for assigning the reconstruction of the *horrea* to the Severan period, based on a combination of epigraphic and structural evidence. There is no specific evidence for the date of the programme involving the rebuilding of the *praetorium* and hospital, and the erection of the portico in front of the *principia*, but it too could conceivably form part of a Severan reconstruction programme, although it might equally be placed significantly earlier, in the 2nd century, or later, in the 3rd century.

Structural evidence: the north-east quarter

The buildings of the central range represent the fort's largest and most important corporate structures, comparable with the public buildings of Roman cities, and can be expected to reflect official concern for the frontier and its garrison in a very grandiose and formal manner. A markedly contrasting light was shed on the Severan phase by the excavations in the north-east quarter between 1974–81, which provided detailed information on changes of a much more utilitarian, but clearly widespread, nature, particularly in the area of the defences, while in Building XIII, for example, the picture is essentially one of continuity rather than radical change.

The three buildings of the northern *praetentura* all underwent some degree of modification between the Hadrianic era and the end of the 3rd century. This was especially pronounced in the case of Building XV, which was completely rebuilt on two occasions during this

time, but neither of these reconstruction phases can be definitely associated with the Severan period, due to the paucity of dating evidence. One of the periodic phases of alterations to the internal arrangements of Building XIII can be dated to the early 3rd century, but this work was on a relatively minor scale, representing little more than routine refurbishment of the *contubernia* and limited rebuilding inside the officer's quarters. This barrack clearly experienced nothing on the scale of the rebuilding identified in Building XIV by Wilkes during 1959–60 and ascribed by him to the Severan period. Whatever the precise extent of the secondary rebuild of XIV, it should be noted that the stratified material that provided the basis for its dating was very limited (essentially one small coarse pottery group), nor was any additional relevant material found when the block was re-excavated in 1979 and 1981. The dating and possible significance of work on these three buildings will be considered in more detail below, in the context of the wider evidence relating to the garrison stationed at Housesteads during the 2nd and 3rd centuries.

The principal contribution of the 1974–81 excavations to our understanding of the Severan period, however, is the information they provided about the radical alterations to the defences that were carried out at this time. As discussed in Chapter 4, these involved the removal of the rampart bank and its replacement by ranges of workshops and other small structures backing onto the curtain. The north curtain was rebuilt (*see* Crow 1988, 67, 72) and widened towards the interior to compensate for the loss of the rampart. Lengths of this expansion wall can still be seen further west along the north curtain (Rampart Sector 22), and have also been recognised behind the east and west curtains (Ramparts 25 and 27). Small rectangular buildings, similar to those along the north-east defences, have also been recognised behind the curtain to the west of the north gate, east of the south gate and north of the south-west angle, demonstrating the widespread nature of these changes. These buildings too may have been workshops or performed other ancillary functions. Other alterations that may have occurred in the same construction episode include some of the numerous modifications to the latrines beside the south-east angle, notably the construction of a large cistern to provide a constant water supply. Pockets of rampart bank were retained in places (for example at the west end of north rampart area H20, in the angle between the curtain wall and the north gate), probably in part to provide convenient access to the wall walk, although it is uncertain how numerous or lengthy these remaining stretches were outside the north-east quarter. Where no secondary ancillary buildings or expansion wall have been recognised – for example around the north-west corner of the fort – it is possible that more extensive lengths of undisturbed rampart continued to form part of the fortifications. The overall impact of this remodelling completely transformed the defences, which had hitherto displayed a rigid formality, and

housed only a limited range of services, located there for reasons of fire safety (bakehouses), hygiene and practicality (latrines and cisterns), in addition to the fortifications themselves.

The excavations of the defences yielded a significant quantity of dateable stratified material to help establish the date of this remodelling. Pottery found in the rampart levels beneath the workshop floors provides a late 2nd-century *terminus post quem* for the construction of the workshops, while the occurrence of late 2nd- to mid-3rd-century samian vessel types and coarseware forms from their floor surfaces, debris spreads and the contemporary road surfaces is also consistent with an early 3rd-century date for this phase (see Chapters 3 and 4). In the absence of chronologically informative (ie post-Hadrianic) stratified coins, this broader timeframe cannot be narrowed down any further to confirm whether or not the widespread remodelling of the defences should be attributed to the Severan reconstruction episode, but this remains the most plausible hypothesis. Certainly the reconstruction may be placed within the broader timespan of the Severan dynasty, a period characterised by extensive military building activity at sites throughout the northern frontier, as attested by numerous inscriptions. Furthermore, a Severan date would accord with the limited evidence derived from previous investigations of the rampart areas, for example the two trenches cut through the south rampart in 1962 (cf Tait 1963).

The north gateway, north-east angle tower and the Knag Burn gate and curtain

A further related group of alterations, inside and outside the fort, may also be indirectly associated with the Severan rebuilding phase and in particular with the remodelling of the defences. The relocation of the north-east angle tower from its conventional, primary position to its current site at the junction with the Hadrian's Wall curtain probably formed part of the overall early 3rd-century remodelling of the defences, although the stratigraphic evidence is not conclusive in this case (see Chapter 4). The catalyst for this shift may have been the rebuilding of the Knag Burn stretch of Hadrian's Wall. It is even possible that the new angle tower provided and controlled access to the top of the rebuilt Wall curtain, which would explain the need to relocate the tower, although the new position also provided a better view of the area north and north-east of the Wall curtain, including the approaches to the gateway through the curtain in the valley below the fort. This Knag Burn gateway may well have been an integral element of the rebuilt Wall curtain and was probably designed to replace the north gate of the fort. Excavation during 1984, to remove the farm track in front of the north curtain (the area was labelled H20:10), showed that the roadway outside the fort, which led up to the north gate from the north-east, was abandoned by the late 2nd century and covered in

rubbish (Crow 1988, 65–7, 73–4). The east portal of the north gate never appears to have been used (Simpson 1931, 218), but there is considerable wear on the west side. It seems likely that, as Mann suggested (quoted by Salway 1965, 89, n 1), the approach from the north-east became too steep as the road surfaces inside the fort were raised. Instead the west portal of the north gate was reduced to a postern and the principal access north of the Wall was now provided via a gateway through Hadrian's Wall in the valley of the Knag Burn, which allowed an easier ascent to the east gate. Initially the new gate took the form of a simple arched opening in the curtain with no flanking towers (see Chapter 10). The Knag Burn curtain, with its associated gateway, incorporated a tough, mortared core rather than a clay-bonded one, a feature that again links it to the wider programme of Wall reconstruction most plausibly attributed to the emperor Septimius Severus (cf Crow 1991a; 1991b, 44, 47).

It is possible that the other gateways into the fort were each reduced to single portal entrances at around the same time, to reduce the overprovision of gateways in the primary layout. The dating of this reduction is clearest in the case of the south gate. All the buildings on the east side of the north-south street through the civil settlement – most notably *Vicus* Buildings I and II – project across the line of the approach to the east side of the gate, showing that the east portal was permanently closed by the time these *vicus* buildings were erected in the early 3rd century.

The rampart-area workshops

(Figs 11.2–11.3)

The workshops in the north-east quarter are worthy of consideration in more detail. Analysis of the substantial quantities of metalworking debris from the rampart areas (see Chapter 20), coupled with the structural remains of large rectangular stone hearths, suggests that the workshops were principally devoted to copper alloy working. Only limited evidence for iron-smithing was found, with such as there was occurring in modern or unstratified contexts. By contrast, the evidence for copper alloy working consists of scrap metal, crucibles, moulds, metal droplets and slag. The scrap metal and the metal droplets have very similar compositions (bronze) although the metal droplets suggest that lead was added to the molten bronze before casting. Belt buckles or suspension loops were being made, on the evidence of the moulds examined (cf Bishop and Coulston 1993, fig 40.2.b, 59.15, and 134.3).

This assemblage must be evaluated in the context of the continuing debate regarding the production of Roman military equipment. Vegetius (II 25) implies that Roman military units could supply all of their own equipment needs, but some commentators consider that this account is comparable with Roman texts on agriculture, that is to say not an accurate reflection of reality, but, in part at least, a philosophical or rhetori-

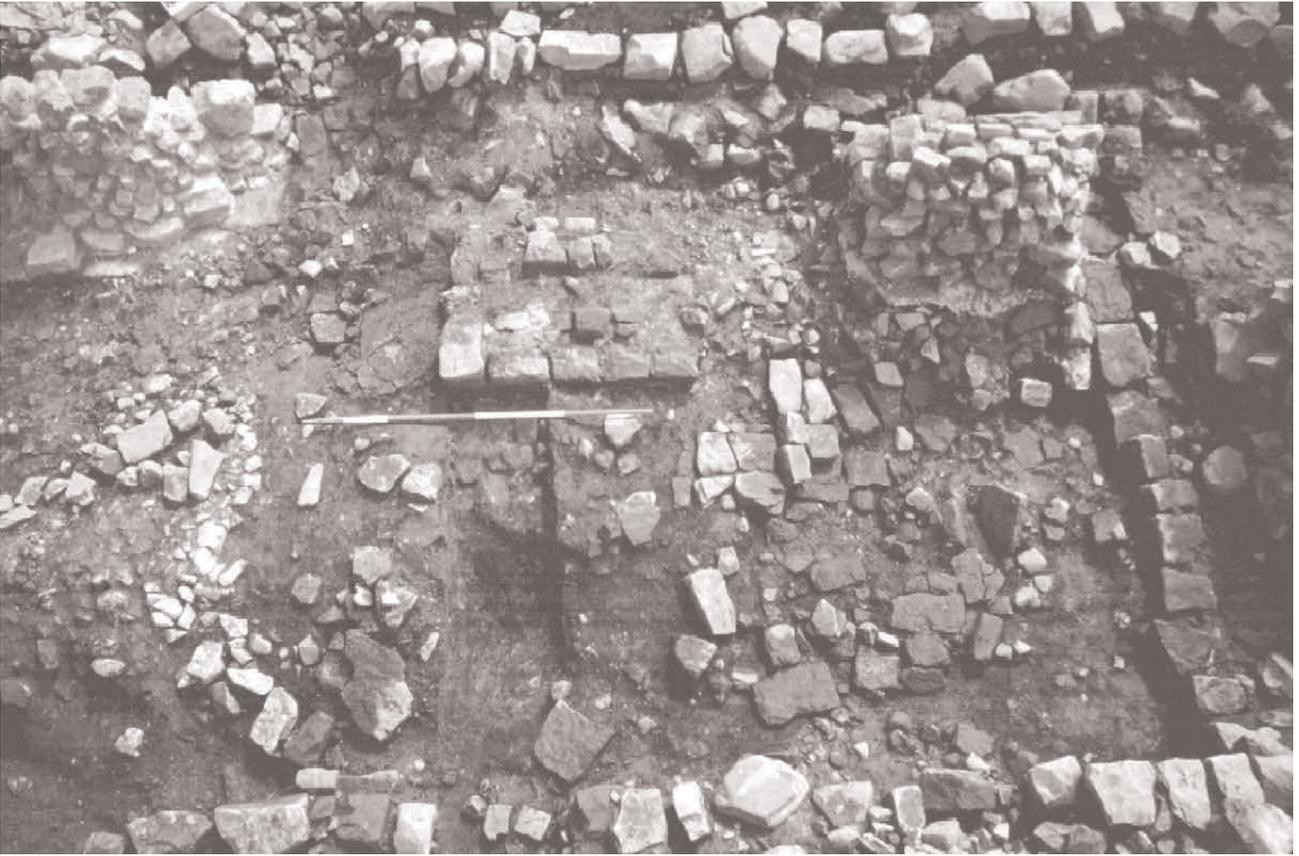


Fig 11.2 Vertical view of Workshop 2 with hearth H20:5:63 in the centre, from the north.



Fig 11.3 Flagged surfaces and hearth deposits in the south workshop, overlain by later east rampart revetment walls.

cal exercise. MacMullen (1960), for example, argued that Roman military equipment was largely produced by civilians and sold to soldiers. Hitherto, archaeological evidence for *fabricae* has been extremely limited and the evidence for metalworking in Roman forts has usually been interpreted as repair rather than production (Oldenstein 1974; 1985; Allason-Jones and Dungworth 1997). However, the evidence from Housesteads suggests that manufacture, rather than just repair, was indeed taking place there during the 3rd century. The range and quantity of metalworking debris from Housesteads is exceptional, but its discovery does raise the question of whether comparable evidence for metalworking has been missed at other Roman forts in Britain because excavators have assumed that *fabricae* must have constituted a distinctive type of internal building rather than simple sheds located in the ramparts, or in annexes.

In practice it is clear that many different kinds of structure could have functioned as workshops and would, accordingly, have been labelled *fabricae*. For instance, at Housesteads itself, Building IV, which fronted on to the *via decumana* in the *retentura*, could also have fitted such a description. Although it had the general long, narrow dimensions of a barrack block, there is no evidence that Building IV ever served as such. Instead it is most plausibly interpreted as a workshop. Bosanquet labelled it the 'Iron works' because of the quantities of iron slag and burnt clay found inside the building and especially at the west end (1904, 241). His plan (1904, pl xix, facing p 300; reproduced as Fig 1.4 here) suggests it was subdivided into three large oblong rooms, the westernmost of which contained two smaller rooms in the south-west and south-east corners. 'Considerable bodies of clay' extended from the north side of the building across the *via decumana* almost to Barrack III opposite. Such a substantial clay layer has not been recognised elsewhere at Housesteads, and could represent the collapse of a mud-brick or 'cob' wall built on stone footings. This would have constituted a more fire-resistant structure if smelting and metalworking were being carried out in the building. Thus, there is compelling evidence that Building IV accommodated ironworking activity at some stage in its history. It is not possible to allocate a precise date to this activity or determine whether it was contemporary with the operational life of the workshops of the north-east defences, where, as noted above, very little evidence of iron smelting and working was found and copper alloy working predominated instead. It is quite conceivable, however, that Building IV was being used as a *fabrica*, for the manufacture or repair of equipment, from the primary, Hadrianic, phase onwards. (For a comparable ironworking *fabrica* at Birdoswald see Wilmott 1997, 156–65.)

A further example of the wide variety of buildings that could be used for the manufacture and repair of equipment is provided by the north-east defences, again. The metalworking activity continued in the

rampart areas up to the late 3rd century, although the workshops next to the north curtain were reduced in size when the rampart bank was partially reinstated in the middle of the century. After the rampart was fully reinstated at the end of the 3rd century, there is evidence that some metalworking was still practised in this area, using a large stone hearth on the ground floor of the new interval tower on the eastern defences (see Chapter 5: East rampart). A collection of scabbard runners and chapes (Chapter 14, Nos 114–17), 3rd century in style, were found in a pit next to the hearth, suggesting they may initially have been intended for recycling.

Finally, it is noteworthy that the creation of additional workshops inside the fort does not seem to have adversely affected the prosperity of the *vicus*, which appears to have been booming in the early to mid-3rd century, spreading over an extensive area and containing numerous stone buildings, some of considerable size and quality of construction (see Chapter 10 and below). This would imply that the metalworking activities inside the fort did not unduly impact on markets served by the *vicani*, or, if they did, the impact was more than compensated for by the expansion in other economic activities. It is also consistent with the evidence that the workshops were associated with the manufacture of relatively specialised military equipment or apparel, the bulk of which the army had perhaps always produced itself.

The buildings of the north-east quarter and the 2nd- to 3rd-century garrison

The 1974–81 excavations also revealed that a series of alterations were made to the three internal buildings in the north-east quarter during the course of the mid- to late 2nd and 3rd centuries, as described in Chapter 4, and significantly revised some of the conclusions regarding this period, arrived at by Wilkes during the previous investigation of Buildings XIV and XV in 1959–61.

The most substantial of these alterations affected Building XV, which was twice completely rebuilt before the end of the 3rd century, first perhaps to become a barrack block, since it features a colonnaded verandah, cross-walls and evidence of domestic hearths, and then as a stable. In this third phase it took the form of an open hall 9m (30ft) wide with two, parallel, stone-flagged drains running the full length of the structure, carrying their effluent towards the east end; no trace of this phase was found at the west end since all the early deposits were removed by the later builders.

By contrast there was relatively little change in Building XIII during the mid- to late 2nd and 3rd centuries. In the *contubernia*, identifiable modifications were restricted to the laying of successive clay floors and hearths, revealed most clearly by sondages in *Contubernia* 1, 4 and 5, and the occasional shifting of a partition.

More substantial alterations were made to the internal arrangements in the centurion's quarters, involving new partitions, with stone replacing timber, and a sequence of floors culminating in the use of *opus signinum* in the two main rooms in the western half of the building. However, the basic structure of the block was retained throughout the period, with only its east wall being rebuilt in the latter stages of the building's life. Such continuity of timber-framed barracks on stone foundations for nearly two centuries is not particularly surprising. It is only necessary to compare the survival up to the present day of the great medieval timber barns in north-west Essex, such as the Prior's Hall, Widdington, or the timber-framed buildings of many late medieval towns, to realise that with continuous maintenance such buildings can prove very durable.

The dating evidence for these modifications is limited, and, frustratingly, particularly so in the case of the complete rebuilds represented by Phases 2 and 3 of Building XV. Consequently the relationship of either of these very clear building phases to the suggested Severan construction episode discussed above, is uncertain. More generally, however, the information provided by the internal buildings in the north-east part of the fort is crucial to any consideration of the question of the identity of the garrison at Housesteads during this period. Internal buildings associated with troop accommodation and stabling requirements were especially likely to undergo remodelling when the garrison changed and the three examples in the north-east quarter represent the most intensively examined in the fort. Accordingly, their structural history merits reviewing, in conjunction with the evidence furnished by the epigraphic corpus and earlier investigative work in the interior, particularly that of Bosanquet, to understand its implications for the composition of the garrison during the 2nd and 3rd centuries.

The garrison in the 2nd and 3rd centuries: epigraphic and documentary evidence

The Tungrian cohort

From the 3rd century onwards the fort is known to have been occupied by the *cohors I Tungrorum*, a milliary peditate cohort. A number of prefects of this regiment are known from inscriptions (*RIB* 1578, 1580, 1584–6, 1589, 1591), and, unusually, despite the cohort apparently being accorded milliary status throughout most of the 2nd and 3rd centuries, it always seems to have been commanded by a prefect, prior to the 4th century at any rate, whereas a tribune would be normal in the case of a *cohors milliaria*. This unit was still recorded as being stationed at Housesteads in the *Notitia Dignitatum*, a list of imperial functionaries, commands and regiments compiled c 395 (*ND Occ XL* 40, *tribunus cohortis primae Tungrorum, Borcovico*). Crow (2004a, 67–9) has provided a comprehensive discussion of the composition

and personnel of this cohort, which it is not proposed to duplicate here. However, one piece of primary evidence discovered during the 1974–81 excavations should be highlighted, namely a graffito scratched on a BB2 bowl with triangular-sectioned rim, dated to c 160–210, which records the name of the pot's owner, 'Neuto' (see Chapter 18: No. 14). Neuto is a name only attested in the territory of the Tungri and at the shrine of Nehalennia in the East Scheldt estuary. Its presence on a coarseware vessel of this date, along with the evidence of nomenclature attested on other inscriptions from Housesteads, suggests some degree of continued recruitment from the regiment's homeland in Gallia Belgica and from Germany (see Crow 2004a, 68–9; Rushworth 2009, 37–8). It should be noted that the sherds were probably residual, as they were found in deposits associated with the east rampart bank, which was reinstated at the end of the 3rd century (H21 Phase 3b; see Chapter 5).

There is some epigraphic evidence to suggest that the very same unit may have garrisoned the site prior to the 3rd century. A small inscription, reading COH I TV (*coh(ors) I Tu(ngrorum)*) was discovered in the north wall of the south granary (*Britannia* 18 (1987): 369). It was set in the wall upside down, and hence was presumably being reused, suggesting the Tungrians had already served in the garrison at some time prior to the reconstruction of the granary. As discussed above, that rebuilding may be assigned to the beginning of the 3rd century. On this basis it has been argued that the Tungrians provided the primary garrison at Housesteads (cf Crow 1989, 18, 42; 2004a, 62–5). Housesteads is not the only possible base for the Tungrian cohort during the Hadrianic period that has been proposed. One alternative candidate is the fort at Birdoswald (Breeze and Dobson 2000, 259–60, 267). Birdoswald was a similar size to Housesteads and unquestionably did house a milliary peditate cohort, the *cohors I Aelia Dacorum*, later in its history (cf Wilmott 1997, 195–7). However, the case for a Tungrian presence at Birdoswald rests on the evidence of a single tile stamp (*Ephemeris Epigraphica* IX 1279) found at Hare Hill rather than Birdoswald itself. It thus casts no light whatsoever on the garrison at Birdoswald and in any case tile stamps are notoriously unreliable as an indication of which unit was garrisoning a particular fort. In contrast, Birley (2002, 76, 157) contends that the unit remained at Vindolanda under Hadrian (Period V), where it had certainly been stationed before the Wall was erected (Period IV; cf *Tab Vindol* 30, 295; Birley 2002, 70–6).

The few inscriptions and diplomas that shed light on the *cohors I Tungrorum* in the 2nd century do not provide a clear and unambiguous picture of the unit's history in this period. One complicating factor is the apparent fluctuation in the cohort's size, with diplomas indicating it was a *cohors milliaria* in 103 (*CIL* XVI 48), but apparently only quingenary in 122 and 124 (*CIL* XVI 69–70). It has been argued that this was because

a detachment had been withdrawn for service overseas, since a vexillation of the cohort is attested in Noricum at some point between 128–138 (*CIL* XVI 174; cf Birley 1966, 61; Holder 1982, 44, 122). However, the precise significance of this evidence is unclear. The cohort is certainly recorded undertaking building work at Carrawburgh late in Hadrian's reign (*JRS* 56 (1966): 218, n 5), but this need not signify that the Tungrian cohort formed the garrison of Carrawburgh at that stage. Another building dedication slab (*RIB* 1550), probably of similar date, attests the presence of a different unit at the fort, the *cohors I Aquitanorum equitata*. Instead it is more likely that the Tungrian unit was simply assisting in the construction of a neighbouring base.

During the reign of Antoninus Pius the cohort is recorded at Castlecary, carrying out unspecified building work (*RIB* 2155) and was accorded milliary status once again. However, with an internal area of only 3.5 acres, Castlecary could not have held a complete milliary cohort and, moreover, other units are also attested there, the *cohors I Fida Vardullorum milliaria equitata* (*RIB* 2149) plus vexillations of *II Augusta* and *VI Victrix* (*RIB* 2146, 2148). It is noteworthy that cavalrymen from the same cohort of Vardulli had been stationed alongside the Tungrians at Vindolanda, earlier in the 2nd century (*Tab Vindol* 181, dated to Period IV: 105/122; cf Birley 2002, 72), as had some legionary soldiers (*Tab Vindol* 180), but, on the evidence of *RIB* 2149, the Vardullian presence at Castlecary would appear to consist of more than a cavalry detachment. The dedication was made on behalf of the regiment as a whole, rather than a vexillation, and includes mention of the cohort's commanding officer. In these circumstances, the size and duration of the Tungrians' presence at Castlecary remains unclear. Furthermore, a diploma of 146 (Roxan 1985), found at Vindolanda, has been held to indicate that the cohort may have been stationed at that fort, rather than Castlecary, under Pius, at least for a time. However, as Crow (2004a, 63) has pointed out, this could simply represent the return of one veteran back to his place of enlistment.

Legionaries

As noted above, it is conventionally assumed that Hadrian's Wall was abandoned following the construction of the Antonine Wall (Breeze and Dobson 2000, 90–2). The Hadrianic linear barrier would have been redundant and there is evidence that access through it was provided. However, it has been suggested that some forts may have been retained and garrisoned by legionary 'care and maintenance' detachments. This would provide a convenient explanation for those inscriptions attesting the presence of legionary vexillations at a number of forts, including Housesteads itself.

The evidence from Housesteads consists of a small number of inscribed altars, two of which relate to soldiers of *legio II Augusta* (*RIB* 1582–3), who are labelled

mil(ites) leg(ionis) II Aug(ustae) agentes in praesidio on the most fully preserved of the two texts (*RIB* 1583). A third altar was dedicated to Cocidius and the *Genius Praesidii* (the guardian spirit of the garrison station) by one Valerius, *miles legionis VI Victricis Piae Fidelis* (*RIB* 1577 = *CSIR* 138). In addition, a fragmentary dedication slab (*RIB* 1615 = *CSIR* 239) incorporates a standing figure holding a *vexillum* to the right of the inscribed panel. It was suggested that this might imply that the inscription was dedicated by a legionary *vexillatio* (*RIB* 1615 *add and corr*). However, many types of unit, including auxiliary cohorts such as the *I Tungrorum*, used the *vexillum* as their standard and incorporated it as a motif in carved dedications (cf *RIB* 1466 = *CSIR* 400 – *ala II Asturum*, *RIB* 1710 = *CSIR* 252 – *cohors III Gallorum*), so little firm reliance can be placed on this argument. As regards its date, the surviving portion of the inscription comprises the end of an emperor's name, *Hadria]no, Antoni]no* or *M Aurelio Antoni]no*, for instance, and it has been argued that the stylistic treatment of the terminal O, reducing it in size, would suit the reign of Pius (*see: RIB* 1615 *add and corr*). None of the three altars is dated in any way, however.

In contrast, both Benwell and Chesters have yielded legionary dedications firmly dated to the reign of Antoninus Pius, but here, too, caution is required in interpreting the inscriptions. Two of the dedications at Housesteads, whatever their date, were erected by groups of legionaries who were clearly stationed at the fort for a period of time, as evinced by the use of the term *agentes in praesidio*. The two altars found at Benwell (*RIB* 1327, 1330), however, were both set up by individual centurions (respectively Aelius Vibius of *VI Victrix* and M Liburnius Fronto of *II Augusta*) and do not necessarily imply that entire legionary vexillations were present (cf Breeze and Dobson 2000, 257). These officers may conceivably have been *praepositi* in charge of the normal auxiliary garrison, as is also possible in the case of an anonymous centurion of *VI Victrix* recorded at Housesteads (*RIB* 1609). Similarly, the two legionary dedications at Chesters (*RIB* 1460–1) are clearly building inscriptions – like *RIB* 1615 – and may well have been erected by troops – from *VI Victrix* in one (*RIB* 1461) if not both cases – who were drafted in for particular construction projects and were not necessarily stationed at the fort more permanently. Unfortunately, due to their fragmentary survival neither inscription can be precisely dated and the building activity they commemorate could fall anywhere within Pius's reign. They might conceivably be associated with the refurbishment of the fort after the abandonment of the Antonine Wall *c* 155, for instance, as might *RIB* 1615 in the case of Housesteads, assuming that inscription was in any way connected with a legionary detachment. Furthermore, the discovery at Chesters of a diploma of 146 has been taken as evidence that a normal auxiliary garrison was still present (Breeze and Dobson 2000, 91, 258),

although, as has been suggested in the case of the example found at Vindolanda, it is possible that this simply represents the retirement of one individual soldier back to a base where he had been stationed earlier during his service.

Thus, definitive evidence for legionary 'care and maintenance' detachments is lacking and there must be some suspicion that the concept of such detachments is simply a convenient pigeonhole for a group of awkward inscriptions that do not fit the neat pattern of fort garrisoning envisaged by earlier scholars. Indeed the concept seems to presume foreknowledge on the part of the Roman military authorities of the relatively short lifespan of the Antonine Wall and the eventual need to recommission Hadrian's Wall. There is no reason to assume that the Antonine advance was not considered permanent at the time of its launch. If the forts along Hadrian's Wall, at least in some instances, did remain garrisoned during the early Antonine period, they must have served some purpose within the new scheme.

The available epigraphic and structural evidence suggests that the pattern of troop deployment in the newly occupied area of southern Scotland was very complex (succinctly tabulated in Breeze and Dobson 2000, 111), particularly after the initial scheme, which closely resembled that of Hadrian's Wall, was modified to place more forts on the line of the Antonine Wall. Many of the forts are too small to have held a complete auxiliary regiment and in several cases more than one unit is recorded in a given fort. In addition, there is widespread epigraphic evidence for the use of legionary vexillations. In some cases one unit may have replaced another, while in other cases epigraphically attested units may simply have been employed in building operations, but the overall impression is nevertheless one of great flexibility, with the strong possibility that detachments from different regiments, both legions and *auxilia*, were brigaded alongside one another. In these circumstances, therefore, it is possible that not all auxiliary units were fully deployed forward onto the Antonine Wall or its hinterland and that, as a consequence, accommodation was still required in at least some of the former bases along Hadrian's Wall.

Whatever the fate of the Hadrian's Wall forts in the early Antonine period, there is no need to assign such a date to the legionaries attested at Housesteads or to assume they were performing a 'care and maintenance' function. A more convincing explanation can be provided, drawing on parallels from another Roman frontier. In the sprawling command of the legate of *legio III Augusta*, which stretched across Numidia and Tripolitania, abundant epigraphic evidence has revealed a very complex pattern of deployment, particularly during the period of the Severan dynasty when the army was aggressively pushed forward to occupy a wide expanse of semi-desert, mountain and oases. In addition to the widespread use of legionary vexillations to garrison outposts there were often small numbers of

legionaries, sometimes accompanied by a few legionary and/or auxiliary cavalrymen, stationed in forts alongside the main garrison force, where they presumably performed liaison and communications tasks, and other specialist roles, perhaps including reconnaissance in the case of the cavalrymen (Rushworth 1992, 14–16, 131; 1996, 301–2; Le Bohec 1989a; 1989b). The term *numerus conlatus, collatus* or *collectus* sometimes seems to have been used for convenience to designate these *ad hoc* groups on dedications, usually alongside the principal garrison unit (Lassère 1980). The *milites legionis II Augustae agentes in praesidio* and the *miles legionis VI Victricis Piae Fidelis*, Valerius, recorded at Housesteads may represent something similar. The *milites* do not formally style themselves a *vexillatio* and need not have been very numerous, conceivably no more than 10–20 men stationed in the fort for a period while performing particular duties. Such troops may have been a more common feature than has hitherto been recognised, part of a web of command and communications connecting the garrisons of the northern frontier.

The *cunei Frisiorum*

In the 3rd century, two further units are recorded on inscriptions at Housesteads, the *cuneus Frisiorum Ver(covicianorum)* – as hitherto read – and the *numerus Hnaudifridi*. Both are usually described as units of German irregular troops (cf Crow 2004a, 65–7; Breeze and Dobson 2000, 275). They are commemorated in three dedications made to their native deities at the apsidal shrine enclosing the well at the foot of Chapel Hill (see Chapter 10 and Fig 11.4). The additional title *Se(ve)r(iani) Alexandriani* given to the Frisians on one of the altars (*RIB* 1594; *CSIR* 160) demonstrates that these troops were certainly present during the reign of Severus Alexander (222–35).

There are several areas of uncertainty regarding these units. Firstly, despite the apparent marked difference between the two titles, it is possible that they actually referred to the same force of Frisian warriors. The two do not feature together on any inscription. In the form *cunei Frisiorum Ver(covicianorum) Se(ve)r(iani) Alexandriani*, the first title figures on a large inscribed altar (*RIB* 1594; *CSIR* 160), which stood in front of the apsidal shrine, close to the doorway. This altar was probably contemporary with the building's construction or refurbishment. The title has the characteristics of a formal designation applied by the Roman authorities and is paralleled by similar *cunei* elsewhere in northern Britain, for example the *cuneus Frisionum Aballavensium* (*RIB* 882, 883) and the *cuneus Frisiorum Vinoviensium* (*RIB* 1036). The *numerus Hnaudifridi* ('Notfried's unit') set up a separate, smaller altar dedicated to the two Alaisiagae and the Numen Augusti (*RIB* 1576). The *numerus* presumably derived its name from that of its commander, a less formal title, but one that was perhaps more meaningful for the



Fig 11.4 The façade of the Mars Thincsus shrine, showing the surviving inscribed and carved stonework around the doorway with the missing pillar of the doorframe restored.

troops themselves. As Crow (2004a, 67) has suggested, it is conceivable, therefore, that the two dedications were made by the same regiment, but in differing circumstances, resulting in a variation in the unit titlature used in each case.

The structure of the Frisian force may have been somewhat more complex, however. The apparent full title of the devotees named on the main altar is the *Ger(mani) cives Tuihanti cunei Frisiorum Ver(covicianorum) Se(ve)r(iani) Alexandriani*, but they are recorded simply as the *Germ(ani) cives Tuihanti* on the inscribed pillar (RIB 1593; CSIR 159), which was dedicated to the same deities as the altar – Mars Thincsus, the two Alaisiagae and the Numen Augusti – and formed part of the doorway into the shrine, although there was space on the pillar for a longer title. On this basis, it is usually assumed that only one group of devotees is listed on the altar, the Tuihantian tribesmen, who made up either all or part of a single *cuneus Frisiorum* and were responsible for constructing the shrine (Fig 11.5). However, an alternative explanation is possible, namely that the *cives Tuihanti* and Frisian *cunei* were distinct entities, listed in succession on the altar. In this case, the surviving pillar's counterpart, which must originally have stood on the other side of the arched doorway,

but has not been found, may have borne an inscribed dedication by the *cunei Frisiorum Vercovicianorum Severiani Alexandriani* to match that by the *cives Tuihanti*. This would, of course, imply that there was more than one Frisian *cuneus* at Housesteads, perhaps a collection of two or more small warbands, or *cunei*, of which the *numerus Hnaudifridi* may have been one. Each warband may have been led by a particular chieftain or distinguished warrior, such as Notfried, who had come over to the side of the Romans with his followers. It would also explain why the two Alaisiagae were given somewhat different names on the pillar (Beda and Fimmilena) and on the altar erected by the *numerus Hnaudifridi* (Baudihillia and Friagabis), if the monuments were set up by two distinct groups from different tribal backgrounds with, as a consequence, differing, though obviously substantially related, religious traditions. The *cives Tuihanti*, for their part, probably represent tribesmen levied to replenish the ranks of the *cohors I Tungrorum*. They may resemble the members of two Germanic *pagi* or districts, the *pagus Vëllaus* and *pagus Condrustis*, who are recorded *militans in cohorte II Tungrorum* at Birrens, probably during the period 158–c 180, or those of the *pagus [...]diorum* apparently serving in the *cohors II*



Fig 11.5 Reconstruction of the shrine of Mars Thincsus (by Ivo Mott).

Nerviorum at Wallsend, perhaps around the same time (RIB 2107, 2108, 1303; cf Hodgson 2003, 13). On placename grounds it has been suggested that the Tuihanti were centred on the district of Twente in the Dutch province of Overijssel, c 60km north of the Rhine (see Clayton *et al* 1885, 171; cf Crow 2004a, 67). They probably also correspond to the Tubantes, a Frankish tribe or sub-tribe that provided two *auxilia palatina* of the late Roman field army (ND Or VI 19, 51; Occ V 28, 176; VII 123; cf Hoffman 1969/1970).

If the above interpretation is valid, the Frisian units would indeed, initially, have been very irregular in their makeup, with their own commanders for instance, although their structure may have become more formalised over time. There is no direct evidence regarding the size of such German unit(s), although they are generally assumed to have been relatively small in relation to the principal auxiliary unit in garrison, no more than one or two hundred men perhaps. (For further discussion see Rushworth 2009.)

A second issue that requires more careful consideration than it normally receives is the presumption that the *cuneus* or *cunei Frisiorum* was composed of irregular cavalry. Whereas the label *numerus* ('unit') could be applied to any regiment, even a legion (cf Speidel 1975), the term *cuneus* (literally 'wedge') is usually assumed to represent a cavalry unit, based on the parallel with the *cunei equitum* cited in late imperial sources, most notably entries in the *Notitia Dignitatum* and the laws of the Theodosian Code (cf Jones 1973, 99–100; Mann 1977, 11; CTh VII xiii 7 (375), and VII xiii 1 (326/354)). *Cunei equitum* were prevalent on the Danube frontier, especially the lower Danube, and to a

lesser extent in Egypt and the East (ND Occ XXXII–XXXIV, Or XXXIX–XLII; XXXI 23–4, VII 34; Occ VI 85). However, some caveats should be expressed in the face of this unanimity. A *cuneus* was a battlefield formation that could be adopted by both cavalry and infantry, in the latter case taking the form of an 'attack column' (MacDowall and Embleton 1994, 31–2). The Frisians were not especially renowned as cavalry, and none of the inscriptions relating to *cunei* in Britain (RIB 772, 882, 883, 1036) contain references to *equites*, for instance, or provide any categorical evidence that these were cavalry units. Furthermore, it may be significant that the 4th-century Danubian *cunei* are explicitly qualified as *cunei equitum* in the *Notitia Dignitatum*, in the same way that *numeri* composed of cavalry are occasionally referred to as *numeri equitum* at an earlier date (cf RIB 583, 780). It is also noteworthy that a high proportion of the epigraphically attested 3rd-century examples of *cunei* on the northern frontier were Frisian (cf Holder 1982, 124–5), suggesting that they formed part of one larger body of Frisian warriors transported to Britain at a particular point in time, like the better known case of the 5500 Sarmatians sent to Britain by Marcus Aurelius in 175. In fact it is a detachment of these Sarmatians, stationed at Ribchester, which provides the only firm evidence that the 3rd-century 'ethnic' *cunei* were cavalry. The Sarmatians were renowned horsemen and the Ribchester unit was clearly a cavalry regiment. It is labelled an *ala* and a *numerus equitum* on 3rd-century inscriptions (*ala*: RIB 594, 595; *numerus equitum*: RIB 583). It was still based at Ribchester in the later 4th century, listed in the *Notitia*

Dignitatum, under the command of the *dux Britanniarum*, with a different title again, that of *cuneus* (*ND Occ XL 54: cuneus [S]armatarum, Brementenraco*). That it was not one of the newer *cunei equitum* is confirmed by the fact that it figures among the old-style, lower quality *limitanei* of the ducate, the so-called units of the *laterculum minus*. It is reasonable to assume that it was still, at least nominally, a cavalry regiment. Indeed all the *cunei* listed in the *Notitia* were evidently cavalry units and in the legal pronouncements *cuneus* is used without qualification as a contrast to the infantry *auxilia* of the frontier *ripenses* (eg *CTh VII xiii 7 (375): qui in ripa cuneos auxiliaque fuerint constituti*), although this is typical of the imperial draftsmen's preference for rhetorical style rather than technical precision. If this was the position by the 4th century, however, it is far from clear that *cuneus* was used so exclusively in the early to mid-3rd century and the possibility cannot be excluded that the Frisians were composed of infantry or even a mix of infantry and cavalry, a style of combat long associated with German warbands.

Hodgson (2003, 150–2) has recently reviewed the evidence for the presence of Frisian irregular troops on the northern British frontier with particular reference to structural evidence from Wallsend fort. In more general terms, however, the re-evaluation of the role of the *cives Tuihanti* presented above, coupled with the onomastic evidence provided by other inscriptions and graffiti, strongly points towards the lower Rhine (particularly the 'Frankish' tribes on the north bank of the river), the Frisian coast and perhaps Gallia Belgica being the principal source of manpower to replenish the garrisons of the British frontier (while British tribal levies provided a corresponding reservoir of recruits for the German frontier). This in turn may offer a new perspective on the Germanic migrations across the North Sea during the early medieval era. As Roman authority in the British provinces withered in the 5th century, it is unlikely that the island was regarded as a *terra incognita* by the tribal communities of the North Sea coast, with many perhaps being able to draw on long family traditions of military service across the water.

The garrison in the 2nd and 3rd centuries: excavation and structural evidence

The epigraphic and documentary evidence has been discussed in some detail above since it potentially has significant implications for our understanding of the size and composition of the garrison. However, as the discussion has made clear, the epigraphic sources rarely provide definitive answers to the questions posed. Instead they offer a range of alternative hypotheses, which may be adopted with greater or lesser confidence.

It is in this context of multiple possible narratives that the results of the 1974–81 excavations and the other structural evidence should be considered. Changes in the size and composition of the garrison,

along the lines of the various alternatives discussed above, would each have had significant implications in terms of the type and quantity of accommodation – specifically barracks and stabling – required at different stages, which should, in turn, be traceable in the archaeological record in and around the fort.

With an internal area of 2 hectares (5 acres), the fort was designed from the start to hold a milliary cohort of 800 infantrymen (Breeze and Dobson 2000, 54, 258–9). Such a unit could have been accommodated in the ten primary barrack blocks (I–III, V–VI, XIII–XIV, XVI–XVIII) located in the *praetentura* and *retentura*, east and west of the central range respectively. Ten barracks would have been sufficient for a milliary peditate cohort, based on the conventional assumption that such units comprised ten centuries. The other two buildings in the *praetentura* and *retentura*, XV and IV, clearly served as workshops, armouries or the like in the initial phase (see Chapter 3 and above). However, an eleventh barrack block, Building VII, situated at the north end of the *latera praetorii*, was also identified by Bosanquet. A small area of this block was revealed by Hepple, Richmond and Simpson in 1945, adjacent to Turret 36b, and subsequently consolidated and displayed. The clearest remains are those associated with the later chalet phase, but an underlying conventional barrack phase can be tentatively identified, both on the 1898 plan and in the consolidated masonry. However, it is unclear whether this formed part of the primary Hadrianic phase of the fort. It would have been superfluous for a milliary peditate cohort. Its date and purpose are considered below.

Several conclusions drawn from the 1974–81 excavations are relevant to any discussion of the history of the garrison. Firstly, the excavation of Building XIII revealed no evidence of a major replanning, hiatus in occupation or demonstrable period of dereliction in that barrack block, prior to the chalet phase rebuilding. This apparent structural continuity hints at a corresponding regimental permanence at Housesteads, and lends some support to the tentative suggestion, based on the inscription found reused in the granary (*Britannia* 18 (1987), 369), that the *cohors I Tungrorum* formed the primary garrison of the fort and remained there throughout the life of the base. Had the fort been entirely abandoned under Pius, for instance, or had the primary garrison been replaced in the later 2nd century or the Severan period, a more radical overhaul of the barrack accommodation would have been anticipated.

The fact that so little early Antonine samian was recovered by the 1974–81 excavations might point to the opposite conclusion, namely that the fort was abandoned while the Antonine Wall was occupied. However, as discussed previously in this chapter, the similarly small quantities of Hadrianic and earlier material in the overall samian assemblage suggest that this absence of evidence may be explained by the relatively limited investigation of the earliest levels undertaken between 1974 and 1981. Furthermore, where

they were investigated, it was clear that the early levels were, artefactually, relatively clean, a factor that should perhaps be attributed to the depositional factors and discard processes, which were very different to those found in the later phases.

In contrast to Building XIII, a substantial remodeling of Barrack XIV has been recognised, initially by Wilkes in 1959–60, but supported by subsequent excavation results in 1979 and 1981 (though aspects of its form remain problematic and its very existence can be questioned). It is tempting to explain this rebuilding was necessitated when part of the Tungrian cohort, which had been stationed on the Antonine Wall, perhaps for a time at Castlecary, returned to Housesteads, *c.* 155/158, to be reunited with that part of the unit which had remained in garrison throughout the period. Wilkes, however, dated this work to the Severan period (1960, 62, 65–6; 1961, 283–5, 290–2; his 'Period II'), which would not provide such an obviously convenient explanation for the dereliction of the barrack block. Although Wilkes may to some degree have been influenced by the prevailing 'Wall-Period' paradigm, he did have some solid dating evidence on which to base his judgement, albeit limited in quantity. Essentially this comprised a single small group of coarse pottery associated with a hearth of 'Period I' (H14:3:15) in *Contubernium* 3 (Wilkes's *Contubernium* E), which provided a *terminus post quem* of *c.* 200 (Wilkes 1960, 62, 66). No significant additional dateable material was found during the 1979 and 1981 excavations (H14 Phase 2; see Chapter 4) to further validate the chronology proposed by Wilkes.

The suggested rebuilding of XIV has a further possible implication. The Phase 2 barrack block would appear to contain fewer *contubernia* than its predecessor, with the area previously occupied by four *contubernia* at the east end of the range now being subdivided between three only. This might in turn imply a gradual reduction in the strength of the cohort by the beginning of the 3rd century. The new barrack would presumably reflect the amount of accommodation required by the particular century it was destined for at that specific point in time. Exactly how many *contubernia* the full length of the secondary barrack might have contained is unclear, however, since the remainder of the block, where no partition walls belonging to this phase were recognised, cannot be neatly subdivided into the new wider *contubernia*. The internal width of the three Phase 2 *contubernia* at the eastern end of the barrack block is *c.* 5m each. Allowing for partition walls, the remaining internal length of *c.* 23.8m can be subdivided into four more *contubernia* of similar width and one unfeasibly narrow one (a workshop or storage area?). Alternatively, perhaps the primary partition walls separating the *contubernia* were retained in the central and western parts of the block, which would result in a total of three wide and six narrow *contubernia*. Assuming that this signifies the century had lost the complement of one *contubernium* and that the same

process was replicated throughout the regiment, this would suggest only a marginal reduction in the overall strength of the cohort from *c.* 800 to *c.* 720. In contrast, a layout with only seven *contubernia* would imply a much more substantial reduction to *c.* 560 men, based on the same assumptions. In practice such exactitude should probably be avoided. At most this evidence points to some reduction in the strength of the cohort, but its tenuous nature scarcely requires emphasising. Indeed, the difficulty in neatly dividing up the barrack block into an obvious number of *contubernia* is one of the problems that makes the Phase 2 rebuilding of XIV controversial (see Chapter 5: Building XIV).

Excavation at the east end of Building XV, in 1981, yielded potentially even more significant results with regard to the garrison history of Housesteads. The original building on this site, which had not hitherto been recognised, was rectangular in plan and subdivided into a series of rooms. Despite having similar overall dimensions, it was clearly not a barrack block since it lacked the familiar L-shaped plan, complete with colonnaded verandah and projecting officer's quarters, of primary barracks such as XIII and XIV. It was also furnished with hard-wearing cobbled floors, rather than beaten clay, and was probably a workshop, equipment store or armoury (cf Crow 2004a, 60). This building was subsequently demolished to make way for a structure most plausibly interpreted as a barrack block (Building XV/2), which in turn was later replaced by a stable (Building XV/3).

Building XV/2 (which was Wilkes's primary phase) was narrower than its predecessor, but it too was subdivided into a range of rooms. These were furnished with hearths and there was a shallow verandah on the south side. The presence of hearths in the rooms, indicating possible living quarters, and, in particular, the colonnaded verandah, suggests the building was probably a barrack block (Crow 2004a, 60). No evidence for officer's quarters projecting forward across the verandah area was found, but these may have been located at the west end of the block, where all trace of this phase had been removed or masked by the later construction of the massive storehouse (Building XV/4). The dimensions and layout of the building were clearly somewhat different from those of the Hadrianic barracks, XIII and XIV, but there is no reason to assume that the template for a barrack block had remained unchanged over the intervening period. Moreover it is quite possible that Building XV/2 was erected by a different unit from the one that had constructed the primary barracks, working to its own norms and standards for such structures.

Building XV/2 was in its turn replaced by a rectangular hall, which may have been shorter in length than the two preceding structures, although this is not certain. It featured a stone-flagged floor, providing a hard standing, and two internal east–west drains, capable of carrying away substantial quantities of effluent, a combination that suggests the building was probably a stable.

Neither of these construction events can be closely dated since very little stratified, dateable material relating to these phases was found, either in 1961 or 1981. Wilkes presumed that Building XV/2 was Hadrianic, as the primary structure was not revealed during the 1961 campaign. If the building was indeed a barrack block, as suggested above, it is possible that its construction was related to the insertion of a second oven in the east rampart bakehouse. A later 2nd-century *terminus post quem* can be tentatively assigned to this second oven, which may have been intended to serve the occupants of the new barrack block, but this is obviously a very fragile basis for dating the building itself. The evidence from Building XV/3 is equally meagre. A radiate coin dated to 259–73 (No. 254) was found in the southern drain, indicating that the building cannot have gone out of use before the mid- to late 3rd century, but no direct evidence was recovered that provided a *terminus post quem* for the building's construction.

Perhaps more so than with any of the other structures or areas investigated in 1974–81, the excavation results from Building XV are tantalising and frustrating in equal measure. Its phasing was very clear, with each stage involving the demolition of the old building and the erection in its place of a new one with an apparently different function, the kind of distinct and substantial alterations that might conceivably shed light on wider changes within the fort as a whole. Moreover, the most plausible interpretations of the successive buildings' respective functions – a barrack block and a stable – suggest that Phases 2 and 3 of XV were precisely the types of structure that might be expected to have very great relevance for the garrison history of the fort, in particular. However, the extreme paucity of dating evidence leaves these rebuilding events floating within wide chronological parameters and it is difficult to make further deductions regarding the history of the garrison, based on these events, without inherent risk of circularity.

Thus, it is logical to assume that the construction of an additional barrack block, represented by Building XV/2, indicates there was a need for extra accommodation at some stage and it is tempting to associate this with the arrival of a new unit, perhaps in the mid- to late 2nd century. This might represent either the replacement of the original garrison by another regiment that required more accommodation than its predecessor or the arrival of additional smaller units which were then stationed alongside the main garrison. The second hypothesis seems the more likely since Housesteads already appears to have had adequate accommodation for a milliary peditate cohort, but would have struggled to house a full milliary equitate cohort or an *ala*. Moreover, the arrival of a new cohort might be expected to have triggered a more widespread rebuilding of the barracks. The block could conceivably be associated with the legionaries attested in garrison at Housesteads or even the German irregulars

known to have been present in the 3rd century. In the latter case, however, the *cuneus* or *cunei Frisiorum* are attested at Housesteads during the reign of Severus Alexander, so, if Building XV/2 was associated with the Frisians, it would have had to have been demolished and the stable building erected in its place at some stage after 222, but before the end of the 3rd century when the massive storehouse was probably built on the site. This is not impossible, but in that case the primary building would have been in use for at least 100 years, while both the Phase 2 and Phase 3 buildings would have had much shorter lives, yet there is little evidence for any significant depth of deposits in Building XV/1, which would be consistent with such prolonged occupation. More plausible is an association with the legionary troops mentioned on various inscriptions, for example the *milites legionis II Augustae agentes in praesidio* of RIB 1583, but even so much caution is required. There is no firm evidence that the legionaries were present in sufficient numbers to require the construction of an additional barrack block. Small numbers of specialists could quite conceivably have been accommodated in the existing barracks, particularly if the main garrison unit was understrength or had a significant proportion of its troops dispersed away from the fort on specific missions, as was often the case with auxiliary units to judge from documentary evidence from around the empire. An earlier troop roster from Vindolanda, relating to the *cohors I Tungrorum* itself, shows that more than half the unit was away from the base (*Tab Vindol* 154). Nor is there any indication that the legionaries were only present during a specific period, contemporary with the life of Building XV/2. It is at least equally likely that such troops were stationed in the fort from time to time throughout the 2nd to 3rd centuries, whenever they were required for specific tasks or missions. Thus, although a possible association between the barrack block and the legionaries can be proposed, at present it remains only a theory and should not be used as a base on which to construct further hypotheses regarding the history of the fort and its garrison.

It is tempting to assume that the appearance of a stable at Housesteads, represented by the third phase of Building XV, signified the arrival of a cavalry force at the fort and, in turn, to associate this with the Frisian irregulars, who were certainly stationed at Housesteads during the reign of Severus Alexander (RIB 1594). Once again, however, a degree of caution is merited. The possibility that 3rd-century *cunei Frisiorum* – as opposed to 4th-century *cunei equitum* – might not actually have been cavalry units was discussed above. The stable could have been intended to serve the needs of the entire garrison, since infantry as well as cavalry had need of stables to house officers' horses and those of visiting soldiers and officials, as well as baggage animals, perhaps oxen and mules as much as horses, of which there must have been a large and varying population in all Roman forts.

This argument is to some degree supported by the form of the building. It represents a marked contrast with the two 'stable-barracks' which have been identified more recently in the southern part of Wallsend fort (Buildings 9 and 12; cf Hodgson 1999b, 86–8; and 2003, 37–90), on the basis of numerous parallels in sites on the German frontier (Sommer 1995). In this latter type of building the horses were apparently housed in the front rooms of each individual *contubernium*. It is plausibly suggested that the two barracks re-examined at Wallsend comprised part of the accommodation for the cavalry component of an equitate cohort, each barrack housing a *turma* of c 30 men and their horses. Instead the Housesteads stable building is much closer in layout to another type of stable, which can also be recognised at Wallsend, having been revealed by excavation in 1975–6 (Building 1, Phase 2; cf Daniels 1989, 79–80). This building, which began life as a barrack block, was transformed into a narrow hall with a flagged floor, no internal partitions and a single stone-lined drain along the full length of the south wall. Although this structure has only one drain, the basic similarity with Building XV/3 is evident. Whereas stable-barracks of the kind identified in the *retentura* at Wallsend would invariably have been intended to accommodate cavalry, both men and horses, stables like Building XV/3 at Housesteads or Building 1 at Wallsend could have performed more miscellaneous functions. It may be significant that even in a fort such as Wallsend where cavalry horses were housed in stable-barracks, additional stable capacity was required in the 3rd century.

Thus although a link with the German irregulars at Housesteads cannot be ruled out, it is clear that there are other equally valid explanations for the stable building, XV/3.

The 1974–81 excavations also demonstrated that the buildings erected behind the curtain in the area of what had previously been rampart bank, were workshops not barracks (cf Daniels 1980, 187). While there is no guarantee that the buildings identified along the other stretches of the defences performed the same functions as the workshops of the north-east quarter, none of the buildings uncovered by earlier investigators had the classic appearance of barrack blocks, with regular *contubernia*-like compartments. Those revealed by Simpson between the south gate and south-east angle (rampart area H23) were smaller and more irregular buildings (F G Simpson 1976, 133), more akin to the north-east workshops, while the two buildings uncovered by Clayton against the west and north curtain walls (areas H25 and H27) were relatively long, narrow buildings compared to the other rampart-back buildings, but lacked any internal partitions. Since it would not have been too difficult to construct regular barracks of some kind in the rampart areas, this would suggest that such buildings were not needed.

Two further issues are relevant to consideration of the 2nd- to 3rd-century garrison at Housesteads. The first is the function and history of Building VII, located at the north end of the central range. As was noted above it is uncertain whether this was one of the primary structures of the fort, but there would certainly have been space for a building of some kind on that site



Fig 11.6 The consolidated remains of Building VII viewed from the west. The two parallel chalet walls overlie the remains of Turret 36b to the left and a higher, ?conventional barrack wall to the right

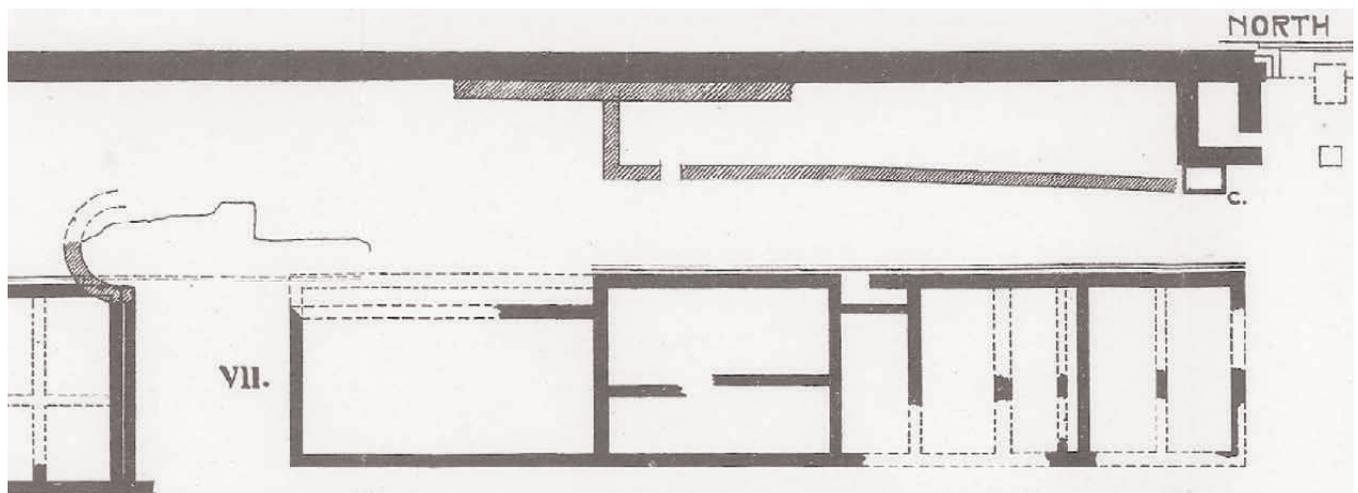


Fig 11.7 Building VII (extract from the 1898 excavation plan).

in the Hadrianic period. It was trenched by Bosanquet. A small area of this block was revealed by Hepple, Richmond and Simpson in 1945, adjacent to Turret 36b, and subsequently consolidated and displayed. The clearest remains are those associated with the later chalet phase, but an underlying building phase is evident, both on the 1898 plan and in the consolidated masonry, and can be tentatively identified as a conventional barrack.

The visible, extant remains comprise two parallel north–south walls, which stand two–three courses high on top of deep, modern underpinning (Fig 11.6). To the north, both walls terminate in monolithic pier bases, over the south side of Turret 36b. To the south they disappear into the side of the 1945 excavation cut. A third wall, again three courses high, runs westward from the westernmost of the two north–south walls, and is swallowed up beneath the surface beyond the trench. Its junction with the north–south wall is interrupted by a group of large flat slabs, set lower than the masonry to the west, which clearly represents the threshold of a doorway through the east–west wall. On either side of the turret, lengths of verandah guttering can be seen protruding from the sides of the trench.

Bosanquet's excavations recovered the outline plan of a building similar in dimensions to a barrack (Fig 11.7). North and south walls, plus a line of guttering to the north, were located while a trench cut from west to east identified a number of internal partition walls, but the most striking feature identified was an apparent large central room with a couple of east–west cross-walls. To the west, only exterior walls were recognised, including a more southerly north wall. In fact, the west wall of Bosanquet's 'central room' is the westerly north–south wall visible today, but he evidently failed to trace the eastern north–south wall, which would have bisected that 'room'. His more southerly north wall represents the consolidated east–west wall.

Careful scrutiny of the extant remains in conjunction with Bosanquet's plan enables three different phases to be disentangled. The sequence of visible

buildings may be summarised as follows: Turret 36b and Broad Foundation, earlier barrack, later barrack. The southern stretches of the north–south walls have lower set masonry than the more northerly stretches and the level of their stone courses differs. The junction between the two halves is on line with the east–west wall. The likelihood is that the north–south walls represent earlier *contubernium* walls that have been rebuilt and extended northwards when the block was remodelled as a range of open-fronted, chalet–*contubernia*. The full length of their uppermost courses probably belongs to this rebuild. The monolithic pier bases are characteristic features of the later barrack ranges, comparable examples being found in the chalet phases of Buildings XIII and XIV. The rebuilt *contubernium* now appears to be open fronted, with no visible trace of the more northerly east–west aligned wall shown on Bosanquet's plan, which would have closed off the very north end of the room. This wall may have been removed during excavation in 1945 to better reveal Turret 36b beneath, or perhaps it was the south wall of the turret that Bosanquet's workmen had actually found in this area. The east–west wall visible today, complete with doorway and the verandah guttering, probably belonged to the early standard-shaped barrack. The door threshold is in the usual position, to one side of the front wall of the *contubernium*. To the east a further length of early barrack front wall can be seen on the 1898 plan. The cross-walls Bosanquet identified here may belong to either phase. Other interpretations of Building VII Phase 1 could be proposed, such as a range of workshops or equipment storage rooms like Building XV Phase 1, but the apparent presence of a verandah, indicated by the guttering revealed by the 1898 and 1945 excavations and by the position of the extant north wall relative to that guttering, is very suggestive of a 2nd- to 3rd-century barrack block rather than a more utilitarian structure. The centurion's quarters must have occupied the east end of this early block. Excavation in 1976–77 showed that the east end of the building was later extended to

encroach over the *via principalis*, probably after the west portal of the north gate had been blocked. Few late features are visible on Bosanquet's plan in the western third of the block. Conceivably the chalet range extended no further west than the consolidated example, unless the later Roman levels have been removed by more recent activity. There is also little evidence for intervening alleys between the later extended *contubernia*, of the kind visible between many of the chalets in Buildings XIII and XIV.

Thus it is clear that there was a barrack-like building on this site prior to the chalet phase, although it is uncertain whether this formed part of the primary Hadrianic phase of the fort. Depending on when exactly the block was constructed this would mean that the fort at times had 11 and, if VII/1 was contemporary with Building XV/2, potentially 12 barracks. However, an 11th or 12th barrack block would have been superfluous for a milliary peditate cohort and probably for an equitate quingenary unit as well, if it is assumed the latter required six infantry barracks and four cavalry stable barracks. On the other hand, 11 or even 12 barracks would not have been sufficient to accommodate a full milliary equitate cohort, assuming the latter required about 10 infantry barracks and 8 cavalry stable-barracks. The most likely solution is that the extra barracks were intended to house a detachment of additional troops. Without more information on the date of Building VII/1 it is pointless to speculate much further, but the epigraphically attested legionaries and Frisian irregulars discussed above would be obvious candidates to occupy the 11th barrack block. In the case of the Frisians, the troops might conceivably have been housed in the barrack block while their horses (if indeed they were cavalry) could have been stabled in Building XV/3.

The latter possibility would contradict the recent suggestion that the Frisians were billeted outside the fort, in the south-west quarter of the *vicus* (Crow 2004a, 79–81). This intriguing theory rests on two interrelated arguments. Firstly it has been suggested that the distinctive coarseware pottery known as 'Housesteads Ware' was associated with the Frisian irregulars (Jobey 1979), on the basis of the similarity of its vessel forms with those found at sites in coastal districts of the Netherlands. Furthermore, although some sherds of this type were found during the excavations of Buildings XIII and XIV and the hospital, the bulk of the material examined by Jobey, that could be provenanced, derived from the *vicus*, not the fort, and was recovered during the 1931–4 excavations (Jobey 1979, 127, 132; Crow 2004a, 79–80). It was referred to at several points in the 1931–4 excavation reports, described as pottery 'showing native characteristics' (see Birley and Keeney 1935, 252–3, 256–7). Secondly, Crow drew attention to the juxtaposition of a group of very roughly built structures (Sites XIX and XXIII–XXVII) next to *Vicus* Building VII, which was constructed, in part, of fine ashlar block-work and was apparently associated with another large building, XVI. The excavators considered that these two

buildings may have served some official purpose, suggesting that VII was the office of a *beneficarius consularis* charged with supervising the local market, monitoring trade through the Knag Burn Gate and collecting customs tariffs, while the adjacent Building XVI might have been that official's residence (cf Birley and Keeney 1935, 254–5). Masonry of the quality described in relation to VII (there are no photographs) – 'massive ashlar masonry, measuring 6 feet by 2 feet 6 inches by 2 feet' (1.8m × 0.8m × 0.6m) – is extremely rare at sites on Hadrian's Wall. A further example at Housesteads – *Vicus* Building V (also labelled the 'house of the *beneficarius consularis*') – may be cited (see Hill in Chapter 10 for masonry survey), along with Benwell Vallum crossing and the masonry incorporated in the west gateway at Birdoswald (perhaps deriving originally from another Vallum crossing gateway), but the list is short. Although a *beneficarius consularis* is recorded at Housesteads, on an altar in the *mithraeum* (RIB 1599; CSIR 129), the Knag Burn Gate has been more plausibly explained as providing access to the north side of the Wall, following disuse of the fort's north gate, rather than as a conduit for long-distance trade (see Crow in Chapter 10). Instead, Crow has proposed an alternative official role, namely that *Vicus* Buildings VII and XVI represent the administrative blocks for the Frisian unit, while the chalet-like structures, XIX and XXIII–XXVII, provided accommodation for the troops. (Note the numbering of the *vicus* buildings on the 1935 published plan – Birley and Keeney 1935, pl xxii – is out of sequence with that contained in the associated descriptive text. Building XV on the plan should be renumbered XIV, XIV changed to XXII, XXII amended to XXIII and so forth up to XXVI and XXVII, which were actually treated as a single building (XXVII). The number XV was not allocated to any structure: see Fig 11.8.)

In many respects this is an attractive hypothesis. The practice of billeting troops in what were nominally civilian quarters may have been much more common than is realised, even during the Principate, and certainly became very important in the later empire, for the field army in particular. However, there is an alternative, more prosaic explanation for the juxtaposition of large, well-built structures and 'hovels' described above, which is based on the likely development of the *vicus* and its spatial and functional organisation.

Analysis of the ground plan of VII and XVI raises several question marks regarding their interpretation as two associated administrative buildings. There is no trace of a connecting doorway between the two structures, and, although they directly adjoin one another, they do not share a common party wall. Their south walls certainly followed one continuous alignment, implying that the two buildings may have been laid out at the same time, but there need not have been any more significant connection. However, it is the assumption that the scale and monumentality of *Vicus* Buildings VII and XVI and their masonry should imply an official function, which provides one of the principal

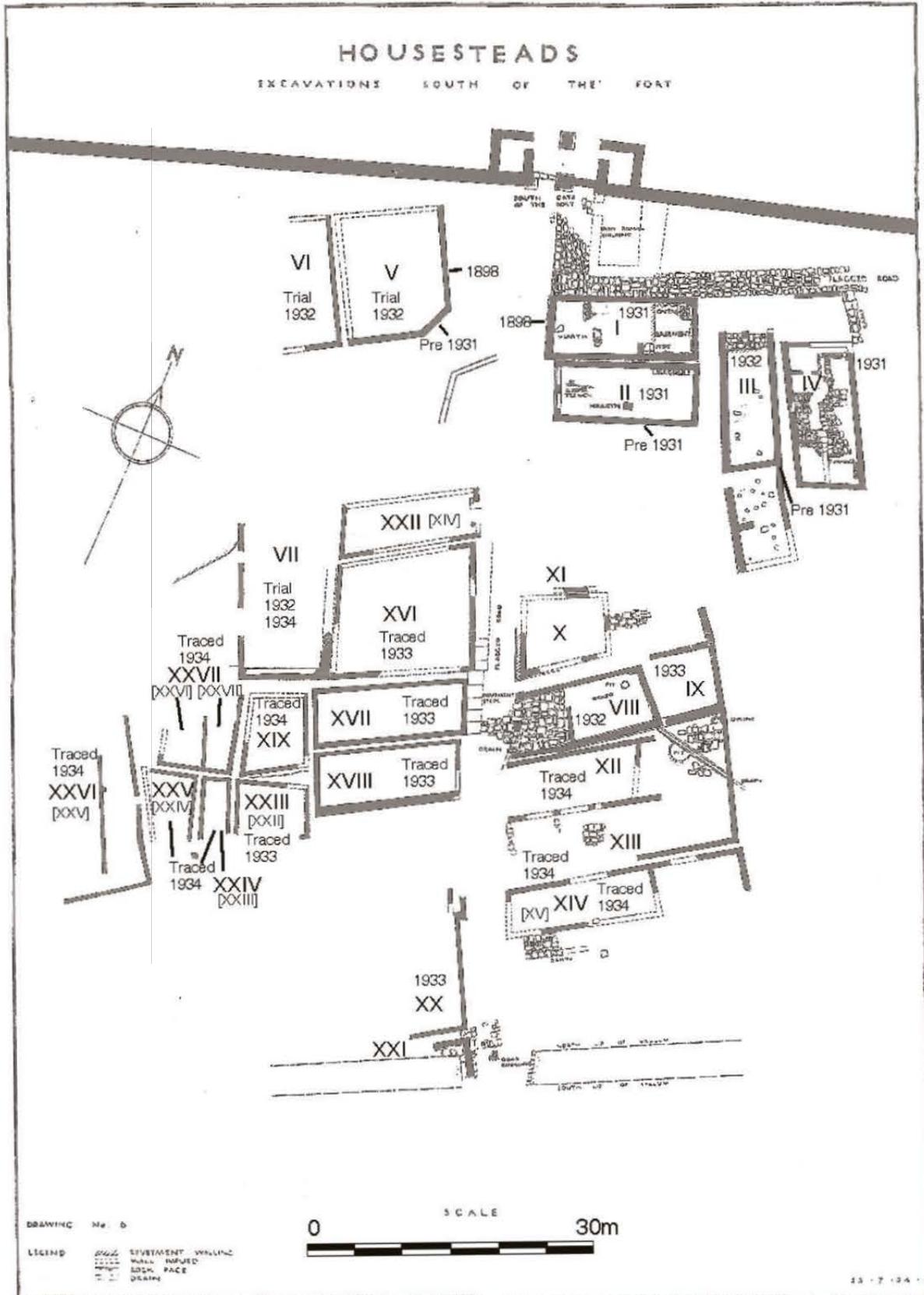


Fig 11.8 Plan of the upper vicus (based on Birley and Keeney 1935, pl xxii, with dates of excavation and amended building nos added).

premises on which the hypothesis of military occupation of this area rests. In this context it is noteworthy that *Vicus* Building V, situated next to the south gate of the fort and almost opposite VII, has similarly been identified as an official construction on the basis of the size and quality of its ashlar masonry (for a description of the masonry, *see* Chapter 10). It is generally known as the 'house of the *beneficiarius consularis*' and was interpreted by Birley and Keeney as a possible official storehouse for trade goods passing under the supervision of that functionary (1935, 254–5). Although a *beneficiarius consularis* was present at Housesteads at some stage, perhaps in the Severan period, there is no direct evidence to associate him with any of these buildings, however. More objectively, it is clear that the structures that display the highest quality masonry cluster closest to the fort, and, although not in the same class as V and VII, the strip buildings that line the streets leading away from the south gate in general display more regular masonry than the shacks of the south-west quarter. Buildings V and VII themselves front on to the road leading south-westward away from the fort, towards Vindolanda, while the exceptionally large Building XVI was located in a row of strip houses on the west side of the north–south street (numbered from north to south, XXII, XVI–XVIII). It is unlikely that this correlation between superior construction techniques and materials and size of building, on the one hand, and proximity to the fort and the major thoroughfares of the *vicus*, on the other, is accidental. They constituted the prime 'retail' sites and were probably the first to be occupied, once the settlement began to grow up outside the fort, and potentially, therefore, will have had the longest and most elaborate structural histories. The most sought-after plots of all would surely have been those closest to the fort gates, whence emerged the principal source of spending power. Only the wealthiest craftsmen or merchants would have been able to acquire such outlets once the settlement was well established, while those who acquired these plots at the start would potentially have been in a position to accumulate the most resources, which would have enabled either they or their descendants to rebuild their (perhaps initially timber) buildings in a grander and grander manner as time went on. Indeed such structures may even have acquired official or quasi-official functions. The relationship between the leading members of the *vicus* and the senior officers of the garrison would doubtless have been very close, perhaps materialised though the award of contracts to supply the garrison with specific commodities. The wealthiest merchants would doubtless have assumed leadership of the settlement and their residences may well have been used for communal meetings where the *vicani* passed decrees regulating their affairs (cf *RIB* 1616).

In contrast, the poorer quality buildings clustered behind the street frontages were probably the result of later infilling as the settlement grew in size and population. The published plan of the south-west area

(Birley and Keeney 1935, pl xxii) suggests a tightly packed shanty quarter, with small, irregular structures (XIX and XXIII–XXVII) making use of every available space. One can envisage its inhabitants moving in from the countryside, attracted by the settlement's apparent prosperity, a process mirroring, on a smaller scale, the migration to cities in the Third World today. The buildings were located by 'a rapid tracing of walls' (Birley and Keeney 1935, 247), with no recorded investigation of their interiors, and consequently there is very little evidence for the activities carried out within them. They may have functioned as workshops producing goods for sale in the various shops along the street frontages. Alternatively, these shacks may conceivably have accommodated casual labourers or sharecroppers who cultivated the agricultural terraces on the hillside below the fort, which seem to have been first established in the Roman period (*see* Chapter 10). Moreover this type of occupation may have been far more extensive than the 1931–4 excavations revealed. The full extent of the built-up area to the west and south-west was not established. Aerial photographs, notably those taken in drought conditions in 1950, reveal numerous previously unknown buildings stretching south-westward as far as the farmhouse and south to the line of the Vallum ditch (*see* Chapter 10: Figs 10.21–2). At the southern end of the area investigated in 1931–4, the excavators noted that *Vicus* Building XX and probably also XXI, on the west side of the north–south street, were of similarly crude construction (Birley and Charlton 1934, 188–90; Birley and Keeney 1935, 253). They also considered Buildings XII and XIV, on the opposite side of the street, to be inferior to the strip buildings further north, although clearly better constructed than the ramshackle structures of the south-east quarter (*ibid*, 251). Again, the quality of construction would appear to deteriorate as the distance from the fort increased, a phenomenon perhaps related to decreasing economic opportunities.

Thus, despite the risk of introducing possibly anachronistic modern concepts, it may be fruitful in future studies of *vici* to apply theory developed for the analysis of Third World urban development or perhaps the economics of the retail sector.

Finally, the significance of the distribution of Housesteads Ware may have been overstressed. The material studied by Jobey was for the most part unmarked, but it is clear that some of it derived from the buildings to the east of the north–south street. Birley and Keeney specify that 'pottery of the native variety' was found on this part of the site, apparently in Buildings I, II and VIII (1935, 256), while one of the complete vessels examined by Jobey was marked 'V III 56' – which is to be expanded to V(icus) (Building) III, (Context) 56 – and another rim sherd bore the designation 'Housesteads III', both demonstrating that *Vicus* Building III should also be included in this group (cf Jobey 1979, 142, nos 8 and 24). Housesteads Ware

was certainly found in the shacks of the south-west quarter (Birley and Keeney 1935, 252–3), but it ‘did not form a large part of the whole bulk’ of the pottery or finds from that area (ibid, 257). This would suggest that the ware was generally dispersed throughout the *vicus* and the excavators’ report does not imply there was a particular concentration of the material in the south-west quarter. The most recent attempt to study this material was unable to locate most of the assemblage studied by Jobey, but a few additional sherds from the interior of the fort, specifically from Building XIV, were identified during this exercise (J Peeters, pers comm), suggesting that the ratio of Housesteads Ware from the *vicus* versus the fort may not have been quite as weighted in favour of the former as hitherto assumed. However, only two Housesteads Ware sherds were found during the 1974–81 excavations in the north-east quarter of the fort, which is noteworthy given the size of that coarseware assemblage (Jobey 1979, 142, nos 5 and 22; both from the topsoil of Area H13:11. Unfortunately, these sherds could not be found when the coarseware was analysed in full and are not therefore included in Chapter 16. However, their provenance (H13:11:0), which encompassed the very eastern end of Building VII, as well as the westernmost chalet structures of Range XIII and the intervening *via principalis*, could conceivably be significant, if VII is envisaged as a secondary barrack built to accommodate additional troops, such as the Frisian irregulars.

The predominance of material from the *vicus* within the overall Housesteads Ware assemblage nevertheless remains intriguing and does merit investigation. Further examination of Building VII in the fort and areas of the *vicus*, in particular the south-west quarter, could help to resolve the issues concerning the history of the garrison and the parallel development of the surrounding settlement, discussed above.

The fort during the later empire

Reconstruction and renovation

Around the end of the 3rd century the fort underwent substantial rebuilding. This included strengthening the defences and reconstructing many of the internal buildings, in what appears to have been a wide-ranging programme of renovation and restoration. Innovations in the former category included repairs to the curtain wall at various points (Crow 1988, 67–71), completion of the rampart reinstatement, plus the construction of additional interval towers, which must have given the fort a more impressive multi-turreted appearance. Small, solid stone platforms were built against the rear of the curtain, close to the corners of the fort, probably to provide resilient platforms (*ballistaria*) for torsion artillery, as suggested by inscriptions from other forts. These are all well illustrated by the excavations in the north-east quarter. The remaining portal of the west gate was blocked, with access to the fort henceforth

only possible through one portal in each of the east and south gates and via narrow posterns in the north and west gates. Possibly contemporary with the west gate blocking – certainly no earlier – earthwork embankments were added in front of the curtain on the east, west and south sides of the fort (see Chapter 10), although mid- to late 4th-century or even later dates cannot be ruled out with regard to this work.

In the interior, buildings in the central range underwent modification (cf Crow 2004a, 91–2, 95–8). Most significant was the abandonment of the north granary and the division of its southern counterpart into two halves by a north–south cross-wall. The eastern half of the south granary retained its previous function with the insertion of sleeper walls supporting the floor and a new entrance at the east end, approached by massive stone steps. The western part, however, seems to have been turned into accommodation, with occupation debris and a considerable amount of late pottery being recorded when the site was cleared in 1931–2 (Crow 2004a, 95; Birley 1936). Alterations to the *principia* were far less radical, although Bosanquet’s excavations in the two rooms at the north end of the rear range produced clear evidence that the range of rooms including the *aedes* was two storeys high in this phase, with comfortable heated offices or domestic quarters on the upper floor and a workshop and armoury below. The continued existence of hypocaust-heated rooms and numerous coin finds indicate that the *praetorium* continued to provide accommodation for the commanding officer up until the later 4th century, with no radical reorganisation of the building.

The barrack blocks were now completely rebuilt, the new ranges being composed, at least in part, of freestanding *contubernia*, labelled chalets, most clearly revealed by the excavation of Buildings XIII and XIV in the north-east quarter in 1959–60 and 1974–81 (see Chapter 5). Probably within the same overall period, the stable on Site XV was demolished and replaced by a massive storehouse, the fourth successive building erected on this particular plot.

The date of all these changes is established by a range of material evidence. The latest coarsewares recovered from the rampart levels, from deposits associated with the final phases of the north rampart workshops, from the latest floor surfaces of the *contubernia* in Building XIII and sealed beneath the chalet period street surface (Road 7) between XIII and XIV, all provided a late 3rd-century *terminus post quem*. Coinage of 273–96 was sealed beneath the flagging of Chalets 3 and 4 in Range XIV, while a coin of 259–73 was found in the drain of the preceding stable building on site XV. Although Diocletianic coinage is very rare on the site, the presence of an elaborate Tetrarchic dedication (*RIB* 1613; *CSIR* 412) demonstrates there was building activity in the fort at this period (296–305). Moreover this coin pattern is shared with other Hadrian’s Wall forts and presumably reflects more general economic factors of money supply and the

relative value attributed to Diocletianic coinage compared to the preceding radiate copies in circulation between 273–96. Hence, although *c* 273 is the *terminus post quem* for the reconstruction of the barracks in chalet form, this remodelling could have occurred later, within the Tetrarchic period.

It is clear, however, that the strengthening of the northern defences was not accomplished in one go. The workshops of the previous phase were demolished and replaced by a reinstated rampart in a rather piecemeal fashion, perhaps spanning the entire second half of the 3rd century, although the final stage of the process certainly involved the most substantial work, including the removal of the last of the workshops and the construction of the tower as well as *all* the related work on the eastern defences – tower, rampart etc. Thus a gradual process of refortification can be envisaged, which dramatically increased in scope towards the end of the period. It is conceivable therefore that some elements of the work in the interior may likewise have formed part of an extended process of refurbishment, but again the majority of the work is likely to have taken place later.

Towers and platforms

Two elements of the refurbished defences revealed by the excavations in the north-east corner merit further discussion (*see* Chapter 9 for fuller treatment). Firstly, the addition of two stone interval towers to the north-east defences was matched by a corresponding pair of secondary towers on the south-east sector of the defences, which were revealed by earlier excavation. One was situated midway between the east gate (*porta praetoria*) and the south-east angle in Rampart Sector 22 (*cf* Bosanquet 1904, pl xix), the other lay midway between the south-east angle and the south gate (F G Simpson 1976, pl xiii facing p 144). However, none have been found along the other lengths of the enceinte except the two primary interval towers on the long stretches between the south gate and south-west angle and the north gate and north-west angle. It could be argued that this is a reflection of the less intensive investigation of these areas and the destructive impact of Clayton's clearance teams, but the apparent absence of any such towers behind the west curtain is decisive. The fort was overlooked by higher ground to the west, making this flank the most vulnerable to attack. Hence, if defensive considerations had been uppermost in the minds of those rebuilding the fort, this is the side that should in theory have received the most attention. Bakehouses have been identified behind the curtain to the north and south of the west gate, neither of which was overlain by a tower. The southerly example, in Rampart Sector 25, had clearly been subject to much remodelling in its life and formed one of a whole range of structures, including a curtain expansion wall, a rectangular building and a stone platform, which were revealed by Clayton's workmen and later consolidated

by Charles Anderson's Ministry of Works team in the 1960s. It is virtually inconceivable that a substantial stone tower could have escaped detection or been removed without record, given the state of preservation of the other structures.

The concentration of the new interval towers on the eastern sector of the circuit, rather than the tactically weaker west side, suggests that, as with so many fortifications of the period, these defences were, in large measure, designed to convey the power and authority of the imperial state and the durability of the newly established Tetrarchic regime. Anyone approaching the principal gateway, the *porta praetoria*, would have been confronted by a façade densely studded with towers. The depth of the whinstone foundations associated with the two interval towers excavated along the north-east defences implies these structures rose to a substantial height, and there is every likelihood that the pre-existing towers were refurbished to achieve an equivalent elevation at this stage. This image of power was achieved through the use of traditional military architecture, typical of the conservative British *exercitus*, rather than the new style of fortifications with projecting towers employed on the other frontiers of the empire, including the Saxon Shore, but the overall visual impact would nonetheless have been striking.

The 1978–9 excavations of the northern defences also revealed a solid stone platform, which had partially been removed by earlier excavation, but would clearly originally have been attached to the west side of the north-east angle tower. This feature is not unique at Housesteads. Four similar structures have been identified in Rampart Sectors 22 (Bosanquet 1904, pl xix), 23 (F G Simpson 1976, pl xiii facing p 144), 24 and 25. The latter clearly stratigraphically overlay a building set into the rampart area, which can be assigned an early 3rd-century date, by analogy with the similarly located workshops in the north-east corner. Nor was the distribution of these structures restricted to Housesteads. Probable examples of similar platforms have been revealed at Halton Chesters (Simpson and Richmond 1937, 167–8; Bruce 1851a, 160; 1867, 106), Vindolanda (Bidwell 1985, 40, 45), Risingham (Bruce 1851a, 160) and High Rochester (Richmond 1936, 180–1; *cf* Bruce 1867, 323). Bruce and Richmond suggested these formed elevated platforms for artillery catapults, labelling the structures *ballistaria*. Although the use of this term, which figures in two inscriptions from High Rochester (*RIB* 1280, 1281), is controversial (*see* Campbell 1984, 75–84 and Donaldson 1990, 210–13 for alternative interpretations), it is difficult to envisage what function these solid platforms could have performed other than to support heavy torsion catapults. They were too small to form the bases of towers, and indeed at Housesteads they were frequently positioned in close proximity to existing towers (and actually adjoining in the case of the north-east corner example). Hence, whether or not these stone platforms were ever termed *ballistaria*, their

existence as a distinct structural type, which has been identified virtually wherever substantial stretches of the defences have been investigated at northern frontier forts, certainly should be acknowledged.

The chalets

Of all the late Roman innovations at Housesteads it is the construction of the chalets that has attracted the most interest within modern Roman frontier studies. The structures have achieved a certain notoriety, partly perhaps because of their distinctive label, but more especially because their interpretation has been closely associated with some of the most contentious questions regarding the later Roman frontier army, notably garrison size and the nature of frontier troops, or *limitanei* – what their conditions of service were and how far they can be regarded as regular troops. As a result the chalets have been discussed in several recent works, with exhaustive treatment of the comparable evidence for chalet-barracks. It is not the intention to restate that evidence in detail here. Instead an overall summary of the debate thus far will be provided and some of the main issues addressed.

Previous discussions

Wilkes's excavation of Building XIV in 1959–60 was the first modern investigation of chalets (1960, 63–6; 1961, 285–90) – which he termed barrack units – though the type had been recognised much earlier (cf Daniels 1980 and Bidwell 1991 for full list), notably at Housesteads itself (Bosanquet 1904) and at Great Chesters (Gibson 1903). Wilkes treated each chalet as effectively equivalent to a former barrack *contubernium* and, noting the smaller number of chalets per block as opposed to *contubernia*, suggested that the size of a *centuria* had decreased from 80 to about 50 men, which could imply a corresponding overall reduction in unit strength from 800 to 500 men (Wilkes 1966, 129–32). In addition, he drew attention to the apparent similarity between the chalets and the strip buildings of the *vicus* (1960, 65–6) and revived the suggestion that in its very last phase – the supposed Theodosian Wall Period 4 – the inhabitants of the *vicus* moved inside the fort, which thus came to resemble a fortified village (1961, 289–90; cf 1966, 130–1).

This view of the internal arrangements at Housesteads in its latest phase of occupation had first been proposed by Bosanquet (1904, 235, 241–2) following his extensive trenching of the fort interior in 1898. The theory was inspired by the small finds uncovered within the barracks and the evident later insertion of buildings such as the late medieval to early modern longhouse immediately inside the south gateway, which Bosanquet mistakenly interpreted as additional accommodation required to house the population from the civil settlement. Thus he posed the question:

Were women and children at any time resident within the camp? The comparatively frequent occurrence within the barrack rooms of fragments of bracelets made of glass, paste, and jet, and of beads and similar trinkets, suggests that in the later years of the Roman dominion there may have been 'married quarters' within the walls. (1904, 235)

This passage is noteworthy for what must be the first mention of the term 'married quarters' in relation to the later barracks at Housesteads. The statement also, inevitably, reflects the attitudes of that time towards costume, personal ornamentation and gender, attitudes that are not necessarily still shared 100 years later, let alone in the Roman period itself.

These ideas were taken one stage further in a preliminary interpretation of the results from the 1974–8 excavation of Building XIII at Housesteads, plus similar structures inside the fort at Wallsend (Daniels 1980, 189–91). The study made the equation between the construction of the chalets and the movement of the civilian population from the *vicus* into the fort interior and offered a specific historical context for this transformation. It was suggested that there was a run-down of the Wall garrisons during the mid- to late 3rd century caused by the withdrawal of troops to provide reinforcements for hard-pressed armies in Europe or perhaps associated with the construction of town walls and Saxon Shore forts in southern Britain, and the defence of the south coast during the breakaway regime of Carausius and Allectus. Associated with this was the progressive desertion of the *vici* as the soldiers' families and dependents followed the troops south. The remaining inhabitants of the *vicus* may have moved inside the fort for greater security, and perhaps even begun to reconstruct the dilapidated barrack blocks into a form more familiar to them, closer to that of the *vicus* strip buildings. By the time the auxiliary regiments or detachments finally returned to their bases on Hadrian's Wall, after the defeat of Allectus and Britain's reincorporation into the empire, it was argued, their numbers would have dwindled considerably due to natural wastage and the likely failure to keep units and vexillations up to strength in the intervening period. Hence there would have been no need to eject the *vicani* – most of whom it was considered would have been soldiers' dependents – from their new quarters. Instead, under the new accommodation layout, each soldier of the much-reduced garrison was provided with a chalet for himself and his family. Given the number of chalets in Ranges XIII and XIV and extrapolating on the basis of there being ten or eleven such ranges of chalets, as revealed by Bosanquet's plan, this would imply a garrison in the region of no more than 70–100 men at Housesteads.

Again a picture was evoked of a little fortified township, 'more like medieval Conway, Beaumaris or Flint than a Roman *castellum*', with a direct quotation from

an earlier work by Richmond (1955, 63) belonging to the same historiographical tradition. Inextricably bound up with this view of 4th-century Wall forts was the longstanding belief that later Roman frontier troops, or *limitanei* as they were labelled in the law codes and other official sources, were no more than a hereditary militia of farmer-soldiers, a concept that can be traced back to Mommsen (cf Isaac 1988, 139). In fact this interpretation of the *limitanei* had already been comprehensively refuted, notably by Jones (1973, 649–54), by the time the first interpretation of the chalets in Building XIII was published, yet so embedded had it become in the consciousness of frontier scholars that it continues to influence their interpretation of archaeological evidence. Indeed, Isaac has found it necessary to restate and supplement Jones's arguments in order to counter the persistence of this anachronistic notion of farmer-soldiers (1988).

The appearance of the preliminary discussion of Building XIII had the effect of provoking further debate regarding the chalets, although ideas have, perhaps inevitably, changed in the intervening period. The realisation that *limitanei* were a fully regular force receiving pay and rations just like the soldiers of the field armies (*comitatenses*) has in turn altered the context in which chalets are viewed. The archaeological evidence for civilians inside forts was reviewed by Welsby (1982, 87–90) and subsequently by Bidwell (1991) with radically differing conclusions. Welsby followed Daniels in arguing that the chalet blocks were designed to house troops plus their families – each chalet unit accommodating one family group – and compared them to the rectangular and circular huts within the Saxon Shore forts of the south and east coasts. The greater regularity of the chalet blocks with respect to their southern counterparts could be explained by the siting of earlier buildings and roads, he suggested. Bidwell, on the other hand, has rejected the notion of a civilian presence in Roman forts entirely. Indeed, he even suggests that, in its final overall phase, Housesteads Building XIV was rebuilt as a conventional barrack, based on his reinterpretation of Wilkes's plan. Moreover he would reject the term 'chalet' entirely, considering it misleading and too often misused to denote any apparently irregular barrack, preferring instead to use a phrase like 'freestanding *contubernia* barrack' to designate this particular group of structures.

Related issues

If accepted, Daniels's hypothesis would have profound implications for our understanding of the later Roman military community. Firstly, it would signify a much reduced garrison at Housesteads and comparable forts, perhaps 10 per cent of 2nd- to mid-3rd-century levels, which in turn would suggest the forces stationed along the British frontier had been dramatically scaled down by this period, as Bidwell has emphasised (1991, 9).

Indeed, on the basis of the Housesteads and Wallsend chalet evidence James (1984, 165–6, 171) has proposed that the 4th-century army in Britain was only 20 to 40 per cent the strength of its 2nd-century predecessor. Secondly, it would imply that civilians, or at least military dependents – wives, children and slaves – were living within the military compound.

Evidence from the eastern half of the empire, principally Diocletianic papyri from Panopolis recording payments in cash and kind to various Egyptian units (*P Beatty Panop*; cf Duncan-Jones 1978), has been cited in support of the theory of a substantially reduced garrison, though not as low as the figures postulated for Housesteads and the other chalet forts (cf Daniels 1980, 192). However, the issue of late Roman unit size, and particularly strength of frontier regiments, is a complex and contentious one (for the most recent resumé of the evidence, see Coello 1996; Jones 1973, 679–86, is still very useful), and the Panopolis papyri evidence is itself not without problems (Rushworth 1992, 132). The papyri seem to indicate the cohorts and *alae* with strengths of only 100–200 men. However, despite considerable scholarly effort, all studies of the Beatty papyri still face the inherent problem that the documents only record the type of payment, the total amount and the period for which it was made, where relevant. The rate per man has to be inferred and it is not always clear that the auxiliary units referred to are complete regiments rather than detachments. Figures derived from the Panopolis texts must therefore be used with caution and it would be prudent to await less ambiguous evidence before making definitive pronouncements on the size of units of the *laterculum minus*. Moreover the formative development of the Diocletianic army in Egypt differed significantly from its British counterpart. Many of the units, even the cohorts and *alae*, were newly created and may never have achieved the size of their longer established counterparts.

The evidence for the presence of civilians inside forts from the end of the 4th century onwards falls into three categories:

1. The apparent abandonment of many of the *vici* at forts in northern Britain during the later 3rd century.
2. The supposed presence of small finds indicative of women and children within forts.
3. The presence of infant burials within a number of forts.

Vici have not received anything like the same level of attention as Roman forts themselves in recent years. Nevertheless a consensus is emerging that the end of *vici* in the northern frontier zone occurred earlier than had previously been supposed. The drastic reduction in occupation in civil settlements such as Housesteads and Vindolanda by the 4th century was first noted by Daniels (1980, 190). Bidwell (1991, 12, 14) and Snape (1991, 468) have since amplified this picture with more cases, showing it to be a widespread pattern.

The evidence from Housesteads itself, primarily comprising the coin losses, has been set out in detail in Chapters 10 and 13 and strongly suggests that occupation in the *vicus* ended *c.* 270. The small number of later coins derives from the area immediately outside the south gate of the fort and can probably be explained either by casual loss generated by traffic into and out of the fort, or by market activity beside the gate. Recent excavations outside the minor west gate (*porta quintana sinistra*) at Wallsend (Hodgson 2003, 17–18, 166–7, fig 116) have produced convincing coin evidence for just such periodic trading activity.

This pattern is comparable to what is known of most *vici* along the northern frontier, with very little evidence of 4th-century occupation, and abandonment generally occurring as early as the 270s, the settlements beginning to decline from the mid-3rd century. There were exceptions. At Malton, a substantial settlement was maintained in the 4th century, outside a fort that is known to have been furnished with chalets. It would also be prudent to await the excavation of more extensive *vicus* deposits from sites like Newcastle, and especially South Shields, before reaching any firm conclusions as to whether or not settlements continued to function there, perhaps in a reduced form, serving as ports for the eastern half of the Wall. Nevertheless, it would appear that the date the majority of such civil settlements were abandoned would not contradict the hypothesis that the civilian population, and particularly military dependents, in the *vici* moved to the fort chalets.

The evidence of artefact assemblages has been used in earlier discussions to demonstrate the presence of civilians within fort walls, particularly at Housesteads itself as noted above. In practice, previous artefactual analyses of this sort were essentially subjective, nor were the finds stratigraphically sorted in order to determine whether the level of civilian – or at any rate female and child – presence varied through time. In this respect the study of the small finds assemblage from the 1974–81 excavations does mark a significant step forward (*see* Chapter 14), incorporating a clear methodological approach. The value of the artefacts as an indicator of the gender of their owner, together with their spatial patterning, were assessed to address this question. Certain finds such as ear-rings, bracelets, hairpins, glass beads and some jet artefacts, may be diagnostic of female ownership, but most artefacts are not so easy to ‘sex’ (Allason-Jones 1995). (Adult male dependents – soldiers’ servants – or other male *vicani* whose possessions may have ended up in the fort, either through casual loss during their lifetime or later re-deposition, are of course effectively invisible on this basis, since they are indistinguishable from the soldiers of the garrison – cf James 2001, 83–4, for discussion of a non-combatant, dependent ‘tail’ as a permanent element in any ‘military’ finds assemblage.) This has shown that, contrary to Daniels’s initial impression (1980, 189) of a ‘preponderance of brooches and other trinkets’ in Building XIII, the spatial patterning of the finds

securely stratified in the chalet and preceding barrack levels of Buildings XIII and XIV does not substantiate the presence of wives and children, except in the officer’s quarters. It certainly provides no support for the idea of the chalets as married quarters. Evidence for women was no less common in the earlier deposits, relating to the occupation of Barracks XIII and XIV during the 2nd and 3rd centuries, and was never substantial at any period, essentially being restricted to the officer’s quarters. The likelihood that officers’ families or households resided inside forts is largely accepted and must clearly be treated as a separate issue from that of the presence of ordinary soldiers’ families and dependents. Even if this pattern continued into the later period it would have little or no relevance to the function of chalets as a whole. The presence of officers’ households may also partially explain the discovery of material assumed to indicate a civilian presence within other earlier military sites, such as shoes belonging to women and children found within the forts of Bar Hill and Vindolanda. Again, there is nothing to associate this material with chalet-type structures.

The significance of infant burials inside Roman forts has been discussed by Bidwell (1991, 12–14). They occur at some sites, most notably Malton where 31 examples were discovered during Corder’s excavations (Corder 1930, 57), but not others. This is probably the most convincing evidence for the existence of military families inside late Roman forts, though it provides little information on their prevalence. However, the significance of infant burials is a complex and contentious issue (*cf* Scott 1990; 1991), and it is possible that this practice was more ritualised than now perceived with meanings we fail to appreciate.

Thus, it can be concluded, firstly, that a great many *vici* were abandoned before the 4th century, shortly before the construction of the chalets at Housesteads and elsewhere, as Daniels argued, which would not conflict with the hypothesis of a *vicus*–chalets transfer on the part of the civilian population and military dependents. However, civilian presence within forts is difficult to substantiate on the basis of the character of small finds discovered there. The spatial patterning of the finds from Housesteads itself clearly argues against the presence of wives and children except in the officer’s quarters. Finally, there are the problems related to the significance of infant burials. Thus, on the basis of the categories of evidence summarised above, the presence of civilians inside military camps cannot be entirely excluded, but the widespread existence of military households among the frontier garrisons, and in particular the interpretation of chalets as individual ‘married quarters’ for those families, is far from proven.

On a more general note, it must be admitted that we actually know relatively little regarding soldiers’ patterns of marriage or co-habitation, although recent studies have been undertaken by Saller and Shaw (1984) and Roxan (1991), utilising the inscribed tombstones and papyrological evidence. Saller and

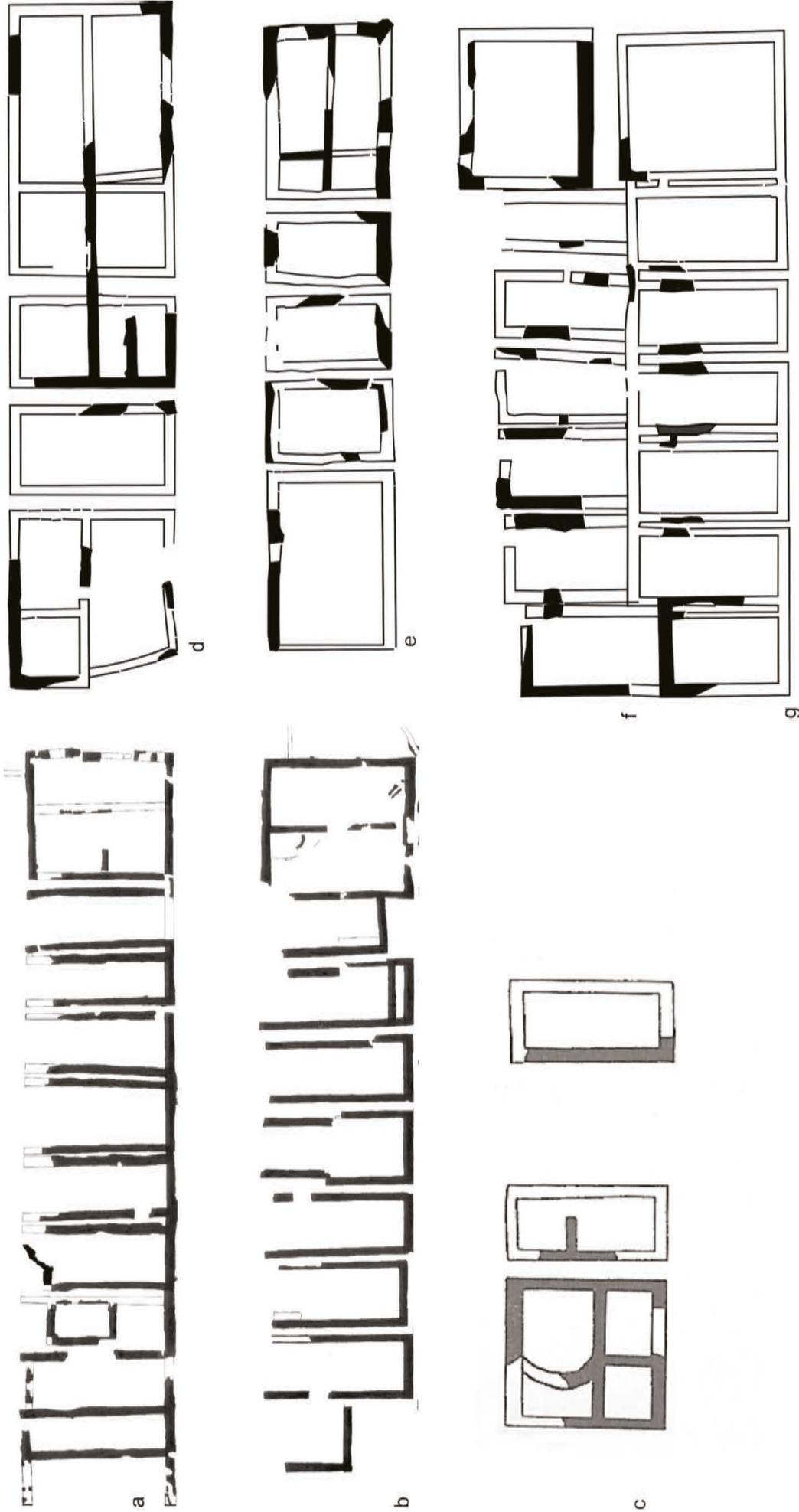
Shaw have suggested that there was a low level of family formation and maintenance in the British and German armies, in contrast to the pattern displayed by the troops of the Danubian armies, and further that the garrison in Britain was predominantly, if not totally, composed of recruits drafted in from other provinces. In effect the army comprised individuals foreign to the area they garrisoned, who remained an alien and isolated element within British society. The north Gallic/Germanic nomenclature of individual soldiers at Housesteads may be one reflection of such a failure to integrate – though the possibility of hereditary recruitment with the descendants of the original ‘Tungrians’ retaining their family names is an intriguing alternative. Mann (1985), followed by Roxan (1991, 463), however, has sought to qualify Saller and Shaw’s arguments, pointing out that the apparent lack of British recruits serving in Britain itself might be a false impression created by the failure of Britons to acquire the custom of erecting inscribed stone memorials – an ‘epigraphic consciousness’ as Eric Birley termed it. Such distortion is far easier to postulate than to prove, but the papyrological evidence from Egypt also cautions against placing too much reliance on the epigraphic funerary dataset, as Roxan comments (1991, 465), since it reveals a pattern of strong military life among the soldiery in a region where few military tombstones have been found. One trend that can be identified with greater certainty is a steady increase in the proportion of married troops over time. Only 7 per cent of the 1st-century soldiers’ tombstones in Roxan’s sample show any connection with ‘families’, 80 per cent having been erected by comrades, heirs or through official sources, whereas by the 3rd century the pattern has reversed with only 8 per cent belonging to the latter category while families are mentioned on 82 per cent of the monuments. Roxan (1991, 463–4) suggests that this may in part be explained by the relative fluidity of 1st-century frontiers, and the more frequent troop movements and campaigning associated with that fluidity, which would have lessened the opportunity for the formation of long-term family relationships.

More problematic even than the possibility of such geographical and temporal biases in the epigraphic dataset is the fact that virtually all the evidence on which these studies are based relates to the Principate. Inscribed military tombstones are far more scarce for the period of the later empire when the Housesteads chalets were in use. Moreover such epitaphs as do survive predominantly relate to the higher status troops of field armies and, to a lesser extent, the better quality frontier troops, or *ripenses*. The soldiers of the old style *alae* and cohorts, like the *cohors Tungrorum* at Housesteads, are, to all intents and purposes, mute in the epigraphic record. It is by no means clear that conclusions derived from the evidence of the Principate can also be applied to the later empire when the pay, conditions and relative status of individual soldiers, and most particularly frontier troops of the old *alae*

and cohorts had declined (cf Jones 1973, 623; Alston 1995, 149–50). For instance, it is conceivable in this changed social environment that soldiers postponed marriage until later in their careers, by which stage progression up the rank structure would have enabled them to build up savings and amass multiple ration allowances. Clearly marriage and children were still features of military life in the later empire. Imperial edicts preserved in the Theodosian Code (eg *CTh* VII i 3 (349)) indicate that, up until 372, sons of serving soldiers were entered on the unit rolls and received rations, a concession doubtless associated with the obligation of hereditary military service imposed on soldiers’ descendants, probably by Diocletian or one of his immediate predecessors. Valentinian I abolished this privilege in the West, but his measure may have been reversed later, as was certainly the case in the East (*CTh* VII i 11 (372); Jones 1973, 631, 1262, n 50). Nevertheless we have no clear idea how common such military households were overall, or whether they were more pronounced among the better rewarded field army troops or the more static frontier units, for instance. There is certainly as yet no justification for the common assumption that the troops of the late empire lived together with their families within their bases, in rows of ‘married quarters’.

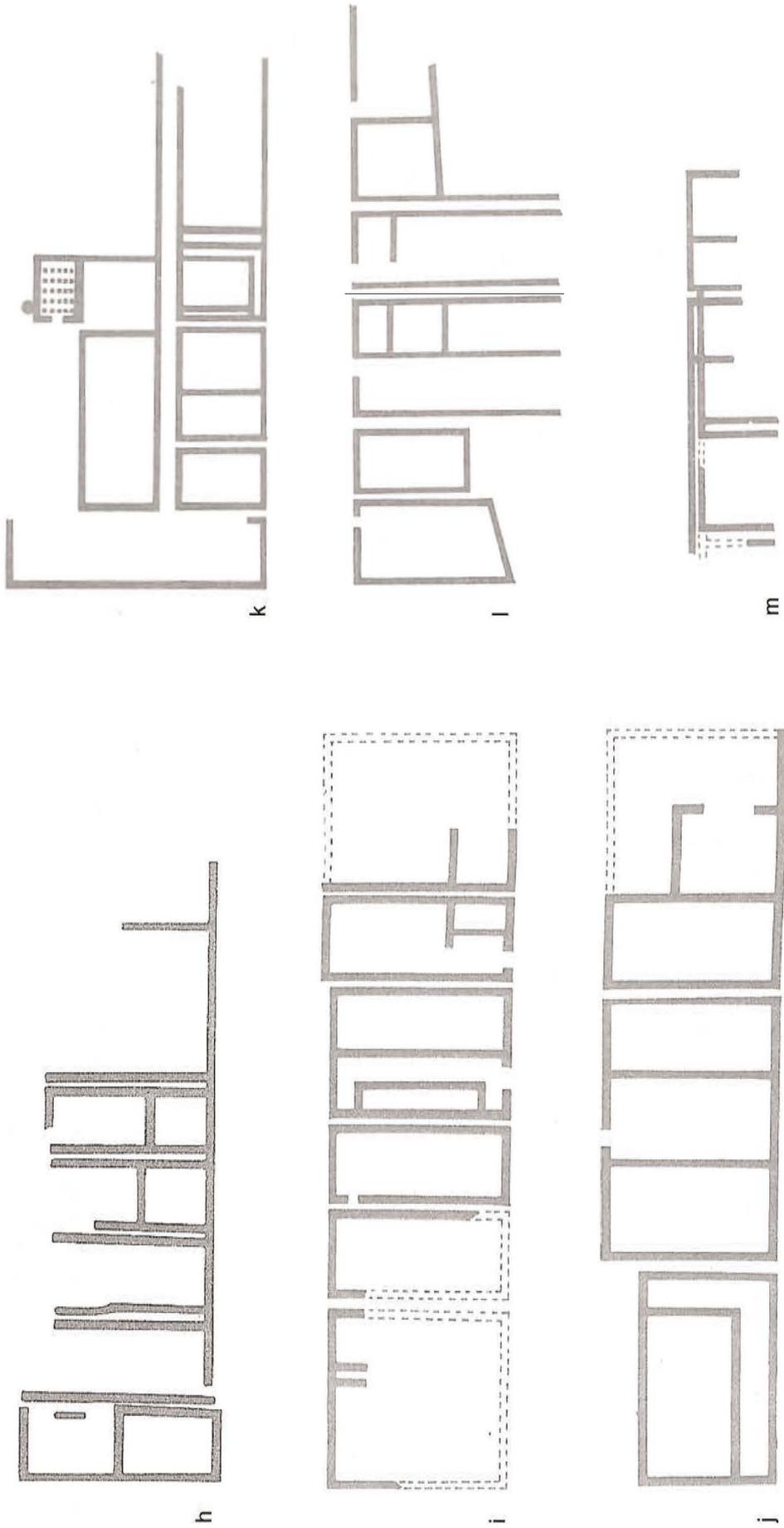
Chalets as barracks

Fundamental to the entire argument regarding the presence of civilians inside forts was the implicit assumption that the different form of the chalets must indicate a different function from that of earlier barracks. Despite the chalets undeniable resemblance to *vicus* strip buildings with their open fronts, apparently closed off only by some form of timber shuttering, there is good reason to question such an *a priori* assumption. The later empire witnessed considerable innovation in military architecture, in terms of fort internal buildings as well as defences. Notable examples of the new architectural forms include cruciform colonnaded streets, as at Luxor, Palmyra or Drobeta, and barracks set against the curtain wall in a *chemin-de-ronde* plan constitute notable types of this new architecture. Ranges of free-standing barrack blocks laid out in the interior in the traditional manner do still figure in some newly built forts, at Koln-Deutz and El-Lejjun for example. In Britain, conventional barrack blocks following established models were still constructed, as for example at South Shields (Bidwell 1991, 10–14; Bidwell and Speak 1994), but it should come as no surprise to encounter new building types in this period, even on the northern frontier which remained a bastion of traditional military castramentation. Moreover chalet-type structures are not entirely unknown in forts of the Principate. Barracks consisting of rows of detached *contubernia* were found in the Antonine fort at Newstead (Curle 1911, 64–8, plan IV), while rows of open-fronted structures, very similar in plan to the later fort chalets



a Housesteads Building XII Chalet Phase 1
 b Housesteads Building XIV Chalet Phase 1 (Wilkes version)
 c Birdoswald NW barrack range (after Wilmott 2001, fig 55)
 d Wallsend Building 9 Period 4 Phase 1
 e Wallsend Building 10 Period 4 Phase 1
 f Wallsend Building 12 Period 4 Phase 1
 g Wallsend Building 11 Period 4 Phase 1





h Greatchesters (after Daniels 1980 fig 12.6- Based on Gibson)
 i High Rochester (after Daniels 1980 fig 12.6- Based on Bruce)
 j High Rochester (after Daniels 1980 fig 12.6- Based on Bruce)

k High Rochester (after Daniels 1980 fig 12.7- Based on Bruce)
 l High Rochester (after Daniels 1980 fig 12.7- Based on Bruce)
 m Chesters (after Daniels 1980 fig 12.7- Based on Bruce)

Fig 11.9 Comparative plans of chalet ranges.

but considerably larger in floor area (more like *vicus* 'strip' buildings), were uncovered at the Flavian vexillation fortress, Red House, near Corbridge (Hanson *et al* 1979, 11, 20–2, figs 2, 4, 6). These latter were interpreted as sheds or stores. This type of structure was thus an established part of the military repertoire of architectural forms.

It therefore seems best to regard the ranges of chalets simply as straightforward barrack blocks, albeit of somewhat different form. The difficulty expressed in the past in viewing them in such a light is very much a product of frontier scholars' own highly conventionalised image of the form a barrack block should take. In sustaining the case for chalets simply as barrack ranges one can point to the pronounced formality in the overall planning of the chalet ranges at Housesteads and at Wallsend, the best known examples (cf Daniels 1980, 183, fig 12.6; 1989, 79–83, fig 41). Thus at the eastern end of Buildings XIII and XIV the large officer's quarters belonging to the previous barrack phases were retained, albeit with substantial modifications, as Chalet 1 in each case, suggesting that initially they may have been intended to serve the same purpose as their predecessors. Furthermore, the chalet (2) immediately adjacent to the putative officer's quarters in Range XIV possesses distinctive elements that suggest it was not intended to fulfil quite the same function as the majority of chalets to the west. It is smaller than its counterparts 3–8, since it does not extend as far southward, nor is it separated from Chalet 1 by the usual alley. The most likely interpretation for this paved room is that it was intended to serve as a workshop or service area for the adjacent officer's quarters – perhaps servants' accommodation or a cooking area. At South Shields, the barracks newly built in the late 3rd or early 4th century similarly featured a room, described by the excavator as a workshop, adjacent to the officer's quarters at the east end of the block (Bidwell 1989, 87; 1991, 10; Bidwell and Speak 1994, 35), which contained a hearth for iron-working and a square, stone-lined pit, apparently a stoking pit for the hypocaust in the officer's quarters. In Housesteads Chalet Range XIII, however, Chalet 2 was equivalent in area to its neighbours to the west and was separated from Chalet 1 by the usual alleyway. It was distinguished by successive changes in orientation, but this need not imply that it performed a singular function within the range as a whole. Finally, Chalet 9, at the west end of Building XIV, also differed from other chalets in the range in a manner that can be paralleled in barracks elsewhere. It too apparently functioned as a workshop and was roughly half the size of the other chalets. Again, this may be compared with the late 3rd- to early 4th-century block at South Shields, where a smaller room or rooms were also present at the west end of the building, the opposite end to the officer's quarters (Bidwell and Speak 1994, 35).

The excavated evidence would suggest the chalet ranges did not always materialise as perhaps initially planned. In particular the large Chalet 1, at the east

end of Building XIV, contained an oven from the very start (*see* Chapter 5). It is likely that this represents a bread oven replacing those removed when the east and north rampart bakehouses were supplanted by the new east interval tower and stone platform respectively. Thus if the chalet had been planned as officer's accommodation, as appears likely bearing in mind the marked parallels with barrack blocks elsewhere, outlined above, it would seem that it was immediately adapted to serve the more pressing needs of the garrison. Clearly, this may have important implications for the internal command structure of the regiment, perhaps implying a reduction in the numbers of centurions. Nevertheless it constitutes a further indication that the chalets in Building XIV (and perhaps both Ranges XIII and XIV) were grouped together as a unit, in the same way that previous barrack *contubernia* had been, reflecting the common institutional identity of their inhabitants as members of a century. Subsequently – at some point after 334 – this chalet was totally demolished and it is tempting to suppose that it was at this stage that an oven (H13:1:23) was constructed in Chalet 1 at the east end of Building XIII, perhaps denoting the transference of the bread oven from Building XIV to XIII. Again this suggests that Building XIII, Chalet 1, can no longer have functioned as officer's accommodation, but also denotes continuing communality and hence possible institutional commonality within the two ranges.

If the interpretation of chalet ranges as straightforward barracks is accepted, some explanation for the widespread adoption of this building type from the early to mid-3rd century onwards is still required. In addition to those at Housesteads, 3rd- or 4th-century examples have been recognised at Wallsend, Chesters, Great Chesters, Birdoswald, High Rochester (where they figure on 19th-century plans), and perhaps Risingham, Ebchester, Malton, Watercrock and Segontium (cf Daniels 1980; Bidwell 1991 and Welsby 1982, 79–81, 87–90) (Fig 11.9a–b). More recent work has suggested that, in one form or another, chalets may have appeared on Hadrian's Wall as early as the 230s, and certainly by the middle of the 3rd century (Bidwell 1991, 9–10). Rows of detached back-to-back *contubernia*, dated to *c* 235, were excavated by Bidwell at Vindolanda in 1980 (Bidwell 1985, 58–72, 79–84) and, on the basis of excavations by Tyne and Wear Museums in 1998–9, a similar date (certainly no later than the middle of the 3rd century) has been assigned to the various types of chalet – at least some of them back-to-back examples – revealed inside Wallsend fort (Hodgson 2003, 115). This probably signifies that a gradual shift away from the rigid conception of the traditional terraced blocks towards more individualised rows of detached structures was underway, particularly at longer occupied sites. Indeed there are indications that this phenomenon was already reflected in the construction of traditional barrack blocks. At Housesteads, the three most informative *contubernia*

(1, 4 and 5) belonging to the barrack-block phase of Building XIII all show evidence for six successive floor surfaces, suggesting the entire block may have undergone overall refurbishment on five occasions (fewer floors were recognised in the other *contubernia* owing to less intensive excavation and the truncation of barrack-block period deposits by later activity). However, this evidence for treatment of the entire block as a single unit in its pre-chalet form is contrasted by distinct elements of individuality in the treatment of the different *contubernia*, in the construction material used for the floors and the position of the cross-wall separating the front and rear rooms of the *contubernia* for example. Thus, although refurbishment of the ten *contubernia* may have occurred simultaneously, each group of *contubernales* probably worked as a separate team, each responsible for the construction of their own quarters. Detailed differences in the construction of individual *contubernia* within the same block, suggestive of the work of teams of *contubernales*, has also been recognised in the 3rd-century barracks at South Shields (N Hodgson, pers comm).

In other words the adoption of the chalet building type was simply a logical extension of the *contubernia* or squad principle the Roman army had always followed in designing and constructing its accommodation. It never built large open dormitories for an entire century, for instance, equivalent to those sometimes employed by armies of the modern era. Roman barracks, after all, began their process of evolution as rows of tents in marching camps and campaign bases of the Republic. The traditional block simply provided a single roof over these rows of tents. This was doubtless easier and more straightforward when constructing large numbers of forts during or after a campaign, forts that were never intended to be occupied for more than a generation, until pacification was complete and the army moved forward again. As such bases became more and more permanent, being occupied for hundreds of years in some cases, the modification of barracks into rows of detached structures may have been increasingly convenient. It was perhaps easier to carry out the sort of *ad hoc* alterations and repairs to the individual *contubernia* necessary over time without disrupting the rest of the range.

Two additional factors of particular relevance to Housesteads should be noted in passing. The excavation evidence from the north-east quarter strongly suggests that the parts of the fort had become very dilapidated by the later 3rd century (Crow 2004a, 105). The chalets and renovated defences incorporated a considerable amount of reused stonework, including architectural fragments, and it is likely that timbers from the preceding barrack were cannibalised in a similar manner whenever possible. This would tend to produce only shorter timbers more suitable for constructing a range of freestanding *contubernia*, perhaps, than the traditional block with its requirement for long ridge timbers. However, there is no reason to

assume that the adoption of this building type is indicative of a decline in carpentry standards. The construction of timber-framed upperworks on stone sill walls would still have required competent workmanship. The apparent reconstruction of key elements of the defences in timber during the very late or sub-Roman periods, not only at Housesteads, where the superstructures of three of the gateways and the north rampart interval tower were treated in this manner, but also notably at South Shields (Bidwell and Speak 1994, 45, 126–7), would suggest that not only were carpentry skills retained by the northern *limitanei*, but actually became relatively more important as time progressed. Secondly, the sloping nature of the site at Housesteads would have made the adoption of freestanding chalet-*contubernia* particularly attractive since the preceding block already required several breaks in roof-line. In this context it is interesting to note that Buildings XIII and XIV preserve the most prominent examples of the chalet form within Housesteads fort, to judge from the plan produced by Bosanquet following his excavations over the entire site (1904, pl 300). In many of the other nine barracks (I–III, V–VII, XVI–XVIII) it is difficult to discern much trace of a chalet phase on Bosanquet's plan, although modern excavation might well reveal greater structural complexity. Building I, the barrack block that Bosanquet investigated most intensively, apparently contained only one obvious chalet (the fourth *contubernium* from the east end), so identified on the basis that it stood independently of the corresponding *contubernia* on either side. The remaining *contubernia* of Building I clearly did not preserve their primary form, having been extended over the area of the colonnaded veranda which was a characteristic feature of the primary barracks, but they were separated one from another by shared party walls in the conventional manner. Thus, as excavated, the barrack block more closely resembled the earliest stone-built barrack blocks at Wallsend, which never had verandas. The single 'chalet' may therefore have been inserted in Building I simply in order to facilitate a shift in the level of the gable ridge, for instance. It is noteworthy that XIII and XIV, where the chalet layout was most pervasive, were also set on some of the steepest east–west slopes inside the fort, where successive breaks in the level of the gable ridge of the building were required. However, while such sloping topography may have been a significant factor at Housesteads, it cannot explain the adoption of the chalet type as a whole, since other sites where such structures figured were far more level.

Whatever the reason for this form of remodelling, once barrack blocks had been replanned in this way there was, of course, scope for increasing divergence in the layout of the individual chalet-*contubernia*, as the *contubernales* became fully responsible for the maintenance of their own accommodation (see Chapter 6).

Finally, if chalets are regarded simply as freestanding *contubernia* and the chalet ranges effectively as barrack blocks, this has important implications for any

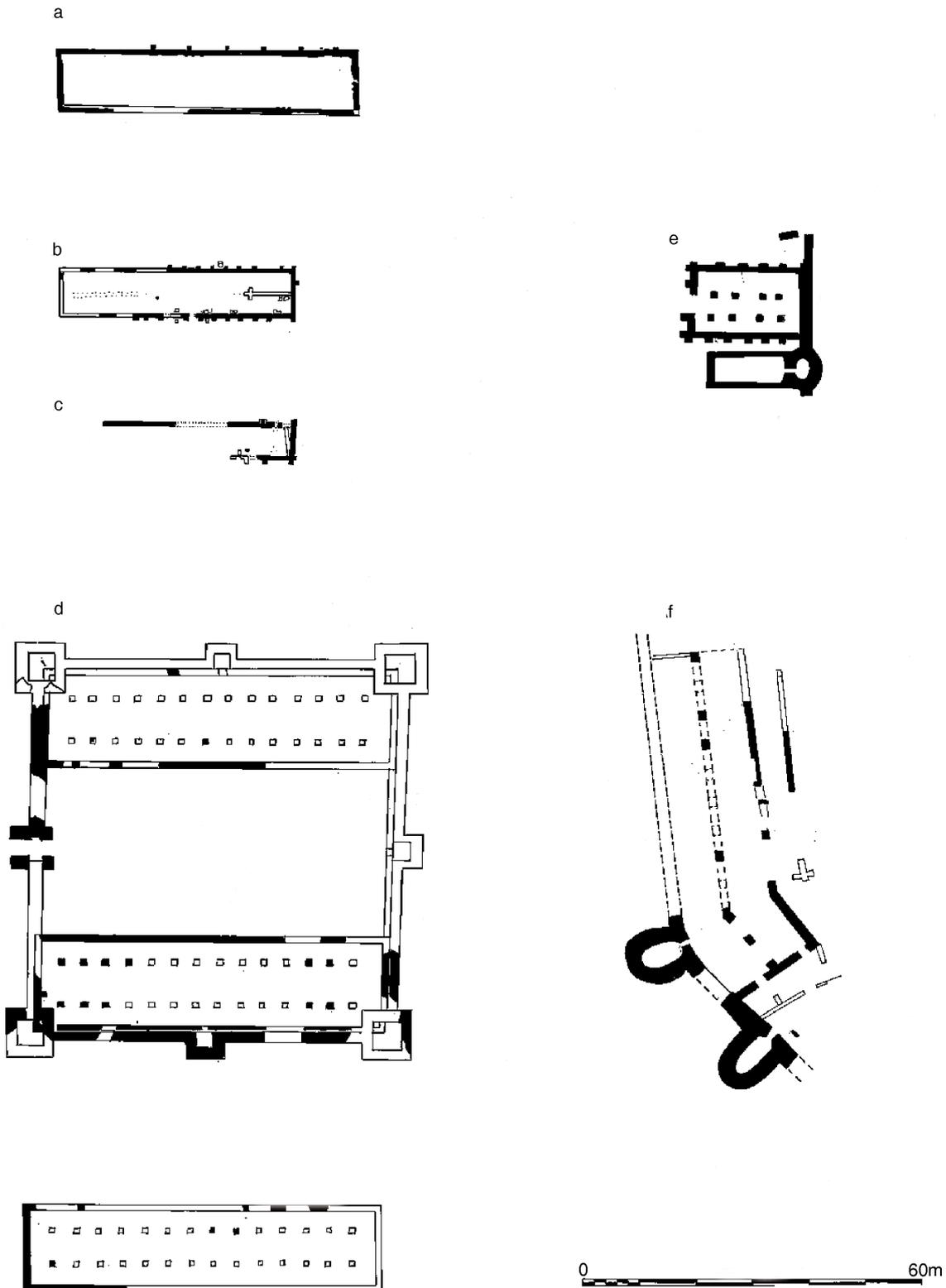


Fig 11.10 Comparative plans of later Roman granaries and storehouses – a: Housesteads Building XV; b: Corbridge Site 56; c: Corbridge Site 17W; d: Vélidena (Wilten, Raetia), e: Tokod (Pannonia Inferior); f: Iatrus (Moesia Inferior)

estimation of the size of the later Roman frontier garrison, up until the early 4th century at least. It would favour a reversion to figures in the order of magnitude proposed by Wilkes, suggesting the frontier regiments may have undergone some gradual reduction in size, but not a radical one. Building Range XIV has 6

standard chalet-*contubernia* (3–8), while XIII has perhaps as many as 9 (though Chalets 8 and 9 may conceivably have functioned as a single large *contubernium* at a later stage). Taking the mean between these two figures – 7.5 *contubernia* – and assuming the number of men in an auxiliary cohort *contubernium* had remained

the same (nominally 8) and that 10 or 11 barrack ranges were occupied, this would give a rough total of 600–660 men for the complement of the garrison at the beginning of the 4th century. This would represent some reduction on the nominal full strength for a military peditate cohort of the Principate of 800 men, plus a further force of perhaps 80–100 Frisian irregulars that must be added into the total during the 3rd century. Nevertheless, over 600 men would still constitute a considerable force. Subsequently, over the course of the 4th century, the garrisons of the northern frontier may have gradually declined in size. As noted above, the forts of Hadrian's Wall were garrisoned by the lowest grade of frontier regiments, the so-called units of the *laterculum minus*, comprising the long-established *alae*, *cohortes* and *numeri*. These may have suffered as an increasing proportion of imperial resources was absorbed firstly by the better quality frontier troops (labelled *ripenses* or *riparienses* in the legal sources) and subsequently by the *comitatenses* and *palatini* of the expanding regional and central field armies (cf Mann 1977; Hoffmann 1969/1970; Rushworth 1992, 62–80, 133). Even so, it was perhaps not until the end of the 4th century that the strength of the garrison at Housesteads – still the *cohors I Tungrorum* to judge from the *Notitia Dignitatum* – dropped as low as 50–100 men, figures that scholars have hitherto accepted as commonplace for late Roman frontier regiments.

Building XV and later Roman storehouses

The bulk of scholarly attention with regard to the later Roman phases at Housesteads has focused on the remodelling of the barrack blocks into the chalet-barrack ranges, as emphasised by the above discussion. Yet surely far more impressive and significant for contemporaries was the construction of the storehouse on Building Site XV. This was a massive, extremely well-built structure, 49 × 10.8m, built up at the east end to achieve a level floor. A two-storey edifice comparable to a medieval tithe barn is probably to be envisaged. The building has recently been discussed in some detail by Crow (2004a, 92–4, 98–9), who convincingly interprets it as a storehouse (*horrea*) designed to hold the annona tax levies. He further suggests that the storehouse should be associated with a fragmentary imperial building inscription of Tetrarchic date (*RIB* 1613), found at Housesteads at some point during the 19th century.

Large storehouses of this type are a familiar feature of later imperial military architecture, and are particularly well represented in the strongly fortified bases along the Danube, such as Abritus, Iatrus and Tokod and at Velidena (Wilten) in Raetia (see Fig 11.10 and cf Dintchev 1999, 168–9, figs 1–2). However, they were clearly not restricted to military sites. Such *horrea* were essential to the functioning of the late imperial fiscal system, whereby the state levied virtually all its requirements in kind. The legal, historical and epigraphic

sources demonstrate that storehouses for this purpose were to be found in virtually every city of the empire, at ports and at other collection points. Thus, two urban storehouses, of very similar form to Building XV, can be identified within the Roman town of Corbridge, little more than 12 miles from Housesteads. These were assigned a Severan date by the excavators, but solely on the basis of a postulated association with Septimius Severus's campaigns in Scotland and a single stratified Severan coin find (Forster and Knowles 1910, 242–3 – Site 17W; 1914, 292–7 – Site 56). They display many of the same features as Building XV, notably evidence for a central row of pillars dividing the building into two aisles, and external buttresses or supports for wide overhanging eaves. In the light of this a late imperial date should be considered for these two storehouses as well. The Severan *denarius*, found in a layer of gravel and chippings against the footings of the west wall of Site 56, may only provide a *terminus post quem* for that building's construction, despite its good condition.

The regulations preserved in the Theodosian Code reveal how such buildings were intended to be utilised. Some caveats must be expressed before using such evidence. Legal sources like the Theodosian Code are normative rather than descriptive. The laws indicate the aims, attitudes and aspirations of the imperial government, but only indirectly reflect broader social realities. Moreover it is easy to misinterpret the particular as general, especially as an edict preserved in the Code represents only the kernel of the original ruling, shorn of its explanatory preamble. This hazard is especially problematic in the case of legislation relating to military units. A low-ranking auxiliary unit on Hadrian's Wall was not at the forefront of imperial concern. Access to imperial favour and attention essentially increased in line with status and proximity to the imperial person (cf Jones 1973, 647–8). Thus *scholares*, *palatini* and *comitatenses* were more likely to be the subject of legislation than *limitanei*, while within the frontier army it was the higher status *ripenses* rather than the *cohortales* and *alares* who were most likely to figure. Furthermore, it was the units stationed on the strategic Rhine or Danube frontiers rather than those in more distant regions such as Britain which were likely to generate most concern. Hence, individual laws cannot necessarily be used to provide dateable *termini post quem* for the appearance of archaeological features at military sites on Hadrian's Wall. Nevertheless, trends observable in the legislation may be relevant to the interpretation of archaeological structures since both may represent different manifestations of wider social processes underway.

During the first half of the 4th century the normal practice was for frontier troops (*limitanei*) to draw their rations from storehouses within or adjacent to their forts (Jones 1973, 626, 1260, n 39). The supplies were levied in kind from taxpayers, as part of their fiscal liability. Curial officers (*susceptores*) were appointed by

each city to collect and transport the wheat, barley, meat and wine etc. to the storehouses. Once in the storehouses the *annona* either remained in the charge of the *susceptor* who had delivered it, if that additional burden had been laid upon him, or became the responsibility of another decurion specifically assigned to the task, a *praepositus horrei*. All these tasks were compulsory duties (*munera*) imposed on city councillors by the state. A letter (*P Abinn* 26) to Flavius Abinnaeus, *praepositus* of *ala V Praelectorum* at Dionysias (Qasr Qarun) in the Egyptian Fayum, sheds further light on these processes. The letter was despatched by an *actarius* (belonging to Abinnaeus's regiment?), anxious that the *annona* quotas levied for the year should be locked away inside the fort, as recently stipulated by the *dux*, so that they could be inspected by an official from the military headquarters and any substandard produce rejected. The supplies were then issued to the unit quartermasters (*actarii* or *optiones*) against warrants presented by the latter. Wherever possible supplies would be levied from neighbouring estates and settlements, or at least from within the same province. Inevitably, however, in order to equalise the burden across the taxpaying population it was necessary to draw some of the *annona* from much greater distances. This duty of conducting supplies from an inland province to a distant frontier, known as the *pastus primipili*, was imposed on the retiring chief official (*princeps*) in the provincial governor's office (Jones 1973, 459, 1194–5, n 117).

The storehouse at Housesteads can readily be interpreted as part of this system. At many of the forts on the northern frontier the pre-existing fort granaries may have been used as public storehouses, but the north granary at Housesteads may have collapsed at some stage previously (Crow 2004a, 95) and the decision was evidently taken to erect a completely new building. Such supplies as could be levied locally and regionally would have been delivered to the storehouse by decurions from the towns of Britannia Secunda, the late imperial province encompassing northern Britain, while provisions from further afield would be conveyed by ex-provincial officials from southern Britain, Gaul or the Rhineland, probably as far as provincial military headquarters for onward distribution by local curial officials. If the system outlined in the Code was followed, another decurion would have resided at Housesteads for a term as the superintendent (*praepositus*) of the storehouse, and would have been responsible for doling the rations out to the unit quartermaster at regular intervals, checking them against the warrants presented by the quartermaster to prevent speculation. A notable feature of the 4th-century arrangements at Housesteads is that whereas the north granary had been allowed to collapse and lay abandoned, the eastern half of the south granary apparently remained in use for the storage of provisions (Crow 2004a, 95). The traditional raised floor was retained in this part of the building, perhaps reconstructed with the *pilae* being laid flat to form rows of sleeper walls (as apparently shown in

Bosanquet's plan – 1904, pl xix), and a new entrance was created at the east end with massive stone steps. It is conceivable that this residual granary area was used by the unit quartermaster to store and distribute rations that he had withdrawn from the main public storehouse, Building XV. The western half of the south granary, divided from the eastern area by a north–south cross-wall, was substantially modified, evidently to serve a different function. The south wall was rebuilt without buttresses, the raised floor, complete with most of its *pilae*, was removed (a few are left against the side walls) and a new narrow doorway inserted in the south wall. Together with the pottery and other occupation debris found in this part of the building when it was cleared by the National Trust in 1931–32, these alterations apparently signal the western area's conversion into domestic accommodation, perhaps for the quartermaster himself. (For epigraphic evidence for a late Roman *actarius* at a northern frontier fort see *JRS* 53 (1962): 160, no. 4, Ambleside.)

A further point should be emphasised. On the assumption that Building XV was a public storehouse rather than a purely military structure, even though located within the fort, it is likely that it also served as a store for all the taxes in kind collected from the surrounding district. While some of these taxes would have been immediately directed towards the needs of the garrison, other goods (hides for example?) may have been levied in quantities surplus to their requirements and shipped onward to the provincial headquarters for distribution. It is likely, however, that the demands of the Wall garrisons would have accounted for most, if not all, of the revenue in kind derived from upland districts like that surrounding Housesteads, and that, in terms of taxes exported as against those imported from elsewhere, such peripheral frontier districts were, inevitably, heavily in the red (Higham 1986, 216ff).

In addition, it is conceivable that the storehouse at Housesteads served several other garrisons, such as those at neighbouring Vindolanda and Carrawburgh, although this can only remain a tentative suggestion without greater knowledge of the interiors of those forts in the later Roman era. The construction of raised floors supported on sleeper walls in several rooms of the Stone Fort 2 *principia* at Vindolanda (Birley *et al* 1936, 225; Bidwell 1985, 47), could be interpreted in a similar way to the eastern half of the south granary at Housesteads, namely as holding provisions withdrawn from the public store ready for distribution under the direct scrutiny of the regimental quartermaster. Other interpretations are possible, however; the excavators suggested the rooms were being used as *armamentaria* for the storage of clothing and equipment (Birley *et al* 1936, 225). A posting for a term as *praepositus horrei* at a remote station like Housesteads would certainly have been feared and resented by any civic official. Grouping several neighbouring forts to be served by one storehouse would have greatly reduced the number of such curial postings that needed to be made.

Finally, it is likely that the shift to the system of supply outlined above, manifested and formalised by the construction of Building XV, would have had a profound impact on the adjacent *vicus*, appropriating many of the economic activities that had formerly taken place or been channelled through the civil settlement. As noted in Chapter 10, this may have been one of the crucial factors explaining the decline of the *vici* along the northern frontier.

Dedicatory inscription *RIB* 1613 (Fig 11.11)

In his discussion of the storehouse, Crow argued that the fragmentary, but richly ornamented, Tetrarchic inscription (*RIB* 1613, *CSIR* 412), found at Housesteads before 1903, should be associated with

the building (2004a, 89–99). The exact provenance of the two fragments is unknown but they were first recorded in Budge's catalogue of the Chesters Museum collection (1907, 331, no. 146), which would suggest they were found by John Clayton's workmen at some point during the clearance work in and around the fort in the 1850s and 1860s. One of the most distinctive features of the inscription is the elaborately carved surround incorporating four rows of leaves (*squamae*). Although direct parallels are difficult to find anywhere in the empire, Crow has noted that, in its details, the stone recalls imperial imagery found on Tetrarchic monuments in Rome and elsewhere. In this connection, it is particularly intriguing that a stone fragment displaying a very similar carved motif and interpreted as part of the surround of an inscribed



Fig 11.11 Restoration of the Diocletianic dedication *RIB* 1613 showing surviving fragments (as Crow 2004a, fig 49; original drawn by Alexandra Rowntree).

monumental panel, was recently found at Birdoswald, in a field wall to the west of the fort (Coulston 1997, 316–17, no. 283). Tetrarchic building activity is, of course, well attested epigraphically at Birdoswald, in the shape of the famous dedication (*RIB* 1912) recording the restoration of the *praetorium*, *quod erat humo copertum et in labem conlapsum*, and the *principia* and the *bal(neum)* or *bal(listaria)*. The latter was clearly not elaborately decorated like the fragments from Housesteads, but the recently discovered stone from Birdoswald suggests that the Tetrarchic restoration work at that fort may have been commemorated by another much more ornate dedication, very similar to *RIB* 1613.

Crow's suggestion that Building XV was the origin of *RIB* 1613 is certainly very persuasive. The structure was the largest late Roman building in the fort and great care was taken in its construction. The erection of *annona* storehouses elsewhere in the empire was certainly deemed sufficiently important to merit commemoration by florid dedicatory inscriptions (cf Wilkes 1977, 78–9). Thus, under Valentinian, a storehouse was built at Stora near Rusicade (Skikda), on the Numidian coast, 'with all speed for the security equally of the Roman people and of the provincials' (*horrea ad securitatem populi Romani pariter ac provincialium constructa omni maturitate* (364–7), *CIL* VIII 7975 = 19852 = *ILS* 5910). Earlier, in 346–9, a storehouse had been constructed by the praetorian prefect Vulcacius Rufinus at Savaria in Pannonia Superior (*provisa copia quae horreis deerat postea quam condendis horrea deesse coeperunt. ... per se coepta in securitatem perpetem rei annonariae dedicavit*, *CIL* III 4180 = *ILS* 704). Most interesting of all, during the Tetrarchy a storehouse was erected at Tubusuctu (Tiklat), in Mauretania Sitifensis, following the suppression of a revolt by the Quinquegentanei tribal confederation (*[comprimens turbas Quinque]ntaneorum ex Tubusuctitana [regione (or limite) copiis iuva]retur horrea in Tubusuctitana [civitate fieri] praeceperunt*, *CIL* 8836 = *ILS* 645). Tubusuctu was an Augustan *colonia*, but it was also the headquarters of a local military command, the *limes Tubusubditani* (*ND Occ XXV* 27), during the 4th century and the storehouse may have had a combined military and civil function, collecting taxes for onward despatch and also disbursing supplies to the local garrison.

Although it is not specifically recorded that Clayton carried out any work on Building XV, comparison of the 1st and 2nd edition Ordnance Survey 1:2500 maps indicates that the north and west walls of the building were disinterred at some stage in the period between 1860 and 1896, most probably in the early 1860s. The discovery of two coins was reported in 1863 (*AA¹* 6 (1865), 195, 200) and it was very likely around the same time that a relief of Mars (*CSIR* 67) was found 'at the south-west angle' of the building, near the entrance to the *principia*, which the relief had probably originally flanked (Bruce 1867, 186–7; cf Bosanquet 1904, 209).

The two fragments of *RIB* 1613 could have been uncovered during the same digging. Above the doorway in the middle of the west wall would form one plausible location for the dedication slab.

However, alternative possible provenances should be noted. For example, work by Clayton on the east wing of the commanding officer's house is clearly recorded in 1858, which could explain the discovery of the two fragments (cf Bruce 1867, 188; Bosanquet 1904, 203). Considerable importance was certainly attached to ensuring that the commanding officer was provided with accommodation commensurate with his status, as the contemporary dedication at Birdoswald and the large, newly constructed courtyard house at South Shields fort imply (cf Bidwell and Speak 1994, 35–9; Hodgson 1996). Some remodelling of the *praetorium* clearly did occur during the later empire, including the provision of a hypocaust in the main dining room and the repaving of the courtyard and the rooms in the north-west corner. No material evidence to date the repaving was found, but the similar use of long blocks as paving slabs in both areas suggests the works were contemporary and fell within the same organisation, while the reuse of architectural stonework in the courtyard surface points to a relatively late date. However, as Crow has pointed out, it is questionable whether this work was on a sufficient scale to merit the elaborately carved dedication slab. Moreover the revised reading of the Severan dedication found in the commanding officer's house (*JRS* 57 (1967), 205, no. 17 = *RIB* 1612), discussed above, has removed the specific reference to that building in the text and the consequent need to interpret the inscription's reuse in the kitchen oven as evidence that the main entrance to the *praetorium* was dismantled and substantially rebuilt during the later empire (contra *HCP*: A4).

A second possibility is that the Tetrarchic dedication derived from the Knag Burn gateway. There is evidence that the gateway was significantly strengthened during the late empire (see Crow, in Chapter 10 above). This took the form of two flanking towers added to the inner face of the Wall curtain on either side of the original, probably Severan, gateway, complete with a gated inner archway at the rear of the passageway, indicated by the presence of pivot stones and substantial foundations. Again, the gateway was initially cleared by Clayton in 1856–7 (*PSAN* 1856, 186; 1857, 234; cf Bosanquet 1904, 203) and it is therefore conceivable that the epigraphic fragments were found during this work, although in this case it is perhaps more likely that it would have been commented on in one of Clayton's notes reporting the work.

In the final analysis only the discovery of further, firmly provenanced, fragments of the dedication would provide definitive proof of the proposed association between Building XV and *RIB* 1613, but there is certainly no denying the attraction of linking the most impressive late imperial structure in the fort (cf Fig 11.12) with the only surviving building inscription of the period from the site.

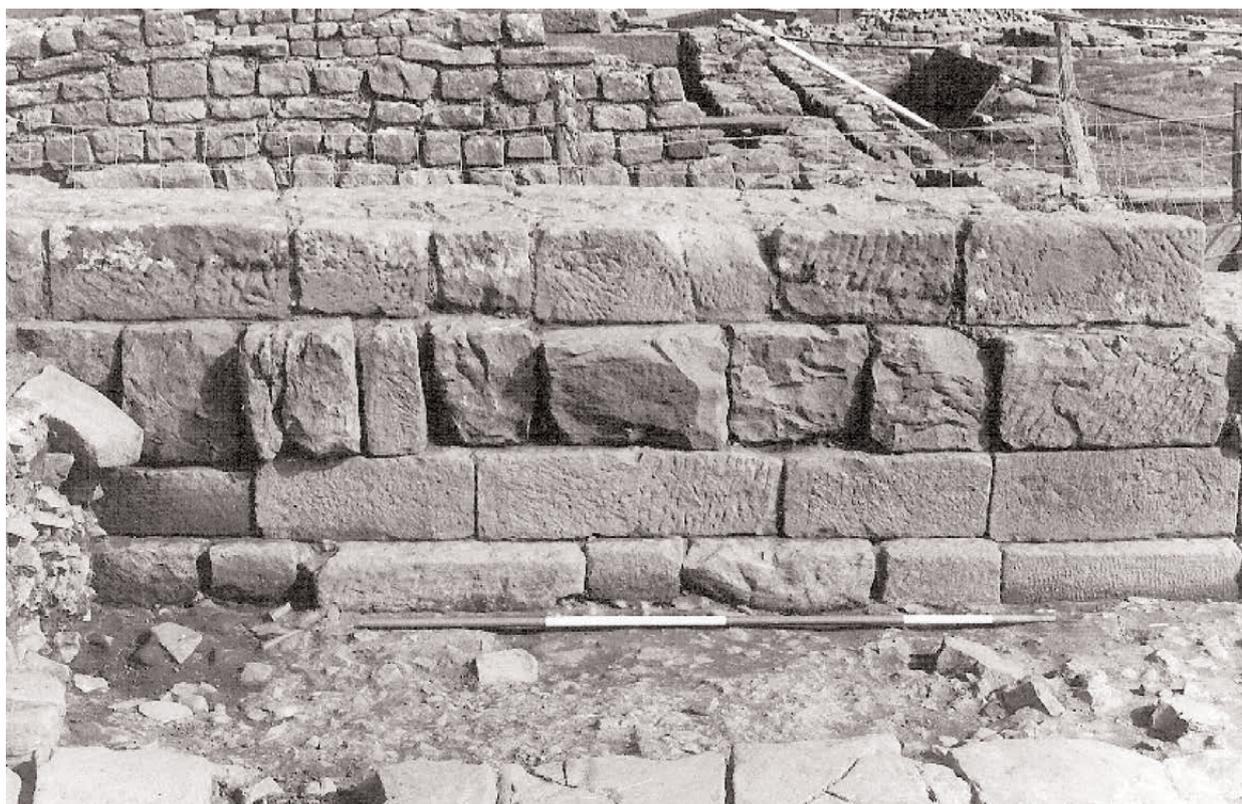


Fig 11.12 The inner face of the north wall of Building XV showing the size and quality of the masonry blockwork, which would largely have been hidden below the flagged floor.

Later 4th century changes in supply

In the later 4th century the system of supply was modified significantly with commutation of taxation into cash. This process was first signalled in 365 when Valens, the emperor in the East, ordained that frontier troops were to receive rations in kind for nine months and cash for the other three (*CTh* VII iv 14), while a schedule of prices for commuting the issues was set down by his brother Valentinian, in the West. A law of 369 (*CTh* VII iv 15), which may also be related to the early stages of this process, stipulated that more remote garrisons would have two-thirds of their supplies delivered as before but were to be responsible for transporting the remaining third themselves. By the end of the century at the latest, supplies for the *limitanei* were fully commuted into gold (cf Jones 1973, 629–30, 1262). Presumably it was henceforth the responsibility of unit *actarii* to organise the purchase of supplies using the commuted sums, especially at the more remote stations where ready food supplies and markets were not necessarily available.

These changes may be reflected at Housesteads itself, where the massive storehouse was considerably reduced in length later in the 4th century. The eastern third of the building was demolished and a small bath-house built in its stead (see Chapter 6). It should be emphasised, however, that the storehouse remains a substantial structure. It is likely that large quantities of provisions were still housed there, but the method of procuring them may have changed.

The new bath-house occupying the eastern end of Building XV may have replaced the Hadrianic one located beside the Knag Burn, the tufa blocks, found reused in the vaults of the new baths, perhaps deriving from the external bath-house. If this is the case, the much smaller scale of the Building XV bath-house in relation to its predecessor would suggest that the garrison strength had been significantly reduced by this stage. It is possible that access to the latter was no longer secure (Crow 2004a, 111–12), although straightforward decay is an equally convincing, if more prosaic, explanation. For a reduced garrison, the effort of maintaining the elaborate Hadrianic bath-house was perhaps no longer worthwhile.

The fort environs in late antiquity

The striking change in the external aspect of the fort, brought about by the erection of additional towers, blocked gateways and defensive outworks detailed above, was further accentuated by the even more dramatic transformation in the setting of the fort of the late empire, as compared with its 2nd- to 3rd-century counterpart.

The earlier fort was surrounded on two sides by a large and sprawling *vicus*, the full extent of which cannot be precisely defined, but it certainly stretched around the east and south sides of the fort, continuing westward towards, but probably not quite as far as, the farmhouse and southward as far as the Vallum (see Welfare in

Chapter 10 above). Some buildings overlapped the backfilled Vallum ditch and there may have been a narrow ribbon of development along a street linking the south gate quarter with another settlement focus at the bottom of the hillside, around the base of Chapel Hill. This latter focus itself conceivably extended west and south-westward towards the *mithraeum*. Beyond the settlement, extensive terraces were laid out along the hillside to support agricultural cultivation (*see* Welfare, and Crow in Chapter 10 above). A scattering of shrines may have been situated on the periphery of the settlement, and beyond there were probably cemeteries and tombs lining the roads leading to the site, although their location is still ill defined (*see* Welfare above). The settlement certainly seems to have been booming in the early 3rd century, presumably benefiting from the patronage of a well-paid garrison. This patronage is also reflected in the religious sphere by the construction of two shrines for which we have both detailed epigraphic and structural evidence, the *mithraeum* and the shrine of Mars Thincsus. The latter was built during the reign of Severus Alexander and was associated with the arrival of units of German irregulars, as discussed above, while construction of the *mithraeum* was probably sponsored by the *beneficiarius consularis*, Litorius Pacatianus, at some stage in the early 3rd century and repaired on the initiative of the centurion, Publicius Proculinus, in 252 (Daniels 1962, 111–12; Smith 1962, 278; *RIB* 1599–1600; cf *HCP*: A74).

By the early 4th century this picture had changed dramatically. The dramatic fall-off in coin finds from the *vicus* suggests the settlement was completely abandoned by the latter stages of the previous century, probably in the 270s. Coinage of the Gallic empire, in particular radiate copies, which are so strikingly abundant within the fort, are largely absent from the buildings excavated in the 1930s outside the south gate. Similarly, the latest coin from the *mithraeum* – which was clearly still a significant focus of devotion in 252 – is a radiate copy ('Tetricus I') of 273+ (No. 817). However, the well inside the shrine of Mars Thincsus, at the foot of Chapel Hill, may have continued in use in some form somewhat longer, the latest example found when it was cleaned out in 1960 being a Constantinian issue of 316–17 (No. 812). A trickle of other 4th-century coins from the area around the south gate might simply reflect casual loss by members of the garrison coming and going, but could possibly indicate the presence of a periodic market serviced by itinerant traders outside the gate. It is likely the abandoned *vicus* buildings were demolished to provide material for the new building work inside the fort. A large stone sill (H13:0:43) used in Building XIII Chalet 1, for example, could well have been removed from one of the redundant structures. The supplies and equipment that had previously perhaps been shipped in or produced by contractors based in the settlement were presumably now levied in kind and perhaps delivered by curial tax collectors or other officials, to be stored in Building XV.

The defensive overhaul of the fort *c* 300 was probably also reflected outside the fort, with the addition of flanking towers to the Knag Burn gate at about the same time, strengthening what was in effect the north gate of the fort. The towers abut the rear of the Wall curtain and were founded on massive oblong stone blocks, similar to the ones used to construct the Building XV storehouse. The new inner arch was also provided with pivot stones to support gate leaves, transforming the structure into a double gate.

Thus it is easy to picture the late imperial fort as an isolated and embattled outpost, set in a hostile landscape, its garrison sheltering inside elaborate defences, surrounded by a resentful 'native' population, who had absorbed little of the trappings of Romanisation, and threatened by raiding Pictish warbands from beyond the frontier. There are several grounds for believing that this impression may be somewhat misleading, however. The forts of the Central Sector may indeed have faced specific problems of insecurity, principally as a result of their remoteness. They were located in the heart of a rugged, upland frontier district, relatively distant from the main bases of Roman military power further south and east, such as York, and consequently the garrisons stationed at Housesteads, Carrawburgh, Greatcesters and neighbouring sites would have been more vulnerable to ambush or surprise attack. These factors may have become more important, particularly as the 4th century progressed and the size of the garrison perhaps gradually reduced, which might explain some of the elaboration that the defences underwent. The earthen outworks would certainly have helped to impede an initial surprise assault, enabling a smaller garrison to organise itself and hold out until relief arrived.

Nevertheless, this vulnerability should not be overstated and is probably not the principal explanation for the transformation of the fort at the end of the 3rd and beginning of the 4th centuries. As discussed above, examination of the precise form taken by the refurbished defences and in particular the location of the new interval towers around the eastern sector of the enceinte, rather than the tactically weaker west side, suggests that the new defences were designed as much to embody the power of the imperial authorities as to improve the defensibility of the site.

Furthermore there is no reason to assume that the surrounding landscape was deserted during the late empire or that cultivation around the fort ceased with the abandonment of the *vicus*. Recent research, notably the aerial photographic work by Tim Gates (Gates 1999), has emphasised the extent and density of rural settlement in the Hadrian's Wall corridor, in the form of the rectilinear, enclosed, stone-built farmsteads. Two of the newly discovered sites, at Green Brae and Little Shields east of Crindledykes, lie within sight of Housesteads fort (Crow 1999, 130; 2004a, 86). Dating the occupation span of such settlements is

problematic without excavation, but it is quite conceivable that some at least continued on into the late Roman period and perhaps later still.

However, there is one piece of clear relative dating that establishes the presence of traditional settlement even closer to the fort during late antiquity, namely the construction of a roundhouse over one of the buildings in the lower *vicus*, close to the well. The traditional rural peasantry of the northern frontier zone evidently continued to farm the area and at some point began to reoccupy the area of the *vicus*, at least the lower settlement in the valley bottom, which may have been particularly attractive because of its reliable water supply.

Much more speculatively, the settlement on the eastern side of the Knag Burn, immediately north of the Vallum, might also belong to such a phase of later Roman or early medieval agricultural exploitation. It comprises a circular structure with rectangular enclosures to the west, and was perhaps associated with a field system consisting of a series of irregular, angular terraces which stretch between the Wall and the Vallum to the east of the burn (*see* Welfare, Chapter 10 above). The settlement was excavated by Ann Dornier of Leicester University in 1967–8 (Dornier 1968; 1969). Roman pottery was found, but the site's date remains unclear and it could belong earlier in the Roman period.

The reoccupation of the area around the well cannot be dated other than relatively, that is to say it occurred after the demise of the organised *vicus*, but before roundhouses ceased to form part of the architectural tradition of rural communities in northern Britain. Indeed, there is no proof that the fort was still garrisoned when this occurred. Nevertheless, if the settlement of farmers closer to the fort did occur during the late Roman period it is quite conceivable that the process was actually fostered by the garrison. It is known that forts could have *territoria* attached to them, effectively forming collective property that could furnish supplies and services to the regiments stationed there (*CTh* VII xv 2 (423); cf Jones 1973, 653). The terraced hillside below the fort at Housesteads is a promising candidate to form part of just such a *territorium castellarum*. The terraces may have been constructed and cultivated by the inhabitants of the *vicus* in the 2nd and 3rd centuries, either on their own initiative or with the garrison's encouragement, but following the abandonment of that settlement an alternative source of cultivators would have been required if the unit was to derive any substantial benefit from this land. Rather than this work being undertaken by soldiers themselves, according to the now discredited soldier–farmer model of *limitanei*, it is perhaps more plausible that this land was leased out to local farmers, conceivably even resulting in a degree of symbiosis between the two communities.

The relationship between the military garrisons of the northern frontier and the local farming populations are commonly envisaged as being, at best, one of mutual indifference, if not outright hostility.

The conservatism of the upland farmers in the northern frontier zone is certainly striking, whether manifested in the persistence of their archetypal settlement forms, the rectilinear enclosed sites and the use of round houses, or in the relative paucity of finds, such as Roman pottery, recovered when such sites have been excavated, indicating an apparent limited take-up of 'Romanised' material culture by these communities. However, a similar dearth of material culture is encountered when settlements of other periods are excavated in the same region, whether it is an early medieval settlement in upper Teesdale (Simy Folds: Coggins *et al* 1983, 14–16), medieval shielings in the Wall's Central Sector (Mons Fabricius: Crow forthcoming), or a 16th- to 17th-century bastle in North Tynedale (Stone House, Starsley Burn: Harbottle and Newman 1973, 168, 'almost total absence of sixteenth and early seventeenth-century artefacts', 170 no. 29). In discussing the finds assemblages from such settlements it is never suggested that medieval peasants were consciously rejecting the material culture of the social elite. In other words, rural upland settlement throughout the 1st and much of the 2nd millennium AD is characterised by an impoverished material culture, at any rate in terms of what can be recovered through archaeological excavation. Conversely, there are some indications that the garrison at Housesteads was becoming more locally embedded towards the latter stages of its existence, gradually absorbing some of the cultural traits of the surrounding rural society from which a significant, and perhaps increasing, proportion of its recruits may have been drawn. This may be reflected in some of the latest alterations to chalets, notably the thickness of the wall closing off the north end of Chalet 3 and the curving plan of the flagged threshold and porch incorporated in the final phase of that wall, which appear to echo the organic flowing forms and drystone techniques of local stone-built rural settlement.

At this juncture it should be emphasised that the decline of the *vici* in the mid- to late 3rd century does not signify that urbanised settlements vanished from the northern frontier. The two largest, Corbridge and Carlisle, remained flourishing, prosperous centres, in the first half of the 4th century at least (McCarthy 1999, 174–7). Both were sufficiently sizeable to merit the label town and *may* have functioned, *inter alia*, as civitas capitals. It was presumably to these towns that members of the garrison resorted when they had need of goods or services that could not be provided by itinerant traders or periodic issues from the official storehouse. Such centralisation of urban activity might be one consequence of the radical alterations to the supply system during the later empire.

As pictured above, the later Roman Wall zone may be said to comprise a string of forts (*castra*) inhabited by military communities, as before, but now largely devoid of extra-mural villages. The forts were surrounded by a dispersed rural settlement pattern, characterised by widespread farmsteads and hamlets of

very traditional form. The commercial exchange of goods and services was probably effected principally through the medium of itinerant traders serving periodic markets, while a few substantial towns provided more extensive market and manufacturing facilities and administrative services. This may indeed be far removed from the traditional image of a Roman settlement pattern, with city, small town/village, villa etc, but the Roman world was full of regional variations. It is important to stress what has been lost: the mass of documentation that must once have recorded and regulated the lives of these communities as everywhere else in the empire. If wooden tablets recording the sale of plots of land from one farmer to another had survived from the settlements near Hadrian's Wall, as they have from the Tunisian pre-desert (*Tablettes Albertini*: cf Courtois *et al* 1952), or petitions made to the commander of the local garrison by members of neighbouring communities, like those received by Flavius Abinnaeus, *praefectus* of the *ala V praelectorum* at Dionysias in the lower Egyptian Fayum (*P Abinn*: Bell *et al* 1962; cf Libanius *Orationes* xlvii 1–16), it would be much easier to imagine the 4th-century Wall corridor as just one more part of the wider late antique world, in all its diversity.

Housesteads in the later 4th century and beyond

Structural evidence: the later phases of the defences and chalet ranges

The excavations in the north-east quarter also provided the best evidence for the latest Roman phases of occupation in the fort (Figs 11.13–14). The width of the reinstated rampart (Phase H20/4a; H21/3b) was substantially increased later in the 4th century. These widened defences were to prove unstable. Owing, in part, to the steepness of the gradient down from west to east, on which the rampart levels were deposited, the revetment was overtopped by material creeping south-eastwards downslope, notably in the central part of this stretch of the rampart (Area H20:5). Part of the north curtain immediately west of the interval tower also collapsed (Crow 1988, 71), which must in turn have compromised the integrity of the tower. These problems prompted a series of structural responses affecting both the north rampart itself and the neighbouring chalet range, XIII. A complex sequence of short revetment walls was constructed in Area H20:5, the layout suggesting repeated endeavours to contain the earthen bank. These walls were subsequently integrated into the first of two more extensive phases of revetment walling that together covered the full length of the rampart, running diagonally from north-west to south-east, over the *intervallum* road until, at its east end, Wall Ji almost reached Chalets 1 and 2. It is possible that this resulted in the fighting platform and

parapet being shifted rearwards, at least in the area where the interval tower had collapsed. At the same time, the north ends of Chalets 2–5 were closed off by new walls which, in the case of the one fronting Chalet 4 (H13:4:30), paralleled the course of the latest revetment. To ensure an adequate distance was maintained from the unstable bank, this also entailed truncating the length of Chalets 3–5, which stood directly opposite one of the widest stretches of rampart. As a consequence of these combined alterations to the rampart and chalet range, the *intervallum* road essentially terminated in a shallow curving bay or recess in front of Chalet 3, continuing further eastward only as a narrow alley between the rampart and Chalets 1 and 2. To the west of the interval tower, a similar bulge of slumped deposits, which appears to be structurally later than the corresponding slump further east, was contained by Wall Jii (Fig 11.14). This final episode of stabilisation work cannot have occurred before the late 4th century (post *c* 360) on the basis of the late coarseware types contained within the deposits.

A shift to timber construction at this stage is evident in the northern defences. The interval tower, which had probably been destabilised by the collapse of the adjoining curtain, was apparently rebuilt in timber with large postholes dug in the corners of the stone tower. This reconstruction in timber is also reflected at the east, west and south gateways at Housesteads. In each case a slot can be seen cut into the masonry of one of the piers, apparently to hold a substantial timber upright supporting a timber lintel and superstructure across the passageway.

Finally, the multiple, embanked external defences, described in Chapter 10 may also be relevant to the period under consideration. Their place within the late Roman sequence at Housesteads is as yet undetermined. As they cut off access to the west gateway and overlie *vicus* buildings they must post-date the abandonment of the *vicus* (*c* 270 and cannot precede the blocking of the west gate. Similar outworks are also encountered at Carrawburgh and Greatchesters, where the gate blocking still survives in place. The embanked defences might be contemporary with the gate blocking activity, and, perhaps, with the late 3rd- to early 4th-century phase of rebuilding (Crow 2004a, 105–7). Alternatively, a date later in the 4th century is possible, perhaps associated with the widening of the rampart (H20/4b; H21/4b), in which case the embankments would form part of an increasing shift towards reliance on earthwork defences. However, an even later date can be proposed on the basis of comparative evidence. Excavation of the south-west gate at South Shields has shown that late ditches that cut off access to that gate were probably not dug until early in the post-Roman period (Bidwell and Speak 1994, 142). At Piercebridge, the ditch fronting the east wall of the fort was also extensively recut at a date demonstrably later than 402 and sufficiently long after for masonry from the fort wall to have tumbled into the ditch before the



Fig 11.13 Successive north rampart revetment walls in Areas H20:4-6 east of the interval tower.



Fig 11.14 The large slab incorporated in Revetment Wall 7ii opposite the interval tower implying access to the tower – by this stage probably rebuilt in timber – was still maintained during the final phase of the rampart.

redigging (Casey 1994c, 260). The embanked outerworks at Housesteads and Great Chesters could conceivably therefore represent a similar sub-Roman refurbishment of the defences. Only selective excavation would enable this range of possibilities to be narrowed down.

The efforts in the north-east corner to cope with the slumping of unstable rampart material downslope and prevent it entering the chalets demonstrate that the fort was still being maintained in the mid-late 4th century. The repairs represent an organised response but appear somewhat piecemeal and reactive.

This may be an indication that the garrison now lacked sufficient manpower and resources to rebuild these structures fundamentally and deal with the problem once and for all. Further evidence of a gradual decline in size of the garrison might be represented by the fate of the officers' accommodation in Buildings XIV and XIII – the former was demolished, the latter converted to house a large bread oven – and by the merger of Chalets 8 and 9. The presumed abandonment of the Hadrianic bath-house beside the Knag Burn and the construction of a much smaller replacement at the east end of Building XV could well point to the same trend. Nevertheless it is clear that Chalet Range XIII was still intensively occupied at the time of the latest modifications to the defences – as indicated by the addition of walls and porches to close off the north ends of Chalets 3–5 rather than simply abandoning that part of the range. Similarities in the way these chalets were remodelled also point to the existence of some overall coordinating authority, although there clearly remained considerable scope for variation in the layout of each individual chalet-*contubernium*. Later structural alterations appear cruder, marked by the encroachment of structures over the adjacent street to the south and the use of drystone walls and benches. Gradually the density of occupation in XIII may have dwindled, with evidence for a possible contraction in the occupied area of some chalets. The northern ends of Chalets 6 and 7 were clearly abandoned by the time of the latest activity in the north *intervallum* area, represented by well-laid flagged surfaces. The date of this flagging, which sat on a thick layer of dark loamy soil, is very uncertain, however.

Comparative evidence

The complex structural sequences observed at Housesteads, both in the buildings and the defences, point to prolonged activity. However, it is always difficult to estimate precisely how lengthy a timespan such sequences might translate into. Nevertheless it may be possible to suggest occupation through the 5th century if long structural sequences can be shown to follow on from demonstrably later 4th-century levels, as has been the case at Vindolanda, South Shields, Birdoswald and Binchester (Casey 1994c, 259–61; Bidwell 1985; Bidwell and Speak 1994, 46; Wilmott 1997, 203–31; Ferris and Jones 2000).

The latest alterations to the defences in the north-east corner of Housesteads certainly do bear intriguing similarities to those at the aforementioned sites. The final form of the north rampart is also reminiscent of the massive ramparts belonging to the latest phases of the fort at Malton, which were dated to the 5th century by the excavator (Corder 1930). At Vindolanda, the defences were repaired by piling material in front of the curtain wall in order to prevent the facing collapsing forward away from the rampart. This 'refurbishment ... can be no earlier than the end of the 4th century,

since repairs continued to be made in the second half of that century and it may have been associated with occupation in the later 5th century and beyond hinted at by a tombstone and brooch' (Bidwell 1985, 46). Likewise at Birdoswald there is evidence that some parts of the fort walls, at least, were encased in earthen banks with a narrow stone parapet (Simpson and Richmond 1933, 261–2). Significantly, Birdoswald has produced internal buildings that may be convincingly assigned to the sub-Roman-early medieval era (Wilmott 1997, 203–24). Furthermore, the evidence that gate and tower superstructures were replaced or reinforced in timber – as exemplified in Housesteads north defences by the large postholes cut into the inside angles of the stone interval tower, late in the structural sequence – is also paralleled at other sites on the northern frontier. At South Shields, the stone towers of the south-west gate were partially demolished and the front of the surviving south-east portal was flanked by a pair of postholes, signifying the construction of a timber arch. These events fell within the fort's Period 9, assigned an early post-Roman date (Bidwell and Speak 1994, 142–3). Strikingly similar features were identified at Birdoswald in the form of a pair of postholes, cut during Period 5 or 6 (equating to the later 4th or 5th centuries), on the outer face of the west gate (*porta principalis sinistra*), flanking the north portal, which remained open up to the end of the Roman period and beyond (Wilmott 1997, 216). The remodelling recorded at South Shields and Birdoswald is clearly comparable with the pattern observed at Housesteads, where slots cut in the façades of the east, west and south gates suggest that the superstructures of these gateways, too, were rebuilt in timber, presumably at an equivalent stage during the late 4th century or early post-Roman period.

One further intriguing piece of comparative evidence is provided by the west curtain at High Rochester, which displays repairs of a highly irregular form that would not look out of place in the final phases of the defences at Housesteads. They do not appear to conform to the late 3rd- or early 4th-century defensive works revealed at Housesteads and elsewhere, which generally appear to have been executed with a degree of care and competence, and even a certain concern for the visual impact of the work (as demonstrated by the inclusion of a band of white coral in the facing of the curtain at Birdoswald – cf Wilmott 1997, 185, 192, 202). It is generally considered that the Roman garrison was withdrawn from High Rochester relatively early in the reign of Constantine, based on the absence of later coinage and pottery types (Casey and Savage 1980; Shipley 2003). If these repairs imply occupation of the site later in the 4th or 5th centuries, should we envisage a formal handover of the fort to a federate chieftain when the site was relinquished by the Roman troops or perhaps later resettlement by a Brittonic warband, with or without imperial acquiescence?

Dating: the documentary evidence and material assemblages

In dating this activity we face a series of problems familiar to anyone studying the end of Roman Britain. The latest chronologically diagnostic material recovered need not reflect the period of final activity on the site, as a result of the cessation of coin supplies and rapid collapse in pottery production at the end of the 4th century. The later phases of modifications to the defences and the internal buildings at Housesteads *could* all be compressed into the mid- to late 4th century. However, given its complexity, it is possible that the structural sequence stretched over a somewhat longer period, at least into the early 5th century and perhaps beyond. Furthermore, there is also a certain discordance between the different classes of evidence at Housesteads.

Taking the documentary evidence first, the fort and its garrison are mentioned in the list of official posts known as the *Notitia Dignitatum* (*ND Occ* XL 40: *tribunus cohortis primae Tungrorum, Borcovicio*). The extant version was probably initially compiled *c* 395 to mark the division of the empire between the two sons of Theodosius, or shortly thereafter (Hoffmann 1969/1970; cf Mann 1976, 5, 8). The half of the document relating to the western empire was subject to substantial later amendment, particularly in the sections relating to the field armies, having apparently been used in the office of the western *magister peditum praesentalis* until perhaps *c* 420. This should imply that Housesteads retained an official garrison, however small, up until the last decade of the 4th century, at least.

In contrast, the latest coin issues found at Housesteads date to the House of Valentinian and cannot have been minted any later than the 370s. Of this group of 15 Valentinianic coins, no less than 6 derive from the *praetorium* (another 2 derive from Building XIV and the remainder are not closely provenanced). In relation to a similar absence of post-378 issues at Wallsend, Hodgson (2003, 18–19; cf Brickstock 2003) has argued strongly that coin-using occupation must have ceased there by *c* 380 and, by implication, that there was no imperial force present at Wallsend fort after that date, part of a process thinning out the northern garrisons. The comparable *lacuna* should be all the more significant at Housesteads, which has a substantial coin list (over 800 examples from the entire site, including 540 examples from the fort alone).

Turning to the ceramic assemblages, the latest diagnostic types can give *termini post quem* no later than *c* 340 for Huntcliff Ware and *c* 360 in the case of the later Crambeck types, such as Parchment Ware, although both may have continued in production until the end of the 4th century. (The evidence of the sealed coarseware assemblage from the backfilling of the south *horreum* floor at Birdoswald – Period 5, Analytical Group 13 – that was associated with a coin sequence terminating in 348, may, however, signify

that some late types, including Crambeck Parchment mortaria, had been introduced by *c* 350, somewhat earlier than hitherto supposed (Wilmott 1997, 207–8, 247–9).) These latest forms make up a significant proportion of the total coarseware assemblage found in the north-east quarter of Housesteads fort – 178 out of a total Featured Vessel count of 2171 (*see* Chapter 16: Blocks 7, 12 and 17). If it is assumed that this material was imported into the fort before the end of official Roman military occupation, the evidence of the coins could imply that it all arrived within little more than a single generation (less in the case of the later Crambeck types). Moreover some of the other vessels found in association with the later structural phases or in unstratified contexts represent forms or wares which, although introduced prior to 340, were still in production after that date (for example other calcite-gritted, and East Yorkshire grey wares). It is therefore likely that some of these, too, arrived at Housesteads during the second half of the 4th century.

In order to reconcile these different classes of evidence, they must be subjected to greater scrutiny to assess the full range of possible interpretations they can sustain. Doubt has often been cast on the reliability of the *Notitia Dignitatum* as a guide to late 4th-century military arrangements although much of this criticism was based on a lack of understanding of both the composition of the document and the development of the later Roman army. The more extreme revisionist theories have now largely been discarded and one must agree with Hodgson that ‘there is no warrant for the belief that the list must long pre-date the later fourth century’ (2003, 18). However, it could be argued that certain of the constituent chapters, including that of the *dux Britanniarum*, were some years out of date when the document was put together. The *Notitia* was compiled by the *primicerius notariorum*, a palatine official with responsibility for issuing codicils of appointment to senior civil officials and military commanders (*ND Occ* XVI 3, 5, *ND Or* XVIII 2, 4–5; cf Jones 1973, 574–6, 641; Mann 1976, 1–4; Hassall 1976, 103–4; 1977, 7). Up until the end of the 4th century, in the west, the *primicerius* also issued commissions to the *praepositi* of the higher ranking regiments, the units of *comitatenses* and *ripenses* which were listed in the *laterculum maius* (but not to the tribunes and prefects of the cohorts and *alae*, who were appointed by the quaestor of the sacred palace). The chapters of the individual *duces* in the *Notitia* may well replicate the codicils issued to these commanders. While the *dux Britanniarum*, for example, will doubtless have had reasonably accurate records of the units at his disposition (*sub dispositione*), it is unclear how often the version of his command preserved by the *primicerius* would have been revised with new information received from the *dux*.

In assessing the coin evidence we encounter a specific problem. Even at sites where coinage minted under the House of Theodosius after *c* 380 has been retrieved, the quantities are often very small.

At Birdoswald, for example, only one coin later than 378 (an issue of the House of Theodosius dated to 388–95 – cf Davies 1997, 324, no. 161) was found during the 1987–92 excavations, out of an assemblage totalling 178, while none was recovered during the 1929 campaign (Richmond 1930, 173–5 – 58 coins), the other major intervention in the interior of the fort. Similarly, only one Theodosian coin is recorded at Vindolanda out of a total assemblage of 375 (Casey 1985, 105, 116) and none have been found at Haltonchesters (Casey and Brickstock forthcoming – 134 coins). Birdoswald and Vindolanda appear closer to Housesteads and Wallsend than to the small number of forts that have produced more substantial proportions of the latest coinage. Even allowing for the larger size of the total coin assemblage from the interior of Housesteads fort, at most only two post-Valentinianic coins would be required to match the relative proportions represented by the single finds at Birdoswald and Vindolanda. While the presence of even one Theodosian coin can demonstrate continued occupation until the end of the 4th century, it is debateable whether the *absence* of one or even two equivalent coins from an assemblage should be accorded equal weight as an indicator of military abandonment. The statistical basis is surely too vulnerable to distortion by the vagaries of finds recovery when the numbers are so low.

In contrast, significant quantities of post-Valentinianic coinage have been found at both South Shields (Casey 1979, 82, 95; Brickstock 1994, 166) and Newcastle (Brickstock 2002, 182–3), with proportions of the later issues echoing those at Corbridge. With Chester-le-Street and Binchester also among the sites that have produced no Theodosian coinage, South Shields and Newcastle look anomalous among the forts of the northern frontier. Given that one was situated at the mouth of the Tyne and the other at the furthest point up the river that could be reached by shipping, these two sites may have played some role in supplying the frontier which resulted in this different coin loss profile.

One final point is relevant in relation to the coin evidence. Coins issued during the period 378–88 are extremely rare on the northern frontier; the bulk of the post-Valentinianic issues recovered fall within the period 388–402. Of the sites mentioned above, only South Shields has yielded coins of the earlier period. Hence, the absence of coins of this period cannot be used as evidence that the military garrison at any particular site had been withdrawn by this stage: a fort abandoned in 387 would in all likelihood produce no coin issues later than 378. The period must simply be treated as a *lacuna* in our coin profiles.

As regards the coarse pottery, there are obvious problems in using the proportional ratios of assemblages of different periods in an uncritical manner as bald indicators of the length or intensity of occupation – so much depends on the depositional processes involved. Thus at Housesteads the earlier levels appear

relatively clean, resulting in only limited quantities of early to mid-2nd-century pottery. On the other hand, whatever their origin, the deposits associated with the reinstatement of the ramparts between the mid-3rd and early 4th centuries contributed very large groups of later 2nd- and 3rd-century pottery to the overall Housesteads coarseware assemblage. Despite the uncertainties regarding any statistical application of such coarseware data, the proportions of late material compare favourably with those from a number of sites with coin lists extending into the 370s. Thus Bidwell and Croom (2002, 171) have recently noted that sites ‘such as Brough-on-Humber, Ribchester and Watercrock have all produced negligible amounts of later pottery’ while such material is also ‘absent from stratified sequences extending well into the second half of the fourth century at Vindolanda and South Shields’, both sites that have produced Theodosian coinage. In part this may reflect the better preservation of later archaeological levels at Housesteads, and the survival of significant quantities of pottery and other finds in topsoil deposits, points not always appreciated as there has been a tendency to over-emphasise the destructive impact of earlier excavation on the site. Nevertheless, it is clear that the coarseware assemblages would accord better with a more prolonged pattern of occupation, lasting up to the end of the 4th century and even beyond, rather than one terminated by troop withdrawal in the 380s.

Thus the relatively high proportion of late coarseware types would tally with the complexity of the structural sequences from the north-east quarter in pointing towards a longer period of occupation there, rather than the more compressed chronological span that might be implied by the coin evidence. Privileging the pottery and structural evidence over the coinage in this instance has the further advantage of avoiding the need to argue around the entry relating to Housesteads (Borcovicium) in the *Notitia Dignitatum*. In terms of its coin assemblage, Housesteads falls into the predominant pattern of northern frontier forts with very little or no post-Valentinianic issues. Coinage of the period 378–88 is virtually entirely absent and that belonging to the following period 388–402 is for the most part only represented by single finds when it does occur. Only at South Shields and Newcastle do the proportions of Theodosian coinage suggest that significant quantities were arriving at the fort, a phenomenon that may be related to their specific topographic situations and patterns of supply at the end of the 4th century.

Overall patterns of coin production and supply must explain the much reduced quantity of coinage present in northern frontier forts during the late 4th century. One other factor may be relevant. It is inherently likely that the garrisons at all the Wall forts steadily declined in size during the course of the 4th century as available resources were increasingly absorbed by the steady growth of the field armies, both central and regional, although it is impossible to make

any accurate estimate of the size of individual garrisons along the Wall *c* AD 400. Possible mid-4th century indications of this phenomenon have been noted in the fort at Newcastle (Bidwell and Snape 2002, 280). The evidence relating to Housesteads was noted above. This would form part of a gradual rundown in the strength of all Wall garrisons rather than the complete withdrawal of individual units.

The possibility that occupation at Housesteads continued up to the very end of the Roman period, into the early 5th century and perhaps beyond, is given added weight by the evidence for structures in the interior of the fort that can credibly be attributed to the centuries immediately following. These include sub-circular structures revealed in the north-east quarter by the 1974–81 excavations, plus traces of what may be a church and adjacent cist burial uncovered by earlier work a little further west, along the north rampart (Bosanquet 1904, 242; cf Crow 2004a, 114–18). The significance of these structures is discussed in more detail below.

The latest alterations to the buildings in the north-east quarter

The latest structural evidence from the north-east quarter was identified at the east and west ends of Chalet Range XIII, and overlying the adjacent road surfaces (Fig 11.15). At the west end of the range the chalets were adapted to form or were overlain by at least two sub-circular structures, which appear to be

associated with several walls overlying the north end of the *via principalis* (Figs 11.16–11.17). These walls reduced the road to a narrow pathway heading in the direction of the north gate postern, which was still presumably open, perhaps to give access to the spring below the crags. At the east end of XIII another sub-circular chamber was inserted in the north-west corner of the former officer's house (Chalet 1), while the flagged floor of a probable oval or keel-shaped structure was uncovered sitting over the earlier road metalling at the east end of the street between Ranges XIII and XIV. The justification for tentatively assigning these features to the early medieval period, rather than the latest phases of Roman military occupation is based on the character of the surviving remains rather than the presence of a clear assemblage of early medieval dateable material. In particular, the fact that occupation was no longer neatly confined to the well-established building ranges of the Roman fort, with structures now encroaching on to the roadways, denotes a loss of formality incompatible with a regular military regime. Moreover, this pattern of situating buildings on areas uncluttered by the collapsed remains of earlier buildings is paralleled in early medieval occupation of other Roman sites (eg Chester: *see* Ward 1994, 45–51). Similarly, the oval or sub-circular structures recorded seem to mark the transition to a different building tradition, closer to the circular houses long maintained by the rural communities of northern Britain. In this context, as noted above, it may be significant that some of these secondary chalet



Fig 11.15 Vertical view of the structure over the street between XIII and XIV, from the south.



Fig 11.16 The curving wall forming part of the latest alterations to the north end of Chalet 9. Similar features can be seen at the south end of 10 in the upper right background.



Fig 11.17 Vertical view of the latest walling and flagged surfaces at the south end of Chalet 10.

walls in Range XIII were very thick and, interestingly, although they were still fronting rectangular structures, they appear to be beginning to reflect the organic forms of upland stone-built settlements which can be traced from later prehistory through to the early medieval period. They thus form a typological bridge between the chalets themselves and the later structures discussed here.

Conversely, in as far as they can be interpreted, the oval or sub-circular structures do not resemble medieval or early modern shielings in plan. D-shaped structures, perhaps closer in form to the remains encountered at Housesteads, have been identified in the vicinity of Sycamore Gap. These could perhaps represent an earlier medieval form of shieling (Crow forthcoming). However, any morphological similarity need not imply the remains at Housesteads were also merely seasonal shelters, rather than permanently occupied dwellings, or even monastic cells, bearing in mind the possible proximity of a church.

Rather different in character were the traces of late occupation identified at the west end of Building XV in 1961 (Leach and Wilkes 1962, 86, pl xii.2). A line of three large stone blocks laid on the flagged floor of the storehouse roughly opposite the west doorway may represent the base plate for the timber superstructure of a wall or partition, perhaps similar in construction to the remains encountered over the *praetorium* at Vindolanda (see below). Areas of large, irregular stone slabs, presumably representing a flagged floor, were evident on either side. Wilkes's unpublished photo-graphs suggest one of the slabs overlay the remains of the south wall of the storehouse, implying the latter may have been levelled by this stage. The west doorway was blocked either at this stage or somewhat earlier. It is difficult to discern a coherent pattern to the features over the west end of XV, which may not have been preserved intact by the time of excavation, but a largely timber-built structure on a stone base should probably be restored.

It is conceivable there was a period of abandonment before the insertion of the sub-circular structures in the chalet range: dark loamy earth deposits were present over some of the chalet flagging, but beneath the later walls in both 9 and 1. Comparable material, containing substantial amounts of late Roman pottery, was sealed by the successive flagged surfaces of the structure on the street between XIII and XIV and beneath the revetment walls for the pathway through the north gate, while a similar layer was recorded by Bosanquet under the flagging of the apsidal building to the west. Such layers may reflect only partial desertion of Housesteads, however. As the population of the fort dwindled, parts of the site may have been allowed to decay while others remained in use. The semi-derelict areas may subsequently have been reoccupied, with settlement perhaps shifting around the site over time. The existence of any evidence for occupation in the less hospitable northern parts of the site provides a marked contrast with the late medieval and early modern

settlement, which was clustered along the level, sheltered, south-facing terrace created by the south rampart, and implies there was still a sizeable community residing at Housesteads when the northerly structures were erected. However, the structures built in the north-east quarter, in the lee of the crest of the ridge, would receive some shelter from the prevailing south-westerly winds.

The cist burial and apsidal building

The late structures uncovered in the north-east corner of the fort may be interpreted in the light of the west-facing apsidal building recorded by Bosanquet (1904, 242) further to the west and an adjacent cist burial revealed subsequently, which have been discussed in detail by Crow (2004a, 114–18; see also: *HCP*: A15). The apsidal structure was located immediately to the north of the roadway between Buildings I and VII, and partly overlying the north-east corner of Building I (Fig 11.18). Bosanquet's plan shows an apse, opening towards the east with an irregular line north and west of it, which represents the recorded extent of a flagged surface, described as 'a rude pavement of massive building stones and flags roughly fitted together'. The full curve of the apse did not survive but was reconstructed in Bosanquet's plan of the site. The overall form of the building is that of a small chapel-like structure 6m wide and at least 10m long. A photograph of this area (HWA 5057) taken by J P Gibson during the excavation shows the line of the apse with the stone surface to the west of it. The walls of the apse were said to rest directly on the stone floor, which in turn overlay a 0.20m–0.25m deep layer of dark soil ('black mud') covering the *intervallum* road surface and veranda guttering. The dark soil may represent material that has slumped from the rampart bank after the abandonment of Buildings I and VII.



Fig 11.18 Apsidal structure over Building VII revealed by Bosanquet in 1898 (*Hadrian's Wall Archive*).



Fig 11.19 The cist inserted in the water tank in north rampart sector 27 (Hadrian's Wall Archive).

Just to the north-west of the apsidal structure lies a water tank into which a cist burial has been inserted (Fig 11.19). The burial cist occupies the north-west corner of the earlier tank, which was itself probably set into the rampart bank. The tank provided an east-west orientation for the cist, which was constructed with four slabs, mostly reused Roman stones, set on edge to define a long rectangle against the north side of the tank. The remainder of the tank interior has been deliberately packed with large stone slabs and blocks. The date of excavation of the water tank and cist is not known. They are not marked on Bosanquet's plan and were presumably uncovered at some time since 1898, perhaps in 1945, when trenches were dug to trace the line of the Broad Wall foundation.

The orientation and form of the cist argue for an early Christian burial. In northern Britain cist burials are especially associated with the early Christian period, from the 4th to 8th centuries. Similar grave cists are known along the Wall to the east of Birdoswald and to the east of Sewingshields Milecastle (Crow 2004a, 115; Crow and Jackson 1997; *HCP*: A116). The close proximity of the cist to the similarly orientated structure revealed by Bosanquet and the apsidal form of the latter suggests that it too may have had a religious function, and should tentatively be interpreted as a late antique church. The substantial deposit of dark earth on which the apsidal building sat, plus the fact that it overlay the north-east corner of Building I implies that the adjacent Buildings, I and VII, must have been out of use by the time the church was erected. This would in turn suggest the structure represents a post-Roman church rather than a late 4th-century garrison chapel. Moreover the presence of the cist burial within the fort circuit strongly suggests that the burial occurred after the main period of occupation, given that normal Roman funerary practice insisted on burials outside of settlements. The burial may signify that the spot was a

focus of veneration in the early medieval period and perhaps became a religious centre for the district around the fort.

This evidence for a church at Housesteads is now paralleled by the recent discovery at Vindolanda of a small apsidal structure over the southern part of the *praetorium* courtyard (Birley *et al* 1999, 20–6). The structure was constructed of huge slabs of undressed stone (similar to the slabs used in the late surface or structure at the west end of Building XV at Housesteads), topped in some places by a single course of small, regular masonry to create a uniform flat surface, probably for the base beams of a timber superstructure. This apsidal building, like the example at Housesteads, has been interpreted as a possible church and, at the earliest, must have been constructed some years after 370. The excavators tentatively suggested it should be dated to 'around 400, or a few years later' (Birley *et al* 1999, 21). The presence of other fragments of stratigraphically late walling nearby, one with post-pad construction, implies that, just as at Housesteads, the church did not stand in isolation. The possibility of a church within a fort has also been raised with regard to South Shields (Bidwell and Speak 1994, 103–4), where a stone 'table', perhaps a Christian altar, was discovered in the 19th century, set within a dry stone recess in the north-east part of the forecourt.

Contexts: warbands, chieftains and churches

Discoveries at Birdoswald, Vindolanda, perhaps South Shields and now Housesteads, suggests that occupation continued in many of the Roman forts of northern Britain. A convincing model for the continuing occupation of the forts along Hadrian's Wall has been proposed by Casey (1992; 1994c), who argued that the frontier garrisons maintained their military character well into the 5th century, sustained by levying supplies from the surrounding rural population. This hypothesis was further reinforced by Wilmott (1997, 224–31, 408–9; 2000), in a comprehensive review of the evidence drawing, in particular, on the results of his excavations at Birdoswald. There, the south granary was apparently adapted as a hall-like structure during the latter half of the 4th century, involving the construction of a pair of stone hearths at the west end of the building overlying the stone-flagged floor which had been relaid around the middle of the 4th century. A number of high-status finds, including a gold ear-ring plus a silver coin of Theodosius I (388–95), were scattered around these hearths. The granary was subsequently replaced by two successive timber-built halls in a sequence that must extend well into the 5th century, at least, and most probably continued into the 6th century. In interpreting this evidence, Wilmott conjures up an image of a much reduced garrison, which evolved into a self-perpetuating social unit following the collapse of wider imperial authority on the northern frontier. The now

autonomous unit continued to exact the customary levies from the local peasantry on its own behalf and provided a measure of security for the surrounding district in return. This social unit may have had a strong relationship with a hereditary commander or head-man, who could have acquired the characteristics of a petty king, residing in and around his hall, which would have provided an arena for communal feasting, epic panegyric verse and gift giving. As such they would have been barely distinguishable from other warbands of the period, as vividly described in the heroic *Gododdin* poems, and may well be the precursors of such British warbands (Wilmott 2000, 17–18; Loveluck 2002, 128). However, they derived additional legitimacy from their heritage as *limitanei*, defining themselves as the standard-bearers of residual *Romanitas*, and perhaps preserving some of the symbolism and traditions of Roman *militēs*.

The vivid description of conditions in Noricum Ripense during the mid- to late 5th century, preserved in Eugippius' *Vita S Severini*, provides the best historical evidence for the survival of late Roman *limitanei* after the higher provincial and ducal administration of the Western Empire had ceased to exist (Thompson 1982, 118–24). It must be admitted that this does not paint a particularly impressive picture of the troops' resilience or effectiveness, but the purpose of the text was entirely hagiographical – designed to proclaim the deeds of the holy man Severinus. Eugippius mentions two units that continued into this period, stationed at Favianis and Batavis on the Danube, but both had disbanded before Severinus' death (*V Severini* iv, xx). He relates how the unit at Batavis despatched men to collect the pay owing to it (the unit was probably the *cohortes IX Batavorum*, which had been stationed at Passau since the early 2nd century, having moved from Vindolanda (Birley 2002, 157; Roxan 1976, 67, 73; *ND Occ XXXV* 24)). When the envoys were murdered en route, the unit realised there would be no more pay and finally disbanded (*V Severini* xx). However, much would have depended in such a situation on the initiative and drive of individual commanders and their ability to maintain the cohesion and strength of their units as the established provincial and diocesan hierarchies crumbled in the early 5th century, and to seize the opportunities presented by the new circumstances. Mamertinus, the tribune at Favianis, gave up his commission to become a bishop whereupon his unit withered away, but others may have adopted a more aggressive, martial strategy. Procopius refers to the continued existence of former Roman units in Merovingian Gaul (*Proc BG V* xii 17), which still apparently maintained their identity and cohesion in the 6th century, although these may have been units of the Gallic field army, taken over *en masse* by the Frankish authorities when Clovis defeated the last *magister militum*, Syagrius, in 486 (cf Casey 1994c, 261–2).

Another aspect of Eugippius' account merits attention in any discussion of the end of Roman frontiers. Although he makes it clear that, apart from one or two

exceptions, the Norican frontier forts no longer contained garrisons of Roman *limitanei* during the second half of the 5th century, the *castella* mentioned by Eugippius were all obviously still inhabited. Various descriptions as *habitatores oppidi*, *oppidanei*, *accolae*, *cives eiusdem loci*, *pars plebis* and *plebem* (*V Severini* xi 1–2; cf Thompson 1982, 118–19, 122), these inhabitants represent the Romanised civilian population of what were effectively fortified settlements, which managed to maintain themselves over several decades despite sustained barbarian pressure (Thompson 1982, 128–32). It is unclear what relevance this may have to the study of the northern British frontier where the recent trend has been to downplay the possible civilian element in later Roman forts, as discussed above in relation to the chalets. More information is needed regarding the origins of these fortified communities. Did the civilian population move inside the defensive circuits of the *castella* as the garrisons dwindled in size during the 4th and 5th centuries, for instance? In at least some cases, such as Eining (Abusina), the fort, or the military part of the *castellum*, was drastically reduced in size c 300, leaving plenty of space that could be taken over for civilian uses. It is likely there was more commercial activity along the upper Danube frontier to sustain an urbanised civilian population beside or inside the forts throughout the later Roman era. In contrast, other than at Corbridge and Carlisle, it is not clear that there was any similarly urbanised civilian population left on Hadrian's Wall to move inside the forts after the late 3rd century, although these well-protected sites could certainly have provided a refuge for the surrounding rural communities. Indeed activities that are clearly agricultural – such as sowing and harvesting crops – figure prominently in Eugippius' references to the Norican *oppidanei*. At any rate, whatever their direct relevance to comparable sites on the northern British frontier, the Norican *castella* certainly provide another model for sub-Roman occupation of frontier forts.

Defensibility was a further important requirement of the post-imperial Brittonic elites in their choice of central places. The Wall forts did not possess the same impressive natural defences as the hillforts favoured by Brittonic and other 'Celtic' elite communities further north, for example Bamburgh (*Dinguayroi*), Dunbar, Edinburgh (*Din Eidyn*), Dumbarton (*Al Cluith*) and Dunadd, which were often relatively restricted in internal area. Nevertheless they did provide ready-made, walled enclosures, of more than adequate size to contain the hall, which provided the focus of Dark Age lordship, plus the requisite ancillary structures, perhaps a church as well. Even in the straitened circumstances of the 5th century, the defensive enceinte could be maintained and refurbished by the kind of measures described above, namely digging additional ditches or erecting earthen banks, reinforcing the stone curtain with a rubble batter, widening the rampart and rebuilding the superstructure of the gates and towers in timber.

By the later 6th century the warband-based authorities, perhaps typified by the Birdoswald unit, had apparently coalesced into larger kingdoms such as Urien's Rheged (Loveluck 2002, 131–2). It is not possible to say which of the Wall forts might have retained significance as the process developed. However, as a general point, it is worth noting that centres located right in the frontier zone could assume far greater significance in the changed conditions of post-imperial late antiquity, no longer occupying the periphery of a Mediterranean empire, forming instead the core of newly emergent polities. A clear instance of this can be seen in Mauretania Caesariensis. Two groups of massive, quadrangular mausolea (Djeddars) perch on hills directly overlooking the former strategic highway of the provincial frontier zone, known as the *praetentura*, some 20km south-west of Tiaret. Probably built in the 5th and 6th centuries, these monuments were clearly dynastic mausolea and must have lain close to the centre of an extensive polity, which perhaps eventually controlled most of the former Roman province (Rushworth 1999; 2004). Epigraphic evidence from Altava, further west, recording the construction of a *castrum* by officials of Masuna, *rex gentium Maurorum et Romanorum* (CIL VIII 9835), may relate to the same polity or another very similar one. It is tempting to envisage Masuna's ancestors as federate chieftains established along the *limes* and fully integrated into its military apparatus (CTh VII xv 1; Rushworth 1992, 27–59, 197–229). His title points to the kind of 'dual state' that could emerge in such circumstances, drawing on the complementary resources represented by the military potential of the formerly federate Moorish tribes on the one hand and the fiscal levies and administrative skills of the Roman provincial communities on the other. If suitably scaled down, the example of the post-imperial Mauro-Roman states offers a second potential model for the continued occupation of certain Wall forts. Tribal chieftains established north of the Wall might well have an advantage in having access to a larger reservoir of military manpower than any commander of a single unit of *limitanei* could muster. The seizure of a Wall fort and absorption of its garrison into his own forces could prove beneficial to such chieftains, enabling them to extend their authority over districts of the former province to the south and conferring an aura of quasi-Roman legitimacy in the eyes of the frontier population, as well as providing an appropriately central location from which to control both territorial and human components of the dual polity.

Another factor which may be of some significance is the activity of the British church. With an almost complete dearth of historical sources, virtually nothing is known of the pattern of ecclesiastical organisation in northern Britain during the 5th and 6th centuries (Higham 1986, 274ff). Bede, writing in c 731, makes brief reference to missionary activity, long before, among the southern Picts by a Bishop Nynia (Ninian), whose see was centred on Whithorn (*Candida Casa*),

but the precise historical value of this information – which had contemporary political-ecclesiastical significance – is questionable (cf Hill 1997, 1–2), while an even later accretion of hagiographical material, focused on the same individual, probably obscures more than it enlightens. Nevertheless it seems clear that the communities of the former frontier zone were at least nominally Christian, as evinced by individuals such as St Patrick (cf Wilmott 1997, 231). This adoption of Christianity, and aura of *Romanitas* that it conferred, was one of the characteristics that defined a distinct identity for the Brittonic communities in relation to neighbouring groups such as the Anglians and Irish. In these circumstances, whether or not they were still occupied in any way, the clearly demarcated, walled precincts provided by the Hadrian's Wall forts, replete with Roman imperial symbolism, may have been as attractive to clergy of the British Church as the Saxon Shore forts were to the missionaries of the Roman Church in the late 6th and early 7th centuries (Rigold 1977) when it came to establishing churches.

Wilmott has emphasised how variable the fate of different forts may have been and also how fluid the situation in the 5th and 6th centuries probably was, with one fort site perhaps rising to prominence while another declined, before it was itself absorbed in a larger polity based around yet another centre. The two burials in the centre of the *praetorium* courtyard at South Shields suggest a possibly violent end to occupation there early in the 5th century, an indication, perhaps, of the vulnerability of its coastal location (Hodgson 1999a, 82). However, the sequence of modifications to the defences would imply that occupation continued elsewhere on the site and the fact that the suggested casualties were buried at all, after an indeterminate interval – but certainly before they became disarticulated – clearly points to a deliberate effort to tidy up the site, even if the niceties of conventional Roman burial practice were not observed. In contrast, at Binchester, occupation of the grand mid-4th-century courtyard house continued well into the 5th century and perhaps beyond, with some rooms given over to smithing and butchery in the later stages (Ferris and Jones 2000). There the sequence is closed by a mid-6th-century burial of an Anglo-Saxon woman, with her grave goods, in a shallow scoop cut into tufa and sandstone rubble that had collapsed from the roof and vault of the bath-suite.

At Housesteads itself there is no evidence of timber halls of the kind identified at Birdoswald, although such structures could conceivably exist elsewhere on the site. Instead humbler stone structures were revealed in the north-east quarter, while further to the west there is clear evidence of a burial alongside a structure that might represent a church. It is difficult to determine whether this signifies that the continued late antique occupation, or conceivably reoccupation, of Housesteads was fundamentally different in function to that revealed at Birdoswald – a monastic site, for

instance, rather than a secular stronghold. Although the character of the remains at the two sites does appear very different, it could be that we are simply viewing different parts of the same overall pattern. However, one undeniable feature of the structural assemblage at Housesteads – as demonstrated by the presence of a number of curving wall alignments in the latest alterations and additions to Building XIII – is the adoption of forms much closer to the traditional architectural idiom employed by the rural population of the northern frontier zone. Were these the dwellings of a dependent peasantry perhaps, or do they simply reflect the gradual adaptation of the chalet range by the descendants of the Roman soldiery, who were, by this stage, culturally, virtually indistinguishable from the surrounding rural population?

It has been suggested that the inhabitants of Housesteads may eventually have moved to the more sheltered site of Vindolanda and merged with the community there (Crow 1989, 49–50; 2004a, 113–14). Certainly Dark Age occupation at that site is suggested by the discovery of a penannular brooch, with parallels of 6th- or 7th-century date, over the sill of the south gate and a tombstone, found a short distance north-east of the fort, commemorating one Brigomaglos and perhaps set up *c.* 500 (Jackson 1982, 62). Moreover, as noted above, the site has produced similar structural evidence to that uncovered at Housesteads, with repairs to the defences that can have occurred no earlier than the end of the 4th century, and may have been significantly later (Bidwell 1985, 46). The recent discovery of a possible church over the southern part of the *praetorium* courtyard, tentatively assigned an early 5th-century date, emphasises the similarity with the remains encountered at Housesteads (Birley *et al* 1999, 20–6).

It is also noteworthy that the hillfort of Barcombe, overlooking *Vindolanda*, seems to preserve part of the Housesteads name *Borcovicium* (the later form of *Vercovicium* as attested in the *Notitia Dignitatum*). Crow (1989, 49–50; 2004a, 113–14) has suggested that the hillfort may have been perhaps reoccupied as a new focal stronghold for the district during this period. In the absence of excavation this cannot be substantiated and indeed the evidence for continued occupation of Housesteads itself, and Vindolanda for that matter, might argue against it. More prosaically, it may simply be an indication that the names of the fort sites, like *Borcovicium*, became attached to the wider district dependent upon the fort, and, by association, to prominent landscape features within that district.

Such continuing use of the fort names to designate the surrounding districts is suggested by the mention, in the Anonymous Life of St Cuthbert, of *Ahse* (probably *Aesica* – Greatchesters), where the local populace ‘gathered together from the mountains’ to be anointed by the saint and witness him perform a miracle (Anonymous, *Vita S Cuthberti* IV, v). The saint was journeying from Hexham to Carlisle, probably along the Military Way or the Stanegate, and halted for a

two-day stopover (*mansio tamen in media via facta est*) roughly midway along the route in the district of *Ahse* (*in regione ubi dicitur Ahse*). Confirmation of this identification of *Ahse* (first suggested by Bates 1895, 67; cf Crow 2004a, 113–14) is provided by the watch schedule included in the survey of Border defences drawn up by Sir Robert Bowes and Sir Ralph Ellerker at the end of 1541, which stipulates that two watchmen were to be stationed at each of the following points ‘... on the Wall between Walltown and Tyndale Esh, between Tindale Esh and Hautwysle-burn-head, upon Cawcragg in Hautwysle field...’ (Cotton MS Calig, B vii, fo 636; cited by Hodgson 1828, 239; 1840, 118; cf Bates 1891, 28 n 149 for the correct date). The position of Tyndale Esh between Walltown to the west and the Haltwhistle Burn and Caw Craggs to the east corresponds with that of Greatchesters, while the toponymic evolution – *Aesica* – *Ahse* – Esh – is also convincing.

Settlement patterns in the 5th to 6th centuries: central places, road networks and farmsteads

The association of the forts with distinct districts that bore their name suggests that, whatever the exact fate of individual *castra* during the 5th and 6th centuries, they remained recognised focal points within the wider landscape. They certainly lost the densely packed, almost urban character that they had still preserved in the later Roman period, but retained their role, sometimes latent, as central places, through a combination of readily defensible bounded precincts, with accessibility via the road network and the prestige conferred by a lingering aura of *Romanitas*. Even when uninhabited they might still serve as recognised meeting places and assembly points. Moreover, potentially they could always be reoccupied to meet changing circumstances. The magnificent 8th-century stone cross erected within the fort circuit at Bewcastle symbolises this phenomenon (Crow 2004a, 117; cf Bailey and Cramp 1988, 61–72; Newman 1999, 197–8). The cross may reflect the establishment of an ecclesiastical centre, such as a monastery or minster, at this time, and continuous occupation since the fort was abandoned by Roman troops in the first half of the 4th century cannot be demonstrated (although compare the possible late defensive refurbishment of the west curtain at High Rochester), but it is difficult to imagine this evocative site lost all significance in the intervening centuries. The site of Cuthbert’s stopover (*mansio*) in the district of *Ahse* need not have been located exactly at the site of the former fort of *Aesica*, but that possibility should not be excluded either (in this context it is not clear that the term *mansio* refers to a specific structure at all – and even if it did, what form a 7th-century *mansio* might take – as opposed to some kind of a roadside estate centre where renders from the surrounding countryside might be collected to be consumed by members of the

peripatetic Northumbrian elite?). Even in Scotland, where Roman occupation had been very short-lived, new centres of power may in one or two instances have been located within or alongside the remains of earlier Roman forts, perhaps Bertha (*Rathinveramon*) and Inchtuthill (Foster 1996, 46–8). The Roman remains ‘apparently created an arena for the conscious exhibition of status and authority’, and of course they were positioned on the Roman road network, which remained of vital importance in the early medieval period.

This close relationship to the road network is one of the most important factors in the continued relevance of the Wall fort sites after disintegration of the Roman province, whether as warband strongholds, ecclesiastical complexes or estate centres. It explains why even those in the central sector, like Housesteads or Greatcesters, might be able to function as estate centres despite being located in what was, agriculturally, a relatively marginal zone. Early medieval estate centres were probably not significant centres of rural population or agricultural production. They did not constitute nucleated communities of agricultural labourers like the village-based townships that supported the manorial economy of the High Middle Ages. Instead the rural population was most likely still living in widely dispersed farmsteads in the 5th to 7th centuries, as it had in the Romano-British period. The centres were convenient collecting points where the surrounding peasantry might bring their surpluses. The estates from which these renders were collected might form extensive, in some instances very extensive, land units, equivalent to the shires, or multiple estates, such as Northamptonshire or Islandshire, which figure later on in the Northumbrian kingdom. Thus it was not so vital for such centres to be located in the most favoured agricultural areas. What was perhaps more crucial in a world of peripatetic elites, whose members moved from estate to estate eating the rendered surpluses, was accessibility for the elites and their retinues, and for this a location on the principal communication arteries, the former Roman roads, was essential. In the Tyne–Solway corridor the principal roads were represented by the Stanegate and the Military Way and it is likely that estate centres were located in close proximity to these routes.

Loveluck (2002, 135–6) argues that the occurrence of Anglo-Saxon material culture reflects continuity of settlement foci at the sites of former Roman forts, albeit with some organic settlement shifts possible over time. He cites Corbridge, where the Late Roman and Saxo-Norman towns lay on separate sites and the combination of late Roman occupation, early Anglo-Saxon burial evidence and mid- to late Anglo-Saxon watermill and church demonstrate a continuous settled presence, and Binchester, where the settlement may have moved to nearby Escomb with its 7th-century church, as examples of such localised shifts. A further useful parallel is the case of Walbottle and Newburn, just west of Newcastle, which illustrates this contrast between

earlier and later centres in microcosm. Walbottle is one of a number of placenames in northern England and southern Scotland that incorporate the Old English suffix *botl*, generally translated as ‘lord’s hall’. It is perhaps the equivalent of the Latin term *villa*, which is used frequently in the works of Bede and his contemporaries to denote royal and ecclesiastical estates (cf Higham 1986, 293). This class of placename has been considered to represent an early element in Anglian placename formation, belonging to the 5th–6th centuries (but see Barrow 1998, 67–9). Other examples of this toponym in Northumberland include Harbottle, Lorbottle and Shilbottle. Walbottle is particularly interesting in this context as it has been identified with the 7th-century Northumbrian royal estate centre located close to Hadrian’s Wall mentioned by Bede (*Hist Eccles*), the *villa regia ad murum* (P Wood, pers comm). Antiquaries, from Camden onwards, have more often proposed locating this centre at Heddon on the Wall (cf Camden 1607, 218) or Pandon on the east side of Newcastle (Brand 1789, 383), but Bede’s Latin periphrasis, *villa ... ad murum*, would appear to be translated remarkably succinctly by ‘Walbottle’, while the latter’s location would accord better with his indication that the *villa* lay 12 miles from the sea. Decisive archaeological confirmation that Walbottle was a royal estate centre in the 7th century is still lacking, but, although not a former fort site, it was located right beside the Wall and therefore conveniently accessible via the Military Way. Walbottle was, of course, not a marginal location and was still occupied later in the medieval period when it was the site of a nucleated village settlement, the centre of a township (*vill*). At this stage it was part of a more extensive landholding which, up until 1204–5, was still in royal hands, but the focus of that estate now lay c 1km further south, at Newburn, right beside the River Tyne. Newburn controlled an important fording point and was clearly associated with the earl of Northumbria – the heir to the Northumbrian royal patrimony via the ealdormen of Bamburgh – by the 11th century. It was at Newburn that earl Copsig was banqueting in 1067 when he was surprised and assassinated (Kappelle 1979, 107). The two sites occupy corresponding positions, the one beside the Wall, the other directly to the south beside the river. Hence the disappearance of Walbottle as a royal estate centre and the emergence of Newburn could simply represent a shift in the centre of the estate from the line of Hadrian’s Wall down to the riverside, as it is likely that the original royal estate centred on Walbottle was at least as extensive as the later manor of Newburn.

The same refocusing on riverine locations may have been at work in the Central Sector and the adjacent stretch of the South Tyne valley in the 7th and 8th centuries, but with rather more radical consequences for the pattern of settlement. A shift may be envisaged from the former Roman fort sites down to the valley bottom or valley sides, where centres such as the ecclesiastical

complex at Hexham (Cambridge and Williams 1995, 72–3) emerge at this time and perhaps Beltingham, where there is a medieval church, and eventually the township foci of Thorngrifton, Melkridge and Henshaw. While the forts were excellently positioned with regard to the principal communication arteries represented by the Military Way and the Stanegate, they were for the most part located in the less favoured terrain of the high, exposed Whin Sill scarpland, whereas the riverine and valley bottom sites were more centrally positioned with regard to agricultural resources produced in the South Tynedale. It is conceivable that such a shift in estate centres to the most fertile and least elevated areas was associated with a reduction in population size and a contraction in the area of permanent settlement, with the uplands now being exploited through seasonal transhumance.

This strategic emphasis on the river valleys was maintained after the Norman conquest. The early earthwork castles, built in the late 11th and early 12th centuries, were generally located in the valleys, as exemplified in Tynedale by Newcastle, Prudhoe, Warden, Wark-on-Tyne, Tarsset, Haltwhistle and Bellester. Henceforth Housesteads was always to be on the margins of permanent settlement, although the fertility of the soils covering the limestone strata of the south-facing dip slope below the fort made it a relatively attractive location within that zone of marginality, probably one of the first to be settled when cultivation expanded and last to be abandoned when it contracted.

Housesteads in the medieval and modern eras

A detailed discussion of the evidence for post-Roman activity in the landscape surrounding the fort has been provided by Welfare in Chapter 10 and needs no duplication here. Instead the following sections will review the evidence for occupation within or immediately adjacent to the fort, in particular the series of farmhouses known to have existed there (Fig 11.20), and place this in the context of the agricultural cultivation and other exploitation described in Chapter 10.

The medieval period

The eventual abandonment of the structures at either end of Building XIII and on the adjacent streets brings to a virtual close the sequence of activity revealed by excavation in the north-east quarter. Two rim sherds of medieval pottery were discovered during the 1974–81 excavations, both from potentially significant locations (see Chapters 7 and 16). One was associated with the trackway over the north curtain, suggesting that this route into the fort may have already been in use by the medieval period. The other sherd was found in the rubble collapse at the west end of Building XIII beside the pathway through the former north gate postern.

Again, this points to continued use of the path, perhaps to provide access to the spring known as Mr Magnay's Bath, situated below the crags to the north of the fort, or perhaps even medieval occupation of the structure at the west of XIII. Some of the complex structural alterations to the side revetments of the pathway may conceivably date to this period. These finds also hint that there may have been some form of settlement within the fort generating such traffic during the high medieval period.

Firm archaeological evidence of any permanent medieval settlement on the site at this time is lacking. The predominant subsistence strategy in the Northumbrian uplands during this period was transhumant pastoralism. This practice, known as shieling or summering, whereby communities moved their livestock from the lowland pastures up into the hills in late spring, returning at the end of the summer, was characteristic of the Northumbrian upland exploitation during the medieval era and persisted well into the 16th and 17th centuries in many areas. While resident on high pastures the herdsman dwelt in small huts, or *shielings*, usually rectangular in form. Such seasonal activity is certainly attested in the immediate vicinity of Housesteads. A group of five such shielings stand on Kennel Crags. Two of these stood on separate terraces north of the Wall, and the other three behind the south face of the Wall, two of them butting hard up against the curtain for maximum shelter (see Chapter 10). Remains of these relatively short-lived structures may once have been much more numerous.

Nevertheless, the possibility cannot be excluded that there were also phases of permanent habitation and sedentary agriculture at Housesteads earlier than that first recorded in the 16th century. The soils at Housesteads are among the richest and most easily cultivable in the locality (see Chapter 10), and coupled with the site's south-facing aspect, make it a relatively attractive spot within an agriculturally marginal zone. Indeed its location is in no way inferior to those of Sewingshields Castle and Bradley Hall, the nearest recorded medieval settlements. Hence it is likely that, throughout this period, land use oscillated between, on the one hand, pastoralism pursued by means of seasonal transhumance into the uplands from communities in the Tyne valley and, on the other, permanent settlement based on a combination of arable cultivation and stock-rearing on surrounding pasture.

Permanent occupation is a particularly strong possibility during the climatic optimum of the 13th century, with a reversion to transhumant pastoralism perhaps occurring following climatic deterioration, population decline and economic recession in the 14th century. As described by Welfare in Chapter 10, the surviving earthwork remains of arable cultivation in the area around the fort are extremely complex, with many periods and phases represented. A similar picture was presented by the excavation north of the present farmhouse undertaken by Crow in 1987 (see Chapter 10).

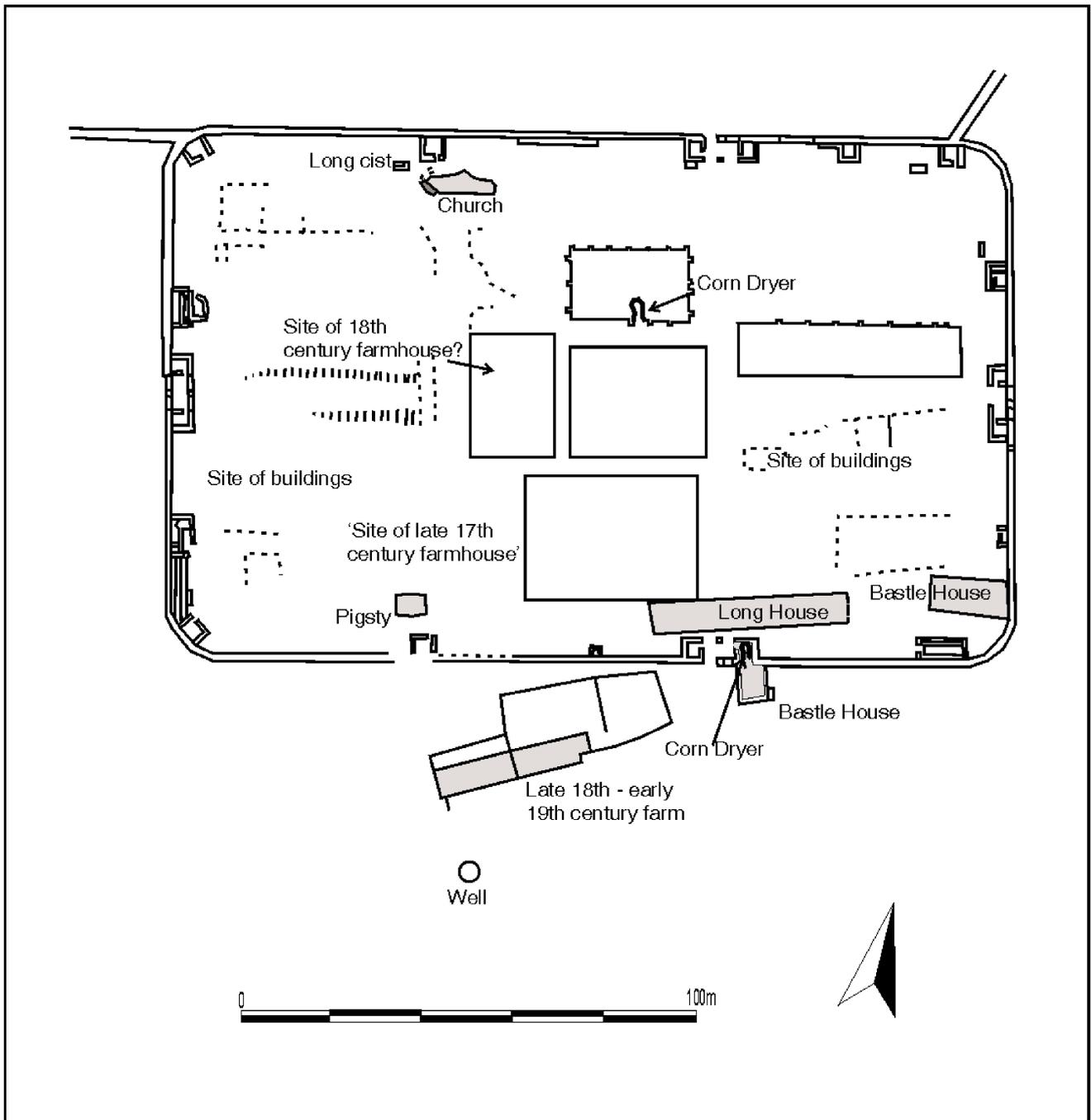


Fig 11.20 Post-Roman buildings and other structures at Housesteads.

To the north of the original terrace revetment, constructed during the Roman period, a stone-clearance mound was revealed, probably representing medieval or later reuse of the terrace. Certainly there is scope for a medieval episode within the complex palimpsest of cultivation phases apparent on the hillside.

The longhouse

Situated immediately to the north of the south gate are the remains of a longhouse. This was clearly a sizeable structure, much larger in ground plan than the bastle outside the south gate. The west end of the building,

wedged between the west tower of the south gate and the south-east angle of the *praetorium*, is the easiest part to recognise today. The consolidated masonry of the west, north and south walls survives there up to three courses high, and comprises a rubble infilling faced by long blocks laid end-to-end. The latter have obviously been robbed from the south wall of the *praetorium*. The north wall cuts across the corner of the *praetorium*. The central portion straddling the *via principalis* was removed in 1936, but further east the longhouse platform can be seen to continue, its southern edge marked by a scarp well to the south and on a different alignment to that of Barrack Block XVI.

The south-east corner of the building, featuring massive boulders used in the footings, is shown in two of Simpson's excavation photographs of Rampart Area 23. The position of this corner relative to the Roman rampart-back structures would give the building a total length of *c* 40m. Much of the south wall can be traced on the 1st edition Ordnance Survey of *c* 1860, and all but the east end of the building on Bosanquet's plan (Bosanquet 1904). The longhouse is aligned at 90 degrees to the bastle (slightly out of skew with the gate passageway and *via principalis*). Occupation of the two doubtless overlapped chronologically, but it is likely that the bastle was laid out in relation to the longhouse rather than vice versa.

Of the various farmhouses known in or adjacent to the fort, the longhouse is the only one to which a medieval date might plausibly be applied. The position of the longhouse, straddling the south entrance to the fort, suggests a primary site with later buildings added in front, and to either side. Moreover its masonry is very mixed and of poorer quality than that of the bastle, which has careful quoining, carved door jambs and relatively regularly sized masonry typical of that class of dwelling. This may point towards construction during the earliest 'pioneer phase' of the 16th/17th century settlement or even, conceivably, during the high medieval era.

The building was probably already derelict and out of use by the early 18th century as it does not figure in Stukeley's sketch and would not have been required once the farmholdings at Housesteads were consolidated into a single tenancy. The central portion of the building, straddling the *via principalis*, was completely removed by Birley in the 1930s (Birley 1937–8), in the mistaken belief that it was only of 19th-century date. The east end had already been revealed by Simpson in 1911–12. The visible remains of the west end were probably fully uncovered and consolidated during the work on the commanding officer's house in 1967–9.

Despite its partial removal in the 1930s, the longhouse remains one of the best surviving structures associated with high medieval and early modern phases of occupation within the fort and the only one to preserve substantial archaeological deposits. Most archaeological evidence relating to these periods within the fort had already been removed by earlier excavation, in most cases with only minimal recording. Excavation of the surviving longhouse deposits might reveal whether this formed the primary site in the 16th-century resettlement, and whether that in turn represented a reoccupation of a medieval structure.

The early modern period

Documentary evidence

The documentary history of Housesteads resumes in the mid-16th century. The earliest reference to the area is contained in the schedule of the Border Watch,

set out in Bowes and Ellerker's Border Survey of 1541 (reproduced by Hodgson 1828, 239–40; cf 1840, 118.). There it is stated that two watchmen were to be stationed between Caw Gap and Knagburne Head. Knagburne Head must be the valley of the Knag Burn. The name *House steads* first appears later in the 16th century, when it was in the hands of Nicholas Crane of Bradley Hall, but the site also appears under the name 'Chesters in the Wall near Busygap'. In 1568 Hugh Crawhawe (Crowhall) held Housesteads ('Hawsteads') along with many other properties in Thorngraston township, including Bradley Hall, Crindledykes and Crowhall itself (*Feodary Book* reproduced in Hodgson 1835, lxviii; cf 1840, 329). These two freeholdings were still recorded in the 1604 Border survey (Sanderson 1891, 56–7). Nicholas Crane of Crowhall settled these or similar properties on his daughter as part of a marriage settlement in 1615; and in 1629 one George Nixon acquired a long lease at Housesteads from Hugh Crowhall (NRO 2219.70). The farmland at Housesteads was subdivided between a number of tenants. The continued existence of two tenancies later in the 17th century, both held by members of the Armstrong clan, is demonstrated by documents of that date preserved among the Clayton deeds at Northumberland Record Office (NRO 2219.70), where one Armstrong holding is explicitly described as 'intermixing dale by dale' with another's tenement.

At this time Housesteads location in the Anglo-Scottish Borders was again centred in a zone of lawlessness, on the margins of the civilised world. As the earliest documentary reference to the vicinity of Housesteads ('Knagburne Head') demonstrates, the line of the Wall was once again a line of observation and early warning, though not a military barrier, an interesting partial resumption of its former purpose. Indeed, a number of paper schemes for linear Border defences were proposed in these years. The key factor of course was the splendid vantage point provided by the line of the Whin Sill crags.

Such benefits only applied during daylight, of course. Lacking the barrier provided by an intact Wall the night watch descended to the valleys, to the fords which provided the choke points that raiders would have to traverse. The numerous shielings along the central crags could have provided shelter for 'the watchers'. The examples standing on the north face of Kennel Crags, for example, would have been well suited for such a purpose, as well as the more mundane role of accommodating inhabitants of the Tynedale townships summering with their livestock in the uplands.

The Union of the Crowns with the accession of James I in 1603 brought about an overall improvement in security on both sides of the Border as the royal government sought to break up the reiver surnames and transform the region into the 'Middle Shires' of a united kingdom. However, for the districts along the central sector of the Wall these actions may have been counterproductive. As Bosanquet notes 'dislodged

from the Liddesdale and the northern fells of Cumberland, broken Nixons and Nobles and Armstrongs shifted to the uplands south and east of Bewcastle' (Bosanquet and Birley 1955, 168). So denuded of manpower were the Tynedale manors that landowners were apparently willing to accept any prospective tenants regardless of their reputation. This depopulation had earlier been commented on by the Border commissioners, Sir Robert Bowes and Sir Ralph Ellerker, in 1541: 'from a place called Walwick westward unto a place called the Walltown there be diverse townships and hamlets that were in times past inhabited, now lying desolate and waste'.

In 1604 one resident of Housesteads, Hugh Nixon – presumably a relation of the George noted above – is recorded as a stealer of cattle and receiver of stolen goods in the Lord Howard's *Household Books* for the Dacre estates around Gilsland (Ornsby 1878, 445, 458). In 1620 he escaped from Newcastle gaol. Later in the century the activities of the Armstrongs gave the area a fearsome criminal reputation. Established at the nearby bastle farmstead of Grandy's Knowe, the family is also recorded as tenants and briefly as freeholders at Housesteads from 1663 onwards (NRO 2219.70). They operated as horse-stealers, ranging as far north as Perth and as far south as the Midlands (Bosanquet and Birley 1955, 168). Roger North, recounting events *c* 1680, when his grandfather Francis North, the Lord Chancellor, traversed the region, describes the clan as 'a great nuisance in the county, frightening people in their houses, and taking what they liked' (1742, 139).

Despite their illicit sideline the lineage was apparently in financial difficulties from 1688 onwards. Although Nicholas was able to purchase the freehold of his farm in 1692, Thomas and William sold their holding to John Mitchelson in 1694. Nicholas finally gave up the struggle in 1698 when both tenements were then purchased by Thomas Gibson of Hexham in 1698 (NRO 2219.70). Gibson subsequently conveyed the property to his eldest son George in the same year.

However, the Armstrongs remained at Housesteads as tenants for a few more years and it is possible that the links of patronage and clientship between Gibsons and Armstrongs were more complex than might first appear, despite the latter's unsavoury reputation. Certainly both George Gibson and Thomas Armstrong, known as 'Luck-in-a-bag', participated in the 1715 rebellion although their motivation may have been different; Gibson because his family was Catholic, Armstrong perhaps because it provided an opportunity for looting. Gibson was to die in prison after his trial and condemnation for treason the following year (Hodgson 1840, 394; Hope Dodds 1940, 163). Of the other members of the Armstrong clan, Nicholas was hanged in 1704, and the remaining brothers emigrated to America, all having been involved, as hired thugs, in a vicious feud between various members of the local gentry over tenure of the potentially lucrative post of county keeper (*see* Hodgson 1840, 334–5).

It was doubtless the notoriety of such border thieves (*'praedones limitanei'*), as Camden and Cotton termed them, which kept Housesteads largely hidden from view of antiquaries until the beginning of the 18th century (*see* Chapter 1).

The farmhouses

Within and immediately adjacent to the fort, evidence for the late medieval to early modern phases is best represented by the succession of farmhouses.

Bastles

As discussed above, the longhouse immediately inside the south gate may have originated in the medieval era, but even so it almost certainly remained in use in the 16th century and probably into the 17th century. More characteristic of this period are the two-storey defensible farmhouses now usually termed bastles. These were designed to provide secure shelter for livestock in a ground-floor byre with living accommodation on the floor above. Two such structures can be identified at Housesteads. One can still be seen in front of the south gate of the fort. A second example, now vanished, can be restored in the south-east angle of the fort on the basis of antiquarian sketches and the 1st edition Ordnance Survey map.

The south gate bastle and corn-drying kiln

The remains of the bastle standing in front of the south gate are attached to the south face of the east guardchamber (*cf* Ramm *et al* 1970, 82–3; Ryder 1990, 11–12; Whitworth 1990; Welfare *nd* unpub). This would originally have been a two-storey building, the lower floor serving as a byre, where a few livestock could be securely housed, with the living quarters located at first-floor level, and no direct connection between the two. In this case only the ground floor survives. Unusually, the east guardchamber was incorporated to form a second room. The original Roman door giving direct external access into the guardchamber has been blocked up and replaced by a connecting door inserted in the south wall of the chamber. The walls of the main room range in height between 1.20–2.60m – with 13 courses surviving where the east wall abuts the south wall of the fort – and are up to 1.20m thick. The coursing is rougher than that of the adjacent fort defences and reuses much Roman stonework.

The ground-floor doorway lies on the west side and features a single rebate and well-made chamfered jambs, quite distinct from Roman work, plus holes on each side for a locking-bar. The connecting door, inserted to provide access into the guardchamber from the main room, is similar in design but lacks the locking-bar holes. A merlon capstone, chamfered on three sides, is lying in the entrance from the bastle house to the corn dryer, used as a stepping-stone by visitors.

Narrow, internally splayed loop windows or vents survive in the south, east and west walls of the principal room. A similar loop is visible in the north wall of the guardchamber. Irregularity in the coursing above, and especially to the east of the vent, suggests this wall may have been partially rebuilt when the loop was inserted. Part of a Roman window head can be seen reused as the bottom sill of the vent in the west wall, south of the main doorway. The main room has a flagged floor. Within the guardchamber there is a corn-drying kiln entered from the main room. The surviving structure, characteristically, resembles an inverted cone, battering outwards to an internal diameter of 1.4m and a height of 2.4m.

The entrance to the upper floor was reached by a stairway, rising from the south, set against the east wall of the bastle. This stairway is a secondary addition since it partly blocks the wall-vent on this side. Only eight steps survive, the northern half of the stairway having been removed, probably by Clayton since no steps are shown on Hodgson's plan, but they are marked on Bosanquet's overall site plan (1904, pl 19). A base of rubble packing underlay the stairs and extended up to and over the partially collapsed remains of the south curtain. Three flagstone slabs, set on top of the south curtain wall of the fort, are probably the surviving remnants of a wide apron of paving recorded by Hodgson. On his sketch plans (reproduced by Birley 1937, as fig 3; Fig 11.21 here), this 'rude pavement of broad stones' is shown extending east of the guardchamber and southward over the line of the curtain wall, continuing part way down the east side of the bastle. Fragments of this flagging can also be seen in a Simpson photo of the south curtain excavations (FGS 8/41). It was evidently laid on the terrace formed by the south rampart bank and would have been accessed from the south by the stairway. Another 'flight of five rude steps' is shown on Hodgson's plans leading up to the drying kiln from this flagged area. It is unclear whether these steps formed part of the entrance to the bastle or are later in date and simply gave access to the head of the kiln. A stone feature, still visible adjoining the fort curtain to the east of the guardchamber might represent earlier steps leading up to the curtain wall, but could equally represent a revetment of some kind belonging to the Roman period. No trace now survives of the oven also shown on Hodgson's plan, apparently over the north-east corner of the guardtower. Hodgson's description resembles that of a Roman bread oven, but, if accurately positioned on the plan, the oven must be relatively recent, perhaps broadly contemporary with the drying kiln.

Bastles are generally thought to have been built in the late 16th or early 17th century, based on the evidence of the surviving date stones from such buildings, but earlier examples are recorded in mid-16th century documentary sources, such as the 1541 Border Survey, denoted by the more common contemporary designations, 'pelehouse' or 'stonehouse'. The south gate bastle

is smaller than the one recorded at the south-east angle (*see below*), but resembles it in having its ground-floor entrance midway along a side wall, a feature also encountered at Bradley Green and Grandy's Knowe (cf Crow 2004a, 125; Woodside and Crow 1999, 71). Lower doorways in this position have been taken as a mark of higher status when found elsewhere (eg Low Cleughs in Redesdale and High Carry House near Birtley), but in this case the feature is more likely to denote a localised building style. These bastles may represent a group of buildings constructed by a particular community such as the Armstrong clan or, more plausibly perhaps, an individual landowner such as Nicholas Crane or Hugh Crowhall.

Two further structural phases can be identified. In the first, marked by the addition of the stairway along the east side to provide permanent access to the upper level, the building was still used as a dwelling, albeit a rather less defensible one. The apron of flagging against the north-east corner was perhaps also laid during this phase. However, the bastle must already have been abandoned by the time the drying kiln was inserted in the guardchamber, although the adjacent longhouse could conceivably still have been occupied. The kiln is presumably associated with the later Housesteads farms and cannot have been built much before the end of the 17th century at the earliest. The bastle itself was almost certainly already derelict and uninhabited by the early 18th century, as it does not figure in Stukeley's drawing of the site in 1725 (1776, 61, pl lxxvi) and would not have been required once the farmholdings at Housesteads were consolidated into a single tenancy, centred on a new farmhouse. Hodgson's 'five rude steps' leading up from the paved area could belong to this phase, providing access to the head of the kiln. The kiln itself was certainly out of use by the early 19th century, since Hodgson assigns it a Roman date in his history (1840, 186) and had evidently seen no trace of it in 1822, before his excavations in the area.

The bastle was first investigated by Hodgson in 1830–31 (1840, 186), who provided an invaluable plan (*Journal Z*, 267 and 1834 lecture notes; reproduced by Birley 1937, 183, fig 3, and *see* Fig 11.21). The interior was completely emptied by Clayton in 1852 (Bruce 1853, 185) and re-examined by the Durham University Excavation Committee in 1931 when the wide apron of paving on the west side of the bastle visible in early illustrations and photographs was removed to reveal the underlying Roman street surfaces (Bruce 1867 fol p 146; cf Birley and Charlton 1932, 234). It was presumably at this stage that the underpinning of small stonework now visible sandwiched between the flagged roadway of the *vicus* and the massive footings of the bastle was inserted. The kiln was cleaned out by Bosanquet in 1898 (1904, 282–5). The external stairway, having probably been uncovered by Clayton and planned by Bosanquet, was then buried by a 1.30–2.20m wide, turf-covered, retaining wall, which

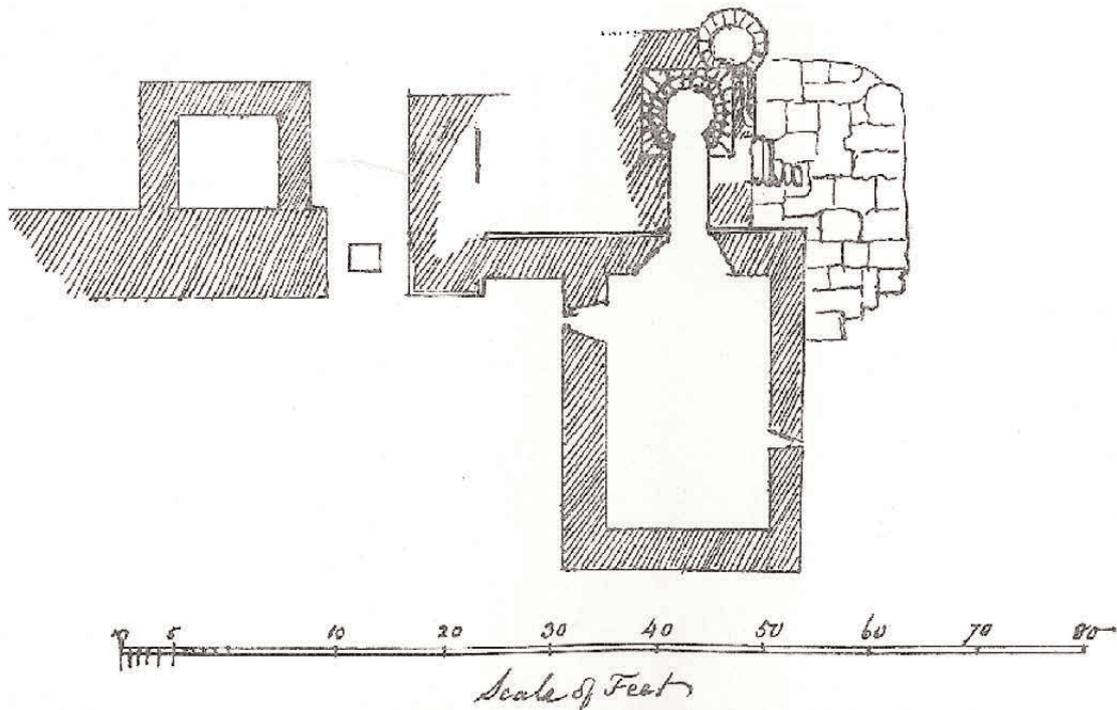


Fig 11.21 Hodgson's plan of the bastle beside the south gate (Birley 1937, fig 3).

extended the length of the bastle east wall to its junction with the south curtain of the fort and remained until 1986. The drying kiln was dismantled and then reinstated by the Ministry of Works in 1956 to allow the guardchamber walls to be consolidated (Anderson, *Housesteads I*, 173–180). In 1984 the custodian's hut, which had been located inside the main room of the bastle, was removed to enable the interior walls to be better seen. A detailed drawing programme to record the surviving stonework of the bastle and south gate guardrooms was carried out by A M Whitworth before and after consolidation of the bastle walls in 1986 (Whitworth 1990; *EH Historic Plans NS 307, AS 5/4–21*). The east retaining wall was removed during this consolidation to expose the stairway and the east wall.

The south-east bastle

A second possible bastle can be identified in the south-east angle of the fort. No remains of this structure survive today and it must be entirely reconstructed from the description and sketches provided by the antiquary Roach Smith (1852), after a brief visit to Housesteads in 1851, plus the evidence of the 1st edition Ordnance Survey. Roach Smith sketched a building 'on the eastern side of the interior of the station', at that stage roofless but still in use as a sheepfold (Fig 11.22). Birley (1937–8) argued this was the longhouse (*see above*), to which he erroneously applied a 19th-century date, but the 1st edition Ordnance Survey 1:2500 map (*c* 1860) marks a rectangular 'sheepfold' in the south-east angle (Fig 11.23). This position accords remarkably well with Roach Smith's view of the building, allowing for an exaggeration of topographical

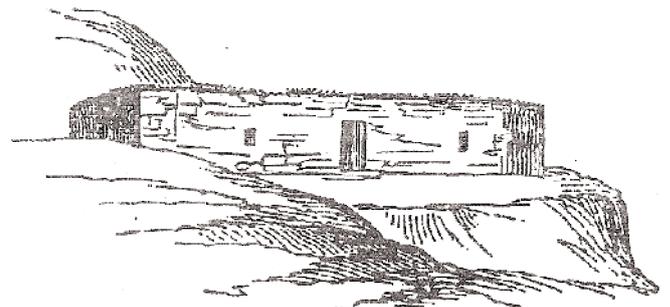


FIG. 1.

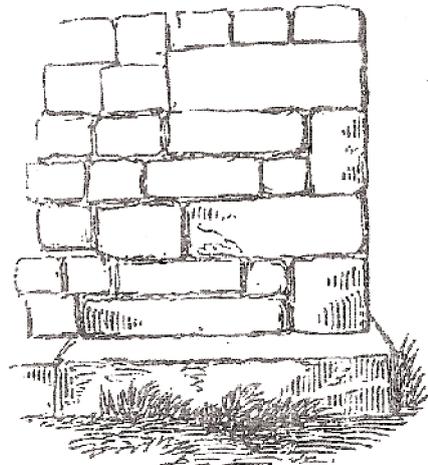


FIG. 2.

Fig 11.22 The remains of the bastle in the south-east angle shown in sketches by C Roach Smith.

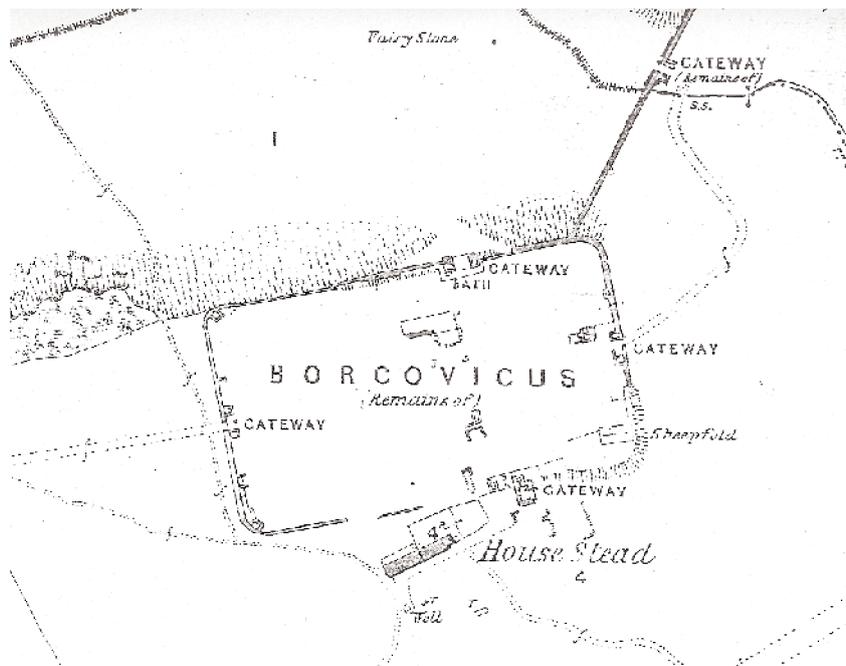


Fig 11.23 The 1st edition 1:2500 Ordnance Survey showing the fort in c 1860, including the remains of the south-east angle bastle ('sheepfold').

height usual in such depictions. The terrace on which it stands is simply the ramparts of the south-east angle, with the curtain obscured by collapsed material, just as the OS map indicates.

Roach Smith's sketches contain some revealing details. The main view shows the south wall of the apparently single-storey building with a door midway along and a single tiny window on either side. A second sketch details the masonry at one angle of this building, showing that it incorporated large quoins. The OS map also shows a wall running WSW from the north-west corner of the building towards the north-east corner of the longhouse.

This structure is most convincingly interpreted as a second bastle belonging to the 16th- to 17th-century hamlet. The windows are probably vents of the kind that can be seen in the south gate bastle, which also has its ground-floor door in one of the longer side walls. Large quoins are also characteristic of bastle construction. It is no surprise to find two bastles at Housesteads since they are very often found in groups.

Its omission from Stukeley's sketch suggests that, like the south gate bastle and longhouse, this building was probably no longer being used as a dwelling by 1725 and was regarded as being of no significance. By 1851 its upper storey had gone, again like the south gate bastle, and it was serving as a sheepfold. It was presumably completely removed by Clayton at some point after c 1860, leaving no trace. Such lack of foundations would again be characteristic of a bastle. The fact that without Roach Smith's mid-19th-century report and the contemporary Ordnance Survey map, we would be entirely unaware of the existence of this structure is a salutary reminder of just how easily substantial post-Roman buildings can vanish from the record.

This archaeological picture of a small hamlet, rather than a single farmstead, within the fort, accords with the evidence presented by the documentary sources. The latter imply there were at least two households and farm tenancies, intermixed 'dale by dale', at Housesteads in the 16th and 17th centuries. The dwellings sit in a line, sheltering under the hillside, on a terrace formed by the collapsed material of the south ramparts, as shown by the Roach Smith sketch. An apron of paving, laid on this terrace is depicted on Hodgson's plan of the bastle, on the east side of the south gate bastle, and can also be seen on one of F G Simpson's excavation photos. A further building on this terrace, excavated by Bosanquet and labelled by him 'the seventeenth century farmhouse' lay to the west of the longhouse and might belong to the latter stage of this period, but a later date is also possible (*see below*).

The agricultural landscape

The sequence of farmhouses described above must be associated with some of the traces of cultivation evident in the surrounding fields described in Chapter 10. The penultimate phase of ploughing identified by the RCHME survey took the form of broad ridge-and-furrow running up and down the lower slopes to the south-east and south-west of the fort, that to the south-east featuring prominent west-facing scarps. This cross-contour ploughing may be tentatively associated with the late medieval and early modern settlement, although the date of the transition between this phase and the subsequent pattern of broad ridge-and-furrow, which followed the contours, cannot be determined.

In addition to the principal field systems and ridge-and-furrow noted above, many other extant features that are presumably associated with some phase of agricultural exploitation are shown on the RCHME survey, for example several circular enclosures that may represent stack stands or abandoned sheep stells. Small structures like these are notoriously difficult to date with any exactitude, but most likely belong to the main phase of agricultural exploitation between the 16th and 18th centuries.

The Gibson tenure – the 18th to early 19th centuries

Inclosure and improvement

Over the course of the 18th and early 19th centuries the landscape around Housesteads underwent a transition from a mixed farming regime, based on arable cultivation and rearing stock (mainly cattle) on rough common pasture, to a purely pastoralist one centred around rearing sheep on pasture that had been improved by drainage and liming. This was made possible by a series of events. The elimination of the last vestiges of reiver culture with the acquisition of Housesteads by Thomas Gibson in 1698 and the subsequent introduction of new tenants to replace the Armstrongs, opened up and normalised the area. Construction of the Military Road in the middle of the 18th century improved communications within the upland Wall corridor, bringing adjoining farms, like Housesteads, firmly within the wider market economy and thereby justifying agricultural improvement (Lawson 1966; 1973). The road was certainly promoted by local landowners with an eye to more than just the security of the realm. Enclosure of the open, commonland pasture around Housesteads followed in 1797 and fieldwall construction to divide up the landscape was soon in full swing, along with drainage work to improve the pasture, as the antiquarian accounts attest. A detailed analysis of the evidence for these processes, based on the field survey of the environs of the fort conducted by the RCHME in the 1980s, is provided in Chapter 10.

Arable cultivation was still being energetically pursued in the earlier decades of the 18th century, as the reports of Hunter, Stukeley, Horsley and the like amply demonstrate, the former graphically recording the discovery of an altar ‘having been tore up by the Plough’, for example (Hunter 1704, 1131). The ploughing of which these sources speak is probably manifested on the ground today by the pattern of broad, gently curving ridge-and-furrow, which follows the contours of the hillside south-east of the fort and represents the latest phase of cultivation identified by the RCHME survey (see Chapter 10). This broad rig partially reuses the earlier, Roman terraces but also cuts obliquely across them in places. Also representative of this final period

of arable cultivation are the two corn-drying kilns in the east guardchamber of the south gate and in the south granary. The former led off the main ground-floor room of the bastle, filling the chamber, which had clearly previously served as a second ground-floor room of the building, and it can only have functioned once the bastle had ceased to be used as a dwelling. Both kilns were obviously disused when Hodgson described them in the 1820s, for he appears uncertain as to their exact purpose and even ascribes a Roman date to them in his later work (1840, 186–7).

In addition to the Military Road, features associated with the phase of improvement include the field-walls, which are now considered such a ‘natural’ part of the landscape around Housesteads. Hodgson mentions a good deal of field-wall construction in the early 19th century and it is clear that none of the present field boundaries on the farm can pre-date the construction of the Military Road, since they are all aligned to run at 90 degrees to it, and in fact they all probably post-date the 1797 Inclosure Act (Inclosure Award and Map, NRO). The walls were in place by *c* 1860, however, when they were marked on the 1st edition Ordnance Survey map.

Earlier accounts mention hedges both inside and outside the fort and occasionally walls formed by the clearance of stonework from the fields. Stukeley describes one such in the valley bottom south-east of the fort with altars and ‘*basso-relievos* ... all tumbled in a wet meadow by a wall side, and one on top of the other to make up the wall of the close’ (1776, 61). It is shown in the middle ground of Stukeley’s sketch at the foot of Housesteads hillside. In some cases the hedge lines can be identified as surviving stony banks. One example runs diagonally across the length of Building XVI, and may well be a hedge inside the fort referred to by Horsley. A small building is attached to the north side of this feature at the west end of Building XVI (see below). The linear bank continues beyond the east gate heading north-east towards the Knag Burn (this too features on Stukeley’s sketch), where it meets a fragmentary wall along the burn (the eastern boundary of the holding up to 1853). Other hedge lines meet these two roughly at right-angles to enclose a sub-rectangular field. Such features are related to the early modern exploitation of the site and some at least may pre-date the 18th century. Thus the field-wall at the base of the hillside recorded by Stukeley and others was probably designed to keep livestock in the wet meadow to the south out of the crops on the hillside above.

The building of the road and such extensive lengths of walling, plus field drains, demanded large quantities of building stone, which, for probably the first time since the 4th century, could not be met simply by robbing stone from the Roman frontier monuments (though the latter practice was certainly still employed). Many of the extensive traces of quarrying that are visible on the ridges south of the fort and have

been recorded by the RCHME, must date to this period as old Roman workings were reopened and new ones cut. Some of these are recorded on the 1st edition Ordnance Survey (1860), but this map presents only a very partial picture and the surviving remains exhibit numerous phases of extraction, small in scale and sometimes associated with particular tracks and hollow-ways, notably along the ridge north of the Military Road. The line of four small shafts roughly midway between the *mithraeum* and the Military Road should probably be assigned to the later 18th to early 19th century, when coal was being sought on an increasing scale to fuel the lime kilns required for agricultural improvement.

Settlement during the Gibson era

After 1698 the settlement pattern at Housesteads changed from a small hamlet to one of a single farmstead, with a corresponding reduction in the resident population, as the previous farm-holdings were amalgamated into a single viable tenancy by Gibson. This farmstead periodically shifted position around the hillside.

17th/18th-century farmhouse(s)

The new arrangements were documented by antiquarian visitors to the site in the early 18th century. Thus Sir John Clerk found only 'a single family of poor people' inhabiting the site in 1724 (E Birley 1962, 239). Their dwelling was depicted in a sketch of the fort in 1725, drawn by Stukeley and published 50 years later in the detailed account of his 'Iter Boreale' (1776, 61, pl lxxvi).

The single, centrally located farmhouse shown in Stukeley's view (Fig 11.24) was quite possibly built by Gibson after 1698 to replace the earlier buildings in the southern part of the fort and serve the needs of the consolidated tenancy. There are no visible traces of the farmhouse today, the only information being that provided by the sketch itself and the results of Bosanquet's excavations in 1898. Stukeley depicts a fairly substantial gabled building, aligned roughly north-south and probably of two storeys, plus a rear extension to the west furnished with two chimneys. The farmhouse appears to be located in the west-central part of the fort, perhaps over the site of the hospital. This was supported by Charlesworth (1975, 17; 1976, 17), the hospital's excavator, although no firm evidence was presented, and has been generally accepted since (cf Crow 1989, 50; 2004a, 9, 129). This would place the farmhouse in fairly close proximity to the corn-drying kiln in the south granary.

However, there is some uncertainty as to the exact location of this dwelling. Bosanquet identified the remains of what he termed the 'seventeenth century farm house' overlying the south-west angle of Building XI and the south-east angle of Barrack VI, that is down on the level south rampart terrace just west of the long-house and other earlier buildings (1904, 239). There clearly was a building in this location; Bosanquet states that its foundations were exposed by the excavation. Moreover, he equally clearly considered that these remains represented the farmhouse in Stukeley's sketch (1904, 198). Unfortunately he did not include a plan of the foundations on his overall plan of the fort so it is not possible to assess how closely it resembled the building layout depicted by Stukeley. Finally, although

A Cumulus of Roman Antiquities at Housesteads.



Fig 11.24 Stukeley's sketch of Housesteads in 1725, showing the farmhouse inside the fort.

Bosanquet notes that the hospital was more completely destroyed than any other of the central buildings, he evidently did not find any trace of a more recent structure overlying it. He did, however, uncover convincing evidence, in the shape of a paving slab from the *principia* forecourt found in the remains of the 'seventeenth century farm house' (1904, 211), that stone had been robbed from the central part of the fort for reuse in the latter building.

The foundations uncovered by Bosanquet may represent the same farm as that depicted by Stukeley, allowing for a degree of inaccuracy quite possible in a sketch of this sort, but the alternative possibility that there were two successive farmhouses, a mid- to late 17th-century one and a more northerly, early 18th-century example, cannot be entirely excluded either.

Stukeley's sketch shows a gap in the south curtain that corresponds to the present vehicle entrance, just south of Buildings IX and XI. This probably served as the means of access to the farmhouse(s). The sketch also shows a small building, perhaps a barn of timber construction, to the east, between the fort and the Knag Burn. No trace of this is known.

Corn-drying kiln in the granary

Midway along the south side of the south granary are the consolidated remains of a well-preserved corn-drying kiln. This has the funnel-shaped form and key-hole plan typical of such structures. It is set against the east face of the late Roman cross-wall and opens to the south. Today it appears to be a freestanding structure, but when first built it would simply have been set into the conveniently solid bank provided by the collapsed remains of the south granary. Nevertheless the exterior is partially faced as well as the interior.

The kiln probably dates to the late 17th to 18th century, contemporary with the farmhouse shown in Stukeley's sketch, and may conceivably have replaced the example in the east guardtower of the south gate. It was certainly disused by the time Hodgson described it in the 1820s (1822; 1840, 186). The debris of the collapsed granary superstructure surrounding the kiln was cleared by the National Trust in 1931–2 and its stonework subsequently consolidated by the Ministry of Works in the late 1950s or early 1960s (shown by photographs HWA 5138 (c 1895), NRO C8/58 (1898)).

The later 18th-century farmhouse and the well south of the fort

The farmhouse within the fort had been demolished by the later 18th century and replaced by one located immediately outside the fort, just to the west of the south gate. The precise date of construction is uncertain but it must be after 1725 and was already in use by the time of Brand's visit in 1779 (Brand 1789, 610). Details of his description accord with those of Hutton (1802, 237) and Skinner in 1801 (Coombs and

Coombs 1978, 37), who clearly locate the farmhouse and indicate it stood alone. The farmhouse still figures on MacLauchlan's map c 1853 (1857) and on the 1st edition Ordnance Survey c 1860, but had been demolished and replaced by the present farmhouse by 1863 (Bruce 1863, 129).

Little survives today of this farmhouse. Only a bank of rubble cut by a robber trench can be seen running north-west from the site of the house's west end toward the fort. However, its appearance can be reconstructed from antiquarian descriptions and mid-19th-century maps and pictorial sources. The cottage is the main subject of a Richardson watercolour of c 1850. It is also visible in H B Richardson's watercolour of the east gateway (Laing Art Gallery – Richardson Collection G 3395) and in the pen and wash sketch of the south-west angle of the same date, preserved in Bruce's interleaved copy of the 3rd edition *Roman Wall* at South Shields Museum Library (HWA 6627). These reveal a two-storey house with a chimney at either end plus a stone lean-to shed against the west wall and a single-storey, gabled building (a byre?) attached to the east. This picture is confirmed by the 1st edition 1:2500 Ordnance Survey map, which shows a single range orientated south-west to north-east and divided into two units, plus attached paddocks to the north and north-east. Internally, Brand and Hutton describe a fine altar to Jupiter (*CSIR* 42; *RIB* 1586) being used as a jamb for the mantelpiece (Brand 1789; Hutton 1802). The stone had earlier been recorded on Chapel Hill (Hunter 1704, 1131, no. 4; Horsley 1732, 219, no. xxxvi).

More apparent are the remains of the well, built in a convenient location immediately south of the farmhouse. A circular drystone wall, resembling a small sheep stall with no entrance, stands a short distance south of the fort, midway between the present farmhouse and the *vicus* buildings. Within the walled enclosure a well-head is still visible as a setting of blocks. The shaft, now filled in, was said by Hodgson to have been dug through two yards of soil and three of very compact whinstone (1822, 268–9). Its upper section was faced with Roman stone robbed from the site. Bruce (1863, 130) states the well was dug by William Magnay, the tenant resident at Housesteads during the later 18th century (Haltwhistle Church Wardens Accounts 1718–92: NRO 65/41 – 1777). His family were also said by Hodgson to wash in the spring-fed stone basin on the north side of the crags, since labelled 'Mr Magnay's bath' (1840, 187).

Structures over Building XVI

A small rectangular building can be identified through aerial photography (CUCAP CLY 13 and K17 X5 = Frere and St Joseph 1983, pls 34–5) at the west end of Building XVI. It is attached to the north side of a linear bank – presumably a hedge line or wall – which runs diagonally across the length of Building XVI from a point midway along the west wall to the north-east angle. These features can be traced on the ground as

low stony banks. The line of the hedge bank resumes beyond the east gate heading north-east towards the Knag Burn.

Neither the building nor the hedge-line are shown on the plan of the 1898 excavations or any earlier maps. The hedge may well be one inside the fort referred to by Horsley (1732, 224) and is clearly associated with the group outside the fort to the east (*see* Chapter 10). The small attached building was presumably in use at some stage during the 16th to 18th centuries.

Robbing of the Roman structures

The construction of all these dwellings must have resulted in much stone-robbing to provide building material, and considerable disturbance to the Roman archaeological levels. The hospital, in particular, was very extensively robbed (Charlesworth 1976) in the building of the Stukeley farmhouse, as was the west side of the *principia* (Bosanquet 1904, 209, 217). Indeed the construction of the corn-drying kiln in the south granary, the robbing of the granary stonework to the west of the kiln, and the building of the central farmhouse should perhaps be seen as a single, early 18th-century episode.

Bosanquet (1904, 239) noted that the south-west angle of Building XI and the south-east corner of VI were 'completely obliterated'. A paving slab from the *principia* forecourt was also found among the remains of the 17th-century farmhouse over Building VI (*ibid*, 211). Birley (1937–8, 193) noted that the central portion of the longhouse included a number of massive blocks from the south gateway *spina*, while Charlesworth (1975, 18) mentions corresponding robbing of the *praetorium* for the west end of the longhouse. The late 18th-century farmhouse similarly gave rise to much disruption in the north-west part of the *vicus*, causing extensive robbing of Buildings V and VI, and obscuring the course of the Military Way west of the south gate.

The Clayton era to the present day

The acquisition of Housesteads by John Clayton in 1838, part of the gradual build up of his Wall estate, marked the beginning of a new phase in the site, one in which the importance of the Roman frontier monuments was fully recognised. Henceforth the management and investigation of these monuments acquired increasing prominence alongside the continued pursuance of livestock farming. Serious archaeological investigation had begun with Hodgson in the 1820s and 1830s, but under Clayton extensive programmes of clearance were undertaken. The internal and external faces of the fort curtain were revealed at all but two points and the gates and angle towers displayed, thus providing visitors with a clear impression of the overall form of the fort defences. The curtain of Hadrian's Wall to the east and west of the fort, including the Knag Burn Gate and Milecastle 37, were also uncovered.

As part of this programme, the farm range beside the south gate was in turn replaced *c* 1860 by the present farmhouse and steading located in a less obtrusive position south-west of the fort.

Grazing now seems to have been the predominant form of land-use, a shift that had actually occurred under Gibson tenure following the 1797 Inclosure Act, to judge from the pattern of field-wall building. The interior of the fort was used as pasture. The earliest photos of the fort, in the 1870s–90s, show short grass sward in the interior. There are metal gates in the north gateway, where exposure of the north gateway foundations had created a sheer drop, but all other gateways are unobstructed, and fencing was limited to those parts of the circuit where it was required to prevent possible injury to stock.

Following Clayton's death rather less concern seems to have been shown for the management of the monument and its environs, although archaeological investigation continued apace, first with Bosanquet's extensive trenching throughout the fort to recover the internal plan in 1898 and then with Simpson's work between 1909–12. It is difficult to imagine that Clayton would have acquiesced in the digging of an exploratory mine, still visible as a prominent, pear-shaped spoil heap and adit, in the valley bottom between the two recumbent Roman columns close to the Knag Burn. The abandoned adit and spoil heap feature on the RAF air photograph of 1930 and on the OS 3rd edition (1922). It was probably dug towards the end of the 19th century. Bosanquet (1904, 255) noted that lead prospectors had exposed some of the bath-house walls a few years prior to his excavation (their trench can still be traced) and the mine probably represents part of the same fruitless campaign.

In the period following Bosanquet's excavations, photographs show the fort interior to be very overgrown. The fort may have been used as a hay meadow rather than for grazing. Throughout this period there were pig-sties in the interior, just south of Building VI. These are marked on Bosanquet's plan and can still be seen on a photo of 1930 at the beginning of National Trust tenure (NCL 17433/40440). The *principia* was surrounded by a field wall and left open to view after 1898. The surrounding wall was removed for the visit of Queen Mary in 1935.

Following the gift of the fort to the National Trust by Professor G M Trevelyan in 1930, and the subsequent placing of the fort and *vicus* under Ministry of Works guardianship in 1951–52, Housesteads has come under ever closer management intended to ensure the preservation of the archaeological deposits and their display to the public. The grazing of livestock is a principal means towards this end, and has remained the predominant form of land-use on the surrounding farmland. This phase too has left its own monuments, which are in their way as characteristic as those of preceding periods, principally the Museum built in 1935 by the National Trust to the dimensions of *Vicus*

Building VIII, the current National Trust Visitor Centre and the car park, but also smaller features such

as the walled garden plot for the DoE custodian, which attest changing methods of curating the monument.

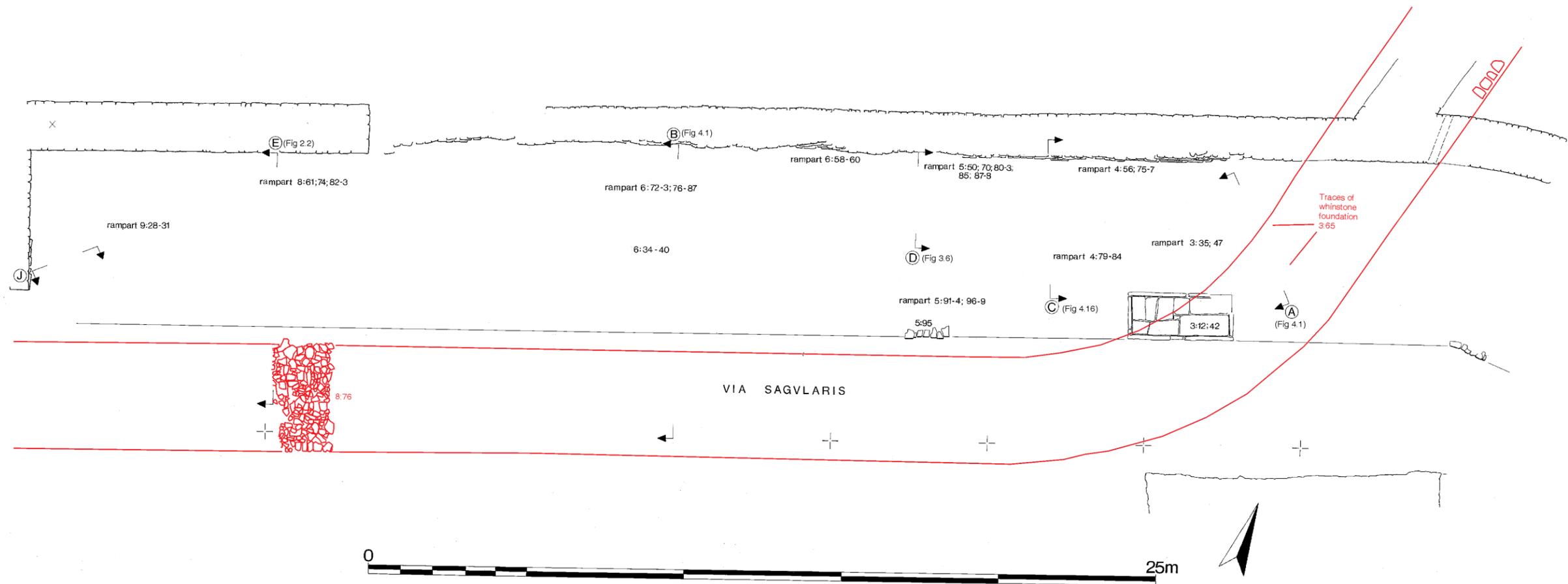


Fig 3.3 Plan of H20 Phases 1 and 2 (Phase 1 shown in red – scale: 1:150).

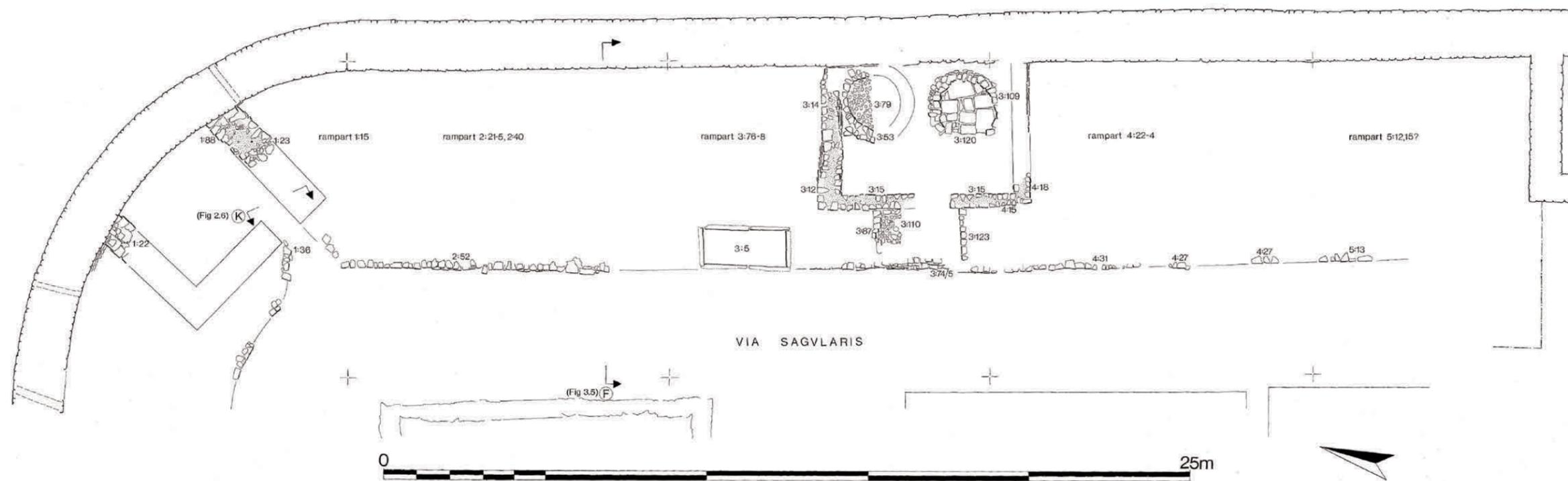


Fig 3.4 Plan of H21 Phase 1 (scale: 1:150).

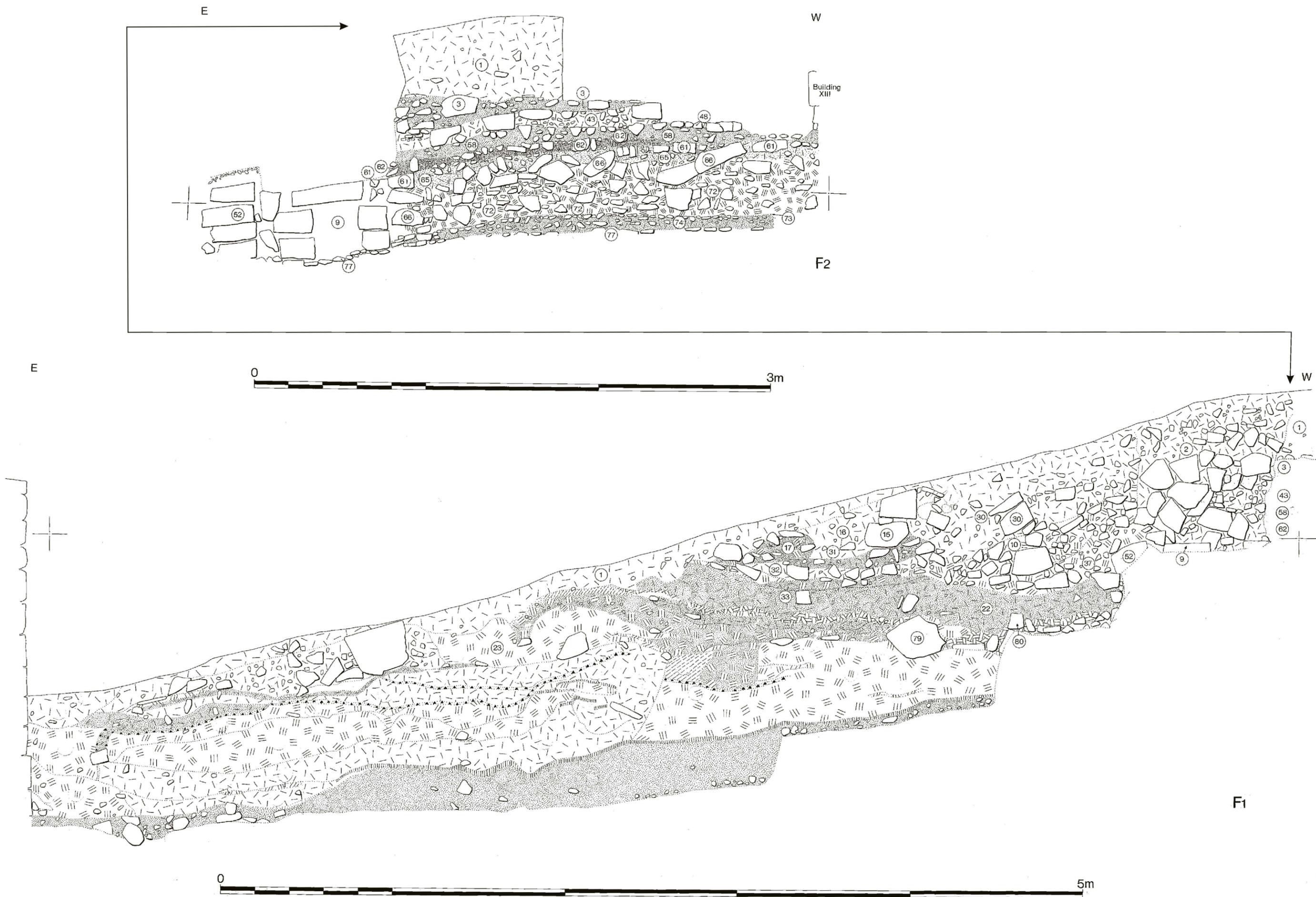


Fig 3.5 Sections F1 and F2, across the east rampart and east intervallum road respectively (Area H21:2); scale 1:20.

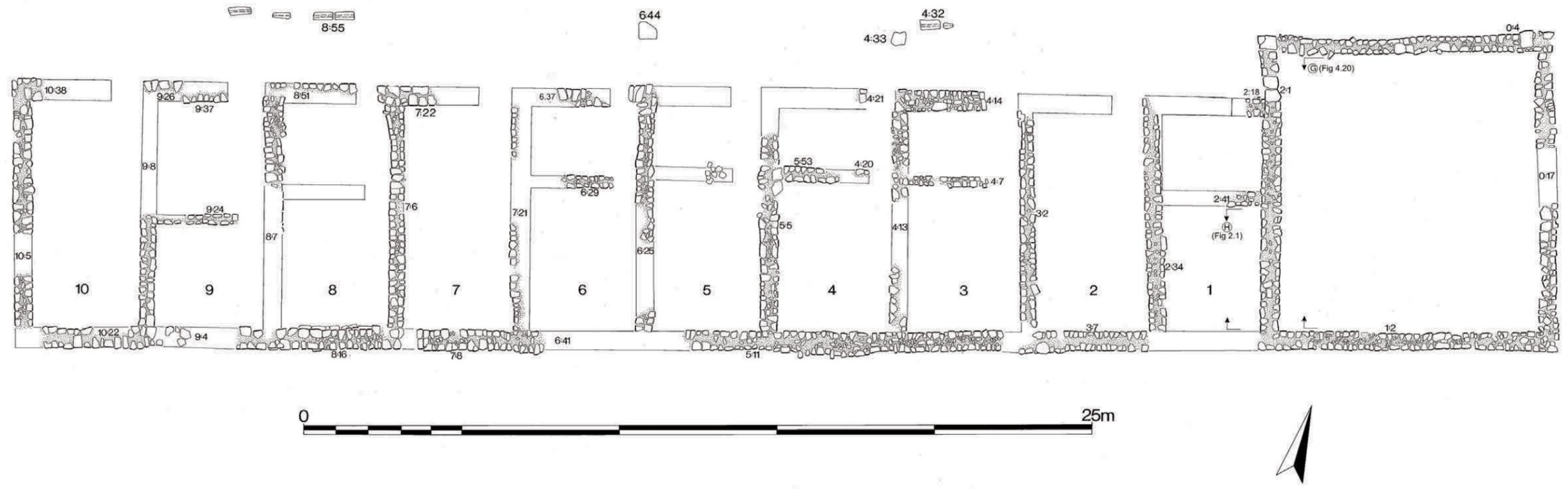


Fig 3.15 Plan of Building XIII – conventional barrack phase (scale: 1:150).

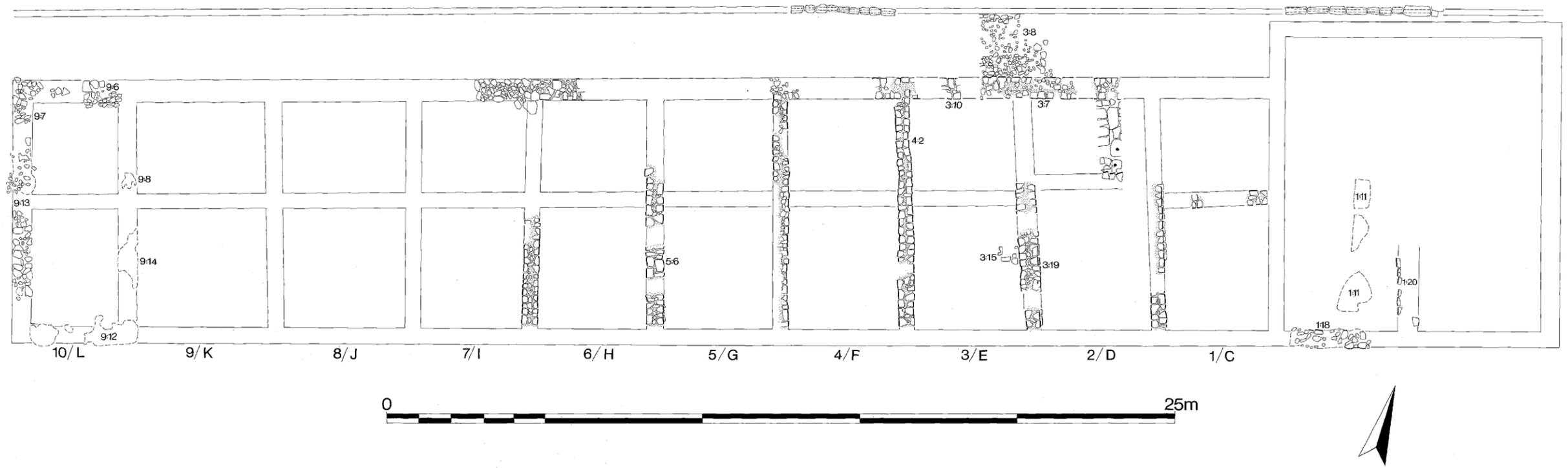


Fig 3.16 Plan of Building XIV Phase 1 (scale: 1:150).

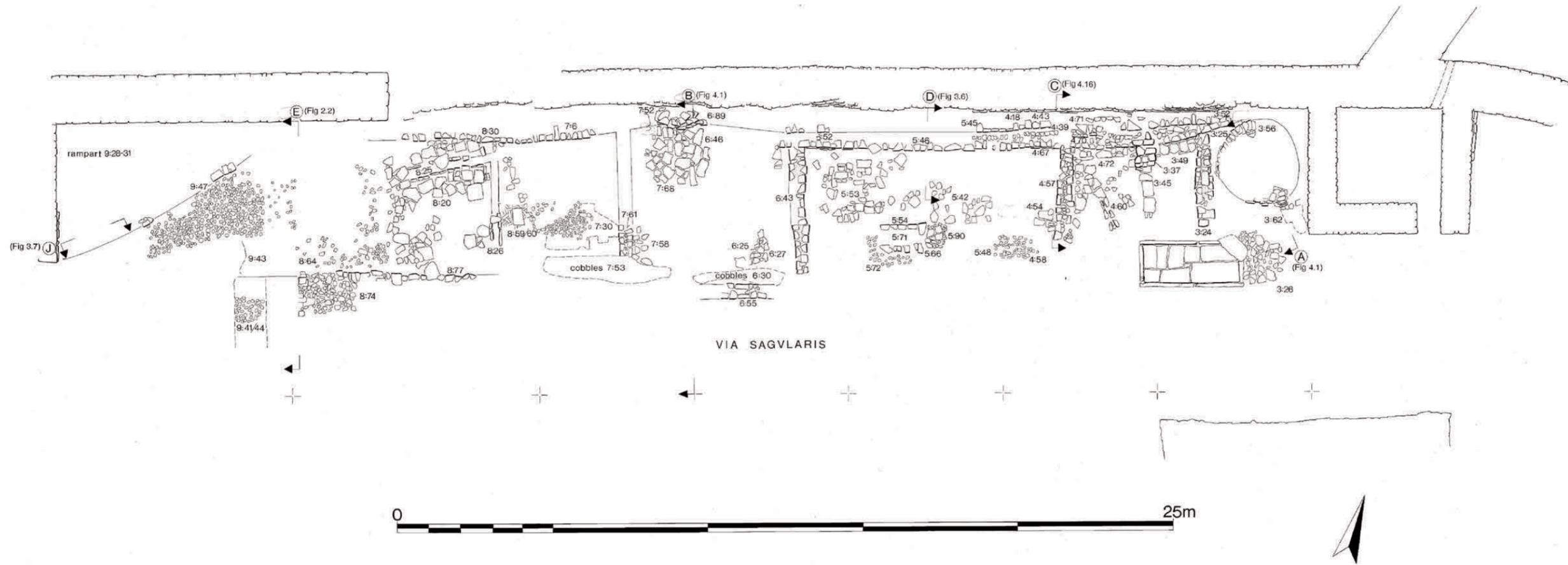


Fig 4.7 Plan of H20 Phase 3a – the workshops (scale: 1:150).

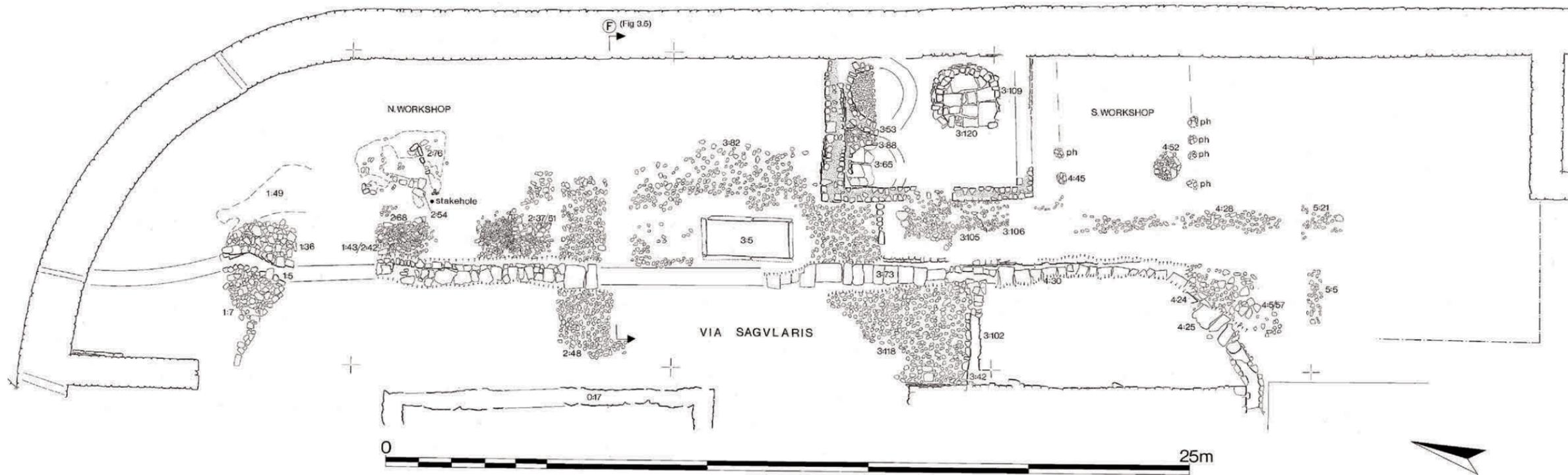


Fig 4.8 Plan of H21 Phase 2 (scale: 1:150).

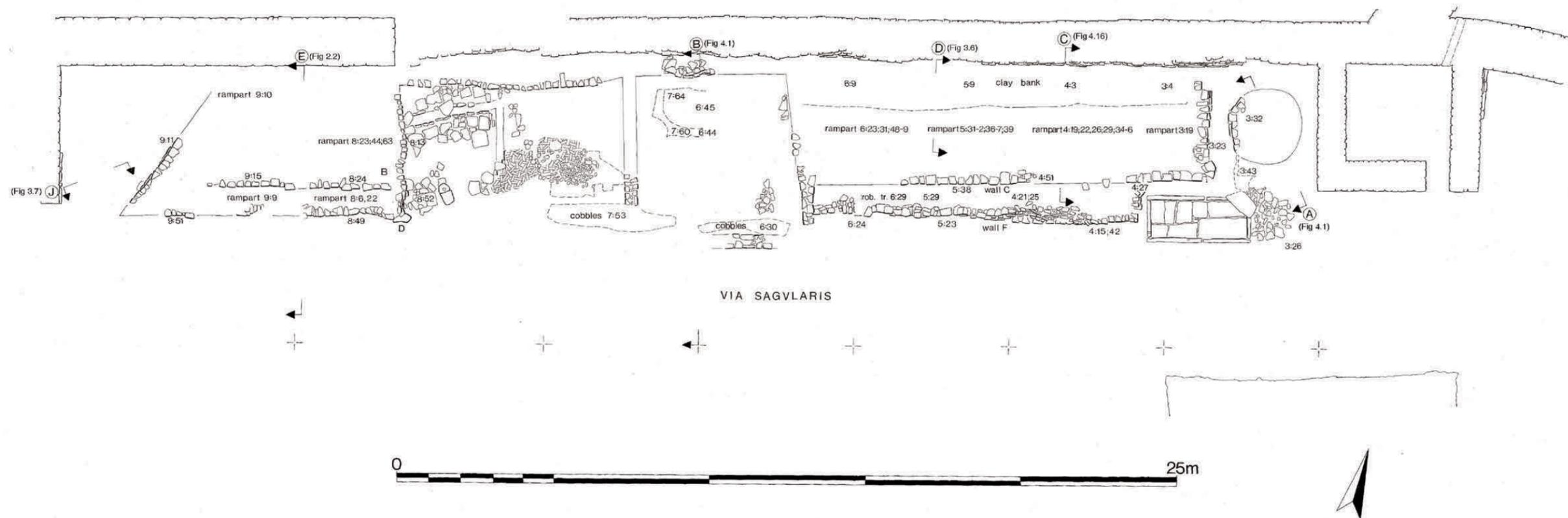


Fig 4.15 H20 Phase 3b-d showing partial reinstatement of the rampart (scale: 1:150).

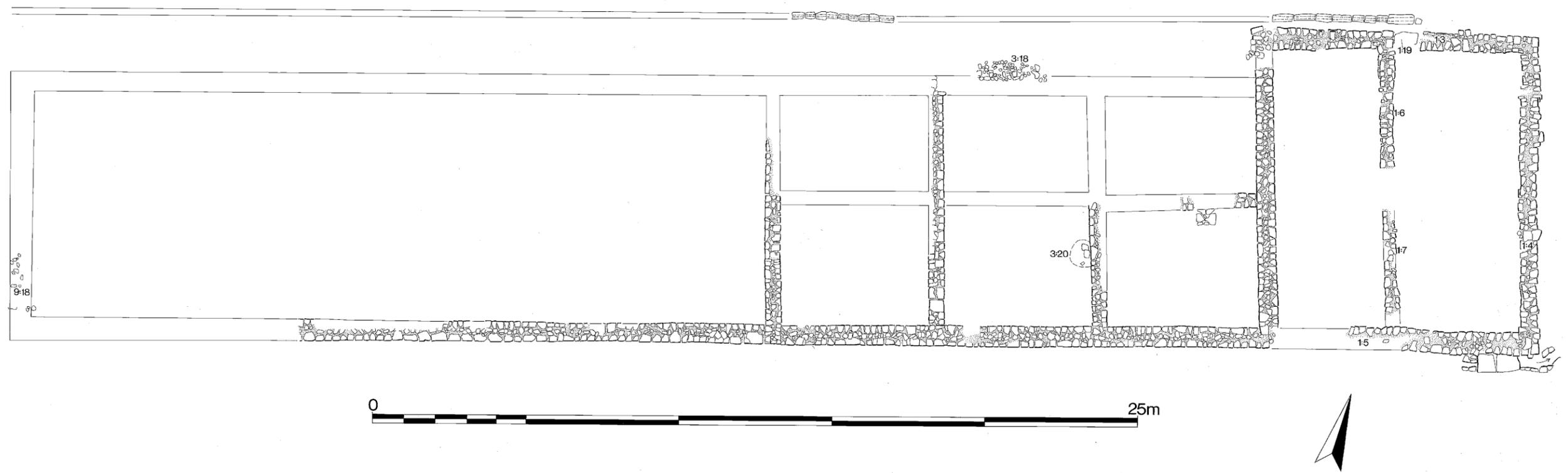


Fig 4.28 Plan of Building XIV Phase 2 (scale: 1:150).

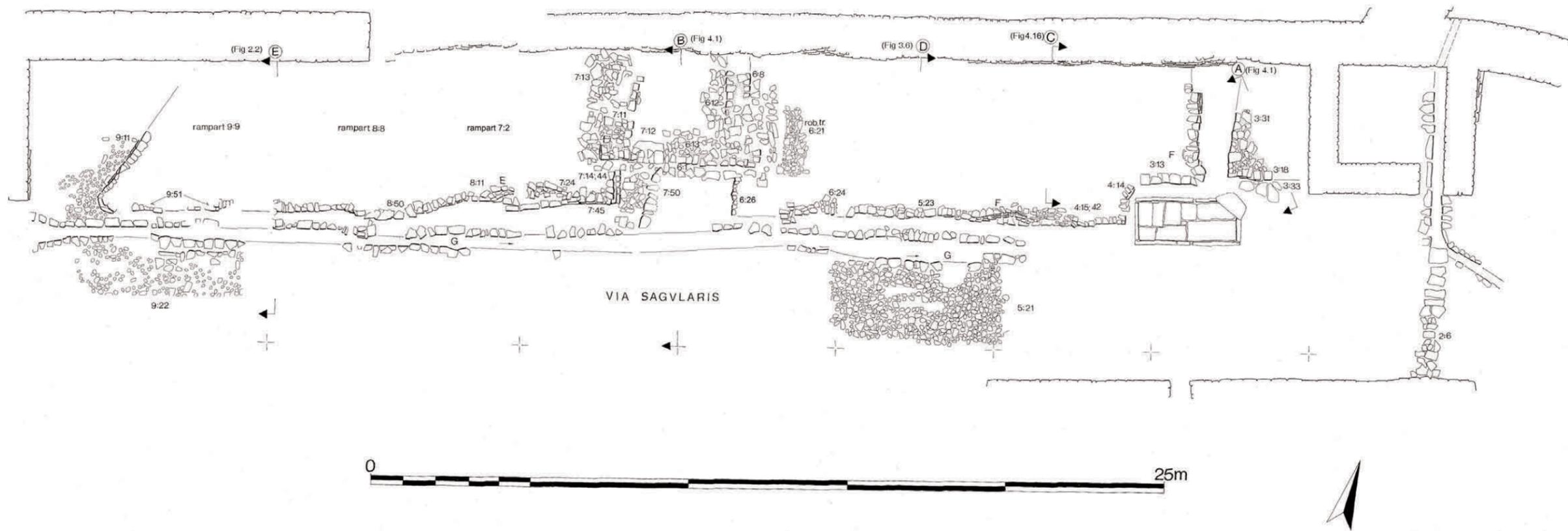


Fig 5.4 H20 Phase 4a (scale: 1:150).

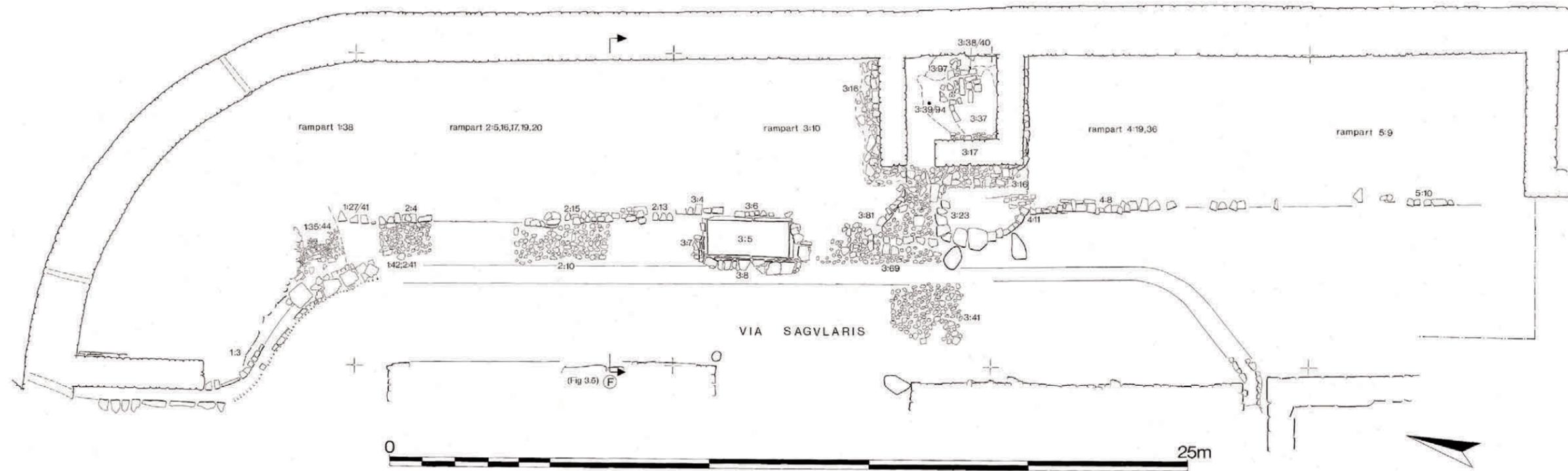


Fig 5.5 Plan of H21 Phase 3 (scale: 1:150).

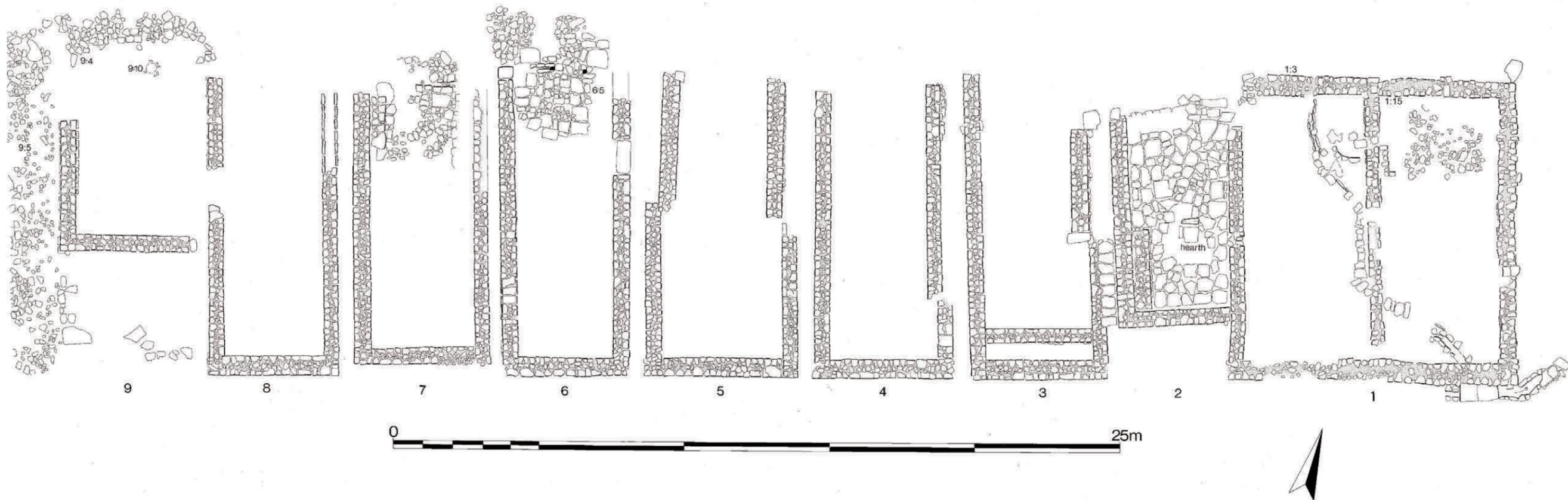


Fig 5.18 Wilkes's interpretation of the initial layout of the chalets in Building XIV (H14 Phase 3 – scale: 1:150).



Fig 5.19 An alternative version of the initial chalet layout in Building XIV based on Bidwell 1991 (scale: 1:150).

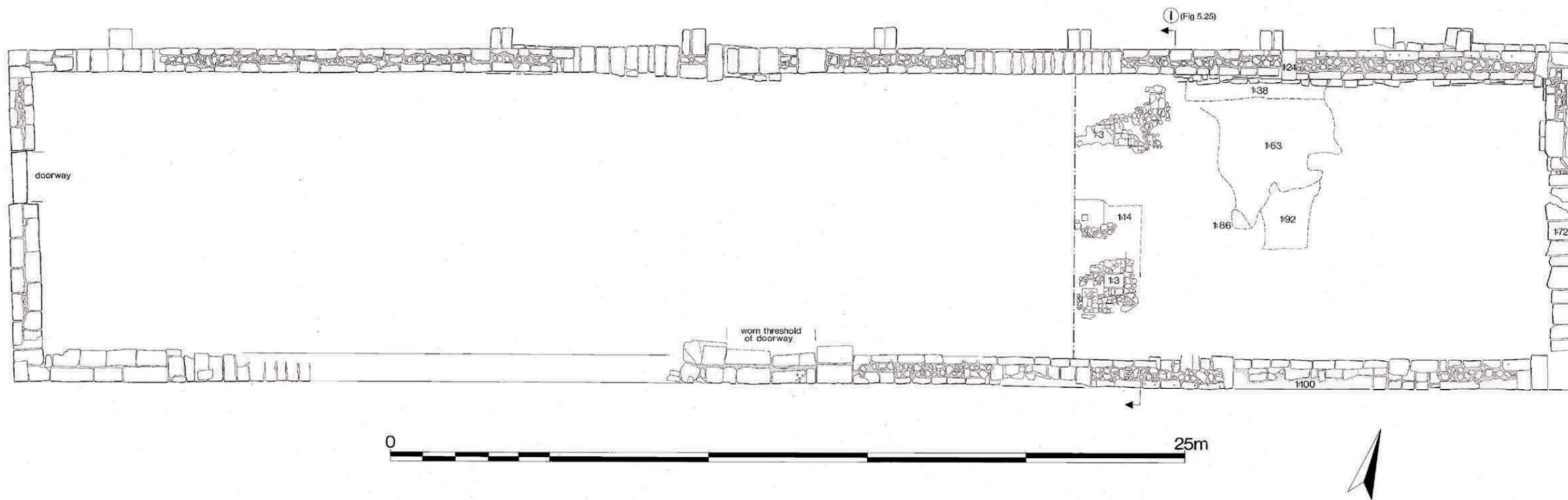


Fig 5.24 Building XV Phase 4: the storehouse (scale: 1:150).



Fig 5.25 Section I showing storehouse makeup levels over earlier structural phases in XV (H15:1); scale 1:20.

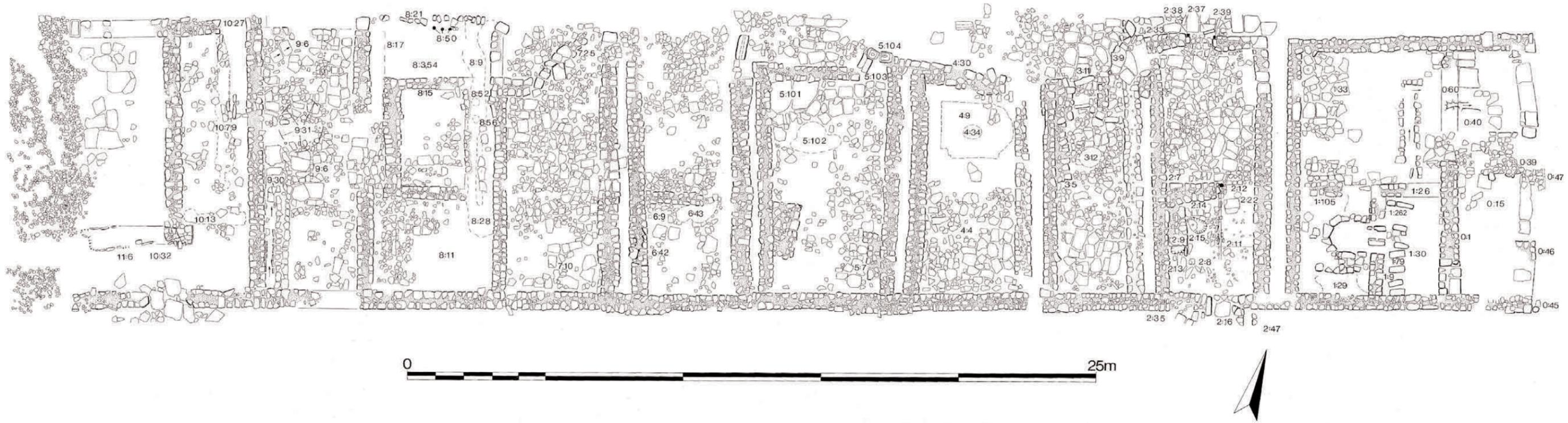


Fig 6.16 Plan of Building XIII – showing later modifications to the chalet range (scale: 1:150).

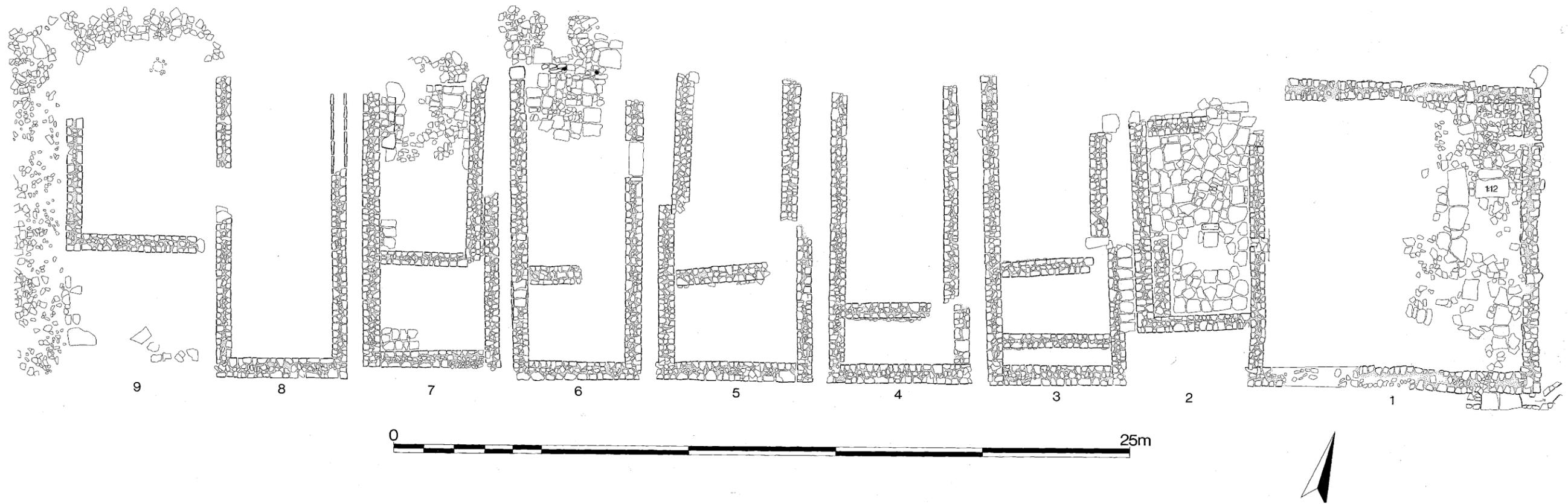


Fig 6.17 Plan of the secondary chalet phase of Building XIV (H14 Phase 4); scale 1:150.

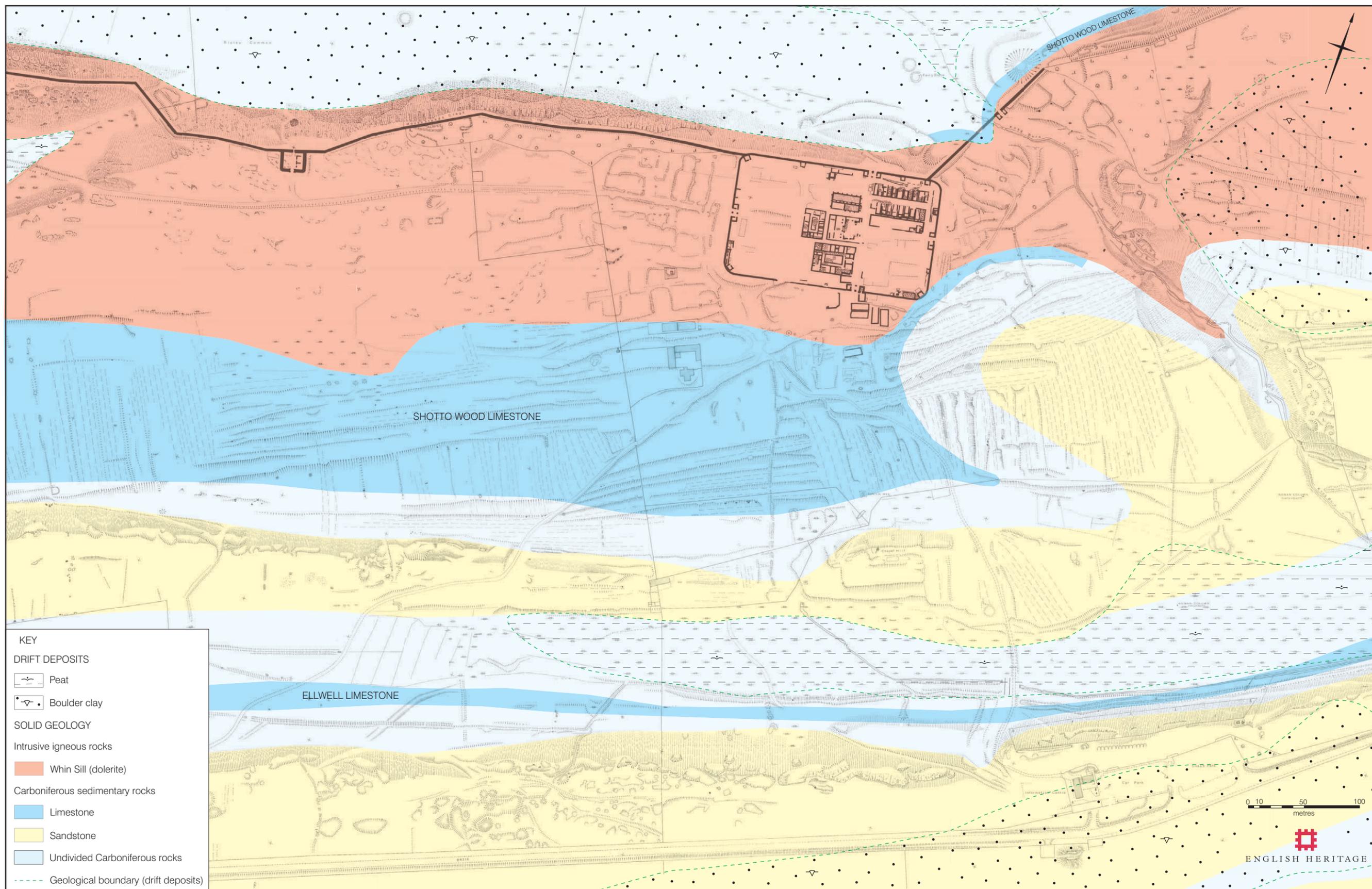


Fig 10.1 Natural geology at Housesteads shown as an overlay on the RCHME survey plan.

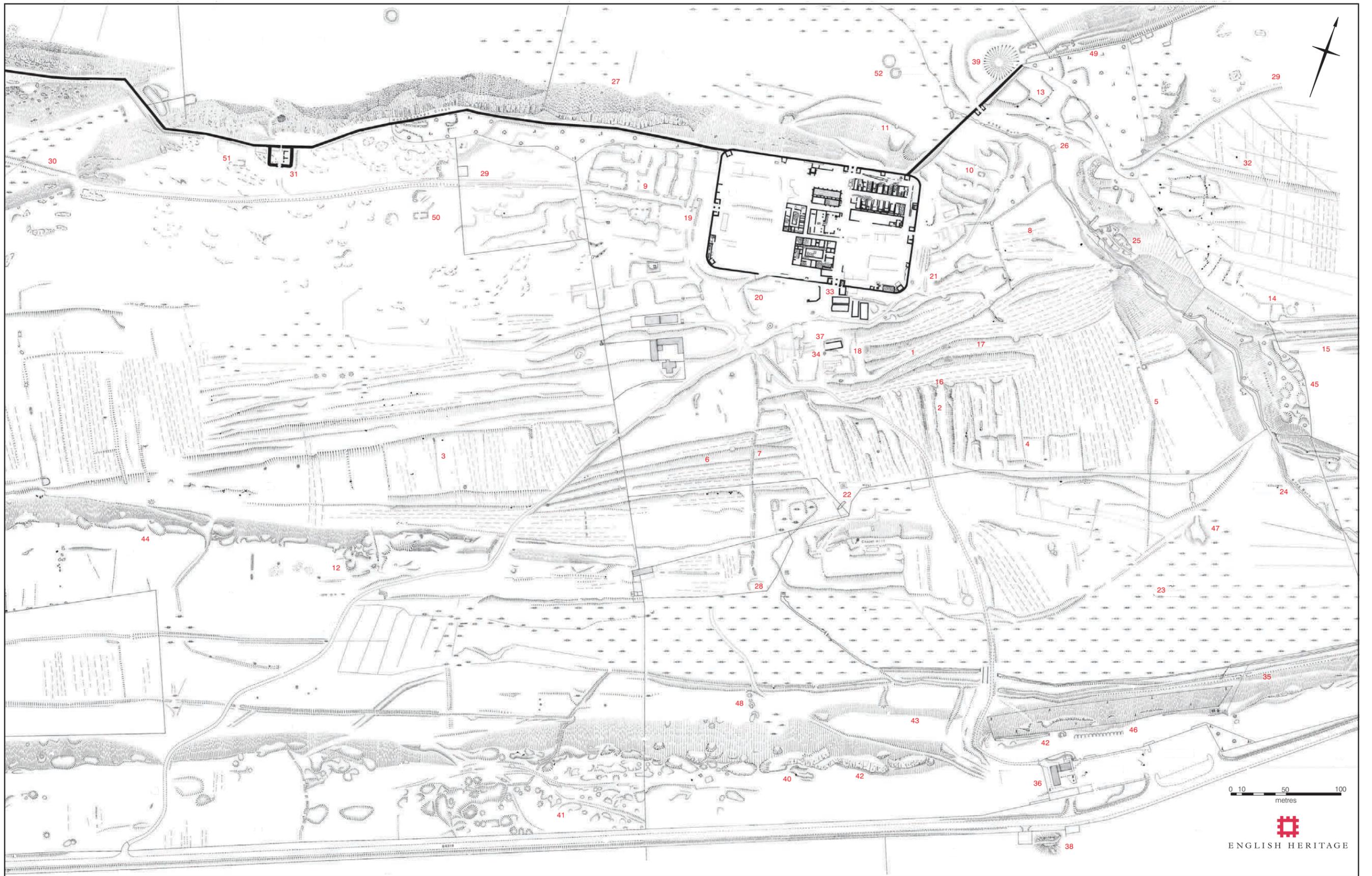


Fig 10.7 RCHME survey of Housesteads environs.

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Front cover

Building XIII under excavation in 1974, viewed from the east.

HOUSESTEADS ROMAN FORT – THE GRANDEST STATION

Volume 2 The Material Assemblages

Alan Rushworth



ENGLISH HERITAGE

HOUSESTEADS ROMAN FORT – THE GRANDEST STATION

Volume 2

The Material Assemblages

HOUSESTEADS ROMAN FORT –
THE GRANDEST STATION
Excavation and survey at
Housesteads, 1954–95, by
Charles Daniels, John Gillam,
James Crow and others

Alan Rushworth

with contributions by

L Allason-Jones, D Allen, M C Bishop, R J Brickstock, P J Casey,
I D Caruana, J G Crow, B Dickinson, J N Dore, D B Dungworth,
W B Griffiths, K Hartley, M Henig, P R Hill, P Moffat, Q Mould, D J Smith,
D Starley, R S O Tomlin, M Van der Veen, C Waddington, H Welfare and D A Welsby



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2009

ARCHAEOLOGICAL REPORTS

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Introduction to Volume 2

The material assemblages yielded by the 1974–81 excavations are reported on in this volume (Chapters 12–21). The scale of some of these categories of material evidence was very substantial (over 800 coins from Housesteads as a whole, 13,522 coarse pottery sherds from the north-east quarter for example). The small finds numbering system for the 1974–81 excavations ran to over 9000 items (excluding pottery) and, although many of these (nails, hobnails etc) have not merited description in this volume, Chapter 14 includes over 400 objects worthy of discussion and cataloguing. Much of this material was found in the layers of the ramparts progressively reinstated in the mid- to late 3rd century and widened in the 4th century. The original provenance of this material is an important question. Put simply, was this material incorporated in the rampart deposits during the rampart construction works, as part of processes of rubbish disposal, accidental breakage and/or casual loss, for instance, or was it brought into the fort with the material used to form the rampart? (For detailed discussion of this problem see Volume 1, Chapter 4.) Together all these assemblages shed considerable light on the material culture of the fort and the structural and chronological relationships between various parts of the site. Some of the principal conclusions are noted below.

The stonework, brick and tile assemblage from the north-east quarter catalogued and analysed in Chapter 12 provides much evidence for the appearance of the fort and the patterns of later reuse of this material. For example, a detailed discussion of the different types of string course blocks found during the excavations is incorporated. The quernstones and large mortars are also treated in this section. The coin assemblage from the entire site has been included in Chapter 13 and represents what is for the present a definitive catalogue. Comparison of the coinage from the fort and *vicus* has important implications for our understanding of the date of abandonment of the civil settlement and strongly indicates that the *vicus* was abandoned in the 270s. Counterfeiting activity during the early 3rd century is represented at Housesteads by the two coin moulds, as well as finds of significant numbers of forged coins which indicate that about 30 per cent of the coinage in circulation at the site during the Severan period may have been counterfeit.

The recording of individual small finds location during the 1974–81 excavations was sufficiently precise to enable the analysis of their spatial distribution in Chapter 14. Differences identified between assemblages in the *contubernia* and officer's quarters of the barrack blocks – notably the presence of artefacts that might be indicative of female use – suggest that centurions were accompanied by and resided with dependent households within the fort. Ordinary soldiers,

however, do not seem to have had female dependants living with them, on the evidence of the small finds. This pattern did not change between the Principate and the later empire. In other words, no evidence was recovered to support the notion that the later Roman garrison of the fort comprised a militia of hereditary farmer-soldiers, living in 'married quarters' with their families, as was initially argued.

Samian ware from the 1974–81 excavations is set out in Chapter 15 together with a small assemblage from the *vicus* recovered during the 1930s, which has not previously been published. The assemblage offers strong indications that the fort was abandoned, or not fully garrisoned, during the early Antonine period, which provides an intriguing contrast to the picture of unbroken occupation presented by the stratigraphic evidence from Barrack XIII.

Chapter 16 presents a full coarse pottery type series for the north-east quarter of the fort, with cross-referencing to occurrence in the stratigraphy. The assemblage represents one of the largest yet to be reported on from a Hadrian's Wall fort and includes a significant proportion of the very latest forms, suggesting that occupation continued right up to the end of the Roman period. Particular consideration is given to the problems of dating mid-2nd- to early 3rd-century bowls and dishes in BB2.

The collection of glass vessels found in 1974–81 (see Chapter 17) was in extremely fragmentary condition, but it was clear that, as well as more utilitarian containers, several fine items of tableware – including some that may be of surprisingly early date – were in use on the site. The commonest finds were blue-green bottles, which were in widespread use in the 1st and 2nd centuries. At the other end of the spectrum, the assemblage included a figure-cut fragment which represents a group of vessels rarely found in Britain, showing once again that tableware of the highest quality was in use at Housesteads.

The 20 graffiti published in Chapter 18 include one example, 'Neuto', which is otherwise attested at the shrine of Nehalennia in the East Scheldt estuary and in the territory of the Tungri, the homeland of the cohort which is known to have garrisoned the fort in the 3rd and 4th centuries, if not earlier. Taken in conjunction with other epigraphic evidence, such nomenclature might indicate hereditary service and the retention of traditional family names among the personnel of the *cohors I Tungrorum* or, perhaps more likely, the practice of drafting recruits from Gallia Belgica and Germania Inferior to replenish the unit.

The analysis of associated metalworking debris from the rampart areas in Chapter 20 is of great significance for our understanding of the activities that took place next to the curtain wall following the

removal of the rampart bank in the 3rd century. In its range and quantity, the metalworking debris from the north-east defences at Housesteads is unparalleled from Roman military sites in Britain. In conjunction with the structural evidence outlined in Chapter 4, it suggests that manufacture, rather than simply repair, of equipment, predominantly of copper alloy, such as belt buckles or suspension loops, was taking place there. The Housesteads evidence thus raises important questions regarding the extent and location of metalworking activities in Roman forts, and above all the way in which archaeologists have hitherto conceptualised such activities. It is conceivable that similarly abundant evidence for metalworking has not been

located previously elsewhere because excavators have been seeking a distinct building type to which the title *fabrica* could be applied. In reality, it is evident that the metalworking activities associated with equipment manufacture could be performed in many different types of structure, notably the simple open-fronted sheds set into ramparts exemplified in the north-east quarter.

The flint assemblage presented in Chapter 21 adds further evidence of prehistoric activity in the vicinity of Housesteads, which must be set alongside the possible traces of cord rig furrows under Building XIII and the terrace earthworks north of the fort identified in Chapters 2 and 10 respectively.

Introduction du volume 2

Les assemblages de matériel découverts durant les fouilles de 1974 à 1981 sont décrits dans le présent volume (chapitre 12 à 21). Dans certaines catégories, le nombre d'éléments découverts s'est avéré fort substantiel (les plus de 800 pièces de monnaie venant de l'ensemble du fort de Housesteads et les 13 522 tessons de poterie grossière venant du quartier nord-est par exemple). Le système de numérotation des petits objets découverts établi pour les fouilles de 1974 à 1981 a permis de dénombrer 9000 objets (à l'exception de la poterie) et, bien qu'un grand nombre d'entre eux (clous, caboches etc) ne méritent pas d'être décrit dans le présent volume, le chapitre 14 couvre 400 objets dignes d'un examen et d'un catalogage. Une grande partie du matériel a été découverte dans les couches des remparts progressivement rétablis du milieu à la fin du III^e siècle et élargis au IV^e siècle. La provenance d'origine de ce matériel pose une question importante. En quelques mots, ce matériel a-t-il été intégré aux dépôts du rempart durant sa construction, dans le cadre de l'élimination des déchets, suite à des bris accidentels ou à une perte, par exemple, ou a-t-il été apporté au fort avec les matériaux utilisés pour le construire? Ensemble, tous ces assemblages fournissent des informations considérables sur la culture matérielle du fort et sur les relations structurelles et chronologiques entre les différentes parties du site. Certaines des principales conclusions sont notées ci-dessous.

La maçonnerie, les briques et les tuiles du quartier nord-est cataloguées et analysées dans le chapitre 12 fournissent de nombreuses informations sur l'apparence du fort et sur les modes de réutilisation ultérieure de ce matériel. Un examen détaillé des différents types de blocs de bandeau trouvés durant les fouilles est effectué. Dans cette section, les meules et les grands égrugeoirs sont également étudiés dans les détails. L'assemblage de pièces provenant de l'ensemble du site est traité dans le chapitre 13 et représente pour le moment un catalogue définitif. La comparaison des pièces venant du fort et du *vicus* fournit des indications importantes concernant la date de l'abandon de l'agglomération civile et nous permet de conclure que cette dernière a été abandonnée dans les années 270. Des activités de contrefaçon sont attestées à Housesteads par la présence de deux moules à pièces et d'un nombre important de fausses pièces qui permettent de conclure que jusqu'à trente pour cent des pièces circulant sur le site durant la période de l'empereur Sévère auraient pu être fausses.

Les indications de l'emplacement où ont été découverts les petits objets durant les fouilles de 1974 à 1981 sont suffisamment précises pour permettre d'analyser leur distribution spatiale dans le chapitre 14. Les différences observées entre les assemblages des *contubernia* et des quartiers des officiers des bâtiments des

casernes – notamment la présence d'artefacts susceptibles d'avoir été utilisés par des femmes – indiquent que les centurions étaient accompagnés de personnes dépendantes qui vivaient avec eux au sein du fort. Cependant, d'après ce qu'indiquent les petits objets découverts, cela n'aurait pas été, semble-t-il, le cas des soldats ordinaires. Ce modèle n'a pas changé entre le principat et la fin de l'empire. En d'autres mots rien ne montre qu'au fort, à la fin de l'empire, la garnison romaine se soit composée d'une milice de cultivateurs-soldats héréditaires accompagnés de leurs familles contrairement à ce qui a été affirmé au départ.

La céramique arétine provenant des fouilles de 1974-1981 est décrite dans le chapitre 15 avec un petit assemblage venant du *vicus*, découvert durant les années 1930, qui n'a pas été publié auparavant. L'assemblage indique fortement que le fort a été abandonné, au moins partiellement, au début de la période d'Antonin, ce qui forme un contraste surprenant avec l'occupation ininterrompue qui peut être déduite des vestiges stratigraphiques de la caserne XIII.

Le chapitre 16 présente une série complète types de poteries grossières venant du quartier nord-est du fort avec renvoi à l'occurrence dans la stratigraphie. L'assemblage figure parmi les plus nombreux découverts jusqu'à présent dans un fort du mur d'Hadrien et comporte une proportion importante des formes les plus récentes, indiquant que l'occupation s'est poursuivie jusqu'à la fin de la période romaine. Une attention particulière est accordée aux problèmes suscités par la datation de bols et de plats en *Black-Burnished 2* venant du milieu du II^e siècle au début du III^e siècle.

La collection de récipients en verre découverte de 1974 à 1981 (voir le chapitre 17) était surtout composée de fragments, mais il est clair qu'outre des récipients à caractère utilitaire, plusieurs articles de belle qualité – y compris certains qui, chose surprenante, remontent à une période assez ancienne – étaient utilisés sur le site. Les plus fréquemment trouvés, des bouteilles bleu-vert, étaient répandus au I^{er} et au II^e siècle. À l'autre bout de l'échelle, figurait dans l'assemblage un fragment gravé d'un personnage, typique de récipients rarement découverts en Grande-Bretagne, indiquant une fois de plus que la vaisselle utilisée à Housesteads était de la plus haute qualité.

Parmi les 20 graffitis publiés au chapitre 18 figure notamment un exemple, «Neuto», qui est également attesté à l'autel de Nehalennia, dans l'estuaire de l'Escaut oriental, et dans le territoire des Tungres, le pays d'origine de la cohorte qui était en garnison au fort aux III^e et IV^e siècles, sinon avant cela. Prise en conjonction avec d'autres indications épigraphiques, cette nomenclature atteste peut-être l'existence d'un service héréditaire et la pratique de conserver les noms de famille traditionnels dans la *cohors I Tungrorum* ou

peut-être celle de recruter en Gallia Belgica et en Germania Inferior pour regarnir les rangs de l'unité.

L'analyse des débris métalliques associés provenant des zones des remparts exécutée dans le chapitre 20 joue un grand rôle dans la reconstitution des activités qui se sont déroulées près de la courtine après l'élimination du talus servant de rempart au III^e siècle. La diversité et le nombre des débris liés au travail du métal provenant des défenses nord-est de Housesteads est sans parallèle sur les sites militaires romains de Grande-Bretagne, et, en conjonction avec les vestiges structurels décrits au chapitre 4, indique qu'il s'agissait ici de fabrication plutôt que de la simple réparation d'un matériel fabriqué principalement au moyen d'un alliage de cuivre, comme les boucles de ceinture et les anneaux de suspension. Ces vestiges soulèvent des questions importantes concernant l'étendue et l'implantation des activités de travail du métal dans les forts romains et les hypothèses jusqu'à présent établies

par les archéologues au sujet de ces activités. On peut imaginer que les fouilleurs n'ont pas réussi auparavant à identifier les abondants vestiges du travail du métal parce qu'ils cherchaient des bâtiments distincts auxquels ils auraient pu appliquer le terme de *fabrica*. En réalité, de nombreux types de structures pouvaient manifestement jouer de manière satisfaisante le rôle d'atelier implicite dans ce terme, notamment les appentis à façade ouverte encastrés dans les remparts notamment dans le quartier nord-est.

L'assemblage de silex présenté au chapitre 21 offre d'autres preuves d'une activité préhistorique dans le voisinage de Housesteads, qui doit être associée aux traces possibles de sillons *cord rig* découvertes sous le bâtiment XIII et aux ouvrages de terre situés au nord du fort identifiés dans les chapitres 2 et 10 respectivement.

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Einleitung in Band 2

Die Assemblagen, die im Zuge der Ausgrabungen von 1974–81 zusammengetragen wurden, sind in diesem Band aufgeführt (Kapitel 12–21). Einige Kategorien dieser Materialnachweise waren recht umfangreich (beispielsweise insgesamt über 800 Münzen aus Housesteads und 13.522 grobe Keramikscherben aus dem nordöstlichen Viertel). Das Nummerierungssystem für die kleinen Funde im Rahmen der Ausgrabungen von 1974–81 listete über 9.000 Gegenstände auf (ohne Keramik), und wengleich viele davon (Nägel, Schuhnägel usw.) keine Berücksichtigung in diesem Band finden können, beinhaltet Kapitel 14 über 400 Objekte, für die eine nähere Erörterung und Katalogisierung lohnt. Ein großer Teil dieses Materials wurde in Schichten des Erdwalls, der nach und nach Mitte bis Ende des 3. Jahrhunderts wieder eingesetzt und im 4. Jahrhundert erweitert wurde, gefunden. Die ursprüngliche Herkunft des Materials wirft eine wichtige Frage auf, die, einfach ausgedrückt, folgendermaßen lautet: Gelangte es während der Bauphase im Zuge der Abfallentsorgung oder aufgrund von versehentlichem Verlust und/oder Zerbrecen in den Erdwall oder wurde es zusammen mit dem Baumaterial für den Wall in die Festung gebracht? Zusammen genommen brachten all diese Assemblagen maßgebliche Erkenntnisse über die Materialkultur der Festung und die strukturelle und chronologische Beziehung zwischen den verschiedenen Bereichen der Stätte. Nachfolgend sind einige der wichtigsten Schlussfolgerungen aufgeführt.

Das in Kapitel 12 katalogisierte und analysierte Mauerwerk, Backstein- und Ziegel-Assemblagen aus dem nordöstlichen Viertel, bietet einen umfangreichen Nachweis über das Aussehen des Römerkastells und die Muster der späteren Wiederverwendung dieses Materials. Beispielsweise ist eine detaillierte Besprechung der unterschiedlichen Arten von Gurtgesimssteinen enthalten, die während der Ausgrabungen gefunden wurden. Mühlsteine und große Mörser werden in diesem Kapitel ebenfalls behandelt. Die Münzassemblage aus der gesamten Stätte ist in Kapitel 13 enthalten und stellt einen zum aktuellen Zeitpunkt endgültigen Katalog dar. Ein Vergleich des Münzgelds aus dem Kastell und dem *vicus* liefert wichtige Folgerungen für unser Verständnis vom Zeitpunkt der Aufgabe der zivilen Besiedlung und weist stark darauf hin, dass der *vicus* in den 70er Jahren des 2. Jahrhunderts aufgegeben wurde. Münzfälscherei im frühen 3. Jahrhundert in Homesteads wird durch zwei Münzformen sowie durch Funde einer erheblichen Menge von gefälschten Münzen nachgewiesen, welche die Vermutung nahelegen, dass es sich bei rund 30 % der sich in der severischen Periode im Umlauf befindlichen Münzen um Falschgeld gehandelt haben könnte.

Die Aufzeichnungen von einzelnen kleinen Fundstellen der Ausgrabungen von 1974–81 waren so genau, dass eine Analyse ihrer räumlichen Verteilung in Kapitel 14 möglich ist. Die Unterschiede zwischen den Assemblagen in den *contubernia* und den Offiziersquartieren in den Barackenblöcken, insbesondere Artefakte, die auf weibliche Benutzer hinweisen, legen nahe, dass die Zenturionen sich in Begleitung befanden und ihren eigenen Haushalt innerhalb des Lagers führten. Gemeine Soldaten hatten offenbar keine weiblichen Angehörigen, die bei ihnen wohnten, wie die kleinen Funde zeigen. Dieses Muster bleibt während Prinzipat und dem späteren Imperium unverändert. In anderen Worten: Es gibt keinen Nachweis für die anfänglich vertretene Auffassung, dass die spätere römische Garnison des Lagers aus einer Miliz sesshafter Bauernsoldaten mit ihren Familien bestand.

Funde von Terra Sigillata während der Ausgrabungen von 1974–81 sind in Kapitel 15 zusammen mit einer kleinen Assemblage aus dem *vicus* dargelegt, die in den 1930er Jahren gefunden und bisher noch nicht publiziert wurde. Diese Assemblage liefert einen starken Hinweis dahingehend, dass das Kastell in der frühen antoninischen Ära aufgegeben wurde oder nicht voll besetzt war. Dies steht in einem interessanten Widerspruch zu dem Bild der ununterbrochenen Besetzung, das stratigraphische Nachweise aus Baracke XIII zeichnen.

Kapitel 16 zeigt eine vollständige Reihe von grober Keramik des nordöstlichen Bereichs des Römerlagers mit Querverweisen zum Auftreten in der Stratigraphie. Diese Assemblage ist eine der größten vom Hadrianswall, über die noch zu berichten ist, und beinhaltet einen bedeutenden Teil der absolut jüngsten Formen, die darauf hinweisen, dass die Besetzung bis zum Ende der römischen Ära andauerte. Die Probleme bei der Datierung von Schüsseln und Geschirr in BB2 aus Mitte des 2. und Anfang des 3. Jahrhunderts finden besondere Berücksichtigung.

Die Sammlung von Glasbehältern, die von 1974–81 gefunden wurden (s. Kapitel 17) war stark fragmentiert, aber es war klar, dass neben eher alltäglichen Behältern auch feineres Tafelgeschirr – von dem einiges aus überraschend früher Zeit stammen könnte – im Lager zum Einsatz kam. Die häufigsten Funde waren blaugrüne Flaschen, die im 1. und 2. Jahrhundert stark verbreitet waren. Am anderen Ende des Spektrums beinhaltete die Assemblage ein Fragment aus einer Form, die für eine Gruppe von Behältern steht, die in Großbritannien selten gefunden wird und belegt, dass Tafelgeschirr höchster Qualität in Housesteads zum Einsatz kam.

Die 20 Inschriften (Graffiti), die in Kapitel 18 aufgeführt sind, beinhalten das Beispiel, „Neuto“, das

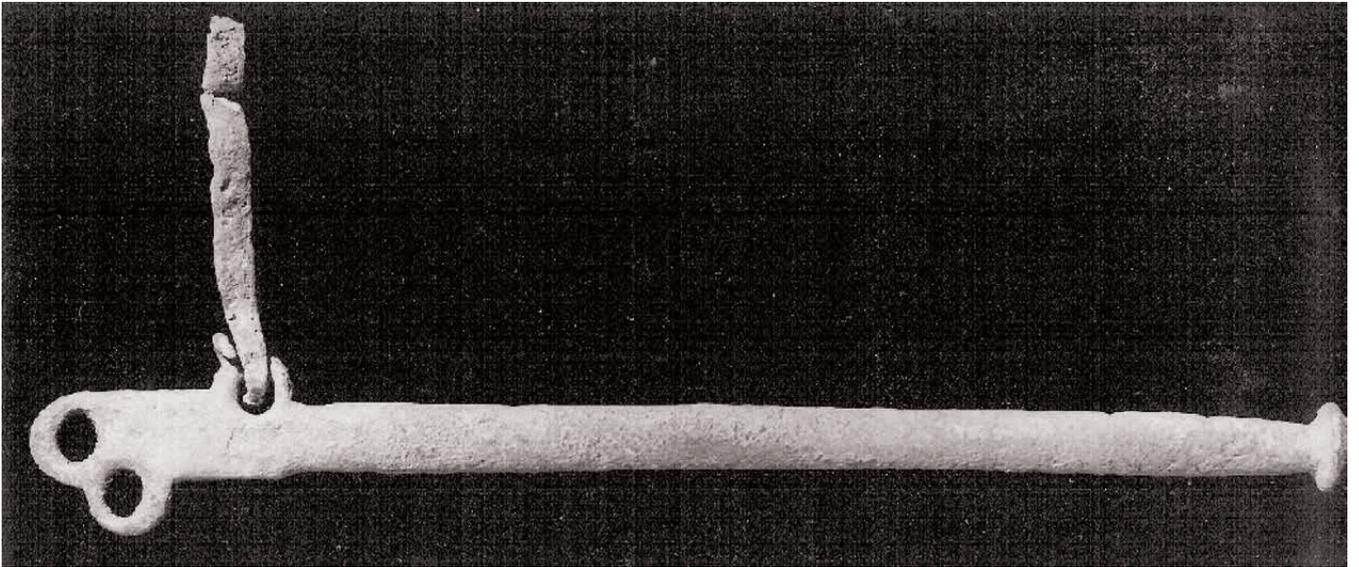
ansonsten am Schrein der Nehalennia im Tempel an der Oosterschelde und im Territorium der Tungri gefunden wird, dem Heimatland der Kohorte, die bekanntlich im 3. oder 4. Jahrhundert im Lager stationiert war, wenn nicht früher. Zusammen mit weiteren epigraphischen Nachweisen kann eine solche Bezeichnung auf ansässige Soldaten und die Beibehaltung von traditionellen Familiennamen beim Personal der *cohors I Tungrorum* hinweisen. Es ist auch vorstellbar, dass Rekruten aus Gallia Belgica und Germania Inferior eingezogen wurden, um die Einheit aufzustocken.

Die Analyse von Schrott aus damit in Beziehung stehender Metallarbeit im Bereich des Erdwalls in Kapitel 20 ist von großer Bedeutung für unser Verständnis über die Aktivitäten, die in der Nähe des Grenzwalls nach Entfernung des Walls im 3. Jahrhundert stattfanden. Der Umfang und die Menge von Metallschrott an den nordöstlichen Befestigungsanlagen von Housesteads ist einzigartig für römische Militärstandorte in Großbritannien weist zusammen mit strukturellen Nachweisen, die in Kapitel 4 beschrieben sind, darauf hin, dass nicht nur einfache Reparaturarbeiten stattfanden sondern Metallarbeiten aus Kupferlegierungen durchgeführt wurden wie Gürtelschnallen oder

Einhängeschlaufen. Die Nachweise aus Housesteads werfen somit wichtige Fragen bezüglich Ausmaß und Standorten von Metallverarbeitung in römischen Militärstützpunkten auf und vor allem, welche Vorstellung Archäologen bisher davon hatten. Möglicherweise haben die an den Ausgrabungen beteiligten Wissenschaftler die reichhaltigen Nachweise für Metallarbeiten nicht gefunden, weil sie nach einer bestimmten Gebäudeart suchten, die als *fabrica* bezeichnet werden könnte. Tatsächlich ist es offensichtlich, dass verschiedene Arten von Strukturen die Funktion einer Werkstatt zufriedenstellend erfüllt haben könnten, insbesondere die Verschlüsse mit offener Frontseite, die in den Wall eingelassen waren. Beispiele dafür finden sich im nordöstlichen Viertel.

Die Flinthe-Assemblage, die in Kapitel 21 gezeigt wird, ist ein weiterer Nachweis für prähistorische Aktivitäten Nahe Housesteads, die zu den möglichen Spuren von einer Cord Rig Kultivierung unter Gebäude XIII passen und den terrassenartigen Erdarbeiten nördlich des Kastells, die in Kapitel 2 bzw. 10 aufgezeigt sind.

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Frontispiece: The steelyard from Building XIII (see Chapter 14, No. 59)

12 The stonework, brick and tile

D A Welsby

The stonework, querns and large stone objects

Introduction

The catalogue below contains 119 pieces, 79 of which were examined by the writer during 1988. Of the others, a number were not located while some had become mixed up with the stones in the stone pile by the west gate and could not be identified. This is particularly the case with the string course blocks. Twenty-five of the pieces have been consolidated *in situ*, which has often made their detailed study difficult if not impossible. Most of the pieces come from Building XIII and the rampart areas to the north and east, although several are from Building XIV and from the area immediately beyond the north wall of the fort excavated in 1984. Entries in the catalogue prefixed with an asterisk (*) have been illustrated either at a scale of 1:4 or 1:8. Numbers prefixed by HO refer to objects that are not from the recent excavations, but are recorded in the archive report on the stone objects from the fort. Unless otherwise stated all the pieces are of sandstone.

Catalogue

Inscriptions (Fig 12.1)

1. * Fragment of an inscribed block with part of the top edge surviving and roughly dressed with a point. The one letter, of which a substantial portion remains, may be an A with the narrower and deeper incised stroke carried well above the point of junction with the other. A rather irregular groove by one broken edge of the stone may be part of another letter. If the first letter is correctly identified the form is unusual (cf *RIB* 1701 from Chesterholm). Where one stroke extends above

the other it is generally the right-hand stroke which is so treated (cf *RIB* 1576 and 1610 from Housesteads). Also the letter will have been very tall and narrow. The scale of the letter suggests that it came from an inscription of considerable size.

Size – H:205mm, W:235mm, Th:80mm.

H20:5:13 – Inventory No. 52.

2. Not located 1988. Facing stone with an inscription carved on one face (Fig 12.8 A). This has been published by R S O Tomlin in *Britannia* VIII 1977, 431, no. 20 and n 36 and 37.

‘CAMIA N[.], *c(enturia) Camian[.]*. The M has been partly erased. The centurion is otherwise unknown, but his *nomen* is attested in Italy.’

The use of this stone in a *contubernium* wall of the barrack phase (H13:8:7) raises the possibility that it is in its original position (see Fig 12.8 A). However, it is unlikely that the stone would have been built into the wall at such a low level by the century of Camianus. Dr M Bishop has suggested that if the wall was not rebuilt at a later date then the stone may have originally been set into Hadrian’s Wall or Turret 36b and was released for reuse when the Wall and turret were demolished to make way for the fort. If this is the case then it suggests that the turret or Wall at Housesteads had been constructed to a considerable height before the decision to build the fort was taken. However, it should be noted that this wall footing was incorporated in the later Chalet 8.

Size – L:160mm, W:250mm, Th:140mm.

Building XIII, Chalet 8, reused in the early west wall H13:8:7 – Inventory No. 27.

3. Not located 1988. Facing stone with an inscription carved on one face and reddened by fire. This has been published by R S O Tomlin in *Britannia* VIII 1977, 432, no. 21 and n 38 and 39. ‘It reads CVNARIS. The C is preceded by a triangle of three short vertical “pecks” which cannot be interpreted as a centurial sign. The name Cunaris seems to be unrecorded, but is an acceptable Celtic formulation.’

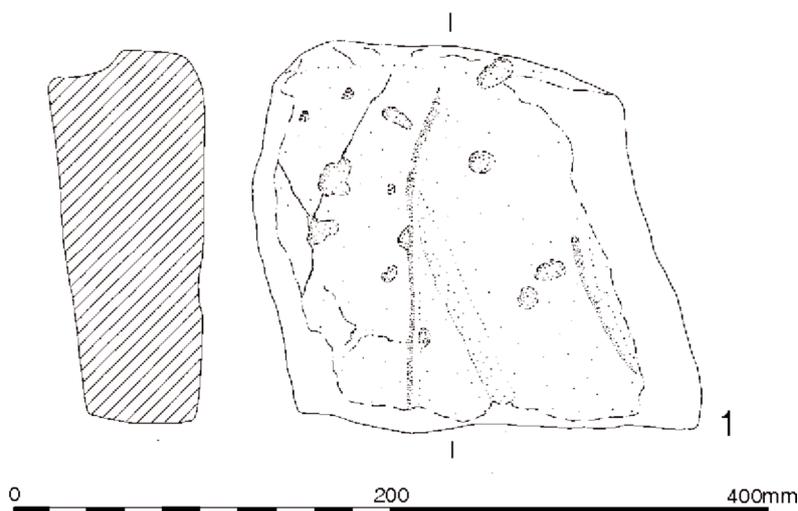


Fig 12.1 Inscription no. 1 (scale 1:4).

Size – L:120mm, W:240mm, Th:170mm.
 Found within or in the immediate vicinity of Building XIII – Inventory No. 34.
 See also nos 111 and 114.

Reliefs (Fig 12.2)

4. * Not located 1988. The illustration, only approximately to scale, is a copy of the sketch in the finds book drawn at the time of the stone's discovery. Relief of a naked male figure holding a buckler in his left hand and with his right hand resting perhaps on an altar. For a buckler of identical type see *CSIR I 6*, no. 360 from Great Chesters. The figure apparently lacks the spear of the Yardhope warrior god (Charlton and Mitcheson 1983, pl XIV A), but is presumably of that general type (cf also *CSIR I 6*, no. 373). Whether the Housesteads example was a horned individual is unclear as the stone is broken off at the critical point.
 Size – H:185mm, W:190mm, Th:90mm.
 H20:4:10 – Inventory No. 53.
5. Not located 1988. Sculptured stone. The sketch in the finds book does not make it at all clear what this piece is.
 Size – H:200mm, W:190–150mm, Th:unknown.
 H20:9:11 – Inventory No. 71.
6. * Rectangular stone block, perhaps originally with a rounded top, now broken off. On the front face the centre has been dressed back to leave a figure in relief. Two legs and a torso are clear, dressed in a short cloak down to the knees. Above the narrow neck the head has been removed by the cutting of an inverted conical depression that survives to a maximum depth of 36mm. In the area of the chest the surface has been cut back a little leaving two raised areas, possibly representing hands, the one on the left perhaps attached to an arm. The short cloak hitched up between the knees is very reminiscent of a relief of the Genii Cucullati from Vindolanda (*CSIR I 6*, no. 153) but there is no evidence to suggest that the Housesteads piece formed part of a relief depicting three figures.
 Size – H:215mm, W:135mm, Th:100mm.
 Location: H20:4:15 – no Inventory Number.

7. Oval shaft with some fine vertical grooving, perhaps part of a statue. The findspot of this piece may date to the earliest phase of the fort.
 Size – 'D':130 × 100mm, L:165mm.
 H21:3:26 – no Inventory Number.

Architectural fragments (Fig 12.3)

8. * Very roughly dressed block, except on the one face visible with the semi-circular opening. This face appears to be worn, especially close to the opening, suggesting that at some time this face had been set uppermost. Possibly half of a manhole rather than a window head. If it is to be identified as a window head the opening would have been much narrower than the norm. A not dissimilar piece, unfortunately damaged but with the opening perhaps of the same general size, can be seen in the south guardroom of the East gate at Birdoswald. The Housesteads piece had been reused during a later modification to Chalet 2 (see Fig 12.8 C).
 Size – H:320mm, W:770mm, Th:175mm, D of opening approximately 290mm.
 Building XIII, Chalet 2 – reused on the west side of the south doorway, H13:2:16, consolidated *in situ* – Inventory No. 6.
9. Not located 1988. Fragment with one curved edge bordered by two grooves or beads. Perhaps part of the curved edge around the semi-circular opening in a monolithic window head.
 Size – L:180mm, W:120mm, Th:110mm, D of opening: unknown.
 Building XIII, Chalet 6 – from the ploughsoil and rubble, H13:6:14, beneath the flagging 13 – Inventory No. 31.
10. Not located 1988. Fragment with one curved edge bordered by two grooves or beads. Probably part of the curved edge around the semi-circular opening in a monolithic window head.
 Size – L:180mm, W:150mm, Th:100mm, D of opening: unknown.
 Building XIII, Chalet 8 – layer H13:8:40 – Inventory No. 40.
11. * Fragment from the corner of a window head with a triple groove border on the front face along the two

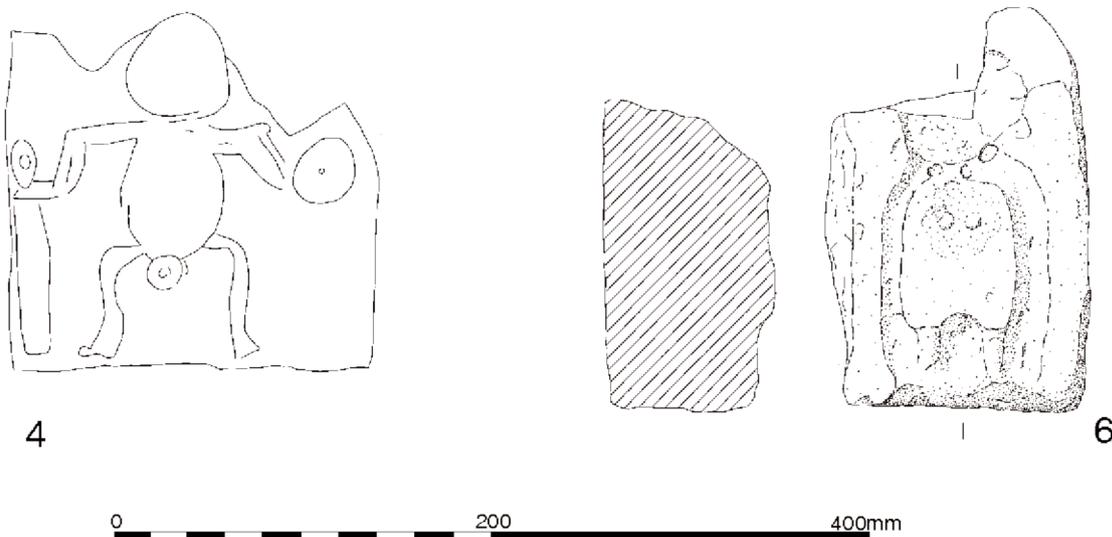


Fig 12.2 Relief nos 4 and 6 (scale 1:4; 4 is illustrated from a finds book sketch).

- dressed edges. The front face is dressed flat and smooth, as is one of the edges (the upper bedding face?). The other edge (bedjoint?) is rougher with clear toolmarks. The rear face is quite flat with a few tool depressions visible.
Size – H:290mm, W:280mm, Th:135mm.
Immediately beyond the north wall – Inventory No. XIII.
12. * A little less than one half of a monolithic window head. Both front and rear roughly dressed, as are all the edges.
Size – H:380mm, W:340mm, Th:115mm, approximate D of opening:640mm.
H20:6:3, found in a stone pile with nos 14, 24 and 42 (Fig 12.9 F). Inventory No. 65.
13. Column shaft broken off at one, and probably at both, ends. Largely obscured by consolidation. The part of the shaft protruding above the floor, in which it has been set, is extensively damaged.
Size – L:690mm, D:240–280mm.
Building XIII, Chalet 4, reused in floor H13:4:9, consolidated *in situ* – Inventory No. 24.
14. Column shaft broken off towards the narrower end. The shaft is markedly square in section with numerous flats. In the centre of the one end preserved is a hole 65 × 60mm in size and 87mm deep. The alignment of the hole deviates considerably from the long axis of the shaft. Two deep grooves on the shaft may be plough marks.
Size – L:790mm, 'D' at top:240 × 220mm. Virtually square (300mm) at the other end.
H20:6:3, found in a stone pile with nos 12, 24 and 42 – Inventory No. 60.
15. Column shaft broken at both ends. Marked taper from 270 to 205mm.
Size – L:150mm, D:270–205mm.
Reused in the late fort wall reconstruction, H20:4:10 – Inventory No. 64.
16. Column shaft, now in two pieces and broken off at both ends. The shaft is bulbous ranging from 255mm to 280mm. A rebate 100mm wide has been cut along the length of the shaft on the side towards Chalet 1, presumably when it was reused as a threshold.
Size – L:850mm, D:280mm.
Building XIII – reused as a threshold in the doorway between Chalets 0 and 1, H13:1:77, consolidated *in situ* – no Inventory Number.
17. Column shaft broken off at both ends and down its length. Diameter uncertain.
Size – L:260mm, D: unknown.
From immediately beyond the north wall, H20:10:10 – Inventory No. V.
18. Column shaft fragment broken off at both ends and down its length. Small tooling depressions over the whole surface.
Size – L:270mm, D:290mm.
From immediately beyond the north wall, H20:10:10 – Inventory No. X.
19. Column shaft? Rectangular stone roughly rock-faced on all sides. One side curves into the adjacent end. The curve is quite well rounded but is not smooth and has no clear tool marks. This may be a fragment from a column shaft that has been broken up for reuse as a building stone. If dressed for a more specific task it is very rough.
Size – L:270mm, W:170mm, Th:155mm, ?D:290mm.
- From immediately beyond the north wall – Inventory No. XVII.
20. * Column shaft, base and plinth. Much of the plinth and the base mouldings are obscured by consolidation. The two *torus* mouldings are well rounded with a sharply defined junction with the shaft. The shaft also is generally well rounded and smooth but with two marked flats. It is broken off at the top.
Size – H:560mm, D:195–230mm. H of shaft:360mm.
Building XIII, Chalet 7, from the north end of the east wall, consolidated *in situ* – Inventory No. 41.
21. * Column shaft, base and plinth much obscured by consolidation. Square or rectangular plinth on two and probably on three sides, the upper parts of which are chamfered towards the base mouldings. Lower moulding rectangular in horizontal section. The upper moulding is a standard *torus* with a marked flat in the centre of the one visible side. Shaft roughly broken off at the top.
Size – H:385mm, D:200mm, H of shaft:85mm.
Building XIII, Chalet 5, reused in the extension of the west wall at its north end (H13:5:1), consolidated *in situ* – Inventory No. 50.
22. * Column base and plinth, much obscured by consolidation. The outline of the shaft can be made out on the top of the *torus*. If the shaft had been an integral part of the base it has been dressed off later. A deep score across the top is presumably a plough mark.
Size – H:295mm, D of *torus*:310mm, D of shaft:240mm.
Building XIII, Chalet 5, reused in the extension of the west wall at its north end (H13:5:1), consolidated *in situ* – Inventory No. 51.
23. * Column base and plinth. Small fragment with the full profile of one *torus* moulding and the beginning of another. The broken face of the fragment is rounded indicating that the piece has been reused in its present state.
Size – H:160mm, W:140mm, Th:80mm. Approximate D of lower *torus*:380mm.
Unprovenanced – no Inventory Number.
24. * Column shaft, base and plinth. The *torus* moulding is oval to make full use of the top of the rectangular plinth. The back of the plinth is very rough and there is no *torus* directly above it, perhaps as a result of the original face having been removed at a later date. On one of the short sides, which is quite roughly dressed, the *torus* has also been removed. The shaft, like the *torus*, is markedly oval in section, by the base 260 × 240mm increasing to 275 × 250mm at the top. The top is flat with a square hole 80mm in size and 40mm deep in the centre.
Size – H:465mm, D:260–275mm, H of shaft:180mm
H20:6:3, found in a stone pile with nos 12, 14 and 42 (Fig 12.9 F). Inventory No. 59.
25. * Column shaft, base and plinth. Very tall plinth (410mm) of square section (270mm) roughly dressed on all sides. The single thick *torus* is also roughly dressed with a flat above the centre of each face of the plinth. Immediately adjacent to the shaft on top of the *torus* is a deep (6mm) V-sectioned groove extending right across the *torus* parallel to one face of the plinth. The shaft is broken off at the top.
Size – H:700mm, H of shaft:160mm, D:220mm.
H20:8:50 – Inventory No. 78.
26. * Column shaft, base and plinth. The rectangular plinth is roughly dressed on three faces and very rough on the fourth (the back). A shallow groove runs across the front and sides of the plinth and is roughly pecked out

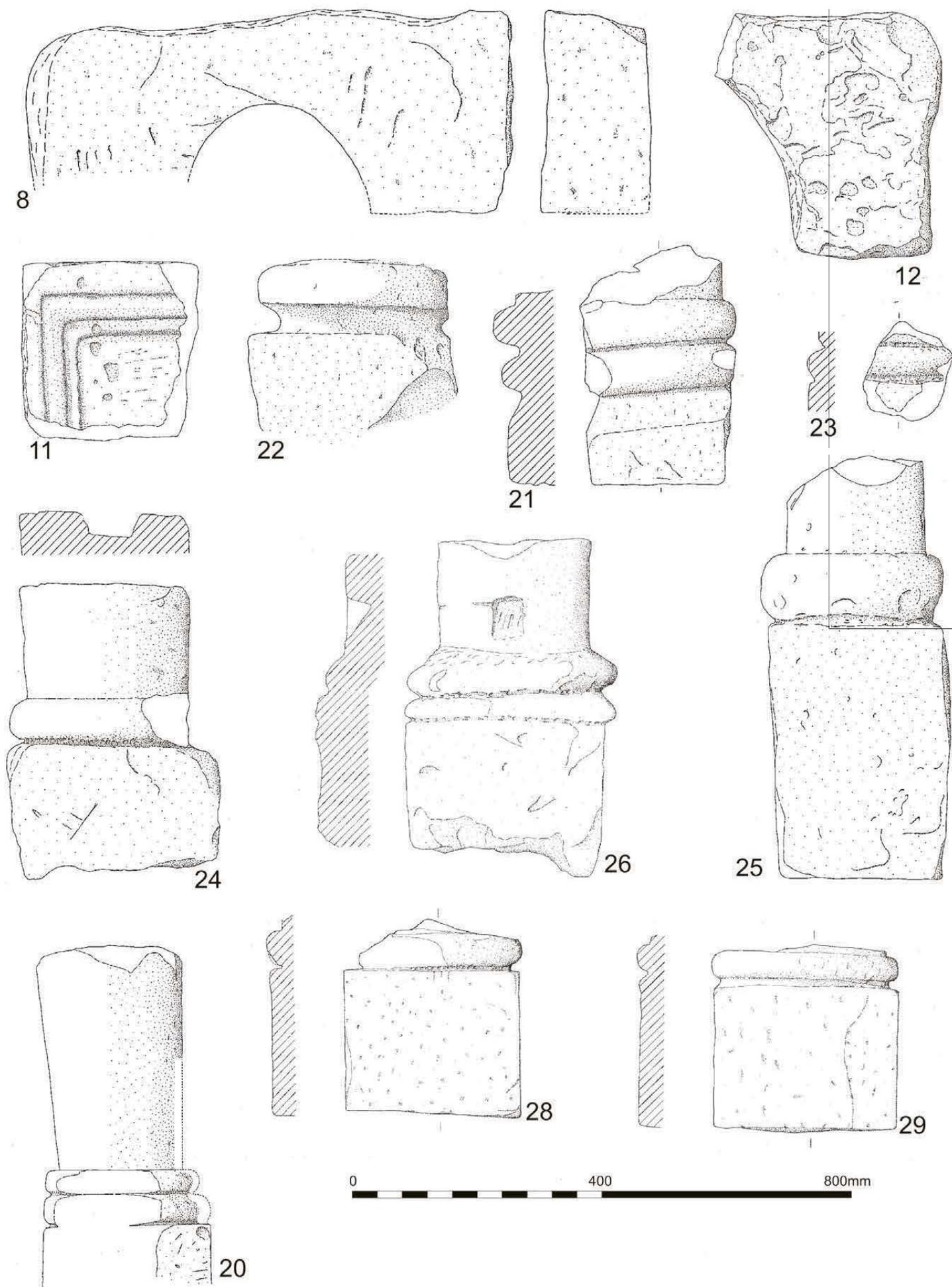


Fig 12.3 Architectural fragments nos 8, 11,12, 20-29 (scale 1:8).

- across the back. The lower moulding is rectangular in plan. The upper moulding has been rounded to some extent but has marked flats and is very oval to allow it to cover the top of the plinth. The mouldings are very rough on the back. The shaft is oval and splays out from 245 × 215 to 260 × 245mm. Above the centre of the back face of the plinth a slot of rectangular section has been roughly cut in the shaft.
Size – H:530mm, H of shaft:190mm; Slot – W:55mm, H:70mm, max depth:45mm.
H20:9:13 (see Fig 12.9 E) – Inventory No. 81.
27. Plinth for a ?column. Rectangular block very similar in every respect to nos 28 and 29. Very little of the upper surface of the stone is visible owing to consolidation but it is possible to detect a slight rise in the surface of the stone, perhaps the beginning of a *torus* moulding.
Size – L:300mm, W:280mm, H:220mm.
Building XIV, Chalet 4, reused in the east wall – Inventory No. A.
28. * Column base and plinth. Plinth rectangular, well squared with smooth dressed surfaces. The single *torus* is surmounted by a small part of the shaft or the *scotia* between an upper and lower *torus* which has been broken off.
Size – H:330mm, H of shaft:20mm, D of shaft:240mm.
Building XIV, Chalet 4, reused in the east wall – Inventory No. B.
29. * Column base and plinth. Plinth rectangular, well squared with smooth surfaces on one face but with the other visible face rougher except towards the arris with the adjacent face. A single *torus* moulding and part of the shaft or the *scotia* between an upper and lower *torus* that has been broken off, remains.
Size – H:300mm, H of shaft:10mm, D of shaft:265mm.
Building XIV, Chalet 4, reused in the east wall – Inventory No. C.
30. Column base and shaft split down its long axis so that only approximately one half remains. The shaft is broken off at the top and most of the base moulding, which may have consisted of two *tori*, is wanting. Shaft splays from 220 to 230mm in diameter.
Size – H:300mm, D:220–230mm, H of shaft:170mm.
From immediately beyond the north wall, H20:10:10 – Inventory No. IX.
31. Post-pad. Truncated pyramidal stone, roughly faced on all sides (Fig 12.8 B). The top is almost square 340 × 330mm and has a sub-rectangular socket, 150 × 110mm by 55mm deep cut in the centre. In the middle of one side and 200mm up from the base is a V-sectioned notch with a horizontal triangular bottom 80mm wide by 45mm deep, which could have supported an upright timber. On top of the stone shallow grooves are probably plough marks.
Size – H:570mm, L:510mm, W:500mm.
Building XIII, immediately north of Chalet 5, consolidated *in situ* – no Inventory Number.
32. Post-pad. Truncated, slightly pyramidal stone, roughly faced on all sides (Fig 12.8 B). The top is almost square (340 × 330mm) and smooth but undulating and dished mid-way along each side. In the centre is a shallow sub-square socket 140mm in size and 25mm deep. Shallow grooves on top of the stone are probably plough marks.
Size – H:550mm, L:480mm, W:400mm.
Building XIII, immediately north of Chalet 5, consolidated *in situ* – no Inventory Number.
33. Not located 1988. Stone with one side rounded into the top. The excavators suggested that this may be part of a crenellation. A similar stone from the excavations in 1984 on the north side of the fort wall is probably part of a column shaft. See no. 19.
Size – H:240mm, W:110mm, Th:280mm.
Building XIII, Chalet 11 – from rubble H13:11:1, 3.7m west from wall H13:10:5 – Inventory No. 37.
34. Not located 1988. Coping stone.
Size – unknown.
H20:8:14 – Inventory No. 73.
35. Not located 1988. Coping stone.
Size – unknown.
H20:8:14 – Inventory No. 74.
36. Not located 1988. Coping stone.
Size – unknown.
H20:8:14 – Inventory No. 75.
37. Not located 1988. Coping stone.
Size – unknown.
H20:8:14 – Inventory No. 77.
38. Not located 1988. Coping stone.
Size – unknown.
H20:3:? – Inventory No. 82.

String course blocks

(the width is measured along the moulded edge)

39. Corner piece. Type III, with marked arris between the concave mouldings.
Size – L:510mm, W:310mm, Th:140mm.
Reused as a threshold stone (floor H21:3:29) in the late interval tower on the east wall, consolidated *in situ* – no Inventory Number.
40. Corner piece. Type II (W:320mm) and Type III (W:370mm). On the upper bedding face a trapezoidal panel 180 × 95–98mm has been roughly dressed back to a maximum depth of 3mm towards the bedjoints.
Size – L:370mm, W:320mm, Th:120mm.
Building XIII, found in the loose stone pile south of Chalet 1 – Inventory No. 1.
41. Corner piece. Type II (W:450mm) and Type III (W:450mm).
Size – L:450mm, W:450mm, Th:100mm.
Building XIII, Chalet 10 – from the post-Roman stone surface H13:10:? – Inventory No. 32.
42. Corner piece. Fragment. Type III.
Size – L:640mm, W:300mm, Th:120mm.
H20:6:3, found in a stone pile with nos 12, 14 and 24 – Inventory No. 66
43. Not located 1988. corner piece. Fragment. Type ?
Size – L:140mm, W:115mm, Th:110mm.
From the topsoil just north of Building XIII, Chalet 5 – Inventory No. 45.
44. Fragment. Type III?
Size – L:290mm, W:235mm, Th:110mm.
Building XIII, Chalet 1, reused in the east wall H13:1:7, consolidated *in situ* – Inventory No. 3.
45. * Fragment largely obscured by consolidation. Type I.
For the drawing see Fig 12.7, Type I.
Size – L:430mm, W:?mm, Th:125mm.
Building XIII, Chalet 2 – set upright in the floor H13:2:13 in the south room, immediately to the south of the bench, consolidated *in situ* – Inventory No. 8.
46. Moulding largely obscured by consolidation. Type III?
Size – L:400mm, W:340mm, Th:unknown.

- Building XIII, Chalet 3 – reused in the northern part of floor H13:3:10, consolidated *in situ* – Inventory No. 10.
47. Fragment. Type III.
Size – L:245mm, W:270mm, Th:120mm.
Building XIII, Chalet 5, found on top of the east wall – Inventory No. 11.
48. Fragment. Type III?
Size – L:490mm, W:290mm, Th:125mm.
Building XIII, Chalet 5, found in loose stones over the chalet – Inventory No. 13.
49. Type III.
Size – L:580mm, W:380mm, Th:100mm.
Building XIII, Chalet 10, reused in the east wall H13:10:3, consolidated *in situ* – Inventory No. 20.
50. Type III. A number of very shallow grooves on the upper bedding face up to 150mm in length may be plough marks.
Size – L:560mm, W:350mm, Th:110mm.
Building XIII, Chalet 9, found in black soil in the northern part of the chalet – Inventory No. 23.
51. Much obscured by consolidation. Type II or III.
Size – L:545mm, W:340mm, Th: unknown.
Building XIII, Chalet 9, reused in floor H13:9:6, consolidated *in situ* – Inventory No. 26.
52. Type III.
Size – L:500mm, W:295mm, Th:140mm.
From the stone pile between Buildings XIII and XIV – Inventory No. 47.
53. Type III.
Size – L:420mm, W:340mm, Th:140mm.
H20:2:0 – Inventory No. 55.
54. Much obscured by consolidation. Type II or III.
Size – L:580mm, W:300mm, Th: unknown.
Building XIII, Chalet 9/10, reused in the party wall H13:9:5, consolidated *in situ* – Inventory No. 56.
55. Much obscured by consolidation. Type unknown.
Size – L:480mm, W:310mm, Th: ?mm.
Building XIII, Chalet 3, reused in floor H13:3:10 north of the chalet, consolidated *in situ* – Inventory No. 57.
56. Type III. The block tapers from the moulded edge from 100 to 60mm. It does not appear to have been originally any thicker.
Size – L:335mm, W:285mm, Th:60–100mm.
From Building XIII or its immediate vicinity – Inventory No 62.
57. Type III.
Size – L:340mm, W:345mm, Th:125mm.
From Building XIII or its immediate vicinity – Inventory No 63.
58. Fragment. Type III?
Size – L:400mm, W:285mm, Th:120mm.
H20:9:12 or 13, back rampart – Inventory No 69.
59. Type III.
Size – L:500mm, W:220mm, Th:150mm.
Reused as a threshold stone (floor H21:3:29) in the later interval tower on the east wall, consolidated *in situ* – no Inventory Number.
60. Small fragment probably from the tip of a moulded string course block. Type II or III.
Size – L:75mm, W:120mm, Th:105mm.
Unprovenanced – no Inventory Number.
61. Small fragment probably from the tip of a moulded string course block. Type II or III.
Size – L:110mm, W:80mm, Th:85mm.
H21:3:48 – no Inventory Number.
62. Not located 1988. Type III.
Size – L:520mm, W:400mm, Th:130mm.
Building XIII, Chalet 1, found on the east wall H13:1:17 – Inventory No. 2.
63. Not located 1988. Type III.
Size – L:290mm, W:320mm, Th:90mm.
Building XIII, Chalet 1, from level H13:1:6 in the south-west corner – Inventory No. 4.
64. Not located 1988. Fragment. Type II?
Size – L:300mm, W:240mm, Th:110mm.
Found in the loose stones to the south of Building XIII – Inventory No. 12.
65. Not located 1988. Type III.
Size – L:320mm, W:480mm, Th:140mm.
Found in loose stonework to the south of Building XIII – Inventory No. 14.
66. Not located 1988. Type III? The lower bedding face is badly burnt.
Size – L:270mm, W:230mm, Th:140mm.
Found in loose stones to the south of Building XIII – Inventory No. 15.
67. Not located 1988. Fragment. Type III?
Size – L:300mm, W:300mm, Th: unknown.
Building XIII, Chalet 10 – reused in the east wall H13:10:3, consolidated *in situ* – Inventory No. 21.
68. Not located 1988. Type III.
Size – L:370mm, W: unknown, Th:120mm.
Found among the topsoil stones to the south of Building XIII, Chalet 10 – Inventory No. 22.
69. Not located 1988. Type III.
Size – L:490mm, W:260mm, Th:130mm.
Found in the loose rubble wall to the north of Building XIII, Chalet 7 – Inventory No. 25.
70. Not located 1988. Fragment. Type II or III.
Size – L:75mm, W:240mm, Th: unknown.
Building XIII, Chalet 6 – from the backfill in an earlier excavation trench – Inventory No. 28.
71. Not located 1988. Type III.
Size – L:550mm, W:300mm, Th:115mm.
Building XIII, Chalet 10 – from the westernmost part of the chalet among the loose stones immediately beneath the surface – Inventory No. 29.
72. Not located 1988. Type III.
Size – L:380mm, W:380mm, Th:110mm.
Building XIII, Chalet 10 – from the westernmost part of the chalet among the loose stones immediately beneath the surface – Inventory No. 30.
73. Not located 1988. Fragment. Type II or III.
Size – L:130mm, W:200mm, Th: unknown.
Found in a stone pile on the road between Buildings XIII and XIV – Inventory No. 46.
74. Not located 1988. Type II.
Size – L:490mm, W:460mm, Th:90mm.
Building XIII, Chalet 9, reused in floor H13:9:6, consolidated *in situ* – Inventory No. 58.
75. Not located 1988. Type unknown.
Size – L:360mm, W:360mm, Th:110mm.
From Building XIII or its immediate vicinity – Inventory No. 61.
76. Not located 1988. Type III.
Size – L:500mm, W:350mm, Th:160mm.
H20:7:35, sitting on top of the fill of the late posthole in the interval tower on the north wall – Inventory No. 70.
77. Probably fragmentary. Much obscured by consolidation. Type unknown.

Size – L:260mm, W:210mm, Th: unknown.

Building XIII, Chalet 9, reused in the flagged floor H13:9:6, consolidated *in situ* – no Inventory Number.

- 77a. Only tip of moulded edge present. Type II or III
Size – L:120mm, W:190mm, Th:100mm.
H13:8:0 – no Inventory Number.
78. Fragment with tip of moulded edge missing. Type III?
Size – L:340mm, W:205mm, Th:145mm.
From immediately beyond the north wall – Inventory No. XII.
79. Type IV. Chamfer rough with clear tool marks. Tip of chamfer missing.
Size – L:450mm, W:440mm, Th:160mm, Angle of chamfer:?
From immediately beyond the north wall, H20:10:10 – Inventory No. IV.
80. Type IV. Chamfer with clear tool marks.
Size – L:380mm, W:450mm, Th:135mm, Angle of chamfer:50°.
From immediately beyond the north wall, H20:10:10 – no Inventory Number.
81. Type IV. Chamfer with clear tool marks.
Size – L:500mm, W:360mm, Th:160mm, Angle of chamfer:42°.
From immediately beyond the north wall, H20:10:10 – no Inventory Number.
82. Type IV. Chamfer with clear tool marks.
Size – L:670mm, W:540mm, Th:165mm. Angle of chamfer:28°.
From immediately beyond the north wall, H20:10:10 – no Inventory Number.

Querns (Figs 12.4–5)

Mayen lava

83. * Part of an upper stone. Upper face decorated with parallel *striae* as on the grinding face. The grinding face has shallow and fine parallel *striae* forming parts of two rudimentary harps.
Size – D:400mm, Th:80mm.
H21:3:16 – no Inventory Number.
84. * Small fragment of an upper stone. The upper face is rough with an oval depression 36 × 20mm × 11mm deep cut into it close to the outer edge of the stone. The grinding face has shallow parallel *striae* forming parts of two rudimentary harps. The edge is dressed with vertical *striae*.
Size – D:450mm, Th:60mm.
HSE:1:11 – no Inventory Number, small find no. (SF) 9216.
85. Not located 1988. Complete upper stone. Probably of Mayen lava.
Size – unknown.
H20:8:29 (see Fig 12.9 D) – Inventory No. 80.
86. * Part of a lower stone. The grinding face has deep parallel *striae* forming parts of two rudimentary harps. The lower face is irregular. Fine vertical *striae* on the edge.
Size – D:460mm, Th:65mm.
Unprovenanced – no Inventory Number.
87. Part of a lower stone. Grinding face undulating but no *striae* visible. Underside rough and irregular, markedly dishd towards the eye. No dressing visible on the edge.
Size – D:430mm, Th:48mm.
H21:3:47 – no Inventory Number, SF 8678.

Sandstone

88. Not located 1988. Saddle quern?
Size – unknown.
H20:8:14 – Inventory No. 76.
89. Not located 1988. Upper stone from a beehive quern, largely complete. Eye an inverted truncated cone tapering from 90mm in diameter at the top to 50mm at the bottom.
Size – D:260mm, Th:110mm, D of eye:50mm.
Building XIII, Chalet 2, from partition H13:2:11 – Inventory No. 43.
90. * Part of an upper stone. Upper face quite smooth with a pronounced collar by the slightly inverted conical eye. The grinding face is as the upper face, smooth with small and shallow punch depressions.
Size – D:420mm, Th:55mm, D of eye:100mm.
Unprovenanced – no Inventory Number.
91. Small fragment of an upper stone with the edge rounded into the upper surface.
Size – D:440mm, Th:33mm.
– HSE:1:1 – no Inventory Number, small find no. 9040.
92. * Fragment of an upper stone. Upper surface very rough. Grinding face worn smooth, no dressing visible. Truncated conical eye of large diameter and roughly cut. Edge with rough vertical *striae*.
Size – D:440mm, Th:50mm, D of eye:180mm.
Building XIII, Chalet 4, from the flagging H13:4:11 in the southern area – Inventory No. 44.
93. * One half of an upper stone. Upper surface roughly dressed with clear toolmarks. Eye is biconical and truncated and surrounded by a very slight collar only 3mm high. The grinding face has fine tool mark depressions across the whole face and there is a slight lip by the skirt. The edge has been roughly dressed.
Size – D:530mm, Th:120mm, D of eye:80mm.
Building XIII, Chalet 11, found in the line of rubble H13:11:1 running north–south 3.7m west of wall H13:10:5 – Inventory No. 35.
94. Fragment of an upper stone with only a part of the grinding face visible. Diameter of the eye 120mm. Very coarse sandstone.
Size – L:165mm, W:120mm, Th:45mm.
Building XIII, Chalet 5, reused in the floor H13:5:9 immediately north of the chalet, consolidated *in situ* – no Inventory Number.
95. Not located 1988. Fragment described as from a lower stone but the sketch in the site book shows a pronounced collar by the eye, suggesting that it is an upper stone. Stone described as quartzite.
Size – D: unknown, Th: unknown, L:200mm, W:220mm.
Found in Building XIII or in the immediate vicinity – Inventory No. 17.
96. Part of a lower stone largely obscured by consolidation. Inverted conical eye tapering from 80 to 50mm in diameter. Underside rough.
Size – D:490mm, Th:100mm.
Reused in the door blocking or raised threshold H21:3:29 in the later interval tower on the east wall, consolidated *in situ* – no Inventory Number.
97. * Fragment of a lower stone. Upper surface a shallow dome over the full diameter, quite smooth with small tool depressions. Underside very irregular. Eye a truncated conical shape with a rectangular extension to one side. Edge only roughly rounded.

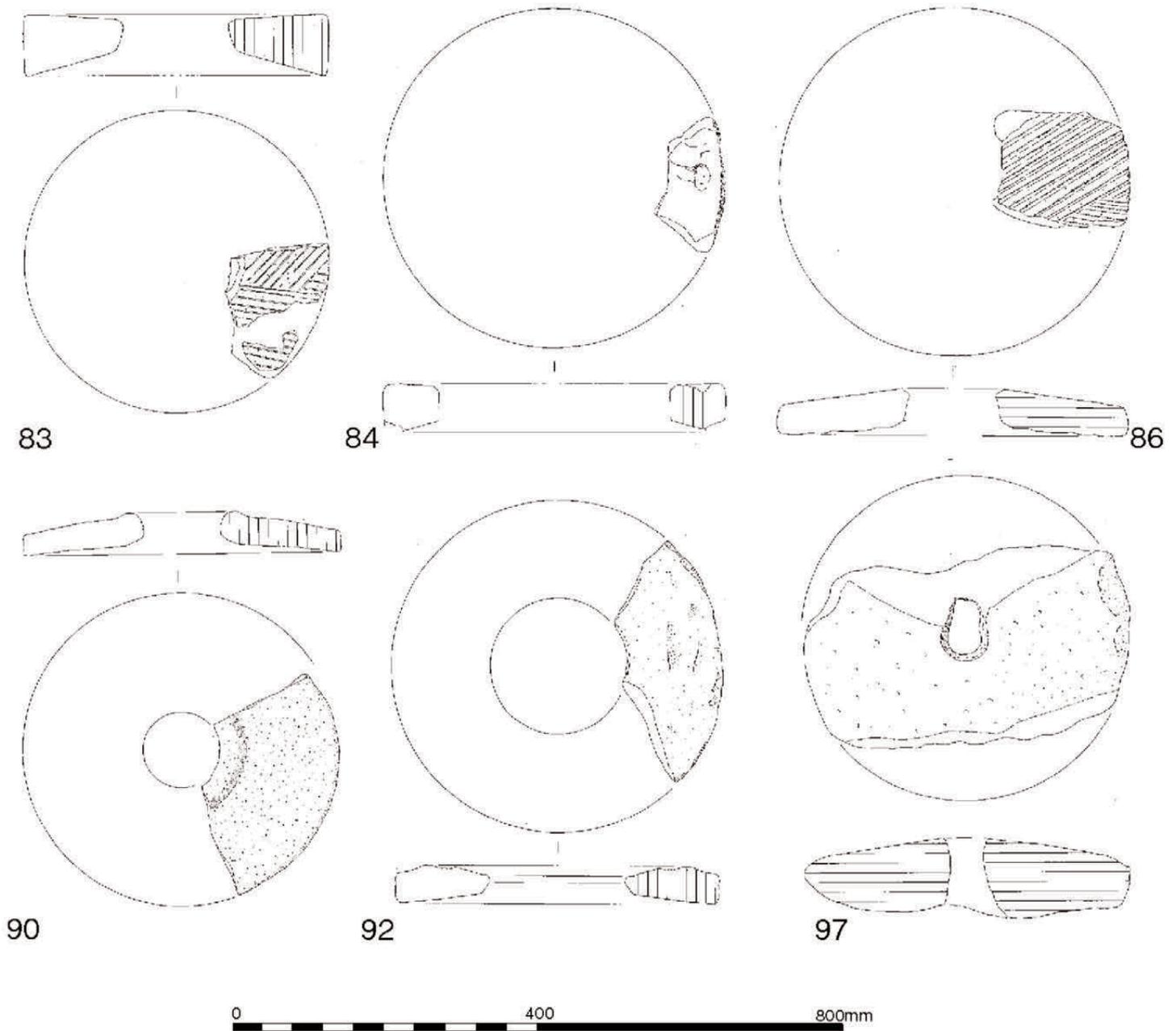


Fig 12.4 Querns (scale 1:8).

Size – D:440mm, Th:95mm, D of eye:40mm.

From the stone pile between Buildings XIII and XIV – Inventory No. 48.

98. * Five fragments from a lower stone, only four of which, forming approximately 70% of the circumference, were located in 1988. Grinding face smooth with no dressing visible. Underside very rough. Eye a truncated cone. Edge very irregular.

Size – D:390mm, Th:80mm, D of eye:40mm.

From the stone pile between Buildings XIII and XIV – Inventory No. 49.

99. Complete but not clear whether an upper or lower stone owing to the consolidation. Oblique *striae* on the edge.

Size – D:470mm, Th: unknown, D of eye:55mm.

Building XIII, Chalet 3 – found in position in floor H13:3:10, consolidated *in situ* – Inventory No. 9.

100. Small fragment of a quern. Grinding face has clear but shallow depressions, other face largely broken away.

Size – D: unknown, Th:55mm.

HSE:1:21 – no Inventory Number, SF 9207

101. Not located 1988.

Size – D:390mm, Th: unknown, D of eye: unknown.

Building XIII, Chalet 1, reused in floor H13:1:33 – Inventory No. 5.

102. Not located 1988.

Size – D:460mm, Th:160mm.

Building XIII, Chalet 2, set in layer H13:2:8 – Inventory No. 7.

103. Not located 1988. Fragment of a quernstone with the eye intact. Not clear whether an upper or a lower stone.

Size – D: unknown, Th:130mm, L:220mm, W:300mm. D of eye: unknown.

Found in loose stones to the north of Building XIII, Chalet 6 – Inventory No. 18.

104. Not located 1988. Fragment.

Size – D:380mm, Th:110mm.

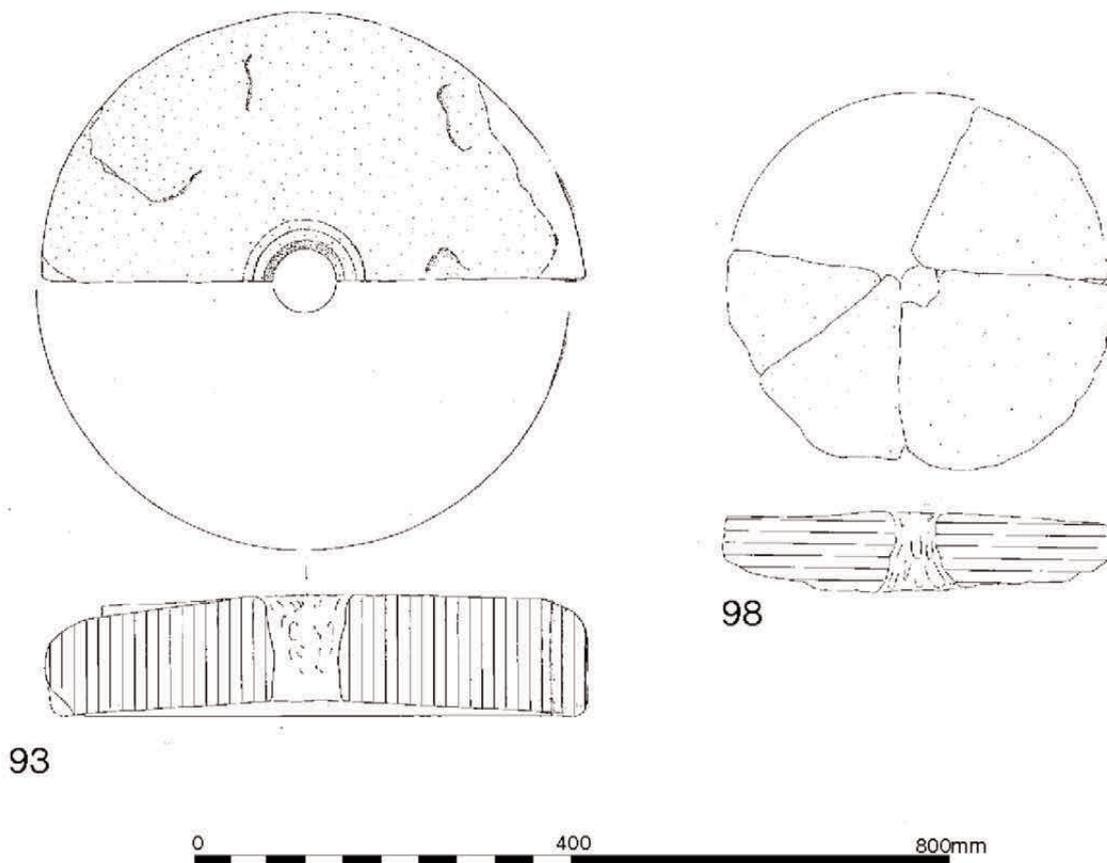


Fig 12.5 Querns 93 and 98 (scale 1:8).

Building XIII, Chalet 11, from the rubble H13:11:1 west of wall H13:10:5 – Inventory No. 38.

105. Not located 1988. Fragment.

Size – D: unknown, Th:30mm.

Building XIII, Chalet 11, findspot as above – Inventory No. 36.

106. Not located 1988. Fragment.

Size – unknown.

H20:9:7 – Inventory No. 72.

107. An irregular slab, part of which is missing, with an inverted conical hole cut through it, 50mm in diameter tapering to 25mm. An unfinished quern?

Size – L:430mm, W:390mm, Th:55mm.

Reused in the revetting wall H21:3:8 on the west side of the water tank by the east rampart, consolidated *in situ* – no Inventory Number.

Miscellaneous (Fig 12.6)

108. * One corner of a moulded pedestal, with identical mouldings on the two adjacent faces. The underside of the block has a roughly pecked groove extending part way across it and the arris with one of the moulded edges is well rounded through wear.

Size – L:270mm, W:230mm, Th:135mm.

Found lying on the surface with loose stones south of Building XIII – Inventory No. 16.

109. * Fragment of the rim and wall of a basin or mortar. Dressed with oblique parallel grooves within and rougher grooves on the exterior.

Size – D:570mm. H:190mm.

Found in Building XIII or in the immediate vicinity – Inventory No. 19.

110. * Mortar, largely complete but for a part of one side missing. The basin is steep sided with a rounded bottom and exhibits fine tool marks, while a ledge around the side near the bottom may be the result of wear although wear marks are not clearly visible. Two diametrically opposed bosses project horizontally out from the rounded rim by 22 and 16mm. On the top of the rim in the centre of one of the bosses a half-moon shaped depression 40mm long may be a deliberate feature. The underside is smooth and flat in the centre and well rounded into the sides. This piece was found laid on its side next to quernstone No. 85 (see Fig 12.9 D). The position of these two pieces suggests the possibility that the quernstone was being reused as a lid for the mortar.

Size – D:480mm, H:420mm, Depth of basin:335mm.

H20:8:29 – Inventory No. 79.

111. * Small altar with the lower part of the shaft and the base missing. The front face has partly spalled off. On the capital are three roughly circular projections. The inscription on the shaft is roughly cut in three lines and is probably complete. The other faces are all very roughly dressed. Suggested reading of the inscription:

D I B
A S I
T F N

The first letter of the second line is partly missing but the upper part of what must be an A is clearly visible. In the third line the bottom part of the second letter is missing; it could be an F or an E. The form *Dibus* is attested on a number of inscriptions in Britain (see *RIB* 796, 1456, 1457, 1729, 1730 and 2109) where it is

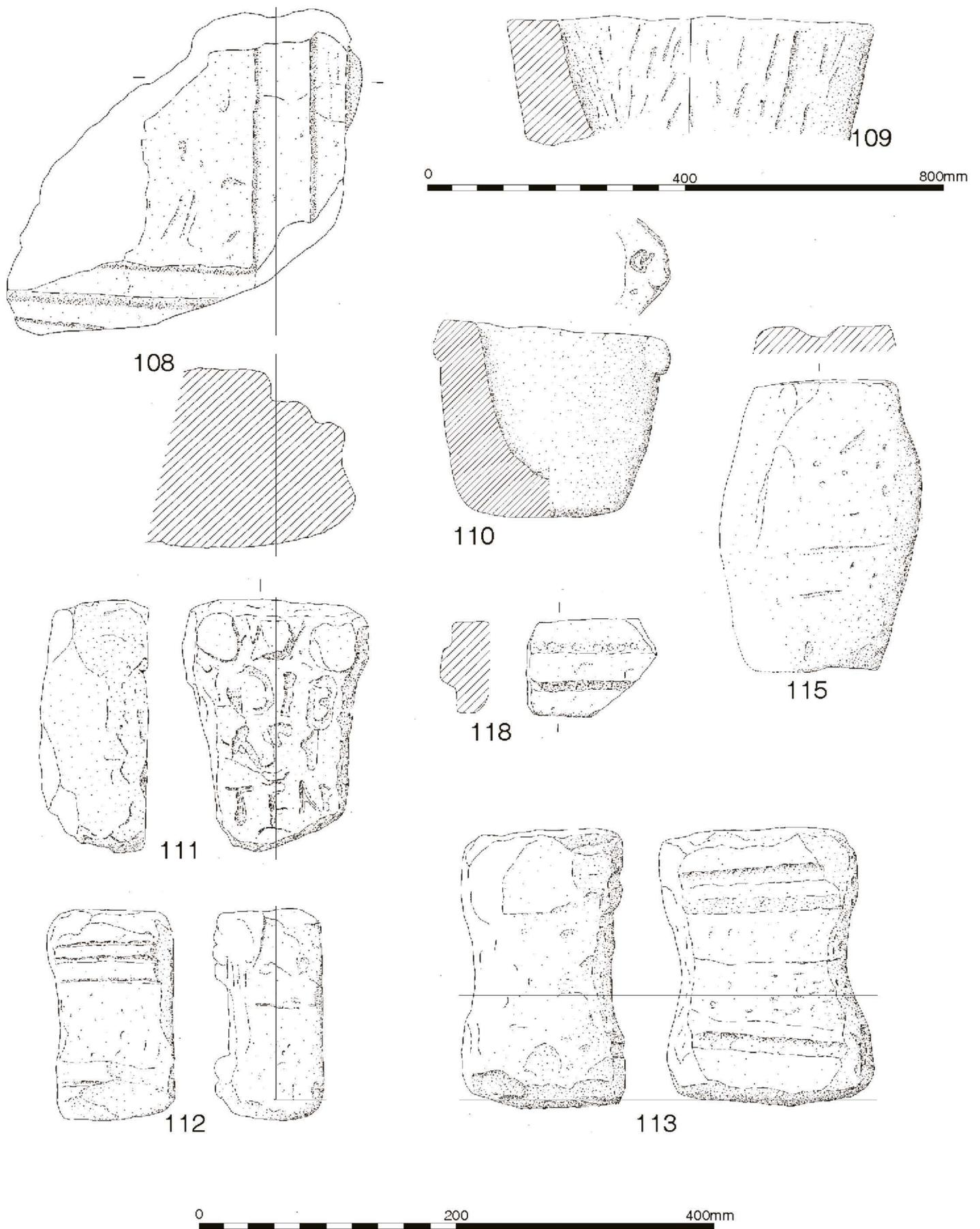


Fig 12.6 Miscellaneous stonework (scale 1:4; nos 109 and 115, 1:8; no. 110, 1:12).

usually, but not invariably, written out in full. *RIB* 2109 has the abbreviation *DIB* as on the Housesteads example. Four of these inscriptions are to be found on small altars ranging in size from 125 to 215mm high and 125 to 150mm wide, each dedicated to the *Veteres* (*RIB* 1456 and 1457 from Chesters; 1729 and 1730 from Great Chesters). The identity of the god referred to on the Housesteads altar is unclear.

Size – H:195mm, W:145mm, Th:80mm.

H13:1:0 – no Inventory Number.

112. * Small uninscribed altar with a circular focus in the centre of the top.
Size – H:165mm, W:100mm, Th:85mm; Focus D:50mm, Depth:20mm
Building XIII, Chalet 1, layer H13:1:17 – Inventory No. 33, SF 2217.
113. * Small uninscribed altar. The front face of the base and capital are smooth, being on a bedding plane of the rock. The rest of the front face has been dressed back leaving fine tool depressions and is not smooth. The sides, back and underside are roughly dressed. In the centre of the top an oval focus, 75 × 65mm by a maximum depth of 9mm, has been roughly cut.
Size – H:215mm, W:160mm, Th:125mm.
H20:4:10, on top of Wall 4 – Inventory No. 42, SF 6528.
114. Not located 1988. The capital and the upper part of the shaft of a small altar with a single line of the dedication preserved. The three letters *D E O* give no clue to which god the altar may have been dedicated.
Size – H:110mm, W:130mm, Th:80mm.
Found among loose stones in areas H20:1–2 in the topsoil – Inventory No. 54.
115. * Circular-sectioned shaft, oval in profile with truncated ends. Roughly dressed over whole surface. In the one end visible is a shallow depression 70mm in diameter by 18mm deep. One well-defined and one less clear groove, both with point dressing within, run across the face of the shaft on one side almost horizontally. This is presumably a finial. The depression may actually have been on the lower face, perhaps designed to aid in bonding the finial to whatever it stood upon. For a better executed example see *CSIR I* 6, no. 439.
Size – L:460mm, max D:305mm.
Reused in the most southerly rampart revetment wall H20:4:4 north of Building XIII, Chalet 2 (see Fig 12.9 G), consolidated *in situ* – Inventory No. 68.
116. Not located 1988. Pear-shaped ?finial.
Size – H:340mm.
From immediately north of the north wall, H20:10:39 – no Inventory Number.
117. Slab with a rectangular-sectioned groove (22mm deep by 18mm wide) running along the two visible edges. Probably the side of a water tank.
Size – L:710mm, W:140mm, Th:135mm.
Reused in the revetting wall H21:3:8 on the west side of the water tank by the east rampart, consolidated *in situ* – no Inventory Number.
118. * Tip of a moulded slab with a single flattened bead. Possibly part of a string course block but the moulding is unlike those found on the other string courses from the site.
Size – L:50mm, W:100mm, Th:70mm.
H20:4:1 – no Inventory Number.

Discussion

Column shafts, bases and plinths

In total, 18 fragments of columns were found in the excavations in the north-east part of the fort. This figure includes three reused in the east wall of Chalet 4 of Building XIV excavated in 1959 and 1960, and three fragments from excavations beyond the north wall in 1984. Seven of these are fragments of shafts, one is a plinth, one a fragment of a base and shaft, four are bases with plinths and five have at least part of the base, plinth and shaft. Over 120 pieces of columns have been recovered from the fort and its environs, a number of which remain *in situ* notably in the *principia* (see *Additional note* by P R Hill below) and reused in the *praetorium*; the bulk of the others are stored in the Dutch barn beside the Museum.

The collection from the excavations includes at least one example from most of the types of bases and plinths found elsewhere in the fort, except for the absence of the large pieces associated with column shafts of over 400mm in diameter. Many of the shafts are markedly bulbous; the minimum diameters range from 195 to 290mm. Of the few shafts that preserve at least one of their ends, two have a square hole in the centre, Nos 14 and 24.

The three plinth and base blocks from Building XIV (Nos 27–9) come from a group of nine examples from the fort that show a degree of standardisation. The plinth is generally approximately 280mm square, between 220 and 270mm in height and probably originally had two *tori*, the lower *c* 55mm thick, the upper a little smaller. As is usual with the bases at Housesteads, the lower *torus* makes the maximum use of the block, often to the extent of having marked flats in the centre of each side of the plinth, as the diameter of the *torus* is greater than the dimensions of the top of the plinth.

Number 20 is one of a group of 11 pieces where the plinth is usually between 250 and 290mm square but is only 80–135mm high. These pieces all have two *tori*, the lower 40 to 55mm thick, the upper usually a little under 40mm thick. They are associated with shafts from *c* 160mm to 200mm in diameter by the upper *torus*. With No. 20, where the shaft survived to a height of 360mm, the diameter at that point was 230mm. Two of these have been reused as hypocaust *pilae* in the *praetorium*, where they remain *in situ*.

Numbers 22 and 24 both have a single *torus*, 80 and 70mm in thickness respectively. There are a total of ten examples of this type from the fort, generally with a *torus* between 65 and 80mm thick and with a rectangular plinth 250 to 330mm in size by 70 to 220mm high. Apart from HO 421, which is considerably larger than the norm, they were associated with column shafts between 210 and 255mm diameter at the base. The only complete column from the site has a base and plinth of this type (HO 130). The column is markedly bulbous, 210mm in diameter by the base to a maximum

of 270mm and 225mm by the capital over its total length of 395mm. The total height of the column with base, plinth and capital is 750mm. One piece has been reused as a hypocaust *pila* in the *praetorium*.

Number 25 is one of a small group where the plinth is rather tall and is provided with a prominent *torus* between 85 and 130mm thick. The plinths vary widely in size from 295 × 230mm to 540 × 400mm and from 305 to 490mm in height. Shafts range in diameter from 220 to 305mm. The large square sockets in the top of the *torus* of two of this type suggest that they may have supported timber posts.

A small group of three pieces are characterised by having two mouldings but the lower is of rectangular section, conforming to the edges of the plinth. The upper is a true *torus*, rounded in the horizontal as well as in the vertical plane. No capitals were recovered from the recent excavations.

No example of any of these types of column bases have been found *in situ* in its original position within the fort, therefore it is by no means clear from which building or category of buildings they came. The complete column HO 130 and the others of that type presumably stood on dwarf walls, perhaps around the veranda in the *praetorium* or in the hospital.

As with the string course blocks and perhaps the window heads, the availability of column shafts, bases and plinths in some numbers, for reuse by the builders of the chalets, implies that the buildings of which they had formed a part were being extensively remodelled. Were these buildings the barracks themselves? Evidence in Building XIII for a veranda along the north side of the barrack block was found in the form of square stones (H13:4:33; 6:44) set level with the contemporary ground surface (*see* Volume I, Chapters 3 and 4). These may have acted as post-pads but there is no indication of any socket in the tops of them. They could equally well have supported stone columns. If the barrack verandas were supported by columns of stone a very considerable number of similar column bases, shafts, and perhaps plinths, would have been required. As noted above, the largest 'set' of column fragments does not exceed 11 pieces, rather suggesting that there had not originally been a set containing in the order of 100 columns on the site. Of the ten column and base fragments from stratified contexts, six were probably reused in the earliest chalet phase.

String course blocks

A total of 45 string course blocks was found in the 1974–81 and 1984 excavations, 40 from within the fort and five from the debris immediately beyond the north wall. A further five stones, described as coping stones in the site register, may also be of this type. Only 29 of the stones were available for study in 1988. They form a small part of the collection of 168 examples that have been recovered from in and around the fort and now

either remain *in situ* where they have been reused in the Roman and medieval periods, or are stored in the Dutch barn by the Museum. The mouldings are of four types (Fig 12.7).

Type I: Four examples of this type have been recognised, a total minimum length of 1.41m. The blocks vary in thickness from 100mm to 125mm. Of the four pieces two are right-angled corners. There is a groove on the lower bedface with the *cyma recta* ending in a 90° change of direction, effectively leaving a rectangular-sectioned rebate along the moulded edge. The vertical edge above this has a single groove along it. One piece has very clear weathering on the upper face by the moulded edge.

Type II: There are 26 examples of this type from the fort, two of which came from the excavations in the north-east quadrant of the fort. These are very closely related to the blocks of Type III but they lack the groove by the moulding on the lower bedface. They range in thickness from 100 to 140mm with 125mm being the most common. A total length of 10.38m has been recovered. The basic form is standardised but there is considerable variation in detail, with the width of the moulding ranging from 75 to 170mm. Only one corner block of this type has been recognised. However, four corner blocks have mouldings of Type II along one edge and of Type III on an adjacent edge.

Type III: The 126 examples of Type III make up the most common form of string course moulding. These range in thickness from 100–160mm but the majority fall between 120 and 130mm. The basic design is found on every stone. A groove on the lower bedface lies alongside a *cyma recta* moulding which runs to the edge where there is a triple bead, the lower bead projecting boldly downwards. Along by the moulded edge there is often clear evidence for weathering. Presumably the blocks projected the distance from the rear edge of the groove on the lower bedface to the moulded edge. This varies from 10.5 to 18.30mm but in 81% of those available for measurement it lies between 130 and 160mm. A minimum length of 53.27m of this string course has been recovered from the fort, with over 16% of the pieces being right-angled corner blocks.

Type IV: Blocks with a chamfer varying from 50° to 28° (the examples from the 1974–81 and 1984 excavations). Only 12 examples have been recognised, of which no less than four come from the debris north of the north wall (1984 excavations). A single example is chamfered on two adjacent edges, while another is chamfered on three. With all these blocks it is not easy to be certain whether they are string course blocks or coping stones. The latter example in particular could be a coping stone, perhaps even a merlon cap, but it does exhibit weathering along one edge on the unchamfered face suggesting that it had been used with the chamfered face downwards, ie as a string course block.

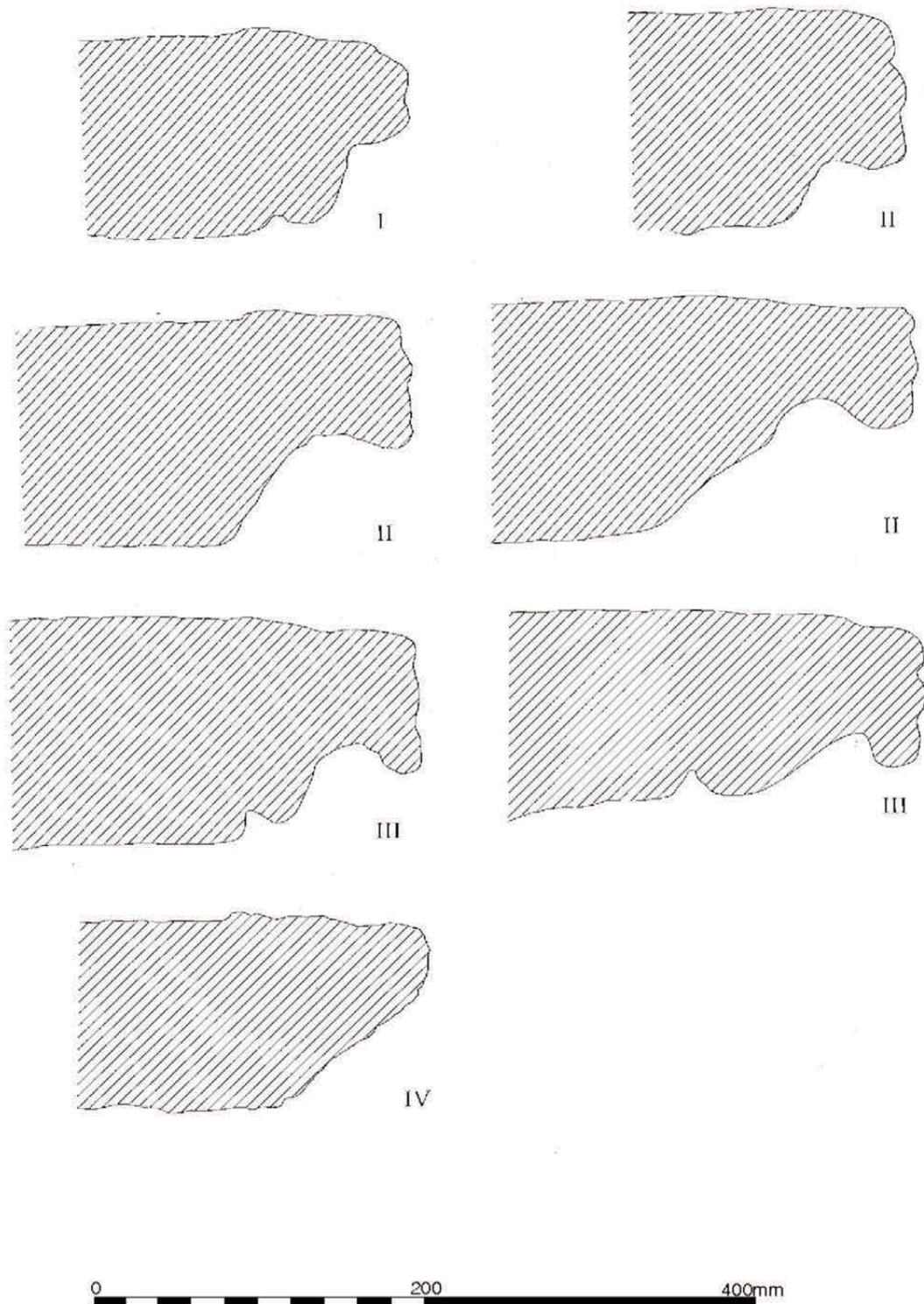


Fig 12.7 String course blocks: Types I-IV (scale 1:4).

The rarity of string course blocks of Type I does not allow us to hazard a guess as to where they may originally have been used. The difficulty of deciding whether Type IV blocks should be interpreted as string course blocks or as coping stones has already been mentioned. They will have performed both functions equally well. One might suggest that their recovery from the debris associated with the collapse of Wall III, itself a repair of the north wall of the fort at some date

after AD 250 (Crow 1988, 72), indicates that they were associated directly with the defensive curtain. One could envisage these chamfered blocks either as forming a string course at the level of the parapet walk or as merlon and crenel capstones. In either situation a very considerable number of stones would have been required. However, they are not a common find at Housesteads, or at least they have not been frequently noticed, recorded or preserved. This may to some

extent be the result of the area immediately outside the fort wall having been cleared during the 19th century. As many as 169 stones of this type were recovered from the line of Hadrian's Wall on Peel Crag during excavations in 1909 (F G Simpson 1976, 115–16) and smaller numbers have been recovered from widely spaced localities, both east of the North Tyne and west of the Irthing. These can only have come from the Wall curtain itself.

That blocks of Types II and III are string course mouldings cannot reasonably be doubted. It is difficult to envisage their having been used within the barracks of the fort; they presumably come from one or more buildings of considerable size and elaboration. The total length of the surviving string course, 64.8m, which includes 18 corner blocks, makes it unlikely that they all could have come from one building. The most obvious candidates within the fort are the interval, angle and gate towers. The Hadrianic fort had 14 towers around the circuit which, if provided with a single string course at parapet level or at the level of one of their upper floors, would have required 56 corner blocks and a total length of *c* 250m. A similar string course may also have run across the gate curtains but presumably such a string course did not extend around the towers and curtain at the same level as no 'internal' corner blocks have been found.

We may presume that the simpler mouldings of type II were designed for use on the less prominent parts of the structures of which they formed a part. It is clear, however, that they were not simply confined to the rear face, as the single example of a Type II corner block indicates. Well before the end of the Roman period a considerable number of these string course blocks were available for reuse. Several were found reused as flagstones and in the walls of the chalet phase of Building XIII. Others are still to be seen in the roadway outside the east and south gates. A single example is built into the core of the south wall of the *Vicus* Building IV, while another is visible in the core of Hadrian's Wall, a little way down the hill from the north-east angle of the fort. Two are reused as threshold stones in the doorway into the late interval tower on the eastern defences by Building XIV (Nos 39 and 59). The fragment found in the excavations of 1984 immediately north of the north wall came from debris associated with the collapse of the fort wall in that area but unfortunately it is not clear in which phase of wall this piece had been reused.

String course blocks of Type IV have been found on a number of military sites, and one remains *in situ* at the level of the parapet walk at the east angle of the legionary fortress at York (Miller 1925, 191). String course mouldings of Types I, II and III have not been recovered from other military sites. As the fort at Housesteads is thought to have been constructed by the same legionary workforce as built the other forts on the Wall in the Hadrianic period, the absence of string course mouldings of Types I to III at other forts in the vicinity may suggest that this design of string course

was not Hadrianic. They were perhaps produced by the garrison in residence at the fort at a later date where the individual style could be seen as relating to a specific, but as yet unidentified, unit. If this interpretation is correct it implies that there was a considerable amount of building activity within the fort in the post-Hadrianic period but before the last century of the Roman occupation.

Whatever building or buildings these string course blocks had formed a part, it is clear that it or they were in an advanced state of decay or were partly demolished on a large scale, presumably at a date before the reconstruction of Building XIII in the later 3rd or early 4th century. Sixteen pieces came from stratified contexts in the north-east quadrant of the fort. Of these, nine were securely dated to the earliest chalet phase and two others were perhaps of the same date. No example was certainly found in deposits or reused in structures associated with later phases of the chalets. Evidence for alterations to the defences can be seen in various parts of the circuit, notably at the south-east and south-west angles, where the front walls of the towers may have been totally rebuilt, and on the north defences where the interval tower to the west of the north gate was demolished, presumably at a date before the construction of the new interval towers to the east of the north and south gates and along the east wall.

Window heads

The monolithic window heads form one of the most characteristic groups of architectural fragments from Housesteads. These are usually decorated with a moulding around the edges of the front face and frequently further embellished with a range of incised motifs (Bosanquet 1904, 267; *CSIR* I 6, nos 244, 413–33). Only one piece that is certainly from a decorated window head was recovered from the 1974–81 and 1984 excavations, No. 11, but Nos 9 and 10, which were not available for examination in 1988, are probably further examples. All three are small fragments and no decoration beyond the mouldings by the edge of the front face are preserved.

A total of 41 fragments are now preserved at Housesteads and a few others from the fort are in Chesters Museum. The pieces at Housesteads are from a minimum of 28 window heads. None of these is complete and it is thus not easy, owing to their rough nature, to be certain of the width of the curved opening. Many, however, lie within the range 570 to 600mm, although a few examples may be as small as 530 and 540mm and one is perhaps only 420mm in diameter.

It is extremely unlikely that these window heads were used in the barracks and the large number of examples, which, although all varying in detail are clearly closely related in style and are probably the product of a single workshop, suggests that they cannot have come from any other single building. As with the string course mouldings, it may be suggested that the

window heads come from the gates and perhaps also from the interval and angle towers. The findspot of many of the decorated window heads is not precisely known as a large number were recovered by the excavators in the 19th century. Some were found by the south gate in the 1830s by Hodgson and during the clearing of the north gate and the area immediately outside it in the 1850s. Another is shown propped against the west gate in the Richardson watercolour of 1855, where it remained until 1988. An example now in Chesters Museum was found during the excavations in 1898, built into the small projecting annex at the west end of Building II (Bosanquet 1904, 268). Another piece had been used face up as a flagstone in the courtyard of the *praetorium* where it remains *in situ*. A further fragment is still to be seen reused as a facing stone in Hadrian's Wall, a little way from the north-east angle of the fort towards the Knag Burn.

The concentration of these fragments around the gates is of interest but whether it bears any relation to their original use is incapable of proof. Many or all of these fragments may have been reused in the gate blocking walls or in later reconstructions of the gates themselves. The piece found in 1984 on the north side of the north wall a little to the east of the north gate (No. 11) was only a small fragment; it had presumably been reused in one of the rebuildings of the fort wall or had been brought from elsewhere and dumped over the wall, rather than having fallen directly from the north gate. Monolithic window heads were found at the east gate at Birdoswald from where it is assumed they came, and at the west gate of South Shields. Where the decorated window head found in 1983 at Sycamore Gap east of Milecastle 39 (CSIR I 6, no. 456) had originally been used is unclear. Milecastle 39 has produced its own style of monolithic window head with a herring-bone pattern of tooling (J G Crow, pers comm).

Five undecorated monolithic window heads are also available for study, two of which came from the 1974–81 and 1984 excavations (Nos 8, 12). The two complete examples have openings 610mm wide while another is approximately 570mm in width. The window heads from Birdoswald have openings 650mm wide, and the two examples from South Shields have openings 600mm in width. The undecorated examples from Housesteads may originally have been used in the buildings of the central range or perhaps in less prominent positions than the decorated window heads on the gates and towers.

The arrangement of the superstructure of the gates and towers at Housesteads is by no means clear. The reconstruction by Richmond and Child allowed for a large gatehouse at first-floor level lit by ten windows, six in the front wall, two in the side walls and two in the rear wall (Richmond and Child 1942, fig 4). The evidence available does not allow a more detailed consideration of the provision of windows in the gates and towers but the large number of decorated window heads that have survived suggests that, if indeed they

did come from the defences, Richmond and Child were correct in the order of magnitude of window openings that they envisaged.

The dating of these window heads is problematic. Richmond and Child assumed that they had been used at the gates but that the fashion for monolithic window heads was a late one and that they belonged to a later reconstruction of the defences (1942, 143). At Birdoswald monolithic window heads were found at the east gate (Wilmott 1997, 63, fig 38), but small voussoirs from an arch approximately 760mm in diameter, suitable for a door or window head, were recovered from the south gate. Similar small voussoirs were also found in the latest material from the collapse of the west gate (Wilmott 1997, 63–5, fig 39 no. 7). The stratigraphical evidence from Housesteads for the few monolithic window heads for which a context is known indicates that a number of the monolithic window heads were available for reuse before the end of the Roman period. The undecorated example, No. 12, was found in a context on the north rampart that was probably contemporary with the earliest phase of the chalets in Building XIII. If the decorated window heads are post-Hadrianic, the building or buildings of which they formed a part must have been built or extensively altered sometime between the mid-2nd century and the mid- to late 4th century.

The decorated window head from Sycamore Gap is closely related to the Housesteads examples but it is rather cruder in execution and it has only a single shallow grooved border around the front face rather than the prominent double or triple border grooves of almost all of the examples from Housesteads. It looks as though the mason was copying the Housesteads type rather than the Sycamore Gap piece being produced by the same workshop as the others. Its reuse in a reconstruction of the curtain of Hadrian's Wall dated to the second half of the 2nd century (Crow 1984) goes some way to supporting a 2nd-century date for the Housesteads pieces.

Two monolithic window heads from South Shields are of exceptional interest as both have had voussoirs painted on them so that they appear as true arches (Bidwell and Speak 1994, 148–9, nos 7–8, fig 5.4). One of these (No. 7) was found in front of the west gate, presumably where it had fallen from the gate itself. The excavator considered it to date from the construction of the gate in the mid-Antonine period and dated its deposition to very late in the Roman period, perhaps in the early 5th century (P T Bidwell, pers comm). If indeed this piece remained *in situ* in the gate until the end of the Roman period the painted decoration is unlikely to be original. It rather suggests, with the evidence for the availability of monolithic window heads for reuse in the late Roman period at Housesteads, that, contrary to the opinion of Richmond and Child, it was the monolithic window heads that were early and the change in fashion to arched window heads at the sites where the former type occurs was a later rather than an



A Centurial stone No. 2 reused in west wall of XIII Contubernium 8



B Post-pads Nos 31–2 reused in the secondary porch of XIII Chalet 5 (mid–late 4th century)



C Windowhead(?) No. 8 reused as door jamb in the late, irregular south wall of XIII Chalet 2

Fig 12.8 A–C: Examples of the reuse of stonework in the north-east quarter.



D Mortar No. 110 and quern 85 lying where abandoned at the end of the life of Workshop 4 (north rampart)



E Column shaft/base/plinth No. 26 in north rampart revetment H20:9:13 (Phase H20/4b)



F Columns, Nos 14 and 24 in the pile of spolia and blocks (H20:6:3) – debris from demolition of the interval tower?



G Shaft No. 115 reused in very late rampart revetment north of XIII Chalet 2

Fig 12.9 D–G: Examples of the reuse of stonework in the north-east quarter.

earlier phenomenon. There is no evidence to indicate that the monolithic window heads from Milecastle 39 are of any other date than Hadrianic.

Querns

Fragments of 24 querns were found during the 1974–81 excavations at Housesteads. This is only a small proportion of the total that were recovered from the site, but hitherto no examples have been published in detail. Bosanquet refers to the finding, during the excavations in 1898, of ‘numerous querns, fragmentary for the most part, and presenting only the usual types’ (Bosanquet 1904, 285). A fragment from a beehive quern that still retains part of its iron spindle is consolidated *in situ* into the verandah on the south side of the courtyard in the *praetorium*. Other querns are to be found in the Museum attic and in the Dutch barn. The present discussion will confine itself to the examples found in the north-east quadrant of the fort.

The most primitive form of quern represented in the collection is a possible fragment of a saddle quern (No. 88), which was not available for study by the writer. If the piece was correctly identified, its occurrence on the site constitutes another piece of evidence for pre-Roman occupation (cf Chapters 2, 10 and 21) considering that the type was being replaced by the beehive quern as early as the 2nd century BC (Welfare 1985, 154). It presumably was not being used for grinding grain during the Roman period, when there was no shortage of the more advanced rotary querns in a variety of designs. Of the other type with a pre-Roman ancestry, the beehive quern, only one example was recovered (No. 89), reused in a 4th-century context. The diameter of this piece is smaller than the norm (at Vindolanda 340, 360 and over 300mm – Welfare 1985, MF1–3; at Wallsend between 300 and 400mm – R Willis, pers comm). There is no evidence for the method of attaching the handle in the Housesteads piece.

Five examples are in the highly distinctive lava probably from Mayen in the Eifel Hills of Germany (cf Peacock 1980, 49), which were presumably introduced to northern Britain by the Roman army (Welfare 1985, 156). The Housesteads examples, although largely fragmentary, exhibit a number of the characteristic features of this type of quern including the clear *striae* on the grinding face arranged to form rudimentary ‘harps’, the pattern sometimes repeated on the upper face of the upper stone, presumably for its decorative effect, and the presence of vertical *striae* on the edge of the stones. One of the three upper stones (No. 84) has a shallow oval depression 36 × 20mm in size and a maximum of 11mm in depth cut in its upper face close to the edge. Its function is unclear. The only complete example found (No. 85) was not available for study by the writer. Its findspot, immediately adjacent to the mortar No. 110, which had been pushed onto its side, suggests the possibility that the quern was being reused as a lid. The two lower stones are markedly dished and irregular

on the underside, presumably to allow them to be bedded on some such material as clay in order to stabilise them during use (Welfare 1985, 157). The diameter of the stones is not easy to measure accurately owing to the small fragments preserved, but they lie between approximately 400 and 460mm and are thus a little larger than the similar stones from the fort at Vindolanda.

The largest group of querns, totalling 18 in number, are basically similar to the Mayen stones in shape but are made of sandstone and are presumably of local origin. The stone varies from fine close-grained to very coarse with large quartz granules. Five are upper stones, three lower stones and the rest, most of which were not available for study, could not be identified as upper or lower stones. Apart from the single very large piece, No. 93, diameters range from 380 to 470mm with another example around 490mm. The most common size is 440mm.

Of the upper stones one is a small fragment from the edge (No. 91). This piece is thin, at 33mm, and is notable in that the upper face is rounded into the edge (for a very similar piece see Welfare 1985, MF28). The other four all preserve part of the eye *c* 180mm, 120mm, 100mm and 80mm in diameter. Features of interest include the vertical *striae* on the edge of No. 92 and the pronounced collar around the eye of No. 90. This piece is of higher quality than the norm, with a smooth dressed upper surface. None of the examples have any grooves on the grinding face but the fine depressions made by a point on the face of No. 90 (and No. 100) will have enhanced the abrasive qualities of the stone. This example is reminiscent in shape, and to some extent in the dressing of the grinding face, to a quern from Vindolanda (Welfare 1985, fig 62, no. 21) but it lacks the furrows radiating from the eye into the breast. The Vindolanda piece may have been in use in the first half of the 4th century. Number 93 is extremely bulky, of rectangular section and 120mm thick. Its diameter, at 530mm, is also greater than the norm. A similar piece, though of considerably smaller diameter, came from Vindolanda, where the use of the stone is dated to the late 3rd or the early 4th century (Welfare 1985, 162, fig 61 no. 17; cf also fig 62 no. 27).

The lower stones have few features of interest. Only No. 97 deserves comment. The circular eye has a rectangular extension 40–50mm long and 35mm wide to one side that pierces the stone. The function of this feature is not altogether clear. It is reminiscent of the rynd chase to be found on upper stones but there the rynd chase extends to both sides of the eye. The diameters of the eyes on the lower stones vary between 40 and 50mm.

Numbers 83, 87, 94, 99, 102 and 107 were all reused in contexts associated with the first phase of the chalets, while Nos 84, 96, 100 and 101 were in contexts dated to the later chalet phase. Number 85 was possibly reused as a lid for the mortar No. 110 in one of the north rampart workshops during the second half of the 3rd century (see Fig 12.9 D). There is no evidence that any of the quern fragments were being used during the life of the chalets except as building materials.

Additional note on architectural stonework in the fort

P R Hill

The methodology used in the technical survey of these architectural fragments and the definitions used in the descriptions below are set out in Chapter 8.

Merlon cap

510 × 450 × 125mm. This is lying in the interior of the corn dryer adjoining the bastle house, used as a stepping-stone by visitors. It is chamfered on three sides; the east side as now lying was a joint. The top bed is badly worn, perhaps partly in antiquity but probably mostly by visitors. There are variations in the chamfers due to wear caused by visitors' feet.

The chamfers are worked in small pecks, range 2mm, and the corners were probably originally square. There is some damage to the west chamfer, immediately adjacent to the north quoin. The bottom bed is very uneven but smoothed; it may be entirely natural or may have been walked on in a previous reuse.

Between the chamfers the top bed measures 420mm E-W and 330mm N-S.

Summary and discussion

This was certainly half of a merlon cap. If the flat area of the top bed was meant to be the same width as the wall below, it came from a parapet 330mm wide; the bottom bed gives no indication of this. If it was exactly half a merlon cap, it suggests a merlon 840mm long. The wear makes judgement difficult, but it was probably quite well worked.

This stone is suffering serious and constant damage from visitors, and should be moved to a place of safety as soon as possible.

Water spout

445 × 840 × 250mm. This is lying at the base of the east *spina* pier of the east gate, and described as it lies. The south end of the stone is broken off. Beginning at this break is a channel, set centrally, which reduces abruptly in width. The east side of the stone, including the east part of the north end, is broken, taking away the top bed along the east side of the channel. What remains of the north end seems to have been a shallow rock face. The channel is worked with a punch, neatly enough, with a range of up to 6mm. Part of the top bed at the west side, from the point of reduction running north for 230mm, is worked unevenly with a punch and is noticeably less weathered than the rest of the top bed.

This stone could have been part of a gutter, but is more likely to be a gargoyle or spitter discharging water from a roof; the form is exactly that found on medieval churches for discharge of water from gutters. The wider part collects water from the gutter at either side and the narrower channel conducts the water through

the parapet. The obvious original location is the top of one of the gate towers. The less weathered section may be an indication of the width of the parapet, although 230mm is rather narrow and does not correspond with the merlon cap in the bastle house (see above), which suggests a parapet wall 330mm wide.

The spout may indicate either a flat roof or a pitched roof with gutters behind a parapet. The apparent narrowness of the parapet may be related to a pitched roof, but this is by no means certain.

This spout is not unlike the remains of two spouts or gutters in a field wall (Grid ref NY 823706) close to the site of Turret 33a; these remains are too fragmentary and inaccessible to make a realistic comparison.

Window head

550 × 120 × 675mm. This is part of an arcuate window head, lying on the north pier of the entrance to the *aedes* in the *principia*. It is broken from the upper edge down to the arch, leaving just over half. The face is worked flat with a punch in small pecks, 3mm hollow to 3mm round, range mostly 2mm. The soffit is worked less cleanly, but still in small pecks and perhaps with the occasional use of a 25mm blade in places. The back is an entirely natural bed; the stone is face-bedded.

Around the arch there are two quirks delineating what were possibly half round mouldings; these return across the lower edge to the left-hand side, at which point they are joined by a further quirk. The three quirks and mouldings then run up the left-hand side and cross the top to the break, which is 300mm from the upper left-hand corner. The quirks and mouldings appear to have been worked with a fine punch.

On the face, set inside the mouldings in the upper left-hand corner is a pecked circle 100mm in diameter, and close to the break is what looks like a small pecked crescent.

At the front of the stone the radius of curvature gives a span of 625mm and at the back 565mm. The stone is worked with a fine punch, giving a somewhat unsatisfactory surface from which to measure, especially over such a small arc. It seems a reasonable assumption that it was designed for an opening of two Roman feet (594mm).

This was a good, carefully worked stone, which would have been of very good appearance when new. The minor variations in the working of the soffit are a little surprising, but this could perhaps have been rendered over. The stone will have been used as a thin facing against the corework of the wall.

The columns

In the *aedes* there are eleven parts of columns; two of them are certainly from the same column. Nine or ten are laid out in five rows, numbered from the west and up from the south.

Part of a column with two torus mouldings lies in the south-west corner of the *aedes*, designated 6/1.

As a whole, the columns show poor workmanship and not a great deal of skill. Column 2/1 is probably the best work, somewhat below average Roman military engineering. Column 5/2 is the most interesting; although sub-rectangular rather than circular some care was taken, and it has a blank side which suggests that it stood against a wall. It was not, however, an engaged column. Column 6/1 is so crudely worked as to represent a descent into barbarism, interesting in itself as it suggests that old forms and styles of building were remembered long after the skills had been lost.

All the columns were worked rather than turned.

Ceramic tile, brick and stone tile

In total, 399 pieces were examined. To this total must be added an indeterminate number of small fragments that preserved no information of interest and were not recorded. All the tiles, where at least the thickness could be measured, were examined. The total assemblage can be divided into a number of categories:

<i>tegulae</i>	100+
<i>imbrices</i>	90
box tiles	38+
flat tiles and bricks	?
stone tile	26

The ceramic tile occurs in a range of fabrics, from a soft orange to a hard brick red. Moderate amounts of red ironstone, quartz and white calcareous inclusions are present. A detailed listing of the fragments has been lodged with the archive.

The *imbrices*

Even quite small fragments of *imbrices* are easy to recognise on account of their curvature, their smooth surface on the outside of the curve and their sanded surface within. *Imbrices* range in thickness from 12–22mm although the margins of the tile were often thickened, the result of the edges being pressed back into the tile causing the clay to bulge at that point.

thickness – more than 5%	13–19mm
most common thickness	15mm
maximum length preserved	132mm
maximum width preserved	110mm

With the other categories of tile it is not always possible to differentiate between fragments of *tegulae*, box tiles and flat tiles. Box tiles frequently have scored designs to aid their bonding to the walls that they were used to line, and to aid the adherence of the plaster with which they were coated, but much more rarely similar designs are found on flat tiles. A number of the *tegulae* or flat tiles have grooves probably made by the finger. These include single grooves, parallel grooves, arcs, a ‘V’ and zigzags. Two paw prints, probably made

by dogs, were also noted. One tile 27mm in thickness had a 7mm diameter hole drilled through it from both sides, a feature not usually seen on *tegulae*. In thickness the range of variability of flat tiles, box tiles and *tegulae* overlap. Of the certain *tegulae* and box tiles the range of thickness is as follows:

	<i>tegulae</i>	box tiles
range	15–33mm	14–24mm
more than 5%	20–26mm	17–22mm
most common thickness	25mm	17mm

Flat tiles and brick

Flat tile fragments with thicknesses that fall within the range of those found in the *tegulae* and box tiles can rarely be differentiated from the more elaborate types. As already noted, the presence of decoration is not confined to box tiles. One tile fragment with comb decoration (Fig 12.10 No. 4) does not appear to have been a box tile and another with lattice decoration, at 33mm thick, is unlikely to have been a fragment of a box tile. Only 18 fragments of tile were over 35mm thick.

35mm+	1	52mm	1
40mm	1	53mm+	1
41mm	1	59–70mm	1
47mm	1	60mm	2
48mm	2 conjoining frags	64mm	1
50mm	2	80mm	1

Only one piece had its full length or width of 190mm preserved. Other examples had minimum dimensions of 238 × 168mm and 206 × 108mm. A tile 47mm thick had a hole 14mm in diameter drilled through it. The hole, being drilled from both sides, has a very pronounced hour-glass shape in section.

Box tiles

Of the 38 pieces of box tile examined 20 had some decoration, of which a scored lattice was by far the most common with 12 examples. The lattice varied from close to open (8–37mm between the grooves) and the grooves from deep to shallow. Other forms of decoration can be seen on Fig 12.10, Nos 1, 3 and 7). Only three box tiles preserved traces of cut-outs through their narrow sides. These may all have been rectangular; the largest surviving example has minimum dimensions of 70 × 35mm. The greatest surviving length of a box tile was 140mm. One had a minimum width of 112mm while another piece may have preserved its full width of 102mm.

The *tegulae*

The *tegulae* are the most interesting category of tile from the site as they exhibit a considerable range of types of flange and of the cut-outs to be found at one end of the flanges. Eight flange types, a–h, have been

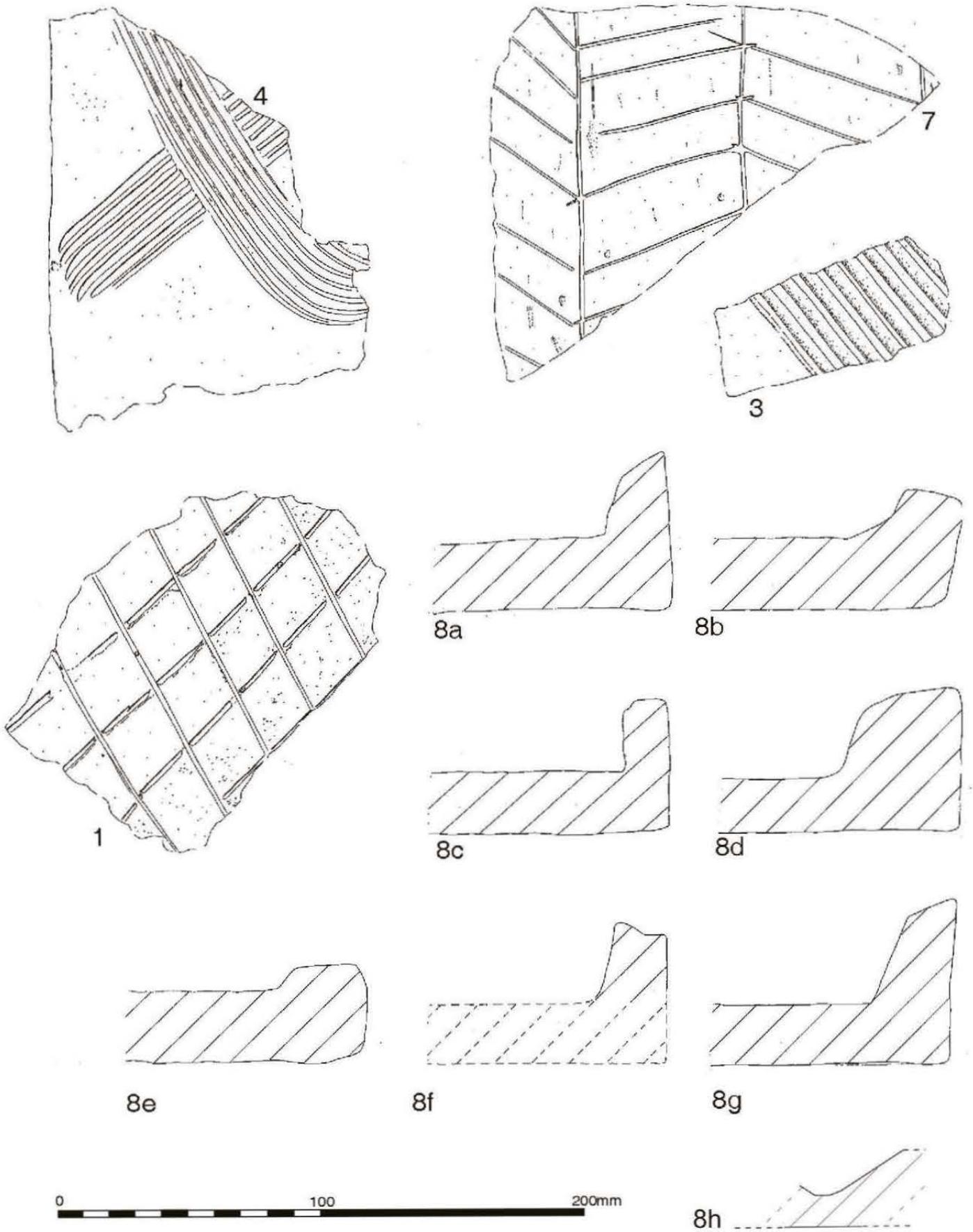


Fig 12.10 Ceramic brick and tile (scale 1:2).

illustrated (Fig 12.10, 8a–h) of which Types e, f, g and h are each represented by one example only and Types b and c by two only. Flange Type h has also been recorded from Vindolanda, where it is rare (Bidwell 1985, 164 and fig 64.3).

There is a considerable degree of overlap between some of the flange types. One piece has a flange with a Type c profile at one end and a Type a at the other. Type g is a more carefully executed version of Type a, and a number of the thicker Type a flanges are close to Type d in shape. Type a is by far the most common with 41 examples and there are 10 examples of Type d, together with a small number of intermediary types. *Tegulae* with flanges of Type a were a rare find in the excavations within the north-east angle of the fort at Vindolanda (Bidwell 1985, 164, and fig 64.2). One may assume that the Vindolanda examples, if their rarity in the north-east angle is typical of the whole site, were diverted from Housesteads.

The height of the flanges generally ranges from 42–70mm with Type e being the exception at 38mm. There is no clear relationship between flange type and flange height, nor between the thickness of the tile and the amount by which the flange protrudes above it. Over 5% of the flanges, where the full height was preserved, fall within the range 45–46mm, 52–55mm and 60mm, with the 52–55mm group the largest. Flanges of Type d and the very thick flanges Type a/d all occur in the range 52–55mm or very close to it. For a discussion of flange types from other British sites see Brodribb 1987, 12–14. Many of the Housesteads types can be paralleled on his figures 5 and 6.

Six cut-out types are illustrated (Fig 12.11, 9a–f), of which only single examples of Types d, e and f were noted. Type a is the most common with 11 certain examples and three probable ones. Type c has four examples and Type b, three. There is no particular correlation between flange and cut-out types. Type a

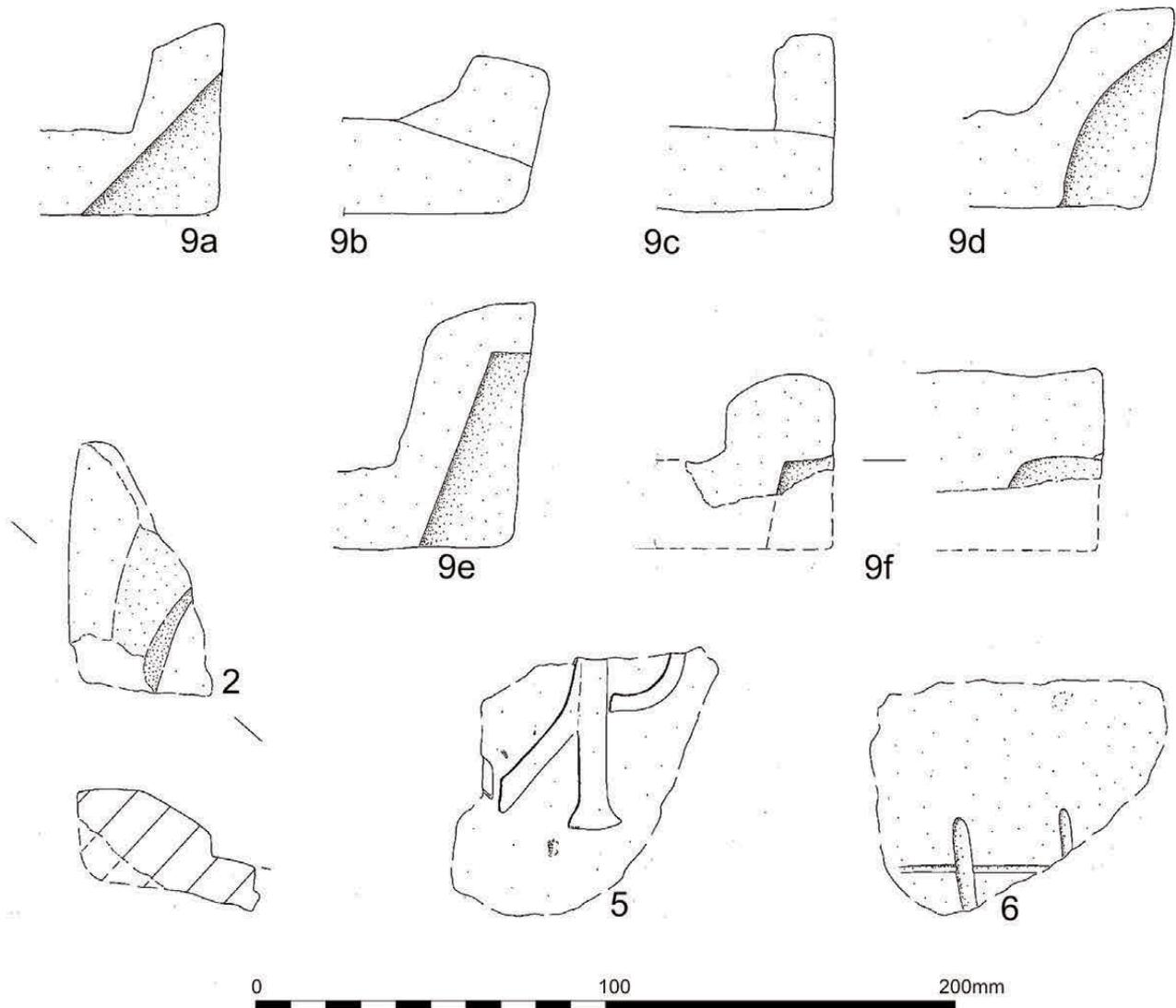


Fig 12.11 Ceramic brick and tile (scale 1:2).

flanges occur with cut-outs of Types a, b and c, Type d flanges with Types a, d and f. The cut-outs vary in length from 26 to 63mm. The cut-outs were designed to accept the flanges of the next *tegula* down the slope of the roof and will thus have been provided at one end of the flanges. At the other end the flanges were reduced in width by an angled chamfer, as shown on Fig 12.11, 2. Only two examples of the chamfer were noted. One fragment had no special feature at the end of its flange. A unique piece had a slight rebate in the back of the flange and another rebate *c* 7mm deep and at least 120mm wide right across the underside of the tile, 140mm from the one preserved end. For a discussion of cut-out types see Brodribb 1987, 16–17.

Stamped tiles

Only one tile 17mm thick bore a stamped impression (Fig 12.11, 5). Much of the impression is lost owing to the breakage of the tile. The letters are not set within a frame. This piece was published in *Britannia* soon after its discovery (Wright *et al* 1976, 390, no. 58) when it was identified as coming from a *tegula*. It is part of the same die as has been found on hypocaust tiles and a *tegula* from Carlisle and on five bricks in the foundations of a 4th-century building at Brough-by-Bainbridge. It was described thus ‘the die consists of an M *c* 65mm high, with boldly serified verticals, the loop of the P ligatured to the right-hand vertical and the central V set unusually low and interrupted at the foot’. For further discussion of the type see Hassall and Tomlin 1980, 408, n 33.

Stone tile

The stone tile, in green sandstone or, more rarely, in red banded or yellow sandstone calls for no particular comment. The fragments were generally small, maximum dimensions 286 × 270mm and between 13 and 36mm thick with the most commonly found thickness of 28mm. Three have holes drilled through them, 8, 9 and 13mm in diameter. A single example is of slate 11mm thick. The red sandstone slab 48mm thick may have been used as a flag rather than as a roof tile as the others no doubt were. One tile, illustrated as Fig 12.11, 6, has three shallow incised grooves on one face.

Fired daub

Three conjoining fragments of fired daub were recovered from H13:5:2. The daub was 43mm thick and preserved the impression of a circular timber *c* 63mm in diameter around which it had been formed. The hole pierced it at 90° to its smooth faces.

Discussion

D Welsby and A Rushworth

The ceramic tile from the north-east quarter of the fort might imply that Buildings XIII, XIV and XV were roofed with *imbrices* and *tegulae* at some point during their use. However, a significant proportion of the tile was either unprovenanced or unstratified, deriving from topsoil or recently disturbed contexts (117 recorded pieces). Of the material in stratified



Fig 12.12 The reuse of stone roof tiles in the latest phases of the north rampart revetment (H20:9:25–6).

contexts, the bulk derived from the deposits associated with the reinstated rampart of the mid-late 3rd and early 4th centuries (49 pieces; contexts H20:4:19, 46, 5:40, 6:50, 8:8, 8:22, 9:9; Phases H20/3b, 3d, 4a) or from the makeup for the flagged floor of the large late Roman storehouse on Site H15 (62 pieces; H15:1:4, 68; Phase H15/4). In both these groups of contexts, the tile is likely to have been residual and potentially redeposited from elsewhere, imported with the rampart or makeup material. In the remaining stratified contexts, predominantly associated with the two barracks (XIII and XIV) and intervening street (HSE), the ceramic tile, totalling 34 pieces, was generally present in quantities that were too small to permit any firm conclusions to be reached regarding its structural implications, although the possibility that some originally derived from the roofs of the buildings cannot be excluded. (Note, however, the assemblage of nine fragments incorporated in a primary makeup

layer in the centurion's quarters of Building XIV – H14:1:10; Phase H14/1). Stone tile is not common but the 21 fragments reused in a mid- to late 4th-century revetment wall (H20:9:25/26 and 9:13 – see Chapter 6 and Fig 12.12) at the west end of the excavated north rampart may indicate that one of the towers or the passageway of the adjacent north gate was roofed with stone prior to the construction of this wall. All the categories of material could have been put to secondary use, although *imbrices* and box tiles are not ideal for reuse. The only structure excavated during 1974–81 where one would expect to find box tiles is the bath-house at the eastern end of Building XV. This had been thoroughly cleared before the structure was re-examined in 1981, and presumably any such material had been removed long ago. The box tiles from the other areas were presumably being reused, for what purpose one can only surmise.

13 The coins

R J Brickstock and P J Casey

Introduction

The coin assemblage from the fort and *vicus* at Housesteads consists of 790 specimens, excluding hoards. These comprise surviving examples, items now missing but reliably recorded in excavation reports, and items referred to *en passant* in local historical or topographical works. Of this total, 540 (Nos 1–540) are from within the ramparts of the fort and 250 (Nos 550–799) from extramural contexts. In addition, a number of coins derive from contexts intimately associated with the fort, notably 18 (Nos 800–817) from the site of the shrines on Chapel Hill to the south and beyond the Vallum; seven from the milecastle (MC 37) immediately to the west of the fort; and at least two from the Knag Burn Gate to the east of the fort. Two pairs of clay moulds, for the casting of 3rd-century *denarii*, provide evidence of coin forgery on the site.

In compiling what is for the present a definitive catalogue of the coinage of Housesteads, acknowledgement must be made of the work of previous scholars. The present writers are particularly indebted to the work of Mark Curteis (1988), whose unpublished MA at Durham University provided the starting point for the present reassessment of the Housesteads coins. Curteis systematically sought material that had been widely distributed among a number of museums, and it is entirely due to his efforts that the coins excavated by Bosanquet in 1898 were brought to light.

Inevitably, re-examination of the material has resulted in the reattribution of a number of coins so that, with the addition of further material and the elimination of duplications, renumbering has been necessary for the new catalogue.

Published collections

The Bosanquet collection comprises 163 coins derived from the excavations undertaken in 1898 within the fort and in the *mithraeum* beside Chapel Hill. By no means all of these coins appear in the original report (Bosanquet 1904), and the majority can no longer be related to specific contexts, though a number can be located to buildings or areas, notably to the *principia*.

The E Birley collection consists of some 258 coins, a forger's mould, and two small hoards (Hoards 4 and 5) from the excavations in the *vicus*, on the Vallum, at the Knag Burn Gate (Birley and Keeney 1935; Birley 1937) and in Milecastle 37 (Birley and Charlton 1934). Again, a proportion do not appear in the published reports (Birley and Charlton 1932; Birley *et al* 1933; Birley and Charlton 1934; Birley and Keeney 1935; Birley 1937).

The Wilkes collection of 103 items was recovered from Buildings XIV and XV, excavated in 1959 to 1961 (Wilkes 1960; 1961; Leach and Wilkes 1962).

The R Birley excavations on Chapel Hill in 1960 produced a total of 13 coins and a second forger's mould (R E Birley 1961, 317–19).

The excavation of the commander's house and hospital by Dorothy Charlesworth in 1967–73 produced 41 coins from well-recorded contexts. Several of these coins were omitted from the published accounts (Charlesworth 1975; 1976).

J Crow's excavations on the north curtain wall in 1984 produced seven coins (Crow 1988).

Of the remaining coins a few are from literary references, including unpublished manuscripts, but the majority, including a further three hoards (Hoards 1–3), are from the excavations that are the subject of the present report. It should be noted that a further 16 coins, labelled 'Housesteads–Winshields', are eliminated from the present study because of uncertainty over their provenance: some may be curtain-wall finds, while others may be the remnant of the Winshields milecastle (MC 40) finds (Craster 1911, 437).

A proportion of the coins from various collections are no longer available for re-examination. The present status of individual items from Housesteads is indicated in the catalogue thus:

P	Present in original envelope
M	Present in modern bag
NT	Present in National Trust Collection
B	Present in Bosanquet Collection
C	Present, Crow excavation coins
PA	Published but absent
BA	Bosanquet, published but absent
A	Absent from original envelope
Absent	Absent, but recorded in extant mss
*	Absent, recorded only in Curteis thesis

With the exception of items displayed at Housesteads Museum and of a single coin in the British Museum's collections (No. 802), all extant Housesteads coins (including hoards) are now deposited in either the Corbridge Museum or in the University of Newcastle's Museum of Antiquities, where they are accessioned according to the order of Curteis's catalogue. This number appears under the heading 'Store No.' in the present work.

Discussion

In the following study the coins in Figs 13.1–3 are presented as consolidated histograms, using a now standard formula:

Coins per period × 1000 (a notional multiplier)
 Length of period site total

Smaller assemblages, from individual buildings, are presented as percentages (Figs 13.4–13).

Period divisions are as follows:

1	AD 43–54	15	244–9
2	54–68	16	249–53
3	68–81	17	253–60
4	81–96	18	260–73
5	96–117	19	273–86
6	117–38	20	286–96
7	138–61	21	296–317
8	161–80	22	317–30
9	180–92	23	330–48
10	193–217	24	348–64
11	218–22	25	364–78
12	222–35	26	378–88
13	235–8	27	388–402
14	238–44		

Overview

Before discussing individual contexts, consideration of the overall pattern of coins from the fort is necessary in order to place the Housesteads assemblage within the framework of imperial coin supply to Britain in general and the military zone in particular. Coin supply to the north included, in the Hadrianic period and the later 2nd century, *aes* issues dating back to the Claudian period. Significant numbers of Flavian coins, especially *asses*, still circulated but bulk supplies of *sestertii* appear to consist of issues of Trajan, Hadrian and Antoninus Pius (AD 98–161).

From the later 2nd century increasing emphasis is placed on silver issues, especially after the debasement of the *denarius* by Marcus Aurelius (AD 161–80). As is usual in the assemblages from the military area, coins from Period 10 (AD 193–217) onwards are exclusively *denarii* or *antoniniani* (ie double *denarii*).

Levels of activity, if any, in Periods 13–17 (AD 235–60) cannot be judged by the absence of coins of these periods. The hiatus for these years is normal in all histograms of British sites, being a function of the rapid debasement of the silver currency which prompted the equally rapid disappearance from circulation (through withdrawal or hoarding) of earlier, intrinsically more valuable, issues (as well as the counterfeiting of the same).

The Period 18 (AD 260–73) peak corresponds to the collapse of the silver currency, reaching a nadir of 2.5 per cent silver during the reigns of Claudius Gothicus (AD 268–70) and the Tetrici (AD 270–73). A large proportion of the coins of Period 18 are copies of issues of the Tetrici, probably produced to compensate for the dearth of Aurelian's reformed coinage in Britain in Period 19 (AD 273–86), and are discussed as a component of the coinage of this latter period.

Following the currency collapse of Period 18, a pattern well established in Hadrian's Wall and associated forts is visible. As is usual in the north, the coinage of Carausius (Period 20) is under-represented, possibly indicating garrison changes associated with the manning of coastal defences in the south, or the movement of forces to campaign in Gaul (Casey 1994b).

Since the coinage from the *vicus* will have derived, for the most part, from the fort, it will be convenient to address the overview of the site by reference to a histogram representing a combination of fort and *vicus* coins (Fig 13.1). Here the dominant characteristic is the high value of coinage of Periods 3–12 in comparison to that of Periods 20–27, a phenomenon that has been commented upon on a number of previous occasions (for example Casey 1994a). This pattern is common to military sites and has been explained in terms of a diminution in coin supply in the 4th century with the introduction of the *annona militaris* and the payment of troops in goods and services rather than cash.

The time has come for a more sophisticated analysis of this pattern, since to accept the hypothesis without further discussion precludes any consideration of the effect of garrison reduction on the availability of coin to be lost. Unfortunately, no such analysis can be attempted before quantitative studies of pottery are available for period by period comparison with coin supply. Even so the problem of residuality of coins will need to be faced: coins could remain in circulation for very long periods, early imperial issues being actively in use up to and beyond the middle of the 3rd century, while as non-monetary or obsolete coins they were discarded and incorporated into very late contexts. In addition, continual activity on long-occupied sites constantly impacts on previous stratigraphy and reincorporates coins, lost much earlier, into later contexts. Further, the documentary material from Vindolanda shows how difficult it is to equate the presence or absence of parts of auxiliary garrisons from their fort, for longer or shorter periods, with structural evidence (Bowman and Thomas 1994).

Relating the coinage of the site to the garrison is fraught with difficulty: the Hadrianic fort was constructed to hold a milliary infantry cohort; later, perhaps in the Antonine period, there seems to have been a legionary unit (of unknown strength) in residence (*RIB* 1582–3, though the inscriptions cannot be closely dated); and from the 3rd century onwards another milliary cohort (the Tungrians) was supplemented by one, or perhaps two, German units of unknown strength and unknown length of residence. All of these units were paid on variable, and different, scales and their monetary losses will have been proportional to their access to coinage. Since each unit will have brought with it a proportion of the site coinage and since this coinage will have consisted of items ultimately derived from other sites, the mixing of the coin pool at Housesteads raises many theoretical difficulties.

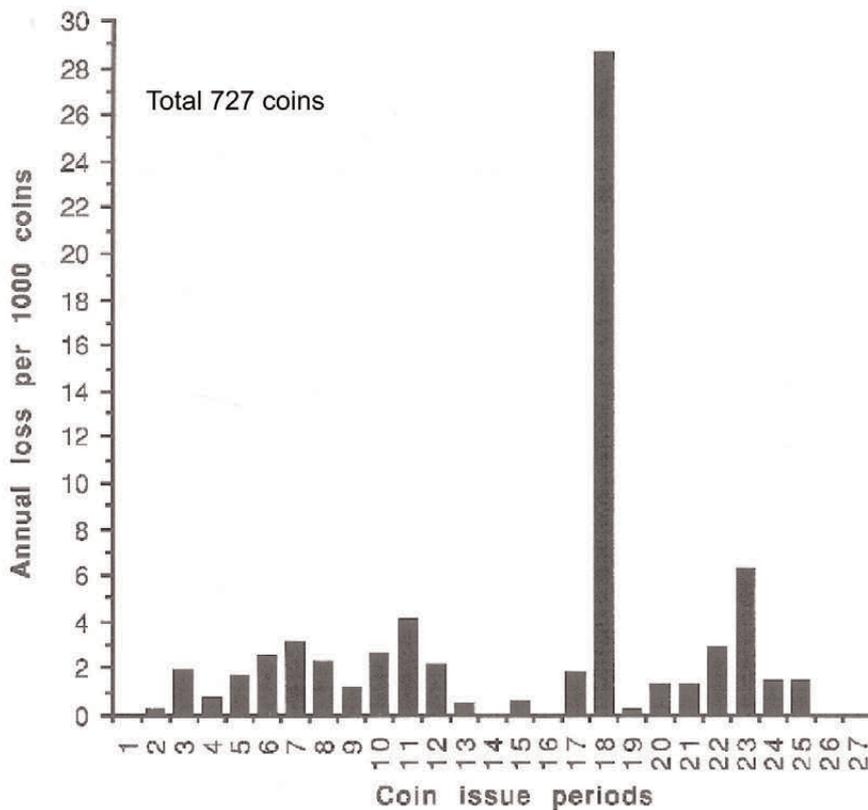


Fig 13.1 Coin graph: Housesteads fort and vicus (excluding Chapel Hill).

Within the confines outlined above we can consider Housesteads relative to other sites adjacent to the Wall. It is very similar to sites such as Vindolanda, Birdoswald and Halton Chesters (Figs 13.14–15; 16; 17). By contrast Corbridge, in its civil phases, produces a pattern similar to urban sites in the south of the province (Fig 13.18). Such comparison makes it clear that coin deposits are a function of supply as much as the character of individual garrisons.

The vicus

A comparison between the coins from the Housesteads vicus (Fig 13.3) and the fort (Fig 13.2) suggests that the life of the vicus did not extend into the 4th century. Analysis of the vicus coins of Periods 21–24 (AD 296–364) suggests that the 13 coins involved (Nos 778–90) derive from contexts in buildings adjacent to the fort wall and may have been lost or discarded from within the fort. A single coin (No. 789) has a context in a more southerly vicus building (Building VIII), but that only from the topsoil.

The 4th-century element apart, the last coins found in the vicus are those of Period 18 (AD 260–73). This period comprises two elements, regular coins and copies. The bulk of the copies, and especially those of smaller module, are associated with the coin reform of Aurelian and appear to have been produced to supplement a shortage of coin in Period 19 (AD 273–86), their production extending just into the reign of Probus (276–82). A comparison between the ratio of

copies to regular coins of Period 18 in the vicus and the fort indicates that the vicus ended before copies achieved the maximum of their circulation.

Period 18	Regular	Copies
Vicus	80%	20%
Fort	38%	62%

The same pattern is found at Vindolanda where detailed studies and excavation show that the vicus was dismantled in the 270s (Bidwell 1985) while occupation of the fort continued. A similar date of abandonment can be advanced for Housesteads.

Vindolanda

Period 18	Regular	Copies
Vicus	71%	29%
Fort	45%	55%

The majority of the coins from vicus buildings are *denarii* or *antoniniani*, with varying proportions of early *aes* coinage. Since the latter was in circulation at the same time as early and middle 3rd-century silver the relationship of base metal to higher denomination coins may give some indication of the status of individual buildings (see Table 13.1).

The tabulation of the finds from the best excavated vicus buildings appears to indicate higher values of silver used or stored in Buildings I, III and VIII. The function of these structures is uncertain but Building I may well have been a tavern (Crow 1989); Building III

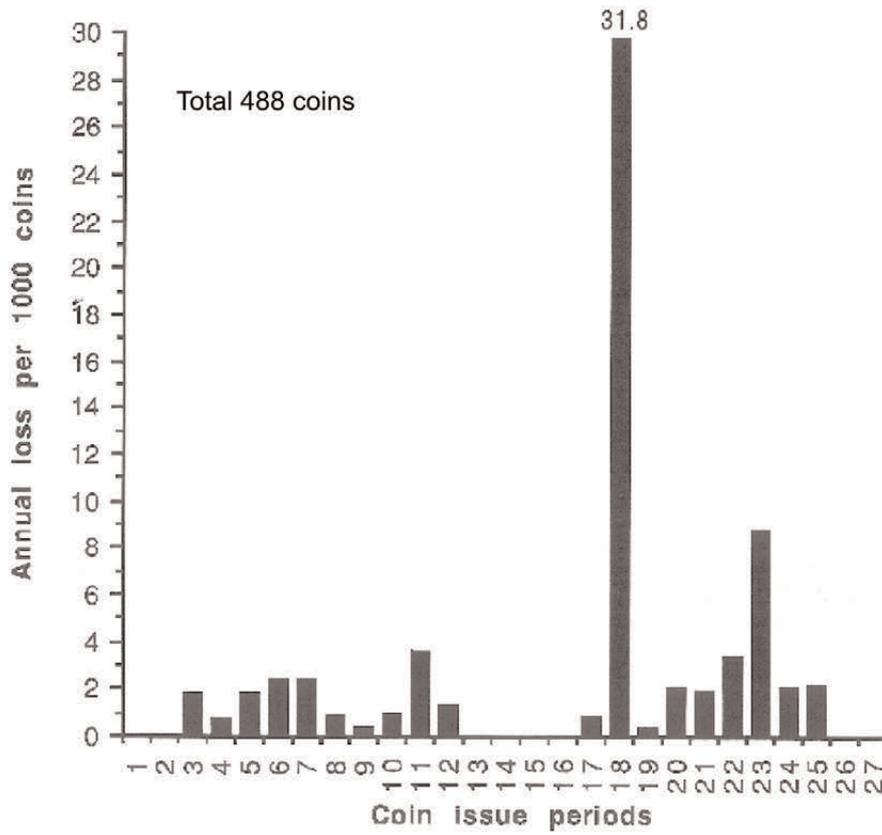


Fig 13.2 Coin graph: Housesteads fort.

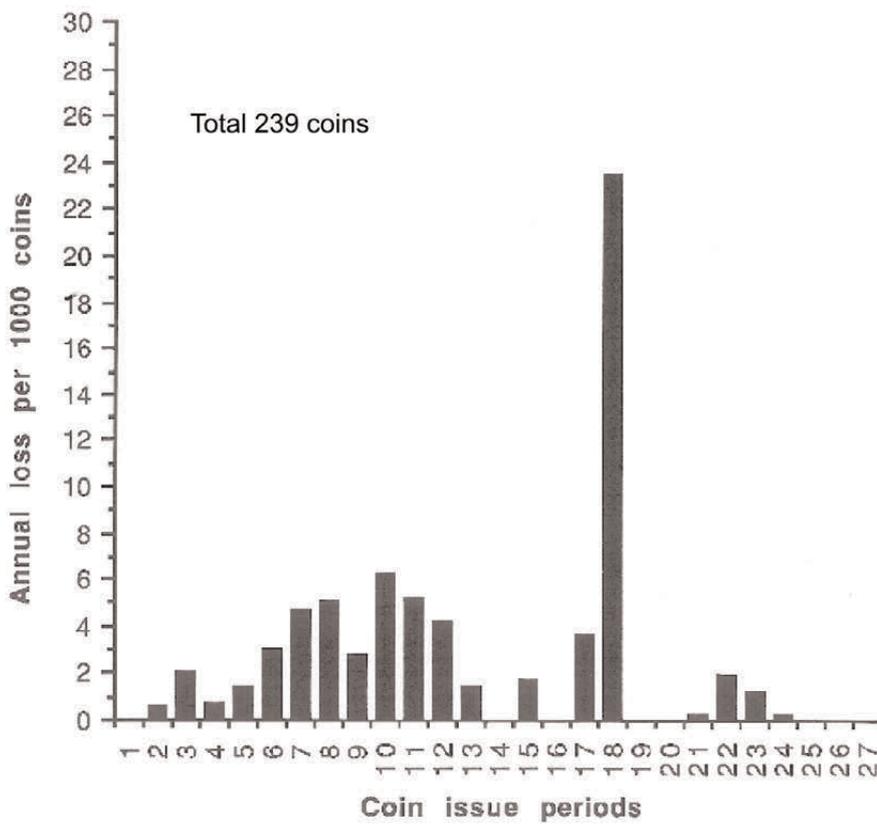


Fig 13.3 Coin graph: Housesteads vicus.

Table 13.1 Denominations of deposits in Housesteads *vicus* buildings

<i>building</i>	<i>as ae</i>	<i>dup ae</i>	<i>sest ae</i>	<i>den ar</i>	<i>ant ar</i>	<i>ar-ae %</i>
I	1	–	2	20	37	95–5
II	1	1	11	12	7	59–41
III	–	1	1	4	9	87–13
IV	7	4	11	28	1	57–43
VIII	2	–	4	9	9	75–25

has been described as a shop (Crow 2004a) and Building VIII is of unknown function. Buildings II and IV seem to show a bias towards the use of coins of lower denomination, perhaps reflecting the value of transactions conducted in the buildings. Buildings I, II and VIII were erected some time after the blocking of the east portal of the south gate and were thus probably built at the same date. Thus the variable denominational structure of the coinage in these buildings points towards a functional rather than a temporal explanation. On the basis of the coinage in Building I a date of construction in the early 3rd century may be postulated, though one suspects that, as with, for example, Barracks XIII and XIV and Building XV in the fort, coinage from the lower levels of several of these buildings may be greatly under-represented.

The fort

Buildings XIII, XIV and XV (Figs 13.4–6) comprise the two barracks and ancillary building of the north-east corner of the fort. There is some difficulty in establishing the stratigraphical sequence of the coins from this area and in deciding which are associated with the early phase of the barracks and which with the later development of chalet accommodation. The four stratified coins from the barrack phase of Building XIII are of Flavian to Trajanic date (Nos 5, 12, 16, 24) with a slightly worn coin of Hadrian dated to 125–8 (No. 49) incorporated in the second of the five floors in the barrack phase centurion's quarters.

Study of the few stratified coins from the chalet construction phases of Building XIII shows that, with the exception of four residual coins of the early empire (all very worn), all are issues of the Gallic Empire or copies thereof, though none of these appear to derive from primary chalet construction contexts. A coin of Constantius II (No. 454) of AD 348–50, found on a flagged surface (former barrack veranda H13:9:13), used as internal flooring in Chalet Phase 1, probably reflects the long duration of occupation on that surface rather than its date of construction. It is therefore worth drawing attention to the fact that the demise of the *vicus* and the construction of chalets seems to coincide, in numismatic terms at least.

The stratification of coins from Building XIV is uncertainly recorded but the site histogram (Fig 13.5) suggests it has a similar history to Building XIII. The presence of Valentinianic coins in Building XIV might

suggest that it remained in use longer than XIII, but the sample of 4th-century coinage from the site is too small to allow certainty. Considerable quantities of Gallic Empire copies mirror the site record for Building XIII, rather than suggesting the presence of a dispersed hoard.

Building XV appears, on the basis of the coin assemblage, to have its foundation in the 3rd century in the post-Severan period. The site histogram (Fig 13.6) and the presence of a coin of AD 259–73 (No. 254) in a context associated with the preceding structural phase (H15/3) perhaps suggests that the storehouse is of the same date as the two chalet barracks. The loss of the coins from the 1961 excavation (Kent 1962, 96), which were not fully identified at the time, precludes further discussion. (*Editor's note*: Coin No. 254, found in one of the drains belonging to the earlier stable – Building XV/3 – certainly provides a *terminus post quem* for the large storehouse of H15 Phase 4. However, the structural evidence, comprising five very distinct phases, with all but the final one involving virtually total demolition of its predecessor, implies that the building *plot* – Site XV – enjoyed much more prolonged occupation. No coins were found in association with the first two structural phases on this site during the 1981 excavation, nor were they in 1961 either, to judge from the published report (Leach and Wilkes 1962).)

Coins from the road surfaces between Buildings XIII and XIV (HSE; Fig 13.7) suggest that levels dating from the AD 270s to the mid-4th century were examined there (but see Chapter 6: Table 6.1 – H21/HSE road level concordance table, for occurrence in stratigraphy). Earlier levels, stretching back to the initial construction of the fort, which were investigated on the adjacent stretch of the eastern *via sagularis* yielded no coins. A similar date range is suggested by the scattered coins incorporated into the surface of the *via principalis* at the west end of Building XIII (H13:11) in the chalet phase.

A total of 30 coins survive from the various excavations of the commanding officer's house (Site XII, Charlesworth 1975). The outstanding feature of this assemblage (Fig 13.10) is the very high proportion of 4th-century coins (60 per cent of the total), representing the most intensive concentration of coin of this period so far recovered from the site. Of these a significant number are of the Valentinianic period (Period 25), again representing something of a deviation from the overall site pattern of use of coinage of this period.

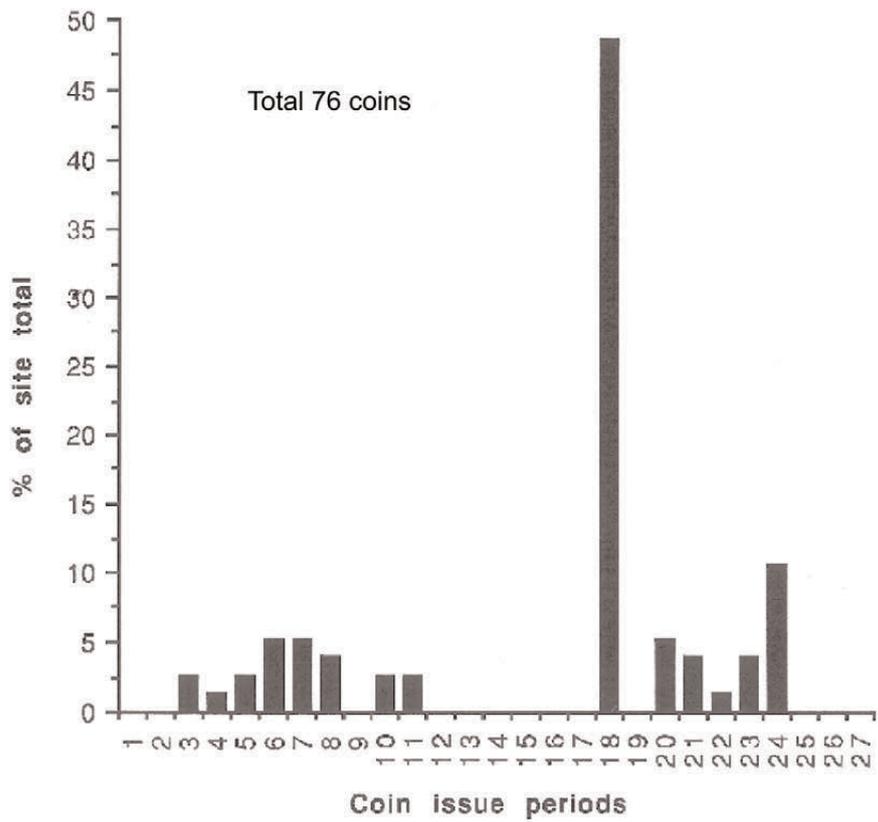


Fig 13.4 Coin graph: Housesteads Building XIII.

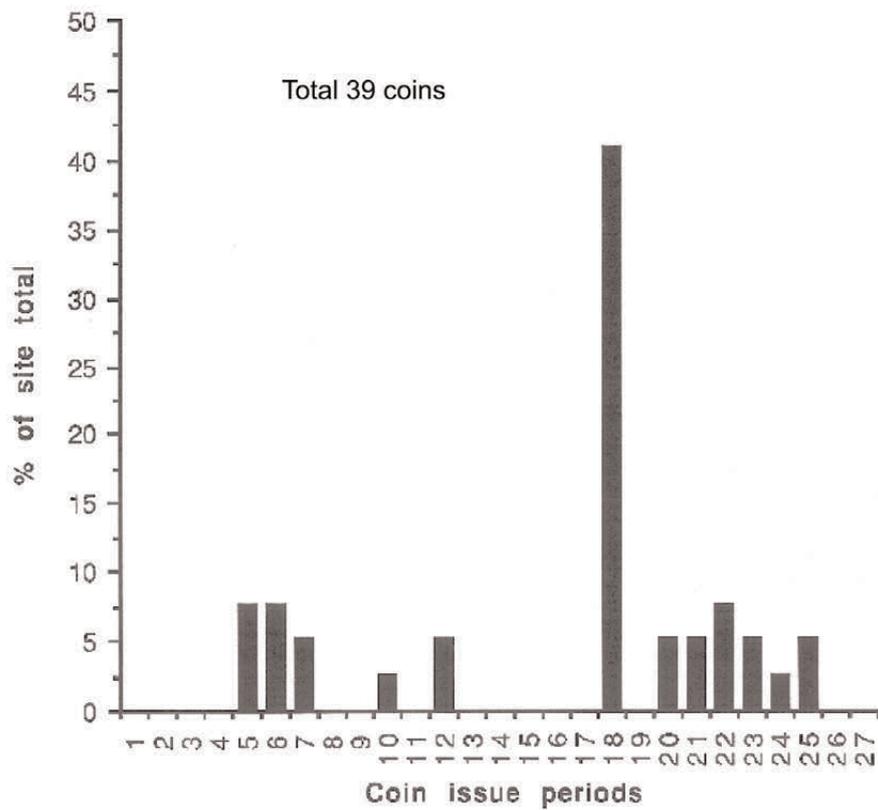


Fig 13.5 Coin graph: Housesteads Building XIV.

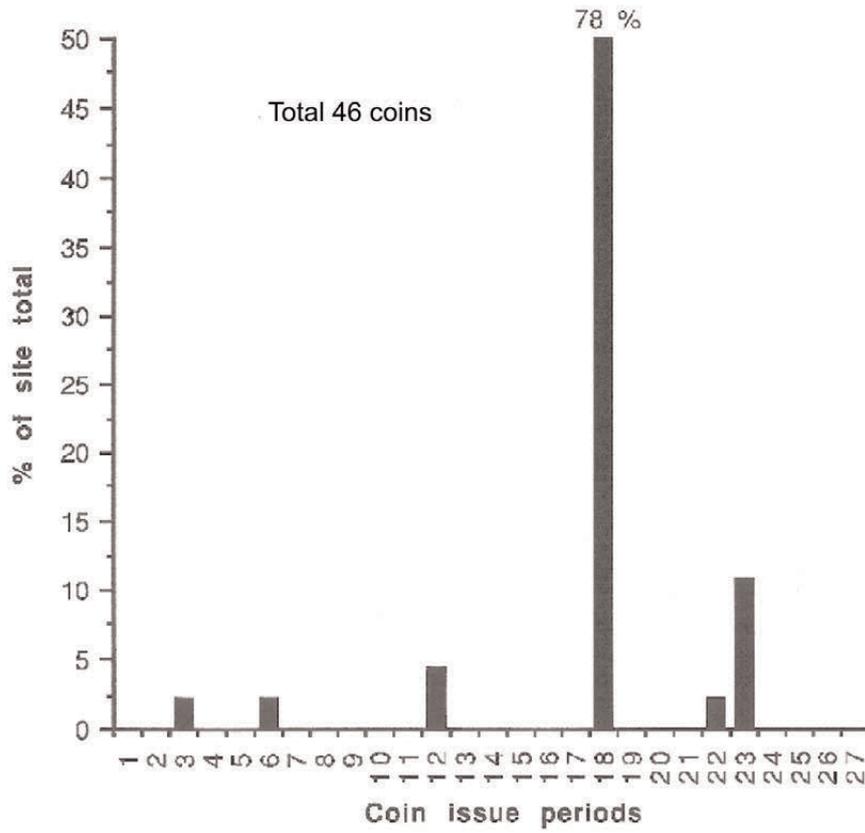


Fig 13.6 Coin graph: Housesteads Building XV

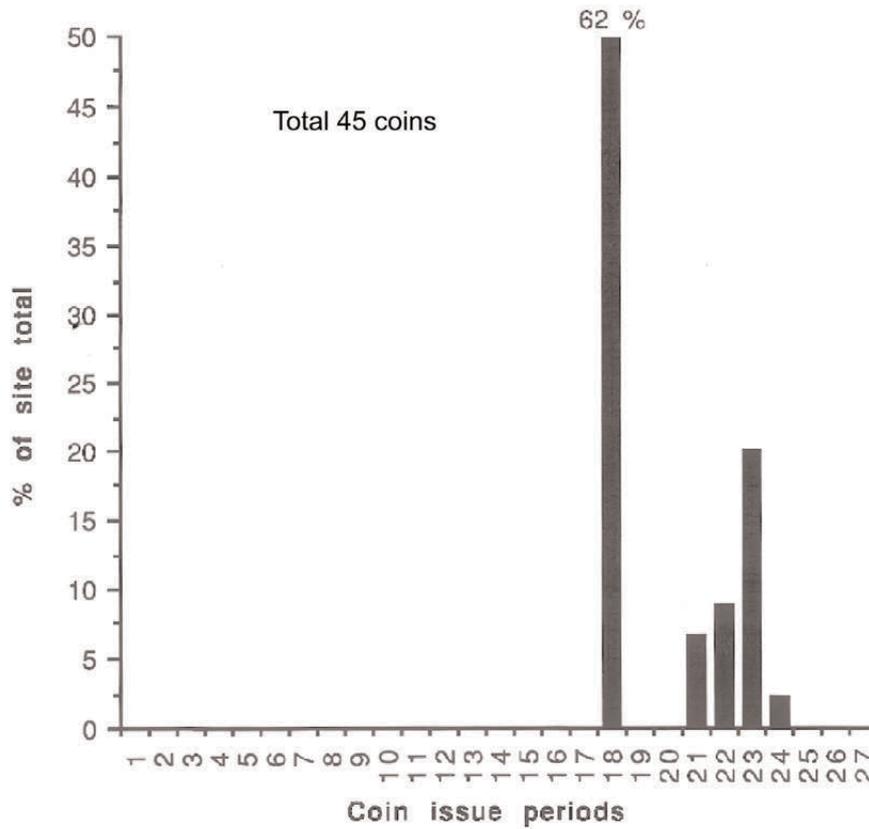


Fig 13.7 Coin graph: Housesteads site HSE.

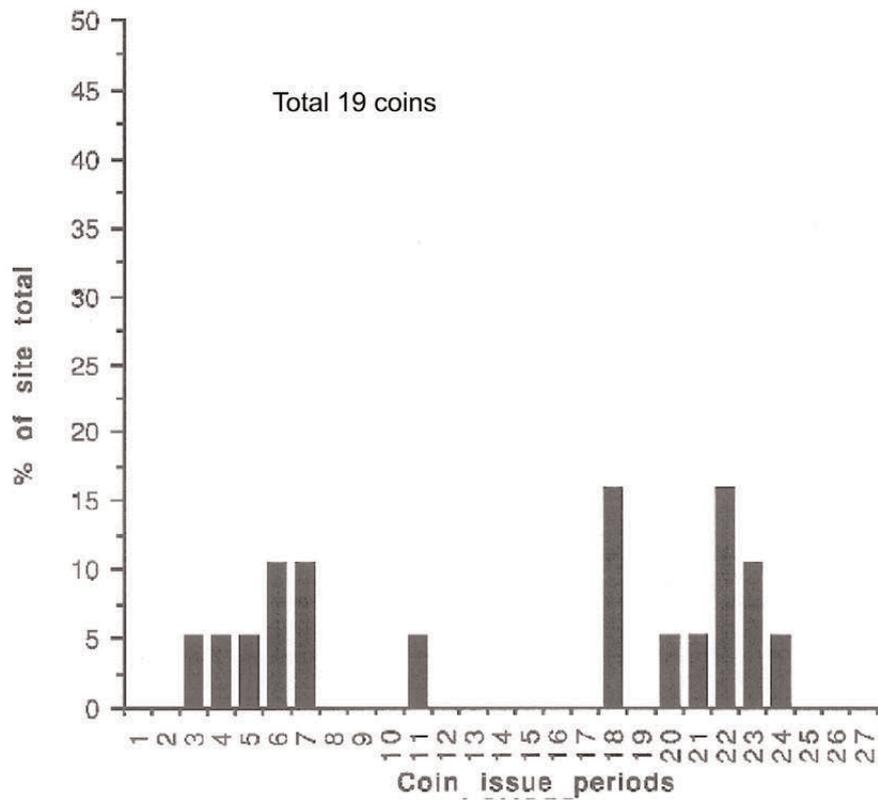


Fig 13.8 Coin graph: Housesteads Building IX (the hospital).

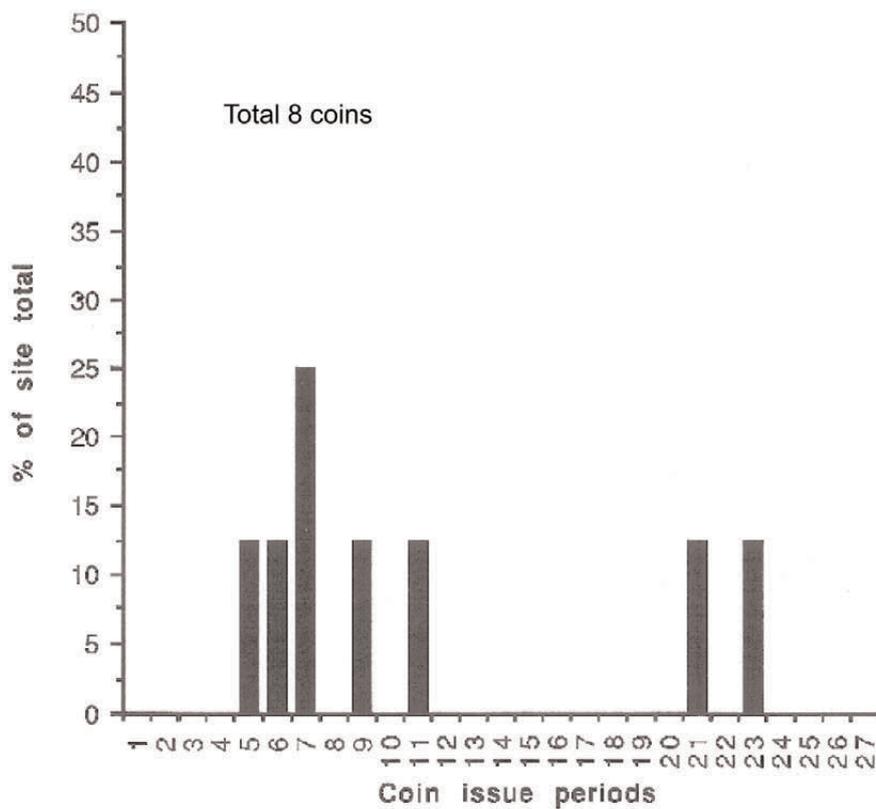


Fig 13.9 Coin graph: Housesteads Building X (the principia).

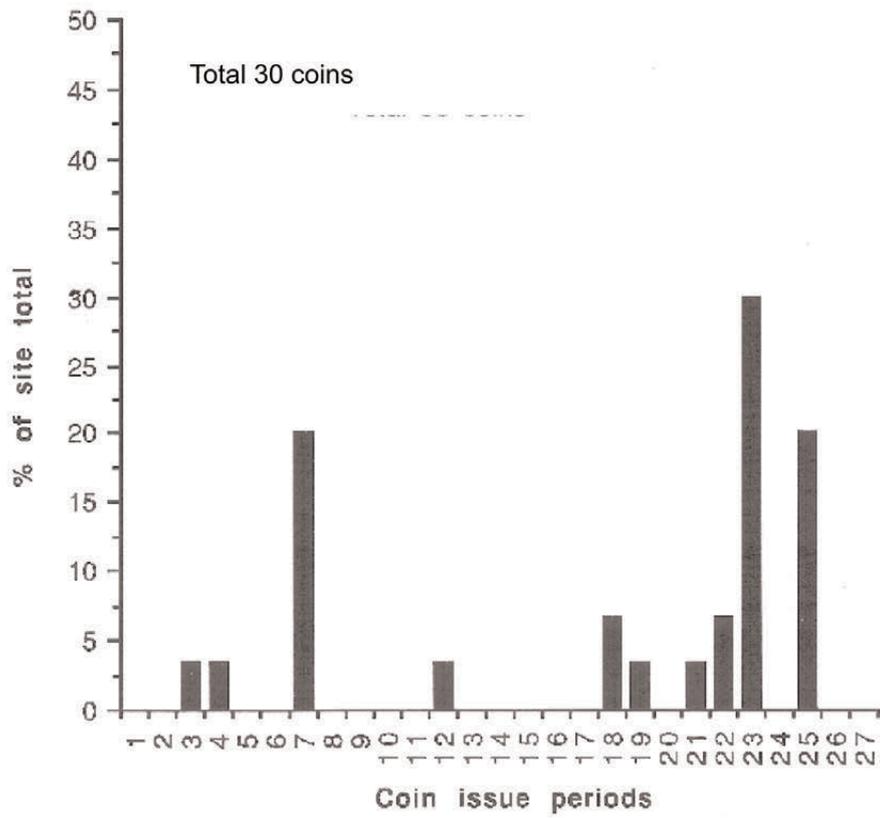


Fig 13.10 Coin graph: Housesteads Building XII (the praetorium).

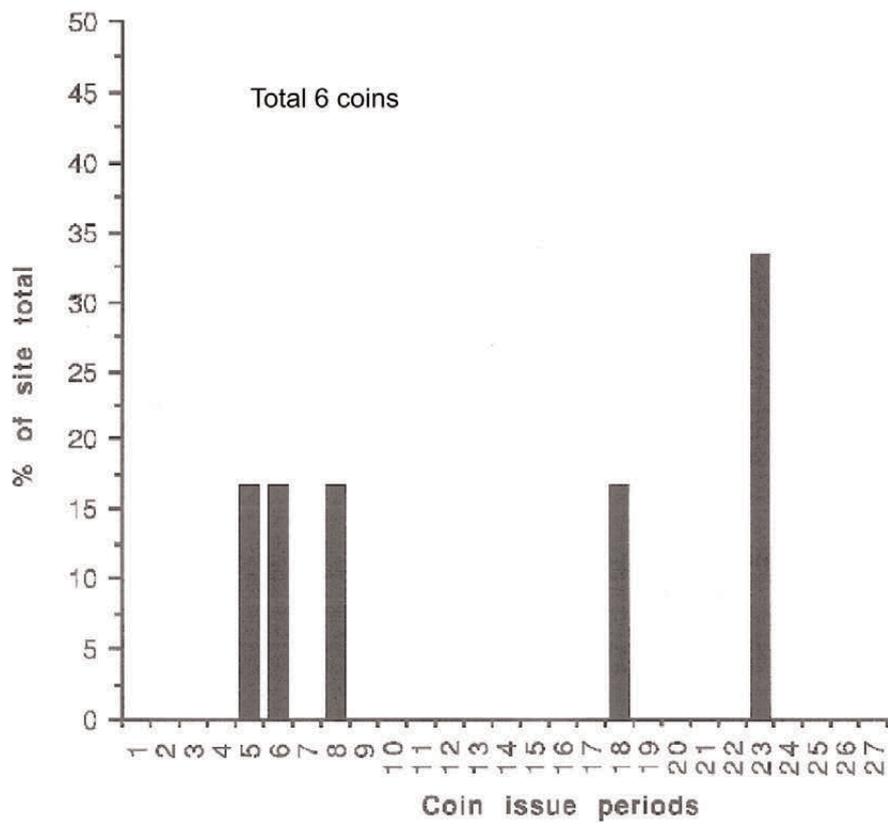


Fig 13.11 Coin graph: Housesteads south rampart sector H23.

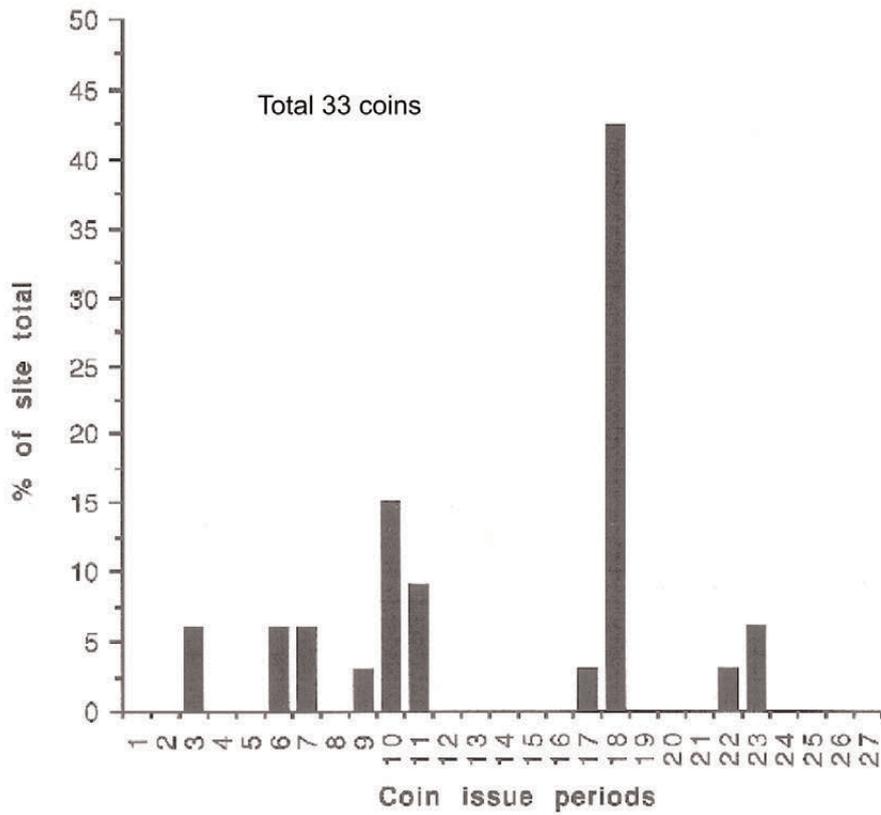


Fig 13.12 Coin graph: Housesteads north rampart sector H20.

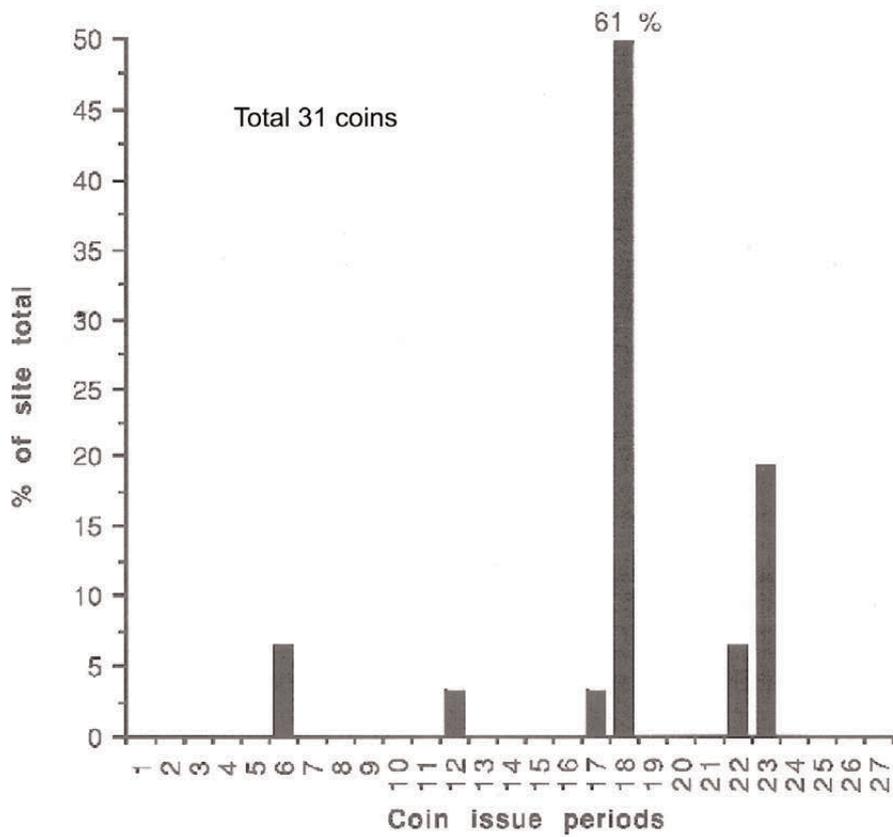


Fig 13.13 Coin graph: Housesteads east rampart sector H21

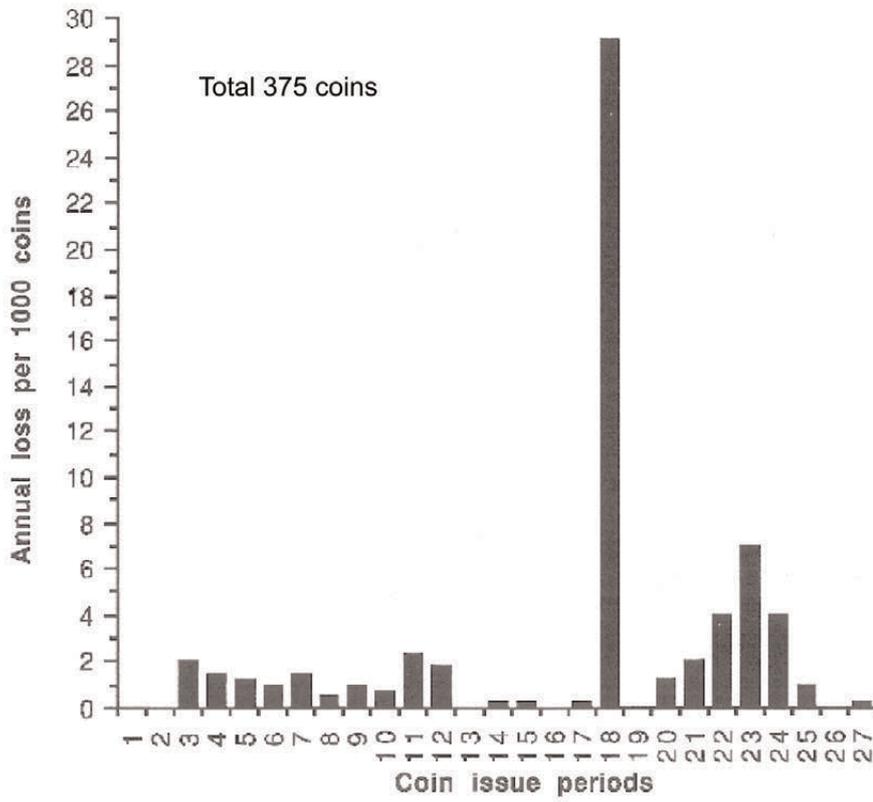


Fig 13.14 Coin graph: Vindolanda fort.

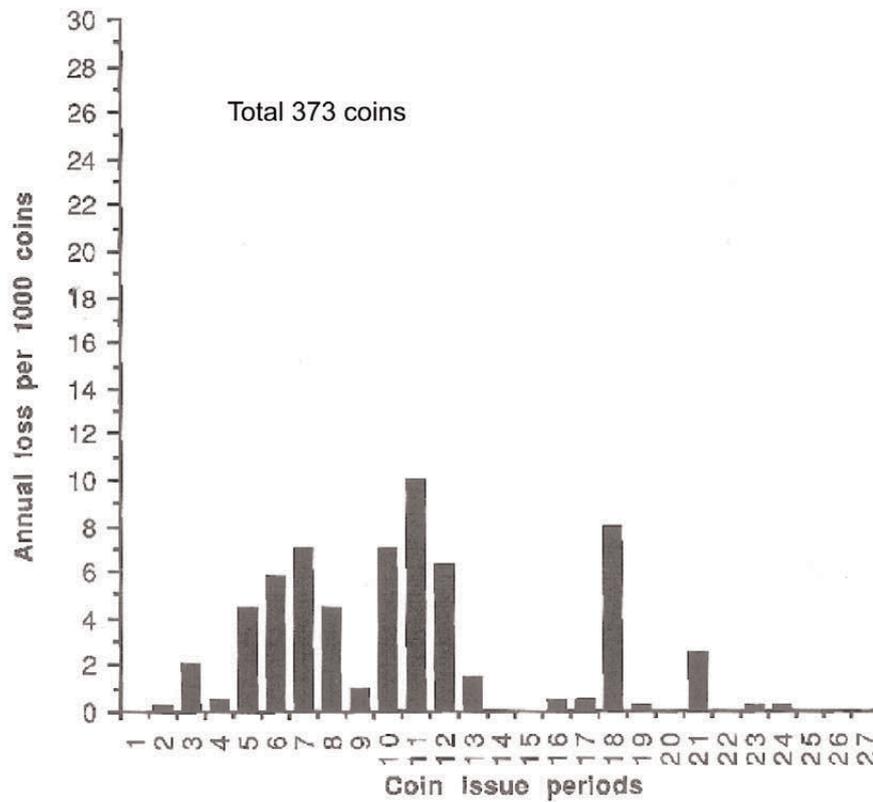


Fig 13.15 Coin graph: Vindolanda vicus.

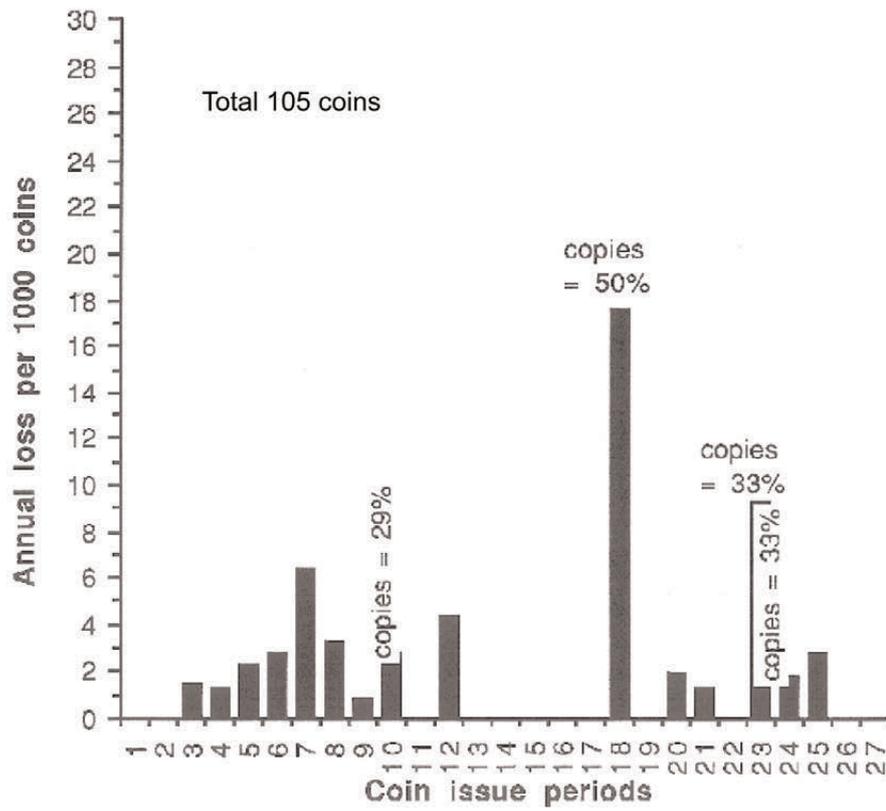


Fig 13.16 Coin graph: Halton Chesters.

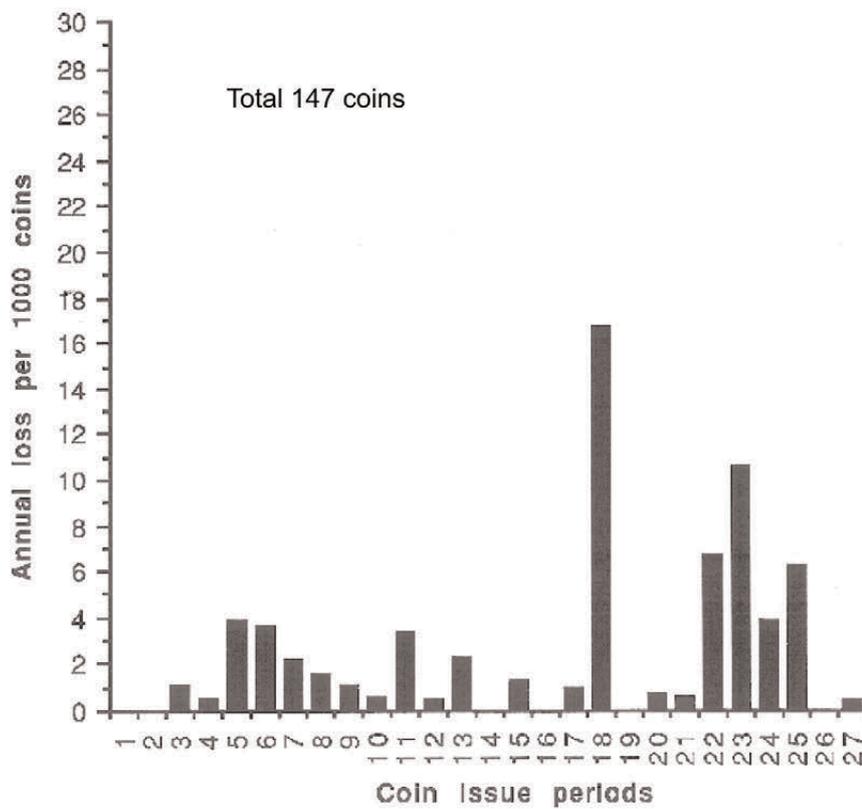


Fig 13.17 Coin graph: Birdoswald 1987-91.

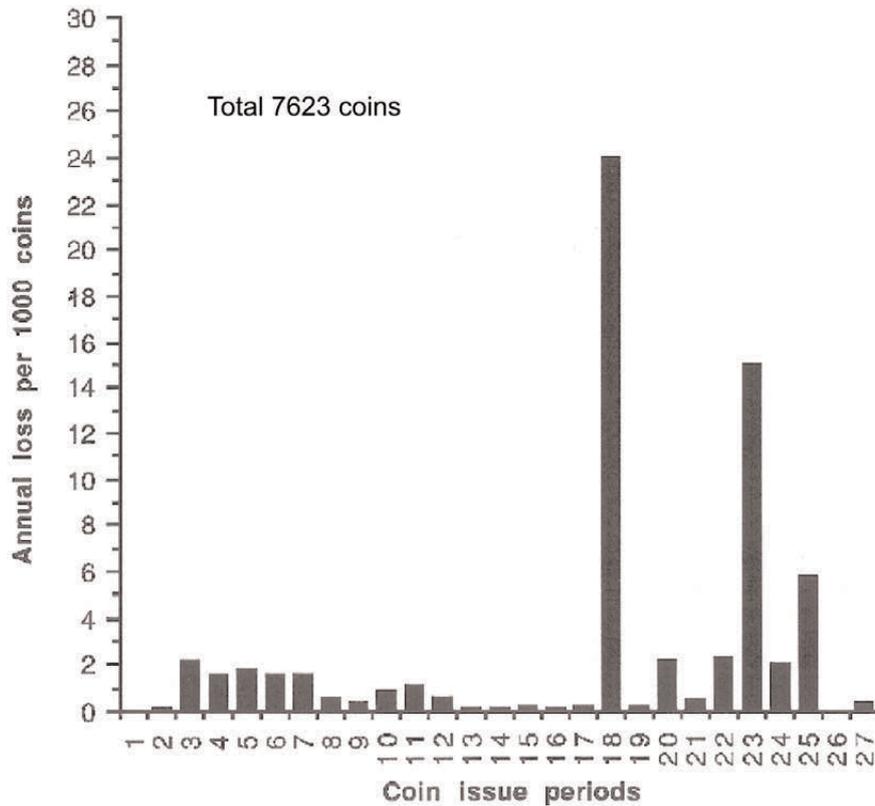


Fig 13.18 Coin graph: Corbridge.

Superficially, the coin patterns from the hospital (Site IX, Fig 13.8) and the headquarters building (Site X, Fig 13.9) are generally similar to those from the commanding officer's house, but the very small numbers of finds preclude detailed comment on these assemblages. Much the same can be said of the latrine block (Site XXIII, Fig 13.11), from which only six coins have been recovered.

Coins from the north and east ramparts (Sites H20, H21; Figs 13.12–13) reflect the overall site histogram relatively closely, and also those of the adjacent Buildings XIII and XIV (Figs 13.4–5). In addition, two of the three hoards recovered from within the fort (Hoards 1 and 3) derive from the north rampart (Site H20).

Hoards

Three hoards were recovered from the excavations inside the fort and two from the *vicus*.

Hoard 1, the earliest from the fort, was found during the 1974–81 excavations, in topsoil in the interval tower on the eastern sector of the north wall (H20:6:0). The find was described as comprising a purse (SF No. 4565) of badly corroded coins (SF No. 4566). These items are now missing and only one coin, of Julia Mamaea, was identified before the loss. Assuming this to have been a *denarius*, though there is no certainty, the hoard may have dated to the reign of Severus Alexander (AD 222–35) or even Gordian III (AD 238–44).

Hoard 2 consists of four Radiate Copies found corroded together (SF No. 9396) in 1981 in H14:4:7, the chalet barrack phase of Building XIV. The identifiable prototypes of the copies are issues of Tetricus I and II (AD 270–73). Deposition may have taken place early in the period AD 273–86 (Period 19) since the copies are of large module and relatively unworn.

1. 'Tetricus I' Obv. ...PEDTDDE ... (sic)
Rev. ...CIOC ... (sic)
14mm, 0.8g SW/SW Store no. F.226 (under which number all four coins are now stored)
2. 'Tetricus II' Obv. [C PIV ESV TETRICUS CAES]
Rev. [SPES]
12mm, 0.8g SW/SW Store no. F.247
3. 'Tetricus II' Obv. –
Rev. –
[fragment] W/W Store no. F.251
4. Radiate Copy Obv. –
Rev. –
13mm, 0.5g C/C Store no. F.280

Hoard 3, again from the 1974–81 excavations, and now missing, is recorded from just west of the interval tower at the eastern end of the North Rampart (H20:7:2; SF No. 5637). The surviving description speaks of 'a purse (very black soil) and bronze slivers = minimissimi.' The term 'minimissimi' is an unfortunate one, dating to a period when archaeologists evinced the notion that very small coins were of very late date. There are four classes of coins covered by the name: the smallest Radiate Copies, ie less than 10mm in diameter; copies of the Constantinian issues of AD 330–41;

copies of the *Fel Temp Reparatio* issues of AD 354–8 and, finally, regular issues of the House of Theodosius dating to AD 388–402. In detail the various copies may be dated as follows:

Radiate copies	AD 273–86
Constantinian	copies AD 341–6
<i>Fel Temp Reparatio</i> copies	AD 354–64

Lacking further information, Hoard 3 can be assigned only to the late 3rd or mid- to late 4th century. However, it can be noted that, of the above categories, the most common is the first (AD 273–86), and such a date would be largely consistent with the limited evidence for chalet construction in Buildings XIII and XIV nearby.

A further leather purse (SF No. 7394) is recorded from the same context (H20:7:2), though, with no record of coins found in association with it, it is possible that this represents a duplication in the finds record.

Hoard 4 consisted of five coins found corroded together in the passage between *Vicus* Buildings III and IV in 1931 (Birley and Charlton 1932). The coins were published as *denarii* and *antoniniani* of Vespasian to Elagabalus which were, presumably, lost or deposited at the end of the first quarter of the 3rd century. A *denarius* of Macrinus (No. 676) from the same context may originally have been part of the hoard and is probably a plated counterfeit. Given the proximity of the finding of Hoard 4 to a counterfeiter's mould (*supra*), and the presence of a metalworking furnace in *Vicus* Building IV, the possibility that Hoard 4 itself consisted of counterfeits cannot be excluded. The coins are now missing: the detail below is taken from the empty coin envelopes.

1. Vespasian Obv. IMP CAES VESP AVG PM
Rev. AVGVTR TRI POT
RIC 30, Rome, AD 70–72 Store no. V.9
2. Septimius Severus Obv. SEVERVS PIVS AVG
Rev. PM TRP XVI COS III PP
RIC 220, Rome, AD 208 Store no. V.108
3. Caracalla Obv. ANTONINVS PIVS AVG GERM
Rev. PM TRP XVIII COS IIII PP
RIC 264a, Rome, AD 215 Store no. V.126
4. Elagabalus Obv. IMP CAES M AVR ANTONINVS
AVG
Rev. PM TRP COS PP Roma seated l.
RIC 1, Rome, AD 218 Store no. V.135
5. Elagabalus Obv. IMP CAES ANTONINVS AVG
Rev. SALVS ANTONINI AVG
RIC 137, Rome, AD 218–22 Store no. V.138

Hoard 5 was found in 1933 at the east end of *Vicus* Building XII, immediately south of the east end of Building IX (Birley and Charlton 1934). The hoard rested on the western of two large flags within a niche behind a slab depicting the *Genii Cucullati*, in what is generally assumed to be a domestic shrine. The hoard consisted of five *denarii* of the reigns of Elagabalus (AD 218–22) and Severus Alexander (AD 222–35), and

(since four of the coins could be seen to be unworn) was taken to indicate an approximate date for the erection of the shrine. The coins are now lost: the catalogue below is an up-dated version of the original publication.

1. Elagabalus Obv. –
Rev. –
RIC –, AD 220 Store no. V.141, *AA*, 1934, 191, no. 1
2. Julia Soemias Obv. IVLIA SOAEMIAS AVG
Rev. VENVS CAELESTIS
RIC Elag 241, AD 218–22 Store no. V.144, *AA*, 1934, 191, no. 4
3. Julia Maesa Obv. IVLIA MAESA AVG
Rev. SAECVLI FELICITAS
RIC Elag 271, AD 218–22 Store no. V.145, *AA*, 1934, 191, no. 3
4. Severus Obv. –
Alexander Rev. –
RIC –, AD 229 Store no. V.152, *AA*, 1934, 191, no. 5
5. Julia Mamaea Obv. IVLIA MAMAEA AVG
Rev. VESTA
RIC S. Alex. 360, AD 222–35 Store no. V.159, *AA*, 1934, 191, no. 2

Knag Burn gate

Clayton recorded the finding of ‘coins of Claudius Gothicus and Constantius’ (presumably one of each) during his excavations in 1856 (*Archaeol Aeliana*, 1 ser, 1, 186–8; quoted in Birley and Keeney 1935, 246, and Birley 1937, 176). These finds were taken to indicate use of the gateway and its guardchambers into the 4th century, but it is unclear, however, whether the latter emperor is Constantius I Chlorus (AD 293–306) or Constantius II (AD 324–61).

Housesteads milecastle (MC 37)

Seven coins were found during excavations in 1933 (Hunter Blair 1934, 119), ranging in date from a residual, and very worn, coin of M Antony, to an unworn *denarius* of Aelius Caesar, issued in AD 137. The others were a very worn *as* of Domitian (AD 79–81); two unworn *dupondii* of Trajan (AD 103–11 and 112–17); and two fairly worn *sestertii* of Trajan (AD 103–17; 112–17).

Chapel Hill

The coins from Chapel Hill, south of the Vallum, comprise three groups: firstly, an unstratified collection from the 1960 excavations of the *vicus* buildings near the well (Group A, Nos 800–804), to which may be added two coins recovered by Bosanquet in a trench excavated to the north of the *mithraeum*, near the well (813–14); secondly, a group of eight coins from the well (Group B, Nos 805–12); and, finally, there are three coins associated with the *mithraeum* itself (Nos 815–17).

The group from the well extends to the early 4th century and may be regarded as individual votive deposits beginning not earlier than the late 2nd century,

but probably in the 3rd century. The latter date is consonant with the picture given by the unstratified collection of site finds, and also with the epigraphic evidence for the date of the construction of the apsidal well shrine and temple to Mars Thincsus (*RIB* 1593–4). On the other hand, the collection from the *mithraeum* may indicate activity from the 2nd century onwards, though the only extant 2nd-century coin from the *mithraeum* (a *sestertius* of Trajan AD 103–11, No. 815) is very worn and thus could derive from a 3rd-century context. It should be noted in passing that several of the coins in Group A have been re-attributed: the original publication (R E Birley 1961, 317–19) listed two coins of Clodius Albinus and a possible Severan *sestertius*. The first of these (No. 802), positively identified as Albinus, is now in the British Museum, but the second (No. 801) has been reidentified as an *as* of Marcus Aurelius or Commodus, and the third has been reattributed to Marcus Aurelius (No. 803). (It is also possible the numbers of the latter two coins should be transposed: numbering on the coin envelopes suggests that they may have been inadvertently confused.)

Counterfeits

A high proportion of the silver coinage of the early 3rd century proves on close examination to be counterfeit, although this fact may not have been evident in antiquity.

Based on the numbers of regular and false coins set out in Table 13.2, it appears that about 30 per cent of the Severan coinage circulating at Housesteads may have been counterfeit, although the figures may be distorted by selective discarding of irregular coins. On the other hand the figure may have been higher; so skilful were ancient forgers that some of their products can only be detected by the use of modern scientific analytical processes. Only a proportion of the Housesteads coins have been examined in this manner since many items included in the catalogue are no longer available for study. In this latter category are the coins of Hoard 4, and also the silver coins from the well deposit at the foot of Chapel Hill which, to judge from other votive deposits, would have included a high proportion of valueless items.

Table 13.2 Regular and counterfeit silver coinage of the early 3rd century at Housesteads

	<i>Severus</i>	<i>Domna</i>	<i>Caracalla</i>	<i>Geta</i>	<i>Macrinus</i>
<i>vicus</i>					
regular	8	8	8	3	–
false	5	1	3	1	1
<i>fort</i>					
regular	3	3	–	–	–
false	3	–	2	–	–

Coin moulds

Evidence for counterfeiting exists in the form of two pairs of moulds, one found in 1960 in the Chapel Hill well along with the Group B coins (R E Birley 1961), and the other recovered in 1932 from the passage between *Vicus* Buildings III and IV (Birley *et al* 1933), in close proximity to Hoard 4, discovered in the previous year. The Chapel Hill moulds produced copies of *denarii* of Caracalla and Plautilla, the original coins being issued in the period AD 201–10. The moulds from the *vicus* made counterfeits of *denarii* of Julia Domna (AD 196–211) and Septimius Severus (AD 198). None of the work of the Housesteads forger or forgers, however, has been identified in the surviving site assemblage.

1. Caracalla/Plautilla, AD 201+
Obv. ANTONINVS – PI[VS AVG] RIC Caracalla as 54
Rev. CONCORDIA AVGG RIC Caracalla as 359
Mould max diameter 26.5mm; mould max thickness 6mm; flan diameter 17.5mm; weight 4.7g. Die axis of both sides at 12 o'clock to pipe groove.
Reverse is better preserved than obverse; wear of both prototypes, perhaps SW.
Store no. V.275 (mis-attributed by Curteis to Antoninus Pius); at present held at Durham University, prior to display at Housesteads Museum. Published (correctly attributed) as *Archaeol Aeliana*, 4 ser, 39 (1961), 319, no. 13a. XRF analysis (courtesy of Philip Clogg, Department of Archaeology, University of Durham) indicates the presence of copper, lead and zinc on the surface of the mould. The counterfeiter's alloy probably contained copper and some lead; the presence of zinc does not necessarily indicate the deliberate addition of that element, as zinc is attracted to clay and, if present in even trace quantities, will thus give a significant XRF reading.
2. Julia Domna/Septimius Severus, AD 198+
Obv. IVLIA AVGVSTA type of AD 196–211
Rev. VICT AVGG COS II PP RIC Severus 499, AD 198+
Mould diameter, 1"; mould thickness, ¼".
Store no. V.276; at present on display at Housesteads Museum. Published as *Archaeol Aeliana*, 4 ser, 10 (1933), 94, no. 1 (and not re-examined by the present authors).

Catalogue

Mints (followed, where appropriate, by an officina letter, eg P, I, denoting 1st officina):

AQ	Aquileia	LN	London
AR	Arles	ME	Milan
CO	Colchester	RM	Rome
HE	Heraclea	SS	Siscia
LA	Laodicea	TC	Ticinum
LG	Lyons	TR	Trier

Denominations:

ANT	<i>antoninianus</i>	DP	<i>dupondius</i>
AS	<i>as</i>	FOLL	' <i>follis</i> '
AUREL	' <i>aurelianus</i> '	SEST	<i>sestertius</i>
DEN	<i>denarius</i> (pl = plated counterfeit)		

A **copy or counterfeit** of a particular ruler or issuer is denoted by single quotation marks, for example 'CLAUDIUS II', and by the use of a lower case 'c' in the catalogue reference, eg c of 261 = a copy of RIC 261. The use of the word 'of' indicates that a precise catalogue reference has been obtained; for official issues and copies 'as' is used to denote an incompletely catalogued coin.

Where recorded, flan **diameter** is given in millimetres (mm); and **weight** in grams (g). **Die axis** is indicated by clock reference.

Condition of the obverse and reverse is denoted by the following abbreviations:

UW	Unworn	VW	Very worn
SW	Slightly worn	EW	Extremely worn
W	Worn	C	Corroded

Catalogue references are to *RIC* unless otherwise stated:

- RIC *The Roman imperial coinage, volumes 1–10*, eds H Mattingly, E A Sydenham, C H V Sutherland, R A G Carson, J P C Kent, A M Burnett, London, 1926–1994.
- CK *Late Roman bronze coinage, part II*, by R A G Carson and J P C Kent, London, 1960.
- CRAW *Roman republican coinage*, M Crawford, London, 1974.
- E *Die Münzprägung der gallischen Kaiser in Köln, Trier und Mailand*, G Elmer, Darmstadt, 1941.
- HK *Late Roman bronze coinage, part 1*, by P V Hill and J P C Kent, London, 1960.

Housesteads fort: coin list by issuer and period

1	REPUBLICAN date: BC– diam: 19.0mm	denom: DEN mint: – wt: 1.0g	cat: – die axis: –	Obv – Rev – wear: VW/C
2	M. ANTONIUS date: BC 32–31 diam: –	denom: DEN mint: – wt: –	cat: CR 544 die axis: –	Obv – Rev – wear: –
3	M. ANTONIUS date: BC 32–31 diam: –	denom: DEN mint: – wt: –	cat: CR 544/39 die axis: –	Obv ANT [AVG] III VIR [RPC] Rev LEG XXIII wear: –
4	AUGUSTUS date: BC 15–13 diam: 17.0mm	denom: DEN mint: – wt: 2.9g	cat: 167a die axis: 6	Obv AVG[VSTVS] DIV[I F] Rev IMP X wear: VW/VW
5	VESPASIAN date: 69–79 diam: 15.5mm	denom: DEN mint: – wt: 1.3g	cat: – die axis: –	Obv – Rev – wear: C/C
6	VESPASIAN date: 69–79 diam: 17.0mm	denom: DEN mint: – wt: 1.6g	cat: – die axis: 6	Obv ...VESP... Rev – wear: VW/VW
7	VESPASIAN date: 69–79 diam: 25.5mm	denom: AS mint: – wt: 7.6g	cat: – die axis: –	Obv – Rev – wear: VW/EW
8	VESPASIAN date: 69–79 diam: 28.5mm	denom: DP mint: – wt: 9.4g	cat: – die axis: 6?	Obv – Rev – wear: VW/C
9	VESPASIAN date: 71 diam: 27.0mm	denom: DP mint: – wt: 8.8g	cat: 475 die axis: 6	Obv IMP CAE[S VESPASIAN AVG CO]S IIIII] Rev [PAX AVG] SC wear: VW/W
10	VESPASIAN date: 71 diam: 27.5mm	denom: DP mint: – wt: 11.1g	cat: 475 die axis: 7	Obv [IMP CAES]AR [VESPASIAN AVG COS III] Rev [PAX AVG SC] wear: VW/VW
11	TITUS, CAESAR date: 77–78 diam: 28.5mm	denom: AS mint: – wt: 6.5g	cat: Vespasian as 788 die axis: 12	Obv [T CAES IMP] AVG F TRP COS [VI CENSOR] Rev – wear: W/W
12	TITUS date: 79 diam: 17.0mm	denom: DEN mint: – wt: 2.0g	cat: as 5 die axis: 6	Obv [IMP TITVS CAE]S VESP[ASIAN AVG P] Rev [TRP VIII IMP XIII] COS VII wear: VW/VW
13	TITUS date: 79–81 diam: 17.0mm	denom: DEN mint: – wt: 2.3g	cat: – die axis: –	Obv – Rev – wear: ?W/C
14	TITUS date: 79–81 diam: 27.5mm	denom: DP mint: – wt: 8.8g	cat: – die axis: 6	Obv – Rev – wear: VW/EW

15	DOMITIAN date: 81–92 diam: 34.0mm	denom: SEST mint: – wt: 15.1g	cat: – die axis: 12?	Obv – Rev – wear: ?SW/C
16	DOMITIAN date: 81–96 diam: 19.0mm	denom: AS mint: – wt: 3.5g	cat: – die axis: –	Obv – Rev – wear: C/C
17	DOMITIAN date: 86 diam: 28.0mm	denom: AS mint: – wt: 7.2g	cat: 340 die axis: 6?	Obv [IMP CAESAR DOMIT AVG GER COS XII CENS PER PP] Rev [VI]RT[TVTI AVGVSTI SC] wear: W/VW
18	DOMITIAN date: 90–91 diam: 28.5mm	denom: AS mint: – wt: 7.9g	cat: 395 die axis: 6	Obv [IMP CAES DOMIT A]VG GERM COS XV CENS PER PP Rev [MONETA AV]GVSTI SC wear: W/VW
19	FLAVIAN date: 69–96 diam: 31.5mm	denom: SEST mint: – wt: 17.2g	cat: – die axis: –	Obv – Rev – wear: C/C
20	FLAVIAN date: 69–96 diam: 25.5mm	denom: DP mint: – wt: 7.9g	cat: – die axis: –	Obv – Rev – wear: C/C
21	FLAVIAN date: 69–96 diam: 33.0mm	denom: SEST mint: – wt: 17.5g	cat: – die axis: –	Obv – Rev – wear: EW/EW
22	NERVA date: 97 diam: –	denom: DEN mint: RM wt: –	cat: 14 die axis: –	Obv IMP NERVA CAES AVG PM TRP COS III PP Rev CONCORDIA EXERCITVVM clasped hands wear: –
23	TRAJAN date: 98–117 diam: –	denom: SEST mint: RM wt: –	cat: – die axis: –	Obv – Rev – wear: –
24	TRAJAN date: 98–117 diam: 29.0mm	denom: SEST mint: RM wt: 10.6g	cat: – die axis: –	Obv – Rev – wear: C/C
25	TRAJAN date: 98–117 diam: 32.0mm	denom: SEST mint: RM wt: 19.6g	cat: – die axis: 12	Obv – Rev – wear: VW/EW
26	TRAJAN date: 98–117 diam: 33.5mm	denom: SEST mint: RM wt: 22.0g	cat: – die axis: 12?	Obv – Rev – wear: C/C
27	TRAJAN date: 98–117 diam: 31.5mm	denom: SEST mint: RM wt: 12.0g	cat: – die axis: 6	Obv – Rev – wear: C/C
28	TRAJAN date: 98–117 diam: 27.0mm	denom: DP mint: RM wt: 9.6g	cat: – die axis: –	Obv – Rev – wear: VW/EW
29	TRAJAN date: 98–117 diam: –	denom: AS mint: RM wt: –	cat: – die axis: –	Obv – Rev – [SC] wear: –
30	perhaps TRAJAN date: 98–117 diam: –	denom: DEN mint: RM wt: –	cat: – die axis: –	Obv – Rev – wear: –
31	TRAJAN date: 98–117 diam: 31.0mm	denom: SEST mint: RM wt: 19.1g	cat: – die axis: –	Obv – Rev – wear: C/C
32	TRAJAN date: 98–117 diam: 17.5mm	denom: DEN mint: RM wt: 1.4g	cat: – die axis: 6	Obv – Rev – wear: SW/W
33	TRAJAN date: 98–99 diam: 31.5mm	denom: SEST mint: RM wt: 21.5g	cat: – die axis: 12?	Obv [IMP NERVA CA]JES TR[AIAN AVG GERM PM] Rev – wear: VW/C
34	TRAJAN date: 103–11 diam: 33.5mm	denom: SEST mint: RM wt: 18.4g	cat: as 519 die axis: 6	Obv [IMP CAES NERVAE TRAIANO] AVG GER D[AC PM TRP COS V PP] Rev [SPQR OPTIMO PRINCIPI SC] wear: ?W/VW
35	TRAJAN date: 103–11	denom: SEST mint: RM	cat: 492	Obv [IMP CAES NERVA]E TRAIANO AVG GER DAC PM TRP COS V [PP] Rev SPQR OPTIMO PRINCIPI SC

	diam: 32.0mm	wt: 21.8g	die axis: 6	wear: SW/SW
36	TRAJAN date: 103–12 diam: –	denom: SEST mint: RM wt: –	cat: – die axis: –	Obv [IMP CAESTRAIAN]O AVG GER DAC... Rev – [SC] wear: –
37	TRAJAN date: 103–17 diam: 33.5mm	denom: SEST mint: – wt: 20.9g	cat: as 606 die axis: 6	Obv IMP [CAES NERVAE] TRAIANO AVG GE[R DAC...] Rev – wear: VW/EW
38	TRAJAN date: 103–17 diam: 32.0mm	denom: SEST mint: RM wt: 25.6g	cat: as 492 die axis: 7	Obv [IMP CAES NERVAE TRAI]ANO AVG GER DA[C PM TRP COS V.PP] Rev S[PQR OPTIMO PRINCIPI SC] wear: VW/EW
39	TRAJAN date: 114–17 diam: 18.5mm	denom: DEN mint: RM wt: 2.3g	cat: as 492 die axis: 7	Obv [IMP CAES NER TRAJ]IAN OPTIM AVG GERM DAC Rev PM TRP COS VI PP SPQR wear: SW/W
40	TRAJAN date: 114–17 diam: 18.5mm	denom: SEST mint: RM wt: 2.3g	cat: 332 die axis: 7	Obv [IMP CAES NER TRAIANO OPTIMO AVG] GER DAC [PARTHICO PM TRP COS VI PP Rev [REX PARTHIS DATVS SC] wear: SW/C
41	HADRIAN date: 117–19 diam: –	denom: SEST mint: RM wt: –	cat: 667 die axis: 6?	Obv – Rev – wear: –
42	HADRIAN? date: 117–19? diam: –	denom: SEST mint: RM wt: –	cat: – die axis: –	Obv – Rev – [SC] wear: EW/EW
43	HADRIAN date: 117–38 diam: 23.5mm	denom: AS mint: RM wt: 4.0g	cat: – die axis: 12?	Obv – Rev – wear: C/C
44	HADRIAN date: 117–38 diam: 32.0mm	denom: SEST mint: RM wt: 14.6g	cat: – die axis: 6	Obv IMP CAESAR TRAIANV–S HADR... Rev Female fig. 1, hldg – + corn. SC wear: W/W
45	HADRIAN date: 118 diam: 33.5mm	denom: SEST mint: RM wt: 20.3g	cat: 551b die axis: 6	Obv [IMP CAESAR TRAIANVS HADRIANVS AVG] Rev [PONT MAX TRPOT COS II] FORT RED SC wear: SW/W
46	HADRIAN date: 118 diam: –	denom: SEST mint: RM wt: –	cat: 551a die axis: –	Obv [IMP CAESAR] TRAIANVS HADRI[ANVS AVG] Rev [PONT MAX TRPOT COS II] FORT RED SC wear: –
47	HADRIAN date: 119 diam: 26.0mm	denom: AS mint: RM wt: 7.5g	cat: 577 die axis: 6	Obv IMP CAES[AR] TRAIANVS HADRIANVS AVG] Rev [PONT MAX TRPOT COS III SC BRIT]ANNI[A] wear: SW/SW
48	HADRIAN date: 119–22 diam: 18.5mm	denom: DEN mint: RM wt: 1.7g	cat: 98 die axis: 6	Obv [IMP CAESAR TRAIAN HADRIANVS AVG] Rev [PM TRP COS III] wear: ?SW/W
49	HADRIAN date: 125–28 diam: 23.0mm	denom: DP mint: RM wt: 3.8g	cat: 654 die axis: 6	Obv [HADRI]ANVS AV[GVESTVS] Rev [COS III SC] wear: SW/SW
50	HADRIAN date: 132–34 diam: –	denom: AS mint: RM wt: –	cat: 716 die axis: –	Obv HADRIANVS AVGVSTVS Rev COS III PP SC wear: W/VW
51	HADRIAN date: 134–38 diam: 31.5mm	denom: SEST mint: RM wt: 18.2g	cat: 970 die axis: 6	Obv [HADRIANVS AVGVSTVS PP] Rev [HILARITAS P R] COS I[II] SC wear: W/W
52	HADRIAN date: 134–38 diam: 31.0mm	denom: SEST mint: RM wt: 16.4g	cat: as 790 die axis: 1	Obv – Rev Spes adv. 1 wear: EW/EW
53	HADRIAN date: 134–38 diam: 25.5mm	denom: AS mint: RM wt: 11.1g	cat: 846 die axis: 6	Obv HADR[IANVS AVG C]OS III PP Rev [BRI]TAN[NIA SC] wear: VW/VW
54	HADRIAN date: 134–38 diam: –	denom: DEN mint: RM wt: –	cat: 274 die axis: –	Obv HADRIAN[VS AVG COS III PP] Rev [SPES P R] wear: W/W
55	HADRIAN date: 134–38 diam: 17.5mm	denom: DEN mint: RM wt: 2.5g	cat: 267 die axis: 6	Obv [HADRI]ANVS AVG COS III PP Rev [SALV]S AVG wear: SW/W
56	HADRIAN	denom: DEN		Obv HADRIANVS AVG COS III PP

	date: 134–38 diam: 17.5mm	mint: RM wt: 2.5g	cat: 268 die axis: 6	Rev SALVS AVG wear: SW/SW
57	HADRIAN date: 134–38 diam: 31.0mm	denom: SEST mint: RM wt: 17.0g	cat: 759 die axis: 6	Obv [HADRIANVS AVG COS III PP] Rev [FORTVNA AVG SC] wear: W/VW
58	HADRIAN date: 134–38 diam: –	denom: DEN mint: RM wt: –	cat: 241a die axis: –	Obv HADRIANVS AVG COS III PP Rev FIDES PVBLICA wear: –
59	HADRIAN date: 134–38 diam: 24.5mm	denom: AS mint: RM wt: 8.6g	cat: 831d die axis: 6	Obv [HADRIANVS] AVG [COS III PP] Rev SC wear: W/W
60	HADRIAN date: 134–38 diam: 30.0mm	denom: SEST mint: RM wt: 13.1g	cat: as 741 die axis: 6	Obv [HA]DRIANVS [AVG COS III PP] Rev [ADVENTVS AVG SC] wear: W/W
61	HADRIAN date: 134–38 diam: 26.5mm	denom: DP mint: RM wt: 11.8g	cat: 830 die axis: 6	Obv [HADRIANVS AVG COS III PP] Rev SC wear: VW/VW
62	HADRIAN/ ANTONINUS PIUS? date: 117–61? diam: 26.0mm	denom: AS mint: RM wt: 6.2g	cat: – die axis: –	Obv – Rev – wear: EW/EW
63	AELIUS date: 136–38 diam: 17.0mm	denom: DEN mint: RM wt: 2.6g	cat: Hadrian 436 die axis: 6	Obv L AELIVS CAESAR Rev TRIB POT COS II/CONCORD wear: UW/SW
64	SABINA date: 117–38 diam: 17.0mm	denom: DEN mint: RM wt: 1.4g	cat: Hadrian 399 die axis: 5	Obv [[SABINA AV]GVSTA HADRIANI AVG [PP] Rev CONCORDIA AVG wear: SW/W
65	SABINA date: 117–38 diam: 17.5mm	denom: DEN mint: RM wt: 2.1g	cat: Hadrian 398 die axis: 7	Obv [SABINA AVG]VS[TA HADRIANI AVG PP] Rev [CON]COR[DIA AVG] wear: W/W
66	ANTONINUS PIUS date: 138–61 diam: 24.0mm	denom: DP mint: RM wt: 3.1g	cat: – die axis: –	Obv – Rev – wear: C/C
67	ANTONINUS PIUS date: 138–61 diam: –	denom: SEST mint: RM wt: –	cat: as 626 die axis: –	Obv – Rev Spes wear: VW/VW
68	ANTONINUS PIUS date: 138–61 diam: 26.0mm	denom: AS mint: RM wt: 4.2g	cat: – die axis: –	Obv – Rev – wear: C/C
69	prob ANTONINUS PIUS date: 138–61 diam: –	denom: AS mint: RM wt: –	cat: – die axis: –	Obv – Rev – wear: –
70	ANTONINUS PIUS date: 138–61 diam: 26.0mm	denom: DP mint: RM wt: 9.4g	cat: – die axis: 5	Obv – Rev Libertas stg. 1 wear: W/W
71	ANTONINUS PIUS date: 138–61 diam: 31.0mm	denom: SEST mint: RM wt: 19.3g	cat: – die axis: –	Obv – Rev – wear: C/C
72	poss ANTONINUS PIUS date: 138–61? diam: 26.0mm	denom: DP/AS mint: RM wt: 4.0g	cat: – die axis: –	Obv – Rev – wear: C/C
73	ANTONINUS PIUS? date: 138–61? diam: 29.0mm	denom: SEST mint: RM wt: 10.0g	cat: – die axis: 6	Obv – Rev – wear: EW/EW
74	ANTONINUS PIUS date: 139–44 diam: 31.0mm	denom: SEST mint: RM wt: 14.1g	cat: 546/646 die axis: 5	Obv [ANTO]NINVS AVG [PIVS PP] Rev TRP[OT COS II(I)] SC wear: VW/VW
75	ANTONINUS PIUS date: 139–61 diam: 23.5mm	denom: DP mint: RM wt: 6.2g	cat: as 803 die axis: 6	Obv ANTONINVS AVG [PIVS PP TRP COS....] Rev LIBER[ALI]TAS A[VG...] SC wear: W/SW
76	ANTONINUS PIUS date: 139–61 diam: 33.5mm	denom: SEST mint: RM wt: 20.0g	cat: – die axis: 6?	Obv [AN]TONINVS [AVG PIVS PP...] Rev – wear: EW/C
77	ANTONINUS PIUS date: 140–44 diam: –	denom: SEST mint: RM wt: –	cat: 622 die axis: –	Obv ANTONINVS AVG PIVS PP TRP COS III Rev [ROMAE AETERNAE SC] wear: W/VW

78	ANTONINUS PIUS date: 140–44 diam: 30.5mm	denom: SEST mint: RM wt: 25.9g	cat: 637 die axis: 5	Obv ANTONINVS AVG PIVS PP TRP COS III Rev SALVS [AVG] SC wear: SW/SW
79	ANTONINUS PIUS date: 148–49 diam: 17.0mm	denom: DEN mint: RM wt: 2.8g	cat: 175 die axis: 12	Obv ANTONINVS AVG PIVS PP TRP XII Rev COS IIII wear: UW/UW
80	ANTONINUS PIUS date: 154–55 diam: 24.0mm	denom: AS mint: RM wt: 6.6g	cat: 934 die axis: 6	Obv [ANTONINVS AVG PIVS PP TRP XVIII] Rev [BRITANNIA COS IIII SC] wear: VW/VW
81	ANTONINUS PIUS date: 158–59 diam: 31.5mm	denom: SEST mint: RM wt: 21.1g	cat: 1004 die axis: 5	Obv ANTONINVS AVG [PIVS PP] TRP XXII] Rev TEMPLV[M DI]V AVG REST [COS IIII] SC wear: W/W
82	FAUSTINA I date: 138–61 diam: –	denom: AE mint: RM wt: –	cat: – die axis: –	Obv – Rev – wear: –
83	FAUSTINA I, POSTH date: 140–61 diam: 24.5mm	denom: AS mint: RM wt: 10.1g	cat: Ant Pius as 1155 die axis: 11	Obv [DIVA FAVSTI]NA Rev [AETERNITAS] SC wear: W/W
84	FAUSTINA I, POSTH date: 141–61 diam: –	denom: SEST mint: RM wt: –	cat: Ant Pius – die axis: –	Obv – Rev – wear: –
85	FAUSTINA I, POSTH date: 141–61 diam: 25.5mm	denom: DP mint: RM wt: 5.9g	cat: Ant Pius – die axis: 6	Obv [DI]VA [FAVSTINA] Rev wear: ?W/C
86	FAUSTINA I, POSTH date: 141–61 diam: 17.5mm	denom: DEN mint: RM wt: 2.4g	cat: Ant Pius 361 die axis: 12	Obv DIVA F[AV]STINA Rev AVGVSTA wear: SW/SW
87	FAUSTINA I, POSTH date: 141–61 diam: 17.0mm	denom: DEN mint: RM wt: 2.8g	cat: Ant Pius 373 die axis: 12	Obv DIVA FAVSTINA Rev AVGVSTA wear: UW/SW
88	FAUSTINA II (ANT. PIUS) date: 145–61 diam: –	denom: DEN mint: RM wt: –	cat: Ant Pius 502 die axis: –	Obv FAVSTINA AVG PII AVG FIL Rev CONCORDIA wear: –
89	FAUSTINA II (ANT. PIUS) date: 145–61 diam: 31.5mm	denom: SEST mint: RM wt: 16.8g	cat: Ant Pius 378c die axis: 11	Obv [FAVSTINAE] AVG PII [AVG FIL] Rev [LAETITIAE PVBLICAE SC] wear: VW/VW
90	M AURELIUS, CAESAR date: 140–44 diam: 28.0mm	denom: AS mint: RM wt: 9.6g	cat: Ant Pius 1238 die axis: 12	Obv [A]VRELIVS CAE[SAR AVG PII F COS] Rev [IVVEN]TAS SC wear: W/W
91	M AURELIUS, CAESAR date: 153–54 diam: 29.5mm	denom: SEST mint: RM wt: 16.7g	cat: Ant Pius 1314 die axis: 10	Obv [AVRELIVS CAE]SAR [AVG PII FIL] Rev [TRPOT VIII] COS II SC wear: VW/VW
92	M AURELIUS date: 161–80 diam: 25.5mm	denom: DP mint: RM wt: 7.8g	cat: – die axis: 6?	Obv – Rev – wear: EW/EW
93	M AURELIUS date: 161–80 diam: 26.5mm	denom: SEST mint: RM wt: 11.4g	cat: – die axis: 6	Obv Rev – wear: VW/VW
94	FAUSTINA II (M AURELIUS) date: 161–75 diam: 29.5mm	denom: SEST mint: RM wt: 13.7g	cat: M Aurelius 1667 die axis: 6	Obv [FAVSTINA AVGVSTA] Rev [SALVTI AVGVSTAE SC] wear: EW/EW
95	FAUSTINA II (M AURELIUS) date: 161–75 diam: 24.0mm	denom: AS mint: RM wt: 5.4g	cat: M Aurelius – die axis: 12	Obv – Rev – wear: C/C
96	FAUSTINA II (M AURELIUS) date: 161–75 diam: 18.0mm	denom: DEN mint: RM wt: 1.8g	cat: M Aurelius 729 die axis: 6	Obv [FAVSTIN]A AVGVSTA Rev VENVS wear: W/W
97	FAUSTINA II (M AURELIUS) date: 161–75 diam: 33.5mm	denom: SEST mint: RM wt: 19.0g	cat: M Aurelius 1638 die axis: 12	Obv FAVS[TINA AVGVSTA] Rev [FECVNDITAS SC] wear: VW/VW

98 FAUSTINA II (M AURELIUS)	denom: SEST mint: RM wt: –	cat: M Aurelius 1688 die axis: –	Obv FAVSTINA AVGVSTA Rev VENVS VICTRIX SC wear: –
99 FAUSTINA II, POSTH	denom: DEN mint: RM wt: –	cat: M Aurelius 745 die axis: –	Obv DIVA FAVSTINA PIA Rev CONSECRATIO wear: –
100 COMMODUS	denom: DEN mint: RM wt: –	cat: 161 die axis: –	Obv M COMM ANT P FEL AVG BRIT Rev VOT SOL DEC PM TRP XII IMP VIII COS V PP wear: –
101 COMMODUS	denom: DEN mint: RM wt: 1.8g	cat: 164 die axis: 6	Obv M COMM ANT P FEL AVG B[RIT] Rev PM TRP XIII IMP VIII COS V PP wear: SW/SW
102 SEPTIMIUS SEVERUS	denom: SEST mint: – wt: 16.8g	cat: as 692 die axis: 6	Obv – Rev Felicitas stg. I., hldg. caduc.+ corn, foot on prow SC wear: VW/VW
103 SEPTIMIUS SEVERUS	denom: DEN mint: – wt: 1.9g	cat: 118 die axis: 6	Obv [L SEPT] SEV PERT AVG IMP X Rev PACI AETERNAE wear: ?W/W
104 SEPTIMIUS SEVERUS	denom: DEN mint: – wt: 2.3g	cat: 211 die axis: 1	Obv SEVERVS PIVS AVG Rev PM TRP XV COS III PP wear: SW/SW
105 SEPTIMIUS SEVERUS	denom: DEN mint: – wt: –	cat: 233 die axis: –	Obv SEVERVS PIVS AVG Rev PM TRP XVIII COS III PP wear: –
106 'SEPTIMIUS SEVERUS'	denom: DENpl mint: – wt: 1.1g	cat: c as 29a die axis: 12	Obv [L SEPT] SEV PER[T AVG IMP...] Rev Victory wear: W/W
107 'SEPTIMIUS SEVERUS'	denom: DENpl mint: – wt: 1.6g	cat: c of 67 die axis: 12	Obv [L SEPT SEV PERT AVG I]MP VII Rev [PM TRP] III [COS II PP] wear: ?W/W
108 'SEPTIMIUS SEVERUS'	denom: DENpl mint: – wt: 2.0g	cat: c of 99/112a die axis: 12	Obv [L SEPT SEV PERT AVG IMP...] Rev LIBER[O PATRI] wear: SW/W
109 JULIA DOMNA	denom: DEN mint: – wt: 2.4g	cat: Sept Sev 577 die axis: 6	Obv IVLIA AVGVSTA Rev [S]AECVLI [FELICITAS] wear: W/VW
110 JULIA DOMNA	denom: DEN mint: – wt: 2.6g	cat: Sept Sev 580 die axis: 6	Obv IVLIA AVGVSTA Rev [VENVS] FELIX wear: W/W
111 'CARACALLA'	denom: DENpl mint: – wt: 2.4g	cat: c of 2 die axis: 11	Obv [M AVR ANTONINVS] CAES Rev SECVR[ITAS PERPETVA] wear: W/W
112 'CARACALLA'	denom: DENpl mint: – wt: 1.5g	cat: c of 81 die axis: 6	Obv ANTONINVS PIVS AVG Rev PONTIF TRP VIII COS II wear: W/W
113 ELAGABALUS	denom: DEN mint: – wt: –	cat: 141 die axis: –	Obv [IMP ANT]ONINVS AVG Rev [S]ALVS AV[GVESTI] wear: SW/SW
114 ELAGABALUS	denom: DEN mint: – wt: 1.8g	cat: 146 die axis: 7	Obv IMP ANTONINVS PIVS AVG Rev SVMMVS SACERDOS AVG wear: SW/SW
115 ELAGABALUS	denom: DEN mint: – wt: –	cat: 146/7 die axis: –	Obv IMP ANTONINVS PIVS AVG Rev SVMMVS SACERDOS AVG wear: –
116 ELAGABALUS	denom: DEN mint: – wt: 1.0g	cat: 46b/53b die axis: 6	Obv IMP ANTONINVS PIVS AVG Rev [PM TRP...] COS III [PP] wear: W/W
117 'ELAGABALUS' (AE core)	denom: DENpl mint: – wt: 0.6g	cat: c of – die axis: –	Obv [...AN]TONI[NVS...] Rev – wear: ?SW/C
118 JULIA SOAEMIAS	denom: DEN mint: – wt: 1.1g	cat: Elagabalus – die axis: –	Obv IVLIA SOAEMIAS [AVG] Rev – wear: SW/C
119 JULIA MAESA	denom: DEN mint: –	cat: Elagabalus 268	Obv IVLIA MAESA AVG Rev PVDICITIA

	diam: 18.5mm	wt: 2.6g	die axis: 12	wear: SW/SW
120 SEVERUS ALEXANDER	denom: DEN			Obv IMP C M AVR SEV ALEXAND AVG
	date: 222	mint: –	cat: 7	Rev PM TRP COS PP
	diam: 18.5mm	wt: 2.6g	die axis: 12	wear: W/S
121 SEVERUS ALEXANDER	denom: DEN			Obv [IMP C M AVR SEV] ALEXAND AVG
	date: 222–28	mint: –	cat: 156	Rev [LI]BERTAS AVG
	diam: 18.0mm	wt: 1.4g	die axis: 6	wear: ?W/W
122 SEVERUS ALEXANDER	denom: DEN			Obv [I]MP C M AVR SEV ALEXAND AVG
	date: 222–28	mint: –	cat: 168	Rev PAX AVG
	diam: –	wt: –	die axis: –	wear: –
123 SEVERUS ALEXANDER				
	fragments	denom: DEN		Obv IMP [C M] AVR SEV ALE[XAND AVG
	date: 222–28	mint: –	cat: as 40	Rev [PM] TRP I.. COS PP
	diam: 17.0mm	wt: 1.0g	die axis: 6	wear: SW/SW
124 SEVERUS ALEXANDER				
	fragments	denom: DEN		Obv IMP C M AVR [SEV ALEXAND AVG]
	date: 222–28	mint: –	cat: 165	Rev PAX AE[TERNA AVG]
	diam: 17.0mm	wt: 1.3g	die axis: –	wear: W/W?
125 JULIA MAMAEA	denom: DEN			Obv IVLIA MAMAEA AVG
	date: 222–35	mint: –	cat: Sev.Alex. 348	Rev SAECVLI FELICITAS
	diam: –	wt: –	die axis: –	wear: –
126 JULIA MAMAEA	denom: DEN			Obv IVLIA MA[MAEA AVG]
	date: 222–35	mint: –	cat: Sev.Alex. 358	Rev VENVS VIC[TRIX]
	diam: 18.0mm	wt: 1.5g	die axis: 6	wear: W/W
127 JULIA MAMAEA	denom: DEN			Obv [IVLIA MAMAEA AVG]
	date: 222–35	mint: –	cat: Sev.Alex. –	Rev –
	diam: –	wt: –	die axis: –	wear: –
128 VALERIAN I	denom: ANT			Obv IMP C [VAL]ERIANVS P AVG
	date: 258	mint: RM	cat: 10	Rev [OR]IENS A[VGG]
	diam: 21.0mm	wt: 2.2g	die axis: 6	wear: W/VW
129 VALERIAN/GALLIENUS?	denom: ANT			Obv –
	date: 253–60?	mint: –	cat: –	Rev –
	diam: 21.0mm	wt: 1.5g	die axis: –	wear: C/C
130 SALONINUS	denom: ANT			Obv SALON VALERIANVS CAES
	date: 256–59	mint: LG	cat: 9	Rev PIETAS AVG
	diam: –	wt: –	die axis: –	wear: –
131 GALLIENUS	denom: ANT			Obv [GALL]IENVS AVG
	date: 260–68	mint: –	cat: 514	Rev SECV[RIT AVG]
	diam: 17.5mm	wt: 1.4g	die axis: 6	wear: W/W
132 GALLIENUS	denom: ANT			Obv [...GALLIENVS AVG]
	date: 260–68	mint: –	cat: 178/9	Rev [DIANAE] CO[NS] AVG
	diam: 17.5mm	wt: 1.3g	die axis: 6?	wear: C/W
133 GALLIENUS	denom: ANT			Obv GALLIEN[VS AVG]
	date: 260–68	mint: –	cat: 157	Rev [ABVND]ANTIA AV[G]
	diam: 18.5mm	wt: 1.8g	die axis: 12	wear: SW/W
134 GALLIENUS	denom: ANT			Obv [GALLIENVS AVG]
	date: 260–68	mint: –	cat: 280	Rev [SECV]RIT PE[RPET] in field r., N
	diam: 22.0mm	wt: 1.7g	die axis: 12	wear: SW/SW
135 GALLIENUS fragments	denom: ANT			Obv –
	date: 260–68	mint: –	cat: –	Rev –
	diam: 14.0mm	wt: 0.3g	die axis: –	wear: C/C
136 GALLIENUS fragment	denom: ANT			Obv [IMP GALLIENVS AVG]
	date: 260–68	mint: –	cat: 178	Rev [DIANAE CONS AVG]
	diam: 17.5mm	wt: 0.6g	die axis: –	wear: W/W
137 GALLIENUS	denom: ANT			Obv [...GALLIENVS AVG]
	date: 260–68	mint: RM	cat: 176–8	Rev DI[ANAE CONS AV]G in ex., E
	diam: 18.0mm	wt: 1.2g	die axis: 12	wear: SW/W
138 GALLIENUS	denom: ANT			Obv [GALLIE]NVS AVG
	date: 260–68	mint: – XI	cat: 181	Rev [DIANAE CON]S AVG
	diam: 18.0mm	wt: 1.0g	die axis: 12	wear: SW/SW
139 GALLIENUS	denom: ANT			Obv [IMP GALLI]EN[VS AVG]
	date: 260–68	mint: –	cat: 198	Rev GENI[VS AV]G
	diam: 18.5mm	wt: 1.8g	die axis: 2	wear: SW/SW
140 GALLIENUS?	denom: ANT			Obv –
	date: 260–68	mint: –	cat: –	Rev –
	diam: 18.5mm	wt: 2.2g	die axis: 12?	wear: C/C

141 GALLIENUS?	denom: ANT		Obv –
date: 260–73?	mint: –	cat: –	Rev –
diam: 15.5mm	wt: 0.6g	die axis: –	wear: SW/C
142 SALONINA	denom: ANT		Obv SALON[INA] AVG
date: 260–68	mint: –	cat: 12	Rev [I]VNO [REG]INA
diam: 19.0mm	wt: 1.4g	die axis: 6	wear: W/W
143 probably CLAUDIUS II	denom: ANT		Obv [IMP. CLAUDIUS AVG]
date: 268–70	mint: –	cat: as 104	Rev VICTORIA AVG
diam: –	wt: –	die axis: –	wear: –
144 CLAUDIUS II	denom: ANT		Obv [IMPC CLAUDIUS AVG]
date: 268–70	mint: –	cat: 66	Rev [MARS V]LTON
diam: 17.5mm	wt: 1.6g	die axis: 6	wear: W/W
145 CLAUDIUS II fragment	denom: ANT		Obv [IMP. C]LA[VDI]VS [AVG]
date: 268–70	mint: –	cat: as 90	Rev –
diam: 13.5mm	wt: 0.2g	die axis: 6	wear: SW/SW
146 CLAUDIUS II	denom: ANT		Obv [IMP CLAUDIUS AVG]
date: 268–70	mint: –	cat: 195	Rev [VIRTUS AVG]
diam: 17.5mm	wt: 1.3g	die axis: 12	wear: W/W
147 CLAUDIUS II	denom: ANT		Obv –
date: 268–70	mint: –	cat: –	Rev –
diam: 17.5mm	wt: 1.3g	die axis: –	wear: SW/C
148 CLAUDIUS II	denom: ANT		Obv –
date: 268–70	mint: –	cat: –	Rev –
diam: 20.0mm	wt: 1.4g	die axis: –	wear: C/C
149 CLAUDIUS II	denom: ANT		Obv IMP CLAUDIUS AVG
date: 268–70	mint: –	cat: 105	Rev [V]IC[TORIA A]VG
diam: 20.5mm	wt: 2.1g	die axis: 6	wear: SW/W
150 CLAUDIUS II	denom: ANT		Obv –
date: 268–70	mint: –	cat: –	Rev –
diam: 15.0mm	wt: 1.3g	die axis: –	wear: W/C
151 CLAUDIUS II	denom: ANT		Obv [IMPC CLAUDIUS] AVG
date: 268–70	mint: –	cat: 14	Rev [AEQUITAS] AVG
diam: 16.5mm	wt: 0.9g	die axis: 6	wear: W/W
152 CLAUDIUS II	denom: ANT		Obv –
date: 268–70	mint: –	cat: –	Rev –
diam: 16.0mm	wt: 1.3g	die axis: –	wear: W/C
153 CLAUDIUS II fragment	denom: ANT		Obv [IMPC CLAUDIUS AVG]
date: 268–70	mint: –	cat: as 104	Rev [VICTORIA AVG]
diam: 13.5mm	wt: 1.2g	die axis: –	wear: ?W/C
154 'CLAUDIUS II'	denom: ANT		Obv –
date: 268+	mint: –	cat: –	Rev –
diam: –	wt: –	die axis: –	wear: –
155 'CLAUDIUS II'	denom: ANT		Obv [...CLAVD]IVS...
date: 268+	mint: –	cat: –	Rev –
diam: 15.5mm	wt: 2.7g	die axis: –	wear: SW/SW
156 CLAUDIUS II, POSTH.	denom: ANT		Obv [DIVO CL]AV[DIO]
date: 270	mint: –	cat: 261	Rev [CONSE]C[RATIO] Altar
diam: 16.5mm	wt: 1.2g	die axis: 6	wear: W/W
157 CLAUDIUS II, POSTH.	denom: ANT		Obv DIVO CLAVDIO
date: 270	mint: –	cat: 259	Rev CONSECRATIO Altar
diam: –	wt: –	die axis: –	wear: –
158 CLAUDIUS II, POSTH.	denom: ANT		Obv [DIVO CLAVDIO]
date: 270	mint: –	cat: 261	Rev [CONSECRATIO] Altar
diam: 15.0mm	wt: 1.1g	die axis: 6	wear: W/W
159 CLAUDIUS II, POSTH.	denom: ANT		Obv [DIVO CL]AVDI[O]
date: 270	mint: –	cat: 266	Rev CON[SECRATIO] Eagle
diam: 15.5mm	wt: 1.5g	die axis: 12	wear: W/W
160 CLAUDIUS II, POSTH.	denom: ANT		Obv DIVO CLAVDIO
date: 270	mint: –	cat: 261	Rev [CONSECRAT]IO Altar
diam: 17.5mm	wt: 1.0g	die axis: 6	wear: SW/SW
161 CLAUDIUS II, POSTH.	denom: ANT		Obv [D]IVO [CLAVDIO]
date: 270	mint: –	cat: 261	Rev CONSE[CRATIO] Altar
diam: 16.5mm	wt: 0.5g	die axis: 1	wear: UW/UW
162 CLAUDIUS II, POSTH.	denom: ANT		Obv [DIVO CLAVDIO]
date: 270	mint: –	cat: 261	Rev [CONSECRATIO] Altar
diam: 14.5mm	wt: 0.6g	die axis: –	wear: C/C

163 'CLAUDIUS II, POSTH'	denom: ANT date: 270+ diam: 14.0mm	mint: – wt: 1.3g	cat: c of 261 die axis: –	Obv [DIVO CLAVDIO] Rev [CONSECRATIO] Altar wear: C/W
164 'CLAUDIUS II, POSTH'	denom: ANT date: 270+ diam: 9.5mm	mint: – wt: 0.5g	cat: c of 261 die axis: 1	Obv [DIVO CLAVDIO] Rev [CONSECRATIO] Altar wear: W/W
165 'CLAUDIUS II, POSTH'	denom: ANT date: 270+ diam: 13.5mm	mint: – wt: 0.3g	cat: c of 261 die axis: –	Obv [DIVO CLAVDIO] Rev [CONSECRATIO] Altar wear: SW/W
166 'CLAUDIUS II, POSTH'	denom: ANT date: 270+ diam: 8.5mm	mint: – wt: 0.3g	cat: c of 261 die axis: 3	Obv [DIVO CLAVDIO] Rev [CONSECRATIO] Altar wear: ?W/W
167 'CLAUDIUS II, POSTH'	denom: ANT date: 270+ diam: 13.0mm	mint: – wt: 0.4g	cat: c of 261 die axis: –	Obv [DIVO CLAVDIO] Rev [CONS]EC[RATIO] Altar wear: W/W
168 'CLAUDIUS II, POSTH'	denom: ANT date: 270+ diam: 15.0mm	mint: – wt: 1.0g	cat: c of 261 die axis: 6	Obv [DIVO CLAVDIO] Rev [CONSECRATIO] Altar wear: C/C
169 'CLAUDIUS II, POSTH'	denom: ANT date: 270+ diam: 13.5mm	mint: – wt: 0.7g	cat: c of 261 die axis: 12?	Obv [DIVO CLAVDIO] Rev [CONSECRATIO] Altar wear: W/SW
170 'CLAUDIUS II, POSTH'	denom: ANT date: 270+ diam: –	mint: – wt: –	cat: c of 261 die axis: –	Obv [DIVO CLAVDIO] Rev [CONSECRATIO] Altar wear: ?W/W
171 POSTUMUS	denom: ANT date: 259–68 diam: 15.0mm	mint: – wt: 0.7g	cat: – die axis: 6	Obv [IMPC P]OSTUMUS [PF AVG] Rev – wear: SW/SW
172 POSTUMUS	denom: ANT date: 260 diam: 16.0mm	mint: – wt: 0.6g	cat: E 189 die axis: 12	Obv [IMPC POSTV]MVS [PF AVG] Rev [FID]ES M[ILITVM] wear: W/W
173 'POSTUMUS'	denom: ANT date: 268+ diam: 17.5mm	mint: – wt: 2.5g	cat: c of E 563 die axis: 6	Obv [IMPC POSTVMVS PF AVG] Rev [IOVI ST]ATORI wear: W/W
174 VICTORINUS	denom: ANT date: 268–70 diam: 19.5mm	mint: – wt: 3.0g	cat: as E 697 die axis: 12	Obv [IMPC VIC]TORINVS [PF AVG] Rev [S]ALVS AVG wear: W/W
175 VICTORINUS fragment	denom: ANT date: 268–70 diam: 14.0mm	mint: – wt: 0.8g	cat: – die axis: –	Obv – Rev – wear: SW/W
176 VICTORINUS	denom: ANT date: 268–70 diam: 18.0mm	mint: – wt: 1.4g	cat: as E 697 die axis: 6?	Obv IMP[C VICTORINVS PF AVG] Rev [SALVS AVG] wear: W/W
177 VICTORINUS	denom: ANT date: 268–70 diam: 20.5mm	mint: – wt: 2.3g	cat: as E 651 die axis: 12	Obv [IMPC PIAV VIC]TORIN[VS PF AVG] Rev [PAX AVG] wear: W/W
178 VICTORINUS	denom: ANT date: 268–70 diam: 19.5mm	mint: – wt: 1.0g	cat: 112–14 die axis: –	Obv [IMP.]VICTORINVS PFAVG] Rev [INVICTVS] wear: C/?W
179 VICTORINUS	denom: ANT date: 268–70 diam: 17.0mm	mint: – wt: 1.5g	cat: E as 699 die axis: 12	Obv [IMPC] VICT[ORINVS AVG] Rev [VIRT]V[S AVG] wear: W/W
180 VICTORINUS	denom: ANT date: 268–70 diam: 17.0mm	mint: – wt: 1.3g	cat: 58, E – die axis: 11	Obv [IMPC VIC]TORI[NV]S [PF AVG] Rev [PIE]TAS AVG wear: SW/SW
181 'VICTORINUS'	denom: ANT date: 270+ diam: 14.5mm	mint: – wt: 1.1g	cat: c as E 699 die axis: 5	Obv IMP VICTORINVS [PF AVG] Rev [VIRTVS AVG] wear: W/W
182 VICTORINUS/ TETRICUS I	denom: ANT date: 268–73 diam: 17.5mm	mint: – wt: 1.0g	cat: c as – die axis: 12	Obv – Rev ?Spes wear: W/W
183 TETRICUS I	denom: ANT date: 270–73 diam: 20.0mm	mint: – wt: 1.4g	cat: – die axis: –	Obv [IMP] TETRICVS PF AVG Rev – wear: W/C
184 TETRICUS I	denom: ANT date: 270–73	mint: –	cat: E 790	Obv IMP[C] TETRICVS PF AVG Rev HIL[ARITAS] AVGG

diam: 17.5mm	wt: 1.5g	die axis: 7	wear: SW/W
185 TETRICUS I fragments	denom: ANT		Obv –
date: 270–73	mint: –	cat: –	Rev –
diam: 13.5mm	wt: 0.6g	die axis: –	wear: C/C
186 TETRICUS I	denom: ANT		Obv [IMPC T]ETRICVS [PF AVG]
date: 270–73	mint: –	cat: E 795	Rev [NOBIL]ITAS [AVGG]
diam: 17.0mm	wt: 0.6g	die axis: 12	wear: W/W
187 TETRICUS I	denom: ANT		Obv [IMPC] TETRIC[VS PF AVG]
date: 270–73	mint: –	cat: –	Rev –
diam: 18.5mm	wt: 0.9g	die axis: –	wear: W/C
188 TETRICUS I	denom: ANT		Obv [IMPC TERICVS PF] AVG
date: 270–73	mint: –	cat: 109	Rev [PIETAS AVG]
diam: 18.0mm	wt: 2.1g	die axis: 12	wear: UW/SW
189 TETRICUS I	denom: ANT		Obv IMP TETR[ICVS PF AVG]
date: 270–73	mint: –	cat: E 789	Rev HILAR[ITAS AVGG]
diam: 18.5mm	wt: 2.6g	die axis: 2	wear: SW/SW
190 TETRICUS I	denom: ANT		Obv –
date: 270–73	mint: –	cat: –	Rev –
diam: 16.5mm	wt: 1.2g	die axis: –	wear: C/C
191 TETRICUS I	denom: ANT		Obv –
date: 270–73	mint: –	cat: as E 761/4	Rev [SPES PVBLICA]
diam: 14.0mm	wt: 0.4g	die axis: 6	wear: SW/SW
192 TETRICUS I	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: 12.5mm	wt: 0.8g	die axis: –	wear: C/C
193 TETRICUS I	denom: ANT		Obv –
date: 273+	mint: –	cat: c of –	Rev –
diam: 14.0mm	wt: 2.4g	die axis: 10	wear: W/W
194 TETRICUS I	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: 17.0mm	wt: 1.6g	die axis: 6?	wear: C/C
195 TETRICUS I	denom: ANT		Obv –
date: 273+	mint: –	cat: c as E 770	Rev [HIL]ARI[TAS AVGG]
diam: 16.0mm	wt: 2.1g	die axis: 6	wear: W/W
196 TETRICUS I	denom: ANT		Obv [IMP TET]RICV[S PF AVG]
date: 273+	mint: –	cat: c of 86	Rev [LAETITIA] AVG
diam: 17.0mm	wt: 1.5g	die axis: 6	wear: W/W
197 TETRICUS I	denom: ANT		Obv IM ATELE...
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
198 TETRICUS I? fragments	denom: ANT		Obv –
date: 273+	mint: –	cat: c as E 782/4	Rev [FIDES MILITVM]
diam: 10.0mm	wt: 0.2g	die axis: 2	wear: W/W?
199 TETRICUS I	denom: ANT		Obv –
date: 273+	mint: –	cat: c as E 771/5	Rev ?[PAX AVG]
diam: 9.5mm	wt: 0.6g	die axis: 4	wear: SW/SW
200 TETRICUS I	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: 15.0mm	wt: 0.4g	die axis: –	wear: UW/UW
201 TETRICUS I	denom: ANT		Obv [... TETR]ICV[S...]
date: 273+	mint: –	cat: c as –	Rev –
diam: 15.0mm	wt: 0.6g	die axis: –	wear: W/C
202 TETRICUS I	denom: ANT		Obv –
date: 273+	mint: –	cat: c as E 764	Rev ?Spes
diam: 13.0mm	wt: 1.3g	die axis: 1	wear: UW/SW
203 TETRICUS I	denom: ANT		Obv –
date: 273+	mint: –	cat: c as E 784	Rev ?[FIDES MILITVM]
diam: 17.0mm	wt: 1.7g	die axis: 5	wear: W/W
204 TETRICUS I	denom: ANT		Obv [...] TETR[ICVS ...]
date: 273+	mint: –	cat: c as 132	Rev ?[SPES...]
diam: 11.0mm	wt: 0.7g	die axis: 12?	wear: W/W
205 TETRICUS I	denom: ANT		Obv –
date: 273+	mint: –	cat: c as E 765	Rev [VICTORIA AVG]
diam: 15.5mm	wt: 0.7g	die axis: 8	wear: W/W
206 TETRICUS I	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –

	diam: 12.0mm	wt: 0.5g	die axis: –	wear: C/C
207	‘TETRICUS I’ date: 273+ diam: 15.5mm	denom: ANT mint: – wt: 1.0g	cat: c as E 771/5 die axis: 12	Obv [IMPC TETRIC]VS [PF AVG] Rev [PAX AVG] wear: SW/W
208	‘TETRICUS I’ fragment date: 273+ diam: 17.0mm	denom: ANT mint: – wt: 1.0g	cat: c as – die axis: –	Obv VS....CVS... (sic) Rev – wear: ?W/C
209	‘TETRICUS I’ date: 273+ diam: 15.0mm	denom: ANT mint: – wt: 1.4g	cat: c as – die axis: –	Obv – Rev – wear: C/C
210	‘TETRICUS I’ date: 273+ diam: 13.5mm	denom: ANT mint: – wt: 0.8g	cat: c of E 794 die axis:	Obv [IMPC TETRICVS PF AVG] Rev [MARS VICTOR] 12wear: W/W
211	‘TETRICUS I’ date: 273+ diam: 15.0mm	denom: ANT mint: – wt: 0.8g	cat: c of E 780 die axis: 11?	Obv [IMPC TETRICVS PF AVG] Rev VI[RT][VS AVGG] wear: W/VW
212	‘TETRICUS I’ date: 273+ diam: 15.5mm	denom: ANT mint: – wt: 1.2g	cat: c as E 787 die axis: 10	Obv – Rev [LAETITIA AVGG] wear: W/W
213	‘TETRICUS I’ date: 273+ diam: 19.0mm	denom: ANT mint: – wt: 1.8g	cat: c of E 779/88 die axis: 6	Obv IMP [..TET]RIC[VS] PF AVG Rev [SALVS] AVGG wear: W/W
214	‘TETRICUS I’? date: 273+ diam: 9.5mm	denom: ANT mint: – wt: 0.4g	cat: c as 110 die axis: 8	Obv [IMPC TETRICV]S P[F AVG] Rev P[IETAS AVG] wear: SW/SW
215	‘TETRICUS I’ date: 273+ diam: 12.0mm	denom: ANT mint: – wt: 0.4g	cat: c as E 794 die axis: 2	Obv – Rev [MARS VICTOR] Mars adv l. hldg spear wear: SW/SW
216	‘TETRICUS I’ date: 273+ diam: 13.5mm	denom: ANT mint: – wt: 0.9g	cat: c as – die axis: –	Obv – Rev – wear: ?W/C
217	‘TETRICUS I’ date: 273+ diam: 16.5mm	denom: ANT mint: – wt: 1.0g	cat: c as – die axis: –	Obv – Rev – wear: W/W
218	‘TETRICUS I’ date: 273+ diam: 15.0mm	denom: ANT mint: – wt: 1.2g	cat: c as – die axis: –	Obv – Rev – wear: C/C
219	‘TETRICUS I’ date: 273+ diam: 15.0mm	denom: ANT mint: – wt: 0.8g	cat: c as E 764/7 die axis: 2	Obv – Rev [SPES PVBLICA] wear: SW/SW
220	‘TETRICUS I’ date: 273+ diam: 13.0mm	denom: ANT mint: – wt: 0.8g	cat: c as E 766 die axis: 6	Obv – Rev – wear: W/W
221	‘TETRICUS I’ date: 273+ diam: 17.0mm	denom: ANT mint: – wt: 1.8g	cat: c as E 764/7 die axis: 3	Obv [IMPC TETRICVS PF AVG] Rev [SPES PVBLICA] wear: W/W
222	‘TETRICUS I’ date: 273+ diam: 14.0mm	denom: ANT mint: – wt: 1.3g	cat: c as – die axis: –	Obv – Rev – wear: C/C
223	‘TETRICUS I’ date: 273+ diam: 18.0mm	denom: ANT mint: – wt: 1.6g	cat: c as – die axis: 7?	Obv – Rev – wear: W/W
224	TETRICUS II, CAESAR date: 270–73 diam: 13.0mm	denom: ANT mint: – wt: 0.5g	cat: as E 781 die axis: 6?	Obv – Rev [PRINC IVVENT] wear: W/W
225	TETRICUS II, CAESAR date: 270–73 diam: –	denom: ANT mint: – wt: –	cat: – die axis: –	Obv ...[TETR]IC[VS...] Rev – wear: –
226	TETRICUS II, CAESAR date: 270–73 diam: 18.0mm	denom: ANT mint: – wt: 1.9g	cat: E 791/6 die axis: 6	Obv [C P]IV ESV TETRIC[VS CAES] Rev [SPES AVGG] wear: W/W
227	TETRICUS II, CAESAR fragments date: 270–73 diam: 17.0mm	denom: ANT mint: – wt: 0.8g	cat: E 769/91 die axis: –	Obv [C] PIV E[SV TETRICVS CAES] Rev [SPES...] wear: W/W
228	TETRICUS II, CAESAR	denom: ANT		Obv –

	date: 270–73	mint: –	cat: E 769/91	Rev [SPES...]
	diam: 15.0mm	wt: 0.7g	die axis: 7	wear: SW/SW
229	'TETRICUS II' fragments	denom: ANT		Obv –
	date: 273+	mint: –	cat: c of E 769/91	Rev [SPES...]
	diam: 11.0mm	wt: 0.6g	die axis: –	wear: W/W
230	'TETRICUS II'	denom: ANT		Obv –
	date: 273+	mint: –	cat: c as –	Rev –
	diam: 14.0mm	wt: 1.0g	die axis: –	wear: W/W
231	'TETRICUS II'	denom: ANT		Obv [C PIV ESV] TETRICUS CAES
	date: 273+	mint: –	cat: c of 232	Rev [HILARITAS] AVGG
	diam: 13.0mm	wt: 0.8g	die axis: 5	wear: UW/SW
232	'TETRICUS II' fragments	denom: ANT		Obv [C PIV ESV TETRICVS CAES]
	date: 273+	mint: –	cat: c of E 769/91	Rev [SPES...]
	diam: 13.0mm	wt: 0.3g	die axis: –	wear: W/W
233	'TETRICUS II'	denom: ANT		Obv –
	date: 273+	mint: –	cat: c as –	Rev –
	diam: 16.0mm	wt: 2.2g	die axis: –	wear: W/W
234	'TETRICUS II'	denom: ANT		Obv –
	date: 273+	mint: –	cat: c as –	Rev –
	diam: 15.0mm	wt: 1.4g	die axis: 11	wear: W/W
235	'TETRICUS II'	denom: ANT		Obv –
	date: 273+	mint: –	cat: c as E 769/91	Rev [SPES...]
	diam: 15.0mm	wt: 1.1g	die axis: 10	wear: W/W
236	'TETRICUS II'	denom: ANT		Obv –
	date: 273	mint: –	cat: c as –	Rev ?[VICTORIA...]
	diam: 15.0mm	wt: 0.6g	die axis: 6	wear: W/W
237	'TETRICUS II'	denom: ANT		Obv –
	date: 273+	mint: –	cat: c as –	Rev –
	diam: 12.0mm	wt: 0.7g	die axis: 12?	wear: W/W
238	'TETRICUS II'	denom: ANT		Obv –
	date: 273+	mint: –	cat: c of E 769/91	Rev [SPES...]
	diam: 17.0mm	wt: 1.2g	die axis: –	wear: W/W
239	'TETRICUS II' fragments	denom: ANT		Obv –
	date: 273+	mint: –	cat: c of E 769/91	Rev [SPES...]
	diam: 15.0mm	wt: 0.3g	die axis: –	wear: UW/SW
240	'TETRICUS II'	denom: ANT		Obv –
	date: 273+	mint: –	cat: c as –	Rev –
	diam: 13.5mm	wt: 0.7g	die axis: 3	wear: SW/W
241	'TETRICUS II'	denom: ANT		Obv –
	date: 273+	mint: –	cat: c as E 769/91	Rev [SPES...]
	diam: 14.0mm	wt: 0.8g	die axis: 8	wear: W/W
242	'TETRICUS II'	denom: ANT		Obv –
	date: 273+	mint: –	cat: c as –	Rev –
	diam: 9.0mm	wt: 0.6g	die axis: 10?	wear: W/W
243	'TETRICUS II'	denom: ANT		Obv –
	date: 273+	mint: –	cat: c as –	Rev –
	diam: 15.0mm	wt: 0.3g	die axis: –	wear: W/W
244	'TETRICUS II'	denom: ANT		Obv –
	date: 273+	mint: –	cat: c as –	Rev –
	diam: 13.0mm	wt: 0.8g	die axis: –	wear: W/C
245	'TETRICUS II' fragments	denom: ANT		Obv –
	date: 273+	mint: –	cat: c of E 769/91	Rev [SPES...]
	diam: 14.0mm	wt: 0.8g	die axis: –	wear: W/W
246	RADIATE	denom: ANT		Obv –
	date: 259–73	mint: –	cat: –	Rev –
	diam: 15.0mm	wt: 2.1g	die axis: –	wear: C/C
247	RADIATE	denom: ANT		Obv –
	date: 259–73	mint: –	cat: –	Rev –
	diam: 17.0mm	wt: 1.0g	die axis: –	wear: C/W
248	RADIATE	denom: ANT		Obv –
	date: 259–73	mint: –	cat: –	Rev –
	diam: 17.0mm	wt: 0.9g	die axis: –	wear: C/C
249	RADIATE	denom: ANT		Obv –
	date: 259–73	mint: –	cat: –	Rev –
	diam: 15.0mm	wt: 1.3g	die axis: –	wear: C/C
250	RADIATE	denom: ANT		Obv –

	date: 259-73	mint: -	cat: -	Rev -
	diam: 16.5mm	wt: 1.7g	die axis: -	wear: C/C
251 RADIATE		denom: ANT		Obv -
	date: 259-73	mint: -	cat: -	Rev -
	diam: 18.0mm	wt: -	die axis: -	wear: C/C
252 RADIATE		denom: ANT		Obv -
	date: 259-73	mint: -	cat: -	Rev -
	diam: -	wt: -	die axis: -	wear: -
253 RADIATE fragments		denom: ANT		Obv -
	date: 259-73	mint: -	cat: -	Rev -
	diam: 15.0mm	wt: 0.3g	die axis: -	wear: C/C
254 RADIATE		denom: ANT		Obv -
	date: 259-73	mint: -	cat: -	Rev -
	diam: -	wt: -	die axis: -	wear: -
255 RADIATE		denom: ANT		Obv -
	date: 259-73	mint: -	cat: -	Rev -
	diam: 15.5mm	wt: 1.0g	die axis: -	wear: C/C
256 RADIATE		denom: ANT		Obv -
	date: 259-73+	mint: -	cat: -	Rev -
	diam: 14.5mm	wt: 0.9g	die axis: -	wear: C/C
257 RADIATE fragments		denom: ANT		Obv -
	date: 259-73+	mint: -	cat: -	Rev -
	diam: 10.0mm	wt: 0.2g	die axis: -	wear: C/C
258 RADIATE fragments		denom: ANT		Obv -
	date: 259-73+	mint: -	cat: -	Rev -
	diam: 14.0mm	wt: 0.9g	die axis: -	wear: C/C
259 RADIATE		denom: ANT		Obv -
	date: 259-96	mint: -	cat: -	Rev [S]ALVS...
	diam: -wt: -	die axis: -	wear: -	
260 RADIATE		denom: ANT		Obv -
	date: 259-96	mint: -	cat: -	Rev -
	diam: -	wt: -	die axis: -	wear: -
261 RADIATE		denom: ANT		Obv -
	date: 259-96	mint: -	cat: -	Rev -
	diam: -	wt: -	die axis: -	wear: -
262 RADIATE		denom: ANT		Obv -
	date: 259-96	mint: -	cat: -	Rev -
	diam: -	wt: -	die axis: -	wear: -
263 RADIATE		denom: ANT		Obv -
	date: 259-96	mint: -	cat: -	Rev -
	diam: -	wt: -	die axis: -	wear: -
264 RADIATE?		denom: ANT		Obv -
	date: 259-73+	mint: -	cat: -	Rev -
	diam: 15.5mm	wt: 0.8g	die axis: -	wear: C/C
265 RADIATE?		denom: ANT		Obv -
	date: 259-73+	mint: -	cat: -	Rev -
	diam: 16.5mm	wt: 1.6g	die axis: -	wear: C/C
266 RADIATE?		denom: ANT		Obv -
	date: 259-73+	mint: -	cat: -	Rev -
	diam: 16.0mm	wt: 0.9g	die axis: -	wear: C/C
267 RADIATE COPY		denom: ANT		Obv -
	date: 273+	mint: -	cat: c as -	Rev -
	diam: 13.0mm	wt: 0.9g	die axis: -	wear: SW/SW
268 RADIATE COPY		denom: ANT		Obv -
	date: 273+	mint: -	cat: c as -	Rev -
	diam: -	wt: -	die axis: -	wear: -
269 RADIATE COPY		denom: ANT		Obv -
	date: 273+	mint: -	cat: c as E 780	Rev ?Virtus
	diam: 13.0mm	wt: 1.0g	die axis: 4	wear: ?SW/W
270 RADIATE COPY		denom: ANT		Obv -
	date: 273+	mint: -	cat: c of -	Rev -
	diam: 14.5mm	wt: 1.2g	die axis: -	wear: W/C
271 RADIATE COPY		denom: ANT		Obv -
	date: 273+	mint: -	cat: c of -	Rev -
	diam: 15.5mm	wt: 0.9g	die axis: -	wear: C/C
272 RADIATE COPY		denom: ANT		Obv -

date: 273+	mint: –	cat: c as –	Rev ...VLII...
diam: 10.0mm	wt: 0.1g	die axis: 9	wear: SW/SW
273 RADIATE COPY	denom: ANT		Obv ...M...
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
274 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev ...E..C..
diam: –	wt: –	die axis: –	wear: –
275 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
276 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
277 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
278 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
279 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
280 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
281 RADIATE COPY?	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: 10.0mm	wt: 0.3g	die axis: –	wear: C/C
282 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
283 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: 11.0mm	wt: 0.4g	die axis: –	wear: C/C
284 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
285 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
286 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: 16.0mm	wt: 1.2g	die axis: 6	wear: ?SW/C
287 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: – wt: –	die axis: –	wear: –	
288 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
289 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
290 RADIATE COPY			
fragment	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: 9.5mm	wt: 0.2g	die axis: –	wear: W/W
291 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
292 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
293 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: 15.5mm	wt: 1.4g	die axis: –	wear: C/C

294 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
295 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
296 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
297 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
298 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
299 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: 13.5mm	wt: 1.3g	die axis: –	wear: C/C
300 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: 8.5mm	wt: 0.3g	die axis: –	wear: C/C
301 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: 10.0mm	wt: 0.4g	die axis: –	wear: C/C
302 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: 13.5mm	wt: 0.8g	die axis: –	wear: C/C
303 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
304 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: as E 772	Rev ?[SALVS AVG]
diam: 13.0mm	wt: 1.0g	die axis: 5	wear: C/C
305 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
306 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
307 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: 6.5mm	wt: 0.2g	die axis: –	wear: W/C
308 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
309 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
310 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: 16.5mm	wt: 2.0g	die axis: –	wear: C/W
311 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: 8.0mm	wt: 0.1g	die axis: –	wear: C/C
312 RADIATE COPY?	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: 8.0mm	wt: 0.1g	die axis: –	wear: C/C
313 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
314 RADIATE COPY?	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: 11.0mm	wt: 0.3g	die axis: –	wear: C/C
315 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –

316 RADIATE COPY frags	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: 12.0mm	wt: 0.3g	die axis: –	wear: W/W
317 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
318 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: 18.0mm	wt: 1.0g	die axis: –	wear: C/C
319 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
320 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
321 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: 8.0mm	wt: 0.1g	die axis: –	wear: C/C
322 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
323 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: 13.0mm	wt: 0.3g	die axis: –	wear: C/W
324 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
325 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
326 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
327 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
328 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: 12.0mm	wt: 1.1g	die axis: –	wear: SW/W
329 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: 12.0mm	wt: 0.6g	die axis: 7	wear: W/W
330 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: 11.0mm	wt: 0.2g	die axis: –	wear: W/W
331 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: 10.5mm	wt: 0.5g	die axis: –	wear: C/C
332 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: c as –	Rev –
diam: –	wt: –	die axis: –	wear: –
333 PROBUS	denom: AUREL		Obv PROBVS P F AVG
date: 276–82	mint: –	cat: –	Rev –
diam: 20.0mm	wt: 1.2g	die axis: –	wear: W/C
334 PROBUS	denom: AUREL		Obv –
date: 276–82	mint: –	cat: –	Rev –
diam: –	wt: –	die axis: –	wear: –
335 CARAUSIUS	denom: AUREL		Obv [IMP.CARAVSI]VS AVG
date: 287–93	mint: –	cat: as 1041	Rev VIR[TVS AVG]
diam: 20.0mm	wt: 2.4g	die axis: 12	wear: SW/SW
336 CARAUSIUS	denom: AUREL		Obv [...CAR]AV[SIVS...]
date: 287–93	mint: –	cat: –	Rev –
diam: 22.0mm	wt: 2.1g	die axis: 6?	wear: SW/SW
337 CARAUSIUS	denom: AUREL		Obv [IMP.]CARAVSIVS PF AVG
date: 287–93	mint: CO	cat: as 255	Rev LAETIT AVG S/P/C
diam: 21.0mm	wt: 3.2g	die axis: 2	wear: SW/SW

338 CARAUSIUS	denom: AUREL		Obv –
date: 287–93	mint: CO	cat: as 411	Rev [SP]ES....
diam: 18.0mm	wt: 1.4g	die axis: 12	wear: SW/SW
339 CARAUSIUS	denom: AUREL		Obv [I]MPC[...ARAVSIVS..AVG]
date: 287–93	mint: –	cat: as 858	Rev MO[NETA AVG]
diam: 21.0mm	wt: 3.5g	die axis: 6	wear: SW/SW
340 CARAUSIUS	denom: AUREL		Obv IMPC[CARAVSIVS..AVG]
date: 290–93	mint: –	cat: as 355	Rev PAX AV[GGG] transverse sceptre
diam: 20.0mm	wt: 1.3g	die axis: 7	wear: SW/SW
341 ALLECTUS	denom: QUIN		Obv [IMPC] ALLECTVS PF AVG
date: 293–96	mint: –	cat: as 55	Rev VIRTVS AVG Galley
diam: 18.0mm	wt: 1.8g	die axis: 6	wear: SW/SW
342 ALLECTUS	denom: AUREL		Obv [IMPC ALLECTVS PF AVG]
date: 293–96	mint: LN	cat: 42	Rev SALVS AVG S/P/ML
diam: –	wt: –	die axis: –	wear: –
343 perhaps ALLECTUS	denom: QUIN		Obv [IMPC ALLECTVS PF AVG]
date: 293–96	mint: LN	cat: as 55	Rev [VIRTVS AVG] –/ML
diam: –	wt: –	die axis: –	wear: –
344 ALLECTUS	denom: AUREL		Obv IMPC ALLECTVS PF AVG
date: 293–96	mint: LN P	cat: 33	Rev PAX AVG S/P/ML
diam: 21.0mm	wt: 2.9g	die axis: 1	wear: SW/SW
345 DIOCLETIAN	denom: AE		Obv –
date: 284–305	mint:	cat: –	Rev –
diam: –	wt: –	die axis: –	wear: –
346 DIOCLETIAN	denom: AE		Obv –
date: 284–305	mint:	cat: –	Rev –
diam: –	wt: –	die axis: –	wear: –
347 DIOCLETIAN fragment	denom: FOLL		Obv –
date: 294–305	mint: –	cat: –	Rev [GENIO POPVLI R]OMA[NI]
diam: 25.0mm	wt: 1.3g	die axis: –	wear: C/?W
348 DIOCLETIAN	denom: FOLL		Obv IMP DIOCLETIANVS PF AVG
date: 295–97	mint: TR C	cat: as 6TR 170a	Rev GENIO POPV–LI ROMANI
diam: 28.0mm	wt: 8.6g	die axis: 7	wear: SW/SW
349 MAXIMIANUS	denom: FOLL		Obv IMPC MAXIMIANVS PF AVG
date: 300–05	mint: –	cat: 6LN 6b	Rev GENIO POPV–LI ROMANI
diam: 26.5mm	wt: 7.8g	die axis: 12	wear: SW/W
350 CONSTANTIUS I	denom: FOLL		Obv FL VAL CONSTANTIVS NOB C
date: 293–305	mint: TR	cat: as 6TR 195/328	Rev GENIO POPV–LI ROMANI A –/..TR
diam: –	wt: –	die axis: –	wear: –
351 CONSTANTIUS I	denom: FOLL		Obv [FL VAL] CONSTANTIVS NOB C
date: 300	mint: LN	cat: 6LN 14a	Rev GENIO POPV–LI ROMANI
diam: 27.5mm	wt: 8.7g	die axis: 5	wear: SW/SW
352 GALERIUS, CAESAR	denom: FOLL		Obv MAXIMIANVS NOBIL C
date: 302–03	mint: TR I	cat: 6TR 558b	Rev MONETA S AVGG ET CAESS NN S/F/PTR
diam: 27.5mm	wt: 9.1g	die axis: 12	wear: SW/SW
353 GALERIUS, CAESAR	denom: FOLL		Obv MAXIMIANVS NOB [C...]
date: c 300	mint: LN?	cat: as 6LN 15/31	Rev GENIO POPV–LI ROMANI
diam: – wt: –	die axis: –	wear: –	
354 LICINIUS I	denom: FOLL		Obv [IMP] LICINIVS PF AVG
date: 313–14	mint: LN P	cat: 7LN 19	Rev [SOLI INVIC]–TO COMITI
diam: 20.5mm	wt: 1.6g	die axis: 6	wear: SW/W
355 LICINIUS I	denom: FOLL		Obv IMP LICINIVS PF AVG
date: 313–15	mint: TR P	cat: 7TR 58	Rev GENIO–POP ROM
diam: –	wt: –	die axis: –	wear: SW/W
356 CONSTANTINE I, CAESAR	denom: FOLL		Obv FL V[AL CO]NSTAN[TIN]VS NOB C
date: 307	mint: LN P	cat: 6LN 88b	Rev GENIO–POP ROM
diam: 25.5mm	wt: 3.2g	die axis: 6	wear: SW/SW
357 CONSTANTINE I frag	denom: FOLL		Obv [IMP] CONSTAN[TIN]VS P..AVG]
date: 310	mint: LN P	cat: as 6LN 121a	Rev SOLI IN[VICTO COMITI] T*/–
diam: 14.0mm	wt: 0.4g	die axis: 6	wear: SW/SW
358 CONSTANTINE I	denom: FOLL		Obv [IMP] CONSTANTINVS PF AVG
date: 310	mint: LN P	cat: 6LN 121a	Rev SOLI INVIC–TO COMITI
diam: 23.0mm	wt: 2.4g	die axis: 6	wear: SW/SW
359 CONSTANTINE I? frag	denom: FOLL		Obv –
date: 310–18?	mint: –	cat: –	Rev ?[S]OLI [INVICTO COMITI]

diam: 14.0mm	wt: 0.4g	die axis: –	wear: C/C
360 CONSTANTINE I	denom: FOLL		Obv IMP CONSTANTINVS AVG
date: 313–14	mint: LN P	cat: 7LN 10	Rev SOLI INVIC–TO COMITI S/F/PLN
diam: 20.5mm	wt: 3.1g	die axis: 6	wear: SW/SW
361 CONSTANTINE I	denom: FOLL		Obv IMP CONSTANTINVS PF AVG
date: 314–15	mint: LG P	cat: 7LG 15	Rev SOLI INVIC–TO COMITI
diam: 23.5mm	wt: 2.4g	die axis: 1	wear: W/SW
362 CONSTANTINE I	denom: FOLL		Obv CONSTANTINVS PF AVG
date: 316	mint: TR P	cat: 7TR 113	Rev [MARTI CON]–SERVATORI T/F/ATR
diam: 21.0mm	wt: 2.8g	die axis: 7	wear: VW/W
363 CONSTANTINE I	denom: FOLL		Obv [CONS]TANTINVS PF AVG
date: 316–17	mint: LN P	cat: 7LN 90	Rev SOLI INVIC–TO COMITI
diam: –	wt: –	die axis: –	wear: W/W
364 CONSTANTINE I	denom: FOLL		Obv [...CONSTANTINVS...AVG]
date: 318	mint: LN P	cat: 7LN 137–41	Rev SOLI INVIC–TO COMITI U/PLN
diam: –	wt: –	die axis: –	wear: –
365 CONSTANTINE I	denom: –		Obv [IMP CONSTANTIN]VS AVG
date: 319	mint: TR	cat: 7TR 215	Rev [VICTORIAE LAETAE PRINC PERP] VOT/PR
diam: 18.5mm	wt: 2.7g	die axis: 6	wear: SW/W
366 CONSTANTINE I	denom: –		Obv IMP CONSTANTINVS MAX AVG
date: 319	mint: TR	cat: 7TR 213	Rev [VI]CTORIAE LAETAE PRINC PERP VOT/PR
diam: 17.0mm	wt: 1.3g	die axis: 11	wear: SW/W
367 CONSTANTINE I	denom: –		Obv IMP CONSTAN–TINVS MAX AVG
date: 319	mint: LN P	cat: 7LN 154	Rev VICTORIAE LAETAE PRINC PERP VOT/PR
diam: 18.0mm	wt: 2.7g	die axis: 6	wear: SW/SW
368 CONSTANTINE I	denom: –		Obv IMP [CONST]AN–TINVS M[AX AVG]
date: 319	mint: TR S	cat: 7TR 213	Rev [VICTORIAE LAETAE PRI]NC PERP VOT/PR
diam: 17.5mm	wt: 1.5g	die axis: 6	wear: SW/W
369 CONSTANTINE I	denom: –		Obv CONSTAN–TINVS AVG
date: 320–21	mint: TC S	cat: 7TC 140	Rev D N CONSTANTINI MAX AVG
diam: 18.5mm	wt: 2.0g	die axis: 12	wear: UW/SW
370 CONSTANTINE I	denom: –		Obv [CONSTANTI]NV[S P AVG]
date: 321–23	mint: LG	cat: as 7LG as 128	Rev [BEA]TA [TRANQVILL]ITAS VO/TIS/XX
diam: 18.0mm	wt: 1.6g	die axis: 6	wear: W/W
371 CONSTANTINE I	denom: –		Obv CONSTANT–[INVS AVG]
date: 323	mint: LG P	cat: 7LG 200	Rev BEATA TRAN[QUILLITAS] VOT/IS/XX
diam: 18.5mm	wt: 1.2g	die axis: 6	wear: SW/SW
372 CONSTANTINE I	denom: –		Obv [CONSTAN]TINVS AVG
date: 323–24	mint: TR P	cat: 7TR 435	Rev [SAMARTIA D]EVICTA
diam: 20.5mm	wt: 2.1g	die axis: 6	wear: SW/SW
373 CONSTANTINE I fragments	denom: –		Obv [CONSTANTINVS AVG]
date: 323–24	mint: TR P	cat: 7TR 429	Rev SA[RMATIA DEVICTA]
diam: 16.0mm	wt: 0.5g	die axis: –	wear: W/W
374 CONSTANTINE I	denom: –		Obv [CONSTAN]TINVS AG
date: 323–24	mint: LN P	cat: 7LN 290	Rev [SARMATIA] DEVICTA
diam: 18.0mm	wt: 1.2g	die axis: 6	wear: W/SW
375 CONSTANTINE I	denom: –		Obv VRBS–ROMA
date: 330–31	mint: LG P	cat: 7LG 247, HK190	Rev Wolf and twins
diam: –	wt: –	die axis: –	wear: –
376 CONSTANTINE I	denom: –		Obv VRB[S–RO]MA
date: 330–31	mint: TR P	cat: 7TR 529, HK58	Rev Wolf and twins
diam: 16.0mm	wt: 1.9g	die axis: 12	wear: SW/SW
377 CONSTANTINE I	denom: –		Obv [V]RBS [ROMA]
date: 330–31	mint: TR P	cat: 7TR 529, HK58	Rev Wolf and twins
diam: 16.5mm	wt: 1.3g	die axis: 6	wear: SW/SW
378 CONSTANTINE I	denom: –		Obv VRBS–ROMA
date: 330–31	mint: LG P	cat: 7LG 242, HK184	Rev Wolf and twins
diam: 14.5mm	wt: 1.2g	die axis: 6	wear: W/SW
379 CONSTANTINE I	denom: –		Obv [VRBS RO]MA
date: 330–31	mint: TR P	cat: 7TR 529	Rev Wolf and twins
diam: 17.0mm	wt: 0.8g	die axis: 12	wear: SW/SW
380 CONSTANTINE I	denom: –		Obv VRBS ROMA
date: 330–35	mint: –	cat: as 7TR522, HK51	Rev Wolf and twins
diam: 14.5mm	wt: 1.1g	die axis: 6	wear: SW/SW
381 CONSTANTINE I	denom: –		Obv [VRBS] ROMA
date: 332	mint: LG P	cat: 7LG 257, HK200	Rev Wolf and twins

diam: 17.0mm	wt: 1.1g	die axis: 12	wear: SW/SW
382 CONSTANTINE I	denom: –		Obv [VRB]S-ROMA
date: 332–33	mint: TR S	cat: 7TR 542, HK65	Rev Wolf and twins
diam: 15.0mm	wt: 1.7g	die axis: –	wear: SW/SW
383 CONSTANTINE I	denom: –		Obv CONSTAN-[TINOPOLIS]
date: 330–31	mint: TR –	cat: as 7TR 523, HK52	Rev Victory on prow
diam: 16.0mm	wt: 0.5g	die axis: 6	wear: W/W
384 CONSTANTINE I	denom: –		Obv CONST[ANTINOP]OLIS
date: 330–31	mint: TR P	cat: 7TR 523, HK52	Rev Victory on prow
diam: 15.0mm	wt: 1.0g	die axis: –	wear: C/C
385 CONSTANTINE I	denom: –		Obv [CONSTAN]-TINOP[OLIS]
date: 330–35	mint: –	cat: as 7TR523, HK52	Rev Victory on prow
diam: 15.5mm	wt: 1.6g	die axis: 12	wear: C/C
386 CONSTANTINE I	denom: –		Obv [CO]NSTAN-TINOPOLIS
date: 330–35	mint: –	cat: as 7TR523, HK52	Rev Victory on prow
diam: 16.0mm	wt: 2.0g	die axis: 12	wear: W/W
387 CONSTANTINE I			
fragment	denom: –		Obv [CONSTANTINOPOLIS]
date: 330–35	mint: –	cat: as 7TR523, HK52	Rev Victory on prow
diam: 13.5mm	wt: 1.0g	die axis: 11	wear: W/W
388 CONSTANTINE I	denom: –		Obv CONSTAN-TINOPOLIS
date: 332	mint: LG P	cat: 7LG 256, HK201	Rev Victory on prow
diam: 16.0mm	wt: 1.6g	die axis: 6	wear: SW/SW
389 CONSTANTINE I	denom: –		Obv CONSTAN-TINOPOLIS
date: 332–33	mint: TR S	cat: 7TR 543, HK66	Rev Victory on prow
diam: –	wt: –	die axis: –	wear: –
390 CONSTANTINE I	denom: –		Obv CONSTAN-TINOPOLIS
date: 332–33	mint: TR S	cat: 7TR 543, HK66	Rev Victory on prow
diam: 17.0mm	wt: 1.5g	die axis: 6	wear: SW/SW
391 CONSTANTINE I	denom: –		Obv CONSTAN-TINOPOLIS
date: 332–33	mint: TR S	cat: 7TR 543, HK66	Rev Victory on prow
diam: –	wt: –	die axis: –	wear: –
392 CONSTANTINE I	denom: –		Obv CONSTAN-TINOPOLIS
date: 333–34	mint: LG P	cat: 7LG 266, HK206	Rev Victory on prow
diam: 16.5mm	wt: 1.8g	die axis: 6	wear: SW/SW
393 CONSTANTINE I	denom: –		Obv CONSTAN-TINOPOLIS
date: 333–34	mint: TR	cat: 7TR 554, HK77	Rev Victory on prow
diam: 16.5mm	wt: 1.0g	die axis: 12	wear: W/SW
394 CONSTANTINE I	denom: –		Obv CONSTAN[TINVS MAX AVG]
date: 330	mint: AR P	cat: 7AR 341, HK351a	Rev GLOR]-IA EXERC-ITVS 2 stds
diam: 17.5mm	wt: 1.3g	die axis: 12	wear: SW/SW
395 CONSTANTINE I	denom: –		Obv [CONSTAN-TI]NVS AVG
date: 330	mint: AR	cat: 7AR 341, HK351a	Rev GLOR]-IA EXERC-ITVS 2 stds
diam: 17.5mm	wt: 1.8g	die axis: 6	wear: SW/SW
396 CONSTANTINE I	denom: –		Obv CONSTANT[INVS MAX AVG]
date: 330–31	mint: TR	cat: 7TR 518/25, HK48/53	Rev GLOR-[IA EXERC]-ITVS 2 stds
diam: 15.5mm	wt: 1.3g	die axis: 6	wear: W/W
397 CONSTANTINE I	denom: –		Obv [CONSTANTI]NVS MAX AVG
date: 330–35	mint: –	cat: as 7TR 518, HK48	Rev [GLORIA EXERCITVS] 2 stds
diam: 15.5mm	wt: 1.8g	die axis: 6	wear: UW/UW
398 CONSTANTINE I frag	denom: –		Obv [..C]ONST[ANTI-NVS MAX AVG]
date: 330–35	mint: TR P	cat: as 7TR 537, HK60	Rev GLO[RIA EXERCITVS] 2 stds
diam: 14.5mm	wt: 0.7g	die axis: 6	wear: SW/SW
399 CONSTANTINE I	denom: –		Obv [CONSTANTINVS] MAX AVG
date: 330–35	mint: TR	cat: as 7TR 537, HK60	Rev GLOR[IA EXERCITVS] 2 stds
diam: 14.5mm	wt: 0.6g	die axis: 1	wear: SW/SW
400 CONSTANTINE I	denom: –		Obv [CONS]TANTI-NVS [MAX AVG]
date: 332–33	mint: TR P	cat: as 7TR 537, HK60	Rev GLOR-[IA EXERC]-ITVS 2 stds
diam: 15.0mm	wt: 1.1g	die axis: 6	wear: UW/SW
401 CONSTANTINE I	denom: –		Obv CONSTAN-TINOPOLIS
date: 330–35	mint: –	cat: –	Rev [Victory on prow]
diam: 16.5mm	wt: 3.2g	die axis: –	wear: SW/-
402 'CONSTANTINE I'	denom: –		Obv [CONSTANTINOPOLIS]
date: 341–46	mint: –	cat: c as 7TR 523, HK52	Rev Victory on prow
diam: 10.0mm	wt: 0.6g	die axis: 12	wear: W/W

403 'CONSTANTINE I'	denom: – date: 341–46 diam: 13.0mm	mint: – wt: 0.6g	cat: c as 7TR 523, HK52 die axis: –	Obv [CONSTANTINOPOLIS] Rev Victory on prow wear: C/W
404 CRISPUS	denom: – date: 319–20 diam: 19.0mm	mint: LG wt: 2.3g	cat: 7LG 74 die axis: 6	Obv DN CRISPO–NOB CAES Rev VICTORIAE LAETAE PRINC PERP VOT/PR wear: SW/SW
405 CRISPUS	denom: – date: 320 diam: 18.5mm	mint: LN P wt: 1.4g	cat: 7LN 175/6 die axis: 6	Obv [FL IVL C]RIPV–[VS NOB CAES] Rev [VICTORIAE LAETAE PRINC PERP VOT/PR] wear: ?SW/SW
406 CRISPUS	denom: – date: 323–24 diam: –	mint: LN P wt: –	cat: 7LN 291 die axis: –	Obv IVL CRIS–PVS NOB C Rev CAESARVM NOSTRORVM VOT/X wear: –
407 CRISPUS	denom: – date: 324–25 diam: 20.5mm	mint: LN P wt: 3.0g	cat: 7LN 295 die axis: 6	Obv FL IVL CRISPVS NOB CAES Rev PROVIDEN–TIAE CAESS wear: UW/UW
408 CRISPUS	denom: – date: 325–26 diam: –	mint: HE A wt: –	cat: 7HE 75 die axis: –	Obv CRISPUS NOB CAES Rev PROVIDEN–TIAE CAESS wear: –
409 CONSTANTINE II, CAESAR	denom: – date: 321–24 diam: 19.0mm	mint: – wt: 2.8g	cat: as 7LN 286 die axis: 7	Obv [CONSTAN]TINVS IVN N C Rev BEATA TRAN–QUILLITAS VOT/IS/XX wear: SW/SW
410 CONSTANTINE II, CAESAR	denom: – date: 323–24 diam: 16.0mm	mint: TR P wt: 1.3g	cat: 7TR 433 die axis: 6	Obv [CONSTANTINVS IVN NOB C] Rev [CAESARVM NOS]TROR[VM] VOT/X wear: C/W
411 CONSTANTINE II, CAESAR	denom: – date: 323–34 diam: –	mint: LN P wt: –	cat: 7LN 287 die axis: –	Obv CONSTANTI–NVS IVN N C Rev BEAT TRAN–NQLITAS VOT/IS/XX wear: SW/SW
412 CONSTANTINE II, CAESAR	denom: – date: 324–25 diam: 19.0mm	mint: LN P wt: 1.9g	cat: 7LN 296 die axis: 6	Obv [CONSTA]NTINV[S IVN NOBC] Rev [PROVIDEN–TIAE] CA[ESS] wear: SW/UW
413 CONSTANTINE II, CAESAR	denom: – date: 327–28 diam: 18.0mm	mint: TR P wt: 2.5g	cat: 7TR 505, HK39 die axis: 6	Obv CONSTANTINVS IVN NOB C Rev PROVIDEN–TIAE CAESS wear: SW/SW
414 CONSTANTINE II, CAESAR	denom: – date: 330–35 diam: –	mint: TR S wt: –	cat: as 7TR 520, HK49 die axis: –	Obv CONSTANTINVS IVN NOB C Rev GLOR–IA EXERC–ITVS 2 stds wear: –
415 CONSTANTINE II, CAESAR(?)	denom: – date: 330–35 diam: –	mint: – wt: –	cat: as 7TR 520, HK49 die axis: –	Obv – Rev [GLORIA EXERCITVS] 2 stds wear: –
416 CONSTANTINE II, CAESAR	denom: – date: 330–35 diam: 16.0mm	mint: – wt: 1.1g	cat: as 7TR 520, HK49 die axis: –	Obv – Rev [GLORIA EXERCITVS] 2 stds wear: C/C
417 CONSTANTINE II, CAESAR	denom: – date: 330–35 diam: 17.5mm	mint: TR wt: 1.9g	cat: as 7TR 539, HK63 die axis: 1	Obv [CONSTANT]INVS IVN NOB C Rev GLOR[–IA EXERC–]ITVS 2 stds wear: SW/SW
418 CONSTANTINE II, CAESAR	denom: – date: 332–33 diam: 18.0mm	mint: AR P wt: 2.1g	cat: 7AR 359, HK363 die axis: 6	Obv CONSTANTINVS IVN NOB C Rev GLOR–IA EXERC–ITVS 2 stds wear: SW/SW
419 CONSTANTINE II, CAESAR	denom: – date: 334–35 diam: 17.0mm	mint: AQ S wt: 1.3g	cat: 7AQ 119 die axis: 12	Obv CONSTANTINVS IVN NOB C Rev GLOR–IA EXERC–ITVS 2 stds wear: SW/SW
420 CONSTANTINE II, CAESAR	denom: – date: 335–36 diam: 12.0mm	mint: RM P wt: 0.4g	cat: 7RM 364/5 die axis: 6	Obv CONS[TANTINVS IVN N...C] Rev [GLORIA EXERCIT]VS 2 stds wear: SW/SW

421 CONSTANTINE II, CAESAR date: 335–37 diam: 15.5mm	denom: – mint: – wt: 1.0g	cat: as 7LG 271 die axis: 12	Obv [CONSTANTINVS IVN] NOB C Rev [G]LOR–[IA EXERCITVS] 1 std wear: UW/UW
422 CONSTANTINE II, CAESAR date: 335–37 diam: 14.5mm	denom: – mint: AR P wt: 1.3g	cat: 7AR 412, HK411 die axis: 12	Obv [C]ON[STANTINVS IVN N C] Rev [GLORIA EXERC]–ITVS 1 std wear: SW/SW
423 CONSTANTINUS II, CAESAR date: 330–35 diam: 16.0mm	denom: – mint: – wt: 0.9g	cat: as 7TR 528, HK57 die axis: 7	Obv FL [IVL CONS]TANTIV[S NOB C] Rev [GLO]R–IA EXE[RCITVS] 2 stds wear: SW/SW
424 CONSTANTINUS II, CAESAR date: 330–35 diam: 16.5mm	denom: – mint: – wt: 1.5g	cat: as 7TR 521, HK50 die axis: 12	Obv FL IVL [CONSTANTIVS NOB] C Rev [GLORIA EXERCITVS] 2 stds wear: SW/SW
425 CONSTANTINUS II, CAESAR date: 330–35 diam: 16.0mm	denom: – mint: TR P wt: 0.7g	cat: as 7TR 528, HK57 die axis: 6	Obv [FL IVL CONSTANTI]VS NO[B C] Rev [GLORIA EXERC]–ITVS 2 stds wear: W/W
426 CONSTANTINUS II, CAESAR date: 330–31 diam: –	denom: – mint: TR P wt: –	cat: 7TR 528, HK57 die axis: –	Obv FL IVL CONSTANTIVS NOB C Rev GLOR–IA EXERC–ITVS 2 stds wear: SW/SW
427 CONSTANS, CAESAR date: 336 diam: 14.5mm	denom: – mint: – wt: 1.3g	cat: as 7LG 278, HK227 die axis: 1	Obv FL IVL CONSTANS N[OB C] Rev GLOR–IA EXERC–ITVS 1 std wear: W/W
428 HELENA date: 337–40 diam: 13.5mm	denom: – mint: TR wt: 1.1g	cat: as 8TR 63, HK112 die axis: 12	Obv [FL IVL HELENAE AVG] Rev [PAX PVBLICA] wear: W/SW
429 HELENA date: 337–40 diam: 11.5mm	denom: – mint: TR P wt: 0.7g	cat: as 8TR 63, HK112 die axis: 6	Obv [FL IVL HELENAE AVG] Rev [PAX PVBLICA] wear: SW/SW
430 THEODORA date: 337–40 diam: 14.5mm	denom: – mint: TR P wt: 1.3g	cat: 8TR 65, HK113 die axis: 12	Obv [FL MAX THEO–]DORAE AVG Rev PIE[TAS – ROMANA] wear: SW/SW
431 THEODORA date: 337–40 diam: 15.0mm	denom: – mint: TR P wt: 0.8g	cat: 8TR 79, HK120 die axis: 1	Obv FL MAX THEO–DORAE A[VG] Rev PIETAS ROMANA wear: SW/SW
432 CONSTANTINE II date: 337–40 diam: –	denom: – mint: – wt: –	cat: as 8TR 39, HK100 die axis: 6	Obv [FL C]L CONST[ANTINVS AVG] Rev [GLORIA EXERCITVS] 1 std wear: UW/UW
433 CONSTANTINE II date: 337–40 diam: 14.5mm	denom: – mint: AR P wt: 1.3g	cat: 8AR 1/11, HK416/9 die axis: 6	Obv [IMP CONSTA–NTIN]VS AVG Rev [G]LOR–[I]A EXERC–ITVS 1 std wear: W/W
434 CONSTANS date: 337–40 diam: 12.0mm	denom: – mint: – wt: 0.6g	cat: as 8RM 10, HK587 die axis: 6	Obv [DN FL CONSTANS AVG] Rev [SECVRITAS REIP] wear: SW/SW
435 CONSTANS date: 337–40 diam: –	denom: – mint: RM T wt: –	cat: 8RM 26, HK– die axis: –	Obv DN FL CONSTANS AVG Rev GLOR–IA EXERC–ITVS 1 std wear: SW/SW
436 CONSTANS date: 340–41 diam: 13.5mm	denom: – mint: LG P? wt: 0.6g	cat: 8LG 30, HK253a die axis: 6	Obv [CONSTANS] PF AVG Rev [GLORIA EXERC]ITVS 1 std wear: SW/SW
437 CONSTANS date: 346–48 diam: 14.5mm	denom: – mint: TR P wt: 1.1g	cat: 8TR 206, HK159 die axis: 6	Obv CONSTAN–S PF AVG Rev VICTORIAE DD AVGG QNN wear: SW/SW
438 CONSTANS date: 346–48 diam: 15.5mm	denom: – mint: TR P wt: 2.0g	cat: 8TR 199, HK154 die axis: 1	Obv CONS[TAN]–S PF AVG Rev VIC[TOR]IAE DD AVGG QNN wear: UW/UW
439 CONSTANS date: 346–48 diam: 14.5mm	denom: – mint: TR P wt: 0.8g	cat: 8TR 206, HK159 die axis: 5	Obv [CO]NSTAN–S PF AVG Rev VIC[TORIAE DD AVGG QNN] wear: SW/SW
440 CONSTANS date: 346–48 diam: 15.5mm	denom: – mint: TR P wt: 0.9g	cat: as 8TR 182, HK138 die axis: 1	Obv CONSTAN–S PF AVG Rev VICTORIAE D[ID AVGG QNN] wear: UW/UW

441 CONSTANS date: 346–48 diam: 14.0mm	denom: – mint: TR P wt: 0.8g	cat: 8TR 206, HK159 die axis: 11	Obv CONSTAN–S PF AVG Rev VICTORIAE DD AVGG QNN wear: SW/SW
442 CONSTANS date: 346–48 diam: 14.5mm	denom: – mint: TR P wt: 1.4g	cat: 8TR 195, HK148 die axis: 6	Obv CONSTAN–S PF AVG Rev VICTORIAE DD AVGG QNN wear: SW/SW
443 CONSTANS date: 346–48 diam: 15.5mm	denom: – mint: TR S? wt: 1.2g	cat: 8TR 199, HK155 die axis: 6	Obv CONSTAN–S [PF AVG] Rev VICTORIAE DD AVG[G QNN] wear: SW/SW
444 CONSTANS date: 346–48 diam: 15.0mm	denom: – mint: LG P wt: 1.0g	cat: 8LG 57, HK267 die axis: 12	Obv CONSTAN–S PF AVG Rev VICTOR[IAE DD] AVGG[G QNN] wear: W/W
445 CONSTANS date: 346–48 diam: 14.5mm	denom: – mint: TR P wt: 1.2g	cat: 8TR 185, HK140 die axis: 6	Obv CONSTAN–S PF AVG Rev [VICTORIA]E DD AVGG QNN wear: SW/SW
446 CONSTANS date: 348–50 diam: –	denom: – mint: – wt: –	cat: as 8TR 215/9 die axis: –	Obv – Rev [FEL TEMP REPARATIO] ?Galley wear: –
447 CONSTANS fragments date: 348–50 diam: 21.0mm	denom: – mint: – wt: 1.8g	cat: as 8TR 215/9 die axis: –	Obv – Rev [FEL TEMP REPARATIO] Galley wear: C/C
448 ‘CONSTANS’ date: 348–50+ diam: 18.0mm	denom: – mint: TR P wt: 1.3g	cat: c as 8TR 215/9 die axis: 12	Obv – Rev [FEL TEMP REPARATIO] Galley wear: C/SW
449 CONSTANTIIUS II date: 337–40 diam: 14.0mm	denom: – mint: LG S wt: 1.1g	cat: 8LG 22, HK250 die axis: 12	Obv [CONSTANTI]–VS PF AVG Rev [GLORIA EXERC]–ITVS 1 std wear: SW/SW
450 CONSTANTIIUS II date: 337–40 diam: 15.0mm	denom: – mint: TR P wt: 0.8g	cat: 8TR 108, HK132 die axis: 6	Obv CONSTANTI–[VS PF AVG] Rev GLORI–[A E]XER–[CITVS] 1 std wear: SW/SW
451 CONSTANTIIUS II date: 340–41 diam: 13.5mm	denom: – mint: TR S wt: 0.7g	cat: 8TR101a, HK– die axis: 12	Obv [FL IVL C]ONS[TANTI]VS [AVG] Rev [GLOR]IA [EXERC]–ITVS 1 std wear: SW/UW
452 CONSTANTIIUS II date: 346–48 diam: 16.0mm	denom: – mint: TR P wt: 0.6g	cat: 8TR 193, HK145 die axis: 6	Obv [C]ONSTAN–[TIVS PF AVG] Rev VICTO[RIAE DD AVGG QNN] wear: SW/SW
453 CONSTANTIIUS II date: 346–48 diam: 15.5mm	denom: – mint: – wt: 0.6g	cat: as 8TR 181, HK137 die axis: 5	Obv CONST[ANTI–VS P]F AVG Rev VICTORIAE DD AVG[G QNN] wear: SW/SW
454 CONSTANTIIUS II date: 348–50 diam: 21.5mm	denom: – mint: – wt: 2.2g	cat: as 8TR 239, CK44 die axis: 6	Obv DN CONSTAN–[TIVS PF AVG] Rev [FEL TEMP] REPARATIO Galley (1) phoenix wear: SW/W
455 ‘CONSTANTIIUS II’ date: 353+ diam: –	denom: – mint: – wt: –	cat: c as 8TR 359, CK76 die axis: –	Obv [DN CONSTANTIVS PF AVG] Rev [FEL TEMP REPARATIO] FH3 wear: C/C
456 ‘CONSTANTIIUS II’ date: 353+ diam: 14.5mm	denom: – mint: – wt: 0.5g	cat: c as 8TR 359, CK76 die axis: 12	Obv [DN CONSTANTIVS PF AVG] Rev [FEL TEMP REPARATIO] FH3 wear: C/C
457 ‘CONSTANTIIUS II’ date: 353+ diam: 12.0mm	denom: – mint: – wt: 0.9g	cat: c as 8TR 359, CK76 die axis: 12	Obv [DN CONSTANTIVS PF AVG] Rev [FEL TEMP REPARATIO] FH3 wear: SW/SW
458 ‘CONSTANTIIUS II’ date: 353+ diam: 14.5mm	denom: – mint: – wt: 0.8g	cat: c as 8TR 359, CK76 die axis: –	Obv [DN CONSTANTIVS PF AVG] Rev [FEL TEMP REPARATIO] FH3 wear: C/SW
459 CONSTANS/ CONSTANTIIUS II date: 346–48 diam: 14.0mm	denom: – mint: – wt: 0.7g	cat: as 8TR 181, HK137 die axis: 12	Obv – Rev VICTORIAE DD AVG[G QNN] wear: SW/SW
460 CONSTANS/ CONSTANTIIUS II date: 346–48 diam: –	denom: – mint: TR P wt: –	cat: 8TR 193–6, HK145–50 die axis: –	Obv – Rev [VICTORIAE DD AVGG] QNN wear: –
461 CONSTANS/ CONSTANTIIUS II date: 346–48 diam: 14.5mm	denom: – mint: TR wt: 0.9g	cat: 8TR 181–3, HK137–8 die axis: 6	Obv – Rev VICTORIAE DD AV[GG QNN] wear: SW/SW

462	CONSTANS/ CONSTANTIUS II	denom: – mint: TR wt: 1.4g	cat: as 8TR 193 die axis: 12	Obv – Rev [VICTORIAE DD AVGG QNN] wear: SW/SW
463	CONSTANS/ CONSTANTIUS II	denom: – mint: – wt: –	cat: as 8TR 215/9 die axis: –	Obv – Rev [FEL TEMP REPARATIO] ?Galley wear: –
464	CONSTANS/ CONSTANTIUS frag	denom: – mint: – wt: –	cat: as 8TR 220ff die axis: –	Obv – Rev [FEL TEMP REPARATIO] wear: C/C
465	HOUSE OF CONSTANTINE	denom: – mint: LN P wt: –	cat: 7LN 183–90 die axis: –	Obv – Rev VIRTVS EXERCIT wear: –
466	HOUSE OF CONSTANTINE	denom: – mint: – wt: 3.2g	cat: – die axis: –	Obv laureate head, r Rev – wear: ?SW/–
467	HOUSE OF CONSTANTINE	denom: – mint: – wt: –	cat: – die axis: –	Obv – Rev [GLORIA EXERCITVS] 2 stds wear: C/W
468	HOUSE OF CONSTANTINE?	denom: – mint: – wt: 0.5g	cat: – die axis: –	Obv – Rev ?[GLORIA EXERCITVS] wear: C/C
469	HOUSE OF CONSTANTINE frag	denom: – mint: AR wt: 0.3g	cat: as 7AR394, HK398 die axis: –	Obv – Rev [GLORIA EXERCITVS] 1 std (showing chi–rho) wear: C/W
470	HOUSE OF CONSTANTINE	denom: – mint: – wt: 0.4g	cat: – die axis: 6	Obv Head laur, r Rev [GLORIA] EXER[CITVS] 1 std wear: UW/SW
471	HOUSE OF CONSTANTINE	denom: – mint: – wt: 1.0g	cat: – die axis: –	Obv – Rev [GLORIA EXERCITVS] 1 std wear: C/SW
472	HOUSE OF CONSTANTINE frag	denom: – mint: – wt: 0.4g	cat: – die axis: 12	Obv – Rev [GLORIA EXERCITVS] 1 std wear: W/SW
473	MAGNENTIUS	denom: – mint: AR S wt: 3.2g	cat: 8AR 151, CK423 die axis: 12	Obv DN MAGNEN–[T]IVS PF AVG Rev GLORIA ROMANORVM (4) wear: UW/SW
474	MAGNENTIUS	denom: – mint: TR P wt: 3.6g	cat: 8TR 323, CK66 die axis: 1	Obv DN [MAGNEN–TIVS PF AVG] Rev [SALVS DD NN] A[VG ET] CAES wear: SW/SW
475	MAGNENTIUS	denom: – mint: – wt: –	cat: as 8TR 312 die axis: –	Obv DN MAGNEN–TIVS PF AVG Rev VICTORIAE DD NN AVG ET CAE(S) wear: –
476	'MAGNENTIUS'	denom: – mint: – wt: 2.9g	cat: c as 8AM 1 die axis: 12	Obv [DN MAGNEN]TIVS AVG Rev [G]LORIA [ROMANORVM] wear: SW/SW
477	DECENTIUS	denom: – mint: – wt: –	cat: as 8AM 34 die axis: –	Obv [DN DECENTIVS NOB] CAES Rev [SALVS DD NN AVG ET CAES] wear: SW/SW
478	VALENTINIAN I	denom: – mint: LG/AR II wt: 1.4g	die axis: 6	Obv [DN VALENTINI–ANVS P]F AVG cat: as CK281 Rev [GLORIA RO]–MANORVM wear: W/W
479	VALENTINIAN I	denom: – mint: AQ P wt: 2.0g	cat: CK 1017 die axis: 12	Obv DN VALENTINI–ANVS PF AVG Rev GLORIA RO–MANORVM wear: SW/UW
480	VALENTINIAN I	denom: –		Obv DN VALENTINI–ANVS PF AVG

	date: 367–75 diam: 17.5mm	mint: SS B wt: 2.2g	cat: as CK1364 die axis: 6	Rev GLOR[IA RO–]MANORVM wear: W/W
481 VALENTINIAN I	date: 364–75 diam: 16.0mm	mint: – wt: 1.4g	cat: – die axis: 12	Obv DN VALE[NTINIANVS] PF AVG Rev [SECVRITAS REIPVBLICAE] wear: ?SW/SW
482 VALENTINIAN I	date: 367–75 diam: 17.0mm	mint: AR II wt: 1.6g	cat: CK514 die axis: 7	Obv [DN VALE]NTINI–ANVS PF AVG Rev S[ECVRIT]AS–REI[PVBLIC]AE wear: SW/SW
483 VALENS	date: 364–78 diam: –	mint: – wt: –	cat: – die axis: –	Obv DN V[ALENS P]F AVG Rev ?[GLORIA R]OM[ANORVM] wear: W/W
484 VALENS	date: 364–78 diam: 16.0mm	mint: LG/AR II wt: 1.1g	cat: as CK276 die axis: 6	Obv DN VALEN–[S PF AVG] Rev [SECVRITAS] REIPVBLICAE wear: UW/UW
485 VALENS	date: 367–75 diam: 16.5mm	mint: AQ wt: 1.2g	cat: CK1047 die axis: 12	Obv [DN VALEN]S PF AVG Rev SECVRIT[AS REIPVBLICAE] wear: SW/SW
486 VALENS	date: 367–75 diam: 15.0mm	mint: LG I wt: 1.0g	cat: CK 340 die axis: 6	Obv [DN VALEN–S] P[F AVG] Rev [SECVRITAS] REIPVBLICAE wear: SW/SW
487 GRATIAN	date: 367–75 diam: –	mint: AR III wt: –	cat: as CK 503 die axis: –	Obv [DN GRATIANVS AVGG AVG] Rev GLORIA NOVI SAECVLI wear: –
488 HOUSE OF VALENTINIAN	date: 364–75 diam: 16.0mm	denom: – mint: AR III wt: 1.3g	cat: as CK512 die axis: 12	Obv – Rev [GLORIA ROMANORVM] wear: W/W
489 HOUSE OF VALENTINIAN	date: 364–75 diam: 13.5mm	denom: – mint: LG/AR II? wt: 1.0g	cat: as CK281 die axis: 12	Obv – Rev [GLORIA ROMANORVM] wear: C/W
490 HOUSE OF VALENTINIAN frag	date: 364–78 diam: 12.5mm	denom: – mint: LG wt: 0.5g	cat: as CK281 die axis: 12	Obv – Rev [GLORIA ROMANORVM] wear: C/?W
491 HOUSE OF VALENTINIAN	date: 367–75 diam: 13.5mm	denom: – mint: LG/AR – wt: 1.1g	cat: as CK281 die axis: 6	Obv – Rev [GLORIA ROMANORVM] wear: C/W
492 HOUSE OF VALENTINIAN	date: 364–67 diam: 17.5mm	denom: – mint: AR II wt: 1.8g	cat: as CK 487 die axis: 12	Obv – Rev SECVRITAS REIPVBLICAE wear: SW/SW
493 ILLEGIBLE	date: C1 diam: –	denom: AS mint: RM wt: –	cat: – die axis: –	Obv – Rev – wear: –
494 ILLEGIBLE COIN?	date: C1? diam: 33.5mm	denom: SEST? mint: RM wt: 5.6g	cat: – die axis: –	Obv – Rev – wear: EW/EW
495 ILLEGIBLE fragment	date: C1/2 diam: 22.0mm	denom: SEST mint: RM wt: 8.7g	cat: – die axis: –	Obv – Rev – wear: C/C
496 ILLEGIBLE	date: C1/2 diam: 24.0mm	denom: DP mint: RM wt: 6.9g	cat: – die axis: –	Obv – Rev – wear: C/C
497 ILLEGIBLE	date: C1/2 diam: 25.0mm	denom: DP mint: RM wt: 5.4g	cat: – die axis: –	Obv – Rev – wear: C/C
498 ILLEGIBLE	date: C1/2 diam: 31.0mm	denom: SEST mint: RM wt: 14.5g	cat: – die axis: –	Obv – Rev – wear: C/C
499 ILLEGIBLE	date: C1/2 diam: 25.5mm	denom: AS mint: RM wt: 4.4g	cat: – die axis: –	Obv – Rev – wear: EW/EW
500 ILLEGIBLE	date: C1/2	denom: DP mint: RM	cat: –	Obv – Rev –

diam: 23.5mm	wt: 9.0g	die axis: 6	wear: C/C
501 ILLEGIBLE	denom: DP		Obv –
date: C1/2	mint: RM	cat: –	Rev –
diam: 29.5mm	wt: 12.4g	die axis: –	wear: C/C
502 ILLEGIBLE	denom: AS/DP		Obv –
date: C1/2	mint: RM	cat: –	Rev –
diam: –	wt: –	die axis: –	wear: –
503 ILLEGIBLE	denom: AS/DP		Obv –
date: C1/2	mint: RM	cat: –	Rev –
diam: –	wt: –	die axis: –	wear: –
504 ILLEGIBLE	denom: SEST		Obv –
date: C1/2	mint: RM	cat: –	Rev –
diam: 33.0mm	wt: 18.7g	die axis: –	wear: C/C
505 ILLEGIBLE ROMAN?	denom: DP/AS		Obv –
date: C1/2?	mint: RM	cat: –	Rev –
diam: 24.5mm	wt: 3.7g	die axis: –	wear: C/C
506 ILLEGIBLE disintegrated	denom: DEN		Obv –
date: C1–3	mint: –	cat: –	Rev –
diam: –	wt: –	die axis: –	wear: C/C
507 ILLEGIBLE	denom: DEN		Obv –
date: C2?	mint: RM	cat: –	Rev –
diam: 26.0mm	wt: 6.2g	die axis: –	wear: EW/EW
508 ILLEGIBLE fragment	denom: SEST?		Obv –
date: C2?	mint: RM	cat: –	Rev –
diam: 16.5mm	wt: 0.7g	die axis: –	wear: C/C
509 ILLEGIBLE	denom: –		Obv –
date: 259–348	mint: –	cat: –	Rev –
diam: –	wt: –	die axis: –	wear: –
510 ILLEGIBLE	denom: –		Obv –
date: 259–348	mint: –	cat: –	Rev –
diam: –	wt: –	die axis: –	wear: –
511 ILLEGIBLE	denom: –		Obv –
date: 259–348	mint: –	cat: –	Rev –
diam: –	wt: –	die axis: –	wear: –
512 ILLEGIBLE	denom: –		Obv –
date: 259–348	mint: –	cat: –	Rev –
diam: –	wt: –	die axis: –	wear: –
513 ILLEGIBLE	denom: –		Obv –
date: 259–348	mint: –	cat: –	Rev –
diam: –	wt: –	die axis: –	wear: –
514 ILLEGIBLE	denom: –		Obv –
date: 259–348	mint: –	cat: –	Rev –
diam: –	wt: –	die axis: –	wear: –
515 ILLEGIBLE	denom: –		Obv –
date: 259–348	mint: –	cat: –	Rev –
diam: –	wt: –	die axis: –	wear: –
516 ILLEGIBLE	denom: –		Obv –
date: 259–378	mint: –	cat: –	Rev –
diam: 16.5mm	wt: 0.8g	die axis: –	wear: C/C
517 ILLEGIBLE	denom: –		Obv –
date: 259–378	mint: –	cat: –	Rev –
diam: 19.5mm	wt: 2.4g	die axis: –	wear: C/C
518 ILLEGIBLE	denom: –		Obv –
date: 259–378	mint: –	cat: –	Rev –
diam: 16.0mm	wt: 1.8g	die axis: –	wear: C/C
519 ILLEGIBLE fragment	denom: –		Obv –
date: 259–378	mint: –	cat: –	Rev –
diam: 8.5mm	wt: 0.1g	die axis: –	wear: C/C
520 ILLEGIBLE	denom: –		Obv –
date: C3/4	mint: –	cat: –	Rev –
diam: –	wt: –	die axis: –	wear: –
521 ILLEGIBLE	denom: –		Obv –
date: C3/4	mint: –	cat: –	Rev –
diam: –	wt: –	die axis: –	wear: –
522 ILLEGIBLE	denom: –		Obv –
date: C3/4	mint: –	cat: –	Rev –

diam: –	wt: –	die axis: –	wear: –
523 ILLEGIBLE	denom: –		Obv –
date: C3/4	mint: –	cat: –	Rev –
diam: –	wt: –	die axis: –	wear: –
524 ILLEGIBLE	denom: –		Obv –
date: C3/4	mint: –	cat: –	Rev –
diam: –	wt: –	die axis: –	wear: –
525 ILLEGIBLE	denom: –		Obv –
date: C3/4	mint: –	cat: –	Rev –
diam: –	wt: –	die axis: –	wear: –
526 ILLEGIBLE fragments	denom: –		Obv –
date: C3/4	mint: –	cat: –	Rev –
diam: 9.5mm	wt: 0.2g	die axis: –	wear: C/C
527 ILLEGIBLE	denom: –		Obv –
date: C3/4	mint: –	cat: –	Rev –
diam: –	wt: –	die axis: –	wear: –
528 ILLEGIBLE	denom: –		Obv –
date: C3/4	mint: –	cat: –	Rev –
diam: –	wt: –	die axis: –	wear: –
529 ILLEGIBLE fragment	denom: –		Obv –
date: C3/4	mint: –	cat: –	Rev –
diam: 11.0mm	wt: 0.5g	die axis: –	wear: C/C
530 ILLEGIBLE	denom: –		Obv –
date: C3/4	mint: –	cat: –	Rev –
diam: –	wt: –	die axis: –	wear: –
531 ILLEGIBLE	denom: –		Obv –
date: C3/4	mint: –	cat: –	Rev –
diam: –	wt: –	die axis: –	wear: –
532 ILLEGIBLE	denom: –		Obv –
date: C3/4	mint: –	cat: –	Rev –
diam: –	wt: –	die axis: –	wear: –
533 ILLEGIBLE	denom: –		Obv –
date: C3/4	mint: –	cat: –	Rev –
diam: –	wt: –	die axis: –	wear: –
534 ILLEGIBLE	denom: –		Obv –
date: C3/4	mint: –	cat: –	Rev –
diam: –	wt: –	die axis: –	wear: –
535 ILLEGIBLE fragment	denom: –		Obv –
date: C3/4	mint: –	cat: –	Rev –
diam: 9.5mm	wt: 0.4g	die axis: –	wear: C/C
536 ILLEGIBLE	denom: –		Obv –
date: C3/4	mint: –	cat: –	Rev –
diam: –	wt: –	die axis: –	wear: –
537 ILLEGIBLE	denom: –		Obv –
date: C3/4	mint: –	cat: –	Rev –
diam: –	wt: –	die axis: –	wear: –
538 ILLEGIBLE	denom: –		Obv –
date: –	mint: –	cat: –	Rev –
diam: 9.0mm	wt: –	die axis: –	wear: C/C
539 CHARLES I/II	denom: 2d		Obv [CAR DG SCOT ANG FRA ET HIB R] CR [crowned], ?II to r
date: 1642–63	mint: –	cat: as Stewart 239	Rev [NEMO ME IMPVNE LACESSIT] Thistle
diam: 19.5mm	wt: 1.6g	die axis: –	wear: EW/EW
540 MODERN ARABIC (intrusive)	denom: –		Obv –
date: 1960	mint: –	cat: –	Rev –
diam: –	wt: –	die axis: –	wear: –
541 NOT A COIN			
542 NOT A COIN			
543 NOT A COIN			
544 NOT A COIN			
545 NOT A COIN			
546 NOT A COIN			
547 NOT A COIN			
548 NOT A COIN			
549 NOT A COIN (fragments)			

Housesteads vicus: coin list by issuer and period

550 M ANTONIUS date: BC32–31 diam: –	denom: DEN mint: – wt: –	cat: CR 544 die axis: –	Obv M ANT AVG III VIR RPC Rev LEG.... Galley wear: –
551 NERO date: 54–68 diam: 32.0mm	denom: SEST mint: – wt: 14.7g	cat: – die axis: –	Obv – Rev – wear: EW/EW
552 NERO (twice pierced) date: 66–68 diam: 29.0mm	denom: AS mint: – wt: 7.1g	cat: – die axis: 5	Obv IMP NERO CAE[SAR AVG P] MAX TR[P PP] Rev – wear: ?W/W
553 VITELLIUS date: 69 diam: 18.0mm	denom: DEN mint: RM – wt: 1.2g	cat: 90 (ed.1, 2) die axis: 7	Obv [A VITELLIVS GE]RM IMP AVG TRP Rev [CONCOR]DIA P R wear: ?W/W
554 VESPASIAN date: 69–71 diam: 18.5mm	denom: DEN mint: RM wt: 2.0g	cat: 10 die axis: 7	Obv IMP CAESAR VESPASIANVS AVG Rev [COS ITER TRPOT] wear: VW/VW
555 VESPASIAN date: 69–79 diam: 18.0mm	denom: DEN mint: wt: 1.9g	cat: as 94 die axis: 12	Obv – Rev – wear: VW/VW
556 VESPASIAN date: 69–79 diam: 17.5mm	denom: DEN mint: – wt: 2.3g	cat: – die axis: 6	Obv – Rev – wear: VW/VW
557 VESPASIAN date: 75 diam: 19.0mm	denom: DEN mint: RM wt: 2.1g	cat: 90 die axis: 7	Obv IMP CAESAR VESPASIANVS Rev [PON MAX] TRP COS VI wear: VW/W
558 DOMITIAN date: 95–96 diam: –	denom: DEN mint: RM wt: –	cat: 192 die axis: –	Obv IMP CAES DOMIT AVG GERM PM TRP XV Rev IMP XXII COS XVII CENS P P P wear: –
559 FLAVIAN date: 69–96 diam: 28.0mm	denom: DP mint: – wt: 8.8g	cat: – die axis: –	Obv – Rev – wear: C/C
560 FLAVIAN date: 69–96 diam: 26.0mm	denom: AS mint: – wt: 7.1g	cat: – die axis: 12	Obv – Rev – wear: C/C
561 FLAVIAN date: 69–96 diam: 27.0mm	denom: AS mint: – wt: 7.5g	cat: – die axis: –	Obv – Rev – wear: C/C
562 TRAJAN date: 100 diam: –	denom: DEN mint: RM wt: –	cat: 38 die axis: –	Obv IMP CAES NERVA TRAIAN AVG GERM Rev PM TRP COS III P P wear: UW/UW
563 TRAJAN date: 103–11 diam: 18.0mm	denom: DEN mint: RM wt: 2.2g	cat: 142 die axis: 6	Obv [IMP TRAI]ANO AVG GER [DAC PM TRP] Rev COS V PP SPQR OPTIMO PRINC wear: W/W
564 TRAJAN date: 103–12 diam: 17.0mm	denom: DEN mint: RM wt: 2.6g	cat: 81 die axis: 6	Obv IMP NERVA TRAIANVS AVG GER DACICVS Rev PM TRP COS V PP wear: W/W
565 TRAJAN date: 103–17 diam: 34.0mm	denom: SEST mint: RM wt: 18.4g	cat: as 461 die axis: 6	Obv [IMP CAES NERVAE] TRAIANO AVG GER DAC PM TRP Rev – wear: VW/EW
566 TRAJAN date: 114–17 diam: –	denom: SEST mint: RM wt: –	cat: 663 die axis: –	Obv IMP CAES NER TRAIANO OPTIMO AVG GER DAC PARTHICO PM TRP COS VI PP Rev PROVIDENTIA AVGVSTI SPQR SC wear: UW/UW
567 TRAJAN date: 97–117 diam: –	denom: SEST mint: RM wt: –	cat: – die axis: –	Obv – Rev – wear: C/C
568 TRAJAN date: 97–117 diam: 26.5mm	denom: AS mint: RM wt: 8.1g	cat: – die axis: 6?	Obv – Rev – wear: C/C
569 HADRIAN date: 117–38 diam: –	denom: AS mint: RM wt: –	cat: – die axis: –	Obv – Rev – wear: W/W
570 HADRIAN fragment	denom: SEST		Obv –

	date: 117–38 diam: 28.0mm	mint: RM wt: 12.6g	cat: – die axis: 6	Rev – wear: W/VW
571 HADRIAN		denom: SEST		Obv –
	date: 117–38 diam: 32.0mm	mint: RM wt: 16.5g	cat: – die axis: –	Rev – wear: C/C
572 HADRIAN		denom: SEST		Obv –
	date: 117–38 diam: 31.5mm	mint: RM wt: 22.4g	cat: – die axis: –	Rev – wear: ?W/C
573 HADRIAN		denom: SEST		Obv –
	date: 117–38 diam: 30.0mm	mint: RM wt: 23.0g	cat: – die axis: 6	Rev – wear: EW/EW
574 HADRIAN		denom: SEST		Obv –
	date: 117–38 diam: 33.0mm	mint: RM wt: 14.5g	cat: – die axis: 6	Rev – wear: EW/EW
575 HADRIAN		denom: DEN		Obv –
	date: 117–38 diam: –	mint: RM wt: –	cat: – die axis: –	Rev – wear: –
576 HADRIAN		denom: AS		Obv –
	date: 117–38 diam: 25.5mm	mint: RM wt: 5.8g	cat: – die axis: –	Rev – wear: C/C
577 HADRIAN		denom: DP		Obv IMP CAESAR TRAIANVS HADRIANVS AVG PM TRP COS III
	date: 119–21 diam: 27.0mm	mint: RM wt: 8.5g	cat: as 599 die axis: 6	Rev – wear: VW/EW
578 HADRIAN		denom: DP		Obv IMP CAESAR TRAIANVS HADRIANVS AVG PM TRP COS III
	date: 119–21 diam: 27.0mm	mint: RM wt: 11.9g	cat: 597c die axis: 6	Rev [AETERNIT]AS AVGVSTI SC wear: W/VW
579 HADRIAN		denom: AS		Obv [HADRIANVS AVGVSTVS]
	date: 125–28 diam: 27.0mm	mint: RM wt: 7.6g	cat: as 673 die axis: –	Rev [COS III SC] wear: C/C
580 HADRIAN		denom: SEST		Obv [HADRIANVS] AVGVSTVS
	date: 125–32 diam: 32.0mm	mint: RM wt: 18.8g	cat: – die axis: 12	Rev – wear: ?W/C
581 HADRIAN		denom: SEST		Obv HADRIANVS AVG COS III P P
	date: 134–38 diam: 31.0mm	mint: RM wt: 20.5g	cat: as 760 die axis: 6	Rev [FORTVNA AVG] wear: SW/SW?
582 HADRIAN		denom: DEN		Obv HADRIANUS AVG COS III PP
	date: 134–38 diam: –	mint: RM wt: –	cat: 266 die axis: –	Rev ROMVLO CONDITORI wear: SW/SW
583 HADRIAN		denom: DEN		Obv HADRIANVS AVG COS III PP
	date: 134–38 diam: 18.0mm	mint: RM wt: 2.7g	cat: 268d die axis: 6	Rev SALVS AVG wear: SW/SW
584 ANTONINUS PIUS		denom: SEST		Obv IMP T AEL CAES HADRI ANTONINVS AVG PIVS
	date: 138 diam: 31.0mm	mint: RM wt: 22.5g	cat: 519c die axis: 12	Rev PONT MAX TRPOT COS SC Pax wear: ?SW/W
585 ANTONINUS PIUS		denom: SEST		Obv –
	date: 138–61 diam: 32.0mm	mint: RM wt: 26.0g	cat: – die axis: 12	Rev – wear: C/C
586 ANTONINUS PIUS		denom: DEN		Obv –
	date: 138–61 diam: 18.0mm	mint: RM wt: 2.0g	cat: – die axis: –	Rev – wear: C/C
587 ANTONINUS PIUS		denom: SEST		Obv –
	date: 138–61 diam: 29.0mm	mint: RM wt: 10.1g	cat: – die axis: 12	Rev – wear: C/C
588 ANTONINUS PIUS		denom: SEST		Obv –
	date: 138–61 diam: 31.0mm	mint: RM wt: 16.5g	cat: – die axis: 7	Rev – wear: VW/VW
589 ANTONINUS PIUS		denom: DP		Obv –
	date: 138–61 diam: 24.0mm	mint: RM wt: 5.3g	cat: – die axis: –	Rev – wear: C/C
590 ANTONINUS PIUS(?)		denom: DEN		Obv [ANTONINVS AVG PIVS...]
	date: 138–61? diam: 17.5mm	mint: RM wt: 1.9g	cat: as 177 die axis: 6	Rev Aequitas stg. 1., holding scales wear: ?SW/SW
591 ANTONINUS PIUS?		denom: AS		Obv –

	date: 138–61? diam: 27.0mm	mint: RM wt: 8.1g	cat: – die axis: –	Rev – wear: EW/EW
592 ANTONINUS PIUS	date: 139 diam: 18.0mm	denom: DEN mint: RM wt: 2.6g	cat: 17b die axis: 12	Obv [IMP T AEL CAES HADRI ANTONINVS] Rev [AVG PIVS PM TRP COS] II Aequitas wear: W/W
593 ANTONINUS PIUS	date: 140–44 diam: 31.0mm	denom: SEST mint: RM wt: 20.7g	cat: 600 die axis: 11	Obv ANTONINVS AVG PIVS PP TRP COS III Rev [CONCORDIA EXERCITVVM] SC wear: VW/VW
594 ANTONINUS PIUS	date: 140–44 diam: 34.5mm	denom: SEST mint: RM wt: 25.1g	cat: 636 die axis: 11	Obv ANTONINVS AVG [PIVS PP TR]P COS III Rev SALVS AVG SC wear: SW/W
595 ANTONINUS PIUS	date: 145–61 diam: 26.5mm	denom: DP mint: RM wt: 12.4g	cat: as 808 die axis: 12	Obv [ANTONINVS] AVG PIVS.... Rev SC wear: W/W
596 ANTONINUS PIUS	date: 145–61 diam: 31.5mm	denom: SEST mint: RM wt: 15.8g	cat: 756 die axis: 12	Obv AN[TONINVS AVG PI]VS PP TRP COS III Rev [AN]NONA [AVG SC] wear: SW/SW
597 ANTONINUS PIUS	date: 145–61 diam: 30.0mm	denom: SEST mint: RM wt: 13.4g	cat: – die axis: 6	Obv [ANTONINVS AVG PIV]S P P TRP COS III Rev – wear: VW/C
598 ANTONINUS PIUS	date: 150–52 diam: 31.5mm	mint: RM denom: DEN wt: 17.4g	cat: 871/91 die axis: 6	Obv [IMP CAES T AEL HADR ANTONINVS AVG PIVS P P Rev [TRPOT XIII(or XV) COS III] ANNONA AVG [SC] wear: W/W
599 ANTONINUS PIUS	date: 151–52 diam: 18.0mm	mint: RM denom: SEST wt: 2.9g	cat: 216a die axis: 6	Obv IMP CAES T AEL HADR ANTONINVS AVG PIVS PP Rev TR POT XV COS III in exergue PAX wear: SW/SW
600 ANTONINUS PIUS	date: 153–54 diam: –	mint: RM wt: –	cat: 917 die axis: –	Obv ANTONINVS AVG PIVS PP TRP XVII Rev LIBERTAS COS III SC wear: SW/SW
601 ANTONINUS PIUS	date: 154–55 diam: 28.0mm	denom: AS mint: RM wt: 11.9g	cat: 934 die axis: 6	Obv ANTONINVS AVG PIVS PP TRP XVIII Rev BRITANN[IA COS III SC] wear: ?SW/C
602 ANTONINUS PIUS	date: 154–55 diam: 28.0mm	denom: AS mint: RM wt: 9.7g	cat: 934 die axis: 12	Obv ANTONINVS AVG PIVS PP TRP XVIII Rev BRITANNIA COS III SC wear: ?W/C
603 ANTONINUS PIUS, POSTH	date: 161–80 diam: 17.5mm	denom: DEN mint: RM wt: 2.8g	cat: 441 die axis: 6	Obv DIVVS ANTONI[NVS] Rev DIVO PIO wear: W/W
604 FAUSTINA I, POSTH	date: 141–61 diam: 32.5mm	denom: SEST mint: RM wt: 23.7g	cat: A Pius 1108 die axis: 12	Obv [DIVA AVG]VSTA FAVSTINA Rev [AET]ERN[ITAS] SC wear: SW/SW
605 FAUSTINA I, POSTH	date: 141–61 diam: 31.0mm	denom: SEST mint: RM wt: 21.6g	cat: as A Pius 1102 die axis: 11	Obv DIVA FAVSTINA Rev [AETERNITAS SC] wear: VW/EW
606 FAUSTINA I, POSTH	date: 141–61 diam: 16.5mm	denom: DEN mint: RM wt: 2.9g	cat: A Pius 363 die axis: 5	Obv DIVA FAVSTINA Rev AVGVSTA wear: W/W
607 FAUSTINA I, POSTH	date: 141–61 diam: –	denom: SEST mint: RM wt: –	cat: A Pius 1146a die axis: –	Obv DIVA AVGVSTA FAVSTINA Rev PIETAS AVG SC wear: –
608 FAUSTINA II (ANT PIUS)	date: 145–46 diam: 27.5mm	denom: DP mint: RM wt: 11.9g	cat: A Pius 1395 die axis: 6	Obv FAVSTINA AVG PII AVG FIL Rev FELICITAS SC wear: W/W
609 FAUSTINA II (ANT PIUS)	date: 145–61 diam: 17.5mm	denom: DEN mint: RM wt: 2.4g	cat: A Pius 502a die axis: 6	Obv FAVSTINA AVG PII AVG FIL Rev CONCORDIA wear: SW/W
610 MARCUS AURELIUS, CAESAR	date: 158–59 diam: 24.0mm	denom: DP mint: RM wt: 11.7g	cat: A Pius 1351 die axis: 5	Obv AVRELIUS CAESAR AVG PII F Rev TRPOT XIII CO[S II SC] wear: W/W

611	MARCUS AURELIUS	denom: DEN			Obv IMP M AVREL ANTONINVS AVG
	date: 161	mint: RM	cat: 3		Rev CONCORD AVG TRP XV COS III
	diam: 16.5mm	wt: 2.1g	die axis: 6		wear: ?W/W
612	MARCUS AURELIUS	denom: AS			Obv –
	date: 161–80	mint: RM	cat: –		Rev –
	diam: –	wt: –	die axis: –		wear: –
613	MARCUS AURELIUS	denom: SEST			Obv –
	date: 161–80	mint: RM	cat: –		Rev –
	diam: 30.0mm	wt: 19.3g	die axis: 12		wear: C/C
614	MARCUS AURELIUS	denom: SEST			Obv –
	date: 161–80	mint: RM	cat: –		Rev –
	diam: 31.5mm	wt: 18.0g	die axis: 5		wear: EW/EW
615	MARCUS AURELIUS	denom: DEN			Obv –
	date: 161–80	mint: RM	cat: –		Rev –
	diam: 16.5mm	wt: 2.0g	die axis: 7		wear: ?W/W
616	MARCUS AURELIUS	denom: AS			Obv –
	date: 161–80	mint: RM	cat: –		Rev –
	diam: 27.0mm	wt: 7.3g	die axis: 11?		wear: ?VW/VW
617	MARCUS AURELIUS	denom: SEST			Obv IMP CAES M AVREL ANTONINVS AVG
	date: 161–80	mint: RM	cat: as 797		Rev [CONCORD AVGVSTOR TRP XV COS III] SC
	diam: 31.5mm	wt: 16.9g	die axis: 11		wear: W/C
618	MARCUS AURELIUS	denom: DEN			Obv [ANTONINVS AVG ARMENIAC]VS
	date: 163–64	mint: RM	cat: 92		Rev PM TRP XVIII IMP II COS III
	diam: 17.0mm	wt: 2.0g	die axis: 6		wear: W/W
619	MARCUS AURELIUS	denom: SEST			Obv M ANTONINVS AVG....
	date: 163–80	mint: RM	cat: –		Rev –
	diam: 30.5mm	wt: 19.3g	die axis: 1		wear: VW/VW
620	MARCUS AURELIUS	denom: SEST			Obv M ANTONINVS ARM PARTH MAX
	date: 168	mint: RM	cat: 959		Rev TRPOT XXII IMP V COS III SC
	diam: 31.5mm	wt: 14.7g	die axis: 12		wear: W/W
621	MARCUS AURELIUS	denom: SEST			Obv –
	date: 170–73	mint: RM	cat: –		Rev –
	diam: 31.0mm	wt: 19.3g	die axis: 12		wear: ?SW/C
622	MARCUS AURELIUS	denom: SEST			Obv M ANTONINVS AVG [GERM TRP XXIX]
	date: 174–75	mint: RM	cat: 1147		Rev [LIBERALITAS AVG VI] IMP VII [COS III] SC
	diam: 31.0mm	wt: 22.2g	die axis: 12		wear: W/VW
623	MARCUS AURELIUS	denom: SEST			Obv M ANTONINVS AVG GERM SARMATICVS
	date: 175–76	mint: RM	cat: 1169		Rev TRP XXX IMP VIII COS III SC
	diam: –	wt: –	die axis: –		wear: SW/SW
624	LUCIUS VERUS	denom: DEN			Obv IMP L AVREL VERVS AVG
	date: 161	mint: RM	cat: 463		Rev PROV DEOR TRP COS II
	diam: –	wt: –	die axis: –		wear: SW/SW
625	LUCIUS VERUS	denom: DEN			Obv L VERVS AVG ARM PARTH MAX
	date: 167–68	mint: RM	cat: M Aurelius 578		Rev TRP VIII IMP III COS III
	diam: –	wt: –	die axis: –		wear: –
626	FAUSTINA II				
	(M AURELIUS)	denom: SEST			Obv –
	date: 161–80	mint: RM	cat: –		Rev –
	diam: 31.0mm	wt: 16.6g	die axis: 7		wear: C/C
627	FAUSTINA II, POSTH	denom: SEST			Obv DIVA [FAVSTINA]
	date: 176–80	mint: RM	cat: –		Rev –
	diam: 29.0mm	wt: 17.2g	die axis: –		wear: ?W/C
628	FAUSTINA II, POSTH	denom: SEST			Obv DIVA FAV[STINA PIA]
	date: 176–80	mint: RM	cat: M Aurelius 1699		Rev [AET]ER[NITAS SC]
	diam: 31.0mm	wt: 21.1g	die axis: 6		wear: VW/VW
629	FAUSTINA II, POSTH	denom: SEST			Obv DIVA FAVSTINA PIA
	date: 176–80	mint: RM	cat: M Aurelius 1692		Rev AETERNITAS SC
	diam: 31.0mm	wt: 12.4g	die axis: 12		wear: W/W
630	FAUSTINA II, POSTH	denom: DEN			Obv DIVA FAVSTINA PIA
	date: 176–80	mint: RM	cat: M Aurelius 741		Rev CONSECRATIO
	diam: –	wt: –	die axis: –		wear: –
631	COMMODUS	denom: SEST			Obv L AVREL COMMODVS AVG [TRP III]
	date: 179	mint: RM	cat: M Aurelius 1599		Rev [IMP II COS II PP] SC
	diam: 31.0mm	wt: 21.3g	die axis: 5		wear: W/W
632	COMMODUS	denom: SEST			Obv [L AVR]EL COM[MODVS AVG TRP V]
	date: 179–80	mint: RM	cat: as 293		Rev –

diam: 29.0mm	wt: 21.7g	die axis: 7	wear: VW/VW
633 COMMODUS	denom: SEST		Obv M COMMODVS ANTONINVS AVG
date: 181	mint: RM	cat: 312	Rev PROV DEOR TRP VI IMP IIII COS III PP SC
diam: –	wt: –	die axis: –	wear: UW/UW
634 COMMODUS	denom: SEST		Obv [M COMMODVS ANTONINVS AVG]
date: 181	mint: RM	cat: 309	Rev LIB AVG IIII SC
diam: 28.5mm	wt: 12.8g	die axis: 6	wear: EW/EW
635 COMMODUS	denom: SEST		Obv [M COMMODVS] ANT [P FELIX AVG BRIT]
date: 186–88	mint: RM	cat: 504/515	Rev [SAL AVG PM TRP XII (or XIII) IMP VIII COS V PP SC]
diam: 29.5mm	wt: 17.8g	die axis: 1	wear: ?W/W
636 COMMODUS	denom: DEN		Obv M COMM ANT P FEL AVG BRIT
date: 188–89	mint: RM	cat: 173	Rev IOV IVVEN PM TRP XIII COS V PP
diam: –	wt: –	die axis: –	wear: –
637 COMMODUS	denom: DEN		Obv M COMM ANT [P FEL AVG] BRIT PP
date: 189–92	mint: RM	cat: as 91	Rev PM TRP...
diam: 17.5mm	wt: 1.7g	die axis: 6	wear: SW/C
638 COMMODUS (pierced)	denom: SEST		Obv M COMMOD ANT P FELIX AVG BRIT PP
date: 190	mint: RM	cat: 565/6	Rev SAECVLI (or TEMP) FELIC PM TRP XV IMP VIII COS VI SC
diam: 27.0mm	wt: 5.3g	die axis: 12	wear: ?W/C
639 COMMODUS	denom: DEN		Obv M COMM ANT P FEL AVG BRIT PP
date: 190–91	mint: RM	cat: 222a	Rev MIN AVG PM TRP [XVI COS VI]
diam: 17.5mm	wt: 2.0g	die axis: 6	wear: SW/SW
640 COMMODUS	denom: DEN		Obv [L AEL AVREL COMM AVG P FEL]
date: 191–92	mint: RM	cat: 251	Rev HERCVL ROMAN AVGV
diam: –	wt: –	die axis: –	wear: –
641 SEPTIMIUS SEVERUS	denom: DEN		Obv [L SEPT] SEV PER[T AVG IMP IIII]
date: 194–95	mint: RM	cat: 40	Rev [APOLLINI] AVGVSTO
diam: 18.0mm	wt: 2.2g	die axis: 12	wear: W/W
642 SEPTIMIUS SEVERUS	denom: DEN		Obv L SEPT SEV PERT AVG IMP VIII
date: 196–97	mint: LA	cat: 491a	Rev PROVIDENTIA AVG
diam: –	wt: –	die axis: –	wear: SW/SW
643 SEPTIMIUS SEVERUS	denom: DEN		Obv [L SEPT SEV PERT] AVG IMP VIII
date: 196–97	mint: RM	cat: 85	Rev [PM TRP IIII] COS II PP
diam: 17.5mm	wt: 1.9g	die axis: 7	wear: W/W
644 SEPTIMIUS SEVERUS	denom: DEN		Obv [L SEPT SEV PERT] AVG IMP VIII
date: 197	mint: RM	cat: 101	Rev [PM TRP V] COS II P P
diam: 17.0mm	wt: 1.8g	die axis: 6	wear: W/W
645 SEPTIMIUS SEVERUS	denom: DEN		Obv L SEPT SEV AVG IMP XI PART MAX
date: 198–202	mint: LA	cat: 504	Rev COS III PP
diam: 20.5mm	wt: 2.0g	die axis: 6	wear: W/W
646 SEPTIMIUS SEVERUS	denom: DEN		Obv SEVERUS PIUS AVG
date: 201	mint: RM	cat: 176	Rev PART MAX
diam: –	wt: –	die axis: –	wear: SW/SW
647 SEPTIMIUS SEVERUS	denom: DEN		Obv SEVERVS PIVS AVG
date: 201	mint: RM	cat: 176	Rev PART MAX PM TRP VIII
diam: 17.5mm	wt: 1.3g	die axis: 12	wear: W/W
648 ‘SEPTIMIUS SEVERUS’	denom: DENpl		Obv ...SEVERVS...
date: 193+	mint: –	cat: –	Rev –
diam: 18.0mm	wt: 2.0g	die axis: –	wear: ?W/C
649 ‘SEPTIMIUS SEVERUS’	denom: DENpl		Obv –
date: 193+	mint: –	cat: c as 220	Rev –
diam: 15.5mm	wt: 0.7g	die axis: 6	wear: W/W
650 ‘SEPTIMIUS SEVERUS’	denom: DENpl		Obv SEVERVS [PIVS AVG]
date: 193+	mint: –	cat: c as –	Rev –
diam: 18.5mm	wt: 2.6g	die axis: 6	wear: W/W
651 ‘SEPTIMIUS SEVERUS’	denom: DENpl		Obv [L SEPT] SEV PERT [AVG IMP...]
date: 196+	mint: –	cat: c as 79	Rev HERCVL[I DEFENS]
diam: 17.0mm	wt: 2.4g	die axis: 7	wear: SW/W
652 ‘SEPTIMIUS SEVERUS’	denom: DENpl		Obv [L SEPT SEV PERT] AVG IMP VIII
date: 196+	mint: ‘RM’	cat: c of 79	Rev [HER]CVLI DEFENS
diam: 17.0mm	wt: 2.8g	die axis: 7	wear: SW/W
653 JULIA DOMNA	denom: DEN		Obv –
date: 193–211	mint: –	cat: –	Rev –
diam: 17.5mm	wt: 1.1g	die axis: 12?	wear: C/C

654 JULIA DOMNA date: 196–211 diam: 15.5mm	denom: DEN mint: RM wt: 1.6g	cat: Severus 587 die axis: 6	Obv IVLIA [AVGVSTA] Rev [VESTAE] SANCTAE wear: W/W
655 JULIA DOMNA date: 196–211 diam: –	denom: DEN mint: RM wt: –	cat: Severus 559 die axis: –	Obv IVLIA AVGVSTA Rev IVNO wear: –
656 JULIA DOMNA date: 196–211 diam: –	denom: DEN mint: RM wt: –	cat: Severus 551 die axis: –	Obv IVLIA AVGVSTA Rev FELICITAS wear: SW/SW
657 JULIA DOMNA date: 196–211 diam: 18.0mm	denom: DEN mint: RM wt: 2.2g	cat: Severus 561 die axis: 6	Obv IVLIA AVGVSTA Rev LAETITIA wear: W/W
658 JULIA DOMNA date: 196–211 diam: –	denom: DEN mint: RM wt: –	cat: Severus 564 die axis: –	Obv IVLIA AVGVSTA Rev MATER DEVM wear: –
659 JULIA DOMNA date: 196–211 diam: –	denom: DEN mint: RM wt: –	cat: Severus 577 die axis: –	Obv IVLIA AVGVSTA Rev SAECULI FELICITAS wear: –
660 JULIA DOMNA date: 211–17 diam: –	denom: DEN mint: RM wt: –	cat: Severus 373A die axis: –	Obv IVLIA PIA FELIX AVG Rev DIANA LVCIFERA wear: –
661 'JULIA DOMNA' date: 196+ diam: 20.0mm	denom: DENpl mint: 'RM' wt: 2.7g	cat: c as 572 die axis: 12	Obv IVLIA [AVGVSTA] Rev PIETAS AVGG wear: SW/W
662 CARACALLA date: 196 diam: –	denom: DEN mint: RM wt: –	cat: 2 die axis: –	Obv M AVR ANTONINVS CAES Rev SECVRITAS PERPETVA wear: –
663 CARACALLA date: 196 diam: 17.5mm	denom: DEN mint: RM wt: 1.9g	cat: 5 die axis: 6	Obv M AVR ANTONINVS CAES Rev [SP]EI PERPET[VAE] wear: W/W
664 CARACALLA fragments date: 198–217 diam: 19.0mm	denom: DEN mint: RM wt: 1.0g	cat: 324 die axis: 6	Obv ANTONIN[VS PIVS AVG GERM] Rev SALVS [ANTONINI AVG] wear: W/W
665 CARACALLA date: 201–06 diam: –	denom: DEN mint: RM wt: –	cat: 144b die axis: –	Obv ANTONINVS PIVS AVG Rev VICT PART MAX wear: –
666 CARACALLA date: 207 diam: –	denom: DEN mint: RM wt: –	cat: 92 die axis: –	Obv ANTONINVS PIVS AVG Rev PONTIF TRP X COS II wear: SW/SW
667 CARACALLA date: 209–12 diam: 20.0mm	denom: DEN mint: RM wt: 2.5g	cat: 205 die axis: 6	Obv ANTONINVS PIVS AVG Rev VOTA SALVT DEC COS III wear: W/W
668 CARACALLA date: 215 diam: 19.0mm	denom: DEN mint: RM wt: 1.4g	cat: 311b die axis: 12	Obv [ANTONINVS PIVS] AVG GERM Rev [V]ENV[S VI]CT[R]IX wear: W/SW
669 'CARACALLA' date: 198+ diam: 17.0mm	denom: DENp mint: – wt: 1.7g	cat: c as – die axis: 6	Obv [...A]NT....AVG... Rev – wear: W/C
670 'CARACALLA' date: 202+ diam: 19.0mm	denom: DENpl mint: – wt: 2.5g	cat: c as – die axis: 6?	Obv [ANTONINVS] PIVS [AVG] Rev – wear: ?SW/C
671 'CARACALLA' date: 212+ diam: 18.0mm	denom: DENpl mint: – wt: 1.3g	cat: c as 192 die axis: 7	Obv [ANTONINVS PIVS] AVG BRIT Rev [PM TRP X]V COS III PP wear: W/W
672 GETA CAESAR date: 198–200 diam: 18.5mm	denom: DEN mint: RM wt: 1.5g	cat: 3 die axis: 7	Obv P SEPT GETA CAES PONT Rev [SEVERI PII AVG FIL] wear: W/W
673 GETA CAESAR date: 198–200 diam: 19.0mm	denom: DEN mint: RM wt: 2.1g	cat: 2 die axis: 12	Obv L SEPTIMIVS GETA CAES Rev FELICITAS TEMPOR wear: SW/SW
674 GETA CAESAR date: 203–08 diam: 19.0mm	denom: DEN mint: RM wt: 2.8g	cat: 34 die axis: 12	Obv P SEPTIMIVS GETA CAES Rev PONTIF COS wear: SW/SW
675 'GETA CAESAR' date: 200+ diam: 17.0mm	denom: DENpl mint: 'RM' wt: 0.9g	cat: c of 20a die axis: 6	Obv P SEPT GETA CAES PONT Rev SECVRIT IMPERII wear: W/W

676 'MACRINUS'	denom: DENpl		Obv [IMP CM OPEL SEV MACRINVS AVG]
date: 217+	mint: 'RM'	cat: -	Rev -
diam: 18.0mm	wt: 2.1g	die axis: -	wear: C/C
677 ELAGABALUS	denom: DEN		Obv -
date: 218-22	mint: -	cat: -	Rev -
diam: 19.0mm	wt: 1.7g	die axis: 6	wear: W/W
678 ELAGABALUS	denom: DEN		Obv IMP CAES M AVR ANTONINVS AVG
date: 218-22	mint: RM	cat: 139	Rev SALVS ANTONINI AVG
diam: -	wt: -	die axis: -	wear: -
679 ELAGABALUS	denom: DEN		Obv IMP ANTONINVS PIVS AVG
date: 218-22	mint: RM	cat: 88	Rev INVICTVS SACERDOS AVG
diam: -	wt: -	die axis: -	wear: SW/SW
680 ELAGABALUS	denom: DEN		Obv IMP ANTONINVS PIVS AVG
date: 221	mint: RM	cat: 46	Rev PM TRP III COS III PP Emperor stg l., sacrificing
diam: 19.0mm	wt: 1.8g	die axis: 6	wear: W/W
681 JULIA SOAEMIAS	denom: DEN		Obv IVLIA SOAEMIAS AVG
date: 218-22	mint: -	cat: Elagabalus 241	Rev VENVS CAELESTIS
diam: 18.5mm	wt: 2.1g	die axis: 6	wear: SW/SW
682 SEVERUS ALEXANDER	denom: DEN		Obv IMP C M AVR SEV ALEXAND AVG
date: 222-28	mint: RM	cat: 127	Rev AEQUITAS AVG
diam: -	wt: -	die axis: -	wear: -
683 SEVERUS ALEXANDER	denom: ANT		Obv IMP SEV ALEXANDER AVG
date: 222-35	mint: -	cat: -	RevAVG
diam: 18.5mm	wt: 1.7g	die axis: 12	wear: W/W
684 SEVERUS ALEXANDER	denom: DEN?		Obv -
date: 222-35	mint: -	cat: -	Rev -
diam: -	wt: -	die axis: -	wear: SW/SW
685 SEVERUS ALEXANDER	denom: DEN		Obv IMP C M AVR SEV ALEXAND
date: 224	mint: RM	cat: 35	Rev PM TRP III COS PP
diam: -	wt: -	die axis: -	wear: SW/SW
686 SEVERUS ALEXANDER	denom: DEN		Obv IMP C M AVR SEV ALEXAND AVGG
date: 227	mint: RM	cat: 64	Rev PM TRP VI COS II PP
diam: -	wt: -	die axis: -	wear: SW/SW
687 SEVERUS ALEXANDER	denom: DEN		Obv IMP SEV ALEXAND AVG
date: 228-31	mint: RM	cat: 187	Rev ANNONA AVG
diam: 18.0mm	wt: 1.9g	die axis: 6	wear: W/SW
688 SEVERUS ALEXANDER	denom: DEN		Obv IMP SEV ALEXAND AVG
date: 228-31	mint: RM	cat: 196	Rev FORTUNAE REDVCI
diam: 18.0mm	wt: 2.9g	die axis: 1	wear: W/W
689 SEVERUS ALEXANDER	denom: DEN		Obv IMP SEV ALEXAND AVG
date: 230	mint: RM	cat: 101	Rev PM TRP VIII COS III PP
diam: -	wt: -	die axis: -	wear: SW/SW
690 SEVERUS ALEXANDER	denom: DEN		Obv IMP ALEXANDER PIVS AVG
date: 231-35	mint: RM	cat: 250	Rev PROVIDENTIA AVG
diam: -	wt: -	die axis: -	wear: SW/SW
691 SEVERUS ALEXANDER	denom: DEN		Obv IMP SEV ALEXAND AVG
date: 233-35	mint: RM	cat: 169	Rev PERPETVITATI AVG
diam: 20.0mm	wt: 2.6g	die axis: 6	wear: SW/SW
692 'SEVERUS ALEXANDER'	denom: DENpl		Obv
date: 224+	mint: -	cat: c of ?	Rev VESTA
diam: 19.0mm	wt: -	die axis: -	wear: NSU/-
693 JULIA MAMAEA	denom: DEN		Obv IVLIA MAMAEA AVG
date: 222-35	mint: -	cat: Sev Alex. 360	Rev VESTA
diam: 15.5mm	wt: 0.8g	die axis: 7	wear: SW/SW
694 JULIA MAMAEA	denom: DEN		Obv IVLIA MAMAEA AVG
date: 222-35	mint: -	cat: Sev Alex. 335	Rev FELICITAS PVBLICA
diam: 18.5mm	wt: 1.8g	die axis: 1	wear: W/W
695 JULIA MAMAEA	denom: DEN		Obv IVLIA MAMAEA
date: 222-35	mint: -	cat: Sev. Alex. 343	Rev IVNO CONSERVATRIX
diam: 18.5mm	wt: 2.4g	die axis: 1	wear: SW/W
696 MAXIMINUS I	denom: DEN		Obv IMP MAXIMINVS PIVS AVG
date: 236	mint: RM	cat: 3	Rev PM TRP II COS PP
diam: -	wt: -	die axis: -	wear: -
697 PHILIP I	denom: ANT		Obv [IMP M IV]L PHILIPPVS [AVG]
date: 245	mint: RM	cat: 2b	Rev [PM] TRP II C[OS PP]
diam: 22.0mm	wt: 2.4g	die axis: 12	wear: W/W

698 OTACILIA SEVERA	denom: ANT		Obv M OTACIL SEVERA AVG
date: 244–49	mint: –	cat: Philip I 138	Rev AEQUITAS AVGG
diam: 20.5mm	wt: 2.1g	die axis: 12	wear: W/W
699 VALERIAN I	denom: ANT		Obv IMP VALERIAN[VS P F AVG]
date: 253–59	mint: ME	cat: 246	Rev PIETAS A[VGG]
diam: 18.5mm	wt: 1.5g	die axis: 12?	wear: SW/SW
700 VALERIAN I	denom: ANT		Obv [IMP VALERIANVS AVG]
date: 253–59	mint: –	cat: 107	Rev [OR]IEN[S AVGG]
diam: 16.5mm	wt: 1.0g	die axis: 12	wear: W/W
701 VALERIAN I	denom: ANT		Obv –
date: 253–60	mint: –	cat: –	Rev –
diam: –	wt: –	die axis: –	wear: –
702 VALERIAN I	denom: ANT		Obv VALER[IANVS] P F AVG
date: 258–59	mint: LG	cat: 12	Rev ORI[ENS AVGG]
diam: 22.0mm	wt: 1.9g	die axis: 12	wear: W/W
703 VALERIAN I	denom: ANT		Obv VALERIANVS P F AVG
date: 258–59	mint: LG	cat: 12	Rev ORIENS AVGG
diam: –	wt: –	die axis: –	wear: –
704 VALERIAN II	denom: ANT		Obv VALERIANVS CAES
date: 253–55	mint: LG	cat: 3	Rev IOVI CRESCENTI
diam: –	wt: –	die axis: –	wear: SW/SW
705 GALLIENUS	denom: ANT		Obv –
date: 253–68	mint: –	cat: –	Rev –
diam: –	wt: –	die axis: –	wear: –
706 GALLIENUS	denom: ANT		Obv [..GA]LLIENVS P F AVG
date: 258–68	mint: –	cat: –	Rev –
diam: 20.5mm	wt: 1.6g	die axis: –	wear: ?W/C
707 GALLIENUS	denom: ANT		Obv GALLIENVS AVG
date: 258–68	mint: RM	cat: 160	Rev AETERN[ITAS AVGG]
diam: 18.5mm	wt: 1.8g	die axis: 12	wear: W/C
708 GALLIENUS	denom: ANT		Obv GALLIENVS AVG
date: 258–68	mint: RM	cat: 161	Rev ANNONA AVG
diam: –	wt: –	die axis: –	wear: –
709 GALLIENUS	denom: ANT		Obv GALLIENVS AVG
date: 258–68	mint: RM	cat: 157	Rev ABVNDANTIA AVG
diam: –	wt: –	die axis: –	wear: –
710 GALLIENUS	denom: ANT		Obv IMP GALLIENVS AVG
date: 258–68	mint: RM	cat: 287	Rev VBERITAS AVG
diam: –	wt: –	die axis: –	wear: –
711 GALLIENUS	denom: ANT		Obv IMP GALLIENVS AVG
date: 258–68	mint: RM	cat: 287	Rev VBERTAS AVG
diam: –	wt: –	die axis: –	wear: –
712 GALLIENUS	denom: ANT		Obv –
date: 258–68	mint: –	cat: –	Rev –
diam: 19.0mm	wt: 1.3g	die axis: –	wear: C/C
713 GALLIENUS	denom: ANT		Obv IMP GALLIENVS AVG
date: 258–68	mint: RM XI	cat: 213	Rev IOVI PROPVGNAT
diam: –	wt: –	die axis: –	wear: SW/SW
714 GALLIENUS	denom: ANT		Obv GALLIENVS AVG
date: 258–68	mint: RM	cat: 280	Rev SECVRIT PERPET
diam: –	wt: –	die axis: –	wear: SW/SW
715 GALLIENUS	denom: ANT		Obv GALLIENVS AVG
date: 258–68	mint: RM	cat: 157	Rev ABVNDANTIA AVG
diam: –	wt: –	die axis: –	wear: SW/SW
716 SALONINA	denom: ANT		Obv SALONINA AVG
date: 258–68	mint: RM VI	cat: 31	Rev VENVS VICTRIX
diam: 20.5mm	wt: 1.9g	die axis: 6	wear: W/W
717 CLAUDIUS II	denom: ANT		Obv IMP C CLAVDIVS AVG
date: 268–70	mint: RM	cat: –	RevAVG
diam: 18.5mm	wt: 0.7g	die axis: 6	wear: SW/SW
718 CLAUDIUS II	denom: ANT		Obv IMP CLAVDIVS AVG
date: 268–70	mint: RM	cat: 49	Rev GENIVS EXERCI
diam: –	wt: –	die axis: –	wear: –
719 CLAUDIUS II	denom: ANT		Obv IMP CLAVDIVS AVG
date: 268–70	mint: RM	cat: 56	Rev LAETITIA AVG
diam: –	wt: –	die axis: –	wear: –

720 CLAUDIUS II date: 268–70 diam: 21.0mm	denom: ANT mint: ME P wt: 3.5g	cat: 144 die axis: 6	Obv IMP CLAVDIVS AVG Rev DIANA LVCIF wear: SW/SW
721 CLAUDIUS II date: 268–70 diam: –	denom: ANT mint: RM wt: –	cat: 88 die axis: –	Obv [IMP CLAVDIVS AVG] Rev PROVID AVG wear: –
722 CLAUDIUS II date: 268–70 diam: 20.5mm	denom: ANT mint: – wt: 2.2g	cat: as 109 die axis: 6	Obv [IMP C] CLAVD[IVS AVG] Rev [VIRTV]S AVG (struck off-centre) wear: W/W
723 CLAUDIUS II date: 268–70 diam: –	denom: ANT mint: ME – wt: –	cat: 167 die axis: –	Obv IMP C CLAVDIVS P F AVG Rev SALVS AVG wear: –
724 CLAUDIUS II date: 268–70 diam: 19.0mm	denom: ANT mint: – wt: 0.9g	cat: – die axis: –	ObvCLAVD[IVS...] Rev – wear: SW/SW
725 CLAUDIUS II date: 268–70 diam: 17.5mm	denom: ANT mint: – wt: 0.6g	cat: – die axis: –	Obv – Rev – wear: SW/C
726 CLAUDIUS II date: 268–70 diam: –	denom: ANT mint: RM wt: –	cat: 87 die axis: –	Obv IMP CLAVDIVS AVG Rev PROVID AVG wear: –
727 CLAUDIUS II date: 268–70 diam: –	denom: ANT mint: RM wt: –	cat: 91/2 die axis: –	Obv IMP [C] CLAVDIVS AVG Rev PROVIDENTIA AVG wear: –
728 'CLAUDIUS II' date: 268+ diam: 17.5mm	denom: ANT mint: – wt: 2.6g	cat: – die axis: –	Obv – Rev – wear: ?W/W
729 CLAUDIUS II, POSTH date: 270 diam: –	denom: ANT mint: – wt: –	cat: 261 die axis: –	Obv DIVO CLAVDIO Rev CONSECRATIO Altar wear: –
730 'CLAUDIUS II, POSTH' date: 270+ diam: 14.5mm	denom: ANT mint: – wt: 0.8g	cat: 261 die axis: –	Obv [DIVO CLAVDIO] Rev [CONSECRATIO] Altar wear: C/W
731 POSTUMUS date: 260 diam: 19.5mm	denom: ANT mint: – wt: 1.9g	cat: E 129 die axis: 6	Obv IMP C POSTUMUS P F AVG Rev PM TRP COS II PP wear: SW/W
732 POSTUMUS date: 260 diam: –	denom: ANT mint: – wt: –	cat: E 123 die axis: –	Obv IMP C POSTVMVS P F AVG Rev SALVS PROVINCIARVM wear: UW/UW
733 POSTUMUS date: 260–68 diam: –	denom: ANT mint: LG wt: –	cat: 78 die axis: –	Obv IMP C POSTVMVS P F AVG Rev PAX AVG wear: –
734 POSTUMUS date: 260–68 diam: 20.0mm	denom: ANT mint: LG wt: 1.5g	cat: 83 die axis: 6	Obv [IMP C POS]TVMVS P F AVG Rev [SA]ECVLI FELI[CITAS] wear: SW/SW
735 POSTUMUS date: 262 diam: –	denom: ANT mint: – wt: –	cat: E 336 die axis: –	Obv IMP C POSTVMVS P F AVG Rev MONETA AVG wear: –
736 VICTORINUS date: 268–70 diam: 19.0mm	denom: ANT mint: – wt: 1.4g	cat: – die axis: 6?	Obv IMP C VICT[ORINVS...AVG] Rev – wear: SW/C
737 probably VICTORINUS date: 268–70 diam: –	denom: ANT mint: – wt: –	cat: – die axis: –	Obv – Rev – wear: –
738 VICTORINUS date: 268–70 diam: –	denom: ANT mint: – wt: –	cat: – die axis: –	Obv – Rev – wear: –
739 VICTORINUS date: 268–70 diam: –	denom: ANT mint: – wt: –	cat: 115 die axis: –	Obv IMP VICTORINVS P F AVG Rev ORIENS AVG wear: –
740 VICTORINUS date: 268–70 diam: –	denom: ANT mint: – wt: –	cat: E 744 die axis: –	Obv IMP C VICTORINVS P F AVG Rev VICTORIA AVG wear: –
741 VICTORINUS date: 268–70 diam: –	denom: ANT mint: – wt: –	cat: E 732/3 die axis: –	Obv IMP C VICTORINVS P F AVG Rev SALVS AVG wear: –

742 VICTORINUS date: 268–70 diam: –	denom: ANT mint: – wt: –	cat: E 684 die axis: –	Obv IMP C VICTORINVS P F AVG Rev FIDES MILITVM wear: –
743 VICTORINUS date: 268–70 diam: –	denom: ANT mint: – wt: –	cat: E 682 die axis: –	Obv IMP C VICTORINVS P F AVG Rev PAX AVG wear: SW/SW
744 VICTORINUS date: 268–70 diam: –	denom: ANT mint: – wt: –	cat: E 741 die axis: –	Obv IMP C VICTORINVS P F AVG Rev PIETAS AVG wear: SW/SW
745 ‘VICTORINUS’ date: 270+ diam: 17.5mm	denom: ANT mint: – wt: 1.2g	cat: c as – die axis: 6	Obv IIVIC..... Rev ...OTV...VICT wear: W/W
746 VICTORINUS/ TETRICUS I date: 268–73 diam: 16.0mm	denom: ANT mint: – wt: 0.7g	cat: – die axis: 8?	Obv – Rev – wear: W/C
747 TETRICUS I date: 270–73 diam: –	denom: ANT mint: – wt: –	cat: 82 die axis: –	Obv IMP C T[ETRICVS P F AVG] Rev INVICTVS wear: –
748 TETRICUS I date: 270–73 diam: 18.5mm	denom: ANT mint: – wt: 1.9g	cat: E as 746 die axis: 6	Obv IMP C TETRICVS P F AVG Rev SPES [PVBLICA] wear: SW/SW
749 TETRICUS I date: 270–73 diam: –	denom: ANT mint: – wt: –	cat: 109 die axis: –	Obv IMP C [TETRICVS P AVG] Rev PIETAS AVG wear: –
750 TETRICUS I date: 270–73 diam: –	denom: ANT mint: – wt: –	cat: – die axis: –	Obv – Rev – wear: –
751 TETRICUS I date: 270–73 diam: 14.5mm	denom: ANT mint: – wt: 1.3g	cat: as 141 die axis: 12	Obv – Rev [VICTORIA AVG] wear: W/W
752 TETRICUS I date: 270–73 diam: 16.5mm	denom: ANT mint: – wt: 1.7g	cat: as E 769 die axis: 6	Obv – Rev [SPES....] wear: W/W
753 TETRICUS I date: 270–73 diam: –	denom: ANT mint: – wt: –	cat: E 787 die axis: –	Obv IMP T[ETRICVS P F AVG] Rev [LAETITIA AVGG] wear: –
754 TETRICUS I date: 270–73 diam: 18.5mm	denom: ANT mint: – wt: 0.8g	cat: as E 772 die axis: 6?	Obv – Rev SALVS AVG wear: C/?SW
755 TETRICUS I date: 270–73 diam: 15.5mm	denom: ANT mint: – wt: 1.3g	cat: E771/5 die axis: 1	Obv – Rev Pax? wear: SW/SW
756 ‘TETRICUS I’ date: 273+ diam: 16.0mm	denom: ANT mint: – wt: 2.0g	cat: c of E 776 die axis: 6	Obv [IMP C TETRICVS P F] AVG Rev [SALVS AVG] wear: W/W
757 ‘TETRICUS I’ date: 273+ diam: 16.0mm	denom: ANT mint: – wt: 2.1g	cat: c of E 788 die axis: –	Obv [IMP TETRICVS P F AVG] Rev [SALVS AVGG] wear: W/W
758 ‘TETRICUS I’ date: 273+ diam: 13.5mm	denom: ANT mint: – wt: 0.6g	cat: c as 110 die axis: 4	Obv Head of Tetricus I Rev [PIETAS AVG..] Pontifical implements wear: SW/W
759 ‘TETRICUS I’ date: 273+ diam: 15.0mm	denom: ANT mint: – wt: 1.7g	cat: c as 100, E771/5 die axis: 6	Obv ...RICVS PVVIC Rev ?Pax stg. 1. wear: SW/SW
760 ‘TETRICUS I’ date: 273+ diam: –	denom: ANT mint: – wt: –	cat: c as 100, E771/5 die axis: –	Obv – Rev [PAX AVG] wear: EW/C
761 ‘TETRICUS I’ date: 273+ diam: 15.5mm	denom: ANT mint: – wt: 2.1g	cat: c of 100, E 771/5 die axis: 5	Obv – Rev Pax, hldg vertical sceptre wear: W/W
762 ‘TETRICUS I’ date: 273+ diam: 16.0mm	denom: ANT mint: – wt: 1.4g	cat: c as 110 die axis: 11	Obv Head of Tetricus I Rev Pontifical implements wear: ?W/W
763 TETRICUS II date: 270–73	denom: ANT mint: –	cat: 238	Obv C PIV ESV TETRICVS CAES Rev LAETITIA AVG

diam: –	wt: –	die axis: –	wear: –
764 TETRICUS II	denom: ANT		Obv [C PIV ESV TETRICVS CAES]
date: 270–73	mint: –	cat: E 769	Rev SPES PVBLICA
diam: –	wt: –	die axis: –	wear: –
765 TETRICUS II	denom: ANT		Obv C PIV ES TETRICVS CAES
date: 270–73	mint: –	cat: 264	Rev SALVS AVG
diam: –	wt: –	die axis: –	wear: –
766 TETRICUS II	denom: ANT		Obv –
date: 270–73	mint: –	cat: –	Rev –
diam: –	wt: –	die axis: –	wear: –
767 TETRICUS II	denom: ANT		Obv [C PIV] ESV TETR[ICVS CAES]
date: 270–73	mint: –	cat: E 769	Rev SPES [PVBLICA]
diam: 17.0mm	wt: 0.9g	die axis: 6	wear: SW/SW
768 TETRICUS II	denom: ANT		Obv C PIV ESV TETRICVS CAES
date: 270–73	mint: –	cat: E 778	Rev PIETAS AVGVSTOR
diam: –	wt: –	die axis: –	wear: –
769 'TETRICUS II'	denom: ANT		Obv [C PIV ES]V TETRICVS [CAES]
date: 273+	mint: –	cat: c as E 778	Rev [PIETAS AVG...] Pontifical implements
diam: 15.0mm	wt: 1.3g	die axis: 3	wear: W/W
770 RADIATE	denom: ANT		Obv –
date: 260–73+	mint: –	cat: –	Rev –
diam: 16.0mm	wt: 1.6g	die axis: 12?	wear: C/C
771 RADIATE	denom: ANT		Obv –
date: 260–73+	mint: –	cat: –	Rev –
diam: 18.5mm	wt: 2.1g	die axis: 12	wear: ?W/W
772 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: –	Rev –
diam: 9.5mm	wt: 0.4g	die axis: –	wear: W/W
773 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: –	Rev –
diam: 10.0mm	wt: 0.5g	die axis: –	wear: C/C
774 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: –	Rev –
diam: 12.5mm	wt: 0.7g	die axis: –	wear: C/C
775 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: –	Rev –
diam: 14.0mm	wt: 0.6g	die axis: –	wear: C/C
776 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: –	Rev –
diam: 12.0mm	wt: 0.5g	die axis: –	wear: C/C
777 RADIATE COPY	denom: ANT		Obv –
date: 273+	mint: –	cat: –	Rev –
diam: –	wt: –	die axis: –	wear: –
778 CONSTANTINE I	denom: –		Obv IMP CONSTANTINVS....
date: 313–18	mint: –	cat: as 7LN5	Rev [SOLI INVIC–TO COMITI]
diam: 17.0mm	wt: 0.5g	die axis: –	wear: W/W
779 HOUSE OF CONSTANTINE	denom: –		Obv –
date: 318–19	mint: –	cat: as 7TR209	Rev [VICTORIAE LAETAE PRINC PERP VOT/PR]
diam: 18.5mm	wt: 1.7g	die axis: 6	wear: ?SW/C
780 CONSTANTINE I	denom: –		Obv IMP CONST[ANT]INVS MAX AVG
date: 318–19	mint: –	cat: as 7TR209	Rev VICTORIAE LAETAE PRINC PERP VOT/PR
diam: 18.0mm	wt: 1.6g	die axis: 6	wear: SW/SW
781 CONSTANTINE I	denom: –		Obv IMP CONSTANTINVS AVG
date: 319–20	mint: LN P	cat: 7LN158	Rev VICTORIAE LAETAE PRINC PERP VOT/PR
diam: –	wt: –	die axis: –	wear: SW/SW
782 CONSTANTINE I	denom: –		Obv IMP CONSTANT–[INVS....]
date: 319–20	mint: –	cat: as 7LN154	Rev VIC[TORIA LAETAE] PRINC PERP
diam: 15.5mm	wt: 1.1g	die axis: 6	wear: W/W
783 CONSTANTINE I	denom: –		Obv CONSTAN–TINVS AVG
date: 322–23	mint: LG S	cat: 7LG256	Rev BEATA TRANQUILLITAS VOT/IS/XX
diam: 21.0mm	wt: 1.8g	die axis: 11	wear: W/SW
784 CONSTANTINE I	denom: –		Obv CONST[AN–TIN]VS AVG
date: 323–24	mint: –	cat: as 7LG209	Rev [SARM]AT[IA DE]VI[CTA]
diam: 18.5mm	wt: 1.3g	die axis: 6	wear: UW/UW
785 CONSTANTINE I	denom: –		Obv [CONSTANTINOPOLIS]

	date: 330–31 diam: 16.0mm	mint: LG P wt: 1.1g	cat: 7LG241, HK185 die axis: 1	Rev Victory on prow wear: SW/SW
786 CONSTANTINE I	date: 330–35 diam: –	denom: – mint: – wt: –	cat: – die axis: –	Obv – Rev [GLORIA EXERCITVS] 2 stds wear: –
787 HOUSE OF CONSTANTINE	date: 330–35 diam: 15.5mm	denom: – mint: – wt: 1.3g	cat: – die axis: 6	Obv – Rev [GLORIA EXERCITUS] 2 stds wear: ?SW/SW
788 CONSTANTINE I	date: 333 diam: 17.0mm	denom: – mint: AR wt: 1.3g	cat: 7AR373, HK376 die axis: 6	Obv [VRBS–ROMA] Rev Wolf and twins wear: ?W/W
789 ‘CONSTANTINE II, CAESAR’	date: 341–46 diam: 16.0mm	denom: – mint: ‘LG’ ‘P’ wt: 1.6g	cat: c of 7LG238 die axis: 6	Obv CONIIIIIIIIINVZ IVNONC (sic) Rev [GLOR]IA IIXIR–IIVS (sic) PLG wear: W/W
790 CONSTANTINUS II/ CONSTANS	date: 348–50? diam: –	denom: – mint: – wt: –	cat: – die axis: –	Obv – Rev ?[FEL TEMP REPARATIO] wear: C/C
791 ILLEGIBLE	date: C1–3 diam: –	denom: DEN mint: – wt: –	cat: – die axis: –	Obv – Rev – wear: C/C
792 ILLEGIBLE FRAGS	date: C1–3 diam: 17.0mm	denom: DEN mint: – wt: 0.8g	cat: – die axis: –	Obv – Rev – wear: C/C
793 ILLEGIBLE	date: C1/2 diam: 24.5mm	denom: AS mint: – wt: 3.5g	cat: – die axis: –	Obv – Rev – wear: C/C
794 ILLEGIBLE	date: C1/2 diam: 26.0mm	denom: AS mint: – wt: 5.7g	cat: – die axis: –	Obv – Rev – wear: C/C
795 ILLEGIBLE	date: C2/3 diam: –	denom: DEN mint: – wt: –	cat: – die axis: –	Obv – Rev – wear: C/C
796 ILLEGIBLE	date: C3/4 diam: 14.5mm	denom: – mint: – wt: 0.8g	cat: – die axis: –	Obv – Rev – wear: C/C
797 ILLEGIBLE FRAG	date: C3/4th diam: 10.0mm	denom: – mint: – wt: 0.2g	cat: – die axis: –	Obv – Rev – wear: C/C
798 ILLEGIBLE, NOT A COIN?	date: – diam: –	denom: – mint: – wt: 0.8g	cat: – die axis: –	Obv – Rev – wear: –
799 CHARLES I (3rd issue)	date: 1642–50 diam: 18.0mm	mint: – wt: 1.2g	cat: – die axis: –	Obv [CAR D G SCOT ANG FRA ET HIB R] Crowned CR, II to r Rev [NEMO ME IMPVNE LACESSIT] Thistle wear: W/W

Housesteads *vicus*: Chapel Hill and *mithraeum*

800 M ANTONIUS	date: BC32–31 diam: 18.5mm	denom: DEN mint: – wt: 2.8g	cat: CR 544/8 etc die axis: –	Obv [M ANT] III VIR RPC Galley Rev [LEG ...] wear: EW/EW
801 MARCUS AURELIUS/ COMMODOUS	date: 161–92 diam: 26.0mm	denom: AS mint: – wt: 7.8g	cat: – die axis: –	Obv Head of Aurelius or Commodus, r Rev – wear: C/C
802 CLODIUS ALBINUS	date: 193–95 diam: –	denom: AS mint: LG wt: –	cat: 64 die axis: –	Obv IMP CAE[S D CLO] SEP ALB AVG Rev FORTVN[AE REDVCI COS] II wear: –
803 MARCUS AURELIUS	date: 193–211 diam: 30.0mm	denom: SEST mint: – wt: 12.7g	cat: – die axis: –	Obv [IMP CAES M AVR]EL – [ANTONINVS AVG...] Rev – wear: C/C

804 ILLEGIBLE	denom: AS		Obv –
date: C1–3	mint: –	cat: –	Rev –
diam: 25.0mm	wt: 5.0g	die axis: –	wear: C/C
805 FAUSTINA II (M AURELIUS)	denom: AS		Obv [FAVSTI]NA A[VGVSTA]
date: 161–75	mint: RM	cat: M Aurel as 1639	Rev ?[FECVNDITA]S SC Female fig stg r, both hands raised
diam: 29.5mm	wt: 10.0g	die axis: –	wear: VW/VW
806 COMMODUS	denom: DEN		Obv M COMM ANT P FEL AVG BR[IT] Head laur, r
date: 186/87	mint: RM	cat: 146	Rev [A]VCT PIET PM TRP XII IMP VIII COS V PP Pietas stg. l
diam: –	wt: –	die axis: –	wear: –
807 SEPTIMIUS SEVERUS	denom: SEST		Obv Head laur, r.
date: 193–211	mint: –	cat: 667/672	Rev [...] SC Victory hastening r, hldg wreath and palm
diam: 29.5mm	wt: 25.4g	die axis: 12	wear: VW/VW
808 GETA CAESAR	denom: DEN		Obv P SEPT GETA CAES PONT
date: 200–02	mint: RM	cat: 18	Rev PRINC IVVENTVTIS
diam: –	wt: –	die axis: –	wear: –
809 TRAJAN DECIUS	denom: ANT		Obv IMP TRAIANVS DECIVS AVG
date: 249	mint: RM	cat: 1b	Rev ADVENTVS AVG Decius mounted, l
diam: –	wt: –	die axis: –	wear: –
810 CLAUDIUS II	denom: ANT		Obv I[MP] CL[AVD]IVS [P F] AVG
date: 268–70	mint: ME	cat: 171	Rev VICTO[RIA AVG]
diam: 18.0mm	wt: 1.8g	die axis: 12	wear: SW/SW
811 CLAUDIUS II	denom: ANT		Obv IMP C CLAVDIVS AVG
date: 268–70	mint: RM H	cat: 66	Rev MARS VLTOR Mars walking r
diam: 19.5mm	wt: 1.5g	die axis: 12	wear: W/W
812 CONSTANTINE I	denom: –		Obv [CONSTANTINVS P AVG]
date: 316–17	mint: –	cat: as 7LN92	Rev [SOLI INVIC]–TO COMITI
diam: 16.5mm	wt: 1.4g	die axis: 6	wear: ?W/W
813 VESPASIAN	denom: DEN		Obv IMP CAESAR VESPASIANVS AVG
date: 76	mint: RM –	cat: 87 var COS VII	Rev COS VII Bull butting r
diam: –	wt: –	die axis: –	wear: –
814 JULIA MAMAEA	denom: DEN		Obv IVLIA MAMAEA AVG
date: 222–35	mint: –	cat: Sev Alex 360	Rev VESTA
diam: –	wt: –	die axis: –	wear: –
815 TRAJAN	denom: SEST		Obv [IMP CAES NERVAE TRAIANO AVG GER DAC PM TRP COS V PP]
date: 103–11	mint: RM –	cat: as 478	Rev [SPQR OPTIMO PRINCIPI SC]
diam: 31.0mm	wt: 12.4g	die axis: 6	wear: VW/VW
816 FAUSTINA II, POSTH	denom: DEN		Obv DIVA FAVSTINA PIA
date: 176–80	mint: –	cat: M. Aurelius 744	Rev CONSECRATIO Peacock
diam: –	wt: –	die axis: –	wear: –
817 TETRICUS I	denom: ANT		Obv MTE...
date: 273+	mint: –	cat: c as E 789	Rev [HILARITAS AVGG]
diam: 16.5mm	wt: 2.0g	die axis: 5	wear: SW/SW

Housesteads fort

No.	find date	site	context	feature	SF no.	store no.	status	reference
1	1978–79	H20	08	063	8383	F.1	P	–
2	1960	H14	–	–	1	F.3	PA	AA4, 39, 1961, 298, no. 1
3	1864	–	Found at Borcovicus	–	–	F.2	PA	AA2, 6, 1865, J Clayton
4	1898	–	–	–	H	F.4	B	–
5	1974–77	H13	02	023	3217	F.8	P	–
6	1978–79	H20	06	074	8502	F.5	P	–
7	1978–79	H20	05	010	5909	F.6	P	–
8	1967–68	H12	03 SE corner, u/s	–	–	F.7	NT	(Not in AA5, 3, 1975)
9	1898	–	–	–	U	F.10	B	–
10	1898	–	–	–	G	F.9	B	–
11	1971	H9	S range, u/s	–	1	F.11	NT	AA5, 4, 1976, 30, no. 1
12	1974–77	H13	10	031	3049	F.12	P	–
13	1981	H15	01	004	9265	F.13	P	–

<i>No.</i>	<i>find date</i>	<i>site</i>	<i>context</i>	<i>feature</i>	<i>SF no.</i>	<i>store no.</i>	<i>status</i>	<i>reference</i>
14	1898	—	—	—	N	F.14	B	—
15	1970	H9	E range	—	—	F.15	NT	(Not in AA5, 4, 1976)
16	1974–77	H13	01	100	3429	F.16	P	—
17	1967–68	H12	09 latrine drain	—	1	F.17	NT	AA5, 3, 1975, 42, no. 1
18	1898	—	—	—	Q	F.18	B	—
19	1898	—	—	—	K	F.20	B	—
20	1898	—	—	—	I	F.21	B	—
21	1898	—	—	—	20	F.19	B	—
22	1898	H10	12	—	—	F.21a	BA	AA2, 25, 1904, 297
23	1911	H23	latrine pit, on flagged floor	—	—	F.36	PA	Simpson, F, 1976, 138
24	1974–77	H13	09	011	1603	F.31	P	—
25	1971	H9	S wall	—	2	F.34	NT	AA5, 4, 1976, 30, no. 2
26	1898	—	—	—	F	F.35	B	—
27	1898	—	—	—	T	F.39	B	—
28	1898	—	—	—	L	F.37	B	—
29	1959	H14	period 1 below period 2 wall	—	2	F.38	PA	AA4, 38, 1960, 70, no. 2
30	1960	H14	—	—	2	F.32	PA	AA4, 39, 1961, 298, no. 2
31	1898	—	—	—	91	F.33	B	—
32	1898	—	SE III	—	49	F.110	B	—
33	1898	—	—	—	X	F.40	B	—
34	1898	—	—	—	119	F.24	B	—
35	1898	—	—	—	A	F.23	B	—
36	1959	H14	period 1, below stone hearth	—	1	F.25	PA	AA4, 38, 1960, 70, no. 1
37	1974–77	H13	10	000	454	F.27	P	—
38	1898	—	—	—	R	F.26	B	—
39	1898	—	—	—	AI	F.30	B	AA2, 25, 1904, 297
40	1898	—	N central, near boulder	—	69	F.29	B	—
41	1911	H23	latrine pit, on flagged floor	—	—	F.43	PA	Simpson, F, 1976, 138
42	1959	H14	period 1 below period 2 wall	—	3	F.41	PA	AA4, 38, 1960, 70, no. 3
43	1898	—	—	—	61	F.44	B	—
44	1898	—	—	—	M	F.59a	B	—
45	1898	—	—	—	AE	F.45	B	—
46	1959	H14	period 1 below period 2 wall	—	4	F.46	PA	AA4, 38, 1960, 70, no. 4
47	1980–81	H21	02	006	8536	F.47	P	—
48	1980–81	H21	04	036	8654	F.48	P	—
49	1974–77	H13	01	242	9555	F.49	P	—
50	—	H10	u/s	—	—	F.50	*	—
51	—	H—	u/s	—	—	F.59	NT	—
52	1974–77	H13	04	003	486	F.58	P	—
53	1898	—	—	—	Z	F.124	B	—
54	1898	H 1	—	—	—	F.53	BA	AA2, 25, 1904, 297
55	1978–79	H20	08	034	7737	F.55	P	—
56	1969–73	H 9	03 under cobble floor	—	3	F.52	NT	AA5, 4, 1976, 30, no. 3
57	1969–73	H 9	07 below offset course	—	4	F.57	NT	AA5, 4, 1976, 30, no. 4
58	1898	H 6	u/s, in surface soil	—	—	F.53a	BA	AA2, 25, 1904, 297
59	1898	—	—	—	AF	F.51	B	—
60	1898	—	NW III, on paved floor	—	117	F.56	B	—
61	1974–77	H13	11	014	3127	F.54	P	—
62	1962	H14/15	barracks (5.4.1962, J Foster)	—	6?	F.491a	P	—
63	1984	H20	10 berm deposit, period 2	034	20	F.60	C	AA5, 16, 1988, 75
64	1974–77	H13	02	008	2945	F.61	P	—
65	1981	H14	06	004	9501	F.62	P	—
66	1968	H12	08	—	3	F.63	NT	AA5, 3, 1975, 42, no. 3
67	—	H10	u/s	—	—	F.64	*	—
68	1978–79	H20	04	010	5361	F.65	P	—
69	1961	H15	—	—	1	F.69	PA	AA4, 40, 1962, 96, no. 1
70	1968	H12	09 latrine drain	—	5	F.70	NT	AA5, 3, 1975, 42, no. 5
71	1898	H10	12	—	70	F.68	B	AA2, 25, 1904, 298 (probably)
72	1968	H12	09 latrine drain	—	4	F.67	NT	AA5, 3, 1975, 42, no. 4
73	1974–77	H13	07	000	586	F.492	P	—
74	1969–73	H 9	05 below bench level	—	5	F.71	NT	AA5, 4, 1976, 30, no. 5
75	1971	H 9	S range topsoil, W end	—	6	F.78	NT	AA5, 4, 1976, 30, no. 6
76	1974–77	H13	08	000	225	F.72	P	—
77	1898	—	—	—	—	F.73	*	—

<i>No.</i>	<i>find date</i>	<i>site</i>	<i>context</i>	<i>feature</i>	<i>SF no.</i>	<i>store no.</i>	<i>status</i>	<i>reference</i>
78	—	H—	u/s	—	—	F.74	NT	—
79	1967–68	H12	courtyard on flags	—	2	F.75	NT	AA5, 3, 1975, 42, no. 2
80	1964	—	—	—	—	F.76	NT	—
81	1898	—	—	—	B	F.77	B	—
82	1898	—	—	—	—	F.78a	BA	AA2, 25, 1904, 298
83	1978–79	H20	08	008	8318	F.80	P	—
84	1960	H14	—	—	4	F.82	PA	AA4, 39, 1961, 298, no. 4
85	1968	H12	09 latrine drain	—	7	F.81	NT	AA5, 3, 1975, 42, no. 7
86	1967–68	H12	09 latrine drain	—	6	F.84	NT	AA5, 3, 1975, 42, no. 6
87	1974–77	H13	01	080	3201	F.79	P	—
88	1960	H14	—	—	5	F.86	PA	AA4, 39, 1961, 298, no. 5
89	1898	—	—	—	AB	F.85	B	—
90	1898	—	—	—	AC	F.87	B	—
91	1974–77	H13	04	003	487	F.88	P	—
92	1974–77	H13	10	000	1044	F.89	P	—
93	1974–77	H13	01	059	2723	F.91	P	—
94	1898	—	—	—	P	F.94	B	—
95	1898	—	outside SE tower	—	64	F.92	B	—
96	1974–77	H13	11	014	3457	F.93	P	—
97	1898	—	—	—	D	F.95	B	—
98	1898	H 3	—	—	—	F.95a	BA	AA2, 25, 1904, 298
99	1911	H23	latrine pit 10" above floor	—	—	F.96	PA	Simpson, F, 1976, 138
100	1898	H10	02 at higher floor level	—	—	F.98a	BA	AA2, 25, 1904, 298
101	1978–79	H20	05	030	6238	F.99	P	—
102	1898	—	—	—	V	F.106a	B	—
103	1898	—	—	—	AD	F.102	B	—
104	1984	H20	10 late rampart slump period 3	009	3	F.105	C	AA5, 16, 1988, 75
105	1960	H14	—	—	6	F.106	PA	AA4, 39, 1961, 298, no. 6
106	1974–77	H13	07	016	2224	F.100	P	—
107	1978–79	H20	04	016	6263	F.101	P	—
108	1978–79	H20	05	028	6044	F.103	P	—
109	1898	—	—	—	53	F.108	B	—
110	1984	H20	10 berm deposit, period 3	015	6	F.107	C	AA5, 16, 1988, 75
111	1978–79	H20	07	000	5209	F.109	P	—
112	1974–77	H13	06	005	1041	F.111	P	—
113	1974–77	H13	03	880	9556	F.113	P	—
114	1984	H20	10 late rampart slump period 3	009	4	F.115a	C	AA5, 16, 1988,
115	1898	H10	10 under latest floor	—	—	F.115b	BA	AA2, 25, 1904, 298
116	1978–79	H20	09	001	7485	F.115	P	—
117	1974–77	H13	01	022	1872	F.112	P	—
118	1978–79	H20	06	018	6118	F.116	P	—
119	1969–73	H 9	12 in drain	—	7	F.118	NT	AA5, 4, 1976, 30, no. 7
120	1968	H12	08 latrine fill	—	8	F.119	NT	AA5, 3, 1975, 42, no. 8
121	1980–81	H21	04	053	9523	F.122	P	—
122	1959	H14	period 2 below period 3 bench	—	7	F.120	PA	AA4, 38, 1960, 70, no. 7
123	1981	H14	03	001	9281	F.121	P	—
124	1974–77	H13	06	005	1091	F.123	P	—
125	1898	H15	—	—	—	F.125b	BA	AA2, 25, 1904, 298
126	1898	H15	—	—	19	F.125	B	—
127	1898	H16	—	—	—	F.125a	BA	AA2, 25, 1904, 298
128	1980–81	H21	03	047	8671	F.126	P	—
129	1978–79	H20	01	002	5885	F.497	P	—
130	1961	H15	—	—	2	F.127	PA	AA4, 40, 1962, 96, no. 2
131	1898	—	NE above drain N of cistern	—	44	F.129	B	AA2, 25, 1904, 298
132	1898	—	—	—	60	F.132	B	AA2, 25, 1904, 298
133	1981	HSE	01	024	9098	F.130	P	—
134	1898	—	Filling in	—	43	F.131	B	AA2, 25, 1904, 298
135	1981	HSE	01	031	9299	F.128	P	—
136	1981	HSE	01	024	8901	F.133	P	—
137	1898	—	—	—	73	F.134	B	AA2, 25, 1904, 298
138	1969–73	H 9	E range, u/s	—	8	F.135	NT	AA5, 4, 1976, 30, no. 8
139	1978–79	H20	03	000	5046	F.136	P	—
140	1898	—	—	—	W	F.136a	B	—
141	1898	—	—	—	26	F.451	B	—

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142	1980–81	H21	03	001	8538	F.137	P	–
143	1960	H14	beneath period 3 floor	–	8	F.143	PA	AA4, 39, 1961, 298, no. 8
144	1980–81	H21	03	047	8655	F.142	P	–
145	1898	–	–	–	81	F.139	B	AA2, 25, 1904, 298
146	1974–77	H13	11	014	3461	F.145	P	–
147	1978–79	H20	04	010	6113	F.141	P	–
148	1980–81	H21	04	004	8558	F.149	P	–
149	1898	–	filling in	–	29	F.138	B	AA2, 25, 1904, 298
150	1974–77	H13	01	000	35	F.140	P	–
151	1980–81	H21	04	004	8557	F.146	P	–
152	1981	HSE	01	029	9246	F.147	P	–
153	1974–77	H13	11	000	2698	F.148	P	–
154	1959	H14	period 3 in clay below flag	–	15	F.151	PA	AA4, 38, 1960, 71, no. 15
155	1980–81	H21	04	009	8632	F.150	P	–
156	1898	–	–	–	0	F.153	B	–
157	1960	H14	–	–	7	F.152	PA	AA4, 39, 1961, 298, no. 7
158	1981	HSE	01	029	9256	F.158	P	–
159	1974–77	H13	11	000	2699	F.154	P	–
160	1974–77	H13	07	001	1235	F.155	P	–
161	1974–77	H13	07	001	1424	F.156	P	–
162	1980–81	H21	04	053	9525	F.157	P	–
163	1980–81	H21	04	053	9526	F.163	P	–
164	1974–77	H13	09	003	416	F.160	P	–
165	1974–77	H13	11	000	2927	F.161	P	–
166	1981	H15	01	001	8947	F.165a	P	–
167	1974–77	H13	09	003	1601	F.159	P	–
168	1974–77	H13	11	014	3202	F.165	P	–
169	1974–77	H13	11	014	3455	F.162	P	–
170	1981	HSE	01	027	9212	F.165b	Absent	–
171	1981	HSE	01	012	9239	F.166	P	–
172	1978–79	H20	08	001	6961	F.167	P	–
173	1978–79	H20	08	017	7163	F.168	P	–
174	1980–81	H21	04	053	9524	F.169	P	–
175	1974–77	H13	11	001	2696	F.171	P	–
176	1978–79	H20	09	003	7309	F.172	P	–
177	1978–79	H20	02	000	4217	F.170	P	–
178	1978–79	H20	03	020	6045	F.532	P	–
179	1981	HSE	01	033	9522	F.173	P	–
180	1898	–	filling in	–	34	F.174	B	AA2, 25, 1904, 298
181	1974–77	H13	11	014	3459	F.175	P	–
182	1974–77	H13	00	000	702	F.315	P	–
183	1981	HSE	01	024	8902	F.197	P	–
184	1974–77	H13	11	014	3451	F.199	P	–
185	1898	–	NW III S wall	–	62b	F.188	B	–
186	1974–77	H13	11	014	3452	F.203	P	–
187	1969–73	H 9	SE corner, u/s	–	9	F.198	NT	AA5, 4, 1976, 30, no. 9
188	1963	H23	latrines	–	23	F.190	NT	–
189	1974–77	H13	11	014	3142	F.200	P	–
190	1974–77	H13	11	014	3511	F.193	P	–
191	1974–77	H13	01	039	3123	F.194	P	–
192	1984	H20	10 late rampart slump period 3	009	5	F.229a	C	AA5, 16, 1988, 75
193	1898	–	–	–	78	F.187	B	–
194	1898	–	–	–	95	F.210	B	–
195	1980–81	H21	04	054	9527	F.229	P	–
196	1898	–	–	–	71	F.195	B	–
197	1864	–	found at Borcovicus	–	–	F.291	PA	AA2, 6, 1865, J Clayton
198	1898	–	–	–	108	F.196	B	–
199	1967	H12	–	–	–	F.209	NT	(Not in AA5, 3, 1975)
200	1984	H20	10 berm deposit, period 3	028	8	F.229b	C	AA5, 16, 1988, 75
201	1898	–	–	–	111	F.244	B	–
202	1969	H 9	topsoil	–	10	F.208	NT	AA5, 4, 1976, 30, no. 10
203	1898	–	–	–	68	F.219	B	–
204	1898	–	filling in	–	32	F.235	B	–
205	1981	HSE	01	024	8900	F.222	P	–

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206	1974-81	H -	casual find	-	9253	F.221	P	-
207	1898	-	-	-	25	F.201	B	-
208	1898	-	-	-	55	F.192	B	-
209	1981	HSE	01	029	9249	F.220	P	-
210	1898	-	-	-	79	F.211	B	-
211	1981	HSE	01	029	9251	F.228	P	-
212	1974-77	H13	11	014	3148	F.212	P	-
213	1980-81	H21	03	-	8542	F.225	P	-
214	1898	-	-	-	115	F.191	B	-
215	1898	-	-	-	88	F.204	B	-
216	1981	HSE	01	016	9516	F.227	P	-
217	1931	H23/24	longhouse N of S gate, E end	-	153	F.218	P	-
218	1980-81	H21	03	018	8673	F.224	P	-
219	1974-77	H13	11	014	3456	F.214	P	-
220	1981	HSE	01	016	9518	F.223	P	-
221	1898	-	-	-	59a	F.216	B	-
222	1931	H23/24	longhouse N of S gate	-	135	F.217	*	-
223	1980-81	H21	03	-	8537	F.202	P	-
224	1981	HSE	01	033	9530	F.231	P	-
225	1959	H14	central third	-	8	F.232	PA	AA4, 38, 1960, 70, no. 8
226	1898	-	-	-	30	F.233	B	-
227	1974-77	H13	07	001	1476	F.234	P	-
228	1974-77	H13	09	000	277	F.230	P	-
229	1974-77	H13	01	006	1757	F.242	P	-
230	1981	HSE	01	030	9259	F.255	P	-
231	1981	HSE	01	024	8905	F.240	P	-
232	1981	HSE	01	031	9298	F.254	P	-
233	1981	HSE	01	033	9521	F.253	P	-
234	1981	HSE	01	016	9519	F.245	P	-
235	1978-79	H20	02	000	4219	F.243	P	-
236	1980-81	H21	03	047	8598	F.250	P	-
237	1898	-	-	-	80	F.237	B	-
238	1980-81	H21	03	041	8670	F.249	P	-
239	1974-77	H13	11	014	3453	F.236	P	-
240	1980-81	H21	03	018	8597	F.252	P	-
241	1974-77	H13	01	046	2686	F.238	P	-
242	1974-77	H13	11	014	3454	F.239	P	-
243	1974-77	H13	07	001	1478	F.241	P	-
244	1981	H15	01	006	9060	F.248	P	-
245	1981	HSE	01	027	9200	F.246	P	-
246	1981	HSE	01	012	9240	F.181	P	-
247	1981	HSE	01	026	9199	F.180	P	-
248	1978-79	H20	04	010	4046	F.179	P	-
249	1980-81	H21	03	018	8672	F.184	P	-
250	1898	-	-	-	84	F.185	B	-
251	1981	HSE	01	024	8904	F.182	P	-
252	1961	H15	-	-	4	F.264	PA	AA4, 40, 1962, 96, no. 4
253	1974-77	H13	07	001	1468	F.176	P	-
254	1961	H15	Phase 3 drain (S)	-	3	F.189	PA	AA4, 40, 1962, 96, no. 3
255	1898	-	-	-	102	F.530	B	-
256	1974-77	H13	06	001	20	F.177	P	-
257	1981	HSE	01	-	9097	F.183	P	-
258	1974-77	H13	08	002	243	F.178	P	-
259	1959	H14	central third	-	14	F.493	PA	AA4, 38, 1960, 71, no. 14
260	1960	H14	-	-	11	F.494	PA	AA4, 39, 1961, 298, no. 11
261	1959	H14	central third	-	9	F.478	PA	AA4, 38, 1960, 70, no. 9
262	1959	H14	central third	-	19	F.495	PA	AA4, 38, 1960, 71, no. 19
263	1959	H14	central third	-	20	F.496	PA	AA4, 38, 1960, 71, no. 20
264	1898	-	-	-	100	F.529	B	-
265	1898	-	-	-	98	F.518	B	-
266	1974-77	H13	11	014	3366	F.516	P	-
267	1898	-	-	-	75	F.213	B	-
268	1959	H14	period 3 in clay below flag	-	12	F.258	PA	AA4, 38, 1960, 71, no. 12
269	1967-68	H12	05 hypocaust fill	-	10	F.206	NT	AA5, 3, 1975, 42, no. 10

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270	1898	—	—	—	86	F.207	B	—
271	1898	—	NW III S wall	—	62a	F.186	B	—
272	1898	—	—	—	85	F.205	B	—
273	1959	H14	period 3 in clay below flag	—	17	F.259	PA	AA4, 38, 1960, 71, no. 17
274	1959	H14	period 3 in clay below flag	—	11	F.260	PA	AA4, 38, 1960, 71, no. 11
275	1959	H14	period 3 in clay below flag	—	13	F.261	PA	AA4, 38, 1960, 71, no. 13
276	1959	H14	central third	—	16	F.262	PA	AA4, 38, 1960, 71, no. 16
277	1959	H14	period 3 in clay below flag	—	18	F.263	PA	AA4, 38, 1960, 71, no. 18
278	1961	H15	—	—	13	F.273	PA	AA4, 40, 1962, 96, no. 13
279	1961	H15	—	—	17	F.277	PA	AA4, 40, 1962, 96, no. 17
280	1959	H14	period 3 in clay below flag	—	10	F.257	PA	AA4, 38, 1960, 71, no. 10
281	1898	—	—	—	110	F.279	B	—
282	1961	H15	—	—	5	F.265	PA	AA4, 40, 1962, 96, no. 5
283	1978–79	H20	09	001	7214	F.281	P	—
284	1961	H15	—	—	7	F.267	PA	AA4, 40, 1962, 96, no. 7
285	1961	H15	—	—	19	F.282	PA	AA4, 40, 1962, 96, no. 19
286	1898	—	—	—	48	F.215	B	—
287	1961	H15	—	—	18	F.278	PA	AA4, 40, 1962, 96, no. 18
288	1961	H15	—	—	11	F.271	PA	AA4, 40, 1962, 96, no. 11
289	1961	H15	—	—	10	F.270	PA	AA4, 40, 1962, 96, no. 10
290	1974–77	H13	11	014	3460	F.283	P	—
291	1961	H15	—	—	20	F.284	PA	AA4, 40, 1962, 96, no. 20
292	1961	H15	—	—	6	F.266	PA	AA4, 40, 1962, 96, no. 6
293	1978–79	H20	08	036	7775	F.285	P	—
294	1961	H15	—	—	15	F.275	PA	AA4, 40, 1962, 96, no. 15
295	1961	H15	—	—	14	F.274	PA	AA4, 40, 1962, 96, no. 14
296	1961	H15	—	—	16	F.276	PA	AA4, 40, 1962, 96, no. 16
297	1961	H15	—	—	8	F.268	PA	AA4, 40, 1962, 96, no. 8
298	1961	H15	—	—	12	F.272	PA	AA4, 40, 1962, 96, no. 12
299	1931	H23/24	longhouse N of S gate	—	150	F.286	P	—
300	1980–81	H21	03	001	8583	F.301	P	—
301	1974–77	H13	00	001	1170	F.318	P	—
302	1974–77	H13	01	000	24	F.289	P	—
303	1961	H15	—	—	21	F.288	PA	AA4, 40, 1962, 96, no. 21
304	1898	—	—	—	103	F.447	B	—
305	1961	H15	—	—	22	F.290	PA	AA4, 40, 1962, 96, no. 22
306	1961	H15	—	—	23	F.292	PA	AA4, 40, 1962, 96, no. 23
307	1980–81	H21	03	018	8674	F.303	P	—
308	1961	H15	—	—	25	F.296	PA	AA4, 40, 1962, 96, no. 25
309	1961	H15	—	—	26	F.304	PA	AA4, 40, 1962, 96, no. 26
310	1898	—	—	—	93	F.298	B	—
311	1980–81	H21	01	009	8605	F.305	P	—
312	1898	—	—	—	AAa	F.300	B	—
313	1961	H15	—	—	27	F.306	PA	AA4, 40, 1962, 96, no. 27
314	1898	—	—	—	AAb	F.302	B	—
315	1961	H15	—	—	28	F.307	PA	AA4, 40, 1962, 96, no. 28
316	1981	HSE	01	024	8903	F.295	P	—
317	1961	H15	—	—	29	F.308	PA	AA4, 40, 1962, 96, no. 29
318	1974–77	H13	04	006	55	F.287	P	—
319	1961	H15	—	—	30	F.309	PA	AA4, 40, 1962, 96, no. 30
320	1961	H15	—	—	9	F.269	PA	AA4, 40, 1962, 96, no. 9
321	1981	H15	01	001	9262	F.299	P	—
322	1961	H15	—	—	24	F.294	PA	AA4, 40, 1962, 96, no. 24
323	1981	HSE	01	024	8899	F.297	P	—
324	1961	H15	—	—	32	F.311	PA	AA4, 40, 1962, 96, no. 32
325	1961	H15	—	—	33	F.312	PA	AA4, 40, 1962, 96, no. 33
326	1961	H15	—	—	34	F.313	PA	AA4, 40, 1962, 96, no. 34
327	1961	H15	—	—	35	F.314	PA	AA4, 40, 1962, 96, no. 35
328	1974–77	H13	00	001	1045	F.256	P	—
329	1898	—	—	—	82	F.316	B	—
330	1978–79	H20	08	001	8525	F.317	P	—
331	1981	HSE	01	026	9198	F.293	P	—
332	1961	H15	—	—	31	F.310	PA	AA4, 40, 1962, 96, no. 31
333	1967–68	H1	05 hypocaust fill	—	9	F.320	NT	AA5, 3, 1975, 42, no. 9

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334	1967–68	H 1	02 at higher floor level	–	–	F.320a	BA	AA2, 25, 1904, 298
335	1898	–	–	–	51	F.322	B	AA2, 25, 1904, 298
336	1974–77	H13	11	014	3479	F.323	P	–
337	1974–77	H13	06	001	86	F.324	P	–
338	1974–77	H13	09	000	184	F.325	P	–
339	1898	–	–	–	74	F.326	B	AA2, 25, 1904, 298
340	1898	H 1	01	–	24	F.327	B	AA2, 25, 1904, 298
341	1974–77	H13	00	000	582	F.328	P	–
342	1960	H14	–	–	9	F.329	PA	AA4, 39, 1961, 298, no. 9
343	1960	H14	–	–	10	F.330	PA	AA4, 39, 1961, 298, no. 10
344	1972	H 9	W wall (disturbed)	–	–	F.331	NT	(Not in AA5, 4, 1976)
345	1898	H13	–	–	–	F.333a	BA	AA2, 25, 1904, 298
346	1898	H16	–	–	–	F.333b	BA	AA2, 25, 1904, 298
347	1974–77	H13	07	001	1236	F.332	P	–
348	1898	H10	11	–	21	F.333	B	–
349	1969–73	H 9	W range in S wall of lobby	–	11	F.337	NT	AA5, 4, 1976, 30, no. 11
350	1960	H14	–	–	13	F.338	PA	AA4, 39, 1961, 298, no. 13
351	1981	HSE	01	016	9520	F.339	P	–
352	1974–77	H13	09	000	1612	F.342	P	–
353	1960	H14	–	–	2	F.340	PA	AA4, 39, 1961, 298, no. 12
354	1981	HSE	01	029	9258	F.343	P	–
355	1898	H14/15	between blocks 14 and 15	–	–	F.344	BA	AA2, 25, 1904, 298
356	1898	–	–	–	123	F.397	B	–
357	1898	–	–	–	AJ	F.345	B	AA2, 25, 1904, 298
358	1981	HSE	01	016	9517	F.346	P	–
359	1898	–	–	–	104	F.347	B	AA2, 25, 1904, 298
360	1968	H12	05 hypocaust fill	–	11	F.348	NT	AA5, 3, 1975, 42, no. 11
361	1931–33	H –	u/s	–	–	F.350	M	–
362	1898	–	–	–	J	F.349	B	AA2, 25, 1904, 298
363	1898	–	–	–	–	F.351	BA	AA2, 25, 1904, 298 (probably)
364	1960	H14	–	–	14	F.353	PA	AA4, 39, 1961, 299, no. 14
365	1898	–	–	–	S	F.356	B	AA2, 25, 1904, 298
366	1973	H 9	W range topsoil	–	12	F.355	NT	AA5, 4, 1976, 30, no. 12
367	1967–68	H12	–	–	12	F.354	NT	AA5, 3, 1975, 42, no. 12
368	1980–81	H21	03	001	8539	F.357	P	–
369	1981	HSE	01	029	9244	F.358	P	–
370	1980–81	H21	03	019	8566	F.359	P	–
371	1972	H 9	W wall (disturbed)	–	–	F.360	NT	(Not in AA5, 4, 1976)
372	1981	HSE	01	033	9531	F.364	P	–
373	1974–77	H13	11	001	2689	F.363	P	–
374	1981	HSE	01	012	9096	F.362	P	–
375	1961	H15	–	–	39	F.367	PA	AA4, 40, 1962, no. 39
376	1898	–	filling in	–	45	F.370	B	AA2, 25, 1904, 298
377	1980–81	H21	03	001	8585	F.369	P	–
378	1974–81	H –	u/s, on spoil tip	–	9557	F.368	P	–
379	1978–79	H20	04	011	5389	F.365	P	–
380	1974–77	H13	06	005	1043	F.449	P	–
381	1967–68	H12	05 hypocaust fill	–	15	F.366	NT	AA5, 3, 1975, 42, no. 15
382	1898	–	–	–	45b	F.371	B	AA2, 25, 1904, 298
383	1974–77	H13	11	014	3216	F.372	P	–
384	1981	HSE	01	029	9248	F.373	P	–
385	–	H –	u/s	–	–	F.374	NT	–
386	1898	–	–	–	56b	F.376	B	AA2, 25, 1904, 298
387	1898	–	–	–	77	F.375	B	AA2, 25, 1904, 298
388	1972	H 9	13 S end under latest floor	–	14	F.377	NT	AA5, 4, 1976, 30, no. 14
389	1961	H15	–	–	40	F.379	PA	AA4, 40, 1962, 96, no. 40
390	1980–81	H21	03	019	8573	F.380	P	–
391	1960	H14	–	–	17	F.378	PA	AA4, 39, 1961, 299, no. 17
392	1898	–	–	–	22	F.381	B	AA2, 25, 1904, 298
393	1963	H23	latrines	–	29	F.382	NT	–
394	1981	HSE	01 with bronze ring	029	9247	F.384	P	–
395	1898	–	SW III	–	118	F.383	B	–
396	1978–79	H20	09	001	7310	F.385	P	–
397	1981	HSE	01	029	9241	F.386	P	–

<i>No.</i>	<i>find date</i>	<i>site</i>	<i>context</i>	<i>feature</i>	<i>SF no.</i>	<i>store no.</i>	<i>status</i>	<i>reference</i>
398	1898	—	—	—	120	F.387	B	—
399	1981	HSE	01	031	9297	F.388	P	—
400	1898	—	—	—	27	F.389	B	—
401	1898	—	— (corroded to SF 23b)	—	23a	F.390a	B	AA2, 25, 1904, 298
402	1898	H10	by southern base	—	67	F.474	B	—
403	1981	H15	01	002	9266	F.391	P	—
404	1984	H20	10	u/s	2	F.392	C	AA5, 16, 1988, 75
405	1898	—	—	—	96	F.393	B	—
406	1961	H15	—	—	36	F.394	PA	AA4, 40, 1962, 96, no. 36
407	1967–68	H12	N of S hypocaust	—	24	F.395	NT	AA5, 3, 1975, 42, no. 13
408	1960	H14	—	—	16	F.396	PA	AA4, 39, 1961, 299, no. 16
409	1898	—	—	—	AG	F.398	B	—
410	1898	—	—	—	72	F.399	B	—
411	1987	H 8	granaries, surface	—	—	F.361	*	—
412	1981	HSE	01	032	9558	F.399a	P	—
413	1972	H 9	outside W wall	—	13	F.400	NT	AA5, 4, 1976, 30, no. 13
414	1961	H15	—	—	37	F.401	PA	AA4, 40, 1962, 96, no. 37
415	1961	H15	—	—	38	F.402	PA	AA4, 40, 1962, 96, no. 38
416	1980–81	H21	04	002	8633	F.403	P	—
417	1898	—	SE II	—	37	F.404	B	—
418	1967–68	H12	05 hypocaust fill	—	14	F.405	NT	AA5, 3, 1975, 42, no. 14
419	1980–81	H21	03	018	8669	F.406	P	—
420	1898	—	drain under central road	—	40	F.407	B	—
421	1974–77	H13	00	001	1164	F.408	P	—
422	1981	HSE	01	029	9243	F.409	P	—
423	1898	—	filling in	—	50	F.436	B	—
424	1898	—	—	—	59b	F.410	B	—
425	1898	—	—	—	83	F.411	B	—
426	—	H —	u/s	—	—	F.413	*	—
427	1981	HSE	01	029	9245	F.414	P	—
428	1931	H 8	South granary	—	196	F.416	P	—
429	1898	—	—	—	114	F.415	B	—
430	1898	H 9	drain south of H 9	—	76	F.460	B	AA2, 25, 1904, 298 ('Decentius')
431	1898	—	—	—	52	F.417	B	AA2, 25, 1904, 298
432	1981	HSE	01	—	9213	F.419	P	—
433	1898	—	—	—	57	F.420	B	—
434	1898	—	—	—	106	F.421	B	—
435	—	H—	u/s	—	—	F.422	*	—
436	1967–68	H12	rubble over W wall	—	16	F.423	NT	AA5, 3, 1975, 42, no. 16
437	1898	—	filling in	—	33	F.432	B	—
438	1967–68	H12	05 hypocaust fill	—	20	F.427	NT	AA5, 3, 1975, 42, no. 20
439	1967–68	H12	11 (top room)	—	21	F.426	NT	AA5, 3, 1975, 42, no. 21
440	1898	—	—	—	39	F.431	B	—
441	1967–68	H12	W range	—	22	F.429	NT	AA5, 3, 1975, 42, no. 22
442	1967–68	H12	in consolidation	—	19	F.428	NT	AA5, 3, 1975, 42, no. 19
443	1898	—	—	—	36	F.425	B	—
444	1898	—	—	—	56a	F.424	B	—
445	1898	—	—	—	122	F.430	B	—
446	1974–77	H13	08	000	283c	F.435a	Absent	—
447	1974–77	H13	08	000	283a	F.434	P	—
448	1974–77	H13	08	000	283b	F.435	P	—
449	1963	H23	latrines	—	28	F.418	NT	—
450	1898	—	—	—	42	F.437	B	—
451	1968	H12	05 hypocaust fill	—	17	F.412	NT	AA5, 3, 1975, 42, no. 17
452	1980–81	H21	03	001	8586	F.439	P	—
453	1898	—	filling in	—	47	F.438	B	—
454	1974–77	H13	09	013	2679	F.440	P	—
455	—	H —	u/s	—	—	F.441	*	—
456	1974–77	H13	05	000	3618	F.444	P	—
457	1898	—	—	—	113	F.442	B	—
458	1898	—	—	—	87	F.443	B	—
459	1981	HSE	01	012	9238	F.450	P	—
460	1960	H14	—	—	18	F.445	PA	AA4, 39, 1961, 299, no. 18
461	1968	H12	05 hypocaust fill	—	18	F.446	NT	AA5, 3, 1975, 42, no. 18

<i>No.</i>	<i>find date</i>	<i>site</i>	<i>context</i>	<i>feature</i>	<i>SF no.</i>	<i>store no.</i>	<i>status</i>	<i>reference</i>
462	1931–33	–	–	–	–	F.446a	M	–
463	1974–77	H13	08?	–	286	F.435b	Absent	–
464	1974–77	H13	03	000	47	F.433	P	–
465	1960	H14	–	–	15	F.448	PA	AA4, 39, 1961, 299, no. 15
466	1898	–	– (corroded to SF 23a)	–	23b	F.390b	B	AA2, 25, 1904, 298
467	1981	HSE	01	029	9248	F.454	*	–
468	1898	–	SE: great tank	–	63	F.512	B	–
469	1980–81	H21	03	001	8600	F.164	P	–
470	1898	–	–	–	AAc	F.452	B	–
471	1898	–	–	–	97	F.455a	B	–
472	1898	–	–	–	101	F.455	B	–
473	1974–77	H13	00	001	1047	F.456	P	–
474	1969–73	H 9	02 in W wall	–	15	F.457	NT	AA5, 4, 1976, 30, no. 15
475	1960	H14	–	–	19	F.458	PA	AA4, 39, 1961, 299, no. 19
476	1981	HSE	01	012	9257	F.459	P	–
477	1898	–	–	–	–	F.461	*	–
478	1898	–	–	–	54	F.463	B	AA2, 25, 1904, 298
479	1967–68	H12	05 hypocaust fill	–	23	F.464	NT	AA5, 3, 1975, 42, no. 23
480	1898	–	–	–	31	F.466	B	AA2, 25, 1904, 298
481	1967	H12	–	–	–	F.462	NT	(Not in AA5, 3, 1975)
482	1898	–	–	–	41	F.465	B	AA2, 25, 1904, 298
483	1959	H14	central third	–	21	F.467	PA	AA4, 38, 1960, 71, no. 21
484	1967–68	H12	18 SW corner	–	26	F.468	NT	AA5, 3, 1975, 42, no. 26
485	1967	H12	–	–	–	F.473	NT	(Not in AA5, 3, 1975)
486	1967–68	H12	courtyard rubble E	–	25	F.469	NT	AA5, 3, 1975, 42, no. 25
487	1960	H14	–	–	20	F.470	PA	AA4, 39, 1961, 299, no. 20
488	1898	–	–	–	46	F.472	B	–
489	1898	–	–	–	112	F.475	B	–
490	1967–68	H12	05 hypocaust fill	–	24	F.476	NT	AA5, 3, 1975, 42, no. 24
491	1898	–	–	–	121	F.477	B	–
492	1974	–	–	–	93	F.471	NT	–
493	1960	H14	–	–	2	F.479	PA	AA4, 39, 1961, 298, no. 2
494	1974–77	H13	10	000	1411	F.479a	P	–
495	1898	–	–	–	94	F.486	B	–
496	1898	–	–	–	C	F.487	B	–
497	1974–77	H13	05	052	2953	F.488	P	–
498	1898	–	–	–	E	F.489	B	–
499	1978–79	H20	07	000	5787	F.489a	P	–
500	1898	–	–	–	Y	F.480	B	–
501	1898	–	–	–	90	F.483	B	–
502	1959	H14	period 1 below period 2 wall	–	6	F.482	PA	AA4, 38, 1960, 70, no. 6
503	1959	H14	period 1 below period 2 wall	–	5	F.481	PA	AA4, 38, 1960, 70, no. 5
504	1898	–	–	–	89	F.485	B	–
505	1971	H 9	outside W wall, u/s	–	–	F.484	NT	(Not in AA5, 4, 1976)
506	1981	HSE	01	027	9201	F.490	P	–
507	1974–77	H13	06 flag floor, Chalet Phase 1	012	1723	F.491b	Absent	–
508	1974–77	H13	08	000	154	F.491	P	–
509	1960	H14	–	–	21	F.499	PA	AA4, 39, 1961, 299, no. 21
510	1960	H14	–	–	26	F.508	PA	AA4, 39, 1961, 299, no. 26
511	1960	H14	–	–	22	F.501	PA	AA4, 39, 1961, 299, no. 22
512	1960	H14	–	–	23	F.504	PA	AA4, 39, 1961, 299, no. 23
513	1960	H14	–	–	24	F.506	PA	AA4, 39, 1961, 299, no. 24
514	1960	H14	–	–	25	F.507	PA	AA4, 39, 1961, 299, no. 25
515	1960	H14	–	–	27	F.509	PA	AA4, 39, 1961, 299, no. 27
516	1898	–	–	–	105	F.513	B	–
517	1898	–	–	–	92	F.527	B	–
518	1898	–	–	–	99	F.522	B	–
519	1898	–	–	–	109	F.520	B	–
520	1961	H15	–	–	42	F.500	PA	AA4, 40, 1962, 96, no. 42
521	1961	H15	–	–	43	F.502	PA	AA4, 40, 1962, 96, no. 43
522	1961	H15	trodden into Phase 4 floor	–	41	F.498	PA	AA4, 40, 1962, 96, no. 41
523	1961	H15	trodden into Phase 4 floor	–	45	F.505	PA	AA4, 40, 1962, 96, no. 45
524	1961	H15	–	–	44	F.503	PA	AA4, 40, 1962, 96, no. 44
525	1961	H15	–	–	48	F.519	PA	AA4, 40, 1962, 96, no. 48

No.	find date	site	context	feature	SF no.	store no.	status	reference
526	1981	H14	03	001	9296	F.531a	P	–
527	1960	H14	–	–	28	F.510	PA	AA4, 39, 1961, 299, no. 28
528	1961	H15	trodden into Phase 4 floor	–	49	F.523	PA	AA4, 40, 1962, 96, no. 49
529	1898	–	SE II: on pavement	–	66	F.514	B	–
530	1961	H15	trodden into Phase 4 floor	–	52	F.526	PA	AA4, 40, 1962, 96, no. 52
531	1960	H14	–	–	29	F.515	PA	AA4, 39, 1961, 299, no. 29
532	1961	H15	trodden into Phase 4 floor	–	53	F.528	PA	AA4, 40, 1962, 96, no. 53
533	1961	H15	–	–	51	F.525	PA	AA4, 40, 1962, 96, no. 51
534	1961	H15	trodden into Phase 4 floor	–	46	F.511	PA	AA4, 40, 1962, 96, no. 46
535	1980–81	H21	03	018	8607	F.531	P	–
536	1961	H15	–	–	47	F.517	PA	AA4, 40, 1962, 96, no. 47
537	1961	H15	trodden into Phase 4 floor	–	50	F.524	PA	AA4, 40, 1962, 96, no. 50
538	1974–77	H13	03	000	476	F.531b	Absent	–
539	1898	–	–	–	AH	F.533	B	–
540	1979	H20	08, planted by student	063	8292	F.534	P	–
541	1978–79	H20	04	009	8292	F.535	P	–
542	1978–79	H20	07	002	6237	F.536	P	–
543	1974–77	H13	11	014	3450	F.537	P	–
544	1974–77	H13	07	015	1873	F.538	P	–
545	1978–79	H20	01	000	4091	F.539	P	–
546	1981	HSE	01	029	9250	F.540	P	–
547	1978–79	H20	04	010	5360	F.541	P	–
548	1981	HSE	01	–	9099	F.542	P	–
549	1898	–	–	–	107	F.543	B	–

Housesteads *vicus*

No.	find date	context	feature	SF no.	store no.	status	reference
550	1931	<i>Vicus</i> II	u/s, north east	1	V.1	A	AA4, 9, 1932
551	1931	<i>Vicus</i> II	u/s, north east	3	V.3	P	–
552	1931	<i>Vicus</i> II	u/s, north east	2	V.4	P	–
553	1932	Vallum trench F	layer 2	5	V.5	P	–
554	1932	Sewer trench 6	on top	32	V.6	P	–
555	1932	<i>Vicus</i> VIII	south of cross wall	17	V.8	P	–
556	1934	<i>Vicus</i> XIV	inside south wall	1	V.7	P	–
557	1932	Sewer trench 6	–	51	V.10	P	–
558	1932	<i>Vicus</i> VIII	outside north wall	18	V.11	Absent	–
559	1931	<i>Vicus</i> IV	stone, 1	5	V.14	P	AA4, 9, 1932, 235, group 1
560	1931	<i>Vicus</i> IV	u/s, east	7	V.12	P (from M)	–
561	1931	Vallum trench E	–	6	V.13	P	AA4, 9, 1932
562	1932	Vallum trench F	–	41	V.16	Absent	–
563	1931	<i>Vicus</i> IV	stone, 1, east	8	V.17	P	AA4, 9, 1932
564	1931	<i>Vicus</i> IV	u/s, east	9	V.19	P	–
565	1931	<i>Vicus</i> IV	stone, 1, (sealed), centre	10	V.20	P	AA4, 9, 1932
566	1933	Vallum causeway, east of	below terrace	1	V.21	PA	AA4, 10, 1933, 190, no. 1
567	1933	<i>Vicus</i> XXI, west side	below floor, over Vallum ditch	2	V.23	PA	AA4, 11, 1934, 190, no. 2
568	1931	<i>Vicus</i> IV	stone, 1, west	17	V.22	P	AA4, 9, 1932
569	1933	Vallum causeway	on road above causeway	5	V.25	PA	AA4, 11, 1934, 190, no. 5
570	1932	u/s, 1932 tip	–	–	V.24	P	–
571	1931	<i>Vicus</i> II	in 'drain', west end	54	V.266	P	–
572	1931	<i>Vicus</i> II	u/s, north east	14	V.26	P	AA4, 9, 1932
573	1931	<i>Vicus</i> IV	stone, 2, centre, u/s	13	V.27	P	AA4, 9, 1932
574	1932	<i>Vicus</i> VIII	inside south wall	48	V.28	P	AA4, 10, 96
575	1933	<i>Vicus</i> VIII	prior to erection of building	–	V.28a	PA	AA4, 10, 96
576	1934	<i>Vicus</i> XV	middle trench	3	V. 270	P	–
577	1931	<i>Vicus</i> II	b, north east	15	V.31	P	AA4, 9, 1932
578	1931	Vallum trench E	–	16	V.29	P (from A)	AA4, 9, 1932
579	1932	<i>Vicus</i> VIII, south of	west of alley south of VIII	41	V.32	P	–
580	1931	<i>Vicus</i> II	u/s, east	12	V.33	P	AA4, 9, 1932
581	1932	<i>Vicus</i> VIII, near south wall	black layer below clay	57	V.36	P	–
582	1931	Vallum trench E	–	11	V.34	A	AA4, 9, 1932
583	1932	Lynne's drain	–	63	V.35	P	–

<i>No.</i>	<i>find date</i>	<i>context</i>	<i>feature</i>	<i>SF no.</i>	<i>store no.</i>	<i>status</i>	<i>reference</i>
584	1931	<i>Vicus</i> II	u/s, south	19	V.37	P	–
585	1932	u/s, 1932 tip	–	–	V.38	P	–
586	1932	<i>Vicus</i> VIII, building north of,	inside south wall	65	V.39	P	–
587	1931	<i>Vicus</i> II	b, south east	24	V.40	P	AA4, 9, 1932
588	1931	<i>Vicus</i> II	c, centre	25	V.41	P	AA4, 9, 1932
589	1931	<i>Vicus</i> IV	stone, 1 (sealed), centre	27	V.42	P	AA4, 9, 1932
590	1931	<i>Vicus</i> IV	wood, c (sealed by furnace)	70	V.96	P	AA4, 9, 1932
591	1931	<i>Vicus</i> IV	u/s, alongside west wall	57	V. 268	P	AA4, 9, 1932
592	1931	<i>Vicus</i> IV	wood, c (sealed)	65	V.98	P	AA4, 9, 1932
593	1931	<i>Vicus</i> IV	wood (sealed), east	23	V.43	P	AA4, 9, 1932
594	1931	<i>Vicus</i> IV	u/s, south-west	21	V.44	P	AA4, 9, 1932
595	1931	<i>Vicus</i> IV	stone, 1, south-west	26	V.47	P	AA4, 9, 1932
596	1931	<i>Vicus</i> IV	u/s, east	22	V.46	P	–
597	1932	u/s	–	–	V.45	P	–
598	1932	Vallum trench F	layer 2	6	V.48	P	–
599	1931	<i>Vicus</i> IV	u/s, south-west	18	V.49	P	AA4, 9, 1932
600	1931	<i>Vicus</i> II	b	20	V.50	PA	AA4, 9, 1932
601	1931	<i>Vicus</i> IV	wood, in revetting wall	28	V.51	P	AA4, 9, 1932
602	1932	<i>Vicus</i> VIII	burnt layer, centre	56	V.52	P	–
603	1931	<i>Vicus</i> IV	stone, 1 (sealed), centre	32	V.53	P	AA4, 9, 1932 & 235, group 2
604	1931	<i>Vicus</i> IV	u/s, south-west	30	V.54	P	AA4, 9, 1932
605	1932	<i>Vicus</i> VI	trial trench	–	V.56	P	–
606	1931	<i>Vicus</i> II	a, north east	29	V.55	P	AA4, 9, 1932 & 235, group 3
607	1931	<i>Vicus</i> IV	stone, 1, south-west	31	V.57	PA	AA4, 9, 1932
608	1932	<i>Vicus</i> III, tip west of	–	70	V.58	P	–
609	1931	<i>Vicus</i> IV	wood, on revetting wall	40	V.59	P	AA4, 9, 1932
610	1931	<i>Vicus</i> IV	stone, 1, south-west	37	V.60	P	AA4, 9, 1932
611	1931	<i>Vicus</i> IV	stone, 1, south-west	33	V.61	P	AA4, 9, 1932
612	1931	<i>Vicus</i> IV	stone, 1, south-west	38	V. 267	PA	AA4, 9, 1932
613	1933	u/s, 1931 tip	–	–	V.62	P	–
614	1933	u/s, 1931 tip	–	–	V.63	P	–
615	1932	<i>Vicus</i> III	centre	4	V.64	P	–
616	1931	<i>Vicus</i> IV	stone, 1, south-west	39	V.65	P	AA4, 9, 1932
617	1931	<i>Vicus</i> IV	stone, 1, south-west	34	V.66	P	AA4, 9, A1932
618	1934	<i>Vicus</i> XIX	west wall, outside	–	V.72	P	–
619	1932	<i>Vicus</i> VIII	SE corner	47	V.67	P	AA4, 10, 1933, 96
620	1931	<i>Vicus</i> IV	wood, c (sealed)	35	V.68	P	AA4, 9, 1932
621	1932	SE angle, main drain of fort	–	45	V.71	P	AA4, 10, 1933, 96
622	1931	<i>Vicus</i> IV	stone, 1,	36	V.69	M	AA4, 9, 1932
623	1933	Vallum trench G	–	1	V.70	A	–
624	1931	<i>Vicus</i> II	c, south-east	45	V.73	A	AA4, 9, 1932
625	1931	<i>Vicus</i> IV	stone, u/s	46	V.74	A	–
626	1931	<i>Vicus</i> II	a, west	41	V.76	P	AA4, 9, 1932
627	1931	<i>Vicus</i> II	b, north-east	43	V.79	P	AA4, 9, 1932
628	1931	<i>Vicus</i> I	2, north	42	V.78	P	AA4, 9, 1932
629	1931	<i>Vicus</i> IV	stone, 2, u/s	44	V.77	P	AA4, 9, 1932
630	1932	<i>Vicus</i> IV, tip east of	–	55	V.80	A	–
631	1932	<i>Vicus</i> III	inside, near centre of W. wall	12	V.82	P	–
632	1932	<i>Vicus</i> VIII	outside north wall	44	V.83	P	–
633	1853	South gate, in front of,	with AU signet ring + earring	–	V.84a	PA	Bruce, J C, 1867
634	1931	<i>Vicus</i> I	2, north, top floor	52	V.84	P	AA4, 9, 1932
635	1931	u/s	–	–	V.81	M	–
636	1931	<i>Vicus</i> IV	stone, 1, south-west	47	V.86	A	AA4, 9, 1932
637	1931	<i>Vicus</i> IV	stone, 1 (sealed), centre	50	V.87	P	AA4, 9, 1932
638	1931	<i>Vicus</i> II	b, east end	53	V.88	P	AA4, 9, 1932
639	1931	<i>Vicus</i> IV	stone, 1 (sealed), centre	48	V.89	P	AA4, 9, 1932
640	1931	<i>Vicus</i> IV	wood, c (sealed)	49	V.90	A	AA4, 9, 1932
641	1933	Vallum trench G	–	2	V.99	P	–
642	1931	<i>Vicus</i> II	u/s, in base of east wall	64	V. 100	A	AA4, 9, 1932
643	1931	<i>Vicus</i> I	2, NW corner, top floor	60	V. 102	P	AA4, 9, 1932

<i>No.</i>	<i>find date</i>	<i>context</i>	<i>feature</i>	<i>SF no.</i>	<i>store no.</i>	<i>status</i>	<i>reference</i>
644	1932	u/s, 1931–2 tip	–	71	V. 104	P	–
645	1931	<i>Vicus</i> IV	stone, 1a, west (sealed)	59	V. 105	P	AA4, 9, 1932
646	1931	<i>Vicus</i> I	basement, c, SE corner	63	V. 106	A	AA4, 9, 1932
647	1931	<i>Vicus</i> II	b, NE angle	66	V. 107	P	AA4, 9, 1932
948	1931	<i>Vicus</i> IV	stone, 1, SW, below flagging	68	V.95	P	AA4, 9, 1932
649	1931	<i>Vicus</i> IV	wood, c (sealed by furnace)	69	V. 110	P	AA4, 9, 1932
650	1931	<i>Vicus</i> IV	stone, 1, south-west	67	V. 109	P	AA4, 9, 1932
651	1931	<i>Vicus</i> II	b, SW, burnt layer near top	61	V. 103	P	AA4, 9, 1932
652	1931	<i>Vicus</i> IV	stone, 1, south-west	62	V. 101	P	AA4, 9, 1932
653	1932	<i>Vicus</i> VIII	centre, under flagging	49	V. 111	P	AA4, 10, 1933, 96
654	1931	<i>Vicus</i> I	NE corner	77	V. 117	P	–
655	1931	<i>Vicus</i> IV	stone, north-west, top	73	V. 113	A	AA4, 9, 1932, 235, group 1?
656	1931	<i>Vicus</i> I	basement, c, hearth, NE angle	72	V. 112	A	AA4, 9, 1932
657	1931	<i>Vicus</i> I, east of	outside east wall	74	V. 114	P	–
658	1931	<i>Vicus</i> IV	stone, 1, SW corner	75	V. 115	A	AA4, 9, 1932
659	1931	<i>Vicus</i> II	south east, top	76	V. 116	A	–
660	1931	<i>Vicus</i> I	basement, on step	71	V. 118	A	–
661	1934	East gate, S of, 6' from jamb	on gravel, 4' from fort wall	15	V. 118a	P	–
662	1931	<i>Vicus</i> IV	stone, 1, south-west	80	V. 119	A	AA4, 9, 1932
663	1931	<i>Vicus</i> IV	stone, 1 (sealed), centre	79	V. 120	P	AA4, 9, 1932 & 235, group 2
664	1932	<i>Vicus</i> VIII	east half, above flagging	60	V. 121	P	–
665	1931	<i>Vicus</i> IV	outside west wall	81	V. 122	A	AA4, 9, 1932, 235, group 1?
666	1931	<i>Vicus</i> IV	stone, 1, south-west	82	V. 123	A	AA4, 9, 1932
667	1932	<i>Vicus</i> VIII	SE corner, top	58	V. 124	P	–
668	1932	<i>Vicus</i> III	south annexe	36	V. 127	P	–
669	1931	<i>Vicus</i> II	u/s, below flagging, west end	51	V.91	P	AA4, 9, 1932
670	1932	u/s, 1931–2 tip	–	69	V.132	P	–
671	1931	<i>Vicus</i> I, west of	road trench, level of flags	83	V.125	P	–
672	1932	<i>Vicus</i> III	NE corner of annexe	28	V.129	P	–
673	1931	<i>Vicus</i> II	a, south east, on floor	84	V.128	P	AA4, 9, 1932
674	1931	<i>Vicus</i> I, east of	outside NE angle	85	V.131	P	–
675	1932	<i>Vicus</i> III	annexe, u/s	59	V.133	P	–
676	1931	<i>Vicus</i> III–IV	–	86	V.134	P	–
677	1931	<i>Vicus</i> II	a, south east, on flag floor	91	V.137	P	AA4, 9, 1932 & 235, group 3
678	1931	<i>Vicus</i> I	basement, on step landing	89	V.139	A	–
679	1931	<i>Vicus</i> II	b, east end, top floor	90	V.140	A	AA4, 9, 1932
680	1932	<i>Vicus</i> VIII	NE corner	54	V.142	P	–
681	1931	<i>Vicus</i> I	2, north side, top floor	92	V.143	P	AA4, 9, 1932
682	1931	<i>Vicus</i> I	basement, a	96	V.146	A	AA4, 9, 1932
683	1932	<i>Vicus</i> VIII, trench north of, top	–	66	V.147	P	–
684	1932	<i>Vicus</i> I	basement, a	98	V.151a	PA	AA4, 9, 1932
685	1931	<i>Vicus</i> I	basement, b	95	V.148	A	AA4, 9, 1932
686	1931	<i>Vicus</i> I	2, north-west	100	V.149	PA	AA4, 9, 1932
687	1933	Vallum trench G	–	3	V.150	P	–
688	1931	<i>Vicus</i> I	basement, a	94	V.151	P	AA4, 9, 1932
689	1931	<i>Vicus</i> I	basement, b	97	V.153	A	AA4, 9, 1932
690	1931	<i>Vicus</i> I	basement, b	93	V.154	A	AA4, 9, 1932
691	1931	<i>Vicus</i> I	basement, b (sealed by oven)	99	V.155	P	AA4, 9, 1932
692	1932	SE angle of fort,	drain	2	V.277	PA	AA4, 10, 1933, 94, no. 2
693	1931	<i>Vicus</i> II	on ruined south wall, c	103	V.158	P	–
694	1931	<i>Vicus</i> IV	stone, south end	101	V.156	P	–
695	1931	<i>Vicus</i> I	basement, b (sealed by oven)	102	V.157	P	AA4, 9, 1932
696	1931	<i>Vicus</i> I	basement, b (sealed)	104	V.160	A	AA4, 9, 1932
697	1931	Sewer of fort	–	46	V.162	M	AA4, 10, 1933, 96
698	1931	u/s, 1931 tip	–	–	V.163	P	–
699	1932	<i>Vicus</i> III	NW corner	16	V.166	P	–
700	1933	u/s, 1931 tip	–	–	V.165	P–	–
701	1931	<i>Vicus</i> II	b, east	109	V.167	PA	AA4, 9, 1932
702	1931	<i>Vicus</i> I	outside east wall	108	V.170	P	–

<i>No.</i>	<i>find date</i>	<i>context</i>	<i>feature</i>	<i>SF no.</i>	<i>store no.</i>	<i>status</i>	<i>reference</i>
703	1931	<i>Vicus I</i>	SE corner	107	V.169	A	–
704	1931	<i>Vicus I</i>	basement, b	110	V.171	PA	AA4, 9, 1932
705	1931	<i>Vicus II</i>	u/s, north-east	117	V.172	Absent	–
706	1933	Vallum trench G	–	4	V.174	P	–
707	1931	u/s	–	–	V.177	M	–
708	1931	<i>Vicus I</i>	u/s, south-east	115	V.178	Absent	–
709	1931	<i>Vicus I</i>	1, north	116	V.175	PA	AA4, 9, 1932
710	1931	<i>Vicus I</i>	basement, a	112	V.181	PA	AA4, 9, 1932
711	1932	<i>Vicus VIII</i>	south-east, inside	32	V.182	PA	AA4, 10, 1933, 96
712	1932	<i>Vicus VIII</i> , SW of,	below flagging	67	V.173	P	–
713	1931	<i>Vicus I</i>	basement, b	113	V.179	PA	AA4, 9, 1932
714	1931	<i>Vicus I</i>	basement, b	114	V.180	PA	AA4, 9, 1932
715	1931	<i>Vicus I</i>	basement, b	111	V.176	PA	–
716	1932	<i>Vicus VIII</i>	NE corner	31	V.183	P	–
717	1932	<i>Vicus III</i> , west of	–	24	V.186	P	–
718	1931	<i>Vicus I</i>	basement, b	138	V.190	PA	AA4, 9, 1932
719	1931	<i>Vicus I</i> , north of	–	139	V.191	Absent	–
720	1932	<i>Vicus VIII</i>	below clay filling	52	V.187	P	AA4, 10, 1933, 96
721	1931	<i>Vicus I</i>	2, north-west	140	V.194	PA	AA4, 9, 1932
722	1932	<i>Vicus III</i>	near centre of west wall, top	13	V.196	P	–
723	1931	<i>Vicus II</i>	u/s, south-east	142	V.188	Absent	–
724	1931	<i>Vicus III–IV</i>	outside west wall of <i>Vicus IV</i>	161	V.185	P	–
725	1931	u/s	–	–	V.184	M	–
726	1932	Vallum causeway	over causeway, below the road	3	V.193	PA	AA4, 11, 1934, 190, no. 3
727	1931	<i>Vicus I</i>	basement, b	141	V.195	PA	AA4, 9, 1932
728	1933	u/s, 1932 tip	–	–	V.198	P	–
729	1931	<i>Vicus II</i>	u/s, south-east	143	V.197	Absent	–
730	1931	<i>Vicus I</i> , north of	over flagging south of S gate	152	V.199	P	–
731	1931	u/s, 1931 tip	–	–	V.203	P	–
732	1932	<i>Vicus VIII</i>	NW corner on flagging	–	V.202	A	–
733	1932	<i>Vicus VIII</i>	SE corner	32	V.200	Absent	–
734	1932	<i>Vicus III</i>	in passage half way up W side	34	V.201	P	–
735	1931	<i>Vicus IV</i>	stone, u/s	118	V.204	Absent	–
736	1932	<i>Vicus III</i>	half way up west side	35	V.207	P	–
737	1932	Vallum causeway	on road over causeway	4	V.205	PA	AA4, 11, 1934, 190, no. 4
738	1931	<i>Vicus I</i>	basement, a	125	V.206	PA	AA4, 9, 1932
739	1931	<i>Vicus I</i>	basement, b	120	V.208	PA	AA4, 9, 1932
740	1931	<i>Vicus I</i>	basement, b (sealed)	124	V.213	PA	AA4, 9, 1932
741	1931	<i>Vicus I</i>	2, north	123	V.211	PA	AA4, 9, 1932
742	1931	<i>Vicus I</i>	basement, b	119	V.210	PA	AA4, 9, 1932
743	1931	<i>Vicus I</i>	basement, b	121	V.209	PA	AA4, 9, 1932
744	1931	<i>Vicus I</i>	basement, b (sealed)	122	V.212	PA	AA4, 9, 1932
745	1932	<i>Vicus III</i>	north end, top	11	V.214	P	–
746	1931	<i>Vicus II</i>	outside south wall	151	V.244	P	–
747	1931	<i>Vicus I</i>	basement, b (sealed)	126	V.218	PA	AA4, 9, 1932
748	1933	u/s, 1931 tip	–	–	V.219	P	–
749	1931	<i>Vicus I</i>	u/s, south-east	128	V.217	Absent	–
750	1931	<i>Vicus I</i>	basement, a	130	V.216	PA	AA4, 9, 1932
751	1932	<i>Vicus VIII</i> , south of	north wall of bldg south of VIII	43	V.215	P	–
752	1931	u/s	–	–	V.236	M	–
753	1931	<i>Vicus I</i>	b, north-east	127	V.221	PA	AA4, 9, 1932
754	1932	<i>Vicus VIII</i>	below floor	30	V.222	P	AA4, 10, 1933, 96
755	1931	u/s	–	–	V.223	M	–
756	1933	u/s, 1931 tip	–	–	V.226	P	–
757	1931	<i>Vicus I</i>	basement, b (sealed)	129	V.227	PA	AA4, 9, 1932
758	1931	<i>Vicus I</i> , north of	–	131	V.237	P	–
759	1931	u/s, 1931 tip	–	158	V.225	P	–
760	1931	<i>Vicus II</i>	south wall, inside	151	V.220	Absent	–
761	1931	<i>Vicus I</i>	basement, b (sealed)	149	V.243	P	AA4, 9, 1932
762	1931	<i>Vicus I</i>	outside north wall on flagging	159	V.240	P	–
763	1931	<i>Vicus I</i>	basement, b	132	V.231	PA	AA4, 9, 1932
764	1931	<i>Vicus I</i>	basement, a	136	V.229	PA	AA4, 9, 1932
765	1931	<i>Vicus I</i>	basement, c	134	V.232	PA	AA4, 9, 1932
766	1931	<i>Vicus I</i>	basement, b	137	V.230	PA	AA4, 9, 1932

No.	find date	context	feature	SF no.	store no.	status	reference
767	1932	Vicus III	annexe south of Vicus III	25	V.233	P	–
768	1931	Vicus I	basement, b	133	V.234	PA	AA4, 9, 1932
769	1932	Vicus III, trench west of,	–	10	V.235	P	–
770	1933	u/s, 1931 tip	–	–	V.272	P	–
771	1932	Vicus III	south of cross-wall	9	V.246	P	–
772	1931	Vicus II	east end	157	V.224	P	–
773	1934	Vicus XII	outside south wall	4	V.245	P	–
774	1932	SE angle of fort, close to,	topsoil	18	V.238	P	–
775	1931	Vicus I	basement, b	155	V.241	P	AA4, 9, 1932
776	1931	Vicus I	basement, b	156	V.242	P	AA4, 9, 1932
777	1931	Vicus I	2, north west	–	V.239	Absent	–
778	1931	Vicus I, west of	road trench, top	145	V.248	P	–
779	1932	East gate, north of,	trench 1, 2'6" down	38	V.251	P	–
780	1932	East gate, ?north of,	trench 1, 2'6" down	37	V.250	P	–
781	1931	Vicus I	basement, c, north west	144	V.253	PA	AA4, 9, 1932
782	1932	Vicus III	south of cross-wall	8	V.252	P	–
783	1932	East ditch	southern end, topsoil	40	V.254	P	–
784	1932	Vicus II, trench south of,	–	68	V.247	P	–
785	1931	Vicus I	basement, NE, over hearth	148	V.257	P	AA4, 9, 1932
786	1932	Sewer of fort	outside SE angle of fort	47a	V.256	PA	AA4, 10, 1933, 96
787	1931	Vicus I	NW corner, by wall, top floor	146	V.259	P	AA4, 9, 1932
788	1931	Vicus I	outside NE angle	147	V.255	P	–
789	1932	Vicus VIII	west end, topsoil	–	V.258	P	–
790	1931	u/s	–	–	V.260	Absent	–
791	1931	Vicus IV	stone, 1 (sealed), centre	106	V.263	P	–
792	1932	Vicus VIII	east end, black layer	61	V.269	P	–
793	1931	Vicus IV	stone, 1 (sealed), centre	55	V.262	P	AA4, 9, 1932
794	1931	Vicus I	basement, b	56	V.264	P	AA4, 9, 1932
795	1931	Vicus IV	–	105	V.271	Absent	–
796	1932	Vicus VIII	outside N. wall, lower level	53	V.273	P	–
797	1931	Vicus I	basement, a	162	V.261	P	–
798	1931	Vicus I	south side, c	160	V.278	P	–
799	1931	Vicus II	over robbed north wall	164	V.274	P	–

Housesteads vicus: Chapel Hill and mithraeum

No.	find date	context	feature	SF no.	store no.	status	reference
800	1960	Chapel Hill	Group A, u/s	1	V.2	P	AA4, 39, 1961, 317, no. 1
801	1960	Chapel Hill	Group A, u/s	3	V.93	P	AA4, 39, 1961, 317, no. 3
802	1960	Chapel Hill	Group A, u/s	2	V.92	P (in BM)	AA4, 39, 1961, 317, no. 2
803	1960	Chapel Hill	Group A, u/s	4	V.94	P	AA4, 39, 1961, 317, no. 4
804	1960	Chapel Hill	Group A, u/s	5	V.265	P	AA4, 39, 1961, 317, no. 5
805	1960	Chapel Hill	Group B, in well	6	V.75	P	AA4, 39, 1961, 317, no. 6
806	1960	Chapel Hill	Group B, in well	7	V.85	PA	AA4, 39, 1961, 318, no. 7
807	1960	Chapel Hill	Group B, in well	8	V.97	P	AA4, 39, 1961, 318, no. 8
808	1960	Chapel Hill	Group B, in well	9	V.130	PA	AA3, 39, 1961, 318, no. 9
809	1960	Chapel Hill	Group B, in well	10	V.164	PA	AA4, 39, 1961, 318, no. 10
810	1960	Chapel Hill	Group B, in well	12	V.189	P	AA4, 39, 1961, 318, no. 12
811	1960	Chapel Hill	Group B, in well	11	V.192	P	AA4, 39, 1961, 318, no. 11
812	1960	Chapel Hill	Group B, in well	13	V.249	P	AA4, 39, 1961, 318, no. 13
813	1898	trench N of mithraeum	near well	–	V.10a	BA	AA2, 25, 1904, 297
814	1898	trench N of mithraeum	near well	–	V.158a	BA	AA2, 25, 1904, 298
815	1898	mithraeum	–	116	V.18	B	(Not in AA2, 25, 1904)
816	1898	mithraeum	–	–	V.80a	BA	AA2, 25, 1904, 298
817	1898	mithraeum	–	28	V.228	B	(Not in AA2, 25, 1904)

14 The small finds

L Allason-Jones

with contributions by M Henig, W B Griffiths and Q Mould

Discussion

The small finds from the 1974–81 excavations at Housesteads include objects of silver, copper alloy, lead, iron, tile, pottery, stone and flint, bone, glass, jet and shale.

The number and quality of the silver artefacts is unusual from a Hadrian's Wall fort, and includes a rare ear-ring and a votive leaf plaque. The objects are, however, widely scattered across the excavated areas and it is difficult to reach any conclusions as to the reasons for their presence.

The number and spread of copper alloy artefacts is also unusual for a Hadrian's Wall fort with a few items, such as the two Langton Down brooches (15 and 16), already being antiques when they arrived on the site. The bulk of the material is of 2nd- to 3rd-century date with numbers dropping as the 4th century progresses. There is a small quantity of enamelled luxury goods, such as mount No. 48 and the perfume flask (50), but the majority of the copper alloy objects come from the expected range of domestic and military equipment, the latter including items of harness, such as a rare bridle hackamore (81). It is noticeable that more military equipment was found during the excavations of the north and east ramparts than in the barracks and that much of it was old when deposited, suggesting redeposition of rubbish dumps, probably located outside the fort, or material from the abandoned *vicus*. There was a particular concentration of scabbard runners and chapes (114–17) within the late interval tower on the east rampart (see Fig 14.11). Most of these were of 3rd-century date although the context – the fill (H21:3:32) of a pit (3:34) next to a large stone hearth (3:38/40), all sealed by the makeup (3:31) for the secondary floor of that tower – is dated to the late 3rd to early 4th century (H21 Phase 3). This may suggest dumping from an armourer's workshop, although evidence of metalworking – in particular the large adjacent hearth – may imply that material from a specific source was being recycled.

In general the armour fittings show a bias towards open-work mounts with Celtic motifs, such as can be paralleled on the German *limes*, which might be expected to have appealed to the men of the First Cohort of Tungrians. None of the artefacts offer any clues as to the other garrisons that might have served at Housesteads either before or after the Tungrian presence. There are also, among the copper alloy objects, items such as the enamelled button and loop fasteners, which might suggest local sources of supply.

The iron objects include few weapons but no fewer than is normally found on Wall sites, and an interesting selection of tools, such as spades, hammers and chisels, which may serve to emphasise the self-sufficient nature

of the fort. Both in iron and copper alloy there are several examples of locks, keys and padlocks. While the contexts do not reveal a specific time when the soldiers started to lock their doors there is a suggestion that the early 2nd-century barracks did not have locked doors, and that security only became an issue after the first phase of the fort. The unstratified context (H20:5:0) of the iron shackles (333) may suggest that they came from an even later period of the fort's history, possibly when the Armstrong family made the fort the centre of raiding activities.

There are few identifiable objects in lead other than weights, nor are there many bone objects. While a lack of lead artefacts in the Roman north is to be expected, the lack of bone items is unusual. The tile, pot, and stone objects cover the normal range of counters, whorls, lids and hones with few surprises other than some objects of amber and lithomarge, which may have religious connotations.

It is in the amount and quality of the jet and shale artefacts that Housesteads is unusual. Other than the fort at South Shields, where there is evidence of a jet/shale workshop, the Hadrian's Wall sites have not produced much in jet or shale, the usual range being largely confined to beads, armlets and pins. At Housesteads there are few pins but there is an unexpected number of finger-rings of high quality. As the evidence suggests that jet had a special significance for women (Pliny, *Nat Hist*, XXXVI, 141–2; Allason-Jones 1996) this raises the question of the presence of women at Housesteads.

In 1980 the suggestion was made that there was 'a preponderance of brooches and other trinkets at Housesteads XIII', and this was taken as confirmation of the theory that the 'chalets' were married quarters (Daniels 1980). However, a close study of the distribution and phasing of the artefacts traditionally associated with women does not include a bias toward female artefacts in H13 in the chalet periods.

The dangers of attributing objects to purely male or female use have been discussed elsewhere (Allason-Jones 1995). In this study only ear-rings, bracelets, hairpins and jet artefacts have been considered to be specifically for female use. Glass beads, in some circumstances, may be seen as 'female', as beaded necklaces and armlets seem to have been worn solely by women; however, the few glass beads found in the chalets are all extremely small and may easily have been trampled into the buildings on the soles of muddy boots. The brooches of H13 and H14 are invariably disc brooches or crossbow brooches and there is overwhelming evidence that both these types were used throughout Britain for fastening both military and civilian cloaks and cannot, therefore, be considered as evidence for the presence of women.

In Barracks XIII and XIV no unequivocally female objects were found stratified in the chalet phase contexts, as opposed to post-Roman dereliction or modern disturbance. Thus one jet bead (614) was found among the mixed layer of rubble collapse and topsoil covering Chalet 5 (H13:5:3), while a gilded silver hairpin (7) was recovered from the backfill of one of Bosanquet's trenches (4:6). The latter object, in any case, would have been an expensive item that might have been picked up or stolen by a soldier and hidden away as loot. One stratified object was found in H13 associated with one of the latest modifications to the chalet range: a shale armet (623 – H13:11:20). However, this is an ambiguous artefact as far as gender attribution is concerned. Moreover, it was found in the backfill of a stone-lined, oblong pit or sump (10:32; 11:6) and may well have been a residual artefact imported with the clay fill material.

The only area in H13 where there was an identifiable preponderance of female artefacts was within the area of the centurion's quarters, and here there was enough to indicate the presence of women at all periods of the fort's history. Centurions had always been allowed to marry and several inscriptions in Britain record the presence of centurions' wives on forts: Aurelia . . . illa at Piercebridge (*RIB* 1026), Vibia Pacata at Westerwood (*JRS* 54, 1964, 178), and Salviena Metilliana whose husband died at Lambaesis in Algeria, but whose career may have included a tour of duty at Housesteads (*CIL* VIII 2907). There has been some debate as to whether the centurions' wives lived in the centurion's quarters at the end of each barrack block or in the *vici* outside the forts. One of the arguments raised against the families living inside the forts is the suggestion that the centurion's accommodation was too small to house a family. On Hadrian's Wall, however, the average size of the centurion's quarters is 78–98 sq metres, which falls comfortably within the range of the strip houses at Verulamium, London, Silchester, etc. There is no reason to suppose that the accommodation was too small to hold a centurion, his wife, an average military family of two children, and any servants he might employ or own. The analysis of the small finds from Housesteads would appear to support the view that centurions' families lived in the centurion's quarters, even if it cannot be used in support of the married quarters theory.

The rest of the female artefacts, including most of the hairpins, were found in rampart dumps of various periods. Although there is no clear evidence regarding the origin of dump material, the range of artefacts may suggest that it was coming from domestic rubbish heaps, possibly from the *vici*.

Catalogue

The catalogue principally includes small finds from the 1974–81 excavations. In addition seven pieces of ironwork from the adjacent 1984 excavations outside the fort, immediately to the north of the north rampart

(Area H20:10), are published here, as these were mistakenly omitted from the excavation report (Crow 1988). The objects are arranged by material and numbered sequentially for ease of cross-reference with the illustrations and the finds sections in Chapters 2–7. This catalogue number is followed by the original excavation small finds number, the site context number, and a figure number when relevant. It should be noted that in the case of the H20:10 ironwork the excavation small finds number is completely independent of the 1974–81 numbering sequence. Similarly the finds assemblages recovered during the consolidation of Building XIII and the clearance of the western part of the road between XIII and XIV (code HS) undertaken over the winter of 1977–78 were also both numbered separately, those associated with the consolidation of Building XIII incorporating an 'A' at the end of each finds number. Finally, a few objects can now only be identified by the six figure number applied during conservation at the Ancient Monuments Laboratory.

The report on the leatherwork is by Q Mould, the intaglios are analysed by M Henig and the stone missiles by W B Griffiths. All other entries are by L Allason-Jones. The pottery identifications were by J N Dore. The majority of the finds were drawn by M Daniels, the remainder by A Liddell.

Abbreviations used: L = Length, H = Height, D = Diameter, W = Width, T = Thickness, Wt = Weight

Silver (Fig 14.1)

- 9171 HSE:1:13
Two fragments of fine wire brooch spring.
L:7mm, T of wire:1mm
- 2716 H13:8:37 (Fig 14.1)
Finger-ring made from three oval-sectioned beaded wires twisted around each other. The beading has been achieved before twisting and has the effect of emphasising the gap between the wires and making the final effect more elaborate. Both ends of each wire are soldered to the sides of an oval bezel with four pellets originally covering the soldered joints.
Twisted beaded wire was commonly used to give texture to simple jewellery (see Allason-Jones 1989), particularly in the early 3rd century AD. The use of pellets to hide soldered joints is to be seen on two gold intaglio rings from the Backworth Hoard (Charlesworth 1961, 30, no. 79) although both those examples have a single plain band. The Backworth Hoard has been dated to the mid- to late 2nd century. The ring under discussion, however, shows signs of considerable wear and is likely to have been of some age when deposited.
Internal D:18mm, T:3mm, bezel:13.5 × 6mm
- 6040 H20:6:14
Fragments of a strip finger-ring.
W:4mm, T:1mm
- 3104 H13:1:85 (Fig 14.1)
Small plain disc with an oval-sectioned shank that projects from the centre of the back in a curved hook.
Stud ear-rings are rare in Roman Britain although common in Roman Egypt (see Allason-Jones 1989, Type 16).

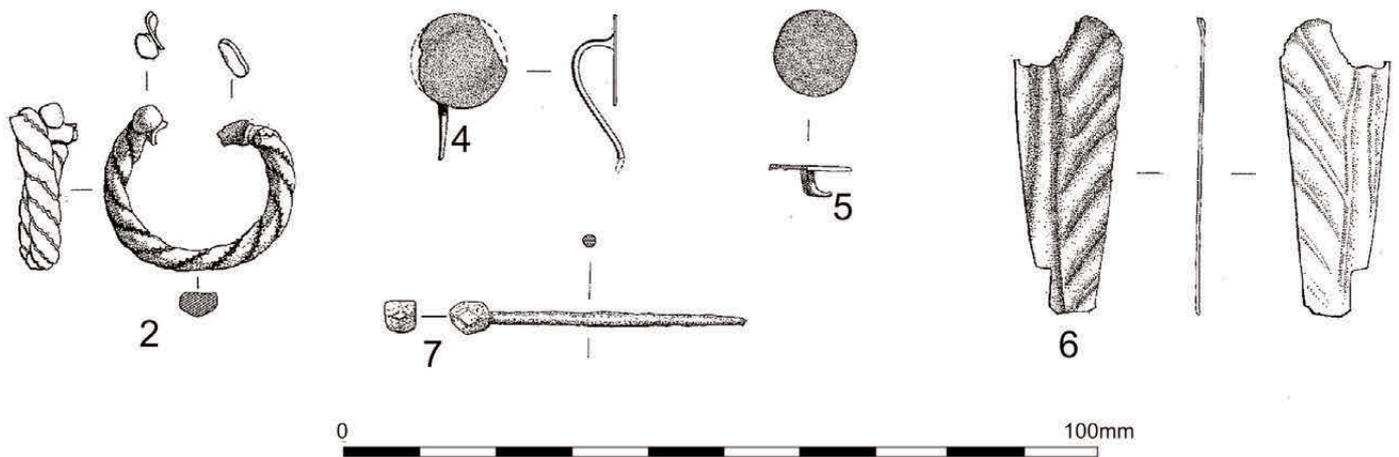


Fig 14.1 Silver objects (scale 1:1).

This example appears to bridge the gap between the hooked ear-rings – see in particular Allason-Jones 1989, Type 9 – and the stud proper.

D of head:11.5mm, total L:18mm

5. 9252 H15:1:4 (Fig 14.1)

Very small stud with a disc head and a short rectangular-sectioned curled shank.

D:10mm, W of shank:2mm

6. 7641 H20:9:9 (Fig 14.1)

Fragment of a repoussé-decorated plate with oblique ribs emerging from a central vertical rib giving the appearance of a leaf.

A copper alloy leaf from Cavenham (Green 1976, pl XXIVf, 213) is similar to the Housesteads leaf but the closest parallels can be found in the Water Newton Hoard. The discovery at Water Newton included the largest group of votive leaf plaques from Britain. The majority were plain but several included ChiRho symbols in their decoration indicating their Christian nature, contradicting the pagan status of the previously discovered leaves – see Toynbee 1964, 328–31; Walters 1921, nos 224–41.

L:38mm, W:14mm, T:0.5mm

7. 54 H13:4:6 (Fig 14.1)

Fine pin with a faceted head. Some of the facets show traces of gilding but it is unclear whether the entire head was gilded or just some of the facets. The pin is rather roughly fashioned and follows a common 2nd- to 4th-century form.

L:39mm

Copper alloy (Figs 14.2–13)

8. 40 H13:5:0

Fragment of a wire brooch. All that survives is the curved circular-sectioned bow and part of the splayed catchplate. This appears to be part of a Nauheim derivative brooch with a date range between the pre-Roman and pre-Flavian periods. Cf Colchester: Crummy 1983, 8, no. 9. See also Bishop and Dore 1988, 159, fig 76, nos 2, 3, 4. L:26mm, T:2.5mm

9. 3215 H13:1:109 (Fig 14.2)

Solid knee brooch with a high angular knee. The head is short and tubular and has lost both its spring and pin, although traces of the iron hinge pin survive. The back of the shank is straight and flat. The rectangular foot splays

to a marginal groove. The projecting catchplate is incomplete. A shallow rib separates the head from the shank. The brooch is made from leaded bronze which has been heavily tinned.

The knee brooch was a common form on the German frontier in the 2nd century AD. In the area of Hadrian's Wall, however, it would appear that the form with a tubular head is less common than the fan head form.

H:30mm, W of head:17.5mm, max W of knee:7.5mm

10. 8066 H20:8:23

Fragment of the hollow faceted bow from a knee brooch. Cf Sewingshields: Haigh and Savage 1984, 75, no. 1.

L:9mm, W:11mm

11. 8658 H21:4:7 (Fig 14.2)

Fragment of a simple knee brooch with a bar head hollowed at the back to take the spring, which has three loops on either side of the missing pin. The bow is hollow at the back and slightly chamfered. The foot and catchplate are missing, as is the pin. The hinge pin is of iron.

L:20mm, W across head:16mm, max W across bow:10mm

12. 8913 H21:1:33

Fragmentary knee brooch. The tubular head has a short rectangular projection and contains the spring held in place by an iron hinge pin. The hollow-curved bow has straight sides. The fragment of catchplate that survives is too fragmentary to identify the form.

L:31mm (approx), W of head:11mm, W across bow:8mm

13. 6534 H20:6:37 (Fig 14.2)

Incomplete bow brooch with a narrow tapering tubular head. The bow is thin and triangular in section with a notched median rib. The foot, catchplate and part of the pin is missing.

The method of manufacture seems to have been to make the bow in a mould and then solder it into position onto the tubular head, made from a curled sheet with a notch cut out for the pin. The pin itself is a simple length of wire wrapped twice around the iron hinge pin.

Surviving L:29mm, W across head:24mm

14. 8660 H21:4:36

Catchplate and foot of a bow brooch. The foot is small and projects forward of the lower bow to form a point. Surviving L:21mm

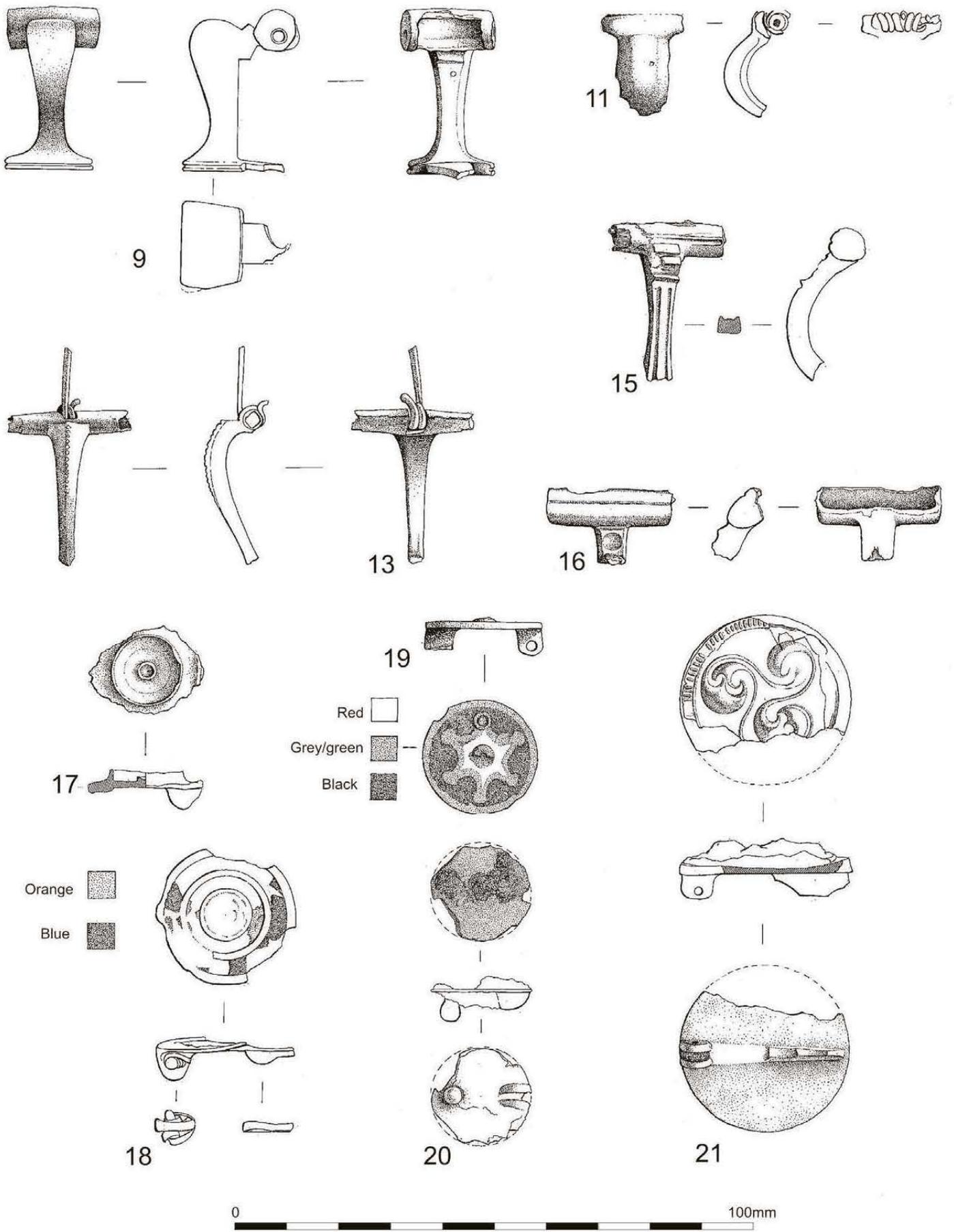


Fig 14.2 Copper alloy brooches (scale 1:1).

15. 790 H13:5:3 (Fig 14.2)
Incomplete brooch with the characteristic flattened reeded bow and cylindrical spring case of the Langton Down series. The spring case is decorated with two horizontal grooves across the top. The pin and catchplate are missing. Hawkes and Hull 1947, Type XII; Riha 1979, Type 4.4. The presence of this early brooch form (50 BC–AD 100) on a Wall fort is unusual.
Surviving L:31mm
16. 3524 H13:11:14 (Fig 14.2)
Fragment of a Langton Down brooch with a hollow cylindrical head and a horizontal rib across the rectangular-sectioned bow.
W:25mm, D of spring case:7mm
17. 8682 H21:3:41 (Fig 14.2)
Incomplete circular disc brooch with a concentric rib to hold a now missing glass inset. The inset would have been keyed into position with the aid of a small raised ring that encircles a central hole. In the channel formed by the rib and the raised edge of the brooch there is a series of stamped S-shaped motifs. The face is gilded. Scars of the hinge and catchplate are all that survive on the back.
This type of brooch appears in both oval and circular forms in the military north in 3rd- and 4th-century contexts. See Allason-Jones and Miket 1984, no. 3.138 for parallels and Mackreth 1986, 65–7, 73 for discussion.
D:21mm, total H:9mm
18. 9280 H14:3:4 (Fig 14.2)
Disc brooch with the face divided into concentric rings by shallow ribs. The outer ring contains blue enamel, the inner ring orange enamel. The central circle is poorly shaped and would not have held enamel efficiently but possibly acted as seating for a glass cone as in No. 17 above. The hinge survives but not the sprung pin or the turnover of the catchplate.
Disc brooches with simple concentric rings of enamel are not as common in the military north as the more elaborate forms with reserved metal emerging from the enamel. Unfortunately this example is poorly preserved so it is not clear if the enamel is unbroken or arranged in wedges. Cf Corbridge: Corstopitum Museum Acc Nos 75.480; 75.287; 75.473; 75.297.
D:26mm, Total H:6.5mm
19. 9328 H21:1:35 (Fig 14.2)
Disc brooch with a central applied knob surrounded by a ring of red enamel, the outer edge of which is shaped to a six-pointed star. A border of reserved metal follows the star pattern with a rounded knob applied individually at each point of the star. The field between the outer raised rim of the brooch and the star motif is filled with black enamel although traces of red enamel among the black and vice versa were noticed during conservation. All the knobs and the reserved metal are plated with tin.
The looped hinge and catchplate project from the back although the pin, hinge-pin and catchplate turnover are all missing.
Wedlake catalogues a parallel from Camerton and refers to others from Verulamium and Wroxeter, but in none of these examples do the applied knobs survive (1958, fig 53, no. 50). An example from Corbridge (Corstopitum Museum Acc No. 75.476) also lacks the applied knobs although it is unclear whether these ever existed.
D:22mm, total H:6mm
20. 6962 H20:8:8 (Fig 14.2)
Very small disc brooch with no obvious decoration on the face. The hinge lugs survive but the catchplate and pin are missing.
D:20mm
21. 699 H13:5:3 (Fig 14.2)
Incomplete disc brooch with a silver repoussé plate soldered to the face with lead-tin alloy. The plate may have been gilded but no traces survive. The decoration consists of a swirled triskele motif contained within a narrow beaded border. The hinge survives but not the pin or the hinge pin. The catchplate turnover is also missing.
This type of brooch, which combines a Roman form with a Celtic decorative motif, has been found on most of the forts on Hadrian's Wall as well as those on the Stanegate. Some, such as a small example from Vindolanda (Bidwell 1985, 117, no. 2) and those with a southern distribution (eg Silchester: Boon 1957, fig 19, no. 2; Verulamium: Waugh and Goodburn 1972, 118, fig 13, no. 24) come from later contexts, but the northern group point to a late 1st- to mid 2nd-century date of manufacture. For local parallels see Allason-Jones and Miket 1984, nos 3.148–9.
D:33mm, total H:10mm, L of catchplate:15mm
22. 8377 H20:8:63 (Fig 14.3)
Disc brooch with a central nipples umbate boss which is plated with white metal (Sn/Pb alloy) and has been soldered into position. The solder extends beyond the edge of the boss and appears to have secured a fine strip of repoussé beading in a brighter metal than the solder, possibly silver. Traces of solder around the edge of the brooch suggest that here the beaded strip was repeated. The face around the boss is divided into two concentric rings; that nearest the boss is filled with red enamel with a row of reserved metal dots. On analysis the small circular blobs on top of the reserved metal were found to be of similar composition to the solder around the edge and may suggest that the dots were covered in silver foil; traces of silver were noted in this area through XRF although none was recognisable as metal. The outer ring has a scalloped edge and is filled with blue enamel. All the reserved metal shows traces of white metal plating.
A simple strip catchplate projects from the back but now lacks its turnover. Two projecting lugs form the hinge. Several examples of this form of brooch have been found on Hadrian's Wall, but none in a securely dated context: Coventina's Well: Allason-Jones and McKay 1985, no. 43; Corbridge: Bishop and Dore 1988, no. 21; Wallsend, 1975–84 excavations, K14.1353.
D:30mm, D of boss:12mm, total H:16mm
23. 6164 H20:6:3 (Fig 14.3)
Short heavy foot from a brooch which has had a wide strip bow decorated with vertical grooves and transverse ribs. The face of the foot is chamfered and hides a tubular catchplate with a side opening. The foot ends in a short flange. The whole has been silvered or tinned.
Surviving L:35mm, W:13mm, L of catchplate:22mm
24. 3624 H13:1:170
Incomplete penannular brooch with a circular-sectioned loop and a small, plain, knobbed terminal.
Internal D:21mm, T:2.5mm
25. 39 H13:5:0 (Fig 14.3)
Two fragments of a large penannular brooch with simple zoomorphic terminals. The shank is circular in section. The pin is missing.
Fowler 1960, Type E.
D:39mm

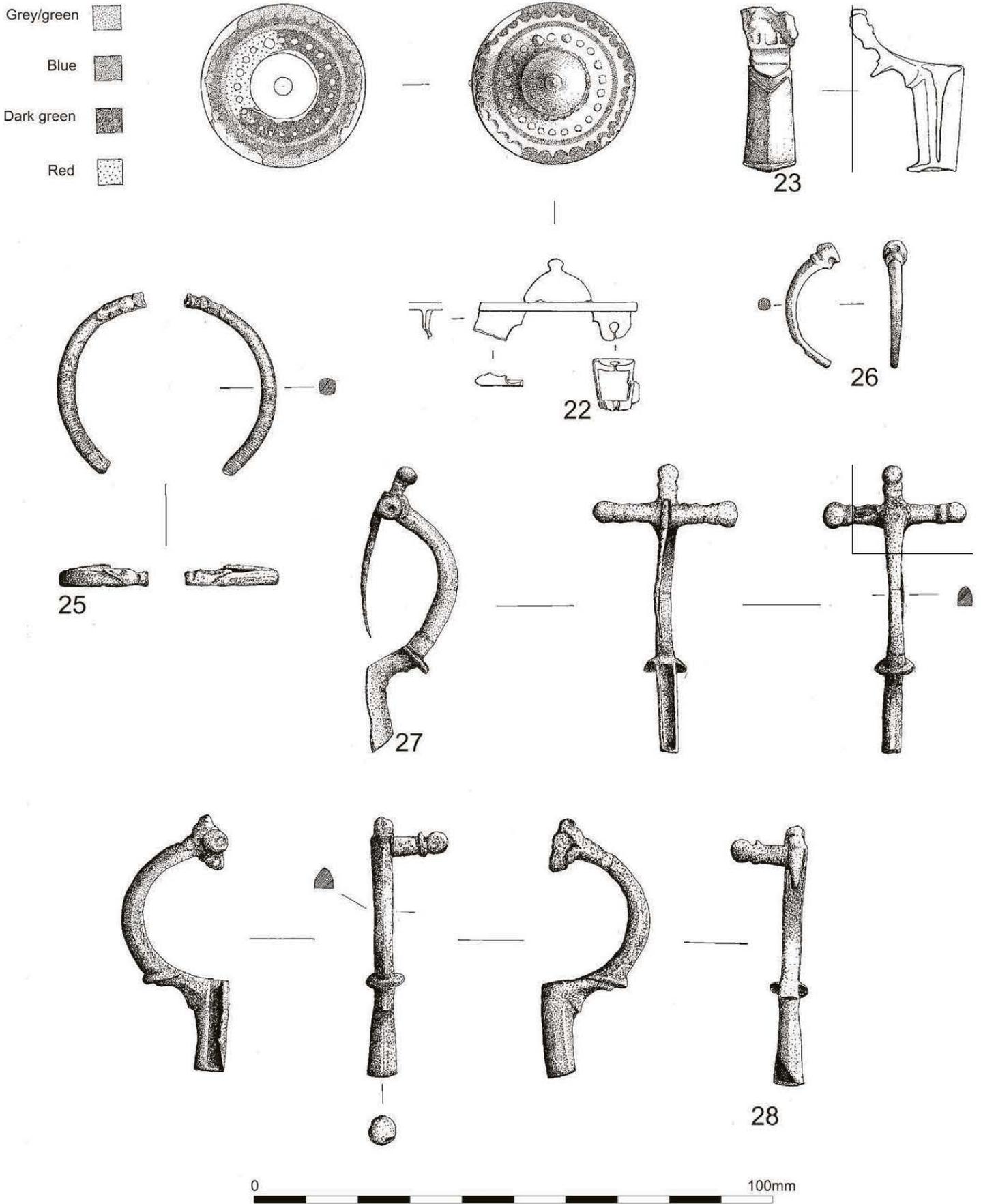


Fig 14.3 Copper alloy brooches (scale 1:1).

26. 5771 H20:7:2 (Fig 14.3)
Fragment of a penannular brooch with a circular-sectioned shank which expands to a globular terminal with a disc neck. The whole has been tinned.
Fowler 1960, Type A3.
L:29mm
27. 5927 H20:7:15 (Fig 14.3)
Small crossbow brooch with semi-oval-sectioned shank. An incomplete flange projects from above the tubular foot which expands slightly to the end. The arms are semi-circular in section with globular terminals and disc necks. The pin is incomplete and hinged. The terminal is flat at the back and has only a vestigial disc at the neck. A similar brooch from Richborough has been dated to earlier than the last quarter of the 3rd century AD (Bushe-Fox 1949, 119, no. 55, pl XXX), but continental parallels suggest an even earlier date (Riha 1979, Taf 50, no. 1440). Local parallels include those from South Shields (Allason-Jones and Milet 1984, nos 3.43, 3.47, 3.51, 3.54) and Coventina's Well (Allason-Jones and McKay 1985, 24-5, no. 49).
L:55mm, W across arms:27mm, L of catchplate:16mm
28. 1245 H13:8:1 (Fig 14.3)
Crossbow brooch lacking the pin, the terminal and one arm. The surviving arm has a globular end and a disc neck. The bow is semi-octagonal in section while the expanding catchplate is plain and also has a semi-octagonal section. The whole has been silvered or tinned. *See* No. 27 above for comments on the type.
L:49mm
29. 62 H13:3:0 (Fig 14.4)
Developed crossbow brooch lacking the pin and one arm. The rectangular-sectioned bow is narrower than proportions might demand and has two fine vertical grooves. The knobbed terminals have baluster-moulded necks. The long rectangular catchplate with side opening is decorated with three groups of three transverse incised lines. The whole has been silvered and tinned. This brooch does not fall naturally into Keller's typology (1971); in particular the thin, circular-sectioned arms recall the earlier bow brooches as exemplified by Nos 27 and 28 above. The baluster-moulded necks, however, are a sophistication on the more common globular or onion-headed terminals discussed by Clarke (1979).
L:74mm
30. 3483 H13:2:0
Fragment of the triangular-sectioned bow of a developed crossbow brooch.
L:25mm, W:5mm, T:7mm
31. 9065 HSE:1:17
Triangular-sectioned bow from a crossbow brooch. An oval flange projects from just above the missing foot.
Surviving L:36mm, W of bow:3.5mm, T of bow:3.5mm
32. 3340 H13:11:16
Rectangular foot and catchplate from a crossbow brooch. The bow appears to have been rectangular in section.
Surviving L:36mm, W of foot:5.5mm
33. 8613 H21:1:12
Brooch pin of rectangular section with two coils of the spring surviving.
L:43mm, T:1.5 × 1mm
34. 4967 H20:2:2
Length of chain made up of a series of wire rings bent and fitted into one another so that each ring contains part of two others. The resultant cross-section is a concave-sided square. The links are tightly fitted and have a limited play.
This complex form of chain is usually found in association with brooch pairs. For a general discussion see Stevenson and Emery 1963, 20ff; for local parallels see Brewis 1924, pl 4, and Hanson *et al* 1979, 62.
L:56mm, total T:5mm
35. 200 H13:7:0
Fragment of a triangular-sectioned ring. Possibly part of a buckle or a penannular brooch.
D:40mm, W:3.5mm, T:3mm
36. 4415 H20:6:0 (Fig 14.4)
Strip finger-ring expanding at the shoulders to enclose a raised rectangular panel. A double incised V on either side of the panel emphasises the shoulders. The inner surface shows file marks.
Internal D:20mm, panel:11 × 10mm
37. 5929 H20:6:19 (Fig 14.4)
Oval annular ring of D-section expanding slightly to a flat oval panel, moulded to the outer face, which has a central boss. Possibly a finger-ring or the loop from a mount (see Allason-Jones 1986, 68-9).
D:21mm, panel:12 × 11mm
38. 2872 H13:1:54 (Fig 14.4)
Oval-sectioned penannular ear-ring with a groove across the inner edge indicating a missing pendant. One tapered terminal has a length of wire wrapped tightly around it seven times.
Type 1 (Allason-Jones 1989) ear-rings with pendants are common throughout the Roman period on both military and civilian sites. The additional twisted wire decoration, however, is less common.
D:19mm
39. 9505a H21:1:8
Arc of copper alloy with notches along the inner face and both ends splayed. Ear-ring of Allason-Jones 1989, Type 2F.
Surviving L:23mm
40. No SF no. or context
Fragment of a curved hook of tapering lozenge section. Possibly an ear-ring.
Surviving L:16mm, maximum T:2mm
41. 7312 H20:8:8 (Fig 14.4)
Incomplete and fragmentary strip bracelet with a raised edge. The centre of the shank is decorated with a median row of stamped lozenges which increases to three rows towards the surviving terminal. The terminal is rounded with a beaded border and a stylised repoussé snake's head.
In the quality and elaboration of the decoration this can be compared with the two snake's head bracelets from Castlethorpe (Cool 1979). In discussing those examples, however, Cool comments that early snake's head bracelets, such as those found at Dolaucothi, tend to have the heads modelled in the round while the later bracelets are flat with the details incised. The Castlethorpe examples are unusual in having moulded tops and flat undersides and none of the examples cited by Cool have repoussé decoration.
Surviving L:84mm, max W:16.5mm, T:1.5mm
42. 3551 H13:5:0
Fragment of a strip bracelet decorated with incised transverse lines.
Surviving L:30mm, W:1mm, T:4mm
43. 5928 H20:6:19 (Fig 14.4)
Very small bracelet of oval section with rounded terminals.

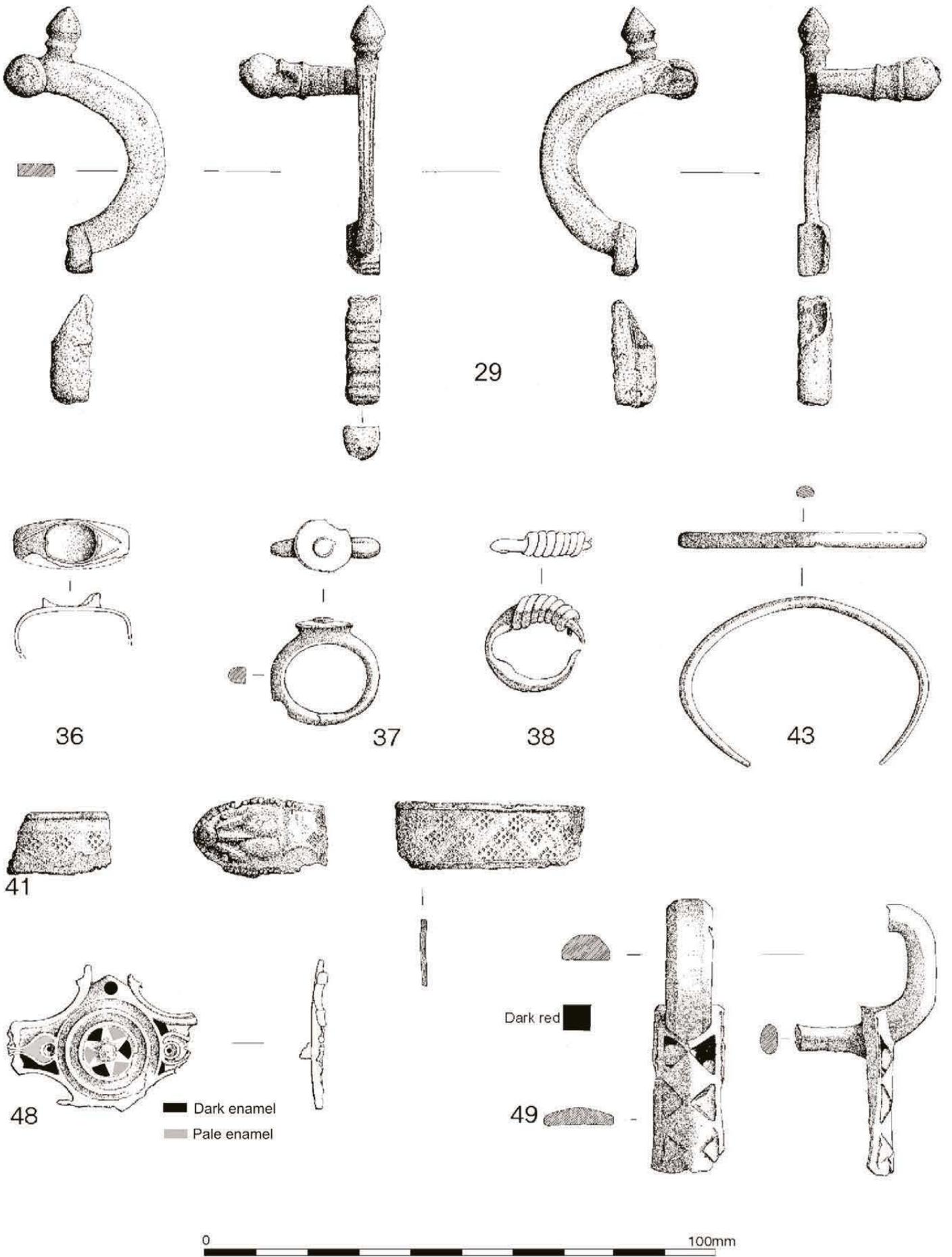


Fig 14.4 Copper alloy crossbow brooch, rings, bracelet and other objects (scale 1:1).

- Undecorated.
Internal D:45mm, W:1.75mm, T:3mm
44. 9473 H21:1:44
Length of semi-oval-sectioned wire, tapering to one end and decorated across the convex face by incised transverse grooves. Distorted bracelet.
L:21mm, W:3mm, T:1.5mm
45. 8621 H21:3:18
Two fragments of a bracelet formed by twisting three lengths of wire together. Allason-Jones and Miket 1984, Type 12.
L:37mm, 25mm, total T:2mm
46. 10 H13:2:0
Fragment of a curved circular-sectioned strip. Possibly part of a bracelet.
Surviving L:25mm, T:6mm
47. 8593 H21:4:7
Curved, circular-sectioned rod, possibly from a bracelet or handle.
L:37mm, T:7mm
48. 8675 H21:3:78 (Fig 14.4)
Incomplete enamelled plate with a central circular rivet hole. The back is plain and undecorated. The face has a six-point star in reserved metal surrounding the central hole. The triangular fields between the arms of the star and its encompassing circle of two grooves have been filled with alternate colours of enamel, now surviving as dark olive green and pale brown. Projecting from the circle are two opposing bars and four projecting curled motifs arranged in opposing pairs – too little survives to identify the shape or purpose of these motifs. Both of the bars appear to have been decorated by a series of stylised leaves, each separated from its neighbour by a transverse strip – the leaves and strips in reserved metal providing cells in the spaces for enamel of unknown colour. Although the decoration on this piece follows recognised forms for enamelled work of the 2nd to 3rd centuries AD (see Henry 1933), its exact purpose is unclear. The central hole may proclaim it to be a mount while the thickness of the metal may indicate that it originally adorned a wooden box rather than a leather strip.
L:36mm, max W:26mm, T:2.5mm
49. 3556 H13:5:0 (Fig 14.4)
Incomplete bucket or bowl escutcheon with a rectangular plate. The face of the plate has six triangular fields of red enamel flanked by two notched lines and is slightly convex. The hook has chamfered edges. A single shank projects from the back at the base of the hook.
L:57mm, maximum W:17mm, Total H:28mm
50. 1776 H13:1:12 (Fig 14.5)
Small vessel with an incomplete narrow flared base. A lathe chuck hole is visible on the underside of the base. A rib separates the base from the body of the vessel which is divided into three zones of decoration by plain bands. The lower zone has elongated down-pointing triangles of turquoise enamel. The central zone has a wide zigzag of reserved metal with triangles of olive green in the spaces. There is a mistake in the arrangement of the triangles in one section. The upper zone has downward-pointing curved triangles, again of turquoise enamel. An incised line runs around the rough edge at the top. The similarity of this piece in form and decoration to the flask found at Catterick (Allason-Jones 2002), as well as others at Mook in the Netherlands (Boesterd 1956, no. 307), München Gladbach (Lindenschmidt 1864–1911, pl 4, no. 7), and the Fitzwilliam Museum, Cambridge (Henry 1933, 65–146), suggests that it is another of the type but lacks the top section. The München Gladbach and Fitzwilliam examples, in particular, share the curved and straight triangle motifs, although none of the examples display the reserved metal zigzag design. In discussing the manufacture of these vessels attention has been drawn to a difference in attitude to the decoration of a vessel by the craftsmen concerned as to whether it should be the enamel or the reserved metal that provides the motifs. In the Housesteads example both techniques have been used. Although all the flasks are superficially similar there are several differences that may suggest they are not necessarily the products of a single craftsman or workshop. The context of the Catterick flask has been dated to the 4th century but, while the others can provide no firm dating, they do hint at an earlier date for manufacture, probably in the 3rd century AD. For a fuller discussion of the comparable flasks see Allason-Jones 2002.
D of upper edge:35mm, D of base:17mm, T at lip:2mm
51. 7900 H20:5:21 (Fig 14.5)
Fragment of a large vessel with a high straight neck. The rim is thickly beaded and there is a rib running around the lower neck.
D:138mm
52. 9128 H21:2:29 (Fig 14.5)
Fragment of a bowl escutcheon of triangular shape. Enough survives of the incised feathering decoration to suggest that the escutcheon took the form of a stylised bird with its head bent back to form the loop for the handle. Cf Boesterd 1956, pl VIII, nos 191 and 196.
L:24mm, W:23mm
53. 9006 HSE:1:2
Annular ring of circular section with an oval-sectioned strip wrapped around the shank. Although this piece has certain similarities to the button-and-loop fastener (No. 103), its size and appearance suggest that it was a vessel escutcheon rather than an item of harness.
D of ring:16mm, W:3.5mm, W of strip:4mm
54. 9260 H21:2:49 (Fig 14.5)
Bucket or bowl handle of oval section tapering to simple looped ends. Only one of the escutcheons survives: this is triangular with a convex face and a circular loop projecting from the top. The metal of the escutcheon is leaded bronze (Cu, some Pb, trace Sn) while that of the handle is tin bronze (Cu, Sn, trace of Pb). For local parallels see Allason-Jones and Miket 1984, no. 3.765, but also Waugh and Goodburn 1972, fig 41, no. 132 for an example from a context dated to AD 150.
Total W across handle:145mm, maximum T:6mm, L of escutcheon:40mm, maximum W:20mm
55. 9279 H21:2:61 (Fig 14.5)
Handle of a bucket or bowl of circular section tapering at the ends to conical terminals. A flat hook with a splayed end is looped over one terminal.
Total W:69mm, T:5.5mm
56. 1425 H13:1:21 (Fig 14.6)
Oval-sectioned strip which expands to a curved end. Fragment of handle?
L:97mm, W:8–11.5mm, T:6mm
57. 8594 H21:4:10 (Fig 14.6)
Curved hollow rod with a central rib complete with nicked decoration suggesting a stylised dolphin. The 'tail' is broken off while the 'snout' forms a triangular projection.

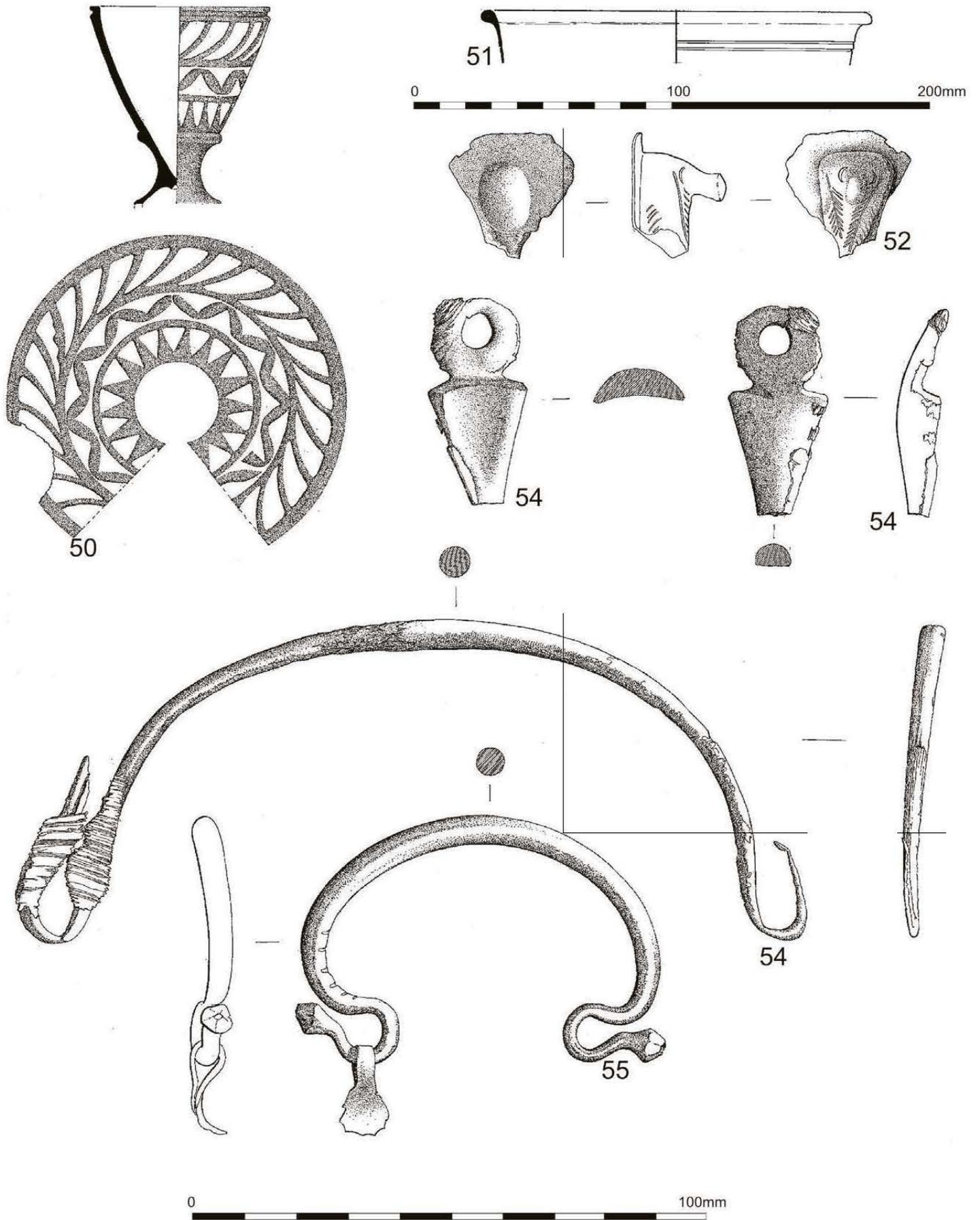


Fig 14.5 Copper alloy objects 50–55 (scale 1:1, except No. 51: 1:2).

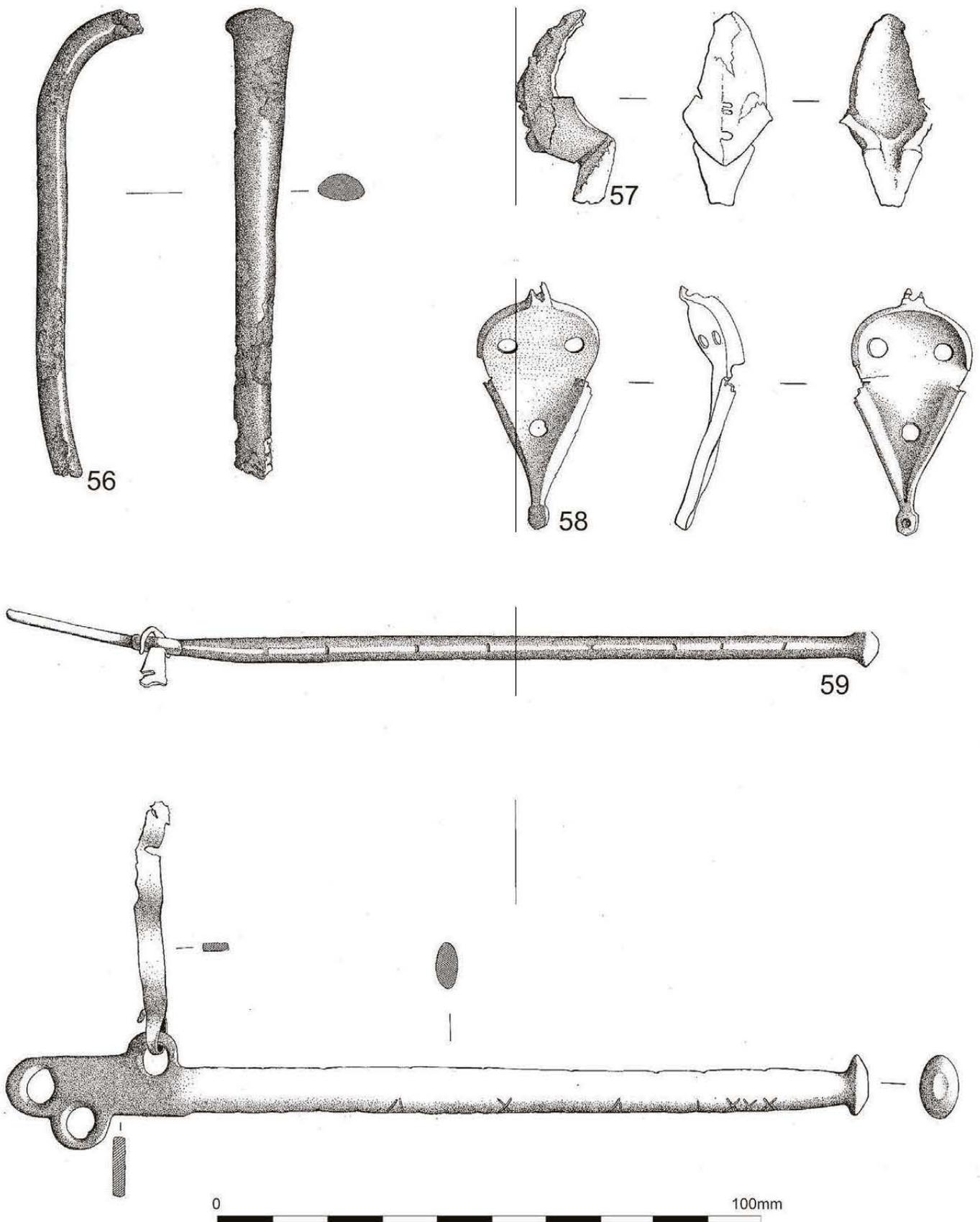


Fig 14.6 Copper alloy objects 56–59 (scale 1:1).

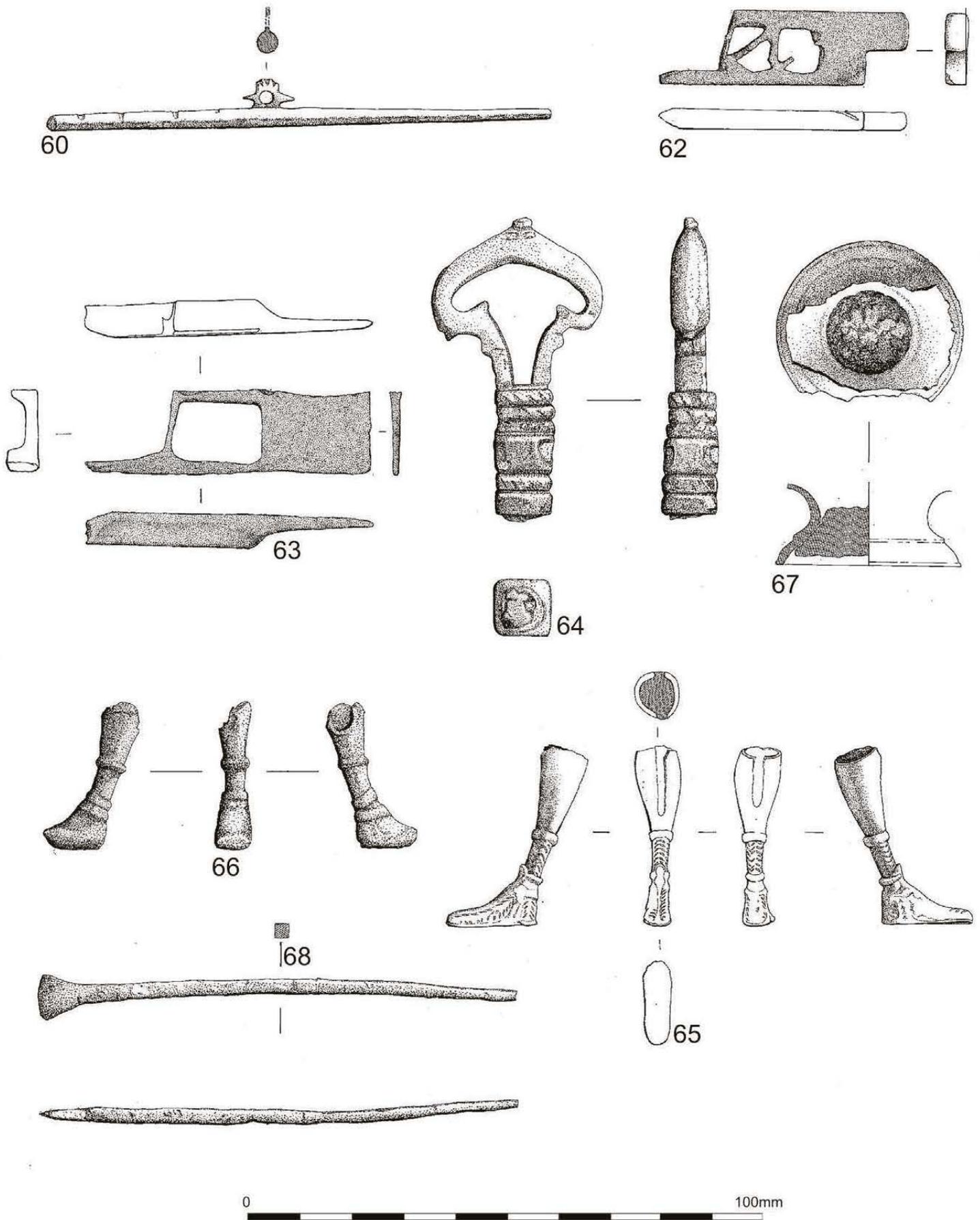


Fig 14.7 Copper alloy objects 60–68 (scale 1:1).

- Although the style resembles the late Roman zoomorphic buckles discussed by Hawkes and Dunning (1961, see in particular fig 13h, 17j) or the dolphin scabbard runners (see Allason-Jones and Miket 1984, no. 3.648) the hollow back is more indicative of a vessel handle.
L:33mm, W:16mm, H:19mm
58. 9514 H21:3:(consolidation) (Fig 14.6)
Elongated pear-shaped base from a sealbox, pierced by three holes (3.5mm).
L:45mm, W:21mm
59. 1968 H13:5:4 (Fig 14.6 and frontispiece)
Steelyard of oval section tapering to a domed end. The other end is flattened and houses three suspension holes. Only one of these retains a hook made from a flat strip of copper alloy. The shank has the positions of the weights indicated by notches set at apparently irregular intervals astride the edge. The other edge has the characters XX, V, XV, and X, lightly incised on both faces. Steelyards and their weights are common finds on both military and civilian sites in Britain. It was usual practice for the weight positions to be indicated by Roman numerals with transverse grooves used in conjunction with dots (see Crummy 1983, no. 2508 and Allason-Jones 2007, 411–12, no. 59, fig 10.31). The slightly random arrangement of the grooves on this example suggests that it may have been less than accurate. The steelyard was found between flags belonging to the primary floor of Chalet 5. A lead steelyard weight (No. 377) was found only 0.65m away, on the other side of the *contubernium* dividing wall (H13:5:5) in the latest clay floor (H13:5:8) of the *contubernium* phase. At first glance it seems merely coincidental that two elements of a steelyard should be found in close proximity, but the chalet flagging does not cover the entire floor area and the area where the weight was found is of trodden earth. It seems likely that the preceding *contubernium* floors were reutilised for this chalet with flagging laid down only where necessary. It is thus possible that the steelyard and weight formed two parts of the same item and were lost or discarded at the same time during the chalet phase, but the heavy weight sank into the softer clay of the floor on the other side of the demolished *contubernium* phase wall and became separated from the rest of the steelyard.
L:157mm, Terminal:11 × 8mm, L of hook:45mm
60. 9466 H21:1:81 (Fig 14.7)
Incomplete arm of an equipoise balance. The central pierced lug for suspension has decorative notching and side wings. Four notches survive across the edge of one arm. Cf Colchester: Crummy 1983, no. 2508.
L:97mm, max T:3mm
61. 1133 H13:5:0
Conical plumb-bob lacking its loop.
L:27mm, D:17mm
62. 3200 H13:1:80 (Fig 14.7)
Incomplete lock-bolt with a stepped end. Two of the cut-outs survive, both open squares with oblique cross-bars.
L:49mm, W:15mm, T:4.5mm
63. 2201 H13:5:4 (Fig 14.7)
Incomplete lock-bolt with a squared end stepped in section. The cut-out consists of a single large square.
L:55mm, W:15mm, T:6.5mm
64. 33 H13:1:0 (Fig 14.7)
Key handle with a wide ogee loop with internal projections. Two incised oblique lines flank the terminal. The shank is square in section and has ridge-and-groove decoration flanking a chip-carved central area. Traces of the iron key survive.
L:60mm
65. 9317 HSE:1:29 (Fig 14.7)
Small human foot which ends at the calf. The top is hollow with a split down the front and is filled with iron. The foot is realistic, if somewhat out of proportion, and is wearing either a boot with outer strappings or a sock under sandals. The piece has been made in a mould and then the details incised. Although similar pieces have been found on a number of sites (cf Piercebridge: Cool and Mason 2008, ch 11, no. 230, fig D11.24, no. 203), their exact purpose is unclear but they may have been used to support small candelabra or dishes.
H:35mm, L of foot:17mm, W:8.5mm
66. 64 H13:4:6 (Fig 14.7)
Small human foot similar to above, but with three simple ridges to indicate a boot or leggings. The top is hollow but no filling survives.
H:30mm
67. 2218 H13:1:39 (Fig 14.7)
Hollow circular statuette base flared at top and bottom with a rib around the skirt. The centre is filled with lead alloy.
D:35mm, H:16mm, T:1.5mm
68. 5362 H20:4:10 (Fig 14.7)
Stylus with a tapering rectangular-sectioned shank. The head is short and has been hammered to a splayed blade.
L:92mm, W across head:8mm
69. 1870 H13:1:3 (Fig 14.8)
Hollow tapering tube with two flanges at the mid point. Each flange is decorated with an incised concentric line and oblique notches around the edge. At the narrow end an iron shaft is jammed into the socket but not secured by a rivet. Mineralised wood remains were found with this piece. Medical instrument handle.
L of copper alloy:51mm, W of handle:15mm
70. 4093 H20:1:0
Pair of tweezers with both arms incomplete. The edges are pitted and corroded but appear to be straight-sided.
L:43mm, W:5.5mm, T of strip:1mm
71. 444 H13:10:0 (Fig 14.8)
Medical or toilet instrument with a circular-sectioned shank tapering to a point. The head is angled and wedge-shaped.
L:120mm
72. 1771 H13:1:12 (Fig 14.8)
Incomplete spoon with a large oval bowl. The rectangular-sectioned shank is stepped with three transverse grooves and splays into the back of the bowl.
L of bowl:45mm, W of shank:3.5mm
73. 1871 H13:5:8 (Fig 14.8)
Incomplete lute-shaped spoon bowl, heavily tinned. The shank is rectangular in section and the joint between shank and bowl is notched.
L of bowl:43mm, W of shank:2.5mm
74. 7590 H20:8:22 (Fig 14.8)
Long conical terminal with a circular-sectioned shank.
L:25.5mm, T:7.5mm, T of shank:4mm
75. 5991 H20:6:3
Fine, circular-sectioned pin shank lacking its head.
L:30mm, W:1mm
76. 6246 H20:4:16 (Fig 14.8)
Circular-sectioned rod with baluster moulding, probably pin head.
L:32mm, T:3.5mm

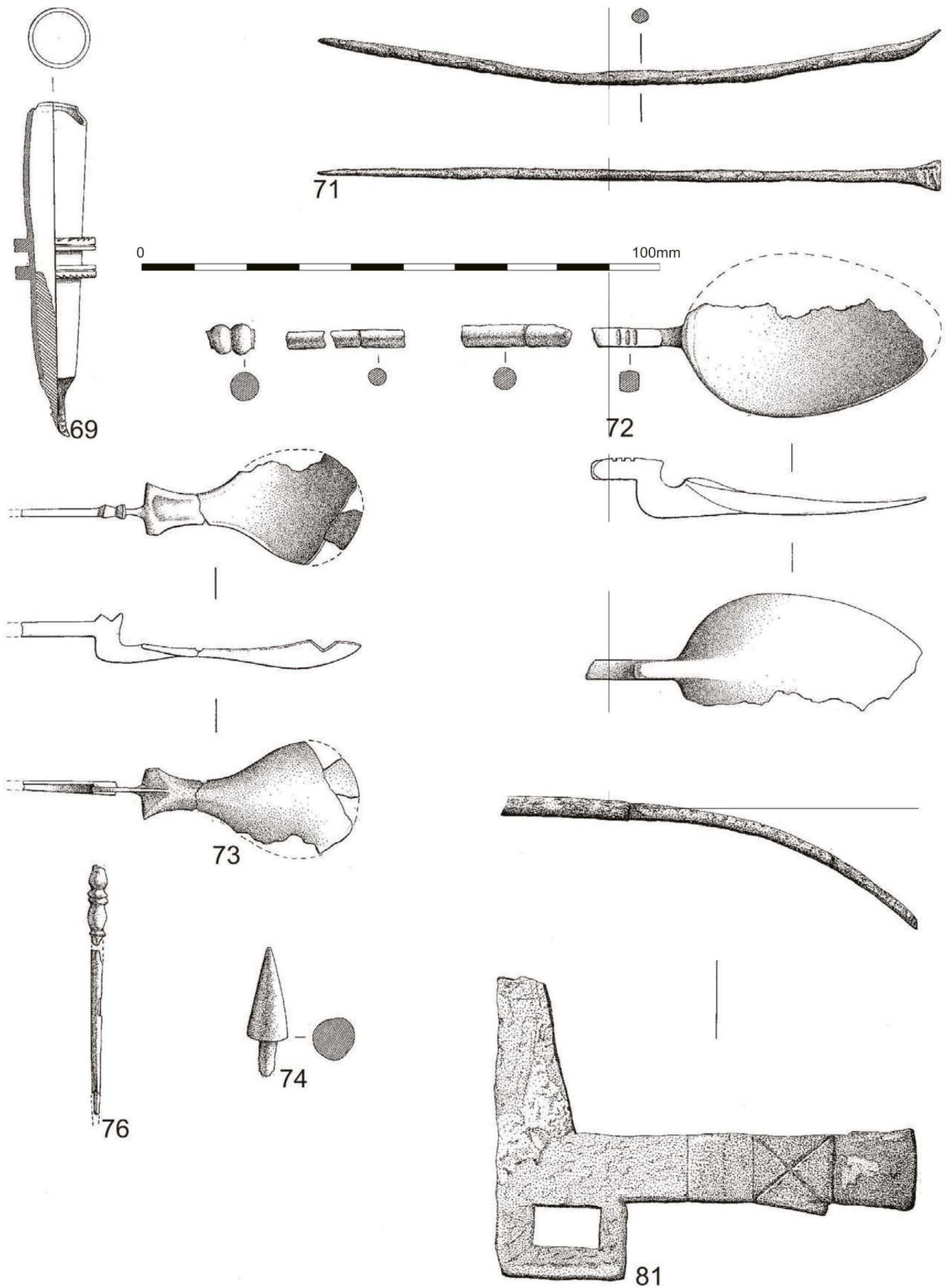


Fig 14.8 Copper alloy objects 69–81 (scale 1:1).

77. 6786 H20:5:32
Pointed end of a circular-sectioned pin or needle.
L:40mm, T:2mm
78. 8662 H21:3:47
Globular head from a pin.
D:7mm
79. 426 H13:10:0
Rod tapering from rectangular section to circular section with a ring head.
L:67mm
80. 363 H13:8:0
Curved rod with a globular head on a bead-and-reel neck. The shank is octagonal in section but reduces to rectangular section as it curves and tapers to the broken end. Both medical instruments and pins are known of similar appearance, see Allason-Jones 1979.
L:52mm, T:5.5mm
81. 34 H13:1:0 (Fig 14.8)
Fragment of a bridle hackamore with one rectangular loop surviving. The nose band has incised transverse grooves and saltire decoration. See Bishop 1988, fig 25.
L:81mm
82. 6791 H20:5:31 (Fig 14.9)
Dumb-bell button with wide discs and rounded terminals. Dumb-bell buttons are commonly found on military sites in the North of England. Gillam, in 1958, referred to them in support of his suggested inter-Wall school of metalworking (M MacGregor 1976, 134). MacGregor has suggested a late 1st- to 3rd-century date. Cf Corbridge: Bishop and Dore 1988, fig 83, no. 127.
L:23.5mm, maximum T:12mm
83. 5888 H20:6:4
Peltate terminal from an openwork belt plate. Cf Osterburken: Oldenstein 1976, Taf 62, no. 791.
L:15mm, W:16mm
84. 4361 H20:4:0 (Fig 14.9)
Incomplete apron pendant hanging from an incomplete hexagonal 'female' mount. The pendant has been filed on both faces and decorated with two incised converging lines at the neck. The penannular loop passes through an oval hole in a flat rectangular plate which projects from the mount. The mount is hollow at the back.
For parallels to the pendant see Oldenstein 1976. For parallels to the mount see Allason-Jones and Miket 1984, no. 3.870.
Total L:43mm, W across pendant:17.5mm, W of mount:16mm
85. 1179 H13:-:0
Incomplete apron pendant similar to above, with two incised converging lines on either side of the neck.
Surviving L:27mm
86. 8645 H21:1:7 (Fig 14.9)
Circular terminal with a depressed centre. An oval-sectioned shank projects from one edge with a curved rib across the angled joint. Corrosion products have confused the issue as to whether the terminal was pierced. Reinforcing bar from a helmet?
L:30mm, D of terminal:16mm
87. 365 H13:8:0
Fragments of fine armour scale.
T:0.25mm
88. 8145 H20:9:2 (Fig 14.9)
Two armour scales joined by a short length of copper alloy wire through the circular holes. Both are rounded at one end and have six holes: four rectangular and two circular. In type they can be compared to the scales from Straubing illustrated by Robinson (1975, pl 441).
L:21mm, W:11mm, T:2.5mm
89. 700 H13:5:3 (Fig 14.9)
Openwork disc with a circular loop projecting from the back. The openwork takes the form of an unsuccessful triskele motif. The edge is chamfered with a scalloped effect.
M MacGregor (1976, 37) discusses a group of objects which she refers to as 'triskele-decorated fobs'. This mount appears to be a hybrid between the Celtic triskele-decorated fob and the Roman *balteus* mount such as the eagle mount discussed above.
D:52mm
90. 7311 H20:7:2 (Fig 14.9)
Openwork mount with tinning on the face. The edges are chamfered and the back is slightly hollowed. The incomplete motif consists of two peltae with an open lozenge in the centre flanked by two trilobate flanges. A single disc-headed shank projects from the back. Cf Saalburg: Oldenstein 1976, Taf 72, no. 954.
L:40mm, W:24mm, T:1mm, total H:8mm
91. 2430 H13:10:18
Fragment of an openwork *trompetenmuster* mount.
L:21mm, maximum W:11mm, T:4mm
92. 8550 H21:1:1 (Fig 14.9)
Fragment of an openwork mount.
L:30.5mm
93. 701 H13:0:0 (Fig 14.9)
Disc mount with a central recessed openwork motif. The broken edge suggests that there was also an openwork design extending on either side. This may be seen as a variant on the late 2nd/early 3rd-century rectangular belt plates known from Osterburken and Stockstadt (Oldenstein 1976, Taf 62, nos 786, 787).
D:35mm
94. 28 H13:1:0
Part of a large disc broken across a central circular hole. The outer circumference appears to have carried an openwork inscription although none of the letters survive intact.
D:70mm, T:1mm
95. 3656 H13:1:170
Fragment of a flat openwork roundel with a plain border. The projections are lozenge-shaped suggesting that this is part of an 'eagle mount', similar to those found at Carlisle and High Rochester (Allason-Jones 1986). A short period of manufacture in the first or second quarter of the 3rd century is indicated for the mounts, which were worn as part of a set on the military *balteus* or cross strap.
L:42mm, W of border:5.5mm
96. 8604 H21:1:9 (Fig 14.9)
Incomplete openwork belt tag. The loop is triangular and is set in a terminal which is square with concave sides. The decoration emerges from the loop as a series of long scrolls enclosing a series of circular holes. The back is flat, the face convex and the piece has been made in a mould, not chip-carved. Cf Zugmantel and Niederbieber: Oldenstein 1976, Taf 41, nos 394-5.
L:25mm, maximum W:12mm, T:3mm
97. 6787 H20:5:36 (Fig 14.9)
Narrow plain belt tag with a rectangular head and loop. The shank narrows before expanding to a pointed terminal. The edges are chamfered but the back and face are flat.

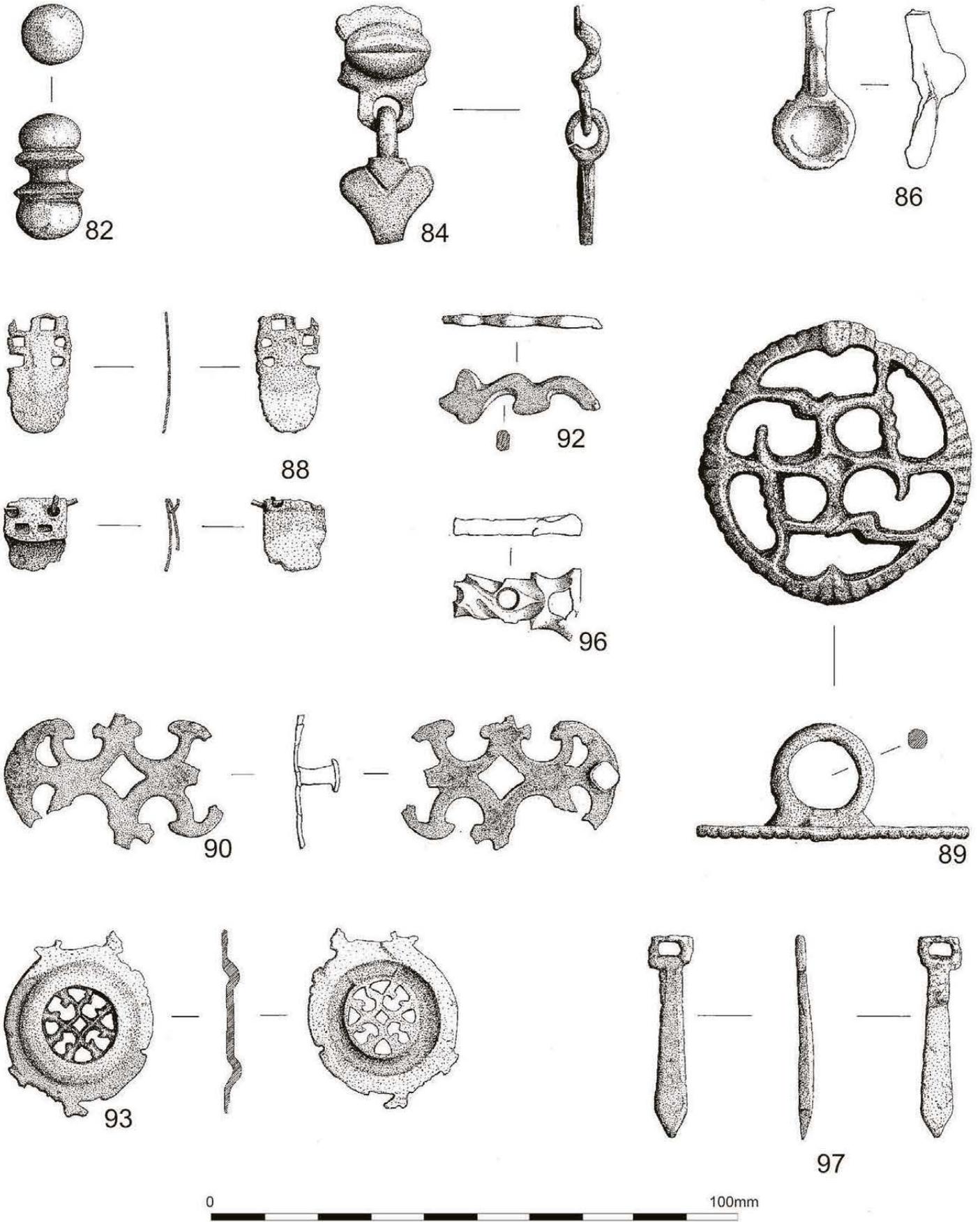


Fig 14.9 Copper alloy objects 82-97 (scale 1:1).

- Strap ends or tags of this form are common finds in the 2nd and 3rd centuries although they are rarely exactly the same. A clay mould for making a similar tag was discovered at South Shields: Allason-Jones and Miket 1984, no. 9.7.
L:38mm, max W:8mm, T:3mm
98. 8688 H21:1:20
Pointed terminal from a strap tag of the same type as No. 97 above.
L:24mm, maximum W:8mm, T:1mm
99. 9504 H21:1:8
Strap-end with rectangular loop and a flat shank expanding to a point.
L:29mm, W of loop:11mm
100. 4098 H20:1:0
Fragment of an oval openwork pendant with a broad hook.
L:13mm
101. 6968 H20:5:47 (Fig 14.10)
Button-and-loop fastener with a thin triangular loop and a disc head. The face of the disc is decorated with an elaborate champlevé enamel design of a five-petalled flower with a circular centre, all contained within a fine, elegant peltate motif. Between the petals are reserved dots of metal.
This fastener falls within Wild (1970) Type 5b, which Wild considered, in agreement with Gillam 1958, to be 'a product of the northern school of enamellers of the 2nd century AD'. Other Type 5b fasteners with floral motifs have been found at Chesters (Budge 1907, no. 1059) and Chester (Wild 1970, 151, no. 63).
Total L:41mm, D of head:26mm, W across loop:17.5mm
102. 3553 H13:1:154 (Fig 14.10)
Circular head from a button-and-loop fastener. The shallow domed face has a complex enamelled motif consisting of an outer ring of inward pointing black triangles separated by turquoise petals. The central circular motif has an intricate motif of reserved metal filled in with turquoise enamel and a central square of black enamel. Wild 1970, Type 5b.
D:33mm
103. 453 H13:10:0 (Fig 14.10)
Ring of hemispherical section with a raised scar on one face – possibly a button-and-loop fastener of Wild (1970) Type 2, lacking the simple lip-moulding through damage. Wild has suggested that this form comes from an Iron Age tradition that survived into the 2nd century. The parallels listed by Wild are all, with only one exception, from the north of England or Scotland.
D:27mm
104. 8319 H20:8:8
Triangular loop from a button-and-loop fastener.
L:21mm, W:16mm
105. 7482 H20:8:7
Top of a small bell with a loop at the top. An internal loop has held the clapper.
Surviving L:10mm
106. 8661 H21:4:36
Ring attachment, projecting from a bar with a short spigot. Cf Allason-Jones and Miket 1984, no. 3.689.
L:18mm, T:1.5mm
107. 6047 H20:5:28 (Fig 14.10)
Incomplete rectangular plate with a wide plain panel along one edge. An openwork motif has broken along the parallel edge. From the back project two shanks, one with a disc head, the other with a hammered head.
- Similar openwork pieces have been described by Bishop as 'saddle plates' and allotted to his Type 6, with parallels given from Aislingen, Baden, Haltern, Salona and Vindonissa (Bishop 1988, fig 38, 133).
L:79mm, W:36mm
108. 212 H13:9:0
Several fragments of fine square sheets with the edges folded back. Each has a square hole punched through from the back with the ragged edges left. A pattern of shallow raised concentric circles surround the hole. Saddle or box plates: cf South Shields: Allason-Jones and Miket 1984, nos 652–5; Bishop 1988, fig 37.
The largest sheet measures 33 × 32mm, T:0.25mm
109. 2984a H13:6:12
Incomplete disc with a raised edge. Both faces show traces of organics. Box lid?
D:36mm, H of rim:6mm
110. 7978 H20:9:26 (Fig 14.10)
Hollow dome with four rings projecting away from the edge. Three of the rings are plain but narrow at the furthest point from the dome while the fourth ring has a peltate motif. The face of the dome is decorated by three tiny bosses arranged in a triangle. There is no obvious attachment at the back other than the rings.
This 2nd-century harness junction can be compared to two mounts discussed by Oldenstein (1976, Taf 87, nos 1126 and 1128), from Saalburg and Pforring, both of which are flat with an openwork design in the centre, with four additional smaller loops between the large rings. The Saalburg example, in particular, has a similar wear pattern to the Housesteads mount on three of its rings while the fourth is also in the form of a pelta.
Total W:40mm, H:10mm, D of central dome:21mm
111. 8614 H21:1:11
Incomplete dagger guard, originally hexagonal in shape with an oval tang hole.
Surviving L:10mm, W:11mm
112. 8837 H21:2:39
Incomplete rectangular dagger guard with an oval tang hole.
Surviving L:15mm, W:10mm, T:1mm, D of hole:5mm
113. 613 H13:4:9
Fragment of a curved sheet. Part of a scabbard chape? Cf South Shields: Allason-Jones and Miket 1984, no. 3.397.
L:24mm
114. 8544 H21:3:32 (Fig 14.11)
Chape of peltate shape with openwork peltae on the face. The back is plain and does not complete the design on the face. A small circular hole is pierced centre front.
See Allason-Jones and Miket 1984, no. 3.404 for British parallels and Oldenstein 1976, 112ff, for examples from the German *Limes*.
H:38mm, W:43mm, total T:9mm
115. 8540 H21:3:31 (Fig 14.11)
Scabbard runner. The central panel has a chamfered face and tapers from the top. The upper terminal has an open pelta with a projecting lug. The other terminal is stepped back and appears to be plain and tapered to a point.
This is a common form of runner found in all the north-western provinces in late 2nd/early 3rd-century contexts. British examples are known from South Shields, Chesters and Colchester (Allason-Jones and Miket 1984, no. 3.646) and German parallels have been found

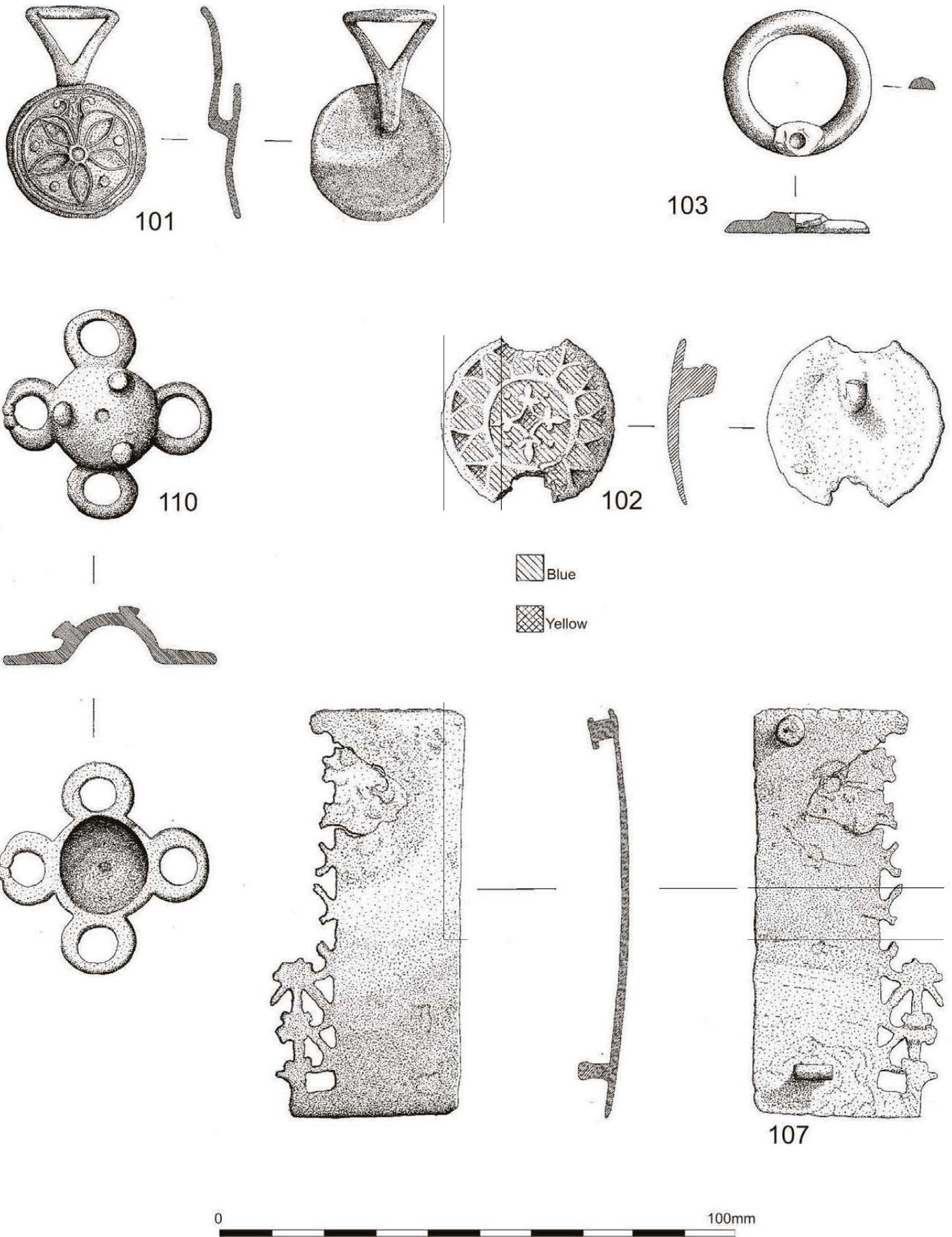


Fig 14.10 Copper alloy objects 101–110 (scale 1:1).

- at Niederbieber and Zugmantel (Oldenstein 1976, Taf 13, nos 55, 56, 57).
L:100mm, W of pelta:16mm
116. 8543 H21:3:32 (Fig 14.11)
Incomplete scabbard runner similar to above but with the open pelta held away from the chamfered face by a straight neck. The upper part of the shank is thickened with a horizontal hole passing from side to side. The upper shank projects from behind this pierced block. The lower shank is stepped.
L:79mm, max W:12mm, max H:13mm
117. 8545 H21:3:32 (Fig 14.11)
Terminal from a scabbard runner of semi-circular section tapering to a disc head which is decorated by wide grooves around the head, giving a floral effect.
L:40.5mm, max W:17mm
118. 8535 H20:8:22
Part of a tapering scabbard runner with chamfered edges.
L:55mm, max W:11mm
119. 7381 H20:9:6
Terminal from a scabbard runner of strip section with a trilobate terminal. One shank survives on the back with traces of leather attached.
L:49mm, W:8mm
120. 7595 H20:9:9
Fragment of a scabbard runner including its lobate terminal.
Surviving L:50mm
121. 4216 H20:2:1 (Fig 14.11)
Oval buckle with a central D-shaped loop. The wide bar is pierced by a circular hole (D:3.5mm) to take the hinge. The end is cut away and broken. Two shanks project from the back and the surfaces are tinned.
D:21.5mm
122. 8656 H21:3:104 (Fig 14.11)
Oval buckle of triangular section. Two thin loops projecting internally on either side of the pin seating are the only decoration.
D:22mm, T:2mm
123. 8628a H21:2:6
Very corroded, small, oval buckle complete with pin. A tapering rod takes the place of the belt plate.
W of buckle:15mm, L of rod:31mm
124. 8663 H21:3:47 (Fig 14.11)
Incomplete rectangular buckle broken at the hinge bar sockets. The shank is rectangular in section.
L:35mm, T:2mm
125. 7380 H20:9:6
Incomplete buckle pin of oval section nipped at both ends. The hinge is missing but the tip has an angled 'snake's head' shape.
L:34mm, W:2.5mm
126. 7374 H20:8:8
Broad strip broken at both ends but expanding at one end to enclose a hinge pin seating?
L:18mm, W:8mm
127. 4093 H20:1:0 (Fig 14.12)
Strip with tapering edges, folded in two. The wider end is pierced by a circular hole 1mm diam. The narrow end is decorated by an oblique groove. Belt hook?
L:21mm, W:5.9mm, T:0.25mm
128. 5788 H20:7:2
Three fragments of U-sectioned binding, one with perforated lugs for attachment.
L:40mm
129. 7307 H20:8:16
Fragment of U-sectioned binding similar to above but narrow for shield or scabbard binding.
L:39mm, W:5.5mm
130. 7821 H20:7:42
Length of U-sectioned binding, again unusually narrow. One end is nipped, the other splayed.
L:77mm, W:4.5mm
131. 8519 H20:7:75
Fragment of U-sectioned binding.
L:30mm, W:7mm
132. 8601 H21:3:1 (Fig 14.12)
Fragment of a U-sectioned binding. One end is serrated on both edges for 8mm.
L:43mm, W:7mm
133. 8914 H21:1:33
Short length of U-sectioned binding.
L:39mm, W:6mm
134. 8692 H21:1:20
Sheet rolled to a tube and then flattened with one section projecting from the end. Terminal of binding?
L:21mm, W:6.5mm
135. 8628b H21:2:6
Fragment of a U-sectioned binding.
L:32mm, W:5mm
136. 9271 H21:2:6
Fragment of U-sectioned binding.
L:26mm, W:5mm
137. 7673 H20:3:11 (Fig 14.12)
Triangular terminal emerging from a splayed flat shank. Pierced by a rough hole.
L:21mm, W:17mm, T:1mm
138. 4659 H20:5:0 (Fig 14.12)
Curved bar or hook of triangular section emerging from a rectangular plate. The back of the plate has raised notched edges and a central stamped dot-and-ring motif.
L:13mm, H:16mm, W:8mm
139. 8651 H21:2:26
Short, curved bar with a hollow back, pierced by a central circular hole.
L:18mm, W:6mm, T:1mm, hole:2mm
140. 43 H13:1:0 (Fig 14.12)
Circular-sectioned rod, hollowed from one end for part of its length. The globular head sits on a disced neck and is hollow.
L:46mm, T of rod:11mm
141. 8624 H21:1:8
Globular terminal from a curved, circular-sectioned rod.
D of terminal:13mm, D of rod:9mm
142. 4087 H20:1:0 (Fig 14.12)
Thin roughly triangular sheet with a strip cut from one edge. The sheet is pierced by rows of drilled circular holes arranged decoratively.
L:32.5mm, W:14mm, T:0.1mm
143. 9369 H21:2:44
Hollow domed boss filled with lead caulking.
D:13mm, H:5.5mm
144. 9327 H21:1:35
Incomplete hollow domed boss with a central dimple and a flanged edge.
D:24mm, H:4mm
145. 4634 H20:6:0 (Fig 14.12)
Boss with a conical centre with a surrounding rib. The rest of the face is stepped back to a raised edge.
D:26mm, H:11mm

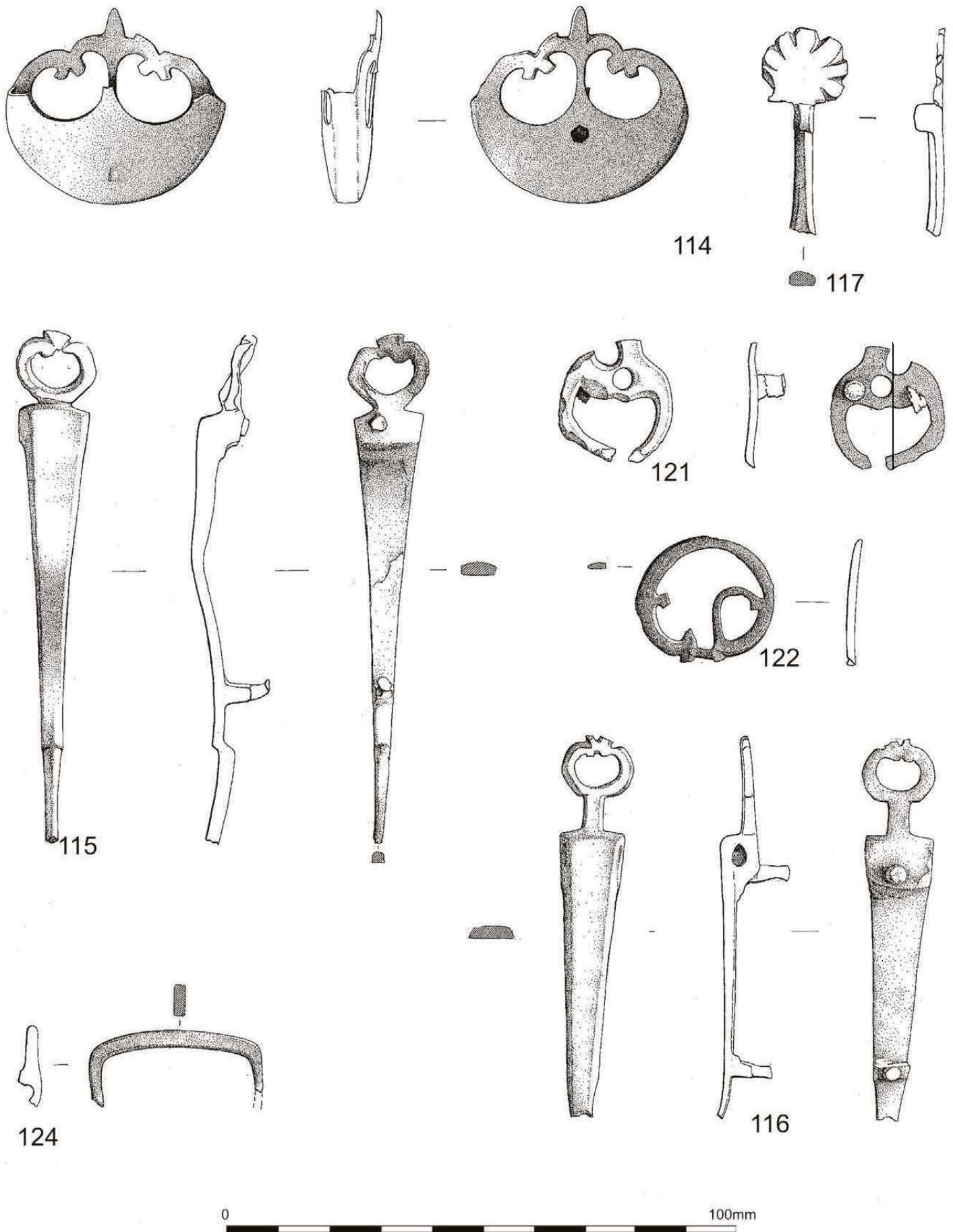


Fig 14.11 Copper alloy objects 114–124 (scale 1:1).

146. 8339 H20:8:63 (Fig 14.12)
Circular plate with a central lathe chuck mark. Three tiny circular holes are spaced equidistantly around the edge.
D:31.5mm, T:1.5mm
147. 8615 H21:3:16 (Fig 14.12)
Small disc stud with a nicked edge. In the centre a circular rib contains orange enamel. The surrounding ring is filled with alternate wedges of turquoise and green enamel. A short shank projects from the back.
The metal when analysed by the Ancient Monuments Laboratory proved to be leaded bronze with traces of tin on the face.
A similar stud from Corbridge contains the same combination of enamel colours (Bishop and Dore 1988, 181, no. 181), but the form is well known on the northern frontier.
D:15mm
148. 8144 H20:5:70 (Fig 14.12)
Small disc stud with a short circular-sectioned tapering shank. The edge is raised on both faces. In the centre there is a small boss surrounded by a field which may have contained enamel, as in the example above, or niello, as has been observed at Corbridge (Bishop and Dore 1988, nos 187–8, fig 86).
D:10mm, H:6mm
149. 2871 H13:1:54 (Fig 14.12)
Disc stud with a notched edge and two disc-headed shanks at the back. Traces of silvering on the face.
D:32mm, total H:6.5mm
150. 3657 H13:1:170 (Fig 14.12)
Mount made from curls of wire with copper alloy sheeting attached as a backing and forming a base for enamel. Traces of the enamel suggest that the colour was white. Incomplete.
Total L:23mm, T:1.5mm
- Bell-shaped studs**
- Bell-shaped studs are common finds on fort sites in the northern zone. They divide into two types: those with iron shanks held in place by lead caulking (Type 1) and those with a copper alloy shank cast in one with the head (Type 2). A number of functions have been postulated for both types and are discussed by Allason-Jones 1985, 95–108.
151. 8 H13:6:0
Type 1, missing most of the iron shank.
H:15mm, D:19mm
152. 18 H13:5:0
Type 1, missing most of the square-sectioned iron shank.
H:14mm, D:31mm
153. 25 H13:1:0
Type 1, missing most of the square-sectioned iron shank.
H:24mm, D:35mm
154. 56 H13:1:0
Type 1, missing most of the iron shank and part of the head.
No measurements valid.
155. 60 H13:5:0
Type 1, missing most of the iron shank.
H:21mm, D:25mm
156. 1166 H13:1:12
Type 1, missing most of the square-sectioned iron shank.
H:40mm, D:39mm
157. 1408 H13:1:6
Type 1, missing most of the square-sectioned iron shank.
H:21mm, D:30mm
158. 1426 H13:1:21 (Fig 14.12)
Type 1.
Total H:31mm, D:35mm
159. 1427 H13:1:21
Type 1 with no waist, a flared skirt and a projecting dimpled cone. The missing shank was of iron.
D:31mm, H:18mm
160. 1428 H13:1:21
Large bell-shaped stud of Type 1, with a wide flared skirt and a dimpled cone. The top and the iron shank have a solid residue of charcoal.
D:41mm
161. 1470 H13:1:6
Type 1, with no waist, a flared skirt and a projecting dimpled cone. The missing iron shank appears to have been caulked into place with lead.
D:35mm, H:20mm
162. 1472 H13:1:6
Type 1, with a short waist, flared skirt and a small dimpled cone, missing its iron shank.
D:31mm, H:15mm
163. 1756 H13:1:6
Incomplete bell-shaped stud of Type 1, with a short waist, wide skirt and hollowed central cone, missing its iron shank.
D:31mm, H:15mm
164. 8567 H21:3:1
Type 1 missing its iron shank, with a short plain waist and skirt and a flat cone.
D:24mm, H:16mm
165. 8744 HSE:1:1
Type 1, lacking most of its iron shank.
H:17mm, D:29mm
166. 9316 HSE:1:29
Type 1, missing all its iron shank. An incised marginal line decorates the face of the head.
H:15mm, D:33mm
167. 1248 H13:9:0
Distorted Type 2, lacking most of the shank.
D:33mm
168. 8574 H21:4:2
Incomplete, bell-shaped stud of Type 2.
D:22mm, surviving H:8mm
169. 8595 H20:–:0
Type 2, with a very short skirt, no waist and a shallow, flat cone.
D:19mm, H:11mm
170. 2984b H13:6:12
Dimpled cone from a large bell-shaped stud.
Surviving H:13mm
- Plain studs**
171. 6809 H20:6:48
Stud with a shallow conical head decorated by radiating grooves. The shank is short and of circular section.
D:29mm, H:10mm

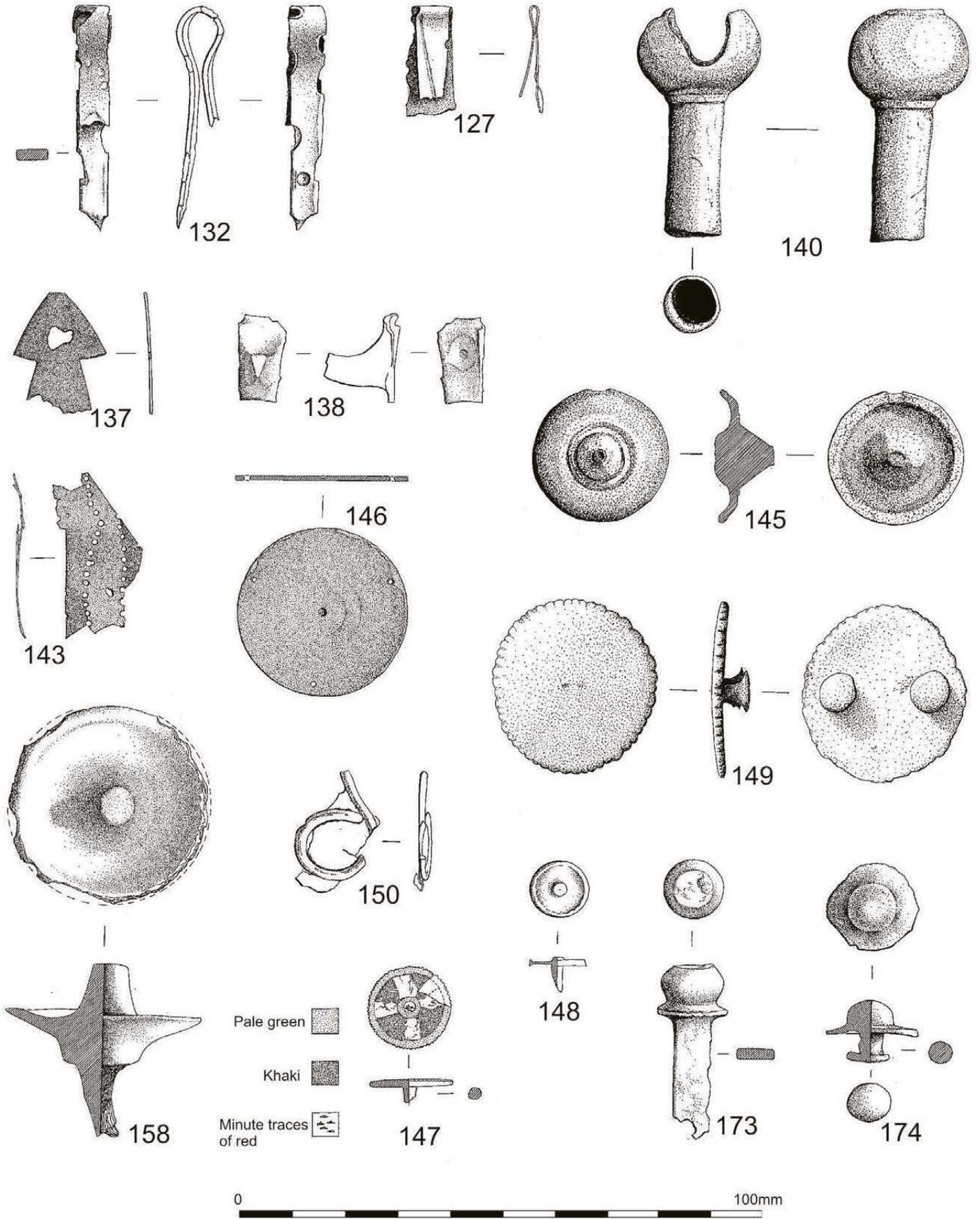


Fig 14.12 Copper alloy objects 127-174 (scale 1:1).

172. 7301 H20:8:12
Peltate end of a stud or belt plate. The face is convex and a broken shank projects from the back.
L:11mm, W:14mm
173. 4097 H20:1:0 (Fig 14.12)
Stud with a globular head on a flanged neck. The wide rectangular-sectioned shank has broken across a circular hole.
D of head:11mm, total H:33mm, Shank:6.5 × 3mm
174. 3458 H13:5:0 (Fig 14.12)
Solid stud with a central boss and a chamfered flange. The short, circular-sectioned shank and disc rove are cast in one with the head.
D of head:17mm, D of rove:8mm, total H:13mm
175. 2720 H13:4:16 (Fig 14.13)
Stud with a hollow domed head and a wide rectangular-sectioned shank broken across a circular hole at the end.
H:29mm, D:17mm, Shank:9 × 2.5mm
176. 2725 H13:2:8 (Fig 14.13)
Stud with a hollow domed head and a wide rectangular-sectioned shank which has a 2.5mm circular hole at the end.
H:24mm, D:24mm, Shank:7 × 2.5mm
177. 733 H13:4:3
Stud with a disc head and a rectangular-sectioned shank.
H:11.5mm, D:6mm
178. 2106 H13:0:2
Disc-headed stud with a short shank held by a disc rove.
D of head and rove:16mm, total H:8mm
179. 4578 H20:4:0
Disc-headed stud with a thick circular-sectioned shank.
D:18mm, T of shank:5mm
180. 8666 H21:3:100
Stud with a large disc head and a short, rectangular-sectioned shank.
D of head:22mm, total H:10mm
181. 5724 H20:3:10
Stud with a hollow domed head and a circular-sectioned shank.
H:16mm, D:25mm
182. 9264 H14:3:1
Stud with a disc head and a thick circular-sectioned shank.
H:15mm, D:18mm, T of shank:5mm
183. 9261 H21:2:48
Hollow conical stud head filled with lead caulking. No trace survives of the shank.
H:13mm, D:29mm
184. 9282 H14:3:5
Hollow domed stud head filled with lead caulking. No trace survives of the shank.
H:7mm, D:20mm
185. 5785 H20:5:1
Incomplete hollow domed stud head filled with lead caulking. The centre has been torn away.
D:29mm
186. – H15:1:123
Incomplete stud with a plain rectangular head and one short shank near the surviving end.
L:21mm, W:12mm, T of head:0.5mm
187. 2580 H13:8:31
Small hollow domed stud with an oval-sectioned shank.
H:9mm, D:12mm
188. 8518 H20:8:75
Hollow, circular stud head whose rectangular-sectioned iron shank (now missing) was held in position by lead-tin caulking.
D:12mm
189. 8568 H21:3:1
Hollow, domed stud with a flanged edge. A square hole (4 × 4mm) has been cut through the centre from the underside to take a separate shank.
D:20mm
190. 8619 H21:4:9
Hollow, domed stud with traces of lead/tin caulking. No evidence of a shank.
D:14mm, H:4mm
191. 1772 H13:1:6
Hollow dome of copper alloy with a rectangular-sectioned iron shank through the centre.
D:32mm
192. 931 H13:1:6
Flanged knob. The larger face is dished with a central cylindrical projection. The narrower face has a groove running around the edge and a deep hollow in the centre to take a shank.
This can be compared to the 'bell-shaped studs' and may have served a similar purpose.
D:30mm, H:14.5mm
193. 1407 H13:5:–
Flanged mount with a wide skirt and a bun-shaped hole cut out of the top.
H:20mm, D:36mm
194. 6248 H20:3:8
Looped rivet formed from a length of wire tapered to both ends and bent through 180 degrees.
L:38mm
195. 6112 H20:4:17 (Fig 14.13)
Short nail of circular section with a nipped neck and a large drum head.
L:31.5mm, D of head:12mm
196. 29 H13:1:0
Disc-headed nail with a square-sectioned shank.
L:20mm
197. 6264 H20:5:1
Small onion-headed rivet or nail.
L:18mm
198. 8877 H21:1:37 (Fig 14.13)
Small nail with a tapering square-sectioned shank. The disc head has a series of incised concentric circles that may have held niello or enamel although no traces survive.
L:16mm, D of head:7mm
199. 6903 H20:5:36
Small tack formed by rolling a sheet and folding one end to form the head.
L:14mm, W of head:5mm
200. 8620 H21:3:18
End of a tack formed from a rolled sheet.
L:18mm, T:3mm
201. 8797 H21:1:8
Tack formed from a rolled sheet.
L:12mm, Head:12 × 8mm
202. 9148 H21:1:37
Shank of tack formed from a rolled sheet.
L:13mm
203. 9149 H21:1:37
Tack formed from a rolled sheet.
L:11mm, D of head:6mm
204. 9233 H21:2:6
End of a tack formed from a rolled sheet.
L:15mm, T:3mm
205. 5836 H20:1:3
Tack formed from a rolled sheet.
L:14mm

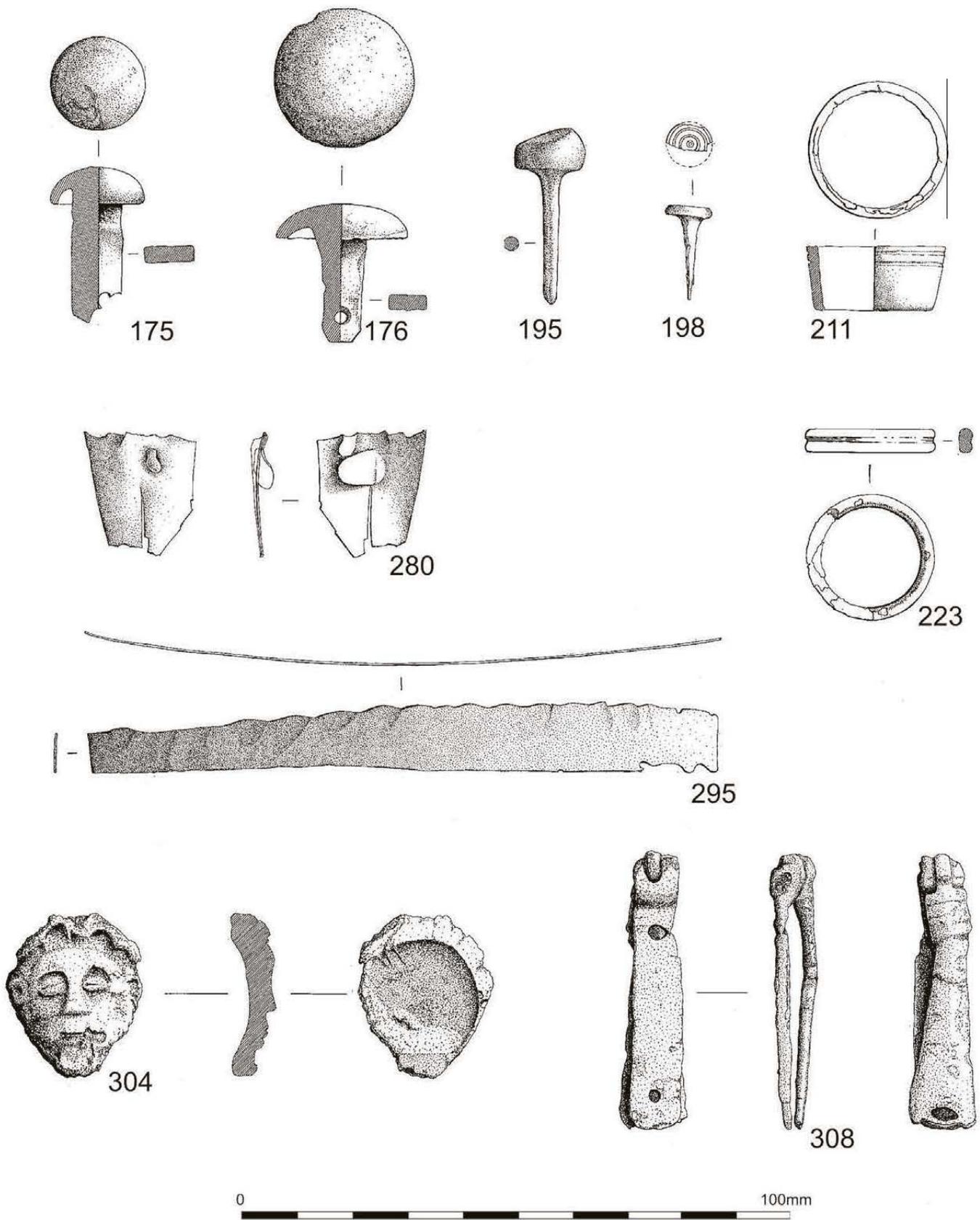


Fig 14.13 Copper alloy objects 175–308 (scale 1:1).

206. 9187 H21:1:35
Small rivet with a solid oval-sectioned shank and a hammered head.
L:10mm, D of head:4mm
207. 9270 H21:2:6
Very small curved rod of circular-section with a globular terminal.
L:6mm, D of head:1.5mm
208. 5406 H20:4:11
Narrow tube of circular section.
L:27mm, W:6mm
209. 4106 H20:1:0
Distorted tube, possibly a ferrule as there are indications that the sides were sloped.
L:26mm, approx D:20mm
210. 6690 H20:4:22
Incomplete domed casing with a rounded edge.
H:18mm, T:1–4mm
211. 8592 H21:4:22 (Fig 14.13)
Collar with sloping sides and two incised rings around the lower edge.
D:25.5mm, H:11.5mm, T:2mm
212. 7831 H20:7:3
Small penannular collar with a convex outer face.
Internal D:8mm, W:1mm, T:4.5mm
213. 13 H13:3:1
Oval ring of circular section.
D:23 × 18mm, W:2.5mm, T:3mm
214. 37 H13:–:0
Annular ring of semi-oval section.
D:39mm, W:5mm, T:5mm
215. 284 H13:8:0
Annular ring of oval section.
D:19.5mm, T:3.25mm, W:3.5mm
216. 591 H13:0:0
Penannular strip ring or collar.
D:23mm, T:2mm, W:5mm
217. 1055 H13:10:0
Annular ring of rectangular section.
D:32mm, T:2mm, W:3mm
218. 1413 H13:5:4
Fragment of a square-sectioned ring.
Internal D:14mm, T:3 × 3mm
219. 2417 H13:10:25
Fragment of a circular-sectioned ring.
Internal D:19mm, T:6mm
220. 2930 H13:11:0
Fragment of a rectangular-sectioned ring.
Internal D:12mm, W:2mm, T:1mm
221. 3412 H13:11:0
Two fragments of circular-sectioned wire, curved to form a ring.
Approx D:22mm, T:2mm
222. 4968 H20:5:0
Fragment of a ring of circular section.
D:17mm, W:2mm
223. 5886 H20:6:18 (Fig 14.13)
Annular ring of oval section with a median groove around the outer face.
D:23mm, W:2.5mm, T:4.5mm
224. 6041 H20:6:20
Fragments of a corroded strip ring.
Internal D:13mm, W:1mm, T:3mm
225. 6673 H20:4:21
Fragment of a wire ring of oval section tapering to one end. Ear-ring?
D:11mm, W:2mm
226. 8687 H21:1:20
Fragment of a ring of triangular section.
D:18mm, W:2.25mm, T:2mm
227. 9440 H15:1:27
Part of a small ring with a spigot projecting from the edge.
D:10mm
228. (813668)
Annular ring of rectangular section.
D:24mm, W:2.5mm, T:3mm
229. 7271 H20:9:5
Fragment of a wide flat ring or washer.
L:27mm, W:7mm, T:1mm
230. 9505b H21:1:8
Part of a disc washer.
Internal D:16mm
231. 9481a H21:2:6
Coiled strip.
External D:20mm
232. 8549 H21:1:1
Length of elliptical-sectioned wire flattened at one end.
L:33mm
233. 8616 H21:1:1
Length of wire of triangular section.
L:57mm, W:2.5mm, T:2mm
234. 6845 H20:4:21
Heavily tinned hook of circular section.
L:15mm, T:3mm
235. 8563 H21:3:19
Small hook of circular-sectioned wire.
L:20mm, T:1.5mm
236. 9220 H21:2:5
Strip curved to form a loop with the ends bent out: clip or hook.
L:19mm, W:4.5mm, T:0.5mm
237. 9269 H21:2:6
Rectangular-sectioned wire curled at one end to form a hook.
L:20mm, W:2.5mm, T:1.5mm
238. 9481b H21:2:6
Curved rod of oval section, possibly a hook.
L:36mm
239. 2730 H13:9:11
Part of an oval-sectioned hook.
L:18mm, T:3.5mm
240. 2712 H13:7:9
Fragment of an oval-sectioned hook.
L:31mm, T:3mm
241. 7513 H20:9:9
Fragment of a circular-sectioned rod with a pointed end.
L:30mm, T:1mm
242. 6960 H20:5:40
Fragment of a circular-sectioned rod, curved at both broken terminals.
L:31mm, T:2.5mm
243. 7522 H20:7:2
Length of roughly cut rectangular-sectioned rod.
L:52mm, W:3mm
244. 8065 H20:8:23
Slightly tapering rectangular-sectioned rod.
L:30mm, W:2.5–3mm, T:1.5mm
245. 8314 H20:8:8
Circular-sectioned rod broken at both ends.
L:34mm, T:3mm

246. 8611a H21:1:1
Curved tapering rod of oval section.
L:30mm, W:5–7mm, T:3–6mm
247. 9490 H15:1:4
Rod.
L:21mm, T:2mm
248. 8635 H21:2:3
Rod of semi-oval section, undercut at one end and broken across a circular hole at the other.
L:53mm, W:5.5mm, T:3mm
249. 8716 H21:1:9
Tapered end of a circular-sectioned rod.
L:18mm, T:4mm
250. 9069 H21:1:35
Rod of irregular section.
L:36mm, T:2.5mm
251. 131 H13:7:0
Distorted rod of rectangular section. Curved in both planes.
L:26mm, W:5mm, T:4mm
252. 4961? H20.3:0
Fragment of an oval-sectioned rod.
L:15mm, W:3mm, T:2mm
253. 822 H13:0:0
Fragment of a block of rectangular shape and section.
L:20mm, W:10mm, T:5mm
254. 8493 H20:4:29
Incomplete triangular block.
L:25mm, W:16mm, T:2mm
255. 476 H13:4:3
Strip of lopsided triangular section.
L:27mm, W:11mm
256. 1788 H13:6:20
Plate with no surviving edges but pierced by one 2.5mm circular hole.
T:0.5mm
257. 6519 H20:1:3
Rectangular plate with one end cut to an asymmetrical triangle.
L:46mm, W:18mm, T:0.5mm
258. 8238 H20:8:53
Fragment of a rectangular plate.
L:20mm, W:17mm, T:0.75mm
259. 9505c H21:1:8
Fragment of a square plate.
25 × 25mm
260. 8311 H20:8:63
Fragment of a rectangular plate.
L:30mm, W:20mm, T:0.75mm
261. 7987 H20:7:49
Fragment of a rectangular plate.
L:26mm, W:15mm, T:0.75mm
262. 8379 H20:8:63
Fragment of a plate with no surviving edges but broken across a 3mm circular hole.
L:31mm, T:0.5mm
263. 8611b H21:1:1
Four fragments of a plate with some straight edges. Two of the fragments have small circular holes.
T:1mm
264. 8639 H21:1:8
Plate with no surviving edges but with a 2mm circular hole drilled through.
L:18mm, W:10mm, T:0.5mm
265. 977 H13:10:0
Rectangular strip with two rounded corners and one edge curved over.
L:24mm, W:20mm, T:0.5mm
266. 1936 H13:10:1
Fragment of a curved strip with raised edges. The strip is flattened where a disc-headed rivet pierces it.
Surviving L:25mm
267. 2711 H13:1:51
Fragment of fine crumpled sheet pierced by a small copper alloy rivet.
Surviving L:70mm
268. 2715 H13:1:55
Curved disc with a hole cut through the centre.
D:20mm
269. 3491 H13:0:0
Two fine rectangular strips which have been held together by two rivets, now missing.
L:50mm W:10mm
270. 4094 H20:1:0
Strip of semi-circular section.
L:46mm, W:3.5mm, T:3mm
271. 4295 H20:2:0
Wide strip broken at both ends. The face is convex while the back has traces of lead/tin alloy.
L:19mm, W:13mm, T:1.5mm
272. 5638 H20:5:10
Incomplete rectangular sheet with a large oval hole near one edge, probably enlarged by corrosion.
L:35mm, W:15mm, T:1mm, hole:5 × 5mm
273. 6354 H20:5:28
Incomplete plate with two curved edges, pierced by a rough rivet in one rounded corner.
L:35mm, W:27mm, T:0.5mm
274. 6848 H20:5:37
Irregular strip.
L:41mm, W:13mm, T:0.5mm
275. 7213 H20:9:1
Broad strip with a broken distorted flared end. A mould seam runs along the underside.
L:30mm, W:8mm, T:2mm
276. 7508 H20:9:9
Fragmentary strip with parallel edges and a shallow median rib.
Surviving L:25mm, W:13mm, T:1mm
277. 7595 H20:9:9
Fragment of a flat strip with cut edges, possibly from a strap end.
Surviving L:50mm
278. 8158 H20:7:33
Triangular sheet carefully cut to shape.
L:21.5mm, W:7mm, T:0.5mm
279. 8548 H21:1:1
Rectangular strip pierced by an iron rivet which projects from the top of a wider, tapering rod.
Strip:30 × 11mm
280. 8625 H21:1:8 (Fig 14.13)
Incomplete plate with cut edges and a central split. A rough disc-headed rivet pierces the plate at one edge.
L:21mm, W:19mm, T:0.33mm, D of rivet head:6 × 8mm
281. 8628c H21:2:6
Triangle cut from a sheet with no means of attachment; possibly waste.
L:34mm, W:24mm, T:0.5mm
282. 8652 H21:1:7
Lentoid strip pierced by two holes, one circular (D:5mm), one rectangular (4 × 3mm), both torn to the edge.
L:50mm, maximum W:19mm, T:0.5mm

283. 8694 H21:1:20
Short slightly curved strip with one pointed end. Buckle pin?
L:15mm, W:3.5mm, T:1mm
284. 8717 H21:1:9
Distorted strip with one rolled edge.
L:25mm, T:0.5mm
285. 8718 H21:1:9
Incomplete corroded strip with one straight edge. A disc-headed rivet pierces the plate near one edge.
L:30mm, T:0.5mm, D of rivet head:5mm
286. 8855 H21:1:33
Rectangular strip broken across a fold at one end and across a central circular hole at the other. Sides taper slightly.
L:25mm, W:15–17mm, T:1mm
287. 8857 H21:1:33
Strip with repoussé ridges along the length.
L:21mm, W:7mm, T:0.5mm
288. 8872 H21:1:37
Incomplete rectangular strip broken across an off-centre circular hole.
L:20mm, W:6mm, T:1.25mm
289. 8918 H21:1:33
Rectangular plate with a shallow convex upper face. One end is pierced by two rough holes.
L:28mm, W:10mm, T:0.5mm
290. 9127 H21:2:29
Distorted triangular sheet of copper alloy, probably an offcut.
L:49mm, W:21mm, T:0.5mm
291. 9203 H21:2:5
Strip with a rounded end pierced by a disc-headed rivet.
L:24mm, W:9mm, T:0.5mm, D of rivet head:6mm
292. 9219 H21:2:5
Incomplete rectangular sheet.
L:20mm, W:18mm, T:0.25mm
293. 9263 H21:2:6
Strip with straight edges and the surviving end cut obliquely. Two repoussé ridges run along the length of the sheet but not parallel to the edges.
L:20mm, W:9mm, T:0.25mm
294. 9304 H21:1:64
Rectangular strip with an elliptical hole punched through.
L:51mm, W:13.5mm, T:1mm, hole:8 × 3mm
295. 9317b H21:2:75 (Fig 14.13)
Hammered strip.
L:114mm, W:12mm, T:0.75mm
296. 9322 H21:1:35
Several fragments of plate, all triangular but of different sizes. Two have holes. Offcuts?
L:21–31mm, T:1mm
297. 1179 H13:–:0
Large block of raw copper alloy ready for melting down.
L:64mm
298. 6672 H20:4:30
Several fragments of curved plate. Offcuts?
T:1mm
299. 4107–4112 H20:1:0
Several irregular offcuts.
T:1mm
300. 9477 H21:1:35
Several fragments of roughly cut or torn copper alloy, possibly for recycling.
301. 9481 H21:2:6
Several fragments of copper alloy for recycling.

302. H21:2:55
Several fragments of roughly cut or torn copper alloy, possibly for recycling. An amount of copper alloy slag (9483) was also recovered from this context, plus two crucible fragments (9482).

303. 1471 H13:6:0
Fragment of copper alloy waste.
Copper alloy sheets or strips were also found in the following contexts:

<i>Context</i>	<i>small find no.</i>
H20:2:2	5397
H20:1:3	5983
H20:5:36	6921
H20:8:8	7487
H20:9:45	8434
H21:1:20	8683
H21:1:20	8684
H21:1:20	8690
H21:1:20	8691
H21:1:20	8693
H21:1:9	8715
H21:1:8	8799
H21:1:8	8800
H21:1:8	8801
H21:2:39	8836
H21:1:37	8870
H21:1:37	8871
H21:1:33	8917
H21:1:33	8919
H21:1:37	8937
H21:1:37	8938
H21:2:39	9048
H21:1:35	9071
H21:1:35	9072
H21:1:37	9144
H21:1:37	9145
H21:1:37	9147
H21:1:35	9186
H21:2:43	9227
H21:2:43	9229
H21:1:8	9505d–g
H21:–:–	9572
H21:2:55	–

Copper alloy objects from consolidation

304. 29A H13:3:– (Fig 14.13)
Pear-shaped mount in the form of a stylised human face. The forehead is divided from the hair by a clear curved ridge. The hair is confined to the top of the head and is shaped into waves rather than curls. The ears are raised circles which are on a level with the slanted lentoid eyes. The pupils are each indicated by an incised oblique line. The mouth is a short horizontal groove with a drilled dot at each end. The back is hollow and shows traces of lead/tin alloy but there is no other sign of a shank.
There are a number of face mounts from the Hadrian's Wall area, for example three from Coventina's Well (Allason-Jones and McKay 1985, nos 35–7) and a single head from South Shields (Allason-Jones and Miket 1984, no. 3.775). All are hollow with traces of lead/tin alloy but no shank and all portray noticeably Celtic features; all differ markedly in appearance. The Housesteads mount is unusual in its depiction of the ears.
L:28mm, W:23mm

305. 57 HS:-:1
Fragmentary ring of oval section.
D:22mm, W:4.5mm, T:3mm
306. 19 HS:-:1
Square-sectioned rod expanding slightly to a rounded end.
L:40mm, W:8mm, T:7mm
307. 23 HS:-:1
Curved rod of oval section expanding at one end. Pin from a penannular brooch?
L:22mm, W:2mm
308. 1A H13 (Spoil heap) (Fig 14.13)
Box or belt hinge consisting of a long rectangular strip pierced by two circular holes (D:2.5mm). One end is moulded to form a tube with the central section removed to provide a gap into which is slotted the narrow rolled end of a second strip, held in place by an iron pin. The second strip is shorter than the first, has a convex face and is stepped at the end.
L of 1st strip:47mm, W:8mm, T:2mm, L of 2nd strip:48mm
309. 21A H13:1 (in drain)
Fragment of a rectangular plate which has snapped across one rolled end and also across a single circular rivet hole which shows traces of an iron rivet.
L:29mm, W:13mm, T:0.75mm
310. 60 HS:-:1
Irregular sheet with one straight edge. There are traces of a lead/tin alloy on the reverse and some spillage on the front which may suggest that this formed part of a statue.
L:51mm, T:2mm
- Ironwork** (Figs 14.14–19)
311. 2174 H13:10:12 (Fig 14.16)
Finger-ring with a very narrow, triangular-sectioned shank which expands to triangular shoulders. The oval bezel contains an oval intaglio (No. 429, *see* p 470) with an important device depicting Aeneas and the Cumaean Sibyl. The intaglio has a bevelled edge and is made from two layers of glass with an upper royal blue layer on a dark ground imitative of blue onyx, generally known to jewellers as 'nicolo', a type popular in the Military Zone in the 2nd and 3rd centuries AD. The ring is very close to several from the Fortress Baths at Caerleon (cf Zienkiewicz 1986, 142–3, esp nos 6 and 8). It is more probably Antonine rather than 3rd century in date.
Internal D of ring:21mm, T of shank:2 × 1.5mm, Intaglio:13 × 11mm
312. 9267 H14:3:2 (Fig 14.14)
Circular shield boss with a wide flange, nicked at the edges. No rivet holes survive.
Three turrets: 18b, 26a, and 29b (Allason-Jones 1988) and at least one milecastle on Hadrian's Wall have produced iron shield bosses (Haigh and Savage 1984) but they are less common finds in forts.
Total D:183mm, internal D of bowl:122mm, H:40mm (approx), W of flange:30mm
313. 7774 H20:7:40
Lump of corroded mail (*lorica hamata*) made from fine rings which appear to be butted rather than riveted. The size of the rings is smaller than has been found previously on Hadrian's Wall but falls within the expected range of mail rings: 4–7mm. Cf South Shields: Allason-Jones and Miket 1984, no. 5.75.
Internal D of rings:4mm, T of rings:1mm
314. 1570 H13:8:8 (Fig 14.16)
Oval-sectioned bar which expands to a flat oval terminal pierced by a double-disc-headed rivet.
A group of similar bars found at Sewingshields has been identified as the strengthening and grip bars from shields (Haigh and Savage 1984, 89–90, figs 14, 15). A complete grip bar was found with the remains of a 1st-century shield at Doncaster (Buckland 1978, 247ff, fig 4) and others are known from Newstead (Curle 1911, pl XXXIV, 1 and 2) and Hod Hill (Richmond 1968, fig 58, A4).
L:73mm, W across terminal:30mm, D of rivet:20mm
315. 2488 H13:0:22 (Fig 14.14)
Long leaf-shaped spearhead, broken across the socket. Both faces are slightly convex without a midrib. Mid shoulder. This was found in the same context as ferrule 322, below, and both may therefore have belonged to the same spear.
L:160mm, L of entry:49mm, W of blade:24mm
316. (813675) H13:10:22 (Fig 14.14)
Spearhead with a long thin blade. Both faces are slightly convex without a midrib. Mid shoulder. The socket is split in two places and widely splayed. Mineral-preserved wood from the socket is *Salix* sp (willow) or *Populus* sp (poplar); see Watson 1985.
L:240mm, L of entry:112mm, W of blade:24mm
317. (813676) – (Fig 14.14)
Small but very fine spearhead with wide shoulders tapering sharply to a long point shaped at the tip. Faces are flat without a midrib. Low shoulder. The split wrapped socket has one large rectangular rivet hole opposite two short horizontal grooves.
L:163mm, L of entry:94mm, D of socket:15mm
318. 6830 H20:5:36
Blade of a large spearhead, missing its tip and broken across the socket junction. Low angular shoulder.
Surviving L:142mm, W of blade:49mm
319. (813674)
Very corroded spearhead with a narrow blade. Shoulders missing, no obvious midrib. Split socket.
L:214mm, D of socket:15mm
320. 4966 H20:6:2 (Fig 14.16)
Flat barbed-and-tanged arrowhead with a long straight-sided head and a rectangular-sectioned tapering shank. This is similar to the arrowheads found in a group of eight hundred in a 4th-century context in the *principia* (Bosanquet 1904, 225; Manning 1976, 22–3). Another was found in the excavation of the North Curtain Wall in 1984 (Crow 1988, 93). In his discussion of Roman archery Coulston (1985, 265) describes the type as 'improvised'.
L:56mm, W across barbs:15mm, L of entry:30mm
321. 1747 H13:5:12 (Fig 14.14)
Ferrule with a short pyramidal head and a long shank that ends in a split socket. Traces of the wooden shaft remain *in situ*, probably composed of *Acer* sp (maple) or *Tilia* sp (lime) see Watson 1985. Cf Corbridge hoard: Allason-Jones and Bishop 1988, fig 20, nos 60–3.
L:120mm, W of head:14mm, D of socket:14mm
322. 2521 H13:0:22 (Fig 14.15)
Split conical ferrule. One disc-headed rivet survives in a rivet hole, while another hole on the opposite side of the split suggests a second, now lost. Mineral-preserved wood from the socket is *Salix* sp (willow) or *Populus* sp (poplar), see Watson 1985. Found in the same context as spearhead 315 above.
L:84mm, D across socket:29mm

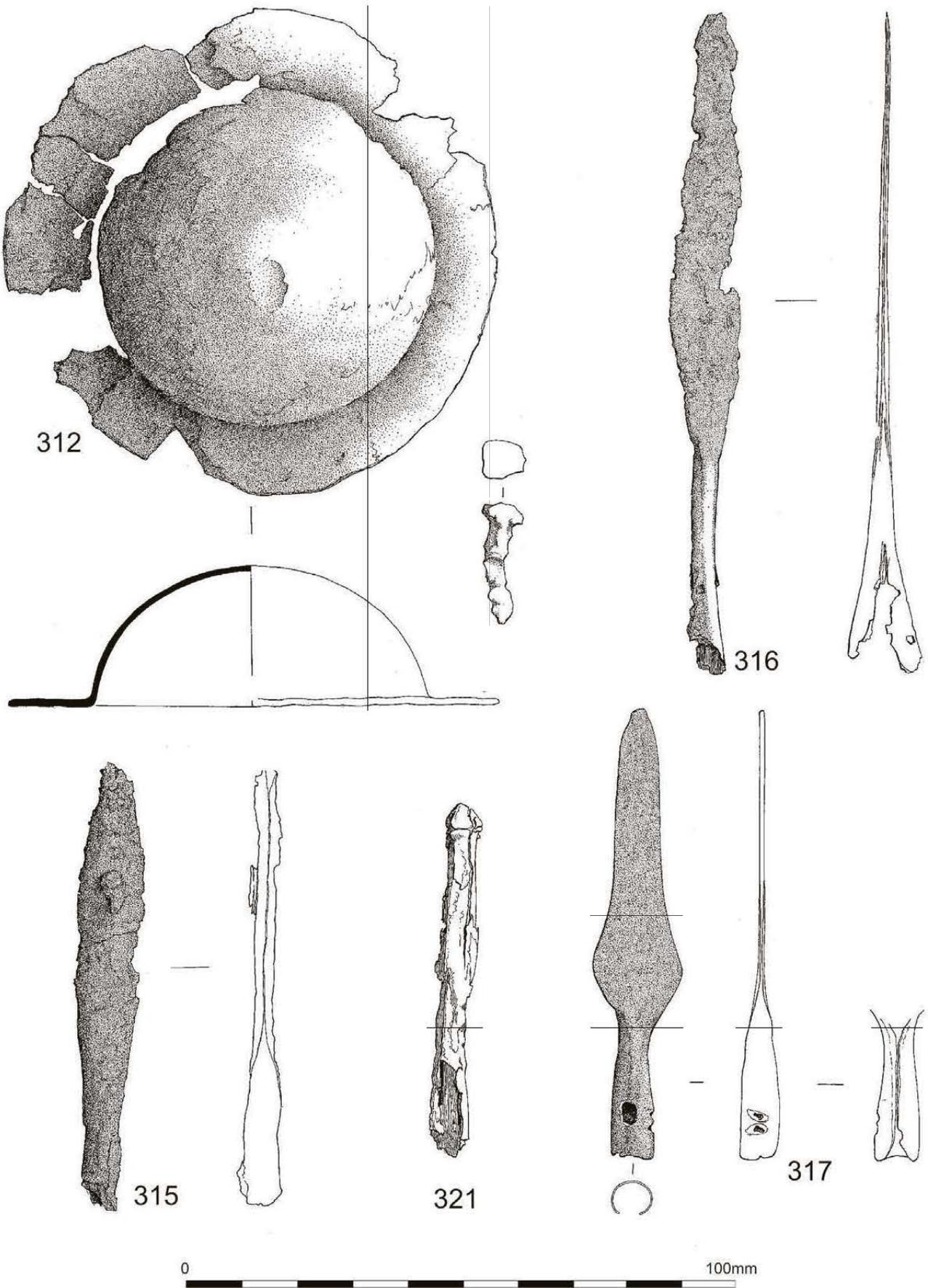


Fig 14.14 Iron objects (scale 1:2).

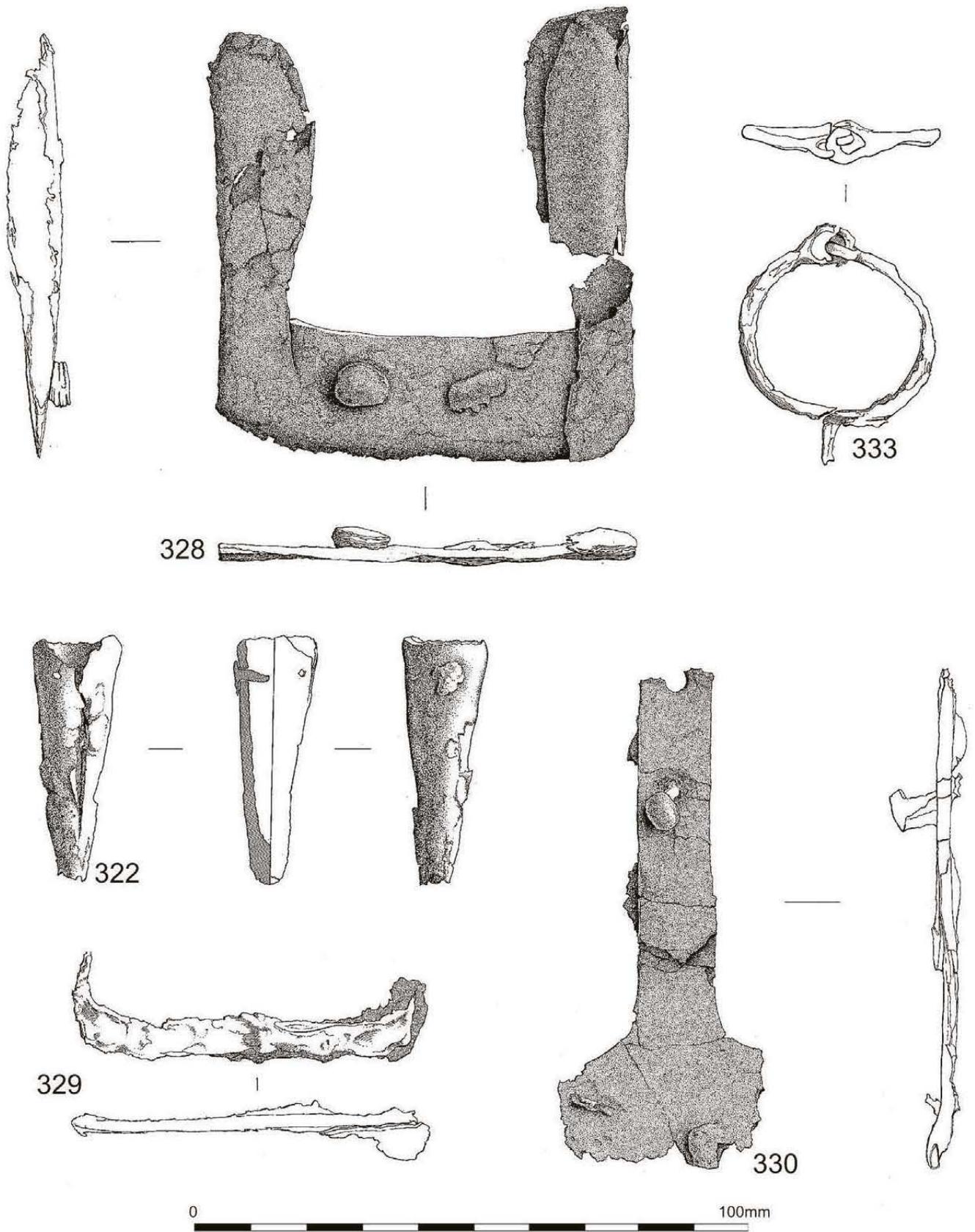


Fig 14.15 Iron objects (scale 1:2).

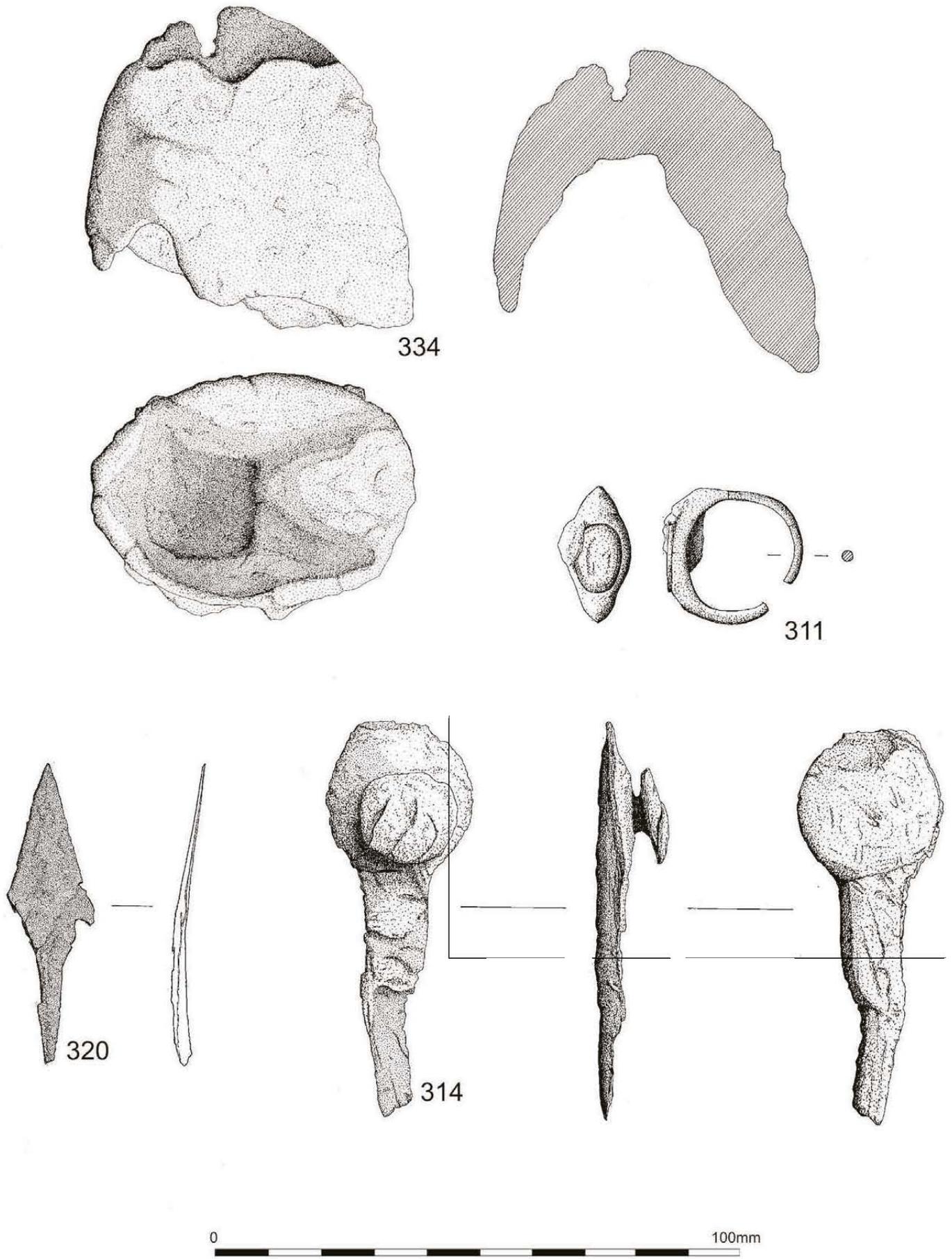


Fig 14.16 Iron objects (scale 1:1).

323. 2676 H13:10:6
Long split conical ferrule with traces of the wooden shaft composed of *Fraxinus* sp (ash) still *in situ* (see Watson 1985). No rivet holes survive.
L:152mm, D across socket:37mm
324. 6963 H20:8:12
Fragments of dagger or knife blade.
No measurements available.
325. 106 H20:10:33 (North Curtain – 1984)
Fragment of a knife blade with a straight cutting edge and an angled back.
L:70mm, W:20mm
326. 46 HS:–:1
Fragment of a large rectangular buckle with slightly bowed sides. The size of this piece suggests a harness buckle rather than a belt or armour buckle.
L:52mm
327. 8596 H21:1:7
Flat oval plate with a wide strip projecting from the edge opposite a short narrow shank.
L:42mm, max T:2mm
328. 644–648 H13:1:12 (Fig 14.15)
Spade sheath with a straight mouth and straight lugged arms. Manning 1985, Type 2B.
Romano-British spades were of wood with a cutting edge provided by a sheath of iron that fitted around the blade. The various forms have been discussed by Corder (1943) and Manning (1969 and 1985).
W:146mm, H:155mm, max T of blade:4mm
329. 592–4 H13:4:3 (Fig 14.15)
Strip of iron with curved ends, possibly the edge of a spade sheath or a joiner's dog (*see above* and Manning 1985, R52).
L:120mm, W:14mm, T:5mm
330. 669–671 H13:1:12 (Fig 14.15)
Flat strip broken at one end across a circular rivet hole. The other end flattens and expands to a roughly oval head which is pierced by two rivet holes, one of which still contains a rivet shank. A fourth rivet hole with its disc-headed rivet sits in the centre of the bar. Although this was found with the spade sheath, No. 328 above, there is no reason to suppose an agricultural use for this item. One suggestion is that it forms part of a box fitting, cf Manning 1985, R8.
L:180mm, W across bar:25mm, D of rivet head:13mm, T of bar:3.5mm
331. 1239 H13:8:13
Two wide strips, one of which bends through a right angle. Fragments of a straight-grained wood are attached suggesting box hinges or edging. Cf Corbridge Hoard: Allason-Jones and Bishop 1988, figs 81–2.
L:130mm, 93mm, W:39–52mm, T:7.5mm
332. 2687 H13:11:11 (Fig 14.17)
Pair of dividers with rectangular-sectioned tapering arms hinged at the oval heads by a dome-headed rod. See Manning 1985, A39 for parallels.
L:185mm, W across head:19mm, T of arms:3mm, D of rod head:9mm
333. 4456 H20:5:0 (Fig 14.15)
Shackle collar consisting of two semi-circular arms that interlock by means of oval terminal loops. Only a short projection survives from the opening loops but this is sufficient to identify the collar as an element in shackles of Manning's Type 4 (1985, fig 23, no. 4). The small size suggests handcuffs rather than ankle restraints.
Internal D:56mm, W across shank:6mm
334. 4159 H20:3:0 (Fig 14.16)
Bell of rectangular section with a loop projecting from the top.
H:55mm
335. 7033 H20:8:1
Four oval annular chain links of oval section.
L of each link:49mm, total W:26mm, T:5mm, total L:194mm
336. 75 H13:7:0 (Fig 14.17)
Barb-spring padlock. The case is cylindrical with one end blocked except for a narrow rectangular slot. A strip projects from the wall of the cylinder at this end and curves back as if to run parallel with the case. The bolt is circular in section at the haft but rectangular in section at the tip with two springs or barbs and a circular convex stop. Barb-spring padlocks are discussed in full by Manning (1985, 95–6). Unfortunately it is difficult to assign this example to one of Manning's types because the hasp is missing. However, a fragment of iron attached to the bolt head may be from the hasp terminal, suggesting Type 2. The cylindrical form of the case is less common than the rectangular. Cf Verulamium: Manning 1972, 182, no. 72.
Approx total L:150mm, D of case:34mm, L of bolt barbs:73mm
337. (813678) H13 (Fig 14.18)
L-shaped lift key with a rectangular-sectioned handle which is broken at the end. The shank narrows at its mid-point to a circular-sectioned neck. The bit consists of two teeth.
Two L-shaped lift keys are already known from Housesteads although both examples have three teeth rather than two (Manning 1976, nos 144–5).
L:122mm, W across bit:22mm, T of handle:7.5 × 8mm
338. 6107 H20:6:4 (Fig 14.18)
Iron latch-lifter of a form more commonly seen in bone or wood. It has been made by the simple method of cutting four pieces from the edge of a rectangular strip to leave three teeth and a handle. For examples in bone, antler and wood see Allason-Jones and Miket 1984, no. 2.22.
L:121mm, W:13mm, T:3.5mm
339. 4699 H20:3:0
Rectangular-sectioned rod lacking both ends but narrowing sharply at a mid-point. Handle and shank of a lift key? *See* No. 337 above.
L:110mm, Max W:10mm, max T:7mm
340. 6111 H20:6:3 (Fig 14.18)
Iron stylus. The circular-sectioned shank is interrupted by two bead-and-reel motifs. The point is missing. The blade is narrow but spatulate with two transverse grooves across one face and three vertical grooves along the edge of the other face. The elaborate decoration on this piece is more usually found on copper alloy styli. Manning 1985, Type 4.
L:112mm, W across blade:7.5mm, max T of shank:5mm
341. 181 H20:10:15 (North Curtain – 1984)
Rod of oval section which expands to a spatulate end. The broken end suggests that the shank was twisted. Stylus or medical instrument handle?
L:95mm, max W:15mm
342. 2290 H13:10:24 (Fig 14.17)
Chisel with narrow, straight-sided blade which expands to a bell-shaped socket still containing a substantial portion of the circular-sectioned wooden shank. Analysis by the Ancient Monuments Laboratory has shown the wood to be *Castanea* sp (chestnut); see Watson 1985.

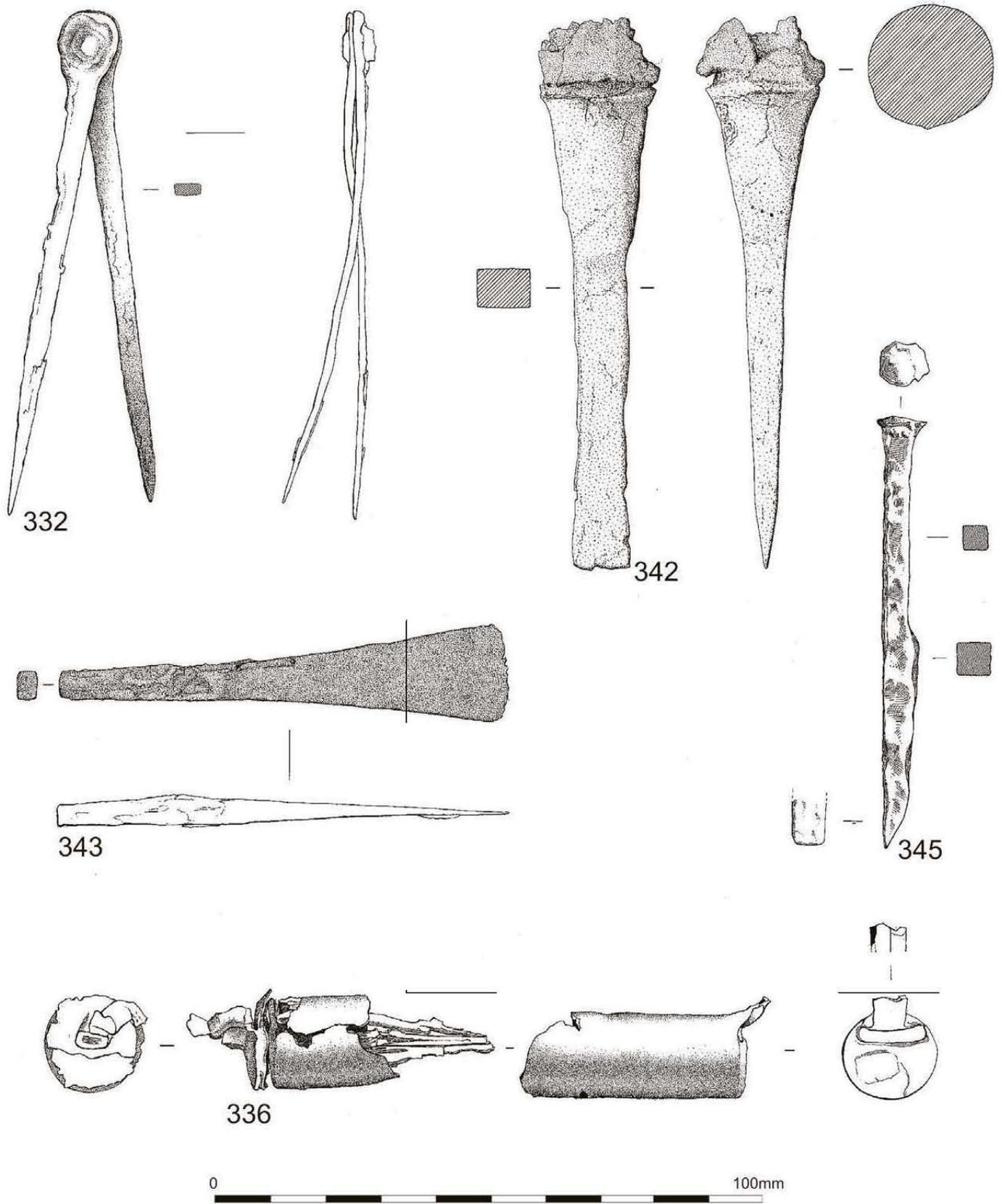


Fig 14.17 Iron objects (scale 1:2).

As chestnut is usually considered to be a tree imported to Britain during the Roman period it is possible that this tool was imported. Chisels with similar blades, identified as 'former chisels' by Manning (1985, B31) have been found at Newstead (Curle 1911, 280, pl LIX, 7) and Old Penrith (Austen 1991, 203, fig 103, no. 759). The Old Penrith example was also hafted with chestnut. L:177mm, W of cutting edge:20mm, D of socket:38mm

343. 1309 H13:7:1 (Fig 14.17)

Chisel with a wide spatulate blade, slightly rounded at the edge. The shank is rectangular in section and expands slightly at the junction with the blade.

Paring chisel? See Manning 1985, Type 1, fig 4, no. 1. A paring chisel of similar size from Housesteads is published by Manning (1976, no. 59), but has a tang for a wooden handle instead of the solid handle of this example.

L:162mm, W across blade:33mm, max T of handle:12 × 10mm

344. 1179 H13:--:0

Fragment of a very corroded iron tool, possibly a short chisel or mason's booster with a wedge blade and a tapering shank.

L:68mm, max W:18mm

345. (813677) (Fig 14.17)

Tool with a rectangular-sectioned shank and a hammered end. At a mid-point the shank thickens suddenly and then tapers to a sharp edge. Smith's punch? See Manning 1985, 9-10.

L:156mm, max W:12mm, max T:12mm

346. 3111 H13:10:31 (Fig 14.18)

Thin, square-sectioned rod expanding in the middle before tapering to its missing end. The other end is encased by fragments of bone, presumably from a handle. Awl?

L:95mm, max W:5.5mm, max T:5mm

347. 2139 H13:0:12 (Fig 14.19)

Small hand hammer with a circular eye set in a lozenge-shaped head. The striking face is rectangular in section and splayed with use. The other face is curved and tapered.

L:125mm, D of eye:17mm

348. 288 H13:9:0 (Fig 14.19)

Drop hinge staple with a rectangular-sectioned tapering shank bent to a right angle. See Manning 1985, R12.

L:90mm, max W:10mm

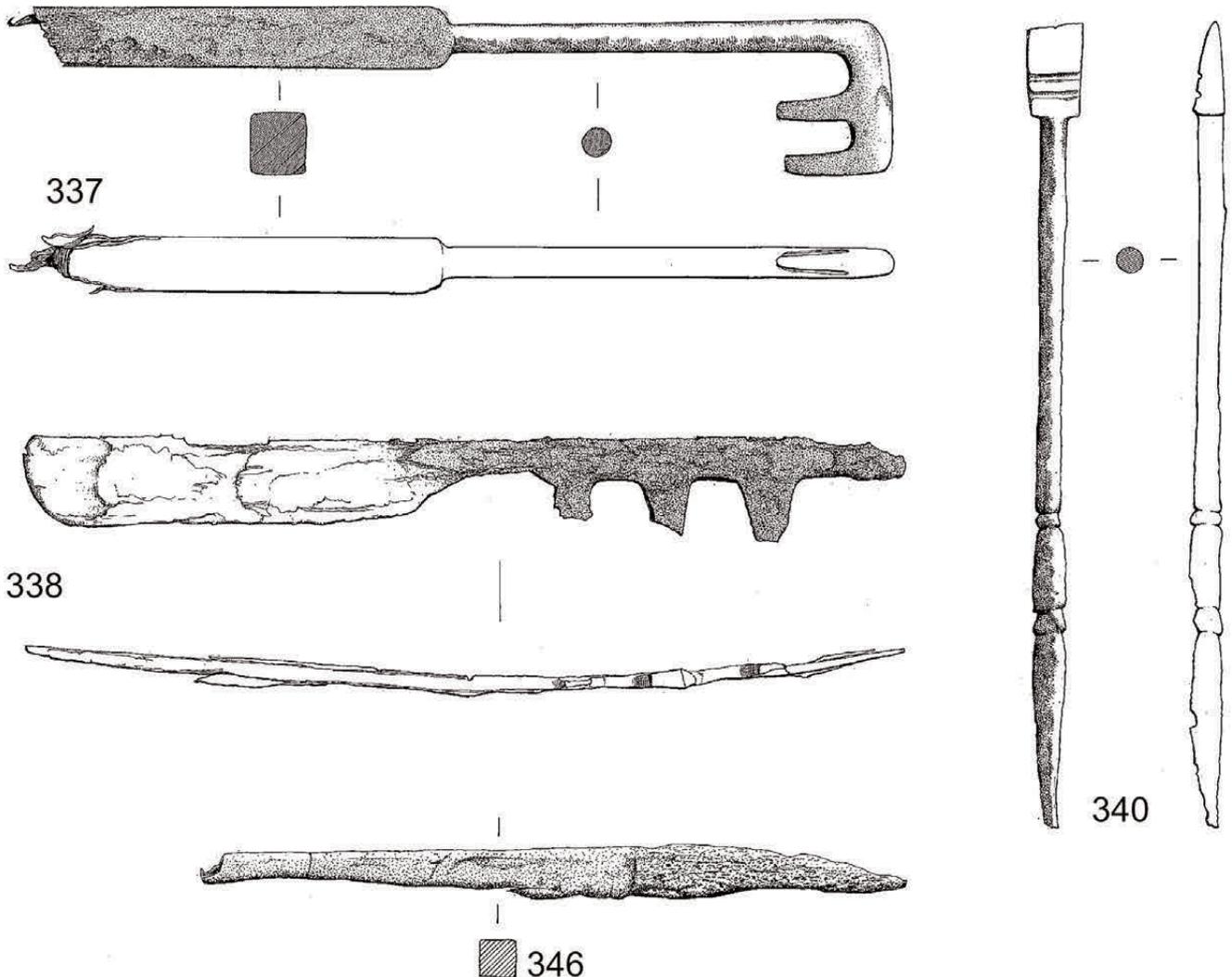


Fig 14.18 Iron objects (scale 1:1).

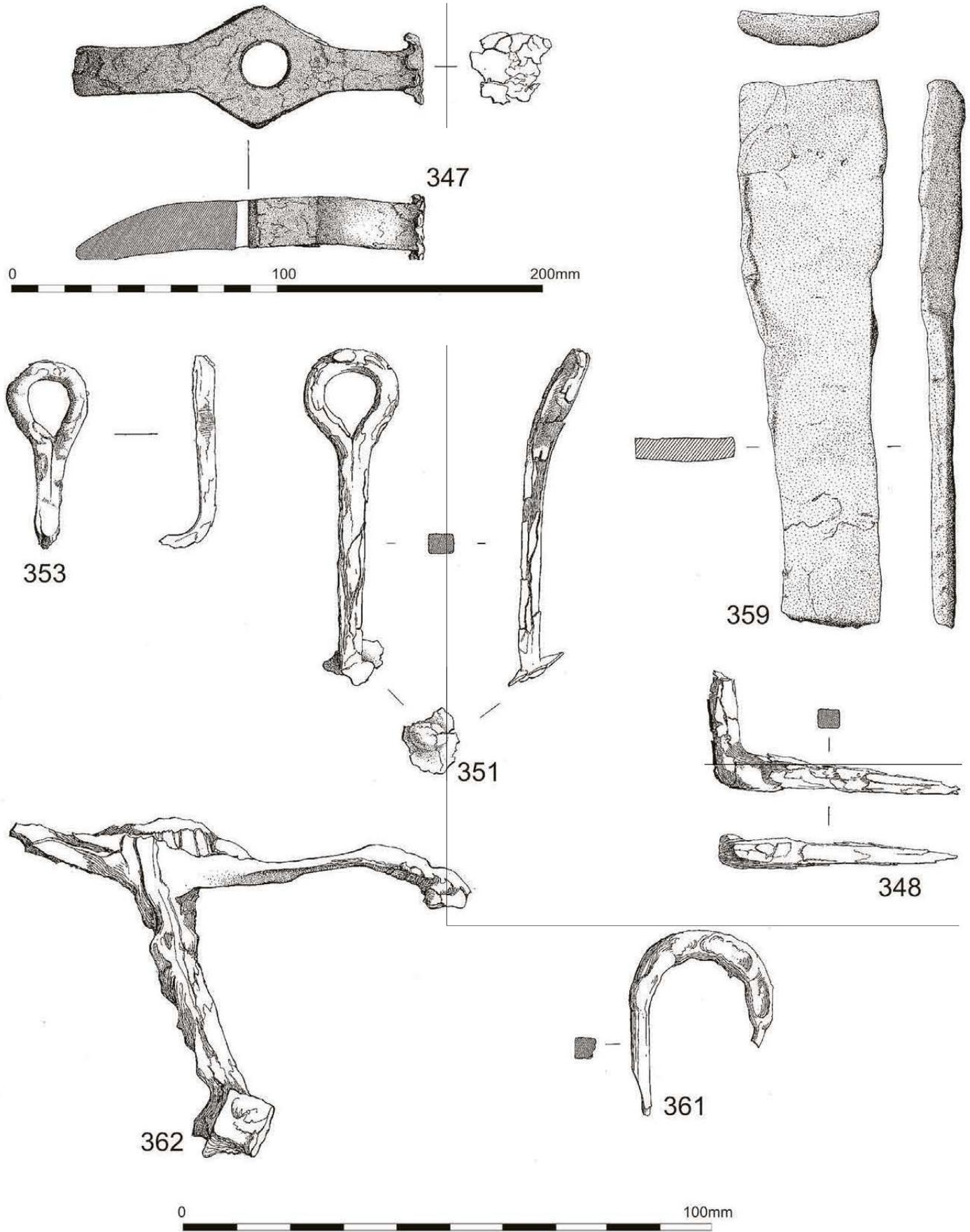


Fig 14.19 Iron objects (scale 1:2, except No. 362: 1:1).

349. 8650 H21:2:26
Annular ring of circular section threaded through a double-spiked loop.
D of ring:44mm, T of ring:6mm, L of split pin:54mm
350. 698 H13:1:12
Annular ring of circular section with a rod hooked around the shank.
D of ring:43mm, L of rod:73mm
351. 506-8 H13:1:0 (Fig 14.19)
Swivel of rectangular section with an oval loop and a disced end.
L:116mm, W across loop:34mm
352. 5116 H20:4:1
T-clamp. See Manning 1985, 131-2.
Surviving L:50mm, surviving W:53mm
353. 721-2 H13:5:3 (Fig 14.19)
Double-spiked loop. See Manning 1985, 130.
L:83mm, W across loop:28mm, T:6mm
354. 7807 H20:7:41
Double-spiked loop.
L:77mm, W across loop:21mm
355. 5789 H20:7:0
Single-spiked loop. See Manning 1985, 130.
L:75mm, W across loop:24mm
356. 5790 H20:7:0
Single-spiked loop, as above.
L:68mm, W across loop:31mm
357. 7358 H20:8:8
Single-spiked loop, as above.
L:71mm, W across loop:23mm
358. 147 H20:10:33 (North Curtain - 1984)
Large block of stone with an iron disc attached to it. The disc has a cylindrical block across its diameter.
D of disc:10mm
359. 6754 H20:4:23 (Fig 14.19)
Roughly rectangular bar splaying slightly at one end. One face is convex, the other concave. The wider end is chamfered on the convex face. Rough-out for a tool?
L:205mm, W:34-52mm, T:7mm
360. (no SF no.) H13:0:0
Dome-headed bolt or nail with a thick tapering rectangular-sectioned shank.
L:81mm, D of head:21mm
361. 171 H20:10:30 (North Curtain - 1984) (Fig 14.19)
Broad flat hook tapering to the terminal.
L:55mm, W:10-22mm, T:3mm
362. 1774 H13:0:9 (Fig 14.19)
Rod of irregular rectangular section which passes through a loop of oval section.
L of loop:65mm, L of rod:90mm
363. 109 H20:10:33 (North Curtain - 1984)
Bar with parallel sides and a triangular end, apparently complete.
L:81mm, W:40mm, T:5mm
364. 5278 H20:7:0
Fragment of a rectangular plate with a large circular rivet hole.
Surviving L:39mm, W:25mm, hole:9mm
365. 5420 H20:6:2
Fragment of a strap pierced by at least two holes.
Surviving L:75mm, W:21mm, holes:8mm
366. 1449 H13:3:1
Oval-sectioned bar which expands slightly to rectangular section.
L:110mm, W:18-24mm
367. 126 H20:10:21 (North Curtain - 1984)
Bar with parallel sides and pierced by at least one rivet hole.
L:66mm, W:20mm, T:2.5mm, hole:5mm
368. 1745 H13:9:12
Slightly curved bar.
L:71mm, W:36mm, T:9mm
369. 2223 H13:1:12
Bar with parallel sides.
L:90mm, W:22mm, T:4mm
370. 7217 H20:9:1
Tapering, rectangular-sectioned bar.
L:101mm, maximum W:19mm, T:7mm
371. 2229 H13:10:7
Fragment of curved sheet, possibly piping.
L:77mm, T:3mm
372. 6611 H20:4:13
Curved strip.
L:90mm, W:30mm, T:4mm
373. 180 H20:10:- (North Curtain - 1984)
Incomplete bar.
L:61mm, W:32mm, T:5mm
374. 2327/8 H13:5:22
Bar.
L:75mm
375. 6931 H20:4:29
Strip.
L:98mm, W:36mm
376. 734 H13:4:3
Annular ring of oval section.
Internal D:38mm, W:10mm, T:9mm

Nails

Large numbers of iron nails were found on the site, and without exception almost all were disc-headed, varying in size from small carpentry tacks to large masonry nails. Their condition, however, made accurate measurements pointless.

A list of the contexts in which the nails were found is contained in the archive report.

Hobnails

During the course of the excavations 498 loose hobnails were uncovered, as well as two large groups from H20:8:7 and H13:5:12 that were corroded together in masses, as if they had been in bags.

The majority of hobnails were found in small groups, but some larger groups were identified:

<i>Context</i>	<i>no. of hobnails</i>
H20:7:2	13
H20:8:8	224
H20:3:10	324
H20:3:11	289
H20:3:20	233
H20:4:1	64
H20:4:13	14
H20:4:16	511
H20:5:1	212

Even with an average of 80 hobnails per sole, which would not be excessive, this is a considerable number of hobnails and it could be suggested that a shoemaker or

mender was plying his trade in the north rampart area (H20). However, the contexts are mostly dump layers belonging to the reinstated rampart of H20 Phases 3b/d and Phase 4 and the hobnails are therefore more likely to relate to the activities taking place in the areas from which these deposits were extracted, presumably outside the fort, or represent the disposal of rubbish – cobblers waste or old footwear – during the construction of the rampart bank.

A full list of the contexts with hobnails may be found in the archive report.

Lead (Fig 14.20)

377. 1814 H13:5:8 (Fig 14.20)

Large globular lead ball with two iron rods passing right through. This was probably associated with the copper alloy steelyard (No. 59 above, H13:5:4).

Weight:187.5g, max D:49mm, H:40mm

378. 2434 H13:10:24 (Fig 14.20)

Lead weight in the shape of an acorn. The top is pointed but incomplete.

Weight:25g, H:32mm, D:19mm

379. 1778 H13:0:2

Plain disc with two circular dimples on one face.

D:34mm, T:4mm

380. 3554 H13:0:34

Undecorated oval disc. Possibly an 18th/19th-century dress weight.

D:32mm × 25mm, T:2mm

381. 5242 H20:5:0

Fragment of a ring with convex upper face.

External D:40mm, W:10.5mm, T:5mm

382. 1618 H13:10:0

Fragment of a rectangular-sectioned ring or hook.

L:13mm

383. 3667 H13:1:138

Nail with a split oval head and a square-sectioned, tapering shank.

Head:22 × 16mm, total L:33mm

384. 8353 H20:8:63

Fragment of a strip with one straight edge and a tiny hole drilled 5mm from the edge. The hole once held a rectangular-sectioned nail or rivet (2 × 2mm).

L:100mm, maximum W:45mm, T:3mm

385. 505 H13:1:0

Loop made from an oval-sectioned strip.

L:34mm

386. 2508 H13:5:23

Tapered strip with one rounded end, bent to form a slight hook.

L:43mm, W:9–11mm, T:4mm

387. 4413? H20:6:0

Fine curved strip of U-section pierced by 1mm circular holes at random intervals.

L:79mm, W:5mm

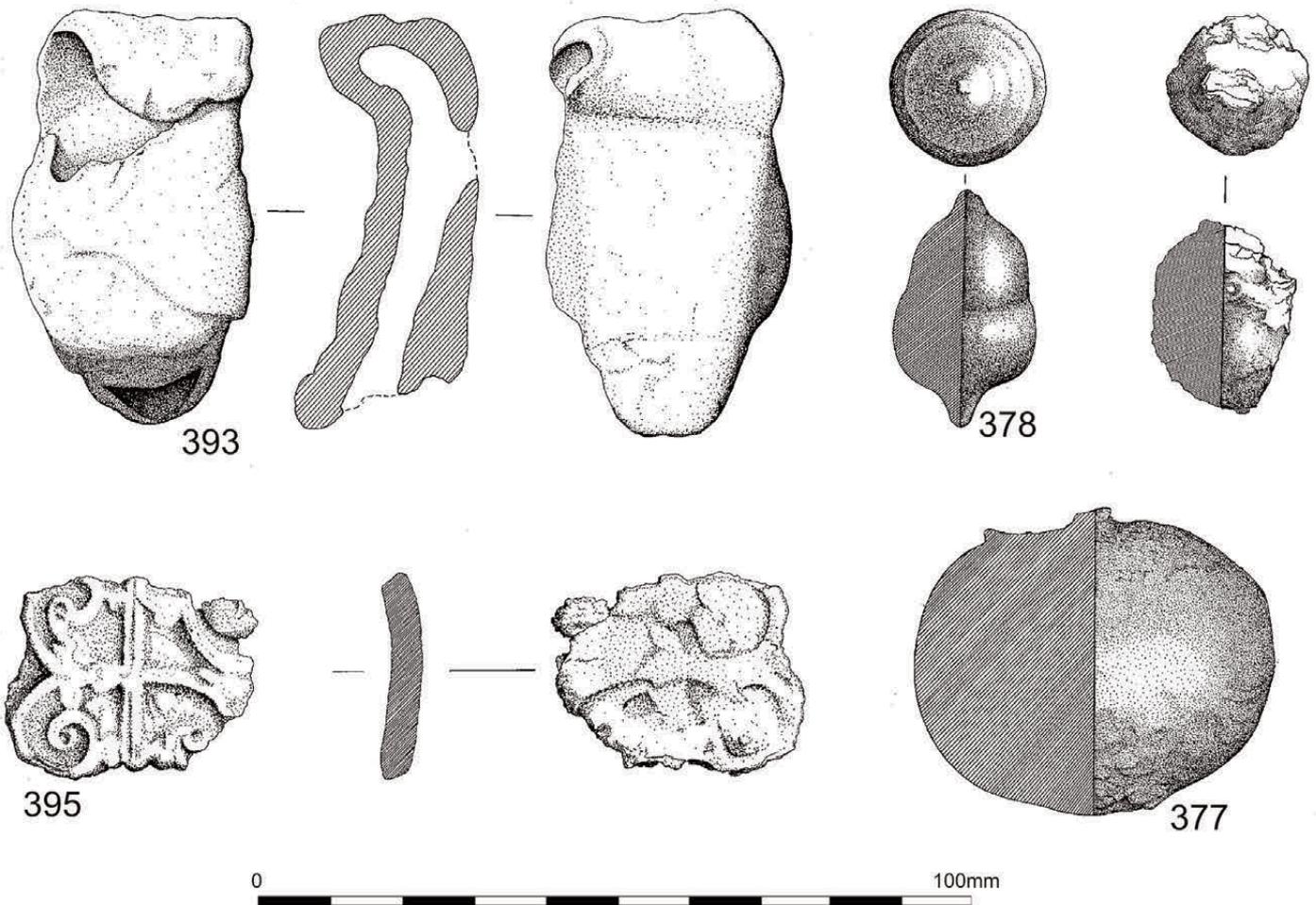


Fig 14.20 Lead objects (scale 1:1).

388. 7393 H20:9:5
Strip with one straight edge and oblique ends.
L:59mm, W:16mm, T:4mm
389. 7234 H20:8:16
Tube formed by rolling a sheet.
L:39mm, D:11mm
390. 3536 H13:1:170
Incomplete tube.
L:28mm, D:22mm
391. 130 H13:7:0
Fragment of a twisted lump.
392. 202 H13:8:0 (Fig 14.20)
Large globular lump. Possibly lead shot (*glandes*) although the condition is such that it is impossible to make a firm identification or assign it to a type. For a general discussion see Griffiths 1989, and Greep 1987 (and cf Griffiths below: 'Stone missiles').
L:45mm
393. 1903 H13:10:7 (Fig 14.20)
Block which rises to a curved, hollow point at one end and forms a flat curl at the broader end.
L:54mm, maximum W:33mm
394. 2643 H13:5:26
Solid, bun-shaped block.
D:16mm, H:7mm
395. 9290 H21:1:38 (Fig 14.20)
Lead sheet with an embossed design on one face of two scrolled *peltae* projecting from a central ribbed bar. Post-medieval?
L:32mm, W:27mm, T:4mm
396. 6403 H20:4:16
Crumpled sheet.
T:1mm
397. 743 H13:2:2
Large lump, flat on two sides.
L:87mm
398. 914-5 H13:5:3
Two fragments of lead, one a sheet with two oblique parallel lines scratched on one face.
399. 1611 H13:9:0
Lump of lead which appears to have been used as caulking.
L:52mm
400. 6212 H20:4:1
Caulking which has held an 11mm circular shank off-centre within a 14 × 26mm setting.
D:22mm
401. 5682 H20:4:1
Caulking from the side of a 9mm diameter oval-sectioned rod.
L:36mm
402. 1935 H13:10:1
Large lump of waste.
L:132mm
403. 3523 H13:11:30
Length of lead sprue.
L:30mm, D:7mm
404. 9463 H21:2:6
Lead sprue.
L:50mm
405. 9315 HSE:1:29
Fragment of strip.
L:29mm, W:11mm, T:2mm
406. 9486 H21:2:56
Fragment of lead.
L:30mm

407. 9425 HSE:1:11
Lead waste.
408. (no SF no.) H21:4:2
Several fragments of waste.
Unidentified lead was also found in the following contexts:
- | <i>SF no.</i> | <i>context</i> |
|---------------|----------------|
| 1690 | H13:1:17 |
| 2457 | H13:5:8 |
| 1726 | H13:6:12 |
| 3110 | H13:10:31 |
| 2678 | H13:11:0 |
| 5322 | H20:4:0 |
| 6756 | H20:4:19 |
| 7911 | H20:6:60 |
| 7373 | H20:8:8 |
| 8172 | H20:8:22 |
| 8517 | H20:8:75 |
| 9302 | H21:1:54 |
| 8636 | H21:4:7 |
| 8664 | H21:4:9 |
| 8830 | HSE:1:1 |

Lead objects from consolidation

409. 31 HS:-:1
Roughly triangular lead sheet.
L:29mm, T:3mm
410. 52 HS:-:1
Incomplete disc with rough surfaces.
D:25mm, T:6mm

Bone (Fig 14.21)

411. 1869 H13:1:6 (Fig 14.21)
Bone rod of rectangular shape and section, expanding at the ends and around the central rectangular hole, which is flanked by triangular depressions. A similar piece from Richborough is referred to as a 'toggle' (Bushe-Fox 1949, pl LIV, 148, no. 227; pre c AD 85), but an alternative identification might be a sword or dagger guard, or bridle cheek-piece (Dalton 1925, 144, fig 163).
L:46mm, W:13mm, T:10mm, hole:11 × 5mm
412. 2257 H13:0:22
Waisted bone handle made from two pieces of ungulate long bone. The front has spall damage but originally was decorated by incised bands of cross-hatching and oblique lines separated by plain areas. Two small circular holes have been drilled through to take iron rivets. This is a common form which can be paralleled locally at Corbridge: Bishop and Dore 1988, 207, no. 16.
L:60mm, W:25mm
413. 1758 H13:1:12
Small disc of burnt bone with a convex face.
D:13mm, H:3.5mm
414. 2527 H13:0:17
Counter with a bevelled upper edge and a dished face with a central lathe stock centre-mark.
D:19mm, T:3.5mm
415. 3622 H13:1:121
Burnt counter with lathe-turned concentric circles on the upper face.
D:19.5mm
416. 9276 H21:1:43
Bun-shaped counter or inset of bone with file marks on the flat base.

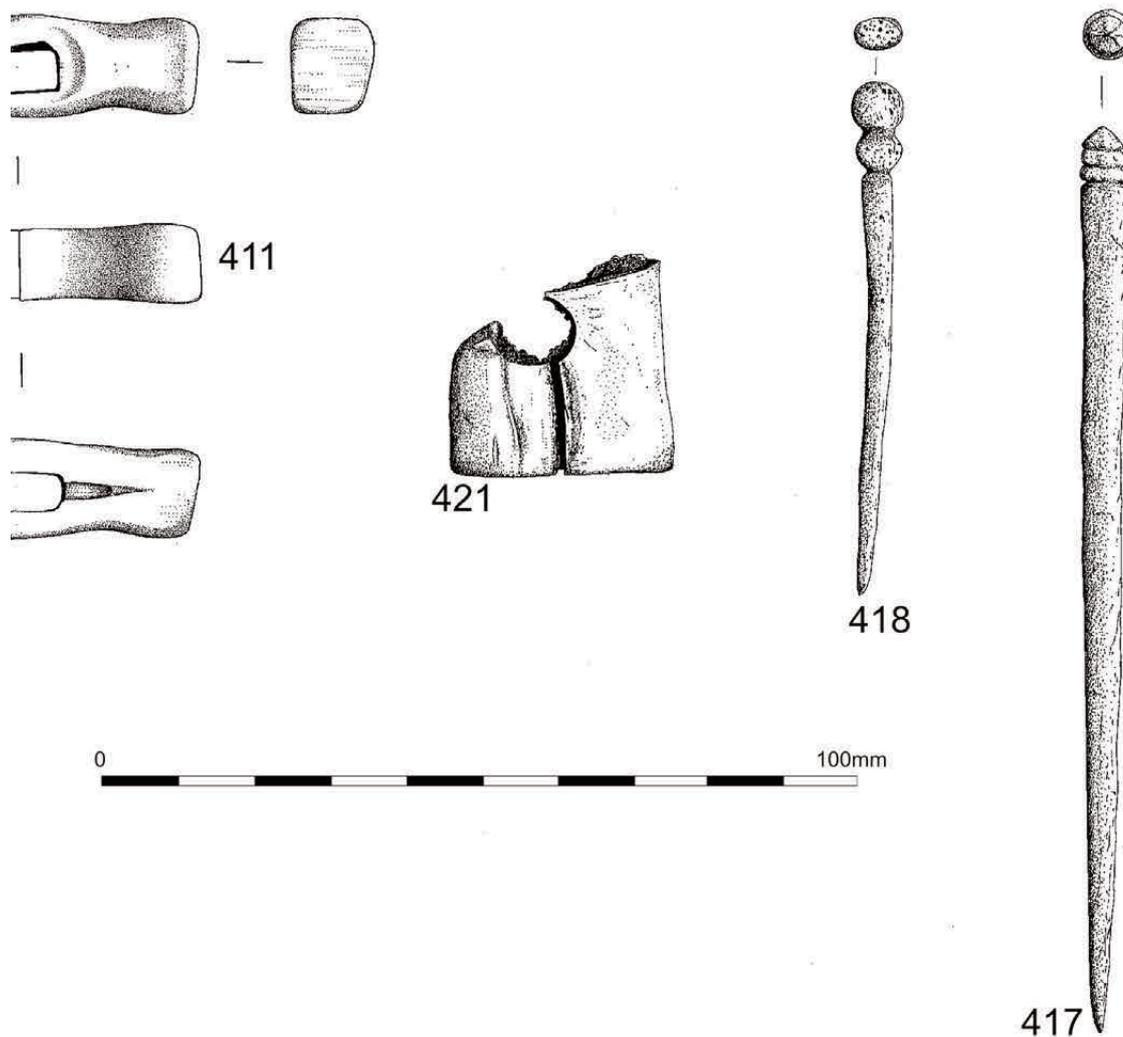


Fig 14.21 Bone objects (scale 1:1).

D:16mm, H:8mm

417. 5042 H20:7:0 (Fig 14.21)

Complete polished pin with three deep grooves decorating the head. The shank is circular-sectioned and tapers from the head. See Crummy 1979.

L:119mm, maximum T:6mm

418. 7979 H20:7:33 (Fig 14.21)

Pin made from a fowl bone. The shank is circular in section and curves slightly. The head is spherical and sits on an expanded neck – the head, neck and shank are separated by grooves. The cortex of the bone is visible on one side of the head.

L:68mm, Head:6mm

419. 8417 H20:9:10

Long bone of an ungulate whittled to a rough rod, the first stage in bone pin manufacture.

L:115mm

420. 9272 H21:2:6

Roughly whittled end of a pin.

L:47mm, T:5mm

421. 7903 H20:5:43 (Fig 14.21)

Cylinder cut from end of ungulate long bone with a transverse hole drilled through the shank.

W:30 × 22mm, SH:28mm, hole:10mm

The intaglios (Fig 14.22)

M Henig

Catalogue

422. 8606 H21:1:13 (Fig 14.22)

Cornelian intaglio with blackish inclusions, ovoid in shape and with flat upper face. (Form Fl, cf Henig 1978, 35 fig 1).

Dimensions: 15mm × 12mm × 3mm

The device, described as usual for an impression, is a pantheistic goddess in profile to the left. Standing on a short base-line, the deity has on her head the plumed helmet of Minerva, with the great aquiline wings of Victoria sprouting from her shoulders, and holds both the rudder of Fortuna and the corn-ear of Ceres in her right hand. Close in iconography and style as well as material is a gem from the drain of a legionary bathhouse at York (Henig 1976, 8 no. 11, and Henig 1978, no. 79), which has thus enabled the Housesteads intaglio to be confidently dated to the 2nd century AD. I have cited comparanda in reporting on the York gem, showing that this type is evidently common on intaglios. In a North British context the resemblance of this type to *Dea*



422



423



424



425



426



427



428

Fig 14.22 The intaglios (scale 2:1).

Brigantia on the Birrens relief (Keppie and Arnold 1984, 7–8, no. 12), should be noted. There Minerva and Victory are syncretised with Juno Caelestis and a city (or territorial) goddess, emphasising the same idea of the accumulation of the powers of individual gods within a single figure.

423. 2642 H13:6:0 (Fig 14.22)

Cornelian intaglio of diminutive size, almost circular in shape and with a slightly convex upper face (Form A4). Dimensions: 8mm × 7mm × c 1.7mm

The gem evidently depicts the god Mars or perhaps a hero (such as Theseus or Achilles). He stands to the front and faces left. He is bare-headed and evidently nude, but a chlamys is draped over his left arm. In his right hand he holds a short sword, its blade upwards, and behind him is a transverse sceptre.

The gem is paralleled by a cornelian, set in a silver ring found in Lincolnshire (Henig 1978, no. 92), as well as by an intaglio in the mid- to late 2nd-century cache of cornelians and silver jewellery from Snettisham, Norfolk (information Catherine Johns; the stone is no. 184 in the listing). The style of cutting is similar, but not identical to the second of these stones.

424. 6964 H20:8:8 (Fig 14.22)

Mottled red jasper intaglio (Form F1). In good condition apart from a chip on the left edge. A goat stands on its hind legs in profile to the left, attempting to reach the branches of a tree. There is a ground line.

Dimensions: 11mm × 8.5mm × 2mm

This is a common type on gems and we may note examples from High House Milecastle, Cumbria (Henig 1978, no. 611), Caerleon (Zienkiewicz 1986, 139, no. 77), Charterhouse on Mendip (Henig 1978, no. 612), Cirencester (Henig 1978, no. 610), and the Ditches site, North Cerney (information S D Trow). All are cut in red jasper. Related types show a goat browsing on a palm, examples of which have been found at Caerleon (Henig 1978, no. 609), in a bath-house drain in the *Classis Britannica* fort at Dover (Philp and Henig 1985, 464, no. 5), and from Wallsend (information P Moffat). Interestingly, these are cornelians. For some reason different compositions are sometimes prevalent on different materials.

425. 58 H13:5:0 (Fig 14.22)

Pale cornelian intaglio, elongated oval with a slightly convex (nearly flat) face (Form A4 or F1). Chips on side, above and below figure; also some surface wear.

Dimensions: 12mm × 8mm × 2.5mm

Previous publication: Henig 1978, 298, and pl lxviii, no. App 98 (wrong dimensions given).

Mars Gradivus. The god is shown marching to the right (impression). He is nude, apart from a scarf-like garment or *subligaculum* around his loins. He holds a spear in his right hand and a trophy in his left, the latter supported upon his left shoulder. At his feet is a star.

This type is a common one among examples from military sites. We may note specimens from Vindolanda, the York bath-house drain, and two intaglios from a similar outfall at the *Classis Britannica* fort of Dover (Henig 1978, no. App 29; *ibid*, no. App 86. Henig 1976, 6 no. 9; Philp and Henig 1985, 463–4, nos 1 and 2). There is also one from Brancaster (Henig 1985, 198, no. 3).

The gem is cut boldly but fairly simply with a round-headed drill. Compared to two gems depicting the same subject, formerly in The Hague, now in Leiden, attributed by Professor Maaskant-Kleibrink to her Round Head Style (Maaskant-Kleibrink 1978, 225f, nos 804

and 805), the Housesteads gem is probably of 2nd-century date.

426. 41 H13:5:1 (Fig 14.22)

Chalcedony intaglio, rounded oval with flat upper face and bevelled edge (Form F4). There is slight wear on upper face, as well as traces of iron corrosion adhering to the underside of the stone.

Dimensions: 13.5mm × 11mm × 4mm

Previous publication: Henig 1978, 304 and pl lxviii, no. App 131 (wrong dimensions given).

This intaglio depicts Venus nude, standing in profile to the right (impression). She has raised her left leg and is tying on or removing her sandal with her left hand. She supports herself with her right hand upon a rudder.

Among comparanda is a similar intaglio cut on a brownish chalcedony in Cornwall (Walford and Henig 1983). The only other example of this type from Britain is a rather poor cornelian set in a fine gold ring from Bignor, Sussex (Henig 1978, no. 278, and Frere 1982, 192–3). Although the device is well placed in its field, the cutting is more simplified than, for example, the gem in the Hague/Leiden collection (Maaskant-Kleibrink 1978, no. 891), which is ascribed to the Cap With Rim Style, and may be assigned to the Plain Grooves Style. It should date to the 2nd century AD.

427. 9288 H14:3:13 (Fig 14.22)

Cornelian intaglio, ovoid with slightly convex upper face and sides bevelled outwards (Form A6, but with flat underside). It would have stood proud on the surface of the ring in which it was set. The underside of the stone is chipped and there is some wear on its face.

Dimensions: 11mm × 8mm × 3.5mm

This intaglio depicts Victory wearing a long chiton, kneeling on her chariot and urging on her two-horse team. For Victory driving a *biga* (see Henig 1978, no. 293), a cornelian from York is a good example, but here the goddess stands and the horses walk in what is clearly a lap of honour. More vigorous movement is portrayed on a glass gem from Wroxeter (Henig 1978, no. 294). An earlier and finer version of this type is represented by Maaskant-Kleibrink (1978, no. 542). Later and stylistically closer is *ibid*, no. 791, related to the Small Grooves Style. The gem dates to the later 2nd century or the early 3rd century AD.

428. 49 H13:5:0 (Fig 14.22)

Red glass intaglio, ovoid in shape, with a flat face. The intaglio is moulded not engraved.

Dimensions: 11mm × 9.5mm × 1.75mm

This intaglio depicts a standing male figure, considerably stylised. He may be holding a transverse spear and a shield, suggestive of the god Mars. This is an example of a type of intaglio that I formerly designated as the Romano-British Imitation (Henig 1978, 133 and nos 539–578), but which I subsequently renamed as the Shavard's Farm Type, after a type site in Hampshire. These imitations are almost all from southern Britain, with a few outliers in the Wall region. Also apparently from Northern Britain is a bronze stamp said to be from Brough on Humber, which may have been used to make these signets. While not identical to the Housesteads example, the 'Brough' stamp also portrays a warrior with transverse spear and holding a shield (Henig 1984). A date in the 3rd century seems probable.

429. 2174 H13:10:12

Nicolo glass intaglio, ovoid in shape. Flat face with bevelled edge. The intaglio was moulded, not engraved and is now somewhat decayed. Set in an iron ring.

Dimensions: 13mm × 11mm

A helmeted man stands in profile to the left on a short ground line (impression described). He appears to be nude though a *chlamys* hangs over his left arm. In his right hand he holds a spear before him and he rests his left hand on his hip. Before him is a much smaller woman seated on a pile of rocks. She wears a mantle and the position of her arms, bent at the elbows and held before her, the left raised towards the man's elbow, suggests she is addressing him.

The device recalls that of gems that show Meleager visiting Diana who is also depicted on a rocky cliff (Maaskant-Kleibrink 1978, no. 607), though on the Housesteads intaglio the man is a warrior not a huntsman and nothing distinguishes the expostulating figure as Diana. A clue is given by a gem-type showing a young warrior addressing an oracle represented by a bird on a column (Henig 1994, no. 133). In the case of the Housesteads gem, the episode that comes most readily to mind is the visit of Aeneas to the Sibyl in her cave at Cumae, described by Virgil in the sixth book of the *Aeneid* (vi 42 ff). This identification is in part confirmed by comparing the female image of the Sibyl shown on a Roman Imperial coin of Eretria (Caltabiano 1994, 755, no. 15). However, the most important evidence is a nicolo gem in the British Museum depicting Aeneas and the Laetian sow (*Aeneid* viii, 42–8). Walters (1926, 206, no. 1951, pl xxiv) sees the accompanying woman seated on a rock as 'one of the Laurentian nymphs' but it is far more likely that two distinct scenes, the hero's visit to the Sibyl and the sacrifice of the sow with her piglets, were chosen to represent decisive moments in the hero's destiny.

Apart from the British Museum gem I have not found any other parallel to what was evidently quite a rare subject. It is a find of considerable importance with a significance beyond the purely iconographic. The owner is unlikely to have chosen such an unusual device unless he was fully conversant with the *Aeneid*. There is direct evidence for such knowledge in military circles at a somewhat earlier date (c AD 100) in the form of a writing exercise from Vindolanda, line 473 from book ix (Bowman 1994, 91–2, pl iii). A panel, evidently from a shrine of Roma Aeterna from Corbridge perhaps dating to the early 3rd century depicting a fawn, evidently alludes to *Aeneid* viii, 314 (Phillips 1977, 12–13, no. 38). The former is probably associated with the family of the commanding officer, the latter comes from a public shrine. There is no reason to ascribe the ring under discussion to anyone higher than an ordinary soldier; if so it is a vivid expression of Romanisation within the ranks.

Discussion

It is by no means surprising that Mars (Nos 423 and 425), Victory (No. 427), or the pantheistic deity (No. 422) should have appealed to soldiers with their need for protection. Venus (No. 426) was also a guardian-deity of Rome, though it is difficult not to think that our intaglio rather alludes to the owner's need for female companionship. The goat on No. 424 also seems to have been a popular device for military seals judging from the find spots of some of the comparanda,

probably because it was an animal associated with increase, prosperity and life (also evoked in the blood-red material of the stones).

Much the most exciting intaglio is No. 429 showing Aeneas and the Cumaean Sibyl, with its literary connections and its expression of belief in Rome's destiny. All the stones are of a 2nd-century date with the possible exception of the intaglio showing Victory (No. 427) and virtually certainly the glass intaglio (No. 428).

Glass (Fig 14.23)

Beads

430. 8571 H21:3:19 (Fig 14.23)

Small annular bead with a swirled design of white, black, green and yellow opaque glass. Badly made with an off-centre hole.

This bead does not fall obviously into any of Guido's (1978) classes as it is small in comparison with examples in Class 7 and involves more colours than is usual in Class 14 beads.

D:14mm, T:6mm

431. 893 H13:0:2 (Fig 14.23)

Globular bead of 'black' opaque glass, decorated with blue trails and three horns of yellow, each with a central natural glass blob.

Guido (1978, 60) discusses such beads in Group 3 although asserting that 'these beads do not in any way form a Class'. A similar bead of very dark blue glass with yellow and blue horned eyes is known from Chesters (Guido 1978, 125).

D:13mm, T:9mm

432. 1412 H13:6:13 (Fig 14.23)

Small square-sectioned rectangular bead of light blue opaque glass with a red chevron band enclosed in white. Guido (1978) has suggested that this group of beads was probably imported from North Africa or the Eastern Mediterranean, and that they are usually found on British sites in late contexts. Examples are known from Great Chesters and Vindolanda (Guido 1978, 223), the latter stratified in a late 3rd to 4th-century context.

L:4mm, T:3mm

433. 5210 H20:6:2 (Fig 14.23)

Large biconical bead of opaque light blue glass with a chevron band of red enclosed by white around the middle. This falls into the same group as No. 432 above.

L:11mm, T:4mm

434. 2228 H13:1:22 (Fig 14.23)

Globular white glass bead enclosing gold foil.

Segmented beads with gold foil have been fully discussed by Boon (1966 and 1977) and Guido (1978), and a possible centre of manufacture in Egypt has been suggested. In Britain they are largely confined to late Roman or post-Roman contexts. In the Hadrian's Wall area they have been found at Vindolanda (Guido 1978, 206), Chesters (Boon 1966, 105), South Shields (Allason-Jones and Miket 1984, no. 4.22) and Coventina's Well (Allason-Jones and McKay 1985, 37, no. 127).

D:7mm, T:6mm

435. (no SF no.) U/S

Flat rectangular bead of dark blue opaque glass with a single elliptical hole pierced longitudinally.

L:20mm, W:13mm, T:5mm

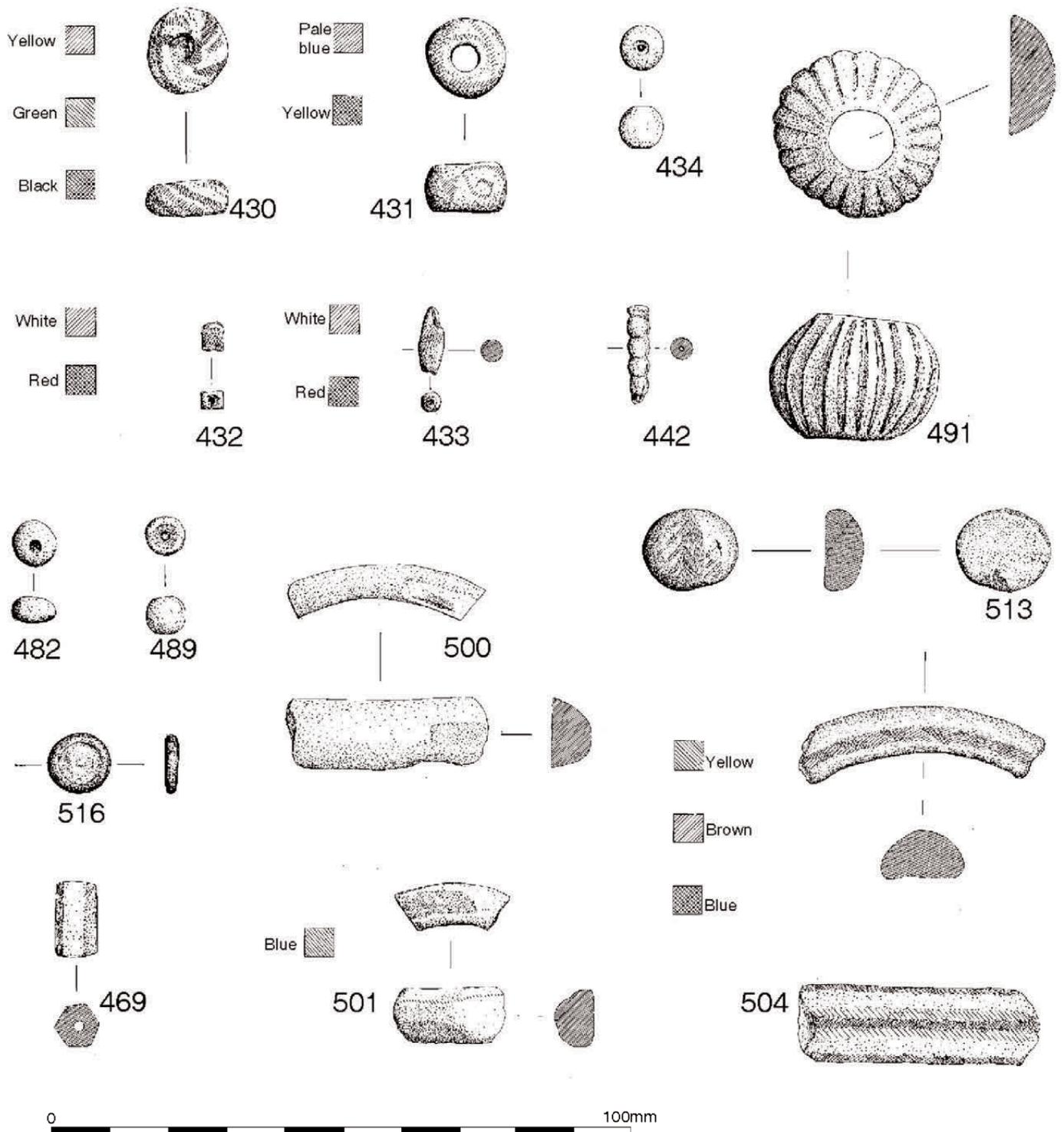


Fig 14.23 Glass objects (scale 1:1).

436. 12 H13:3:0

Flat circular bead of opaque light blue glass pierced laterally rather than centrally. Guido (1978, 177) refers to parallels from Meare (G25) in Somerset and Badsey in Worcestershire.

Segmented beads of blue glass

The various methods used to make segmented beads are discussed by Guido (1978, 91–2). They are found in Britain in contexts dating from the early 2nd century

to the late 4th. Blue segmented beads are otherwise unknown from Hadrian's Wall although the gold enclosed white beads (*see above*) and the green and turquoise opaque form (*see below*) are known.

437. 130 H13:7:0

L:6mm, T:4mm

438. 7762 H14:9:2

L:87mm, T:4.5mm

439. 9161 H21:2:29

L:5mm, T:3.5mm

Segmented beads in green glass

These are of a similar date to the blue segmented beads and examples are known from Carrawburgh, Chesters and Great Chesters (Guido 1978, 202).

440. 42 H13:2:4
L:13mm, T:6mm

Segmented beads in turquoise glass

Examples are known in the north at Old Yeavinger (Guido 1978, 203) and from an earlier excavation at Housesteads (Guido 1978, 202).

441. 1 H13:--:0
L:5mm, T:4mm
442. 1046 H13:0:1 (Fig 14.23)
L:16mm, T:3.5mm
443. 1165 H13:2:2
L:12mm, T:4mm
444. 1474 H13:10:0
L:8mm, T:11mm
445. 6039 H20:6:14
L:6mm, T:4mm

Cylinder beads of blue glass

This type is common throughout the Roman period in Britain although more so after the 2nd century. Guido has identified a predominantly southern distribution but examples are known from the northern frontier at South Shields (Allason-Jones and Miket 1984, nos 4.28–30) and Corbridge (Corstopitum Museum 75.542).

446. 681 H13:2:5
L:11mm, T:5mm

Cylinder beads of green glass

This form is more widely distributed than the blue cylinder beads and can be found in earlier contexts, although still continuing beyond the Roman period. Northern parallels are known from South Shields (Allason-Jones and Miket 1984, nos 4.23–7), Chesters (Boon 1966, 105), and Great Chesters (Guido 1978, 210), as well as from earlier excavations at Housesteads (Guido 1978, 210).

447. 17 H13:3:0
L:2.5mm, T:5mm
448. 27 H13:1:0
L:4mm, T:6.5mm
449. 31 H13:2:0
L:3mm, T:3.5mm
450. 1195 H13:2:0
D:3mm, L:3mm
451. 1727 H13:10:0
L:2.5mm, T:5mm
452. 1844 H13:0:6
L:3mm, T:5mm
453. 1967 H13:10:10
L:10mm, T:4mm
454. 2682 H13:11:0
L:3.5mm, T:6mm
455. 4969 H20:4:1
L:8mm, T:2mm, W:3.5mm
456. 6163 H20:4:17
L:7mm, T:3mm, W:5mm

457. 6560 H20:6:28
L:11mm, T:4mm, W:5mm
458. 7719 H14:9:1
L:24mm, D:5mm

Square-sectioned beads of blue glass

These are largely found in 3rd- and 4th-century contexts. In the north, examples are known at South Shields (Allason-Jones and Miket 1984, nos 4.32–3) and Great Chesters (Guido 1978, 214).

459. 6561 H20:4:20
L:5mm, T:3.5mm
460. 3095 H13:6:27
L:3mm, T:3mm
461. 6247 H20:4:16
L:4mm, T:2mm, W:3mm
462. 7971 H20:7:48
L:5mm, W:3.5mm
463. 8936 H21:1:37
L:4mm, T:2mm

Square-sectioned beads of green glass

These are to be found in similarly dated contexts to those of blue, but are less common in the north. See Allason-Jones and Miket 1984, no. 4.31, for a single example from South Shields.

464. 1042 H13:0:1
L:9mm, T:3mm, W:4.5mm
465. 4984 H20:4:0
L:4mm, T:4mm
466. 7950 H20:8:34
L:4mm, T:3mm, W:2.5mm

Square-sectioned bead of turquoise glass

467. 364 H13:8:0
L:5mm, T:3.5mm

Hexagonal-sectioned beads of green glass

These were produced from the time of the Conquest to post-Roman throughout the Empire as imitations of emerald crystals. A gold chain necklace from Winkle in Cheshire has both emerald and glass beads mounted together (Johns *et al* 1981). They are common finds on northern forts.

468. 153 H13:8:0
L:6mm, T:4mm
469. 850 H13:0:2 (Fig 14.23)
L:12mm, T:6mm
470. 5633 H20:7:0
L:10mm, T:6mm, W:7mm
471. 7483 H20:8:7
L:8mm, D:7mm

Hexagonal-sectioned beads of blue glass

These are less common, except in Scotland: see Guido 1978, 217.

472. 36 H13:2:0
L:4mm, T:4mm

Blue biconical beads

These fall into three main types, depending on size. Those measuring between 5 and 7mm in diameter are mostly of late date but can be found in earlier contexts.

The smaller group of translucent light blue measure only 3mm in diameter and 2mm in thickness and are invariably found in 4th-century contexts. Longer beads (>10mm) were already current by the 2nd century and continued into the 3rd century. They are known in Northumberland, but tend to concentrate in the southern counties. See Guido 1978, 219–20.

473. 3 H13:--:0
D:5mm, T:3mm
474. 187 H13:7:0
D:5mm, T:3mm
475. 226 H13:8:0
D:4mm, T:2mm
476. 2685 H13:11:0
D:7mm, T:3mm
477. 8946 HSE:1:20
L:3mm, D:6mm
478. 9310 HSE:1:29
D:6mm, T:4mm
479. 9404 HSE:1:29
L:3mm, D:6mm

Annular beads

Guido (1978) grouped undecorated annular beads under Group 6 but subdivided them by size and colour.

480. 26 H13:1:0
Small annular green bead of Group 6viii – a rare type paralleled at Traprain Law (Guido 1978, 164).
L:3mm, D:5mm
481. 2426 H13:8:26
Small annular bead of opaque dark blue glass: Group 6ivb. This is not a common type in the north although an example has been found at Close House West in Northumberland (unpubl).
L:1mm, D:5mm

Globular beads

Globular beads were also divided by Guido according to size and colour.

482. 65 H13:5:0 (Fig 14.23)
Small globular bead of clear natural coloured glass, rather roughly made: Group 7ii. These appear to have been made from recycled Roman bottle glass. Examples are known from Great Chesters (Guido 1978, 167).
L:5mm, D:7mm
483. 7521 H20:7:2
Globular bead of translucent 'natural' glass.
L:9mm, D:9mm
Small globular beads of cobalt blue glass, Group 7iv, had a long period of popularity but were only known previously in the north at Chesters and Great Chesters (Guido 1978, 170).
484. 1415 H13:5:4
L:5mm, D:4mm
485. 1773 H13:0:0
L:4.5mm, D:6mm
486. 7436 H20:8:8
L:6mm, D:7mm
487. 187 H13:7:0
Small globular bead of translucent light blue glass:

Group 7v. Examples are known from South Shields: Allason-Jones and Miket 1984, no. 4.36.
L:4mm, D:6mm

Two globular beads of turquoise glass appear to be from the same tradition as the melon beads discussed below.

488. 5786 H20:5:4
L:6.5mm, D:6mm
489. 8211 H14:9:5 (Fig 14.23)
L:4mm, D:5mm

Melon beads

Melon beads of opaque turquoise glass are the most common type to be found in the Roman north, both on military sites and civilian settlements. Guido (1978, 100) has shown that the earliest melon beads in Britain are of Roman date and mostly come from Flavian and Antonine sites before disappearing until post-Roman times. A centre of manufacture at Castleford (Yorks) has been suggested. It is possible that melon beads had a talismanic role, worn to ward off the Evil Eye, rather than merely trinkets (see Allason-Jones 1991).

It should be noted that the Housesteads melon beads are consistently smaller than is normal for the type.

490. 97 H13:7:0
L:18mm, D:27mm
491. 3522 H13:5:4 (Fig 14.23)
L:8mm, D:12mm
492. 6955 H20:4:11
H:10.5mm, D:13mm
493. 8077 H20:5:59
L:8mm, D:10mm
494. – H13:1:225
L:8mm, D:8mm
495. – U/S
L:10mm, D:13mm
496. Number not used
497. 9553 H14:1:0 (consolidation)
Mid-blue, bun-shaped bead.
L:3.5mm, D:4mm
498. 425 H13:10:0
Pear-shaped, peacock green bead.
L:9mm, D:5mm

Glass: miscellaneous objects

499. 3613 H13:5:0
Shank of a hipped blue glass pin or stirring rod. Cf Allason-Jones and Miket 1984, nos 4.1–2.
SL:38mm
500. 4089 H20:1:0 (Fig 14.23)
Fragment of a white opaque armlet with a slightly blue sheen. Triangular in section. Kilbride-Jones 1938, Type 3A.
W:8mm, T:12mm
501. 5233 H20:4:0 (Fig 14.23)
Fragment of a white opaque armlet with a blue sheen and blue marvering. Semi-circular in section. Kilbride-Jones 1938, Type 3C.
W:6mm, T:9mm
502. 9552 H14:1:0 (consolidation)
Fragment of a pale turquoise translucent armlet with a

- single opaque white marvered line. One end appears to have been cut deliberately. Kilbride-Jones 1938, Type 3F. Internal D:60mm, W:6mm, T:9mm
503. 38 H13:10:0
Fragment of a translucent mid-blue armlet with a faint pale blue opaque trail. Kilbride-Jones 1938, Type 3. Internal D:60mm, W:6.5mm, T:11mm
504. 16 H13:1:0 (Fig 14.23)
Armlet of greenish translucent glass with a central rib consisting of a wavy blue line between two trailed yellow lines and two marginal cables of blue and white. This is an unusual combination of trailed lines and cables although some examples of Kilbride-Jones (1938) Type 2 have swirled dots in conjunction with cables of blue, white and yellow.
W:7.5mm, T:12.5mm
505. 185 H13:9:0
Dark blue translucent bun-shaped counter or inset.
D:14mm, H:5.5mm
506. 1475 H13:1:6
Counter cut from a fragment of window glass.
D:17mm, T:4mm
507. 2724 H13:1:59
Dark blue translucent bun-shaped counter or inset.
D:14mm, H:7mm
508. 3549 H13:1:118
Dark green opaque bun-shaped counter or inset.
D:17 x 15mm, T:7mm
509. 3552 H13:1:156
Dark blue translucent bun-shaped counter or inset.
D:14mm, H:6.5mm
510. 3555 H13:1:56
Dark blue translucent bun-shaped counter.
D:12mm, H:6mm
511. 9500 H14:6:1
Fragment of a bun-shaped jewellery inset of pale yellow and mustard yellow millefiori.
D:16mm, H:8mm
512. 4096 H20:1:0
Oval inset for a finger-ring, of clear natural glass with a convex top.
D:6 x 5mm, T:4mm
513. 6042 H20:5:26 (Fig 14.23)
Irregular disc of opaque dark blue with an inlaid her-ringbone trail in white. One surface is flat, the other convex. Counter or inset.
L:16mm, W:14mm, H:6.5mm
514. 8554 H21:1:1
Dark blue translucent bun-shaped inset or counter.
D:14mm, H:6.5mm
515. 8906 HSE:1:2
Fragment of a greeny-blue translucent bun-shaped inset or counter.
H:4mm, D:6.5mm
516. 9242 HSE:1:29 (Fig 14.23)
Flat disc of black opaque glass with a translucent blue glass centre. Inset for jewellery.
D:10mm, T:2.5mm
517. 7395 H20:7:2
Ball of dark blue glass frit.
D:7mm
518. 8659 H21:3:69
Pear-shaped drop of dark blue translucent glass. Manufacturing waste?
L:9mm

Glass objects found in consolidation

519. 30 HS:-:0
Tiny fragment of the convex outer face of an armlet of dark blue glass with white marvering. Kilbride-Jones 1938, Type 3I.
No measurements possible.
520. 8 HS:6:0
Bun-shaped counter or inset of very dark green opaque glass.
D:18mm, H:7mm
521. 59 HS:-:1
Barrel bead of dark blue opaque glass.
L:12mm, maximum T:5mm
522. 58 HS:-:1
Fragment of a tiny square-sectioned cylinder bead of blue opaque glass with a red line sandwiched between two white lines running along the base. *See* No. 432 above.
L:4.5mm, T:3mm
523. 20 HS:-:1
Small bright green opaque drum bead.
D:6mm, hole:2mm, T:2.5mm
524. 39/1 HS:-:1
Tiny dark blue disc bead with a chamfered face.
D:5mm, hole:1.5mm, T:2mm
525. 39/2 HS:-:1
Opaque dark blue barrel bead.
L:16mm, W:5mm
526. – H13 Spoil heap
Tiny blue translucent bead of square section with a wire-pulled hole.
L:4mm, W:3mm, T:3mm
527. 27A H13:2 (south wall)
Mid-blue translucent globular bead, distorted when the hole was pulled.
D:4mm, T:4mm
528. 18 HS:-:1
Fragment of a turquoise blue melon bead.
No measurements possible.

Tile

529. 5405 H20:6:2
Incomplete disc of tile with a central circular hole.
D:41mm, T:14mm, hole:9mm
530. 1515 H13:1:22
Circular lid cut from a tile with incised cross-hatching on one face. The lines have been made with a sharp pointed object and ruled rather than freehand.
D:90mm, T:16.5mm

Ceramic objects

(fabrics identified by J N Dore)

Pipeclay

531. 8028 H20:8:7
Feet and hollow-domed base of a pipeclay Venus figurine. The British group of pipeclay figurines and the cult of the 'Pseudo Venus' in Kent was discussed by Frank Jenkins in 1958. Since then the number of examples from Hadrian's Wall has multiplied with at least one from each of the forts in the northern zone. *See* Allason-Jones and Miket 1984, 339–41 for parallels and discussion. Unfortunately, not enough survives of the Housesteads figurines for them to be assigned to one of Jenkins's types.

D of base:34mm

532. 8556 H21:3:1

Front section of a pipeclay Venus figurine lacking its upper body and feet. The figure's left hand appears to hold back drapery by its left hip.

Surviving L:75mm

Pipeclay from consolidation

533. 50 HS--:1

Fragment of the domed base of a pipeclay figurine. All that survives of the figure is a pair of bare feet.

Surviving H:35mm

Perforated discs

534. 1878 H13:5:8

Disc of grey ware with a central circular hole and a second, slightly smaller, hole to one side.

D:33mm, T:6mm, holes:6mm, 4mm

535. 48 H13:1:0

Disc of grey ware with central circular hole.

D:36mm, T:7mm, hole:5.5mm

536. 57 H13:1:0

Disc of grey ware with central circular hole.

D:42mm, T:8mm, hole:8mm

537. 289 H13:9:0

Disc of grey ware with central circular hole.

D:31.5mm, T:7.5–11mm, hole:6mm

538. 725 H13:1:11

Disc of burnt samian with a central circular hole. Drag 31R?

D:37mm, T:8mm, hole:6mm

539. 2086 H13:7:15

Fragment of a samian disc with a central circular hole.

D:29mm, T:5mm, hole:6mm

540. 8984 HSE:1:2

Fragment of a ?spindlewhorl cut from wall sherd of Central Gaulish ware, form unknown.

D:33mm, T:8mm, hole:4mm

541. 9406 HSE:1:29

?Spindlewhorl cut from wall sherd of East Gaulish ware (Drag 31R).

D:31mm, T:7mm, hole:6mm

542. 3267 H13:9:23

Disc of grey ware with a central circular hole.

D:29mm, T:5.5mm, hole:5mm

543. 3355 H13:11:1

Small disc of red ware with a central circular hole.

D:26mm, T:6mm, hole:4mm

544. 3442 H13:11:11

Disc of grey ware with a central circular hole. BB2?

D:31mm, T:5mm, hole:8mm

545. 3660 H13:1:170

Half of a samian disc with a central circular hole. East Gaulish.

D:39mm, T:8mm, hole:6mm

546. 4715 H20:5:0

Disc cut from the base of a colour coated beaker with a central circular hole. This is not a typical Nene Valley fabric.

D:38mm, T:4.5mm, hole:6mm

547. 5752 H20:4:2

Fragment of a grey ware disc with a central circular hole.

D:32mm, T:8mm, hole:5mm

548. 6542 H20:4:16

Incomplete disc of samian with a central circular hole. Central Gaulish.

D:29mm, T:5.5mm, hole:2.5mm

549. 6954 H20:4:9

Half of a samian disc with a central circular hole. Central Gaulish, Drag 31R: post AD 160

D:38mm, T:6mm, hole:6mm

550. 7432 H20:9:8

Fragment of a samian disc with a central circular hole. East Gaulish?

D:26mm, hole:5mm

551. 7507 H20:9:9

Samian disc with an off-centre circular hole. Central Gaulish, Drag 18/31R?

D:26mm, hole:5mm

552. 8561 H21:5:1

Disc of calcite-gritted ware with a central circular hole.

D:38mm, T:11mm, hole:7mm

553. 8647 H21:4:2

Disc of coarse red ware with a central circular hole.

D:38mm, T:8mm, hole:6mm

554. 8667 H21:3:41

Half of a burnt samian disc with a central circular hole.

D:32mm, T:6mm, hole:6mm

555. 9255 HSE:1:23

Fragment of a samian disc with a central circular hole. East Gaulish?

D:37mm, T:7.5mm, hole:6mm

Pottery discs

556. 3106 H13:6:27

Disc of samian with two small dimples drilled into the face on either side of a central circular hole giving an anthropomorphic appearance.

D:35mm, T:11mm, hole:8mm

557. 44 H13:5:0

Disc of grey ware.

D:19mm, T:4mm

558. 350 H13:9:1

Disc of East Gaulish samian.

D:15mm, T:6mm

559. 937 H13:2:2

Disc of worn East Gaulish samian.

D:21mm, T:4.5mm

560. 1159 H13:6:5

Disc of worn samian.

D:16.5mm, T:5mm

561. 1654 H13:9:11

Disc of samian.

D:12mm, T:5mm

562. 2116 H13:1:11

Disc of Central Gaulish samian.

D:22mm, T:11mm

563. 2225 H13:10:20

Small disc of East Gaulish samian.

D:12mm, T:6mm

564. 2411 H13:5:23

Disc of grey ware.

D:19mm, T:6mm

565. 3417 H13:1:56

Disc of Central Gaulish samian. Drag 33.

D:17mm, T:6mm

566. 3492 H13:2:27

Disc of Central Gaulish samian. Drag 33

- D:18mm, T:6mm
567. 3722 H13:1:170
Large disc of Central Gaulish samian. Drag 31R: post AD 160.
D:43mm, T:8mm
568. – H15:1:10
Disc cut from wall sherd of amphora.
D:40mm, T:8mm
569. 4633 H20:6:0
Disc of East Gaulish samian with a bevelled upper edge.
D:19mm, T:6mm
570. 5143 H20:5:1
Disc of Central Gaulish samian.
D:15mm, T:6.5mm
571. 5144 H20:5:1
Disc of grey ware. BB2? post AD 140.
D:21mm, T:6.5mm
572. 5345 H20:6:2
Disc of grey ware.
D:23mm, T:6mm
573. 5583 H20:4:0
Roughly cut disc of Central Gaulish samian.
D:29mm, T:10mm
574. 5634 H20:6:0
Small disc of Central Gaulish samian.
D:12mm, T:8mm
575. 5718 H20:4:13
Disc of grey ware. BB1?
D:16mm, T:7mm
576. 5774 H20:7:2
Disc of grey ware. BB1?
D:17mm, T:4mm
577. 5878 H20:4:1
Disc of grey ware with a small central hole.
D:24mm, T:5.5mm, hole:4mm
578. 5943 H20:7:4
Roughly cut disc of grey ware.
D:20mm, T:8mm
579. 6155 H20:4:13
Disc of Central Gaulish samian with a dimple drilled into one face. Hadrianic?
D:28mm, T:6mm
580. 6267 H20:5:12
Roughly cut disc of Central Gaulish samian. Drag 31R?
D:19mm, T:9mm
581. 6405 H20:4:16
Disc of East Gaulish samian. Drag 31R: post AD 160.
D:22mm, T:5mm
582. 6464 H20:5:11
Roughly cut disc of East Gaulish samian.
D:18mm, T:8mm
583. 6819 H20:6:48
Roughly cut disc of Central Gaulish samian.
D:21mm, T:7mm
584. 6956 H20:4:13
Roughly cut disc of Central Gaulish samian.
D:22mm, T:5mm
585. 7433 H20:8:8
Burnt disc of Central Gaulish samian. Drag 31R?
D:24mm, T:5.5mm
586. 7545 H20:9:8
Roughly cut disc of grey ware with cross-hatched decoration.
D:20mm, T:6mm
587. 7778 H20:8:36
Disc of grey ware with rouletted decoration on one face, cut from a jar.
D:28mm, T:4mm
588. 7787 H20:9:5
Disc of Central Gaulish samian with rosette decoration Drag 37, possibly Doeccus.
D:21mm, T:7mm
589. 7813 H20:3:39
Disc of East Gaulish samian.
D:23mm, T:5.5mm
590. 7959 H20:5:58
Roughly cut disc of Central Gaulish samian.
D:16mm, T:8mm
591. 8034 H20:4:63
Disc of Central Gaulish samian. Drag 33? Hadrianic.
D:15mm, T:5mm
592. 8387 H20:8:1
Roughly cut disc of grey ware. BBI?
D:22mm, T:3mm
593. 8501 H20:6:74
Roughly cut disc of samian with a small dimple bored into one face.
D:28mm, T:7mm
594. 8512 H20:8:80
Disc of clay or badly fired pot.
D:20mm, T:6mm
595. 8520 H20:8:1
Disc of redware.
D:18mm, T:5mm
596. 8547 H21:1:1
Disc of grey ware.
D:21mm, T:6mm
597. 9223 H21:2:3
Roughly cut disc of Central Gaulish samian.
D:23mm, T:6mm
598. 9554 H21:2:1
Roughly cut disc of Central Gaulish samian.
D:14mm, T:6mm
599. 4855 H20:5:0
Square cut from a Central Gaulish mortaria with one corner chipped off and with an off-centre circular hole.
L:30mm, W:30mm, hole:4mm, T:6mm
600. 8288 H20:3:63
Small domed block of pink fired clay.
D:12mm, H:8mm

Pottery objects from consolidation

601. 48 HS:–:1
Small disc of samian with a central circular hole. Burnt.
D:24mm, T:7mm, hole:7mm
602. 18A H13:1 (south end)
Small disc of abraded samian. Carefully made with a countersunk hole and a rounded edge.
D:30mm, T:8.5mm
603. 33A H13:4
Disc of Central Gaulish samian with a central circular hole and cut from a wall sherd. Worn around the hole on one face.
D:33/34mm, T:7mm, hole:5mm
604. 28A H13:3 (flagging south end)
Large disc with a proportionally small central hole. Samian with a very abraded surface.
D:39.5mm, T:8mm, hole:5mm

605. 2A H13:1 (east wall)
Part of a disc of East Gaulish samian.
D:33mm, T:6mm
606. 22A H13:2 (south wall)
Disc of samian.
D:17mm, T:8mm

Jet and shale (Fig 14.24)

607. 6115 H20:5:11 (Fig 14.24)
Fragment of a jet finger-ring of semi-oval section with deep oblique lines across the outer face giving a cabled effect. Cf Hastenwath: Hagen 1937, A.4.
Internal D:15mm, W:3mm, T:5.5mm
608. 5530 H20:4:0
Fragment of a jet finger-ring of expanding, roughly circular section.
Internal D:15mm, W:3mm, maximum T:6mm
609. 9559 H14:7:1 (Fig 14.24)
Incomplete jet finger-ring of elliptical section expanding to notched shoulders. A wide groove separates each shoulder from the flat rectangular panel which is decorated with an incised saltire cross.
Internal D:17mm, panel:12 × 8mm
610. 1420 H13:5:4 (Fig 14.24)
Incomplete jet finger-ring of triangular section expanding to conical shoulders. The raised oval panel is offset.
Internal D:16mm, panel:10 × 6mm
611. 4088 H20:1:0 (Fig 14.24)
Fragment of a rectangular-sectioned shale finger-ring with a series of wide rib and groove motifs across the outer face.
Internal D:18mm, W:6mm, T:8mm
612. 7898 H14:9:1
Fragmentary cylindrical jet bead decorated with equally spaced incised bands. Cf South Shields: Allason-Jones and Miket 1984, nos 7.4–16.
Approximate L:18mm, D:4mm
613. 2 H13:--:0 (Fig 14.24)
Short jet cylinder bead decorated by a single incised median band. Cf South Shields: Allason-Jones and Miket 1984, no. 7.22.
L:4mm, D:6mm
614. 717 H13:5:3 (Fig 14.4)
Flat jet armlet bead of semi-circular shape with a chevron effect on the edge formed by notching the edges. The two lateral holes are large in proportion to the size of the bead. Cf Lawson 1975, 246. fig 2g; Allason-Jones and Miket 1984, nos 7.28–30.
L:2mm, W:17mm, Depth:9mm, D of holes:3mm
615. 8668 H21:3:41
Fragmentary, flat, elliptical armlet bead with raised N-shapes along its more curved edge. Pierced by two lateral holes. Cf Allason-Jones and Miket 1984, no. 7.28.
L:30mm, Depth:13mm, T:3mm
616. 5390 H20:4:1 (Fig 14.24)
Small jet melon bead. See Hagen 1937, Taf 27 for parallels from the Rhineland, and Allason-Jones and Miket 1984, nos 7.34–5 for British examples.
L:6mm, D:10mm
617. 98 H13:7:0 (Fig 14.24)
Circular shale bead with one convex face which is decorated by a marginal groove and a central dot and double ring motif. The sides are bevelled and the bead is pierced laterally by two circular holes, one of which has
- worn through. Cf Lawson 1975, 244, fig 1.7; Allason-Jones and Miket 1984, nos 7.55–67.
D:15mm, L:4mm
618. 7 H13:2:0 (Fig 14.24)
Globular shale bead with flat ends. The hole is not countersunk as is usual with this form. Cf Lawson 1975, 244, fig 1.2; Allason-Jones and Miket 1984, no. 7.32.
L:8mm, D:12mm
619. 32 H13:1:0 (Fig 14.24)
Barrel-shaped shale bead, with one flat face and one convex, pierced laterally by two circular holes. Cf Allason-Jones and Miket 1984, no. 7.25.
L:30mm, T:8mm
620. 4148 H20:4:0 (Fig 14.24)
Fragment of an octagonal ?shale armlet with two grooves running around the angled outer face. This is not a common type in Britain and examples from Cologne suggest that the grooves may have held gold wire (Hagen 1937, B.25).
Internal D:60mm, W:7mm
621. 8581 H21:2:1 (Fig 14.24)
Fragment of a shale armlet of D-section with a series of stamped dot-and-ring motifs around the face. Cf Allason-Jones and Miket 1984, nos 7.114–15.
Internal D:70mm, W:7mm, T:7mm
622. 5689 H20:6:11 (Fig 14.24)
Fragment of a rectangular-sectioned shale armlet with a chevron effect on the face achieved by notching the edges. Cf Allason-Jones and Miket 1984, no. 7.108.
W:10mm, T:6mm
623. 3192? (perhaps actually 3143) H13:11:20
Fragment of a shale armlet of semi-oval section. Undecorated.
Internal D:40mm, W:6mm, T:8mm
624. 3510 H13:11:29
Two fragments of lozenge-sectioned shale armlet.
Internal D:40mm, W:5mm, T:6mm
625. 1410 H13:1:13
Fragment of a shale armlet of oval section. Undecorated.
No measurements possible.
626. 30 H13:1:0
Fragment of a plain ?shale armlet of oval section with flat inner face.
Internal D:80mm, W:5mm, T:6mm
627. 46 H13:3:0
Fragment of a ?shale strip armlet.
Internal D:60mm, W:5mm, T:10mm
628. 66 H13:4:6
Fragment of an elliptical-sectioned ?shale armlet. File marks are still evident on the inner face.
Internal D:65mm, W:6mm, T:7mm
629. 1912 H13:0:2
Fragment of semi-oval-sectioned ?shale armlet.
Internal D:40mm, W:5mm, T:6mm
630. 5531 H20:4:0 (Fig 14.24)
Fragment of a jet pin with a faceted head. Cf York: *RCHM* 1962, pl 69; South Shields: Allason-Jones and Miket 1984, nos 7.191–202.
L:35mm, T of head:7mm
631. 516 H13:1:11 (Fig 14.24)
Fragment of jet pin with a circular-sectioned shank and a large faceted cube head.
SL:36mm, head:9 × 9mm



Fig 14.24 Jet and shale objects (scale 1:1).

Jet and shale objects from consolidation

632. 32A H13:3:2 (west wall)
Fragment of a plain shale bracelet of oval section with a residual lathe scar around the inner face.
Internal D:70mm, W:6mm, T:7mm
633. 14 HS:-:0
Fragment of the circular-sectioned shank of a jet pin.
L:37mm, T:4.5mm

Stone (Fig 14.25)

634. 1602 H13:9:11 (Fig 14.25)
Disc bead or pendant of agalmatolite or lithomarge. The hole is slightly off centre.
Lithomarge beads, rings and egg-shaped amulets are known from Cairnhill, Camelon, Newstead and Rainton in Scotland and at Corbridge, while both an egg amulet and a similar ring are already known from Housesteads (unpublished; Museum of Antiquities Acc No. 1956.151.31.A). Lithomarge deposits spread from the north coast of the Mediterranean through Italy, France and Yugoslavia, and during the Iron Age and later centuries were widely used for the manufacture of amulets, as the veined appearance was considered to imbue the stone with apotropaic properties similar to that of steatite. For a general discussion and finds list see Stevenson and Collins 1976.
D:26mm, T:9mm
635. 892 H13:2:0
Natural, ovoid pebble of ?granite, possibly an amulet. Cf lithomarge egg-amulet from Housesteads: Museum of Antiquities Acc No. 1956.151.31.A.
L:23mm
636. 1101 H13:0:1
Natural stone which has been water-worn to a phallic shape and probably used as an amulet as a result.
L:57mm

637. 1777 H13:1:6
Flat disc of lithomarge.
D:19mm, T:5mm
638. 4970 H20:4:1
Annular amber disc bead. Amber was more popular in Britain in the Bronze Age than during the early years of the Roman occupation. It was only after the late 2nd century that amber was imported from the Baltic in any quantity.
D:9mm, T:5mm
639. 3103 H13:6:27
Fragment of a large amber disc ?pendant of tapering semi-oval section pierced centrally by a circular hole.
D:50mm, W:19mm, T:12–21mm
640. 9254 HSE:1:23 (Fig 14.25)
Incomplete slate palette, originally rectangular or square with bevelled edges on one face. Small palettes were used for mixing ointments and pigments. The bevelled edges were designed to slide into grooved metal frames. Cf Allason-Jones and Miket 1984, no. 12.68.
L:79mm, surviving W:63mm, T:6.5mm
641. 51 H13:4:6
Incomplete large slate whorl or lid with a carefully made central hole and a rounded edge.
D:56mm, T:6mm, hole:11mm
642. 452 H13:9:3
Disc cut from micaceous sandstone.
D:30mm, T:6mm
643. 1014 H13:1:0
Disc cut from micaceous sandstone.
D:25mm, T:9mm
644. 4498 H20:5:0
Slate disc.
D:15mm, T:2.5mm
645. 4499 H20:5:0
Slate disc.
D:16.5mm, T:4mm

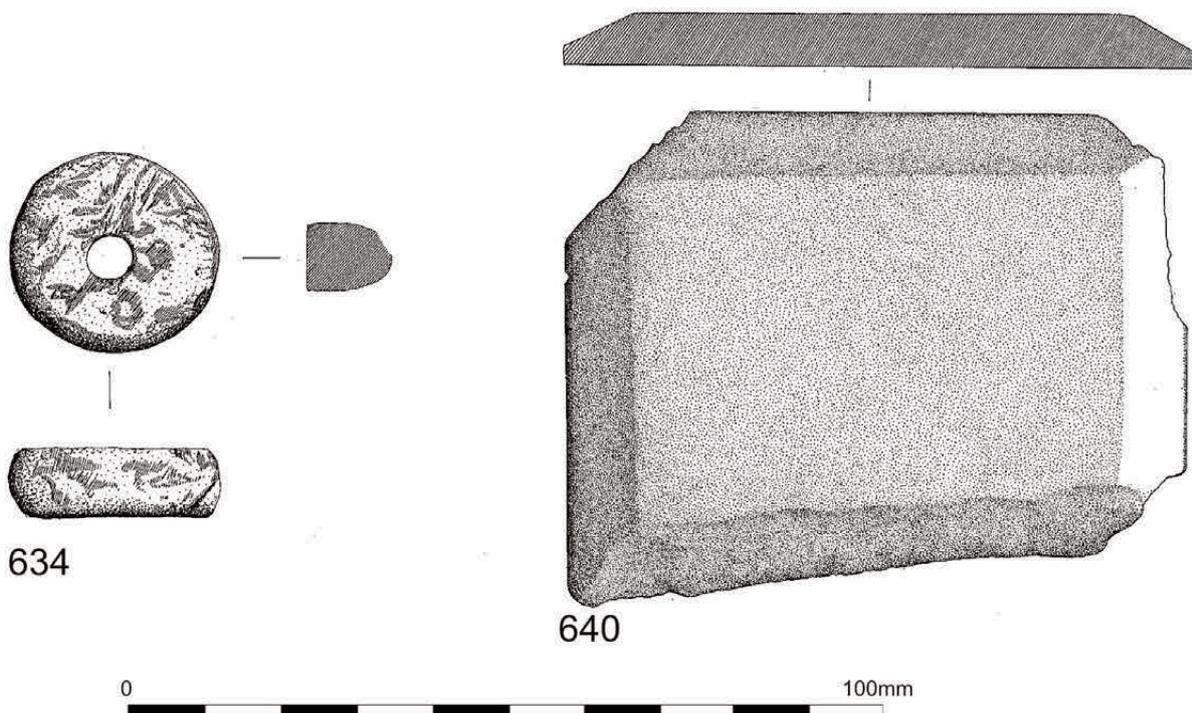


Fig 14.25 Stone objects (scale 1:1).

646. 5635 H20:6:0
Slate disc.
D:22mm, T:5mm
647. 8263 H20:8:42
Sandstone disc with a rounded edge.
D:19mm, T:5.5mm
648. 8634 H21:5:4
Oval slab of slate. Pot lid?
D:60mm x 73mm, T:8mm
649. 9035 HSE:1:2
Oval slab of sandstone. Pot lid?
D:52mm x 53mm, T:9mm
650. 9386 HSE:1:31
Disc of slate.
D:16mm, T:4mm
651. 9395 H15:1:2
Disc of slate.
D:15mm, T:2.5mm
652. 8498 H20:7:0
Small sandstone ball.
D:37 x 45mm, Weight:110g
653. 396 H13:9:0
Small rectangular granite block with bevelled edges at both ends.
L:50mm, W:26mm, T:13mm
654. 1237 H13:2:8
Rectangular block of a fine green stone with bands of limestone.
L:69mm, W:31mm, T:18mm
655. 9009 HSE:1:2
Small fragment of a burnt slate block, apparently rectangular with a rounded edge on one face.
Surviving L:28mm, surviving W:17mm, surviving T:7mm
656. 181 H13:8:0
Hone made from a long narrow whinstone pebble rubbed flat on two faces.
L:104mm, W:29–21mm, T:14mm
657. 395 H13:9:0
Rectangular-sectioned hone, tapering to one end, of pink sandstone. Both ends are angled and rounded.
L:107mm, maximum W:29mm, T:16mm
658. 472 H13:4:3
Large hone of micaceous sandstone, rectangular in shape and section, tapering slightly to one end.
L:122mm, W:41–32mm, T:17mm
659. 583 H13:0:0
Fragment of a whinstone hone of rectangular shape and section with a flattened end.
L:51mm, W:21.5mm, T:10mm
660. 744 H13:2:2
Whinstone pebble of roughly rectangular shape used as a hone.
L:102mm, W:28mm, T:28mm
661. 758 H13:5:3
Sandstone hone of rectangular shape and section. One end has been snapped off from a longer bar.
L:96mm, W:22mm, T:14mm
662. 803 H13:1:11
Incomplete hone of micaceous sandstone. Rectangular in section, it tapers markedly from one end to the other.
L:55mm, W:38–25mm, T:20mm
663. 941 H13:2:2
Hone made from a fine micaceous sandstone pebble of semi-oval section with rounded end.
Surviving L:70mm, W:37mm, T:14mm
664. 993 H13:2:2
Incomplete hone of pink sandstone, of oval section with slightly curved tapering edges.
Surviving L:68mm, W:41mm, T:19mm
665. 1048 H13:6:5
Incomplete hone of micaceous sandstone, split along its length although originally oval in section with one rounded end.
Surviving L:56mm, W:27mm, surviving T:13mm
666. 1084 H13:6:5
Long oval-sectioned hone of fine sandstone, with a rounded end.
L:87mm, W:24mm, T:11mm
667. 1199 H13:2:2
Hone of fine sandstone. Rectangular in shape and section, tapering slightly from one of the bevelled ends.
L:71mm, W:18–23mm, T:9mm
668. 1207 H13:6:0
Small hone of fine micaceous sandstone, rectangular in shape and section with two marginal grooves down one side.
Surviving L:62mm, W:22mm, T:15mm
669. 1308 H13:7:1
Incomplete hone of pink sandstone, rectangular in shape and section with one rounded end.
Surviving L:78mm, W:41mm, T:19mm
670. 2694 H13:11:1
Hone of micaceous sandstone of rectangular section with a pointed end.
Surviving L:123mm, W:31mm, T:19mm
671. 2695 H13:11:1
Oval pebble of fine micaceous sandstone, snapped at both ends and used as a hone.
Surviving L:72mm, W:37mm, T:15mm
672. 2700 H13:11:0
Large whinstone pebble with polished faces, probably as a result of having been used as a hone.
L:167mm, W:55mm, T:27mm
673. 3107 H13:11:1
Hone of micaceous sandstone, rectangular in shape and section and roughly snapped from a block at both ends.
L:100mm, W:31mm, T:25mm
674. 3108 H13:11:0
Long whinstone pebble of semi-oval section with a curved end, probably used as a hone.
L:94mm, W:29mm, T:14mm
675. 3607 H13:5:4
Fragment of an oval-sectioned hone of fine sandstone.
Surviving L:24mm, W:31mm, T:22mm
676. 4657 H20:5:0
Incomplete hone of micaceous sandstone, rectangular in shape and section.
L:127mm, W:47mm, T:20mm
677. 5145 H20:5:1
End of a large hone of fine sandstone cut obliquely. The hone is rectangular in section with slightly convex faces.
Surviving L:68mm, W:45mm, T:19mm
678. 5241 H20:5:0
Small rectangular block of fine micaceous sandstone. Hone?
L:42mm, W:19mm, T:10mm
679. 6279 H20:4:10
Fine micaceous sandstone hone, roughly rectangular in section and expanding to the surviving end.
L:105mm, W:37mm, T:23mm

680. 6958 H20:4:21
End cut obliquely from a whinstone hone of rectangular section but with convex faces and concave sides and end.
Surviving L:56mm, W:36mm, T:18mm
681. 7995 H20:6:2
Hone of fine sandstone. Rectangular in shape and section but well worn in the centre of all faces.
L:65mm, W:25mm, T:18mm
682. 8829 HSE:1:1
End of an oval-sectioned hone of very fine sandstone.
Surviving L:31mm, W:33mm, T:22mm
683. 8985 HSE:1:2
Oblique end of a hone of fine micaceous sandstone. Rectangular in shape and section.
Surviving L:59mm, W:26mm, T:20mm
684. 8986 HSE:1:2
Rectangular block of fine micaceous sandstone with rough untrimmed faces. Blank for a hone?
L:54mm, W:32mm, T:10mm
685. 9007 HSE:1:2
Incomplete hone of pink sandstone. Rectangular in shape and section with a slightly rounded end.
L:45mm, W:28mm, T:16mm
686. 9008 HSE:1:2
Sandstone hone of rectangular shape and section with an oblique end.
L:104mm, W:31mm, T:22mm
687. 9034 HSE:1:2
Incomplete hone of pink sandstone. Rectangular in section but oval in shape.
Surviving L:75mm, W:48mm, T:18mm
688. 9119 H15:1:2
Fragment of a fine sandstone hone of rectangular shape and section.
L:36mm, W:26mm, T:18mm
689. 9474 HSE:1:29
Three whetstones:
a) rectangular with chamfer to upper face.
L:69 × 30 × 14mm
b) incomplete but with rounded ends.
L:90 × 33 × 17mm
c) Fragment with chamfered edge.
L:44mm
690. 8676 H21:3:78
Roughly square slab of slate broken across a circular hole.
L:36mm, W:32mm, T:4mm

Stone missiles

W B Griffiths

Sling-stones

During the excavations several stones were kept as possible sling-shots. Identifying individual sling-stones is effectively impossible as they are usually nothing more than rounded water-worn pebbles. Only when such pebbles are found collected together can their function be more assuredly stated; however, the apparent discovery of lead *glances* (sling-shots) at Housesteads (Breeze 1982, 145 and *see* No. 392 above) indicates that the sling was in use at the site as indeed at many other Roman military sites throughout the Empire (Greep 1987, 198–9; Griffiths 1989; Volling 1990).

Given the impossibility of identifying individual sling-stones, the following catalogue lists only those stones recovered from the excavations that fall into a pre-defined tolerance of 15–186g (Korfmann 1973, 39), with a length of 20–50mm and with a tolerably rounded shape that could have caused their selection by slingers (Griffiths 1994, 204). The inclusion of stones in the list indicates only that they could have functioned as sling-shots; it is not a positive identification.

691. – H13:2:0
Water-worn pebble. Granite
Wt:119g, D:28–55mm
692. 14 H13:3:0
Does not appear water worn. Sandstone.
Wt:61.4g, D:34–37mm
693. 2676 H13:5:27
Water-worn pebble. Sandstone.
Wt:58.2g, D:32–40mm
694. 1432 H13:6:13
Water worn? But with groove on one side of long axis. Sandstone.
Wt:45.2g, D:24–41mm
695. 2321 H13:7:13
Roughly rounded pebble. Sandstone.
Wt:85.9g, D:39–41mm
696. 1378 H13:8:1
Has been split or cut. Whinstone.
Wt:51.6g, D:40–24mm
697. 1377 H13:8:1
Water-worn? Pebble. Whinstone.
Wt:62.3g, D:29–39mm
698. 1376 H13:8:1
Water worn?, cracked, no sign of burning. Limestone.
Wt:119g, D:40–46mm
699. 2474 H13:8:28
Water-worn pebble. Sandstone.
Wt:66.9g, D:32–41mm
700. 3025 H13:8:44
Water-worn pebble. Sandstone.
Wt:99.1g, D:36–46mm
701. 4156 H20:5:32
Well rounded, possibly water worn, ideal shot shape. Pink sandstone.
Wt:44g, D:28–36mm
702. 6853 H20:5:32
Rounded, ideal shot shape. Sandstone.
Wt: 49.4g, D: 31–36mm
703. 4495 H20:5:0
Possibly fire cracked, some reddening. Whinstone.
Wt:161.5g, D:46–51mm
704. 7029 H20:6:50
Pebble. Soft sandstone.
Wt:16.8g, D:21–27mm
705. – H20:5?:95?
Pebble, traces of mortar. Limestone?
Wt:122.7g, D:42–48mm
706. 8508 H20:8:1
Water-worn? pebble, traces of mortar. Soft sandstone.
Wt:49g, D:33–36mm
707. 9358 H21:1:71
Fractured water-worn pebble. Whinstone.
Wt:28.7g, D:25mm
708. 8987 HSE:1:2
Water-worn? pebble. Sandstone.
Wt:45.3g, D:30mm

'Ballista' stones

A number of larger, heavier stones, several worked, were also retained during the excavation as possible missiles. Several of these have the rounded shape with flattened sides traditionally ascribed to 'ballista' shot (Marsden 1969, 80); however, this interpretation has been questioned in recent years (Batz 1983, 136) and it is possible to argue that such stones may have been manufactured for throwing by hand. Several classical authors attest the use of stones for hand throwing in both the Greek and Roman periods (Griffiths 1994, 205; 1992, 2–6), while recent practical experiments show that such stones would have formed a useful component of the defensive system of a fort (Griffiths 1992, 6–10). Of the 11 larger stones listed here, four are of the 'ballista' shot type, although one appears unfinished, and seven are not obviously worked to this shape. It may be that these latter were collected for throwing, hence their inclusion here, but it is just as possible that they could have been transported to the fort for use as general rubble, or for road surfaces etc.

It is of interest to note that two of the four more probable 'ballista' stones (717 and 718) were recovered from the vicinity of the interval tower, although this cannot reveal whether they were intended for artillery or hand throwing.

709. 2718 H13:7:4
Fits hand, flattened sides, chipped 'ballista' ball. Pink sandstone.
Wt:681.3g, D:79–87mm
710. 3026 H13:9:11
Round, ?worked, fits hand. Sandstone.
Wt:848.2g, D:85–94mm
711. 3024 H13:8:44
Fairly well rounded, worked? Sandstone?
Wt:228.6g, D:54–75mm
712. 5561 H20:2:2
Water-worn stone, natural 'ballista' ball. Whinstone.
Wt:601.8g, D:78–67mm
713. 7544 H20:9:4
Signs of burning and cracking, rounded cube fits hand reasonably, all sides flattened. Sandstone.
Wt:375.3g, D:85mm
714. 9329 H21:1:35
Fits hand snugly, 3 flat sides, not obviously a shot or worked. Sandstone.
Wt:404.8g, D:68–72mm
715. – H21:2:29
Possibly a 'ballista' shot with a third cut away, flat side is very smooth. Sandstone.
Wt:520g, D:55–87mm
716. – H21:3:1
Water-worn stone, fits hand. Whinstone
Wt:468.1g, D:62–76mm
717. 8679 H21:3:17
Roughly worked 'ballista' shot. Sandstone?
Wt:633.6g, D:60–85mm
718. 8680 H21:3:18
Appears to be an unfinished 'ballista' shot, hexagonal, some sides slightly concave. Sandstone?
Wt: 609.8g, D:74–52mm?

719. 8681 H21:3:39

Unwashed, rounded triangular stone, all sides roughly flattened, just rubble? Sandstone.

Wt:421.3g, D:84–89mm

Leather*Q Mould*

All the leather, with the exception of the material recovered in excavations of the north rampart during 1979, and some scraps from Chalet 5, Building XIII in 1974, was examined after conservation by freeze-drying by the then Guardianship branch of the Ancient Monuments Laboratory Conservation Department of English Heritage. The leather from the north rampart and Building XIII was air-dried when examined. Much of the leather was heavily worn but, where possible, species identification was made by grain pattern, using low-powered magnification. In the text the term goatskin is used where the grain pattern of sheep/goat has been identified and cannot be differentiated.

The seams, hems and stitch types referred to are those devised by Mrs Groenman-van Waateringe when studying the Valkenburg material (1967, 24–30, figs 5 and 6) and subsequently expanded by Carol van Driel-Murray when looking at tentage from Vindolanda (1990, 109–38; 1993, 24–30) and Sue Winterbottom studying that from Carlisle (1991, 244–317). Hobnailing patterns on the bottom units of shoes are classified according to Rhodes (1980, 105–7) and van Driel-Murray (1983, 21, fig 3) and hereafter referred to as Rhodes Type and van Driel-Murray Type respectively. Constructional thonging is classified according to the numbering used by Padley in describing the shoe leather from the Lanes, Carlisle (Padley forthcoming).

Leather from the 1976 watching brief of the vicus near Chapel Hill

Six items of leather were found in 1976 during the watching brief of the vicus near Chapel Hill to the south of the fort. The leather comprised discarded shoe fragments and two pieces of waste from shoe-making. Three types of shoe construction were represented: the nailed shoe, the one-piece/moccasin shoe and the sandal. The construction and broad shape of the sandal fragments (*766369a, b) suggested an early to mid-3rd-century date for the small assemblage; the other shoe fragments had features commonly found throughout the occupation of the frontier. All the items, with the exception of a fragment of secondary waste, are illustrated and described in the following discussion so that their full catalogue description is not published here, but is available in the research archive.

Nailed shoe (*766396d), Fig 14.26, Nos 1–2

The bottom unit of a shoe of nailed construction was found, comprising a sole, middle and insole with a heel stiffener and fragment of nailed lasting margin from the upper, placed

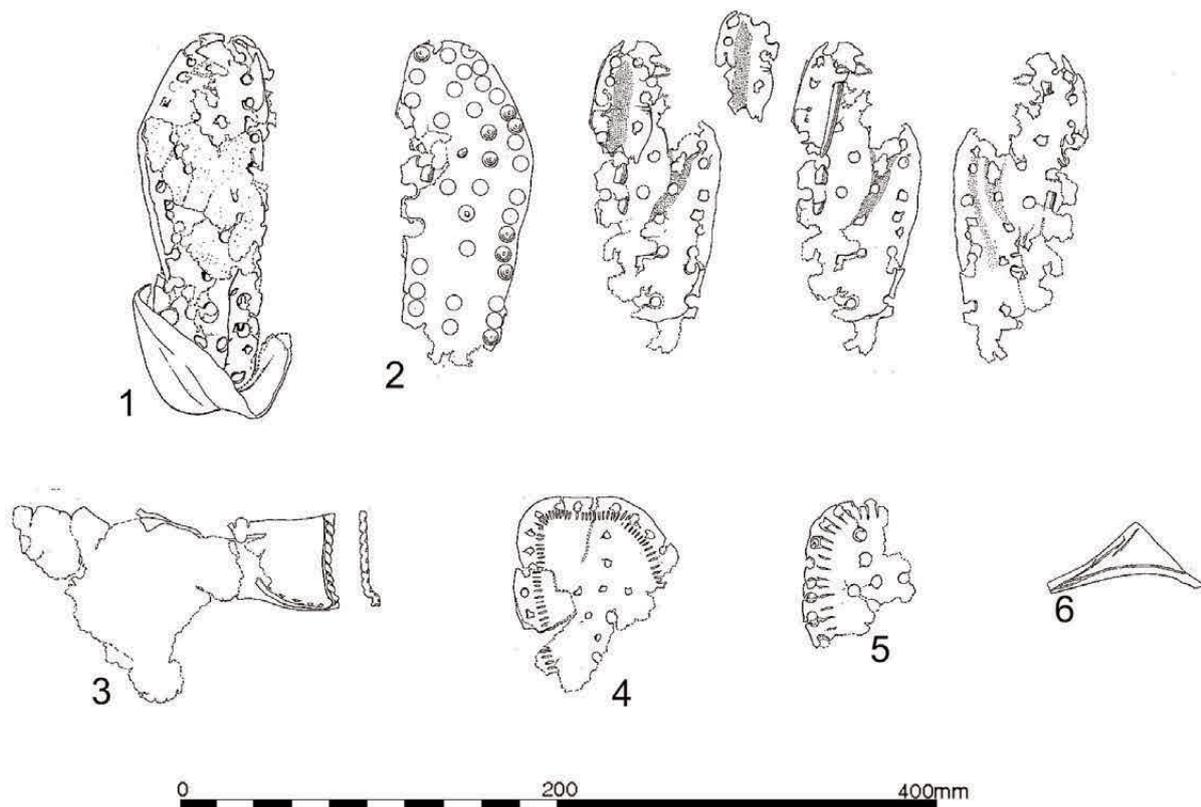


Fig 14.26 Leather items (scale 1:4).

between the middle and the sole. The middle and insole are joined by Type 2 constructional thonging, the component parts of the bottom unit being held together by nailing of van Driel-Murray Type 3d.

One-piece/moccasin shoe (*766396c), Fig 14.26, No. 3
A fragment of a shoe of one-piece construction had part of the right side of the upper and a fragment of the integral sole remaining, with a butted back seam sewn with whip stitching and a line of grain/flesh stitching around the heel. The top edge was cut straight and a fragment of the top loop with a decorative lobe remained, the lower loops had been torn away.

Sandals (*766396a, b), Fig 14.26, Nos 4–5
Two laminated fragments of bottom unit (probably insole) from broad-toed sandals were found with a decorative nailing pattern (Rhodes Type A) and Type B peripheral thonging, having a series of rouletted thong slits around the perimeter lying to the inside of the marginal nailing (Mould 1997). The broad shape of the toe and the position of the thong slits suggests a 3rd-century date.

Waste (*766396e), Fig 14.26, No. 6
Two pieces of waste leather with knife-cut edges were also found. One, a triangular intersectional-cutting piece of cattlehide, comes from the pattern cutting of shoe soles and had marking out lines visible on the grain surface.

Leather from Building XIII

Two small fragments of shoe upper (61) were found in topsoil over Chalet 5 in Barrack Block XIII (H13:5:0) during 1974.

Leather from the north rampart (H20)

The forepart of a shoe of nailed construction (8521), torn across the toe and waist, was recovered from an early 2nd-century construction phase deposit sealed at the base of the north rampart of the fort (H20:5:95). The bottom unit was heavily nailed at the tread, with Type 2 constructional thonging. A fragment of upper lasting margin was present on the right side, held in place by nailing and thonging around the edge.

Leather from the north-east corner of the fort (H21)

Illustrated items, prefixed with an asterisk (*) in the text, are accompanied by a catalogue description below; a full catalogue of all the leather recovered is available in the research archive.

Twenty items of leather were found during the 1981 excavations of the north-east corner of the fort, occurring in one context (H21:2:40) sealed below the base of the east rampart and dating to the period of fort construction during the early 2nd century, and a second context (H21:1:80), the phasing of which is more problematic. The latter context was initially interpreted as primary rampart deposit, its composition being similar to deposits H21:2:40 and H20:5:95. However, H21:1:80 was seen at the base of the robber trench (H21:1:78) for the primary north-east angle tower and did not appear to extend beyond the limits of that trench (*see* discussion of the north-east angle in

Chapters 3 and 4 and Figs 2.5 and 3.1). On the basis of the sketched section drawing it is not possible to establish conclusively whether H21:1:80 represented a rubbish deposit at the base of the primary rampart, which was later cut and briefly exposed by the robber trench at the end of the 2nd to the beginning of the 3rd century, or, on the other hand, comprised rubbish contemporary with the demolition and robbing of the primary angle tower which was deposited in the trench before it was backfilled. The latter must remain a distinct possibility, however.

The leather from these contexts comprised principally tentage, including a complete panel and various fragments that had been cut up to salvage the reusable leather before being discarded. A possible fragment of shield cover, fragments of shoe and a small quantity of waste leather was also found.

Tentage

The small complete panel (Fig 14.27, No. 7, *815948a) of goatskin with three straight and a single, angled side can be paralleled by others from Vindolanda (van Driel-Murray 1993, 30, fig 15 V11 from Tent L1200) and Castle Street, Carlisle (Winterbottom 1991, 299, fig 262, no. 1192). It is an end panel from the eaves flap which, inserted at the junction of the tent roof and the wall and lying on top of the guy ropes, deflected rain water away from the tent walls.

The seven other fragments of sheet leather recovered (eg Fig 14.27, No. 8, *811413a; Fig 14.27, No. 9, *815947; Fig 14.27, No. 10, *815946a; Fig 14.27, No. 11, *815948b) are also likely to come from tent panels, having remains of seams characteristic of tentage (Winterbottom 1991, 245–51). Lengths of binding from narrow reinforced seams of Types NRi (Fig 14.27, No. 12, *811411) and NRii (Fig 14.27, No. 13, *815946b) were also recovered. Two fragments (Fig 14.27, Nos 10–11, *815946a; and *815948b) had stitching marking the former position of circular patches for the attachment of guy ropes or tie fastenings. The latter, a large panel fragment (Fig 14.27, No. 11, *815948b), had a concave area present in a hemmed edge where a flawed area of the hide had been replaced by a separate infill piece during original manufacture (Type B infill Winterbottom 1991, 263 and fig 230). A small tear in the panel had been repaired with whip stitching.

The majority of the tentage fragments from the 1981 and 1984 excavations at Housesteads (Mould 1988, 115–17), like those from the recent excavations of the fort at Birdoswald (Mould 1997, 340–1) and Vindolanda (van Driel-Murray 1993, 57) were of goatskin, as was that found at forts on the Rhine. The large tentage assemblage from the promontory fort at Birdoswald was said to be of calf or cattle hide (McIntyre and Richmond 1934, 76). The extraordinary tentative identification of pigskin tentage at Old Penrith may be the result of the particular burial

conditions at the site affecting the surface of the leather, which was noted to be very degraded (Mould 1991, 224, fig 117).

Shield cover

A fragment of worn calfskin (Fig 14.27, No. 14, *815946) with irregularly cut edges had a line of alternating horizontal and vertical stitches that may suggest it was cut from a shield cover.

Nailed shoe

The forepart of a shoe of nailed construction (Fig 14.27 nos 15–16, *815945) of *calceus* type was found, torn away across the tread. The remaining fragment of goatskin upper (Fig 14.27 no. 16) had a nailed lasting margin and the beginnings of openwork straps with decorative lobes and a central butted seam at the toe. A small fragment of goatskin with whipped stitching (811412) came from an internal shoe lining.

Waste

Four lengths of trimming (815946d) were secondary waste pieces produced during the manufacturing process when individual parts were undergoing final shaping.

Unprovenanced leather from Housesteads

A cattlehide insole (Fig 14.27, No. 17, *81072050) from a right foot shoe of nailed construction had Type 2 constructional thonging and came from a heavily nailed sole of van Driel-Murray Type 3c, as was found on the nailed shoe fragments from the 1984 excavations of the north curtain wall (Mould 1988, 113). A sub-circular piece of heavily compacted leather (811599) appears to be a wedge from the seat of a bottom unit. It is comparable with a heel wedge found in a small shoe from Billingsgate Buildings, London (Rhodes 1980, fig 61, no. 571).

Catalogue

Abbreviations

e/f = edge/flesh; g/f = grain/flesh; Ht = height; inc = incomplete; L = length; sl = stitch length; ST = seat; st = stitch/es; Tr = tread; W = width; Wt = waist

Nailing pattern refers to the surviving hobnails and/or the holes left by them.

Fig 14.27, No. 7 815948a H21:1:80 9536

Leather tent panel

Complete rectangular panel with three straight sides, the fourth is angled and now slightly distorted into a 'dog-leg'. The longer horizontal edge and the angled edge have a folded hem of Type Va with a line of large g/f st sl 10–13mm with continuous thread impressions visible on both upper and lower surfaces indicating it was sewn with a Type 1b st. The straight vertical edge has a Type IIaii seam with a folded edge with g/f st and a line of tunnel st running horizontally c 7mm

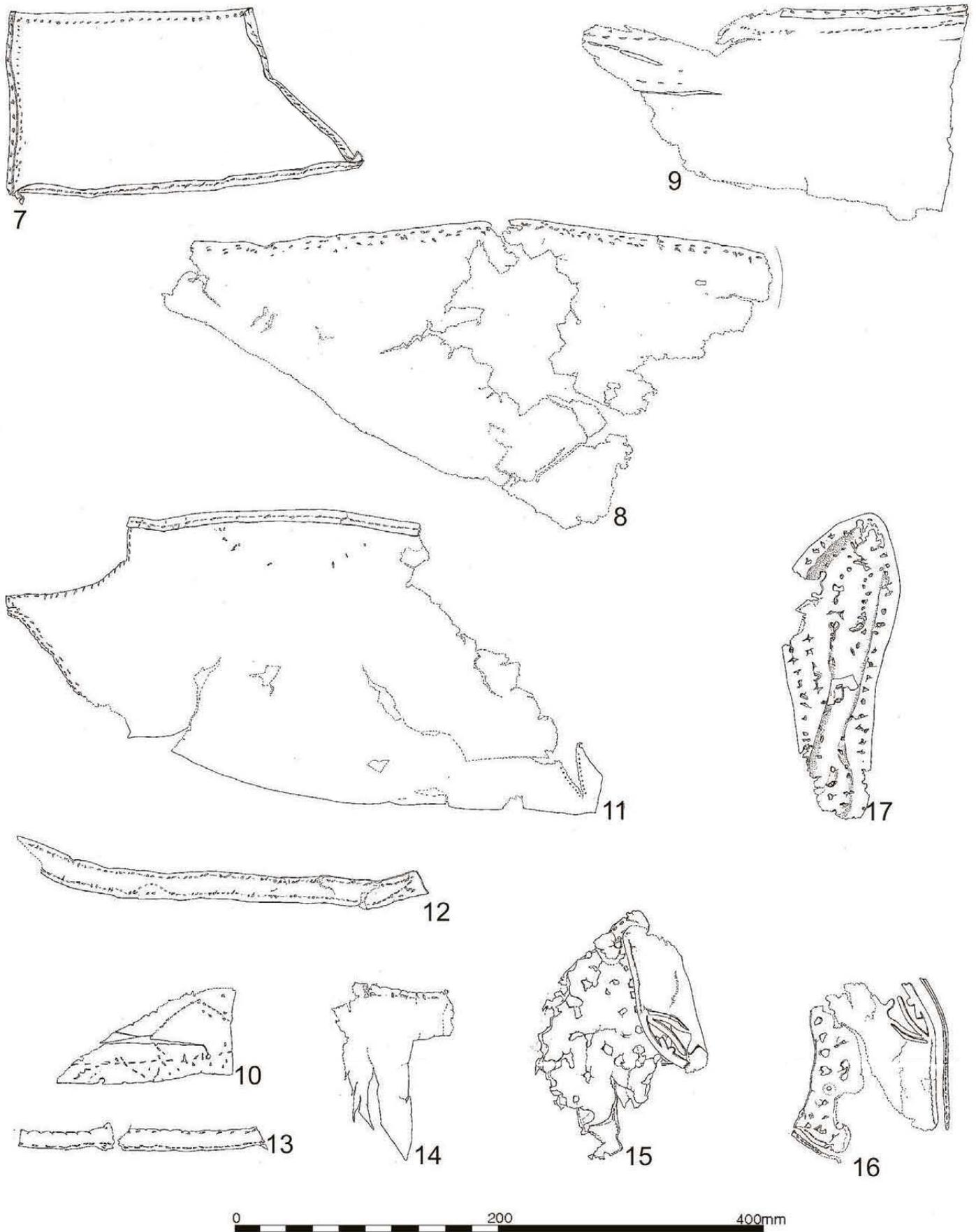


Fig 14.27 Leather items (scale 1:4).

below the fold on the flesh side. The short horizontal edge has an NRb seam with g/f st sl 6mm some 7mm from the edge, with no thread impression visible on either side; the grain side had been protected from wear along the seam. An oblong slit is present at the bottom of the left-hand corner. Stretch/stress lines present. Leather worn ?sheep/goat. L:263mm, W:140mm

Fig 14.27, No. 8 811413a H21:2:40 9062

Leather tentage

Fragment of sheet with a IIbi seam, the remaining edges are torn. The seam comprises a line of widely spaced g/f st sl 11mm running 5mm below the cut edge with a second line of irregular g/f st running below the first and merging into it at the left side. A small figure-of-eight shaped hole L 6mm lies 30mm below the seam and appears to be a natural insect hole. Stretch/stress lines present. Leather worn ?calf/cattlehide.

L:209mm inc, W:138mm inc

Fig 14.27, No. 9 815947 H21:1:80 9535

Leather tentage

Fragment of tent panel with a length of Type IIIaai seam, a vertical knife-cut edge and the other edges torn. The panel has been cut for reuse and has two cut and stretched slits close to a torn edge. The IIIaai seam comprises a folded edge with g/f st sl 10mm running along the fold and a line of crudely executed tunnel st running horizontally to the edge c 16mm below the fold and coming through slightly on to the grain side. A scatter of g/f st are present around the stretched slits suggesting that this area was patched. Leather worn ?sheep/goat (from thickness).

L:286mm inc, W:164mm inc

Fig 14.27, No. 10 815946a H21:1:80 9534

Leather tentage

Triangular piece of sheet with knife-cut edges, cut for reuse. The two straight edges are followed by a line of widely spaced g/f st with no thread impression visible, suggesting an NRb seam. A circle of g/f st with thread impression present on the flesh side indicates the former position of a circular patch and a semi-circle of g/f st close to the longer straight edge indicates the position of a second. Leather worn ?sheep/goat. L:134mm, W:67mm

Fig 14.27, No. 11 815948b H21:1:80 9536

Leather tentage

Large fragment of sheet with a length of folded hem of Type Va with widely spaced g/f st sl 17mm with continuous thread impression on both the upper and lower surfaces from a st Type 1b. To the right side of the hem the seam drops into a concave curved recess with a line of small g/f st with thread impressions on the grain side. This edge infill meets a vertical sloping seam of Type IIbii with a double row of g/f st, the line

of st closest to the edge having st impressions visible. The horizontal edge opposite the hem has a gently curved knife-cut edge, indicating that the sheet has been cut for reuse. The left vertical edge has been torn away, the bottom corner has an area of cut edge with an oblique slash close to it which has been repaired using a fine whip st. A series of widely spaced g/f st in a semi-circle from the hem indicates the position of a patch or tab attachment. Stretch/stress lines present. Leather sheep/goat.

L: c 450mm inc, W:215mm inc

Fig 14.27, No. 12 811411 H21:2:40 9061

Leather seam reinforcement strip

Length of reinforcement strip for a NRi seam with knife-cut sides and one end, the other is torn. Edges have a line of widely spaced g/f st sl 15mm with continuous thread impression visible on the grain side only. Leather worn, unrecognisable.

L:314mm, W:21mm

Fig 14.27, No. 13 815946b H21:1:80 9534

Leather seam reinforcement strip

Two lengths of reinforcement strip for seam NRbii with knife-cut sides and a cut and a torn end. Each strip has a line of widely spaced g/f st sl 10–13mm along one edge with continuous thread impression having been sewn with two threads or a backstitch (Groenman Type 1b), the other edge has been whip-stitched. Leather sheep/goat.

L:113mm, W:17mm; L:70mm, W:13mm

Fig 14.27, No. 14 815946 H21:1:80 9534

Leather ?shield cover

Sheet fragment with irregular knife-cut edges, cut for reuse. The remains of a slightly pleated or puckered seam with very widely spaced vertical and horizontal g/f st is present along one edge with an oblique line of widely spaced g/f st at right-angles to it. No thread impressions visible. Leather worn ?calf.

L:136mm inc, W:89mm inc

Fig 14.27, Nos 15–16 815945 H21:1:80 9533

Leather nailed shoe

Forepart of nailed shoe with oval toe and wide tread. The bottom unit comprises fragments of laminated sole, middle, rectangular strip of middle lamina and insole. Heavily nailed at the tread Rhodes Type C, van Driel-Murray unknown. Insole and middle have no thong slots visible. The fragment of vamp upper has a nailed lasting margin and a straight butted e/f toe seam sl 5mm with the beginnings of openwork straps, one with decorative lobes. Leather worn ?sheep/goatskin.

Bottom unit L:155mm inc, W Tr:98mm

Upper L:131mm inc, Ht from lasting margin:40mm

15 The samian ware

B D Dickinson

Introduction

This report is divided into two principal sections. The first part comprises an examination of the samian recovered by the excavations in the north-east corner of the fort between 1974–81, with a catalogue of the potters' stamps and the decorated ware. The second part is a study of decorated ware and potters' stamps found during the excavations of the *vicus* directed by Eric Birley in the 1930s. Most of this material had been lost and was rediscovered in the Department of Archaeology at Newcastle University during the course of the post-excavation assessment.

Those stamps and decorated ware that were recovered from stratified contexts in the fort are noted, with their catalogue numbers, in the appropriate 'Finds' section of the main structural account. Other chronologically significant material is referred to in the 'Dating evidence' sections. The entire samian assemblage from the 1974–81 excavations is set out, in tabular form, in the research archive, which is available for consultation in Corbridge Museum, at Corbridge Roman Site.

Abbreviations

The following abbreviations are used throughout this report:

D	= figure-type in Déchelette 1904
Dr	= Dragendorff
O	= figure-type in Oswald 1936–7
Rogers	= motif in Rogers 1974
S & S 1958	= Stanfield and Simpson 1958 (<i>Central Gaulish Potters</i>)

The fort

The excavations under discussion produced a maximum of 2964 vessels, comprising:

South Gaulish	0.2%
Central Gaulish (Les Martres-de-Veyre)	0.3%
Central Gaulish (rest)	84.8%
East Gaulish	14.7%

The material was in a generally poor state of preservation, and most of the sherds showed some degree of wear, with many of their surfaces and fractures badly affected by acid soil. This meant that relatively few joins or matches between contexts were detected and there were also many small sherds that could not be assigned to forms. Attribution of many of the decorated sherds to particular potters was often difficult, though their dates were usually clear enough. Table 15.1 shows the vessel forms and their origins.

Discussion

As at many Hadrian's Wall forts, a small amount of Trajanic samian from South Gaul and Les Martres-de-Veyre was found, here comprising less than 0.5 per cent of the assemblage.

The proportion of Hadrianic ware was also extremely small, a maximum 2 per cent. Among this material was a Trajanic–Hadrianic decorated bowl from Montans. Samian from this factory, while common in Antonine Scotland (Hartley 1972, 42–5), is rare in the Hadrian's Wall system and only four other examples have been recorded so far, three from Wallsend and one from Stanwix. There is also one from South Shields.

The samian offers strong indications that the fort was abandoned, or not fully garrisoned, in the early Antonine period. Of the two commonest 2nd-century cups, form 27 did not finally give way to form 33 until *c* AD 160, and usually turns up in fair quantity on sites occupied throughout the Hadrianic and early Antonine periods. The baths site at Wroxeter, for instance, produced 159 examples of Lezoux form 27s against 408 of form 33 (Dickinson 2000). In contrast, the Lezoux samian from Housesteads contains merely 4 examples of form 27 to 185 of form 33. Similarly, the rouletted dish, form 18/31R, which went out of production in Central Gaul *c* AD 160 to 165, is represented only 11 times, against 228 examples of its later 2nd-century variant, form 31R. In addition, the cup and dish versions of form 42 are missing and forms Curle 11 and 81 both make poor showings. Such examples as there are will almost certainly belong to the Hadrianic occupation.

The decorated ware and potters' stamps tell a similar story. Unfortunately, the proportion of stamped samian from this collection is unusually small, and so may not represent the true picture. Nevertheless, with one possible exception none of the stamped samian from these excavations is likely to belong to the first period of occupation at Housesteads. Most of it was not made before *c* AD 160 and much of the rest could be of this date, or later. The stamp of F Patillus is the only one that might have come from Period I, but as no foot-ring survives, the state of wear of the vessel cannot be seen. Although it is unlikely, the possibility that it would have been in use in the 160s cannot be entirely excluded.

Decorated ware of potters whose careers embraced the late Hadrianic and early Antonine periods is similarly sparse. For instance, bowls by Cettus (the Small S Potter), the only named maker of decorated ware at Les Martres-de-Veyre in the late Hadrianic to early Antonine period, are common in Scotland in general,

Table 15.1 Samian vessel forms and origins

<i>Form</i>	<i>SG</i>	<i>CGMV</i>	<i>CGLZ</i>	<i>EG</i>	<i>total</i>	<i>%</i>
15/31	–	–	1	–	1	0.03
18/31	–	–	17	–	17	0.57
18/31 or 31	–	–	58	1	59	1.99
18/31R	–	–	9	2	11	0.37
18/31R or 31R	–	–	7	–	7	0.23
27	–	3	4	–	7	0.23
30	1	–	9	1	11	0.37
30 or 37	–	1	129	16	146	4.92
31	–	–	346	64	410	13.83
31 or 31R	–	–	9	4	13	0.43
31R	–	–	175	53	228	7.69
32	–	–	–	6	6	0.20
33	–	–	185	33	218	7.35
35	–	–	4	–	4	0.13
35/36	–	–	1	–	1	0.03
36	–	–	26	8	34	1.14
37	2	–	232	54	288	9.71
38	–	–	51	34	85	2.86
38 or 44	–	–	34	1	35	1.18
40	–	–	1	–	1	0.03
44	–	–	1	–	1	0.03
45	–	–	62	19	81	2.73
46	–	–	1	1	2	0.06
72	–	–	4	–	4	0.13
79	–	–	30	–	30	1.01
79 or Tg	–	–	11	–	11	0.37
79R	–	–	2	–	2	0.06
79R or TgR	–	–	4	–	4	0.13
80	–	–	1	–	1	0.03
80 or Tx	–	–	1	–	1	0.03
81	–	–	1	–	1	0.03
Curle 11	–	–	2	–	2	0.06
Curle 15	–	–	5	–	5	0.16
Curle 15 or 23	–	–	3	–	3	0.10
Curle 21	–	–	8	2	10	0.33
Curle 23	–	–	6	–	6	0.20
Tb	–	–	–	3	3	0.10
Tx	–	–	1	–	1	0.03
Dish	–	2	98	38	138	4.65
DishR	–	–	8	–	8	0.26
Dish or bowl	–	–	216	36	252	8.50
Bowl	–	–	2	4	6	0.20
Cup	2	–	8	2	12	0.40
GSM	–	–	60	7	67	2.26
Beaker	–	–	2	–	2	0.06
Flagon	–	–	3	–	3	0.10
Jar	–	–	17	1	18	0.60
ENC	–	–	14	–	14	0.47
–	–	1	645	48	694	23.41
Total	5	7	2514	438	2964	

key: SG = South Gaulish; CGMV = Central Gaulish (Les Martres-de-Veyre); CGLZ = Central Gaulish (Lezoux); EG = East Gaulish

though slightly less so at Newstead (9.2 per cent against 6.7 per cent: Hartley 1972, 33). They also feature strongly on some sites that were occupied continuously through the early Antonine period and beyond, such as Carlisle (Dickinson 1991, 344) and Castleford (Dickinson and Hartley 2000). On Hadrian's Wall as a

whole Cettus's work is of marginal importance, with 1.4 per cent of the attributed Antonine bowls (Hartley 1972, 33), and there are no examples at all from these particular excavations. His absence is another strong hint that full occupation of the fort was interrupted at the time when Scotland was occupied. But perhaps the

strongest evidence of change in the density of occupation in the early Antonine period is the comparative scarcity of decorated ware by the Cerialis ii–Cinnamus ii group, whose bowls were so common throughout Britain at that time.

The Lezoux bowls as a percentage of all the attributed Central Gaulish decorated ware correspond fairly closely to the figures produced by B R Hartley when comparing the samian from Hadrian's Wall and its hinterland forts with that from Antonine Scotland (ibid). Although this paper was written over a quarter of a century ago, subsequent excavations have not altered the picture substantially. Table 15.2 follows Hartley's division of the potters into: i) mainly Hadrianic, but perhaps still at work in the very early Antonine period; ii) potters starting work under Hadrian, but with mainly early Antonine careers; iii) early- and mid-Antonine potters; iv) Antonine potters working after *c* AD 160. Newstead is not included in the figures for Scotland but is considered separately, because of its longer occupation. Ilkley is included as a separate item in view of the independent evidence for its reoccupation. Because of the problem of distinguishing between the work of Paternus v and that of associated potters, caused by the condition of the samian, all relevant bowls have been assigned to the Paternus v group, both at Housesteads and elsewhere.

The Central Gaulish decorated ware seems to belong to a rather restricted range of potters, but this impression may be due to the large number of sherds

that have undiagnostic features. The main difference between the Housesteads samian and that of the other Hadrian's Wall decorated ware is the apparently much greater proportion of bowls by the Paternus v group at Housesteads. If this is genuine, and not merely due to the difficulty of spotting joining sherds, this may be the first fort on the Wall where the work of Paternus and his associates outnumbers that of Cinnamus and his.

Central Gaulish ware is so widely dispersed throughout Britain that it is difficult to discern the routes of distribution. Therefore, the question of whether the supply for the Wall forts come in via the Tyne or Solway or was brought overland, or a mixture of the two, must remain unanswered for the present.

The East Gaulish ware comes from the following sources:

Rheinzaabern	339	77.3%
Trier	69	15.7%
La Madeleine	max 10	2.2%
Argonne	max 8	1.8%
Chémery–Faulquemont	1	0.2%
Unassigned	11	2.5%

The wares of Chémery–Faulquemont have never been found in large quantities in Britain, but seem to be commoner on Hadrian's Wall than elsewhere. Examples are known from Birdoswald, Carrawburgh, Halton Chesters, South Shields, Stanwix and Wallsend.

Table 15.2 Percentages of Lezoux bowls assigned to potters

<i>Potter</i>	<i>HSTDS</i>	<i>%</i>	<i>HW</i>	<i>I</i>	<i>H</i>	<i>S</i>	<i>N</i>
Docilis i	1	1.2	1.7			1.6	0.6
Drusus ii	1	1.2	0.4			0.8	0.6
Sacer	1	1.2	0.8			0.8	2.2
Secundinus ii (Rogers's I)	1	1.2	0.6			0.2	0.0
P-10	1	1.2	0.0			0.0	0.0
X-6 etc	1	1.2	4.5			1.6	2.8
Criciro v	3	3.4	6.8	2.4	1.5	6.2	4.5
Cerialis ii–Cinnamus ii	6	6.9	3.4	6.0	3.4	15.6	19.3
Cinnamus ii	13 + 2?	17.4	20.8	15.3	18.0	38.3	38.2
Secundus v	4 + 1?	5.8	2.4	1.6	0.7	2.5	2.5
Advocisus	4	4.6	5.8	4.8	4.1	0.0	1.4
Casurius ii	7 + 1?	9.3	8.8	4.8	6.5	0.6	5.8
Censorinus ii etc	2	2.3	2.9	2.4	3.5	0.0	0.4
Do(v)eccus i	8	8.3	8.5	11.7	13.9	0.0	0.0
Iullinus ii	1	1.2	4.1	8.3	5.9	0.0	0.0
Paternus v group	29	33.7	23.4	16.4	16.9	0.0	1.4

key: HSTDS = Housesteads
 HW = Hadrian's Wall
 I = Ilkley: Antonine potters only
 H = hinterland forts of Hadrian's Wall: Antonine potters only
 S = Scotland
 N = Newstead

Argonne ware also occurs on the Wall, from Wallsend to Bowness, but never, it seems, in large quantities.

After Rheinzabern, but usually a good way behind, La Madeleine appears to have been the next largest supplier of East Gaulish ware to Britain. Though its wares are present on Hadrian's Wall, they are much commoner in Scotland. The very small number of La Madeleine vessels here were all Hadrianic–Antonine, and this is a further hint of interrupted, or reduced, occupation after the Hadrianic period.

With one exception, all the Trier ware seems to belong to the late 2nd century or the first half of the 3rd century. The decorated ware includes two bowls in the Afer/Dubitus–Dubitatus/Paternianus style and one probably by Paternianus. Trier's share of the East Gaulish samian, 15.7 per cent, is probably rather higher than normal for Hadrian's Wall, and suggests that samian was in regular use in the fort well into the 3rd century.

Rheinzabern ware accounts for the bulk of the East Gaulish samian, as it does in Britain in general. However, only six of the decorated bowls are assignable to their makers. They are by Iulius (Ricken's Iulius I), Primitius, Reginus vi (Ricken's Reginus I) and Victor–Ianuco, with two more with the Iulius I–Lupus ovolo. With the exception of Reginus, all these potters were still at work in the 3rd century. Reginus's career, which began at Heiligenberg, is unlikely to have outlasted the 2nd century.

Unusually, the proportion of decorated to plain ware is higher for East Gaul (16.2 per cent) than for Central Gaul (14.7 per cent), a further hint that samian was still an important commodity on the site in the 3rd century.

All the East Gaulish ware comes from factories that almost certainly traded with Britain, even if only on a small scale. Its distribution offers much stronger hints of its means of dispersal than does the Lezoux ware. It seems extremely likely that a good deal of East Gaulish ware bypassed the southern ports in favour of ones on the east coast, often being landed much closer to the Wall and its supporting hinterland forts. For the eastern half of the Wall, at least, the most obvious port would be South Shields.

The samian potters' stamps

With the exception of fragmentary, unassignable stamps each entry gives: Name of potter (i, ii, etc, where homonyms are involved); Die number; Form of vessel; Reading of stamp; Pottery; Parallels; Date; Site:area:context number; Small finds number.

a and b indicate:

a Stamp attested at the pottery in question.

b Not attested at the pottery in question, but other stamps for the same potter known from there.

1. Amandus v 3e 31 (Ludowici Sa) AM[ANDVSF.] Rheinzabern.^b
Like many Rheinzabern potters Amandus v is only dateable by his forms. His use of forms 32, 40 and Ludowici Sa suggests a late 2nd- or 3rd-century date.
H13:0:2 906
2. Clemens ii 3b 31R [CLII]MIINS Lezoux.^b
Two other examples of this stamp are known from Hadrian's Wall and there is one from Catterick. Stamps from his other dies occur on form 79, 79R and Ludowici Tg and one is on a decorated mould which is also stamped by Priscus iii. *c* AD 160–90.
H20:5:70 9548
3. Dagodubnus la 33[DAGOD]V[DNVSF] Rheinzabern.^a
All the examples noted are on form 33; one comes from Bainbridge. Probably mid- to late Antonine.
H20:5:1 6110
4. Hibernalis la 31 HIBIIRNΔLI2F Rheinzabern.^a
Hibernalis's forms include 31R 32 and 40 and one of his stamps comes from Old Penrith. Late 2nd or early 3rd century.
H20:4:21 6957
5. Libertus iii 2a 38 or 44 LIBIIRTIM Lezoux.^a
This stamp occurs on form 37s of early to mid-Antonine date and on forms 33 and 79/80 (the former from Malton). *c* AD 140–70.
H13:7:2 1320
6. Lupus iv 2a 31R [L.V]PVSFE Rheinzabern.^a
A stamp recorded from Niederbieber fort and its civil settlement and on decorated ware of the late 2nd or early 3rd century.
HSE:1:28 9542
7. Lutaetus la 37 (rim) [L]VTAEVSFEC Rheinzabern.^b
Several of Lutaetus's plainware stamps appear on the rims of, or inside the bases of, decorated bowls, applied after moulding. His stamps are usually associated with the work of Ianus ii and Reginus vi. This particular stamp is on a bowl in the style of Reginus; others from the same die occur on one of his stamped bowls (from Corbridge), and on one in the style of Ianus. Both the mould-makers started work at Heiligenberg before moving to Rheinzabern, and so it is certain that Lutaetus, too, will have been a 2nd-century potter. *c* AD 160–90.
H21:2:42 9078
8. Mainacnus 2a 31 MA[INCNI] Lezoux^a (Smith 1905–1907, 285).
There are many examples of this stamp in a group of late Antonine samian recovered off Pudding Pan Rock, Kent. It is also known from South Shields and was used on forms introduced in the later 2nd century, such as 31R and 79/80. *c* AD 160–200.
H20:8:80 8495
9. Mansuetus ii 2a/ 33 [MA. S]V. ETIc Lezoux.^a
A stamp from a broken die which originally ended in a small o. It occurs at Benwell, Halton Chesters (2) and Malton, and there is an example from the complete die at Chesterholm. Both versions were used on form 27. *c* AD 150–80.
H14:3:– 9551
10. Martius vi 3a 33 (burnt) MARTIVSF Ittenweiler,^a Rheinzabern.^b
Over half the examples noted of this stamp come from Britain, which suggests that the die was perhaps used at Rheinzabern as well as at Ittenweiler. The site record

- includes Corbridge (3), Hadrian's Wall (3) and Chesterholm. A stamp from one of his other dies occurs inside the base of form 37 impressed after moulding. Internal stamps on Rheinzabern decorated bowls, such as this, are almost certainly all 2nd century. Mid- to late Antonine.
H20:5:36 6771
11. Materninus iii 2a 31 (?) [M]ATIIRM[AVS] Rheinzabern.^a
A stamp from a die used also on forms 31R; and 32. Late 2nd or early 3rd century.
H20:5:11 6587
12. Mercator iv 3a 37 MERCATOR M retr Lezoux^a (S & S 1958, pl 169).
The letters are not distinguishable, but the label is the correct length for this stamp and it is damaged diagonally in the same way as an example from Lezoux. Late 2nd-century date is indicated by the style of the potter's decorated ware and his use of plain forms, which were not introduced before the later 2nd century. This particular stamp occurs on decorated bowls from Chesters and South Shields. *c* AD 160–90.
H20:4:21
13. F Patillus Incomplete 1 concave base ?. F. PATI[Lezoux.^b
No other stamps have been noted from this die, but the potter's record includes form 18/31R or 31R from Period IIC at Verulamium (*c* AD 140–50) and cups of form 27, which will not be later than *c* AD 160. It is not clear whether the initial F is an abbreviation of *fecit*, though its position before the name would be unusual, or whether it represents the potter's *nomen*, Florius or the like, as with stamps of F Albinus. The fabric and glaze suggest Hadrianic–Antonine date.
H21:4:7 8580
14. Patricius ii 7d 18/31R [PATRI]CIM Lezoux.^b
A stamp noted on forms 38 and 44 and at Malton. Patricius ii's wares reached Rhineland forts, suggesting activity before *c* AD 150. His stamps also appear at Corbridge and Catterick, in Antonine Scotland and in the Verulamium Second Fire deposits. *c* AD 140–60.
H21:1:3 8627
15. Paullus iv 5a 33 PAVLLM Lezoux.^a
Some of the earliest recorded examples of Paullus iv's stamps are from the Rhineland, the Birdoswald Alley and a group of burnt samian of *c* AD 140–50 at Castleford. The latest form noted for him is Walters 79/80. This particular stamp occurs in a burial at Riepst (Belgium) with stamped vessels by early- to mid-Antonine Lezoux potters. *c* AD 140–65.
H20:4:62 8478
16. Primanus iii 6f 31 PRIM[ANI] Lezoux.^a
A stamp from a die used on forms 31R, 79, 79R and 80 or Ludowici Tx. There are two examples from Pudding Pan Rock. *c* AD 160–200.
H20:4:9 7652
17. Probus ii 2a 33 PROBVSF Rheinzabern,^b Trier.^b
The lettering of this stamp is more typical of Trier than Rheinzabern, and it occurs on form 18/31 from Chester-le-Street in a fabric which does not belong to the Rheinzabern range. There are examples from Benwell, Great Chesters and Newstead. His output at Rheinzabern includes form 32. Early- to mid-Antonine.
H21:4:52 9543
18. Quintus v 5a 33(?) [QVI]NTIM Lezoux.^a
A stamp noted from Pudding Pan Rock and on forms 31R, 79 and 79R. *c* AD 160–200.
H13:9:0 9545
19. Sacrillus 3a 31 SACRILLI·I·N·N Lezoux.^a
This dish has the low kick and wide diameter foot-ring of form 31R, but lacks the band of rouletting on the base. The stamp is known from Carrawburgh and Pudding Pan Rock and on the rim of a stamped, decorated bowl of Do(v)eccus i. *c* AD 160–200. Building XV U/S 9550 found during consolidation, 1981.
20. Sacrillus 5a 33 SACRILLI Lezoux.^b Found with four adjoining sherds from the base.
This stamp occurs at Halton Chesters, South Shields and Pennine forts reoccupied *c* AD 160. *c* AD 160–200.
H20:7:0 4962
21. Sedatianus 2b (probably) 33 SED[ATIANI] Lezoux.^a
Sedatianus's output seems to have consisted mainly of cups of form 33, but this stamp occurs also on forms 31R and 79/80. There is an example from Old Penrith. *c* AD 160–200.
H20:5:29 7901
22. From rampart soils associated with revetment retaining wall C Suadullius 1a 33 2VADVLLIV2I Rheinzabern,^a Ittenweiler.^b A hole is drilled through the centre of the base for reuse as a spindlewhorl.
The fabric of this piece suggests origin at Rheinzabern. One of his stamps appears on the rim of a stamped, decorated bowl of Reginus vi from Carlisle, also made at Rheinzabern, and another occurs on a dish at Great Chesters. *c* AD 160–90.
H20:4:44 6668
23. Verus vi 3f 31 or 31R VER VSE Rheinzabern.^a
A stamp noted from Niederbieber and the Regensburg fortress. It has been recorded on forms 31R, 32 and Ludowici Tb. A late 2nd- or early 3rd-century date is certain, therefore.
H21:2:1 8582
24. [I]XIXIX on form 31, Central Gaulish.
Other examples of this illiterate stamp occur on forms 15/31 and 31R (2). As they are all from Britain, the potter is likely to have worked at Lezoux. Mid- to late Antonine.
H21:4:2 8575

Unidentified

25.]O2IK on form 18/31R, East Gaulish, probably from either La Madeleine or one of the Argonne factories. Early- to mid-Antonine.
H20:7:33 9547
26.]ASIL[on form 31, Central Gaulish. There is a graffito]att[inscribed, *post cocturam*, under the base. Antonine.
H20:4:1 9549
27. M[on form 31, Central Gaulish. Antonine.
H20:4:1 9541
28.]IXS[on form 31, Central Gaulish. Antonine.
H20:4:13 7654
29.]ΛIMI on form 31, Central Gaulish. Antonine.
H15:1:4 9546
30.]IM on form 31R, Central Gaulish. Mid- to late Antonine.
H20:U/S 9544

31. ..ST..SIVS on form 31 (Ludowici Sa), East Gaulish, probably from Trier. The surviving letters suggest that this is not a stamp of a known potter. Late 2nd or early 3rd century.
H13:10:0 979
32. V[or] V on form 18/31, Central Gaulish. Hadrianic.
H13:1:210
33. \O[?] on form 31, Central Gaulish. Antonine.
H20:4:20
34.]ALV[on form 31R, Central Gaulish. Mid- to late Antonine.
H13:6:0
35. [I]IXIXIX on form 31R, Central Gaulish. Mid- to late Antonine.
H21:4:2
36. IN[. (lost)
H21:4:2

Decorated ware (Figs 15.1–2)

- Form 37, South Gaulish, with an internal groove level with the top of the ovolo, as on 2nd-century Montans bowls. The double-bordered ovolo, with tongue touching and turned to the left at the tip, is on a bowl from Richborough with a mould-stamp of Attilus iv (Bushe-Fox 1932, pl XXX, 1) and on a bowl from Strageath (Hartley 1989, fig 106, D34). It is also probably the same as the one on two moulds from Montans (G Simpson 1976, fig 6, 23–4). Montans ware is common in Antonine Scotland, but scarcely features on Hadrian's Wall, the only other pieces known to the present writer being from South Shields, Stanwix and Wallsend (3). *c* AD 110–45. (Not illustrated)
H13:0:25
- Form 37, Central Gaulish. All the motifs are noted in Rogers for his Secundinus I (= Secundinus ii in the forthcoming *Leeds Index of Potters' Stamps*). They are: trifold motif on a stalk (G233), fan-shaped plant (G18), acanthus (K30) and beads (A2). Stamps of this potter are relatively common in the Rhineland, from which there seems to be little, if any, Central Gaulish samian after *c* AD 150. The potter is known to have worked at Les Martres-de-Veyre, but it is likely, though not proven, that he moved to Lezoux, where this bowl seems to have been made. *c* AD 125–40.
H13:0:24
- Form 37, Central Gaulish. Probably by Drusus ii, who used the rosette-tongued ovolo (Rogers B15?) and seven-beaded rosette (Rogers C280) on a signed bowl from Verulamium (Dickinson 1984, D10). The Cupid (O.396) is on another signed bowl, from Doncaster (Dickinson 1986b, fig 29, 29). The other figures are two warriors, one with a shield (D.131 = O.197), the other kneeling (D.132 = O.208). *c* AD 125–45.
H15:1:112; H20:7:17
- Form 37, Central Gaulish. Most of the ovolo was removed when the rim was finished, but the rosette-tipped tongue can be seen, with a wavy line below (Rogers A23) and both these suggest Hadrianic or early Antonine date. The decoration includes a serpentine motif (Rogers U280 or 281). (Not illustrated)
H20:3:25
- Form 37, Central Gaulish, probably roughly shaped as a counter. The decoration consists of a mask (O.1346?), tier of cups (Rogers Q48?) and an athlete (D.133 = O.198). Probably by Rogers's potter P-10, who seems to have been Hadrianic. I am indebted to Mr G B Rogers for the information.
H20:5:10
- Form 37, Central Gaulish. A bowl in the style of Cinnamus ii, with his characteristic hollow bead terminals. The Venus at an altar (D.184 = O.322), the acanthus (Rogers K12) and the medallion are on a stamped form 30 from York (S & S 1958, pl 159, 34). The acanthus recurs, with the bear (D.820 = O.1627) on a bowl from Alcester in a pit filled in the 150s (Hartley *et al* 1994, 118, 285). The cornucopia is probably Rogers U247. *c* AD 150–80.
H13:9:21
- Form 37, Central Gaulish. A sherd cut as a counter, from a freestyle bowl in the style of Cinnamus ii, with a stag to right (D.852 = O.1720) and his distinctive cornstook (Rogers N15). See a stamped bowl from London (S & S 1958, pl 163, 70). *c* AD 150–80. (Not illustrated)
H21:3:69
- Form 37, Central Gaulish. A freestyle bowl in the style of Secundus v, whose work has affinities with that of Cinnamus ii. The dolphin, one of his characteristic figure-types (D.1057 = O.2401) is on a stamped bowl from Great Chesterford (Simpson and Rogers 1969, fig 6, 4). The horseman (D.158 = O.249 variant) is on a bowl in his style from Dragonby (Dickinson 1996) and the leaf (Rogers H101) is on another (unpublished) from Carlisle. The dog is D.934 = O.1980. *c* AD 150–80.
H13:6:0
- Form 37, Central Gaulish. The ovolo (Rogers B103) and beads (Rogers A2) were used by Advocisus. *c* AD 160–90. (Not illustrated).
H20:3:46
- Form 37, Central Gaulish. A bowl in the style of Advocisus, with his larger ovolo (Rogers B103), beads (Rogers A2) and double-headed arrow (Rogers U104). He is known to have used both the Cupids (D.229 = O.383 and D.275 = O.503). The latter is not common in his work, but occurs on a stamped bowl from Corbridge (Simpson 1953, fig 16, 29), with the ovolo and arrow motif. Although Advocisus used several Diana-with-hind types, this particular one (D.65 = O.107 variant) does not seem to be known for him. The blobs above the Cupids may be blurred impressions of his small cross (cf S & S 1958, pl 113, 22). *c* AD 160–90.
H21:4:36
- Form 37, Central Gaulish. The ovolo (Rogers B223, but with a slighter tip to the tongue) and the large beads (Rogers A3) were used by Casurius ii. *c* AD 160–90. (Not illustrated).
H20:4:29
- Form 37, Central Gaulish. Style of Casurius ii, with his large beads (Rogers A3) and paired leaves (Rogers J58), as on a stamped bowl from Corbridge (S & S 1958, pl 132, 11). The stalks are the tips of an arrow-head motif (Rogers U295), which appears more fully supporting a different leaf on another (unstamped) bowl from Corbridge (S & S 1958, pl 137, 56). *c* AD 160–90.
H20:9:49

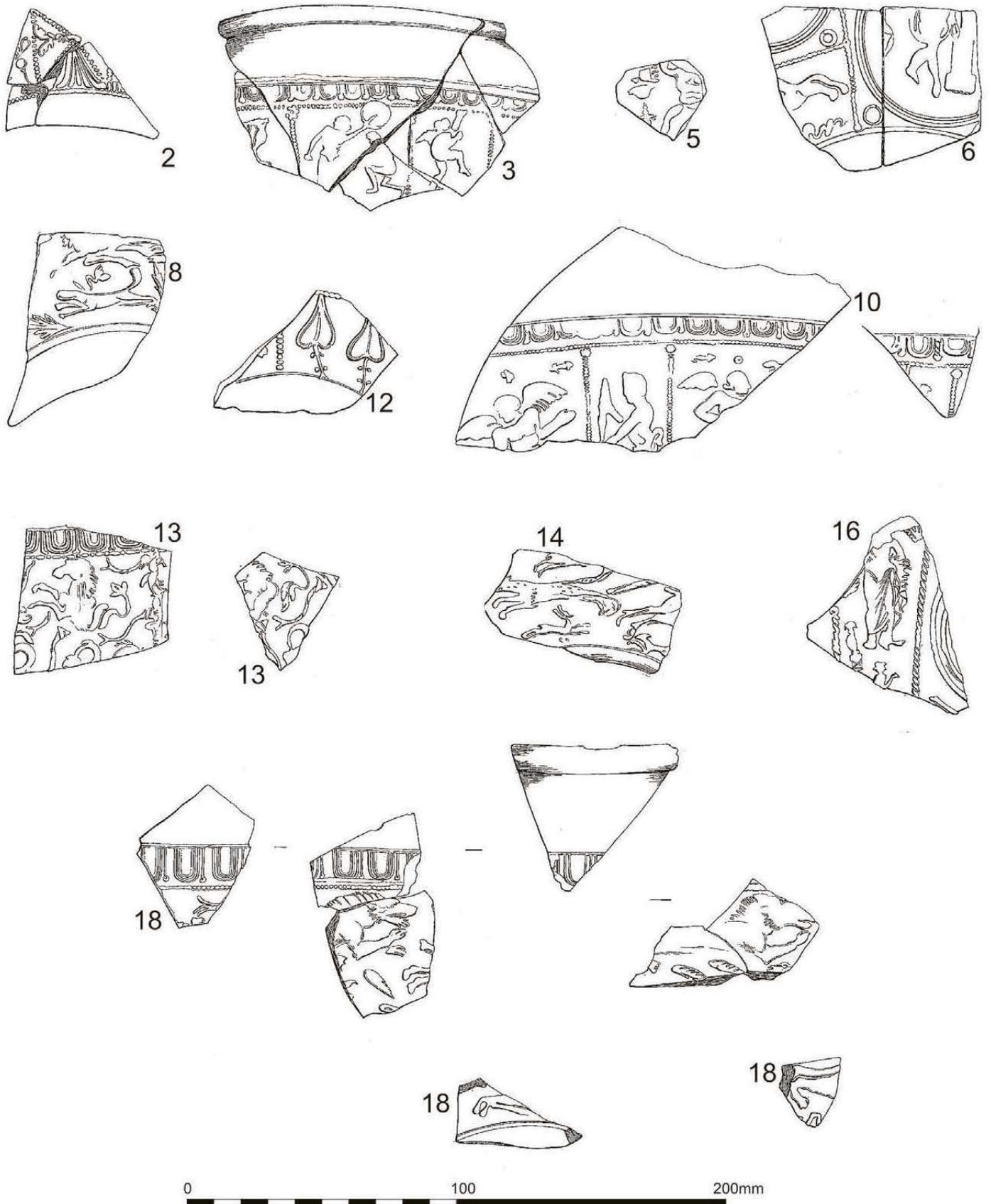


Fig 15.1 Decorated samian vessels from the 1974–81 excavations.

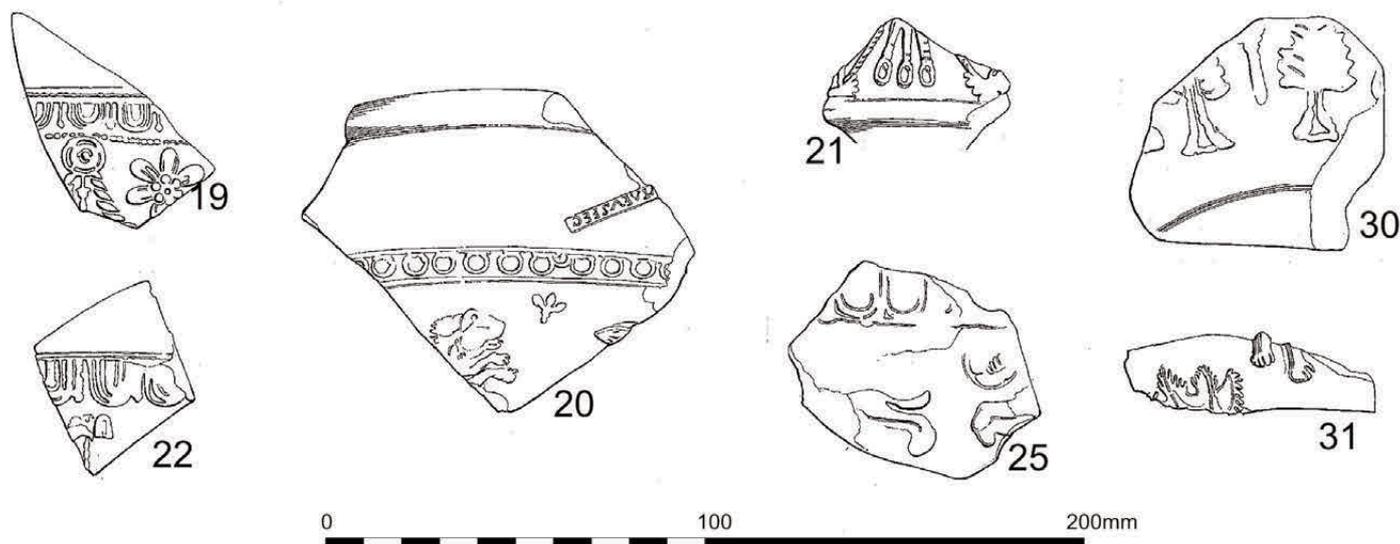


Fig 15.2 Decorated samian from the 1974–81 excavations.

13. Form 30, Central Gaulish. Both Paternus v and Censorinus ii used all the details, but the combination of ovolo (Rogers B206) with the astragalus border (Rogers A10) and the theme of the decoration make this attributable to Censorinus. The freestyle marine scene includes a sea-horse (a larger version of D.33 = O.33), triton (D.16 = O.19), dolphin (D.1050 = O.2382), siren (D.499 = O.862 variant), column (Rogers P3?) and serpentine motifs (Rogers U281). Most of these are on an unprovenanced bowl in Basle Museum (S & S 1958, pl 101, 4). The horse and serpentine motif are on stamped bowls from Gloucester (unpublished) and Corbridge (S & S 1958, pl 101, 5), respectively. *c* AD 160–90. H20:5:36, H20:8:63
14. Form 37, Central Gaulish. The freestyle scene includes a dog or leopard to left, leaping stag (D.860 = O.1732), small ?dog to left and an ungulate to right. Part of a raised rectangular label can be seen, which is almost certainly a mould-stamp of Mercator iv (S & S's Mercator 2). The stamp is damaged diagonally in the same way as on one of his bowls from Lezoux. The stag is on form 30 in his style from the Wroxeter Gutter (Atkinson 1942, pl 35, G8). *c* AD 160–90. H20:4:21
15. Form 37, Central Gaulish. The ring-tongued ovolo (Rogers B105), used by Paternus v and several of his associates, appears here in overlapping impressions, where it has overrun. *c* AD 160–95. (Not illustrated). H20:4:22
16. Form 37, Central Gaulish. A panelled bowl, with rhomboidal beads (Rogers A36), philosopher (D.524 = O.907), athlete (D.406 = O.683), obelisk (Rogers P68), lozenge (Rogers U32?), double medallion and astragalus. The beads are common to Iustus ii and Paternus v. Paternus is known to have used the obelisk (S & S 1958, pl, 104, 4, from London) and the philosopher (Paunier 1981, 188, 120, from Geneva). Stamped bowls of Iustus show, respectively, the medallion (Lezoux, Musée des Antiquités Nationales, Saint-Germain-en-Laye), the athlete (Vichy, Terre-Franche) and the lozenge (York). The lozenge tips the balance slightly in favour of Iustus, but the attribution is only tentative. A date *c* AD 160–95 would cover the ranges of both potters. H20:4:35
17. Form 37, Central Gaulish. Three fragments from a bowl in the style of Paternus v. The top half of a panel contains a dolphin to left (O.2394A) in a chevron medallion (Rogers F15). These occur on a stamped bowl from Wilten-Veldidena (Karnitsch 1960, Taf 1, 7). The lower half of the panel has a dolphin to right (a much bigger version of O.2383). *c* AD 160–95. (Not illustrated) H20:8:63
18. Form 37, Central Gaulish. A freestyle bowl in the style of Paternus v, with his ring-tongued ovolo (Rogers B105), beads (Rogers A2), bear (D.810 = O.1589), horse and rider (D.157 = O.246), goat (D.968 = O.1843), dog (D.919 = O.1940) and his characteristic striated spindles. For the ovolo, beads, bear, goat and rider see a stamped bowl from Wingham, Kent (S & S 1958, pl 106, 22). The dog is on another, from York (*ibid*, 20). There is a faint, uneven, laying-out line between the ovolo and the bead row. *c* AD 160–95. H20:4:19, H20:4:44, H20:4:55 and, probably, H20:5:36
19. Form 37, East Gaulish, with ovolo (Ricken 1934, Taf VII, A), corded festoon (*ibid*, Taf VIII, 13), pendant (perhaps *ibid*, Taf VII, 81), rosette and roundel. The ovolo and beads identify this as a La Madeleine bowl, though the roundel and festoon were also used at Heiligenberg by Ciriuna (Forrer 1911, Taf XX, 3 and XXI, 6, respectively). The rosette is similar to one used at Rheinzabern (Ricken and Fischer 1963, O37a), though it has fewer petals. This bowl is a good illustration of the connections between East Gaulish factories, which may have involved the copying of motifs and figure-types as well as the migration of potters *c* AD 130–60. HSE:1:29
20. Form 37, East Gaulish. A bowl in the style of Reginus vi (Ricken and Fischer's Reginus I), with a plainware stamp of Lutaeus on the rim. The ovolo replacement of

beaded rings with straight line below (Ricken and Fischer 1963, R73) and the trilobed leaf (*ibid*, P132) are on a mould from Rheinabern in Reginus's style (Ricken 1948, Taf 18, 11F). The lion (Ricken and Fischer 1963, T15) is on a stamped bowl (Ricken 1948, Taf 14, 1). The other detail is probably a bird. *c* AD 160–90.

H21:2:42

21. Form 30, East Gaulish. A stamped mould of Primitius (in his style 1) from Rheinabern shows the trifold motif (Ricken and Fischer 1963, P117), the corded border (*ibid*, O242) and the acanthus (*ibid*, P145), in a fuller impression than here. *c* AD 200–60.
H13:11:0
22. Form 37, East Gaulish. The ovolo (Ricken and Fischer 1963, E42) and astragalus (*ibid*, O111, here blurred) are on a stamped mould of Ricken's Iulius i from Rheinabern (1948, Taf 152, 9F). The Z-twist border is too blurred for precise identification. *c* AD 200–50.
H13:11:0
23. Form 37, East Gaulish, with ovolo as on the last and a double medallion or arcade. A bowl in the Iulius i–Lupus style. *c* AD 200–50. (Not illustrated).
H20:7:0
24. Form 37, East Gaulish, with ovolo as on the last and a double medallion (Ricken-Fischer 1963, K20). A bowl in the Iulius I–Lupus style. *c* AD 200–50. (Not illustrated).
H13:11:0
25. Form 37, East Gaulish. The tongueless, double-bordered ovolo is on a stamped bowl of the Trier potter Paternianus iii from Verulamium, where it has a straight line below, as here. Neither of the animals has been identified. *c* AD 225–50.
HS1 XIII 78
26. Form 37, East Gaulish. The tongueless, double-bordered ovolo (Fölzer 1913, Taf XXXII, 953) is on Trier ware in the Afer/Dubitatus–Dubitatus/Paternianus style. The decoration includes a beaded arcade or medallion (*ibid*, Taf XXXI, 819?). *c* AD 200–60. (Not illustrated).
H13:6:0
27. Form 37, East Gaulish, with the same ovolo as the last. *c* AD 200–60. (Not illustrated).
H13:5:0
28. Form 37, East Gaulish. The tongueless, double-bordered ovolo (Fölzer 1913, Taf XXXII, 954) is on Trier ware in the Afer/Dubitatus–Dubitatus/Paternianus style. *c* AD 200–60. (Not illustrated).
H13:6:11
29. Form 37, East Gaulish. The ovolo, with L-shaped tongue, is on two bowls from Trier (Fölzer 1913, Taf X, 57, 61) and is assigned by Gard (1937) to Succio, or an associate. Probably first half of the 3rd century. (Not illustrated).
H13:1:21
30. Form 37, East Gaulish. The tree is on signed moulds of the 3rd-century Trier potter Dubitatus–Dubitatus. *c* AD 225–60.
H13:11:0
31. Form Déchelette 72, Central Gaulish, decorated with appliqué figures and motifs, including a leaf (almost certainly Déchelette 1904 nol 2, 234, 157) and, probably, a lioness (*ibid*, 230, 137). Mid- to late Antonine.
H20:7:15

The *vicus*

This small collection of decorated samian and one stamped plainware sherd may not be typical of the samian from the *vicus* as a whole, but the Central Gaulish ware, as at the fort, tends to be the work of the commoner Lezoux potters whose bowls are widespread in Britain. Most of them are represented in the finds from the fort.

The East Gaulish ware is more interesting, with three bowls from Werkstatt II at Trier, of Antonine date. The 3rd-century Trier ware includes a stamped bowl of Paternianus iii. The Rheinabern ware has more 2nd-century bowls than the fort, comprising three of Ianus ii and one each of Cerialis v and Cobnertus iv. The 3rd century is represented by Iulius i and a bowl that may be by Perpetus.

No firm conclusions should be drawn from this small collection, but it contributes useful information about the sources of the decorated samian on Hadrian's Wall.

Potters' stamps

(for the rubric, see the fort report)

1. Do(v)eccus i 11e 31 or 31R [D]OVIICCVS Lezoux.^b
A stamp of one of the latest Lezoux potters to have exported to Britain. His wares are common on Hadrian's Wall and this particular one is known from Wallsend and the fort at Housesteads (H68/6).
79208126
2. Ianus ii 3a 37 I NVF Heiligenberg^a Rheinabern^a (Ludowici 1927, 241).
Ianus ii (Ricken's Janu(arius) i) began work at Heiligenberg and moved to Rheinabern, where his decorated bowls turn up in a group of wasters, in association with some of the earliest plain forms produced there (Rau 1977, 64). However, the complete absence of Rheinabern ware from Scottish forts with normal Antonine occupations suggests that it was not reaching Britain before *c* AD 160. Other stamped bowls of this potter occur at Benwell and Ilkley. *c* AD 160–90.
79208147–50
3. H31 IV E. of furnace, t-1 Iulius viii (= Ricken's Julius i) 5a 37 IVLIVSF retr Rheinabern^a (Ludowici 1927, 242c).
There is no close dating for this potter. Late 2nd to first half of the 3rd century. See No. 23, above, for the decoration.
4. Paternianus iii 1a 37 P TER I_V retr. Trier^a (Dickinson 1986a, 193, 3.138).
Stylistically, the decorated bowls on which this stamp appears are 3rd century, and his use of the same stamp on plain forms such as Lud Sa and 32 etc does not conflict with this. *c* AD 225–50.
79208132

Decorated ware (Fig 15.3)

1. Form 37, Central Gaulish. A freestyle bowl in the style of Attianus ii, with lion (O.1404), leopardess (a larger version of D.793 = O.1537), goat (O.1849A) and snake on

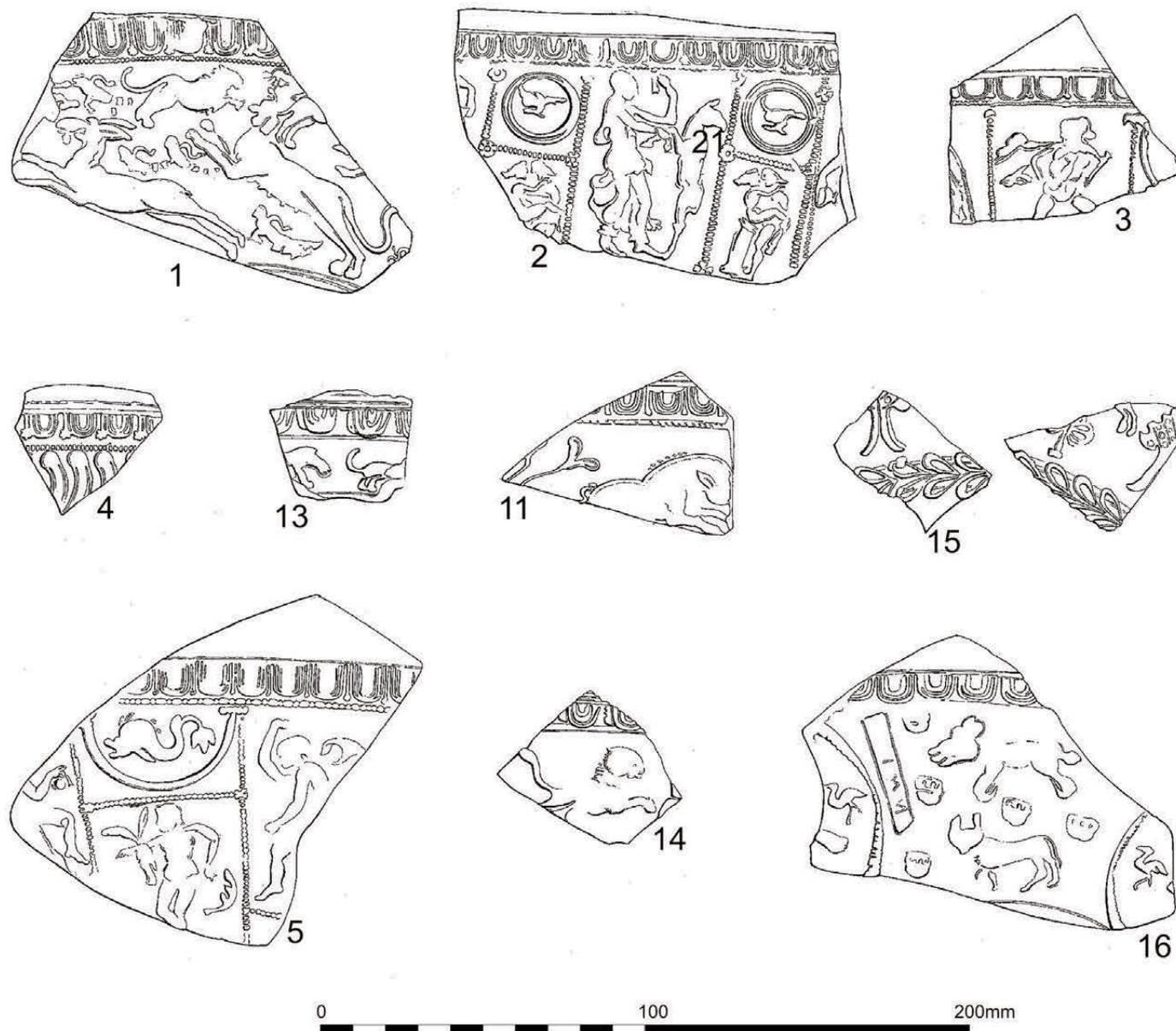


Fig 15.3 Decorated samian from the vicus.

rock (D.960 bis = O.2155). The lion and snake are on a stamped bowl from Verulamium (S & S 1958, pl 86, 12), the leopardess is on a signed bowl from Wroxeter (ibid, 15). All the animals are on a stamped bowl from Segontium and all except the goat are on one from Stanwix (Dickinson forthcoming). *c* AD 125–45. 79208131

2. Four fragments of form 30, Central Gaulish. The trident-tongued ovolo, apparently not paralleled in either Rogers or S & S, and the wavy-line border are on a bowl in the style of Criciro v from Woodperry (Oxon). The Diana and hind (D.64 = O.106) and bird (O.2298) are on a signed bowl in a pit of *c* AD 150 to 160 at Alcester (Hartley *et al* 1994, 116, 278). Both Criciro and Divixtus i used beaded rings as junction-masks and the ones here, though rather blurred, look more like those of Criciro. A much smaller version of the erotic group (Oswald, pl XC, H) was used by Divixtus on a stamped bowl from Aldborough.

The Bacchus (O.566) is not known for either potter. On balance, this bowl is likely to be by Criciro. *c* AD 135–65.

79208152

3. Form 37, Central Gaulish. The ovolo (Rogers B106) was used by members of the Paternus v group, including, very occasionally, Albucius ii. He also used the astragalus borders (Rogers A9), though usually only as vertical divisions. A stamped bowl from Caerleon has the ovolo, borders and, possibly, the single festoon. The warrior (D.114) is on a stamped bowl from Wroxeter (S & S 1958, pl 120, 4). *c* AD 150–80. 79208145
4. Form 37, Central Gaulish. A bowl in a style used by Cinnamus ii at the Terre-Franche kilns at Vichy, with a rosette-tongued ovolo (Rogers B24) and reversed S-shaped gadroons. However, the fabric suggests origin at Lezoux. Mid- to late Antonine. 79208140

5. Form 37, Central Gaulish. A bowl in the style of Lactucissa, with his ring-tongued ovolo (Rogers B105), Cupids to right (D.282 = O.508) and left (D.251 = O.442), dolphin (D.1051 = O.2392), Apollo (D.55 = O.92) and frond (Rogers J162). The bead-rows, Rogers A2 (vertical) and A10 (horizontal) are both known for him. The Apollo and frond are on a stamped bowl from Vichy (S & S 1958, pl 100, 23) and the dolphin is on one from Silchester, but the Cupids have not been noted on his stamped bowls. *c* AD 155–85.
79208130
6. Form 37, Central Gaulish. A panelled bowl in the style of Advocisus, with his larger ovolo (Rogers B103) and a caryatid (D.655 = O.1207). The adjacent panel has a large ring. All the details are on a stamped bowl in the Wroxeter Gutter hoard (Atkinson 1942, pl 33, G1). *c* AD 160–90. (Not illustrated).
79208143
7. Form 37, Central Gaulish. A bowl by Paternus v or an associate, with panels: 1) double medallion with widely spaced borders. 2) Pan (D.411 = O.709). The following panel is divided horizontally. The Pan is one of Paternus's commonest figure-types. Cf S & S 1958, pl 105, 12, from Carrawburgh. *c* AD 160–95. (Not illustrated).
79208143
8. Form 37, Central Gaulish. A bowl in the style of Do(v)eccus i, with his ovolo 2 (S & S 1958, fig 44, 2) and panels: 1) double festoon with hare to left (D.950a = O.2116). 2) Double medallion, with a sea-bull (a smaller variant of D.35 = O.52A). The latter is on a stamped bowl with the same ovolo from Lezoux and on one with the potter's double-D motif, from Colchester (S & S 1958, pl 150, 41). Neither of the figure-types is common in Do(v)eccus's work, but the ovolo is exclusive to him. *c* AD 165–200. (Not illustrated).
79208129
9. Form 37, Central Gaulish, in the style of Do(v)eccus i, with ovolo as last and adjacent panels with double festoons, the second perhaps with a hare to left, as on the previous bowl. *c* AD 165–200. (Not illustrated).
79208129
10. Seven fragments of form 37, East Gaulish, one with a rivet hole. Rheinzabern ware, with mould stamp of Ianus ii (Ricken's Janu(arius) i), ovolo and roped border (Ricken and Fischer 1963, E19 with O242), corded medallion (ibid, K48), leaf-cross (ibid, O31), trifold motif (ibid, P127), beaded rosettes (ibid, O42–3) and mask (ibid, M22). Ricken 1948, Taf 4, 10, has identical decoration, apart from the mask. However, this is on an unstamped bowl with all the other motifs (ibid, 14). *c* AD 160–90. See *Vicus* Stamp 2 for discussion of date. (Not illustrated).
79208147–50
11. Form 37, East Gaulish. A bowl in the style of Ianus ii, with ovolo and roped border as last, bifid motif (Ricken and Fischer 1963, P142) and boar (ibid, T71). The animal is not recorded for Ianus at Rheinzabern, but was used by him at Heiligenberg; cf Knorr 1910, Taf XIV, 15 (Rottenburg). The bifid motif was also used there (Forrer 1911, Taf XXVI, 6). However, the ovolo seems to have been used only at Rheinzabern, and the fabric of this piece is consistent with origin there. *c* AD 160–90.
79208151
12. Form 37, East Gaulish, in the style of Ianus ii, with ovolo and border as last. Panels, separated by the roped border, Ricken and Fischer 1963, O242, contain: 1) a single-bordered medallion (ibid, K10), with ewe to left (ibid, T120). 2) Putto (ibid, M141). 3) Medallion, as before, with goat to right (ibid, T123). The rosettes at the tops of the panel borders are ibid, O41. Stamped bowls from Rheinzabern show the putto and animals (Ricken 1948, Taf 6, 1) and the medallions (ibid, 12). A stamped mould (ibid, Taf 4, 1) has the rosette. All these have the same ovolo and border. *c* AD 160–90. (Not illustrated).
79208140
13. Form 30, East Gaulish. The ovolo, used in Werkstatt II at Trier (Huld-Zetsche 1993, E16) has a faint guide-line below. The tiny lion to right (ibid, T44) is on stamped bowls of Maiiaaus from London (BM) and Valkenburg ZH. The animal behind, a boar to right (ibid, T63), and all the other details are on an unstamped bowl from Trier (ibid, Taf 72, F203). *c* AD 160–200.
79208135
14. Form 37, East Gaulish, with ovolo and guide-line as last. The lion (Huld-Zetsche 1993, T41) was used in Werkstatt II at Trier and appears on the same bowl as the details on the last bowl (ibid, Taf 88, F203). *c* AD 160–200.
79208136
15. Form 37, East Gaulish, from Werkstatt II at Trier, with tree (Huld-Zetsche 1993, O152), leaf (ibid, O129 variant) and wreath of bifid motifs (ibid, O124). For all the motifs except for the leaf, see Taf 74, F121–2 and Taf 75, F126–8, 130. All the bowls have the same ovolo as Nos 13–14, above. *c* AD 160–200.
79208138–9
16. Form 37, East Gaulish, with mould-stamp of Paternianus iii. The decoration includes a tongueless ovolo (Fölzer 1913, Taf XXXII, 954), cow (a smaller version of O.1882), ?dog or perhaps a boar (Fölzer 1913, Taf XXX, 609?), used by Attilus vii and Dubitus/Dubitatus), stork, crowns (Gard 1937, motif 118) and, perhaps, a peacock to left in the first beaded medallion. The cow is probably the same as on a mould of Dubitatus at Trier and the crowns were used there by Perpetus and Primanus v. In spite of the guide-lines below the ovolo and half-way down the main zone, this is an untidy bowl, with the medallions placed at different levels and truncated by the finishing of the zone. See also Stamp 4. *c* AD 225–50.
79208132

Appendix

The following sherds from the *vicus* were seen by the present writer in the old site museum at Housesteads, but are now missing.

17. Form 37, Central Gaulish. A bowl in the style of Cinnamus ii, with his ovolo 4 (Rogers B145) and a scroll with a polygonal leaf (Rogers J86) in the upper concavity. The lower concavity contains a kneeling stag (a larger version of O.1704A) and acanthus (Rogers K12), in a double medallion. *c* AD 150–80.
H32

18. Form 37, Central Gaulish. Scroll decoration, with a vine leaf (Rogers H13), used by Cinnamus ii and associated potters. The astragalus used to bind the scroll suggests the work of Cinnamus himself. *c* AD 150–80. H32
19. Form 37, Central Gaulish. A bowl with Advocisus's smaller ovolo (Rogers B102) and panels with; 1) a (?double) medallion. 2) a figure with a staff (a larger version of D.99 = O.159). *c* AD 160–90. H32 V 8t-1
20. Form 37, East Gaulish. One of the Rheinzabern motto bowls, with the legend [bi]bie etc in the decoration. A bowl of Cerialis v has the same zone of paired ovolos (Ricken and Fischer 1963, E1), dots and streamers below the inscription and a trellis of large, square beads. It also has a mould-signature Lu, retrograde, in the decoration and the mottoes *bibie*, *tribie*, *quadribie* between groups of two, three and four wayside deities (Ludowici 1927, 164). *c* AD 160–90. H31 IV, W of furnace, t-1–2e
21. Form 37, East Gaulish, in the style of Cobnertus iv of Rheinzabern, in Ricken's Style I. Scroll decoration, with ovolo Ricken and Fischer E44, wavy line (ibid, O248) and leaf (ibid, P59). Cobnertus's scrolls are rather untidy and one of the leaf tendrils intrudes into the ovolo zone, as on a stamped bowl from Rheinzabern (Ricken 1948, Taf 21, 5). Cf stamped moulds (ibid, 1–2) for similar scrolls. *c* AD 160–90. H32 VIII, S Side
22. Form 37, East Gaulish. A bowl in the style of Ianus ii (Ricken's Janu(arius) I), probably with ovolo Ricken and Fischer E19 and roped border (ibid, O242). The decoration includes a bird (ibid, T252) and a warrior (ibid, M211), all known to have been used by him. *c* AD 160–90.
23. Form 37, East Gaulish, with a mould-stamp of Iulius I in the decoration (see *Vicus* Stamp 3, above). The ovolo (Ricken-Fischer 1963, E42), astragalus (ibid, O111) and divider are on No. 22 from the fort. The *vicus* bowl also has a double medallion (ibid, K20). *c* AD 200–50. H31 IV, E of furnace, t-1
24. Form 37, East Gaulish, with the same ovolo as the last, triple poppy heads and a figure, perhaps the Hercules (Ricken and Fischer 1963, M84), in a single medallion or arcade. Perpetus used the figure at Rheinzabern (Ricken 1948, Taf 237, 7) and he is known to have used the ovolo. The bowl is tentatively attributed to him. *c* AD 200–50. H32 III

16 The coarseware

John N Dore

Introduction

Method

The assemblage that forms the subject of this study totals some 17,000 sherds and represents all the material that was recovered from the excavations. Every sherd from every context was examined. Examination, analysis and reporting was carried out as a three-stage process.

Stage 1

The assemblage was examined in context order. From each context grouping all rim sherds and any other sherds considered significant were extracted. These were grouped, in the first instance according to identifiable vessels, and each sherd or sherd-group was marked with a unique code (known as the Featured Vessel number, abbreviated to FVN). Rim percentages were recorded for all rims. A database was established (originally in dBASE II – *see below*) in which the mapping between context and FVN was recorded.

Stage 2

The featured material was laid out and typed according to form, and within each form according to fabric. Codes were allocated to the forms and fabrics defined. One example of each type was drawn. A database was established in which the mapping between FVN and form codes, and the fabric information was recorded.

Stage 3

A third database was created into which information on dating derived from established current typologies and chronologies was input for each type. The three databases were linked and processed to produce the final full catalogue, which was transferred into Microsoft Word for text addition and editing.

Timescale

Stages 1 and 2 were completed for most of the assemblage during 1988 and 1989, though a small amount of additional material was discovered and processed in 1996 and added to the database. Stage 3 was carried out between 1996 and 2000.

Drawings

The origination of the majority of the drawings was carried out by the author. Drawings of the beakers were originated and inked by Tony Liddell, and drawings of a number of the jars were originated by Richard Bayliss.

At one stage it was planned to generate the final drawings in AutoCAD, and to this end many of the sections of the pencil originals were digitised by Louisa Ward. In the end it was realised that the AutoCAD generation would be extremely time-consuming and an alternative method was used to produce the final illustrations. The pencil originals were traced and inked in outline, at full size. These inked outlines were scanned as line-art at 300 dpi, orientated, cleaned and finished, then finally pasted up and numbered at 1:4 on A4 page templates. In some cases more than one drawing of a type was made to indicate variations within one overall form. In these cases a letter rather than a number has been appended to the form code on the appropriate figure, eg BO 39B.

Databases

Data were initially entered into dBASE II and were subsequently transformed into dBASE III+ and processed on a succession of laptops. The data were translated into Access in 1999 and final editing then took place.

The format of the report

The coarseware is presented as an ordered type-series. This seemed to be the most logical and consistent approach, since the site stratigraphy was too fragmented with ‘floating’ sequences of contexts with little reliable lateral linkage to allow presentation by stratified context.

The main catalogue is organised by pottery type. The definition of each type is largely formal. Types have been grouped into classes (bowls, jars etc) and within each class into meaningful sub-classes (eg lid-seated jars, jars in BB1, etc). Each type is identified by a code which was originally allocated during stage 2 processing and has been maintained through to the report in order to achieve consistency. The full code has three parts, though the last part is seldom used.

1. A mnemonic alphabetic code: JA for jar, BO for bowl, etc
2. A three-figure numeric code in the range 000–999
3. A two-figure numeric code in the range 00–99. This is not always used.

A decimal point separates the two parts of the numeric code in cases where both parts are used. Thus a full code might be JA 037.02. The second part of the numeric code was provided to allow, during typing, subdivision or addition of types, though its use need not imply any kind of nested, hierarchical relationship.

A code should be regarded simply as an identifier, and some codes were either not assigned to a form or were deleted during the course of the report's preparation.

The occurrence of coarseware types in the site stratigraphy is presented in two places. Lists of the types occurring in particular contexts or groups of contexts are presented in the dating sections of the main structural report. Lists of all the contexts in which a particular coarseware type occurs are presented following the catalogue. The form types have been grouped together into a number of blocks on the basis of common formal characteristics – eg Block 2 represents all the early bowls in non-BB fabrics. Each block is represented by a drawing of a characteristic form and Table 16.2 shows all the forms included in each block together with all the contexts in which they occur.

Catalogue

Bowls and dishes (Figs 16.1–16.9)

Wide-mouth jars or bowls (Fig 16.1)

Two groups:

- 1) Fabric allied to BB2 (Bidwell and Speak 1994, 230 – Necked Bowls (South Shields), Monaghan 1987 Type 4A – S-profile bowls). *c* AD 220+.
- 2) Grey fabrics. Given the East Yorkshire industry's domination of the north from *c* AD 270, these are likely to be from either Crambeck (Corder 1928; 1937; Wilson 1989) or Throlam (Corder 1932; Hicks and Wilson 1975; Halkon 1983).

Group 1

Type	Total	Eve	Fabric
BO 2	5	107	Grey or orange-brown, often a core in a contrasting shade of grey; darker grey surface, sometimes smoothed; inclusions: up to 0.5mm, quartz and red and black iron-rich grains.

Group 2

BO 1	2	20	Pale grey with thick black core and dark grey surface; inclusions: up to 0.5mm, quartz and black iron-rich grains.
BO 3	3	56	Pale grey with darker core and mid- or dark grey surface; inclusions: up to 1.0mm, quartz and black iron-rich grains.
BO 4	2	16	Grey or grey-brown, pale grey surface; inclusions: up to 1.0mm, sometimes sparse, quartz and black iron-rich grains.
BO 5	6	72	Pale grey with thick, darker grey core, burnished surface; inclusions: average 0.1–0.2mm, max up to 0.5mm, mostly quartz.
BO 6	1	12	Mid-blue-grey, smooth dark grey surface; inclusions: up to 1.0mm, quartz, iron-rich grains and limestone.
BO 7	4	64	Mid-blue-grey, with darker grey or orange-brown core and smooth dark grey surface; inclusions: up to 0.3mm, sparse, quartz and black iron-rich grains.

BO 8	1	7	Mid-grey; inclusions: quartz, up to 0.5mm.
BO 9	1		Pale grey with dark grey surface; inclusions: up to 0.5mm, mostly quartz.
BO 10	2	81	Pale grey with thick black core; smooth micaceous black surface; inclusions: up to 0.5mm, sparse, mostly quartz.
BO 11	1	62	Mid-grey, grey-brown core, dark grey surface; inclusions: up to 0.5mm, mostly quartz.
BO 12	3	26	Grey; inclusions: up to 0.5mm, quartz.
BO 13	10	162	Body colour can be any shade of grey from pale to mid-, and occasionally orange-brown, sometimes with a core in a contrasting shade of grey. Surface is smooth dark grey or black, sometimes micaceous. Inclusions: up to 0.5mm, mostly quartz, some black iron-rich grains.
BO 14	1	32	Pale grey, smooth micaceous black surface; inclusions: up to 0.5mm, mostly quartz.
BO 15	1	33	Mid-grey; inclusions: up to 0.5mm, quartz and iron-rich grains.
BO 16	1	11	Off-white, dark grey or black surface; inclusions: average up to 0.5mm, max up to 1.0mm, mostly quartz, some red iron-rich grains.
BO 17	1	14	Dull mid-brown, dark grey core, dark grey surface; inclusions: up to 0.5mm, sometimes sparse, mostly quartz.

Early bowls with flange rims

(Figs 16.1, 16.7 and 16.9)

BO 148	1	15	Carinated or hemispherical bowl with reeded flange rim. Very pale pinkish-brown, pale yellow core, micaceous surface; inclusions: ≤ 0.1 mm, quartz, red iron-rich grains, gold mica, up to 2.0mm, quartz and red iron-rich grains. Similar vessels known from Vindolanda (Hird 1977, eg no. 72) and Corbridge (unpublished). Probably locally produced. Late 1st century. (Fig 16.9)
BO 127	1	15	The precise combination of features and decoration cannot be closely paralleled, but the rim could be regarded as a variant of the distinctive rim type known on carinated bowls from Corbridge (eg Bishop and Dore 1988, fig 118, no. 70, now thought to have been produced at Corbridge). Pale brown; inclusions: up to 0.5mm, mostly quartz. Late 1st to early 2nd century. (Fig 16.7)
BO 18	1	35	One model of morphological development of the carinated bowl with reeded rim from the late 1st to the early 2nd century would place this vessel towards the end of that range at the point where flat-rim bowls in BB1 are making an appearance, ie somewhere in the first half of the 2nd century AD. However, hemispherical and carinated bowls with

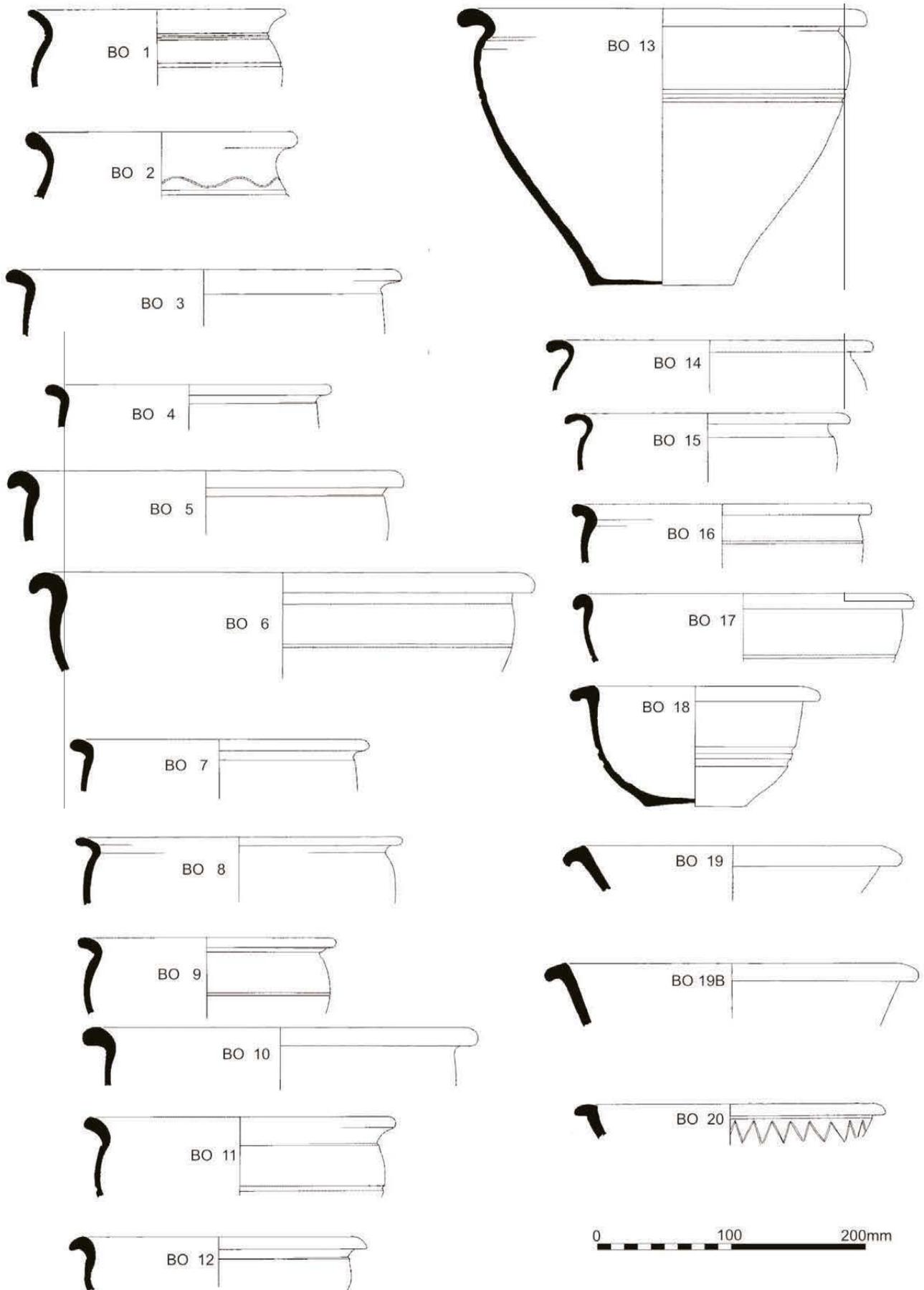


Fig 16.1 Coarseware: the bowls and dishes (scale 1:4).

plain rather than reeded or grooved flange rims do occur in Flavian (and pre-Flavian) contexts so the model is far from proved. Gritty mid-grey; inclusions: up to 0.5mm, mostly quartz. Late 1st to early 2nd century. (Fig 16.1)

Flat-rim bowls and dishes (Figs 16.1–16.2)

Two groups:

- 1) Non-BB1
- 2) BB1 (dating from Gillam 1976)

Group 1

BO 19	4	45	Grey or grey-brown, occasionally with core in a contrasting shade of grey, dark grey or black surface; inclusions: average up to 0.5mm, max up to 1.0mm, mostly quartz, some black iron-rich grains. Mid- to late 2nd century.
BO 21	2	57	Grey, occasionally with darker core; smooth dark grey or black surface; inclusions: up to 1.0mm, occasionally sparse, mostly quartz, some black iron-rich grains. Mid- to late 2nd century.
BO 24	1	8	Mid grey-brown; inclusions: average up to 0.2mm, max up to 1.0mm, quartz and black iron-rich grains. Mid- to late 2nd century.
BO 28	1	8	Very pale yellowish-white; orange-brown colour coat; inclusions: <=0.1mm, max up to 1.0mm, quartz and red iron-rich grains. Late 2nd to 3rd century?
BO 29	11	204	Pale or mid-grey, dark grey surface, sometimes smoothed; inclusions: 0.2–0.5mm, quartz. Mid- to late 2nd century.

Group 2

BO 20	1	12	Mid-2nd century.
BO 22	1	16	Early to mid-2nd century.
BO 23	16	144	Early to mid-2nd century.
BO 25	7	126	Mid- to late 2nd century.
BO 26	2	18	Mid- to late 2nd century.
BO 27	8	65	Mid- to late 2nd century.

Bowls and dishes in BB2 (Figs 16.2–16.3, 16.5)

Despite a recent study of the source area of BB2 (Monaghan 1987) and the initiation of publication of the excavations at South Shields, a site of crucial importance for the study of the ware in the north (Bidwell and Speak 1994), little progress has been made in sourcing the BB2 found in the north to the known production centres in the south-east. The principal problem is that of rationalising the disparities in the fabric series of production and market areas, and at present this is proving intractable.

The sample of bowls and dishes from Housesteads is not really large enough to facilitate intensive analysis, but one grouping may be tentatively advanced as a distinguishable fabric.

Fabric 1

This seems to be characterised particularly by a smooth, deep black surface which is quite often micaceous. In the majority of examples (63%) the body colour is some shade of red, orange or brown (rather than grey) with a dark grey or black core. Quartz dominates the inclusions with iron-rich grains also present. The inclusions are generally well sorted, ranging from 0.1–0.5mm in diameter.

Of the four BB2 (and allied) fabrics defined for the National Fabric Reference Collection, the description of Fabric 1 most closely matches that of Cooling BB2 (COO BB 2).

The numbers of vessels occurring in Fabric 1 and Other fabrics is given below for each type. Types BO 35, 36, 91 and 92 occur exclusively in Fabric 1 (though it should be pointed out that only the numbers of BO 36 and 91 approach the threshold of significance and that just barely).

As far as dating is concerned, the scheme proposed by Gillam still serves and is used below, though closer examination of the evidence throws up disquieting elements. The principal chronological indicator, in bowls and dishes having rims forming a projecting flange or bead, is seen as being a transition from rims whose sectional profile is triangular or beaked to those having a much more rounded sectional profile. The types considered early (triangular or beaked) are found in quantity on sites on the Antonine Wall. The types considered later (rounded) are almost entirely absent from the Antonine Wall and from two other deposits that are usually dated subsequent to the abandonment of the Antonine Wall, the Corbridge destruction deposit and the filling of the Vallum ditch at Benwell. They then occur in the level over the sealing of the Vallum ditch filling, at Carpow, and in contexts that should date to the closing years of the 2nd century or the early years of the 3rd at Vindolanda and at South Shields.

The problem is that, as can be seen in Table 16.1, the rounded-rim types are not *completely* absent from the Antonine Wall or the Corbridge Destruction deposit, and these two occurrences, though negligible when compared to the quantities of the triangular/beaked-rim types that occur in these two deposits, are **not** negligible when considered as a proportion of the total number of examples of the rounded-rim types known from stratified deposits (approaching 25%).

Thus, while it is perfectly possible that Gillam's model of a rounded-rim type that arrives in the north in the 160s if not the 180s is correct, the evidence from dated deposits does not rule out an alternative model in which the rounded-rim type initially arrives in the north no later than the triangular/beaked-rim type, the massive proportional imbalance between the two types in Antonine deposits (many triangular/beaked to very, very few rounded) being due to factors related to supply and distribution rather than chronology.

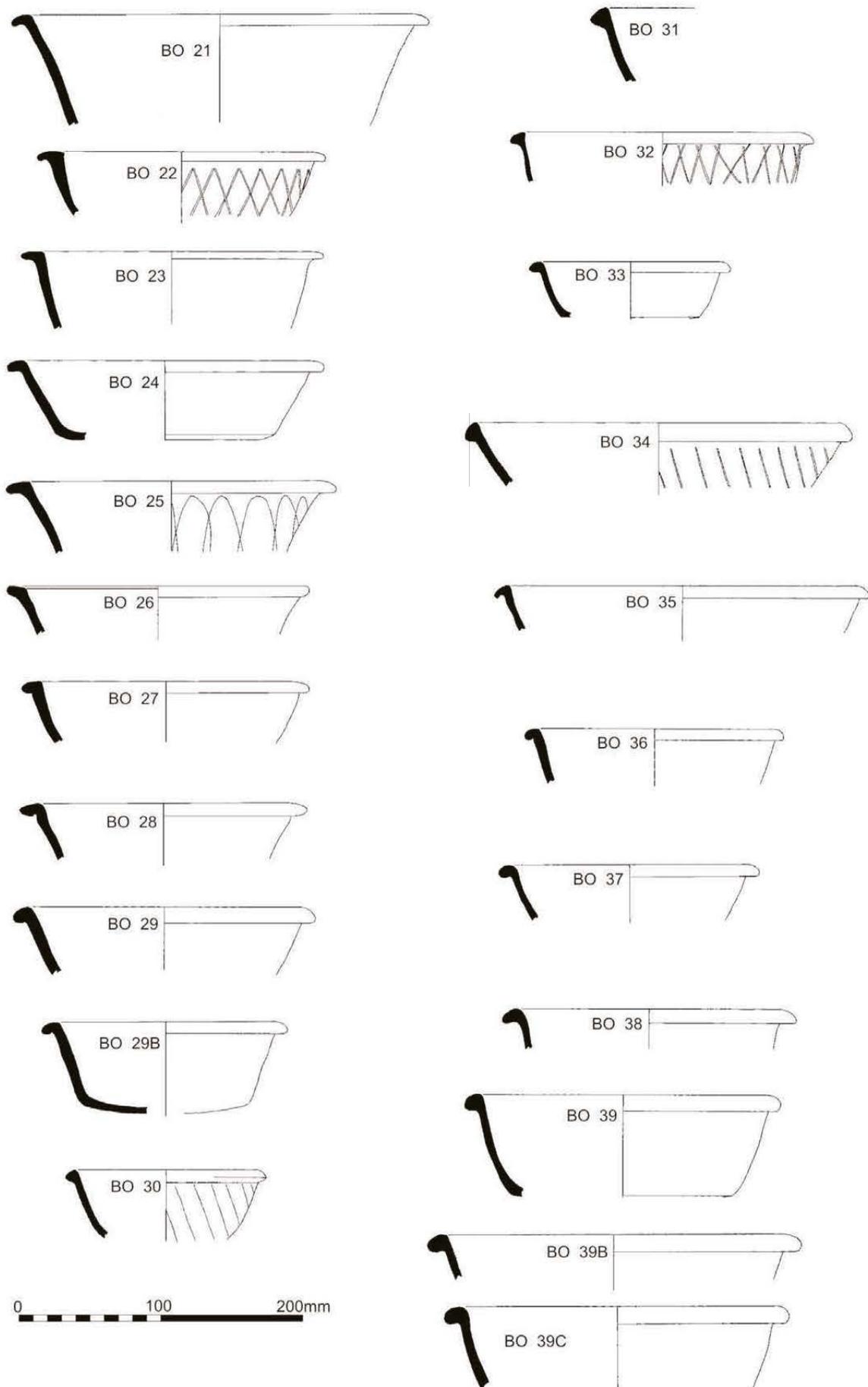


Fig 16.2 Coarseware: the bowls and dishes (scale 1:4).

Table 16.1 Occurrence of rounded-rim BB2 types in deposits from the northern frontier

site deposit	no.	reference
Mumrills	1	MacDonald and Curle 1929, fig 101, no. 24
Corbridge destruction deposit	1	Richmond and Gillam 1950, fig 10, no. 82, but not (<i>contra</i> Bidwell and Speak 1994, 227) Forster and Knowles 1912, fig 6, no. 81 which is from a deposit on Site 30 that contains some manifestly much later pieces – an east Yorkshire grey ware flanged bowl and a Huntcliff-type cooking pot
Benwell Vallum ditch filling	0	Swinbank 1955
Benwell occupation over sealed ditch fill	2	Swinbank 1955, fig 2, nos 17 and 20; decorated samian gives a <i>TPQ</i> of <i>c</i> AD 180
Carpow	3	Birley 1963, and the subsequent excavations of Leach and Wilkes (Dore and Wilkes 1999)
Vindolanda Period 1b	1	Bidwell 1985, fig 66, no. 9; <i>TPQ</i> from samian of <i>c</i> AD 165.
South Shields Period 4c	1	Bidwell and Speak 1994, fig 8.8, no. 26; context should be late 2nd century immediately prior to building of early 3rd-century fort 5.

BO 30	2	39	Fabric 1: 0; AD 140+	hard mid-grey, micaceous surface; inclusions: up to 0.5mm, quartz, black vitreous grains, black iron-rich grains, mica. Remainder: BB1
BO 31	1	5	Fabric 1: 0; AD 140+	
BO 32	4	46	Fabric 1: 0; AD 140+	
BO 33	1	13	Fabric 1: 0; AD 140+	
BO 34	1	43	Fabric 1: 0; AD 140+	
BO 35	5	74	Fabric 1: 1; AD 140+	
BO 36	6	55	Fabric 1: 5; AD 140+	
BO 42	35	379	Fabric 1: 13; AD 140+	
BO 43	1	30	Fabric 1: 0; AD 140+	
BO 37	11	100	Fabric 1: 0; AD 160+?	
BO 38	1	15	Fabric 1: 1; AD 140+?	
BO 44	8	149	Fabric 1: 1; AD 160+	
BO 39	24	375	Fabric 1: 15; AD 160+	
BO 40	15	274	Fabric 1: 3; AD 160+	
BO 41	4	86	Fabric 1: 0; AD 160+	
BO 91	18	188	Fabric 1: 5; AD 140+ (Fig 16.5)	
BO 92	2	35	Fabric 1: 2; AD 140+ (Fig 16.5)	

Miscellaneous

BO 45	3	69	Mid-blue-grey, burnished dark grey surface; inclusions: up to 0.5mm, mostly rounded quartz, a few black iron-rich grains.
BO 46	1	22	Mid-blue-grey, smooth dark grey surface; inclusions: sparse quartz, 0.1–0.2mm.

Bowls with flat, grooved rims in BB1 (Fig 16.3)

The type occurs at Carpow whose occupation is thought to be confined within the first quarter of the 3rd century AD. Gillam (1976, 70) regarded the type as part of a formal development leading to the truncated conical bowls with bead and flange rims. Holbrook and Bidwell (1991, 98) have advanced a convincing case against this.

BO 50	20	598	BB1
BO 51	4	40	BB1
BO 52	5	36	BB1
BO 53	1	13	BB1
BO 54	6	87	BB1
BO 55	1	9	BB1
BO 56	12	307	FV 582: pale grey with dark grey micaceous surface; inclusions: <=0.1mm, max 0.5mm, limestone, quartz and red iron-rich grains. (?Crambeck); FV 1583:

Bowls of truncated conical form with bead and flange rims (Figs 16.3–16.5)

Holbrook and Bidwell (1991, 99) place the general appearance of this type in BB1 *c* AD 270, but suggest that there is a distinct possibility that its origin may have been up to a quarter of a century earlier. Gillam (1976, 72) dated its emergence to the late 3rd century.

The appearance of the type in Crambeck grey ware seems to have occurred in the 270s or early 280s (Evans 1989, 79). The appearance of a single or double burnished wavy line on the upper inside wall of the vessels can be dated to *c* AD 360 (Corder 1937, 409; Evans 1989, 79).

Three fabrics:

- 1) Crambeck: pale or very pale grey, smooth dark grey surface; inclusions: average 0.1–0.2mm, max 0.5mm, quartz, black iron-rich grains and mica
- 2) Other east Yorkshire
- 3) BB1

BO 57	26	403	FVs 206, 327, 407, 497, 760, 1414, 1515: mid- or dark grey, smooth micaceous surface; inclusions: up to 1.0mm, quartz and black iron-rich grains. Remainder: Crambeck; internal burnished wavy line on FV 66.
BO 58	2	57	Crambeck.
BO 59	10	190	FVs 284, 669: dark grey, smooth surface; inclusions: average 0.2–0.5mm, max up to 1.0mm, quartz, black iron-rich grains, mica. (?Throlam); remainder Crambeck).
BO 60	5	86	Crambeck; faint internal burnished wavy line on FV 867.
BO 61	4	69	Crambeck; internal burnished wavy line on FV 56.

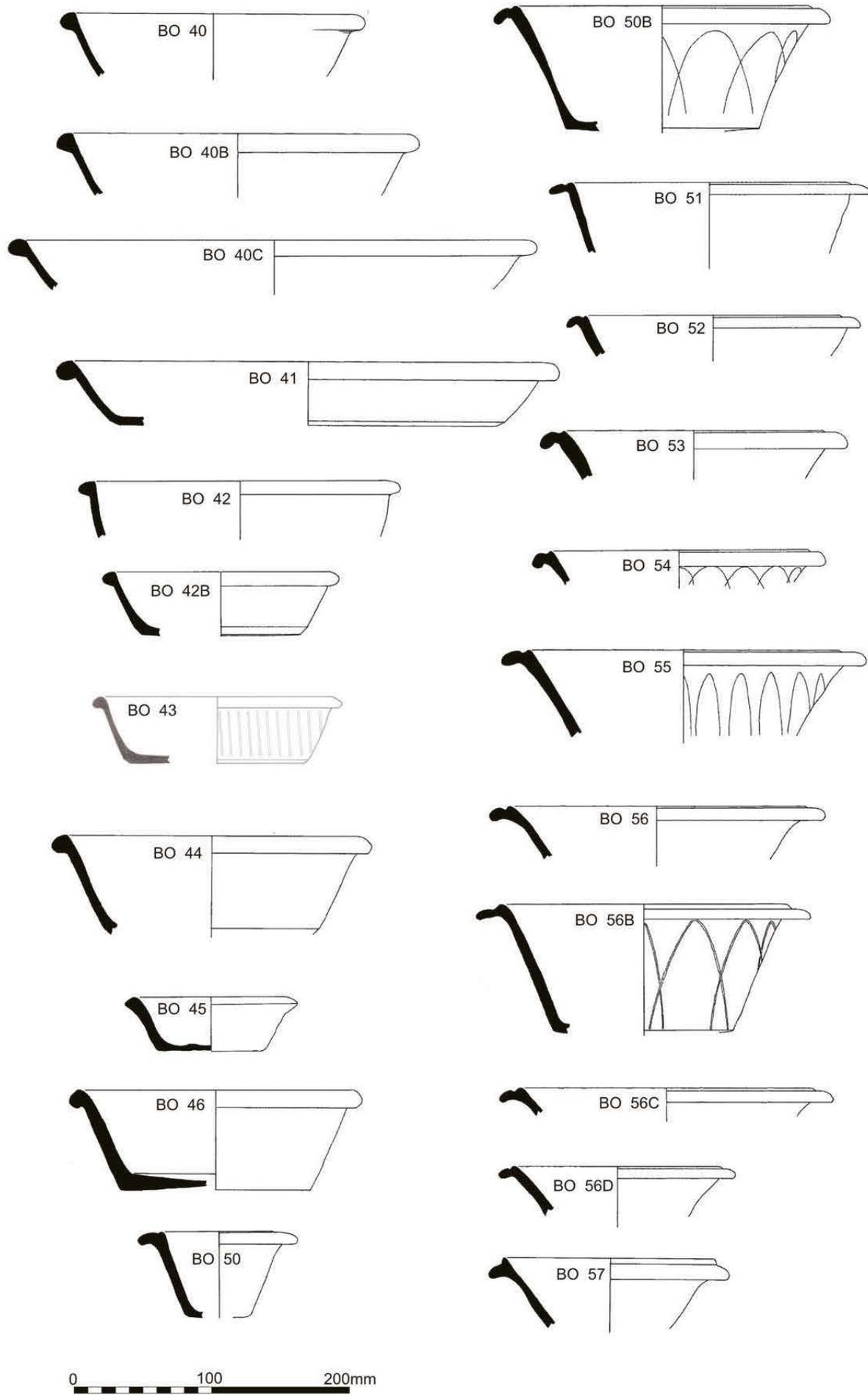


Fig 16.3 Coarseware: the bowls and dishes (scale 1:4).

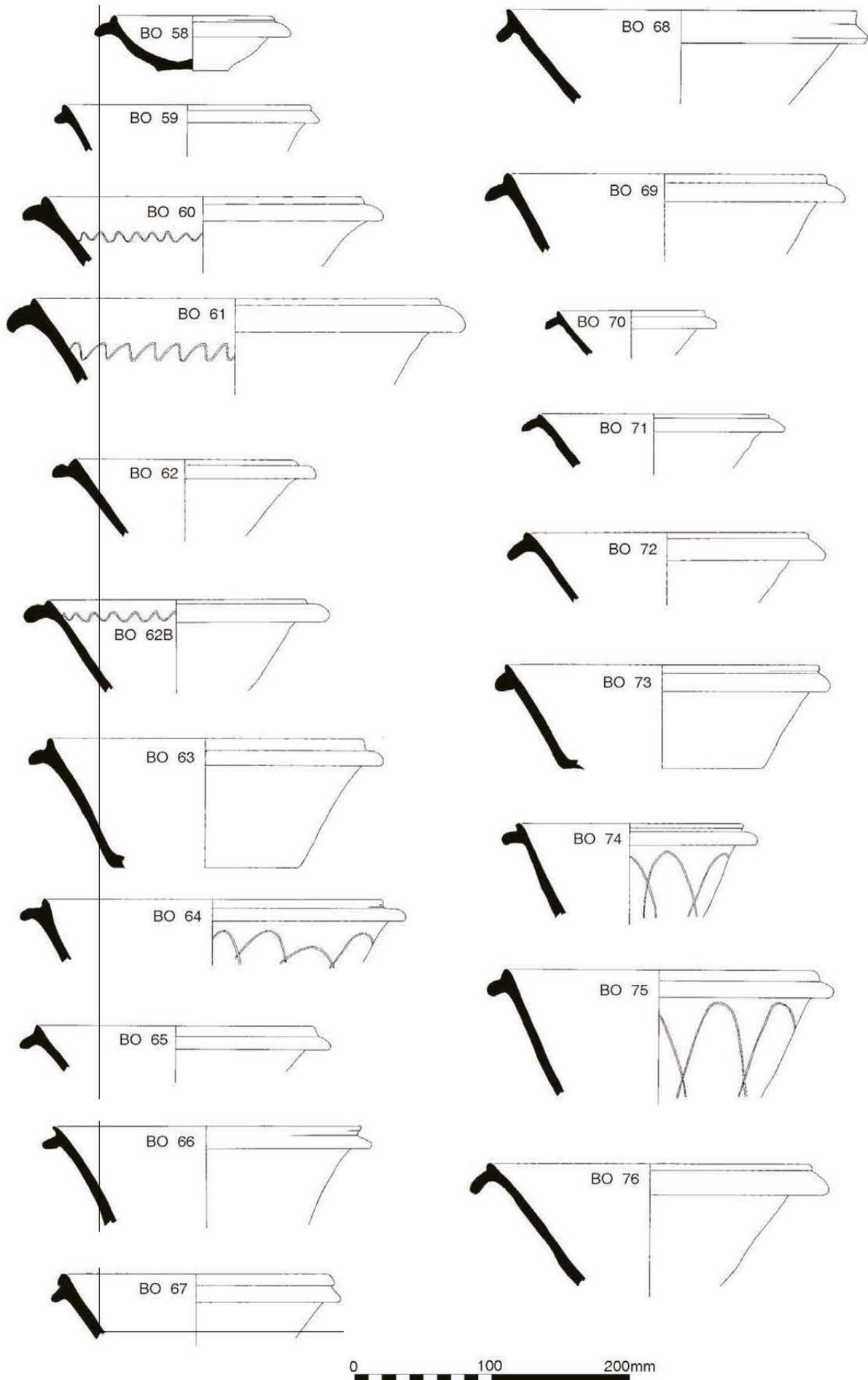


Fig 16.4 Coarseware: the bowls and dishes (scale 1:4).

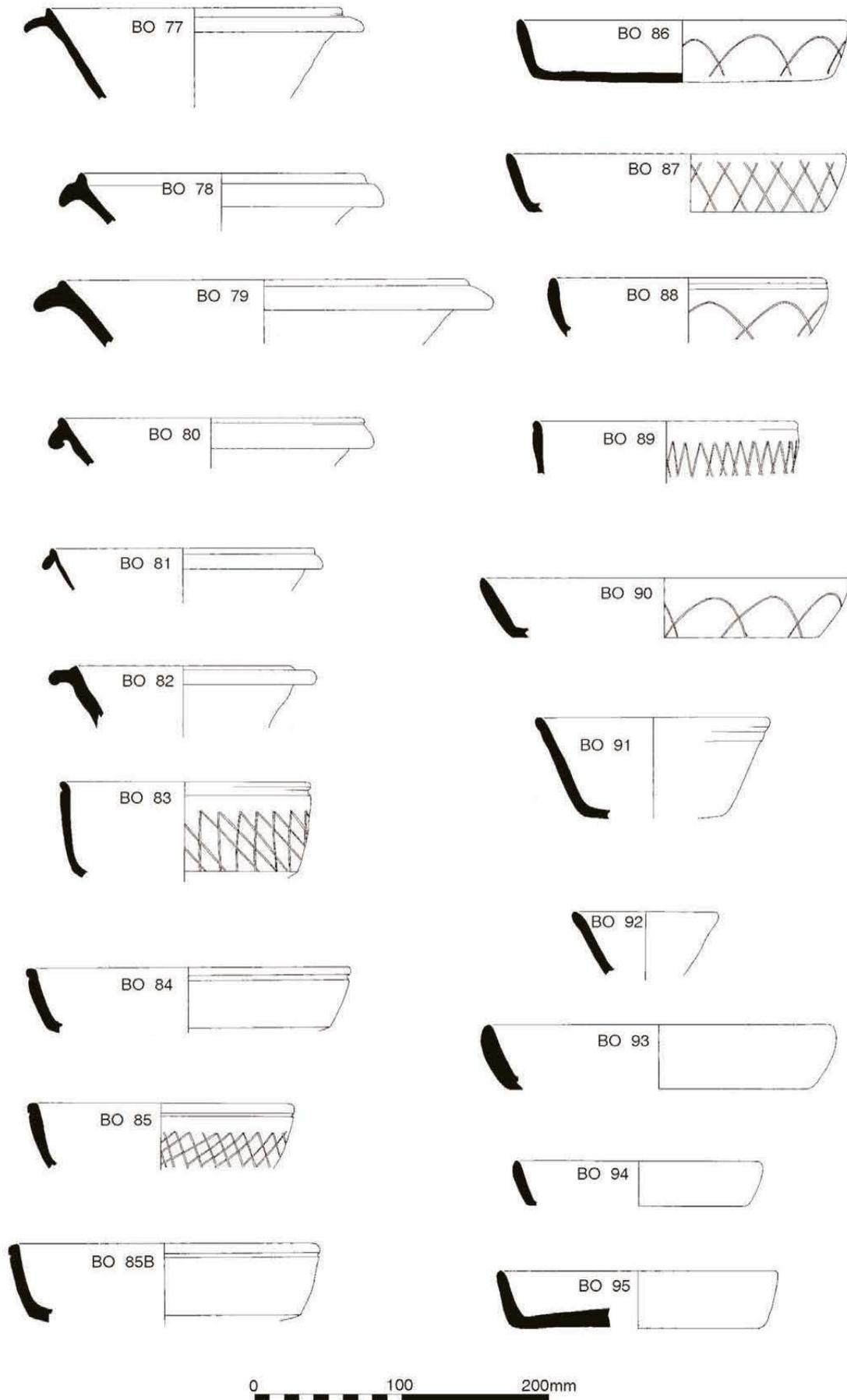


Fig 16.5 Coarseware: the bowls and dishes (scale 1:4).

BO 62	12	278	FVs 409, 1209, 1332: dark grey, smooth micaceous surface; inclusions: mostly quartz, some black iron-rich grains. (?Throlam); remainder Crambeck; internal burnished wavy lines on FV 759 418 1332.
BO 63	17	237	BB1.
BO 64	11	190	BB1.
BO 65	8	109	FV 117, 1007, 2406: Crambeck; FV 923: BB1; FV 149: gritty pale grey, dark grey core; inclusions: sparse, 0.5–1.0mm, quartz and rock fragments; FV 222, 480: orange-brown/grey-brown, smooth black surface; inclusions: 0.1–0.2mm, max 1.0mm, quartz and black iron-rich grains; FV 783: pale brown, dark grey surface, inclusions: 0.1–0.2mm, max 0.5mm, mostly quartz.
BO 66	2	29	FV 2090: Crambeck; FV 576: dull red-brown, pale grey core, black surface; inclusions: up to 0.5mm, quartz and black iron-rich grains.
BO 67	2	47	BB1.
BO 68	2	75	Crambeck.
BO 69	4	23	FV 1060: Crambeck; remainder: BB1.
BO 70	8	140	FV 282, 285, 618: mid-grey, dark grey surface; inclusions: up to 0.5mm, max up to 1.0mm, quartz and black iron-rich grains. FV 541: black, smooth surface; inclusions: 0.1–0.2mm, quartz and limestone. FV 543, 544, 1663, 1680: Crambeck.
BO 71	16	311	Crambeck.
BO 72	3	50	Crambeck.
BO 73	10	155	Crambeck.
BO 74	4	104	FV 2073: Crambeck; remainder: BB1.
BO 75	4	81	BB1.
BO 76	1	47	?Crambeck: orange-red with pale grey-brown surface; inclusions: ≤ 0.1 mm, max up to 0.5mm, quartz, black iron-rich grains, limestone.
BO 77	3	53	Crambeck.
BO 78	1	15	Orange-yellow with very pale grey core, orange-brown colour-coated surface; inclusions: average ≤ 0.1 mm, max up to 0.5mm, quartz and red iron-rich grains.
BO 79	1	33	Orange-yellow; inclusions: average ≤ 0.1 mm, max up to 0.2mm, quartz, red iron-rich grains and limestone.
BO 80	2	21	Mid-grey, dark grey surface; inclusions: up to 1.0mm, rounded quartz and black iron-rich grains.
BO 81	1	28	Off-white, pink surface; inclusions: 0.1–0.2mm, mostly quartz.
BO 82	1	8	Mid-grey, black surface; inclusions: up to 1.0mm, quartz, iron-rich grains, limestone and voids.

Dishes with bead-rims in BB1 (Fig 16.5)

Dating is taken from Gillam (1976, 74)

BO 83	3	36	Early 3rd century.
BO 84	2	43	Late 2nd century.
BO 85	12	131	Early 3rd century.

Plain-rim dishes in BB1 (Fig 16.5)

Dating is taken from Gillam (1976, 77).

BO 86	116	1543	With intersecting arc decoration where it can be discerned. Late 2nd century+
BO 87	2	67	With cross-hatched decoration. Mid- to late 2nd century.
BO 88	5	73	With slight ledge or groove at lip. Late 2nd century+
BO 89	1	8	Early to mid-2nd century.
BO 90	8	65	Late 3rd century.

Plain-rim dishes in Crambeck fabric

(Figs 16.5–16.6)

Date of emergence *c* AD 270

BO 93	11	145
BO 94	17	195
BO 95	1	5
BO 96	10	107
BO 97	4	34

Miscellaneous dishes (Fig 16.6)

BO 98	5	43	Quite thin walled and finely made. Splayed wall and inturned lip. Pale grey with darker core and smooth black micaceous surface; inclusions: ≤ 0.1 mm, max up to 0.5mm, mostly quartz, some black iron-rich grains.
BO 99	1	15	Pale orange, black surface pitted with voids; inclusions: average up to 0.5mm, max up to 2.0mm, quartz, black iron-rich grains, limestone, voids. ?Originally calcite gritted.
BO 100	3	22	Hand-made. Dark grey, black surface pitted with voids; inclusions: 0.1–0.2mm: quartz, black iron-rich grains, clay pellets; up to 2.0mm: voids. ?Originally calcite gritted.
BO 101	1	10	Hand-made. Dark grey, black surface; inclusions: up to 0.5mm: quartz; up to 2.0mm: angular calcite and voids.
BO 102	1	45	Hand-made. Black; inclusions: up to 0.5mm: quartz; up to 2.0mm: calcite and voids.
BO 103	1	8	Hand-made. Mid-grey, yellowish-brown surface; inclusions: up to 0.5mm: quartz, black iron-rich grains, black vitreous grains; up to 2.0mm: calcite and voids.
BO 104	1	10	?Crambeck.
BO 105	1	59	Grey-brown, dark grey surface; inclusions: average up to 0.5mm, max up to 1.0mm, quartz and black iron-rich grains.
BO 106	1	10	Very pale yellow; inclusions: sparse, ≤ 0.1 mm, max up to 1.0mm, quartz and iron-rich grains.
BO 107	1	7	Pale brown, pale orange-brown core, patchy mid-orange-brown; inclusions: up to 0.5mm, quartz and red iron-rich grains.
BO 108	1	15	Pale brown, pale orange-brown core, black surface; inclusions: ≤ 0.1 mm, max up to 0.5mm, quartz and black iron-rich grains.

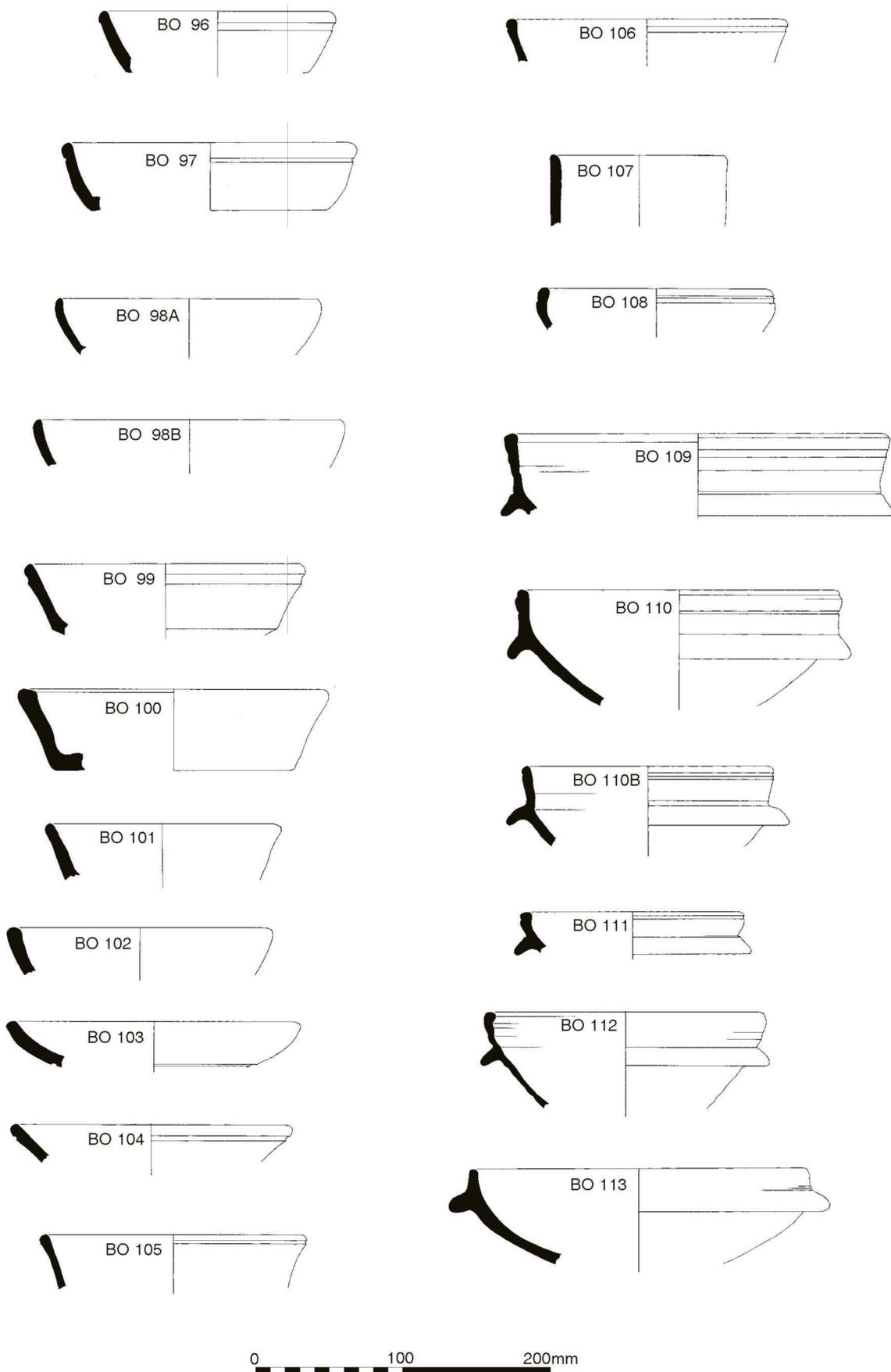


Fig 16.6 Coarseware: the bowls and dishes (scale 1:4).

Bowls with flanges set well below the rim

(Figs 16.6–16.7)

The date of neither of the Crambeck fabrics is clear. The grey ware bowls could well emerge at the same time as the other grey ware types, ie *c* AD 270.

BO 109	1	40	Crambeck grey ware.
BO 110	4	74	Crambeck grey ware.
BO 111	3	34	Crambeck grey ware.
BO 112	1	20	Crambeck: the oxidised fabric that is much less frequently encountered than the grey and parchment fabrics: orange-red, burnished surface; inclusions: sparse, up to 0.5mm, quartz, iron-rich grains, up to 2.0mm, clay pellets.
BO 113	1	60	Pale orange-yellow, mid-grey core; inclusions: up to 0.5mm, max up to 1.0mm, quartz, red iron-rich grains, black vitreous grains.
BO 114	1	10	Orange-red, pale orange core; inclusions: up to 1.0mm, mostly quartz, occasional iron-rich grains and limestone. Possibly Crambeck.
BO 115	1	40	Orange-yellow, pale brown core, burnished surface; inclusions: average up to 1.0mm, max up to 2.0mm, quartz and rock fragments.
BO 116	1	32	Orange-red, pale orange core, smooth surface; inclusions: average up to 0.5mm, max up to 1.0mm, mostly quartz some red iron-rich grains. Possibly Crambeck.

Crambeck Parchment Ware (Figs 16.7 and 16.9)

The fabric is hard, cream or cream-yellow, sometimes with a slip of the same colour or very slightly yellower applied to parts of the external surface; there is decoration of red-brown paint on external and/or internal surfaces. The fracture is smooth, the feel rough. Surfaces are wiped and burnished if slipped.

The inclusions are generally well sorted and fine (average size not exceeding 0.2mm). Quartz, silver mica and rounded red or orange iron-rich grains are present. Quartz is common or abundant, mica is common, iron-rich grains are common or sparse.

On mortaria the trituration grits are abundant, well-sorted slag, *c* 2.0–3.0mm.

The Parchment Ware types emerged *c* AD 360–70 (Corder 1937, 409; Evans 1989, 79).

The forms below have been identified as Crambeck Parchment Ware, largely on the basis of the body colour and fabric texture of the vessels. Only a small number of examples show any traces of painted decoration, which is the principal defining criterion of the fabric.

Bowls with flange set well below the rim, in Crambeck Parchment Ware

BO 117	7	98	Painted decoration on FV 864.
BO 118	9	47	
BO 119	2	23	Traces of paint on upper wall of FV 1684.
BO 120	2	8	Traces of paint on upper wall of FV 1025.

Wall-sided bowls (or mortaria) in Crambeck Parchment Ware

Most, if not all, of these vessels are likely to have been mortaria but insufficient of the wall survives to show the grits.

BO 121	1	49	Painted decoration on FVs 841 and 861 (same vessel).
BO 122	6	47	
BO 123	1	7	
BO 124	4	71	Painted decoration on FV 924 and 977.
BO 125	4	120	Painted decoration on FV 862.

Dish with thickened rim in Crambeck Parchment Ware (Fig 16.9)

BO 151	1	15	Painted decoration on FV 2017.
BO 153	1	5	

Bowls (or mortaria) with bifid-moulded face in Crambeck Parchment Ware

Most, if not all, of these vessels would have been mortaria but insufficient of the wall survives to show the grits.

BO 126	5	58	
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Miscellaneous bowls and dishes (Figs 16.7–16.9)

BO 128	1	25	Dull orange-brown, dark grey core; inclusions: up to 0.5mm, quartz and black iron-rich grains, up to 2.0mm, grains of quartz sandstone.
BO 129	1	60	Mid-grey, dark grey micaceous surface; inclusions: average up to 1.0mm, max up to 2.0mm, mostly quartz.
BO 130	1	27	Dark grey, pale grey surface; inclusions: up to 0.5mm, mostly quartz.
BO 131	1	20	Orange-brown with thick dark grey core; inclusions: average up to 0.5mm, max up to 1.0mm, quartz and iron-rich grains.
BO 132	1	26	Orange-yellow; inclusions: up to 0.5mm, red iron-rich grains and quartz.
BO 133	2	65	Pale grey, dark grey surface; inclusions: 0.1–0.2mm, quartz and black iron-rich grains. Probably a product of the Holme-on-Spalding Moor (Throlam) industry (Corder 1930).
BO 134	1	7	Pale grey, dark grey surface; inclusions: <=0.1mm, quartz, black iron-rich grains and mica. Probably a product of the Holme-on-Spalding Moor (Throlam) industry (Corder 1930).
BO 135	1	8	Orange-red, dark grey surface; inclusions: average up to 0.5mm, max up to 1.0mm, mostly quartz, occasional black iron-rich grains and limestone.
BO 136	1	13	Mid-grey, dark grey surface, inclusions: average <=0.1mm, max up to 1.0mm, black iron-rich grains, quartz, occasional limestone.
BO 137	1	13	Off-white, very pale grey core, dark grey micaceous surface; inclusions: average 0.1–0.2mm, max up to 0.5mm, mostly quartz, some mica.
BO 138	1	7	Off-white, black core, pale grey surface; inclusions: average 0.1–0.2mm, max up to 0.5mm, quartz and black iron-rich grains.

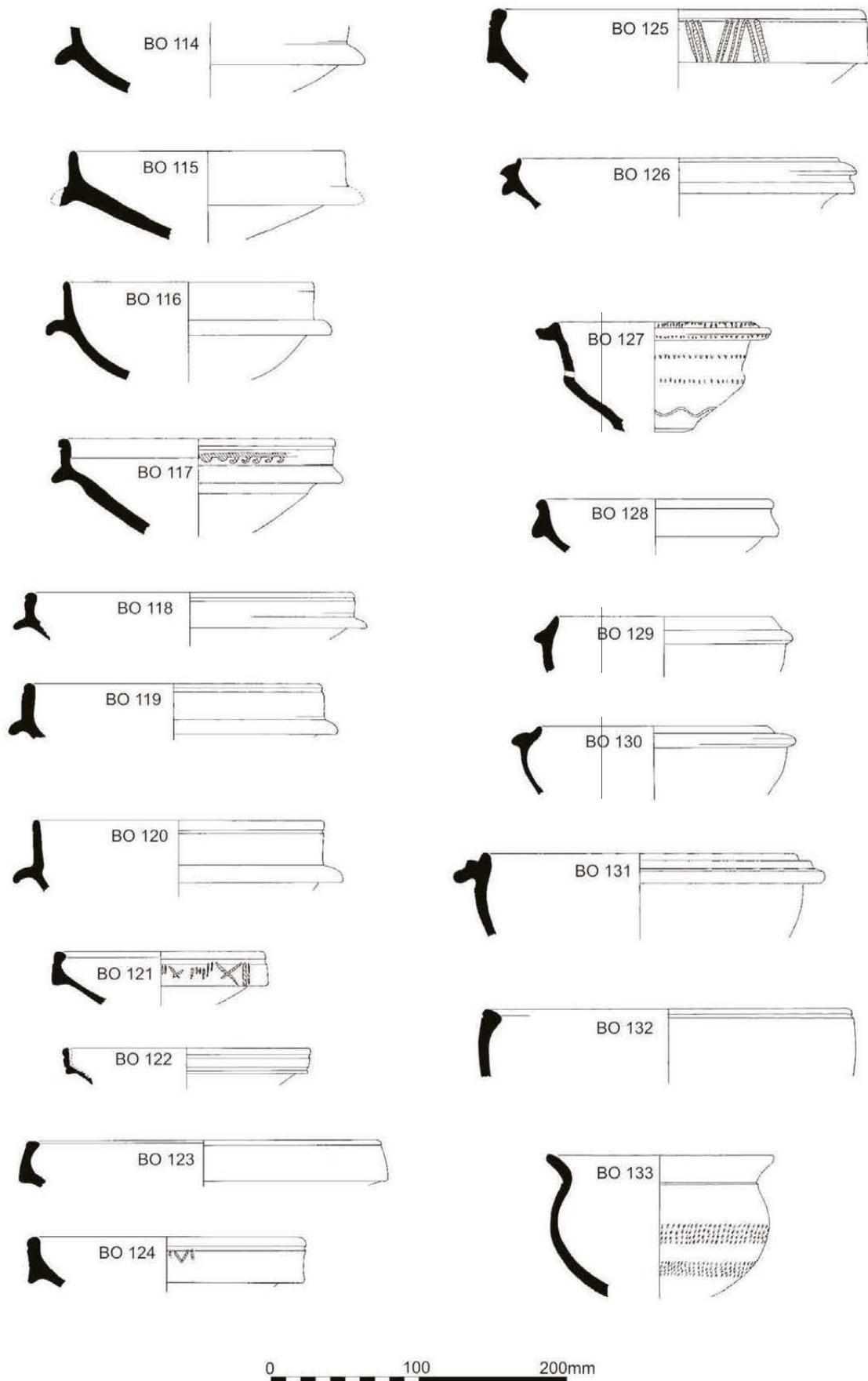
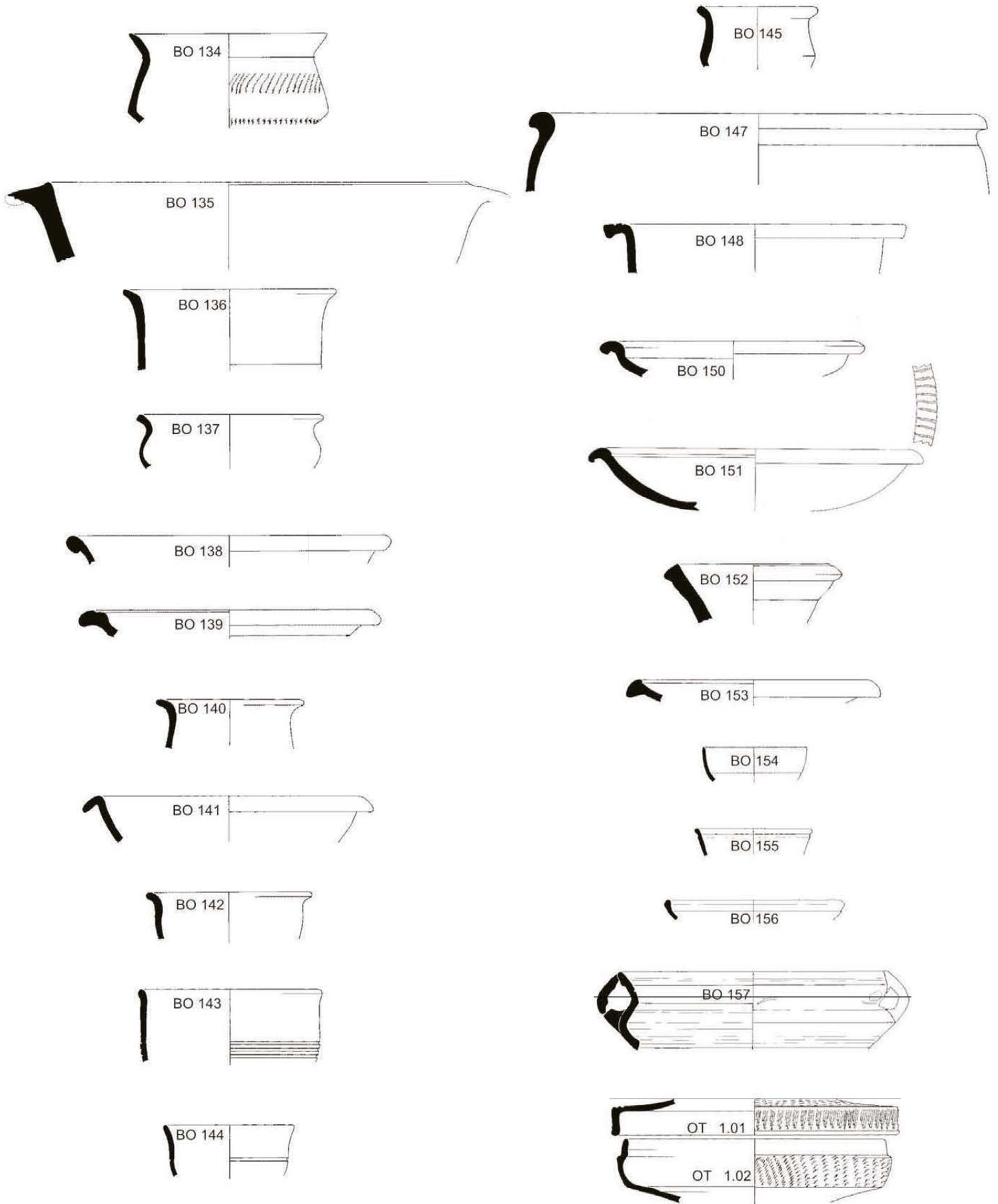


Fig 16.7 Coarseware: the bowls and dishes (scale 1:4).



Figs 16.8–16.9 Coarseware: the bowls and dishes (scale 1:4).

BO 139	1	8	Black, wiped surface; inclusions: up to 1.0mm, calcite and voids.
BO 140	1	12	Mid-grey; inclusions: average 0.1–0.2mm, max up to 0.5mm, grey clay pellets and quartz.
BO 141	1	13	Mid-grey, dark grey outer surface; inclusions: average up to 0.5mm, max up to 1.0mm, quartz and grey grains (clay pellets?).
BO 142	1	11	Black with burnished surface; inclusions: average up to 0.5mm, max up to 1.0mm, sub-round quartz.
BO 143	1	13	Pale grey with black micaceous surface; inclusions: average 0.1–0.2mm, max up to 0.5mm, rounded quartz.
BO 144	1	14	Very pale brown, smooth black surface; inclusions: 0.1–0.2mm, quartz.
BO 145	2	40	Pale grey, dark grey burnished surface; inclusions: up to 0.5mm, mostly quartz, up to 1.0mm, occasional grey clay pellets.
BO 147	1	15	Pink with brown core; inclusions: average up to 0.5mm, max up to 1.0mm, mostly quartz, occasional red iron-rich grains and clay pellets; silty matrix.
BO 150	1	10	Pale orange with grey core; inclusions: up to 0.5mm, quartz and red iron-rich grains; silty matrix.
BO 152	1	10	Dark grey, smooth black surface with dull red-brown margins immediately below the surface; inclusions: up to 0.5mm, quartz.

Small bowls or cups in colour-coated fabrics (Fig 16.9)

Central Gaulish: 'They have the hard red inclusion-free fabric of sigillata, although in some cases this may be paler and softer than would be normal in sigillata. Some of the thin-walled beakers have thin grey layers just beneath the colour coating, giving a "sandwich" effect in section, but this is easily distinguishable from the sandwich-effect often found in the section of Trier vessels where the thin grey layers are separated from the external colour-coating by thin red layers. ... there is considerable variety in the colour-coatings: these may vary from almost black to dark red or dark brown, dark green, and the more definitely green-coloured vessels may also have a brilliantly metallic lustre' (Symonds 1992, 18).

Trier: 'a very hard red fabric with no visible inclusions at all, but often with quite fine grey layers just underneath the colour-coating of the inside and the outside of the vessel, giving a very fine "sandwich" effect. ... The dark colour-coating is generally very glossy, in some instances achieving a truly remarkable depth and quality' (Symonds 1992, 49).

BO 154	2	71	Central Gaulish Colour-coated ware. Symonds (1992) Group 6. Symonds suggests (<i>op cit</i> 20) that continental production may have started as early as the Hadrianic period. Most examples found in Britain are dated Antonine or later.
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BO 155	2	100	Trier Colour-coated ware. Symonds (1992) Group 57. 3rd century.
BO 156	1	45	Trier Colour-coated ware. Symonds (1992) Group 55 or 57. 3rd century.
BO 157	1	23	Two-handle cup imitating a Central Gaulish form (Symonds 1992, Group 7); pale orange fabric with metallic purple colour-coat. Probably Lower Nene Valley ware. Late 2nd century+

Castor boxes (Fig 16.9)

All in Lower Nene Valley fabric: white or very pale yellow, dark brown colour-coat; inclusions: common quartz ≤ 0.1 mm, some red iron-rich grains ≤ 0.1 mm.

OT 1.1	1	12	Lid
OT 1.2	3	27	Base

Jars (Figs 16.10–16.18)

Lid-seated jars (Figs 16.10–16.11 and 16.16)

Five groups:

- 1) Gritty, Dales Type. JA 1, 4, 10, 2, 3, 5, 8, certainly represent a fabric grouping that is sufficiently well defined to equate to a production grouping emanating from a kiln or group of kilns. JA 6, 7, 9, may also be part of this. Present at Vindolanda from *c* AD 250 (Bidwell 1985, 177), South Shields *c* AD 286–318 but perhaps arriving somewhat earlier (Bidwell and Speak 1994, 43 and 232). See also Loughlin 1977 and Webster and Booth 1947 Type H.
- 2) Dales Ware: JA 11; present at Vindolanda from *c* AD 275 (Bidwell 1985, 177), South Shields *c* AD 286–318 but perhaps arriving somewhat earlier (Bidwell and Speak 1994, 43 and 232). See also Loughlin 1977.
- 3) Derbyshire Ware: JA 14, 21, 12, 100, 13; present at South Shields *c* AD 286–318 but perhaps arriving somewhat earlier (Bidwell and Speak 1994, 43 and 232).
- 4) BB2 allied fabric (probably Mucking kilns: see: Jones and Rodwell 1973 and Monaghan 1987). Gillam 151: JA 16–19: the earliest occurrence of an example of this type is now the Period 5 construction of the main *principia* site at South Shields (Bidwell and Speak 1994, 228); early 3rd century if the dating of the construction of the South Shields *principia* by reference to likely historical context is accepted (*ibid*, 28) Necked jar: JA 22–24: Bidwell and Speak 1994, 230 'Jars with out-curved rims' lists the published examples. Present evidence suggests an emergence in the north in the early 3rd century. See also JA 102–107.
- 5) Miscellaneous other.

1) Gritty, Dales Type

Type	Total	Exc	Fabric
JA 1	19	337	Gritty, dark grey or black, occasionally with a brown or reddish-brown tinge; the surface is generally the same colour as the body or somewhat darker; the

surface texture is pimply rather than gritty, the surface having been smoothed over the protruding grits; inclusions: mainly $\leq 1.0\text{mm}$, occasionally up to 2.0mm ; sub-round quartz, dark coloured clay pellets, and a little lime.

JA 4	1	17	(as JA 1 above)
JA 10	6	103	(as JA 1 above)
JA 2	1	11	Similar fabric to JA 1, 4, 10; variations detailed below.
JA 3	1	22	Micaceous surface; inclusions: all quartz
JA 5	10	225	Inclusions: sub-round quartz and grains of quartz sandstone
JA 8	16	221	The range of grey values is broader (light grey-black) and the surface is generally darker (black). The size range of the inclusions is similar though the average size tends to be finer.
JA 6	1	41	Pale grey with dark grey outer surface; inclusions: mostly $\leq 0.5\text{mm}$, some up to 1.0mm ; quartz and black iron-rich grains.
JA 7	1	15	Mid-blue-grey with dark grey-brown surface; inclusions: mainly $\leq 0.2\text{mm}$, some up to 0.5mm ; quartz.
JA 9	1	17	Brownish-grey with blue-grey core; inclusions: mainly $\leq 0.2\text{mm}$, some up to 0.5mm ; quartz and some black iron-rich grains and lime.
<i>Total</i>	57	1009	

2) Dales Ware

JA 11	19	264	Often very hard; body colour ranges from off-white, pale or medium grey, to buff, pale brown or reddish-brown; surface is black or dark grey, often micaceous and gritty (with the surface wet-smoothed over the grits to give a pimply feel); inclusions: $\leq 1.0\text{mm}$, occasionally larger; quartz, black iron-rich grains, occasional shell fragments.
<i>Total</i>	57	264	

3) Derbyshire Ware (DER CO)

JA 14	5	50	Very hard. Dark bluish-grey, sometimes with red-brown margins and a yellowish-brown surface; inclusions: up to 1.0mm , sometimes larger (up to 2.0mm): quartz, quartz sandstone and grey and black iron-rich grains.
JA 21	1	10	(as JA 14 above)
JA 12	1	19	Mid-grey with dark grey, micaceous surface; inclusions: mainly $\leq 0.5\text{mm}$, some up to 1.0mm ; quartz and grey iron-rich grains.
JA 100	1	26	(as JA 12 above) (<i>see</i> Fig 16.15)
JA 13	5	42	Mid-blue-grey, occasionally with a darker surface; inclusions: mostly $\leq 0.5\text{mm}$; quartz, black iron-rich grains and occasional lime.
<i>Total</i>	13	147	

4) BB2 allied fabric (probably Mucking kilns)

JA 16	18	355	Gillam 151; the body colour can be all shades of brown, from orange-brown through yellow and reddish-brown to
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grey-brown, occasionally, in the case of the greyer shades, with a redder core; the surface is generally a patchy dark grey and reddish-brown, with a sparkling appearance caused by fine particles of quartz; inclusions: mostly $\leq 0.1\text{mm}$, some up to 1.0mm ; mostly quartz, some black iron-rich grains.

JA 17	1	69	(as JA 16 above)
JA 18	1	7	(as JA 16 above)
JA 19	3	65	(as JA 16 above)
JA 22	3	83	Necked jars; reddish-brown or dark grey with a black, sparkling surface with the texture of fine sandpaper; inclusions: mostly $\leq 0.1\text{mm}$, some up to 1.0mm ; quartz and fine black grains.
JA 23	4	65	(as JA 22 above)
JA 24	2	20	(as JA 22 above)
<i>Total</i>	32	664	

5) Miscellaneous

JA 15	1	41	Orange-brown, mid-grey core; inclusions: sparse, discrete, mainly $\leq 0.5\text{mm}$, some up to 1.0mm ; quartz, rock fragments and red iron-rich grains.
JA 20	5	74	Grey, sometimes reddish-brown, often with a paler grey core; dark grey surface; inclusions: mainly $\leq 0.1\text{mm}$, some up to 1.0mm ; mostly quartz, some black iron-rich grains.
JA 25	2	30	Mid-blue-grey with pale grey margins and black micaceous surface; inclusions: mostly $\leq 0.5\text{mm}$, some up to 1.0mm ; quartz and black iron-rich grains.
JA 26	1	10	Pale grey with finely micaceous, black surface; inclusions: mostly $\leq 0.1\text{mm}$, some up to 1.0mm ; fine black iron-rich grains and occasional large (up to 1.0mm) grains of quartz.
JA 101	2	17	Dull brown with thick dark grey core and dark grey micaceous surface; inclusions: quartz, black iron-rich grains and limestone, $0.1\text{--}0.2\text{mm}$ average, max up to 1.0mm (<i>see</i> Fig 16.16).
<i>Total</i>	11	172	

Jars in calcite-gritted fabric (Figs 16.11, 16.16)

Huntcliff-type

The emergence of the Huntcliff-type cooking pot can be advanced to the 340s AD at least, on the evidence of the Womersley hoard (Pirie 1971).

JA 27	90	1761	Usually dark brownish-grey to black; cloth-wiped surface; inclusions: mostly $\leq 2.0\text{mm}$; large grains of calcite (often represented by voids) and occasional other rock fragments set in a clay matrix containing a fine scatter of quartz and iron-rich grains.
JA 33	12	216	Huntcliff-type less the lid-seating groove on the inner face of the rim. Fabric as JA 27.

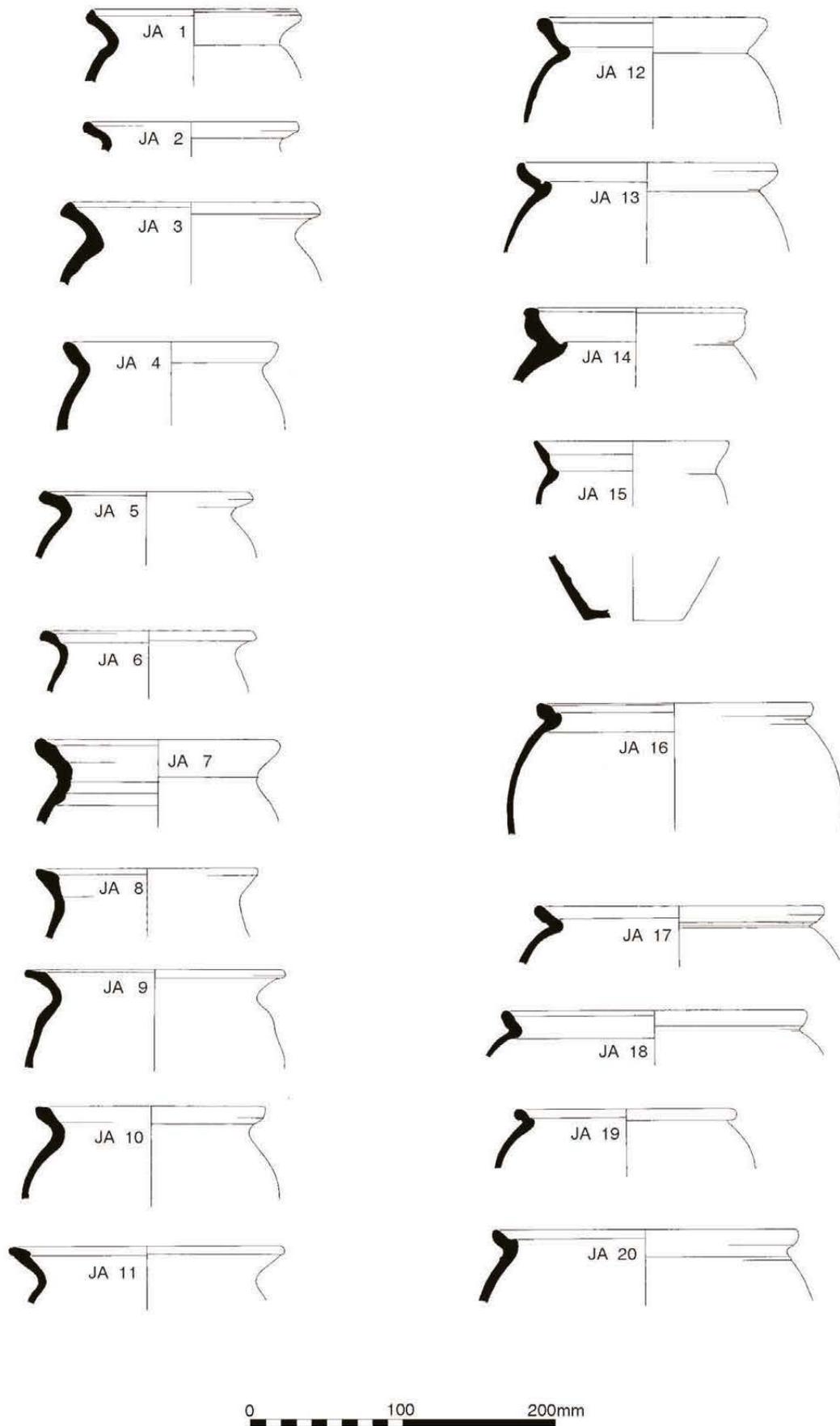
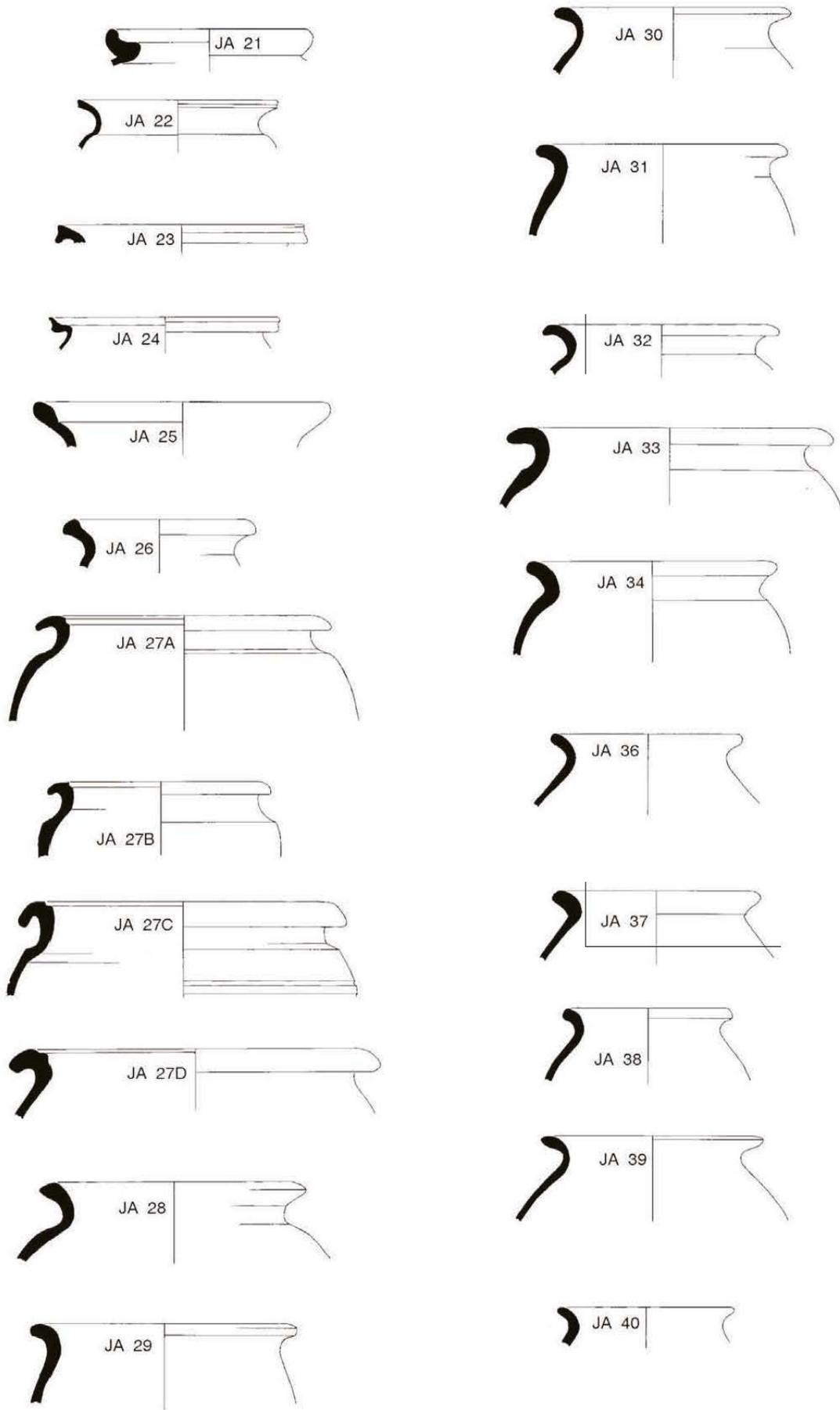


Fig 16.10 Coarseware: the jars (scale 1:4).



0 100 200mm

Fig 16.11 Coarseware: the jars (scale 1:4).

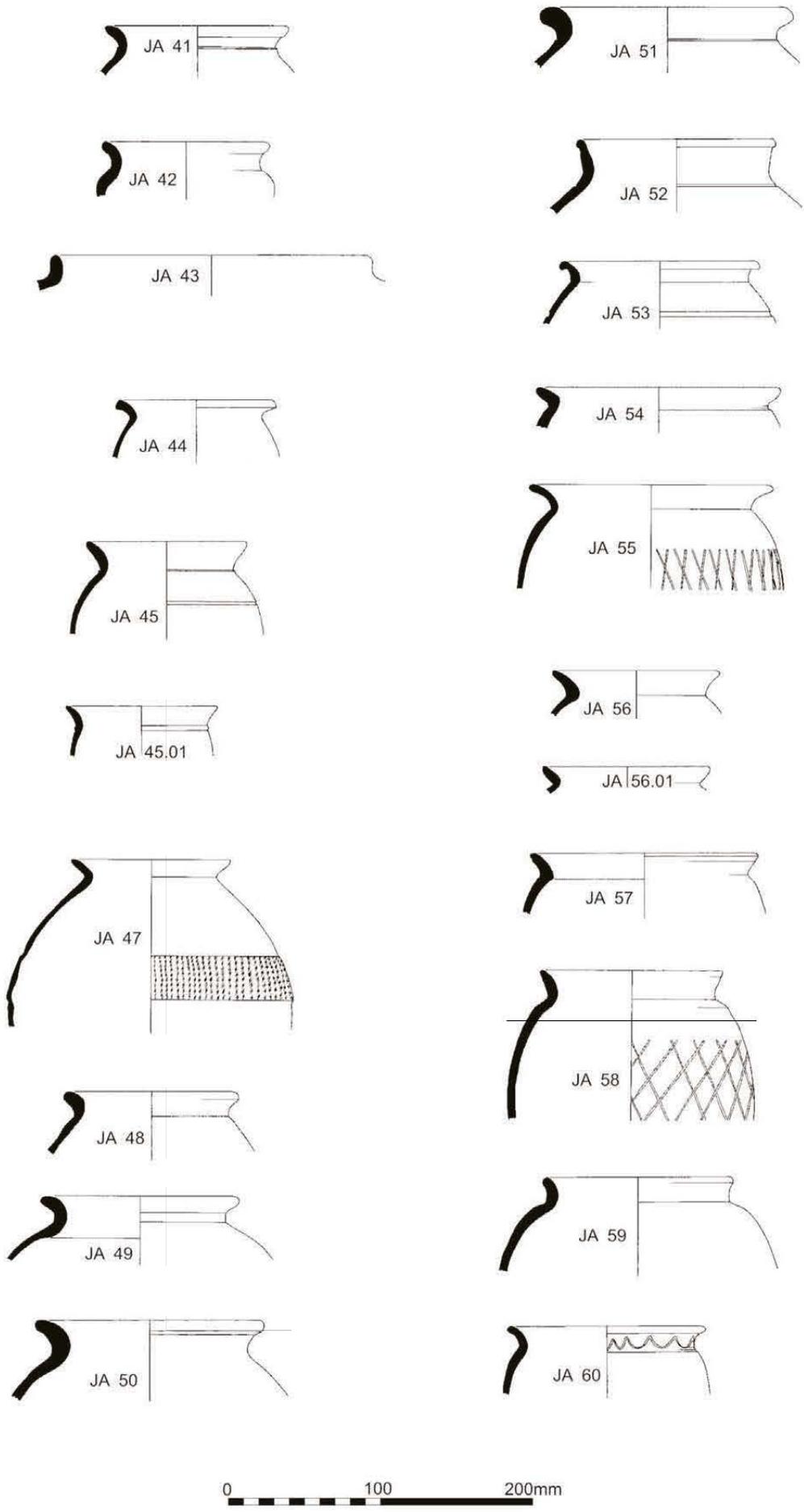


Fig 16.12 Coarseware: the jars (scale 1:4).

Non-Huntcliff types

JA 28	1	17	
JA 29	5	104	
JA 30	17	443	
JA 31	8	285	
JA 32	5	70	
JA 34	3	108	
JA 109	9	218	Miscellaneous – some similarity to Huntcliff-type. Not in calcite-gritted fabric. Dark grey-brown or black, burnished black micaceous surface; inclusions: quartz and black iron-rich grains, average up to 0.5mm, max up to 1.0mm (<i>see</i> Fig 16.16).

Early everted rim jars

(Figs 16.11–16.12, 16.15 and 16.18)

Common in Period I deposits in the turrets and mile-castles of Hadrian's Wall: (*see eg*: Woodfield 1965). First half of the 2nd century AD.

JA 36	3	159	Pale or mid-grey, darker smoothed or burnished surface; inclusions: sometimes sparse, mostly ≤ 0.2 mm, some up to 2.0mm; mostly quartz, some black iron-rich grains.
JA 38	4	124	(as JA 36 above)
JA 44	4	66	(as JA 36 above) (<i>see</i> Fig 16.12)
JA 98	3	46	(as JA 36 above) (<i>see</i> Fig 16.15)
JA 99	1	16	(as JA 36 above) (<i>see</i> Fig 16.15)
JA 148			Gritty mid-grey; inclusions: average up to 0.2mm, max up to 2.0mm, much quartz, less black iron-rich grains and grey clay pellets (<i>see</i> Fig 16.18).
<i>Total</i>	15	411	

Beakers with everted rims (Fig 16.12)

Probably Yorkshire products (*see eg* Corder 1932, fig 12 nos 48–9; Hayes and Whitley 1950, fig 13 no. 14), in which case mid- to late 3rd century AD.

JA 45	8	223	Pale or mid-bluish-grey, smooth slightly darker surface, sometimes micaceous; inclusions: sometimes sparse, usually ≤ 0.2 mm; quartz and black iron-rich grains.
JA 45.1	2	22	
JA 47	2	42	
<i>Total</i>	12	287	

Miscellaneous jars (Figs 16.11–16.12 and 16.18)

JA 39	3	77	Bluish-grey, sometimes with darker core; dark grey or black surface; inclusions: sometimes sparse, mostly ≤ 0.2 mm; quartz and occasional black iron-rich grains.
JA 40	1	13	Orange, mid-grey core, orange-pink surface; inclusions: sparse ≤ 1.0 mm; red iron-rich grains and occasional quartz.
JA 41	1	26	Mid-blue-grey, dark grey surface; inclusions: quartz (<i>see</i> JA 45).
JA 42	2	29	Grey or brownish-grey, black surface; inclusions: ≤ 1.0 mm; quartz.

JA 43	1	5	Hand-made; greyish-brown, burnished black surface; inclusions: ≤ 2.0 mm; rock fragments.
JA 49	5	74	Mid- or dark grey, sometimes reddish, smooth micaceous mid- or dark grey burnished surface; inclusions: quartz ≤ 0.5 mm, black iron-rich grains up to 2.0mm.
JA 50	3	32	Mid-grey; inclusions: ≤ 0.5 mm, quartz and black iron-rich grains.
JA 147	1	10	Dark grey, pale grey surface; inclusions: up to 0.5mm, quartz, limestone, quartz-rich clay pellets; silty matrix (<i>see</i> Fig 16.18).
JA 53	1	25	Black, thin pale grey core, dark grey surface; inclusions: ≤ 0.5 mm, quartz and black iron-rich grains.
JA 54	2	35	Off-white, dirty mid-grey surface; inclusions: mostly ≤ 0.5 mm, quartz black iron-rich grains, some matrix coloured clay pellets up to 4.0mm.
<i>Total</i>	20	326	

Storage jars – Throlam Type

(Corder 1932, fig 14 no. 73) (Figs 16.11–16.12)

Late 3rd century AD+

JA 48	2	23	Pale grey with darker or lighter core; greyish-brown surface; inclusions: mostly ≤ 0.2 mm, some up to 1.0mm; red and black iron-rich grains, some quartz and occasional mica.
JA 37	1	40	Very pale grey, dark grey surface; inclusions: quartz ≤ 0.2 mm.
JA 51	1	42	Dark grey with thick pale grey core; micaceous, burnished dark grey surface; inclusions: angular quartz ≤ 0.2 mm.
<i>Total</i>	4	105	

Storage jar – Crambeck Type (Fig 16.12)

Late 3rd century AD+

JA 52	2	17	Pale grey, smooth burnished micaceous grey surface; inclusions: mostly ≤ 0.1 mm, some up to 0.5mm, quartz and black iron-rich grains.
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Cavetto-rim jars in BB2 (Fig 16.12)

Mid-2nd to mid-3rd century AD

JA 55	41	843	
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Everted-rim jars in BB2 (Fig 16.12)

Mid-2nd to mid-3rd century AD

JA 56	3	55	
JA 56.1	1	12	

Jar with inturned rim with beaded lip in BB2 (Fig 16.18)

JA 151	1	5	<i>See</i> Gillam 1961, nos 29–31; mid- to late 2nd century.
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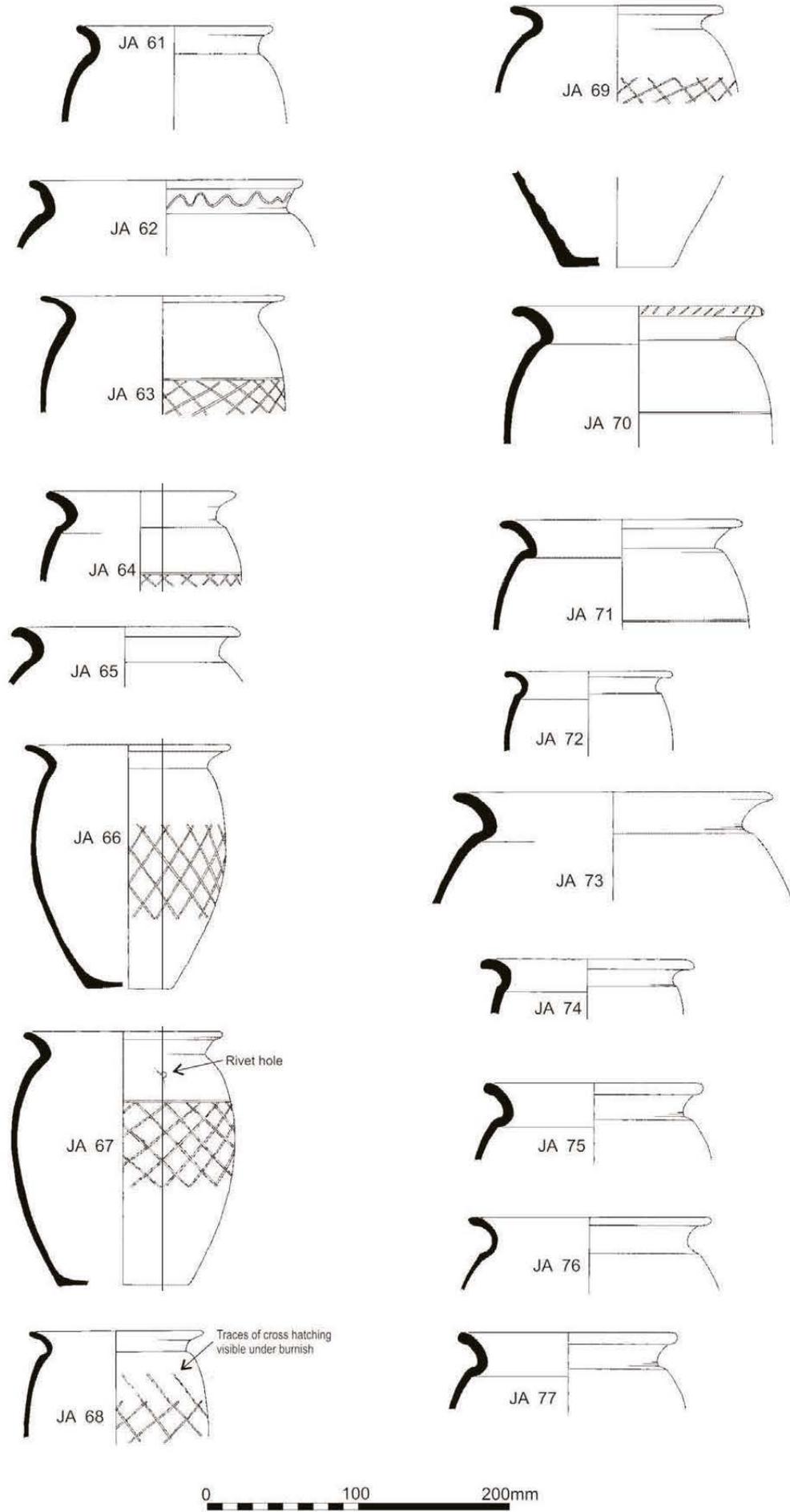


Fig 16.13 Coarseware: the jars (scale 1:4).

Wide-mouth jar or bowl with everted rim, bead lip, neck cordon (Fig 16.15)

JA 80 1 24 Referred to as 'necked bowls' at South Shields (Bidwell and Speak 1994, 230) and 'S-profile bowls' by Monaghan (1987, class 4A). Our example seems to bear more similarity to Monaghan's class 4F, the predecessor of his class 4A which might suggest that it dates to the 2nd century rather than later. Red-brown with dark brown core and smooth mid-grey surface; inclusions: average up to 0.2mm, max up to 1.0mm, quartz, red and black iron-rich grains and mica; BB2 allied fabric.

Cooking-pots in BB1 (Figs 16.12–16.14)

The examples of cooking pots in BB1 were assigned to types on the basis of form-related criteria in the first instance. The presence or absence of certain decorative features (burnished wavy lines on the neck, horizontal scored line above the cross-hatched zone) was not used as a primary classificatory criterion. The types have been arranged in five groups on the following basis:

Group 1 Short, upright or slightly splayed rims with beaded lips; burnished wavy line present on some necks.

Group 2 Short (though not as short as those of Group 1), slightly splayed rims; beaded lips barely present; no evidence of burnished wavy lines on necks.

Group 3 Short outcurved rims with beaded lips.

Group 4 Long, markedly outsplayed or outcurved rims; right-angle or obtuse-angle cross-hatching but no evidence of horizontal scored line above the cross-hatched zone in any examples.

Group 5 Long, markedly outsplayed or outcurved rims; obtuse-angle cross-hatching; presence of horizontal scored line above the cross-hatched zone in some examples.

Group 1

JA 59 3 60 Upright rim, beaded lip. Late 1st to mid-2nd century AD (Holbrook and Bidwell 1991, 95 and Type 11).

JA 60 6 85 Rim slightly splayed; bead lip. Burnished wavy line discernible on necks of FV 17 and 393. Late 1st to mid-2nd century (Holbrook and Bidwell 1991, 95 and Type 12, Gillam 1976, fig 1 no. 1).

JA 62 4 76 Similar to JA 60 but taller. Burnished wavy line on FV 341. Late 1st to mid-2nd century (Holbrook and Bidwell 1991, 95 and Type 12, Gillam 1976, fig 1 no. 1).

Total 13 221

Group 2

Late 1st to mid-2nd century (Holbrook and Bidwell 1991, 95 and Type 12)

JA 57 3 40 Slightly everted rim; lip barely articulated.

JA 58 2 57 (as JA 57)

Total 5 97



Fig 16.14 BB1 jar JA 67 in situ in a 3rd-century drain in north rampart Workshop 4.

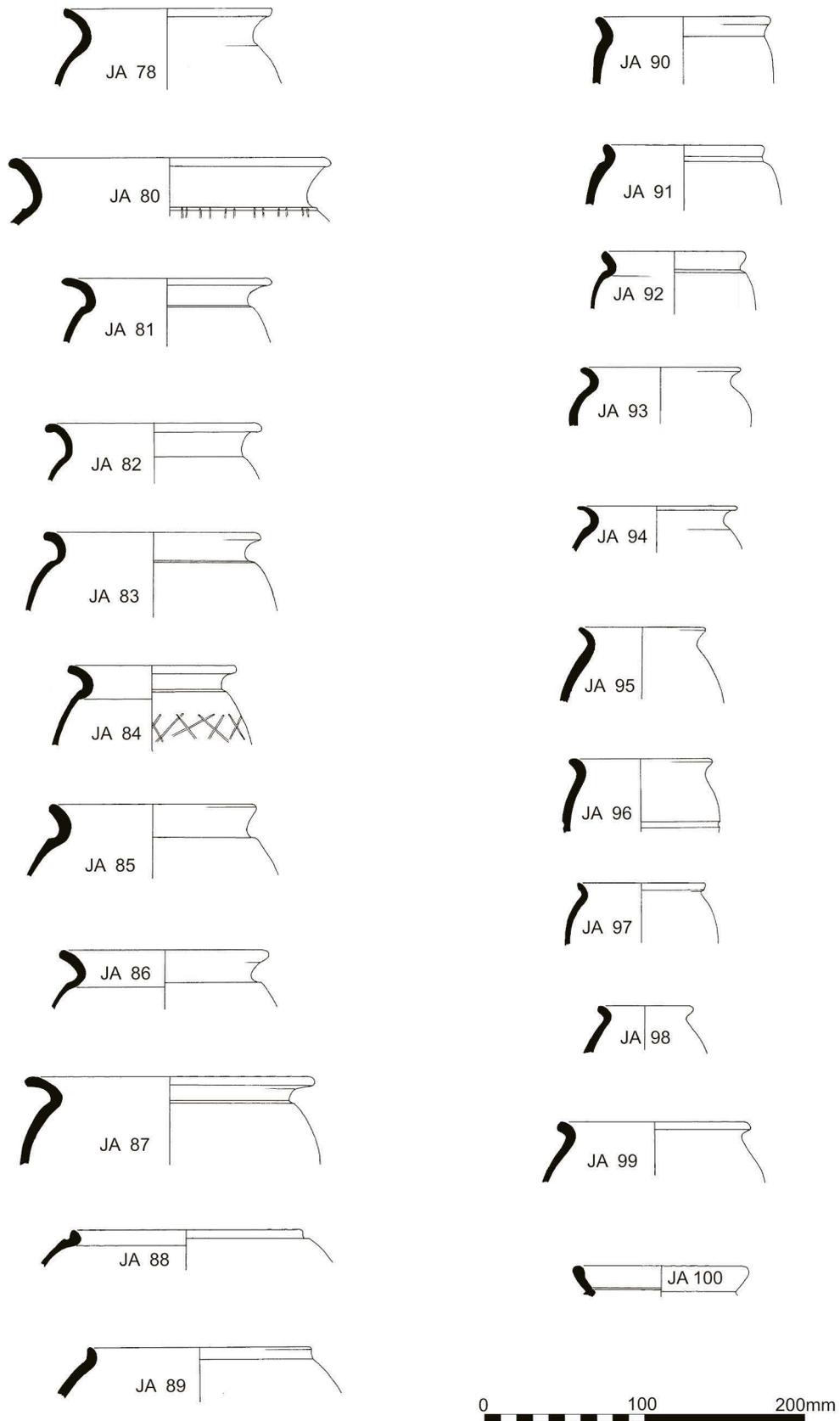


Fig 16.15 Coarseware: the jars (scale 1:4).

Group 3

Mid-2nd to early 3rd century (Gillam 1976, fig 1 nos 3 and 6)

JA 61	8	115	Curved rim, slight bead. No burnished wavy-line decoration discernible on any examples.
JA 65	1	25	Outcurved rim, beaded lip.
<i>Total</i>	9	140	

Group 4

JA 66	3	44	Small vessels, quite thin-walled; outplayed rim with slightly beaded lip. The angle of intersection of the cross-hatching is almost a right-angle; no scored lines are evident above the cross-hatching on any of the examples. Late 2nd century+ (Holbrook and Bidwell 1991, 96).
JA 69	1	13	Rim outcurved in flattened curve, no bead to lip. Obtuse-angle cross-hatching but no scored line along the top of the cross-hatched zone. Early 3rd century+ (Holbrook and Bidwell 1991, 96).
JA 68	2	50	Small vessel, thin walled; outcurved rim, no bead to lip. Obtuse-angle cross-hatching is visible in FV 1111 but no scored line is visible along the top of the cross-hatched zone. Early 3rd century+ (Holbrook and Bidwell 1991, 96).
JA 72	3	147	Small vessels with outcurved rim with lip of squarish section. Pronounced shoulder (tooled). Featured vessels 309 and 310 show right-angle cross-hatching but no scored line along the top edge of the cross-hatching. Late 2nd century+ (Holbrook and Bidwell 1991, 96).
JA 74	4	41	Medium-sized vessels with short outcurved rims; shoulder present. No cross-hatching visible. <i>c</i> AD 200–250 (Gillam 1976, fig 1 no. 8).
<i>Total</i>	13	295	

Group 5

3rd to 4th century; obtuse-angle cross-hatching seems to have been introduced at the very end of the 2nd century or beginning of the 3rd; the scored line above the zone of cross-hatching had made its appearance before AD 250 (see Holbrook and Bidwell 1991, 97 for discussion).

JA 63	23	510	Long, smoothly outcurved rim with beaded lip. Obtuse-angle burnished cross-hatching can be discerned on featured vessels 736, 1302, 1329, 1373. FV 1329 has a scored line at the top edge of the cross-hatching.
JA 64	7	261	Outcurved rim, thicker than JA 63; no bead to lip; pronounced shoulder; a scored line at the top edge of the cross-hatching can be discerned on featured vessels 817 and 1579; FV 1278 definitely does not have a scored line.
JA 67	1	100	Single vessel similar in form to JA 66; the cross-hatching is obtuse and there is a scored line along the top of the

cross-hatched zone (see Fig 16.14 for view of cooking pot *in situ*). Evidence of repair in antiquity: part of lead rivet surviving.

JA 70	29	529	Long outcurved rim with beaded lip. BB1. The occurrence of obtuse-angle cross-hatching and scored line along the top of the cross-hatched zone is as follows:
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<i>FVN</i>	<i>obt angle</i> <i>xh</i>	<i>scored</i> <i>line</i>	<i>no scored</i> <i>line</i>
191, 208	X	X	
474	X	X	
815			X
1361		X	
1418	X		X

JA 71	3	124	Long, outplayed rim with beaded lip; pronounced shoulder. Scored line visible in FV 1580.
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JA 73	6	170	Large vessels with long outcurved rims of constant thickness; pronounced shoulder. FV 1351 has obtuse-angle cross-hatching and a scored line along the top edge of the cross-hatching.
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Total 69 1694

Jars with everted or outcurved rims in Grey Ware (Figs 16.13 and 16.15)

The variation in fabric colour, composition and texture suggests that these grey wares originated from a number of sources. Within the sample one reasonably distinctive and coherent fabric can be identified. It accounts for 56% of the sample.

Fabric 1

Mostly mid-grey (often bluish-grey) with a well-smoothed or burnished outer surface. The inclusions are sparse in one-third of the sample, and not particularly abundant in the remainder; they are mostly quartz with some black iron-rich grains, and they range up to 1.0mm in diameter

Dating given below is suggested by analogy with corresponding BB1 forms.

JA 85	7	131	Two examples of fabric 1; early to mid-2nd century.
JA 83	23	650	Mostly fabric 1; mid- to late 2nd century.
JA 84	3	108	All fabric 1; mid- to late 2nd century
JA 75	8	335	Four examples of fabric 1; mid- to late 2nd century.
JA 76	2	57	One example of fabric 1; early 3rd century.
JA 77	1	32	Fabric 1; 2nd century.
JA 78	2	85	All fabric 1; 2nd century.
JA 81	10	205	Seven examples of fabric 1; late 2nd to early 3rd century.
JA 82	1	40	Late 2nd century.
JA 86	1	45	Late 2nd to early 3rd century.
JA 87	1	5	3rd to 4th century.
<i>Total</i>	59	1693	

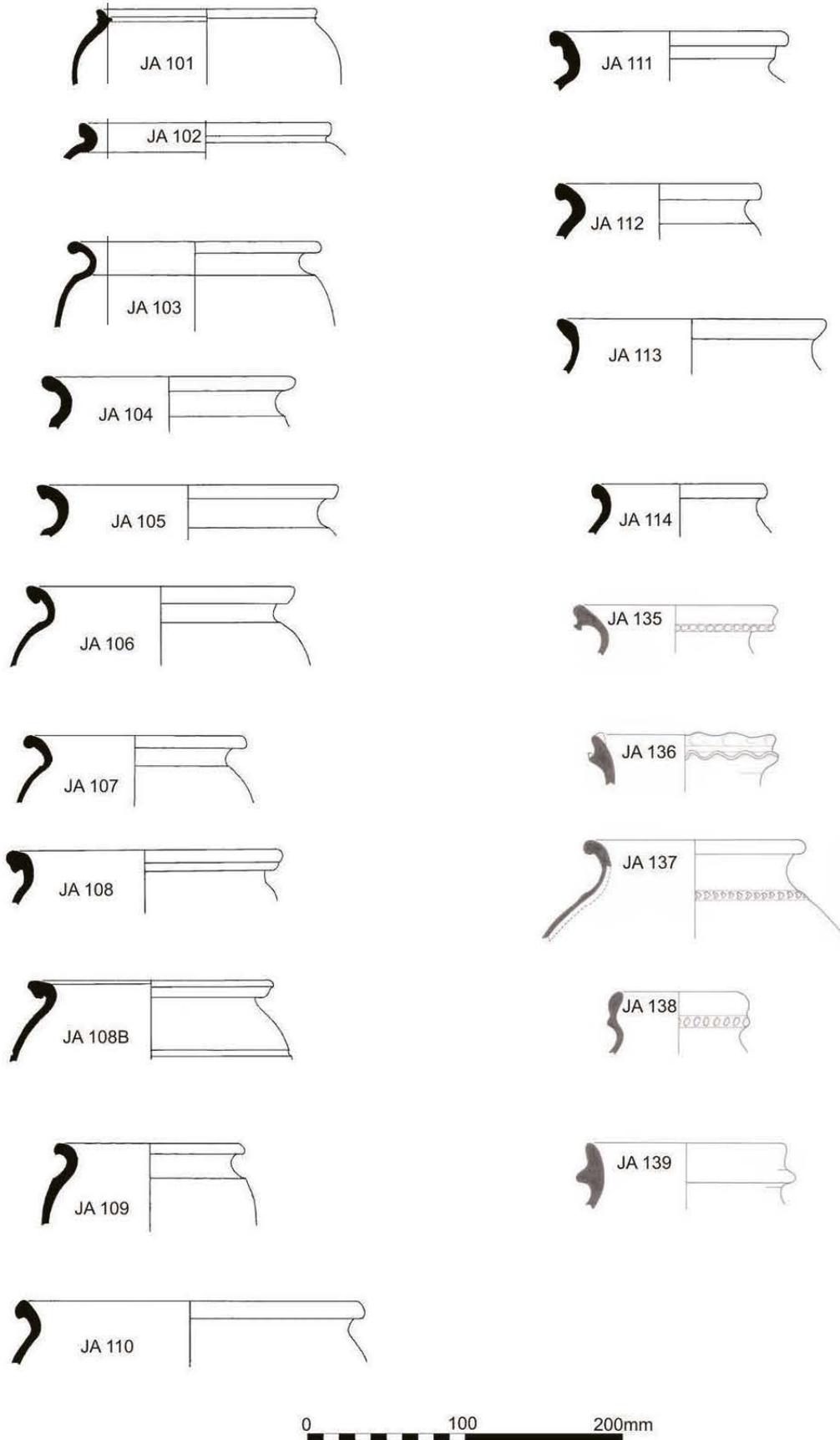


Fig 16.16 Coarseware: the jars (scale 1:4).

Small jars or beakers (Fig 16.15)

JA 88	1	10	Mid-grey-brown, black surface; inclusions: quartz and black iron-rich grains, average up to 0.5mm, max up to 1.0mm. Early to mid-2nd century.
JA 89	1	7	BB1; early to mid-2nd century.
JA 90	3	32	BB1; early to mid-2nd century.
JA 91	2	43	BB1; early to mid-2nd century.
JA 92	2	41	Pale or mid-grey with darker grey core, and smooth dark grey surface; inclusions: sparse, mostly quartz, up to 1.0mm. Late 1st to early 2nd century.
JA 93	6	120	Pale grey, grey-brown or orange-brown (1 example) with grey or dark grey core (sometimes with margins in a contrasting shade of grey), smooth dark grey surface (sometimes micaceous – 2 examples); inclusions: 0.1–0.2mm average, max 0.5mm, mostly quartz, with a few iron-rich grains. ?2nd century.
JA 94	1	13	Pale grey with thick, darker grey core and smooth dark grey surface; inclusions: quartz and black iron-rich grains, average up to 0.5mm, max to 1.0mm. Late 2nd to early 3rd century.
JA 95	1	30	Mid-blue-grey with dark grey surface; inclusions: mostly quartz up to 0.2mm.
JA 96	2	32	Grey or dark orange-brown, smooth dark grey surface; inclusions: quartz, black and red iron-rich grains and limestone, 0.1–0.2mm, max 0.5mm.
JA 97	1	12	Dark grey, smooth surface; inclusions: quartz and black iron-rich grains, 0.1–0.2mm.
<i>Total</i>	20	340	

Necked jars in fabric allied to BB2 (Fig 16.16)

Dark orange-brown, red-brown or grey, often with a thin core in a contrasting shade of grey, and a variegated orange-brown and grey surface with a sparkling appearance caused by fine particles of quartz; inclusions: mostly quartz, sometimes well rounded, with a few iron-rich grains and occasional white grains (possibly clay pellets); sizing varies: in JA 102–105 inclusions are usually 0.1–0.5mm; in JA 106 and 107 they are larger, up to 1.0mm.

The basic form has a pronounced shoulder, a well-developed neck and a rim whose lip is accentuated to a greater or lesser extent. JA 102 has a short neck and rim and is essentially a version of Gillam 151 without the lid-seating groove on the inside face of the rim. JA 103 has a beaded lip to the rim. JA 107 has a slightly shorter neck and less pronounced shoulder than JA 103. JA 104 is essentially a larger thicker-walled version of JA 103. In JA 105 the lip has a sloping face and a less pronounced bead. In JA 106 the bead has almost become a flange.

See Jones and Rodwell 1973 (*Mucking kilns*) and Monaghan 1987. Bidwell and Speak 1994, 230 'Jars with out-curved rims' lists the published examples. Present evidence suggests an emergence in the north in the early 3rd century. *See also* JA 22–24.

JA 102	1	87
JA 103	3	90
JA 104	2	74
JA 105	3	50
JA 106	7	111
JA 107	1	28
<i>Total</i>	17	440

Miscellaneous necked jars (Figs 16.16 and 16.18)

JA 108	2	48	Grey or grey-brown; inclusions: quartz and black iron-rich grains, average up to 0.5mm, max up to 1.0mm.
JA 110	1	8	Orange-yellow; inclusions: sparse quartz, up to 2.0mm.
JA 112	1	10	Orange-brown with grey-brown core, and dark grey-brown surface; inclusions: mostly well-rounded quartz, up to 1.0mm.
JA 113	1	11	Black with pale orange-yellow surface; inclusions: quartz <=0.1mm.
JA 114	1	5	Dark grey, mid-grey surface; inclusions: quartz and black iron-rich grains, up to 0.5mm.
JA 145	1	12	Grey-brown; inclusions: up to 0.5mm, quartz, black iron-rich grains and grey clay pellets; silty matrix (<i>see</i> Fig 16.18).
JA 146	1	5	Black, smooth outer surface; inclusions: mostly quartz, up to 0.5mm (<i>see</i> Fig 16.18).
<i>Total</i>	10	157	

Large jars, some with narrow mouths

(Figs 16.16–16.18)

Three groups:

- 1) 2nd to 3rd century
- 2) 3rd to 4th century
- 3) ?Medieval

Group 1

JA 141	1	10	Mid-grey-brown, pale orange-brown surface; inclusions: up to 0.5mm, red and black iron-rich grains, mica; silty matrix.
JA 128	6	144	FV 9 and 1630: orange, pale grey core, smooth dark brown colour-coat; inclusions: red iron-rich grains and quartz, up to 0.5mm, mica <=0.1mm, silty matrix. Remainder: well-fired gritty pale orange with orange-red core; inclusions: quartz up to 2.0mm, red iron-rich grains up to 0.5mm.
JA 129	2	110	Grey or black, burnished outer surface; inclusions: quartz, occasional black iron-rich grains and dark grey clay pellets, average up to 0.2mm, max up to 0.5mm.
JA 130	2	60	Dirty grey-brown, black burnished outer surface; inclusions: 0.5–2.0mm, quartz, black iron-rich grains, large dark grey clay pellets; silty matrix.
JA 126	11	324	Grey or grey-brown, generally with darker surface; inclusions: mostly quartz, some iron-rich grains and clay pellets, 0.1–0.2mm, max up to 1.0mm, occasional silver mica.

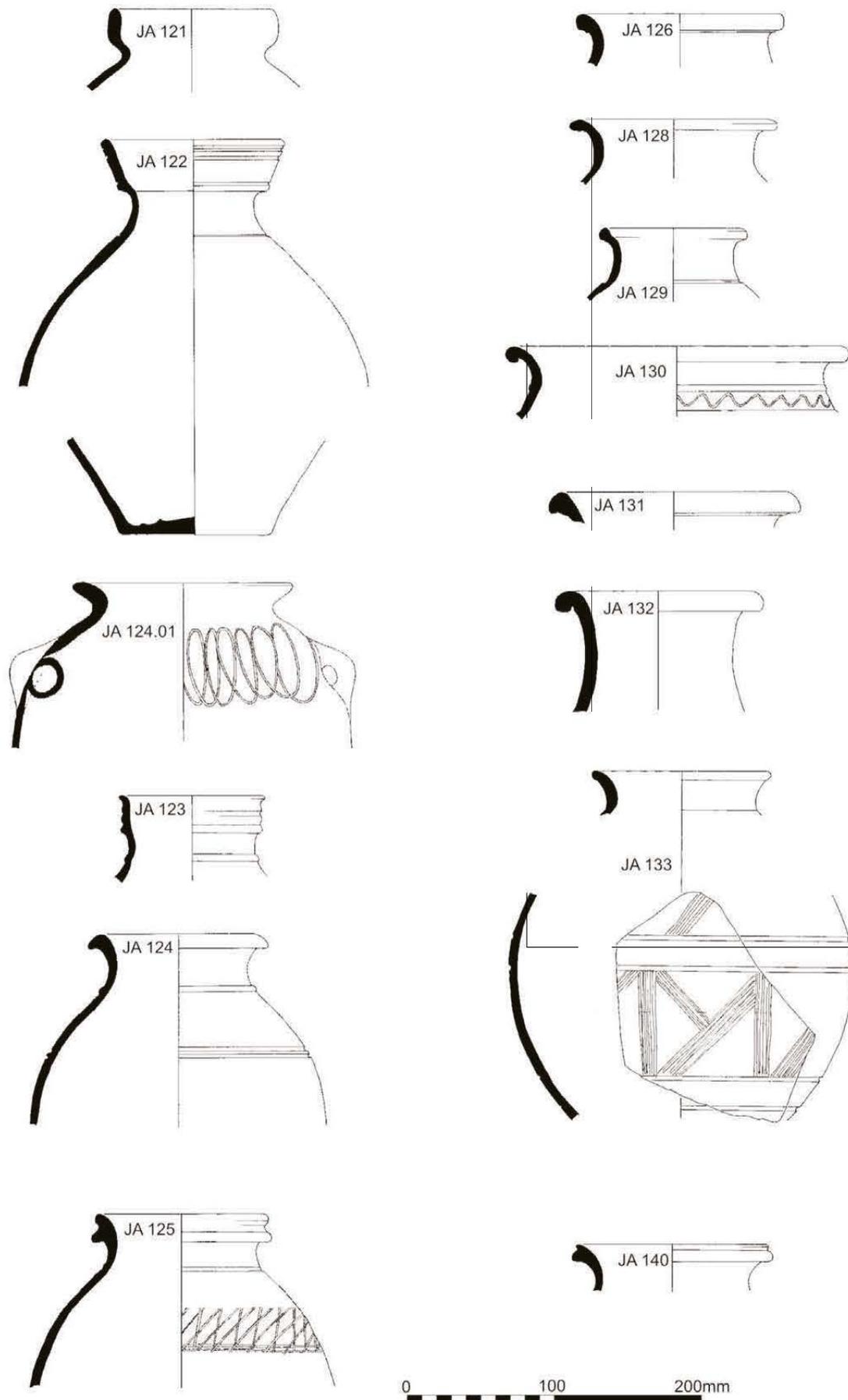


Fig 16.17 Coarseware: the jars (scale 1:4).

JA 137	1	67	Mid-brown with burnished red-brown surface; inclusions: average up to 0.2mm, max up to 1.0mm, much quartz, occasional rock fragments (<i>see</i> Fig 16.16).
JA 132	3	60	Mid-dark grey, smooth outer surface; inclusions: 0.2–0.5mm, quartz, black iron-rich grains and dark clay pellets.
JA 124	7	195	Grey with burnished surface; inclusions: mostly quartz, average up to 0.5mm, max up to 1.0mm.
JA 131	3	38	Orange-brown with grey core; inclusions: up to 2.0mm, quartz, red and black iron-rich grains, dark grey clay pellets, mica; silty matrix.
JA 140	1	5	Orange-brown with browner core; inclusions: sparse, up to 0.2mm, a little quartz and red iron-rich grains; silty matrix.
JA 125	9	179	FV 231, 2416: orange; inclusions: quartz and iron-rich grains, up to 0.3mm, gold mica, in a silty matrix. Remainder: grey or black; inclusions: quartz, iron-rich and dark coloured clay pellets, up to 1.0mm, in a silty matrix.
<i>Total</i>	40	1073	

Group 2

These are likely to have been the products of the later 3rd- and 4th-century industries in East Yorkshire.

JA 111	1	12	Very hard mid-blue-grey with mid-grey-brown surface; inclusions: quartz and black iron-rich grains, average up to 0.5mm, max up to 2.0mm. Probably a Norton product, <i>see</i> Hayes and Whitley 1950, Type 4b.
JA 149	1	10	Gritty dark grey; inclusions: mostly quartz, up to 0.5mm. Probably a Throlam (Holme-on-Spalding Moor) product: <i>see</i> Corder 1932, fig 49, nos 79 and 80.
JA 133	1	30	Grey with smoothed outer surface; inclusions: mostly quartz, 0.2–0.5mm. The girth is decorated with groups of burnished lines which delineate panels filled with St Andrew's cross motifs.
JA 150	1	10	Dull red-brown, black core, burnished black surface; inclusions: mostly quartz, average up to 0.2mm, max up to 1.0mm.
JA 121	8	238	Mid- or dark grey; inclusions: mostly quartz, some black iron-rich grains and dark clay pellets, up to 0.5mm. Probably a Throlam (Holme-on-Spalding Moor) product: <i>see</i> Corder 1932, fig 13.
JA 138	1	60	Dark gritty grey; inclusions: average up to 0.5mm, max up to 1.0mm, mostly quartz, a few black clay pellets (<i>see</i> Fig 16.16).
JA 139	1	5	Dark brown, grey-brown surface; inclusions: mostly quartz, up to 0.5mm (<i>see</i> Fig 16.16). Possibly a Throlam (Holme-on-Spalding Moor) product: <i>see</i> Corder 1932, fig 15.

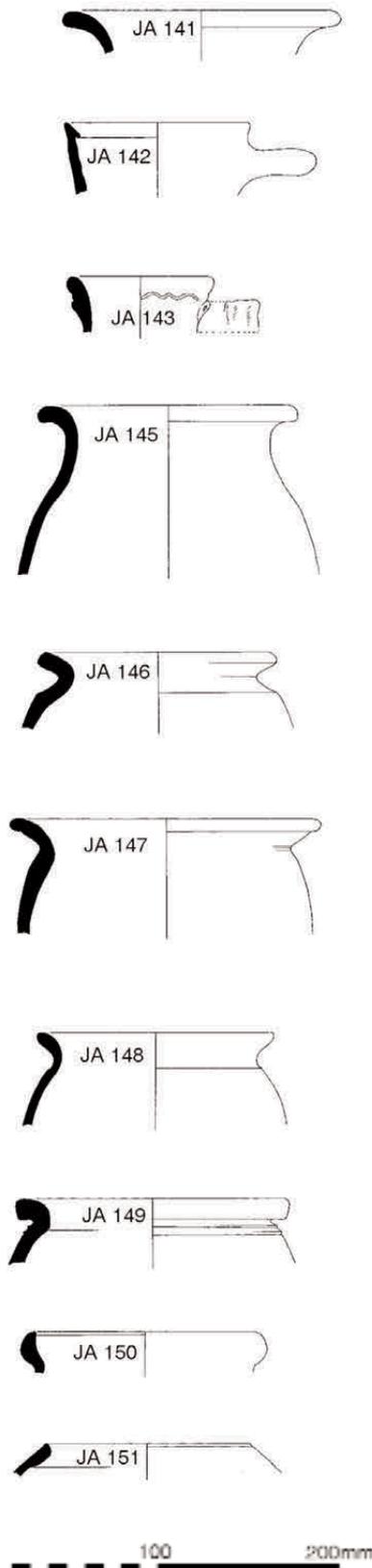


Fig 16.18 Coarseware: the jars (scale 1:4).

JA 135	2	48	FV 681: orange with paler core and burnished surface; inclusions: sparse, up to 0.2mm, quartz, red iron-rich grains, orange clay pellets and gold mica; silty matrix (<i>see</i> Fig 16.16).
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			FV 2200: black, dark grey surface with pale grey thin, subsurface margins; inclusions: average up to 0.2mm, max up to 1.0mm, much quartz, some black iron-rich grains and clay pellets; fused matrix.	M 13	1	14	Pale yellow; inclusions: average 0.1–0.2mm, max up to 1.0mm, quartz and red iron-rich grains. AD 130–80?
JA 136	1	30	Grey, smooth surface; inclusions: average up to 0.1mm, max up to 0.5mm, much quartz and black iron-rich grains, some mica ≤ 0.1 mm (see Fig 16.16).	M 5	1	8	Orange-brown; inclusions: up to 0.5mm, quartz, limestone and black vitreous grains. AD 140–80.
JA 122	1	100	Dark grey, dark grey surface with pale grey thin subsurface margins; inclusions: sparse quartz, up to 1.0mm, set in a silty matrix. Probably a Crambeck product, see Corder 1928.	M 6	1	83	Orange-brown, mid-blue-grey core; inclusions: average up to 0.5mm, max up to 1.0mm, quartz and iron-rich grains; trituration grits: quartz and grains of fine-grained sandstone, 1.0–2.0mm. AD 140–80.
JA 123	1	30	Grey with a burnished surface; inclusions: quartz and occasional black iron-rich grains, and dark clay pellets, up to 0.4mm, set in a silty matrix. Possibly a Crambeck product, see Corder 1928.	M 7	1	49	Orange-yellow, mid-grey core, off-white surface; inclusions: average up to 0.5mm, max up to 1.0mm; trituration grits: fine-grained sandstone 1.0–2.0mm. AD 160–200.
JA 124	1	37	Off-white, burnished mid-grey surface; inclusions: mostly quartz, occasional black iron-rich grains, average ≤ 0.1 mm, max up to 1.0mm. A Crambeck product, see Corder 1928, pl 4.	M 9	1	95	Pale pink, white surface; inclusions: sparse, average up to 0.5mm, max up to 1.0mm, mostly quartz. Corbridge (form stamped by Bellicus). AD 150–200.
<i>Total</i>	20	610		M 10	1	20	Very pale yellow; inclusions: average up to 0.5mm, max up to 1.0mm; trituration grits: quartz and occasional grains of ?granite, 3.0–4.0mm. Similar form to M9. Corbridge? The fabric used by Bellicus and others at Corbridge does not usually have granite in the trituration grits (though occasional grains of feldspar are present). A vessel in a similar form, with granite in the trituration grits is known from Chester-le-Street (Park View School, context 18 – unpublished). AD 150–200?
Group 3 (Fig 16.18)							
JA 142	1	5	Rim with lid-seating, remains of strap handle. Orange, cream-slipped surface; inclusions: up to 0.5mm, mostly quartz, some red and black iron-rich grains; silty matrix.	M 23.1	1	13	Corbridge fabric – very pale yellow, pale orange-pink surface; inclusions: rounded quartz up to 0.5mm, mica < 0.1 mm; trituration grits: grains of slag average up to 1.0mm, max up to 8.0mm. Late 2nd to early 3rd century.
JA 143	1	10	Small vertical strap handle below rim, frilled decoration between handle and lip. Red with red-brown surface; inclusions: fine quartz, black iron-rich grains and mica, ≤ 0.1 mm.	M 23.2	1	5	Corbridge fabric; pale yellow, orange-yellow surface; inclusions: average ≤ 0.1 mm, max up to 0.5mm, mainly quartz, a few red iron-rich grains. Late 2nd to early 3rd century.
<i>Total</i>	2	15		M 23.3	1	12	Corbridge fabric. Pale yellow, inclusions: up to 0.5mm, mainly quartz, some red iron-rich grains; silty matrix. Late 2nd to early 3rd century.
Mortaria (Figs 16.19–16.21)							
M 1	1	21	Orange-red, mid-grey core, white slipped surface; inclusions: average up to 0.5mm, max up to 1.0mm, quartz and red iron-rich grains. AD 100–150.	M 14	3	48	Mancetter-Hartshill. Very pale yellow (cream); inclusions: sparse, average 0.1–0.2mm, max up to 1.0mm, mostly quartz, occasional iron-rich grains. AD 130–80.
M 2	1	13	Orange, very pale yellow slip; inclusions: up to 0.5mm, quartz, red iron-rich grains and black vitreous grains. AD 120–60.	M 15	2	25	Mancetter-Hartshill. White; inclusions: sparse, 0.1–0.2mm, quartz and red iron-rich grains; trituration grits: dark coloured fine-grained rock fragments and quartz, 1.0–2.0mm. AD 160–220.
M 3	1	25	Orange-red, pale yellow slip on inner surface, mostly worn away; inclusions: up to 0.5mm, quartz, black iron-rich grains, limestone and black vitreous grains; trituration grits: quartz, some polycrystalline, <i>c</i> 2.0mm. AD 110–60.	M 16	4	101	Mancetter-Hartshill. AD 160–220.
M 4	1	25	Dull orange-red, pale yellow slip; inclusions: average ≤ 0.1 mm, max up to 1.0mm, quartz, red iron-rich grains and limestone; trituration grits: quartz and grains of micaceous sandstone, 1.0–2.0mm. AD 130–60.	M 20	4	56	Mancetter-Hartshill. AD 160–220.
M 11	1	7	Off-white; inclusions: average ≤ 0.1 mm, max up to 0.2mm, mostly quartz. AD 130–80.	M 21	1	15	Mancetter-Hartshill. AD 160–220.
M 12	1	11	Pale grey, pale yellow surface; inclusions: average quartz ≤ 0.1 mm, quartz and red iron-rich grains up to 0.5mm. AD 130–80.	M 17	7	82	Mancetter-Hartshill. AD 180–230.
				M 18	2	29	Mancetter-Hartshill. AD 180–230.
				M 35	1	15	Colchester?: Pale yellow, pink core, soft powdery surface; inclusions: sparse, 0.1–0.2mm, red iron-rich grains, quartz

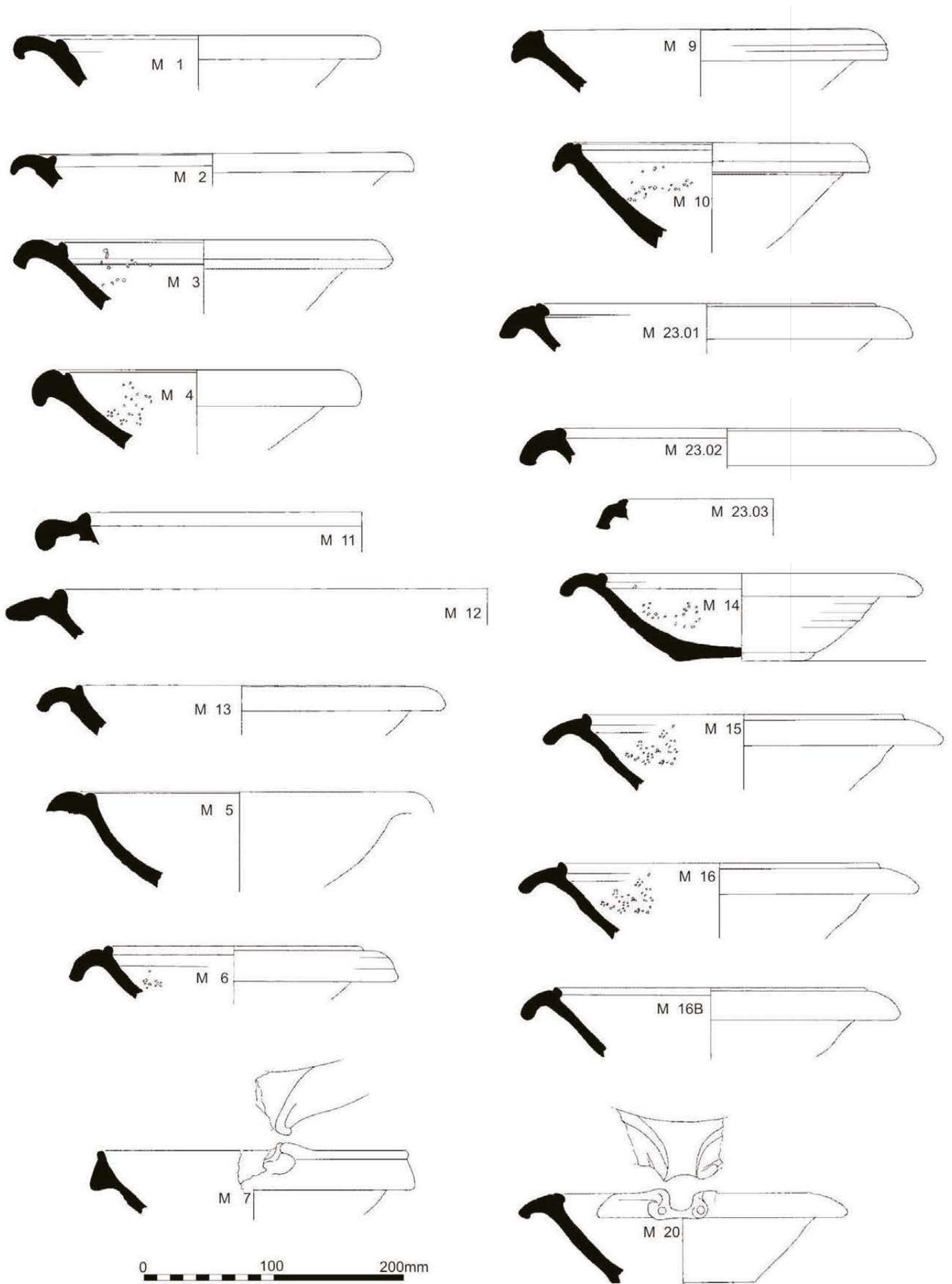


Fig 16.19 Coarseware: the mortaria (scale 1:4)

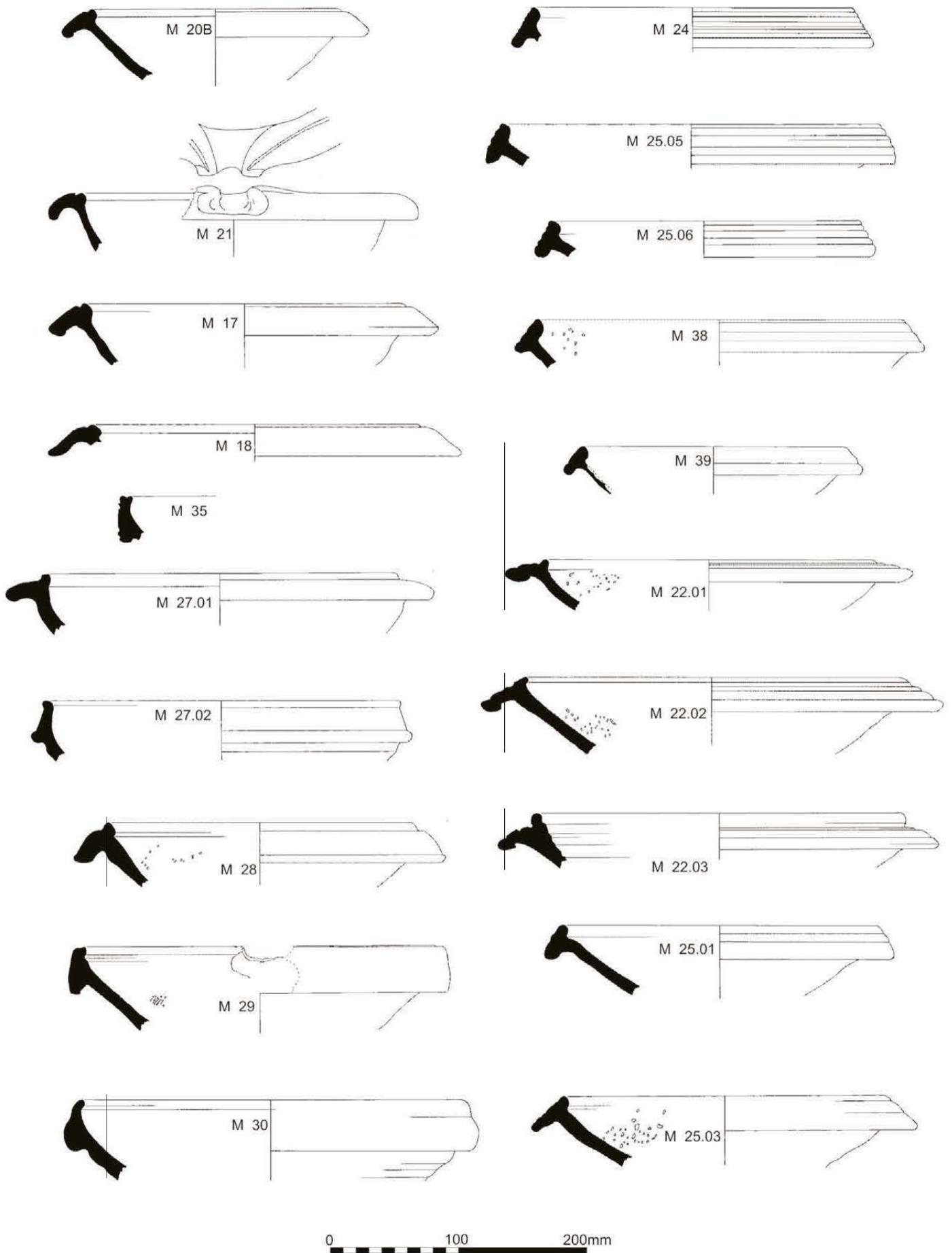


Fig 16.20 Coarseware: the mortaria (scale 1:4).

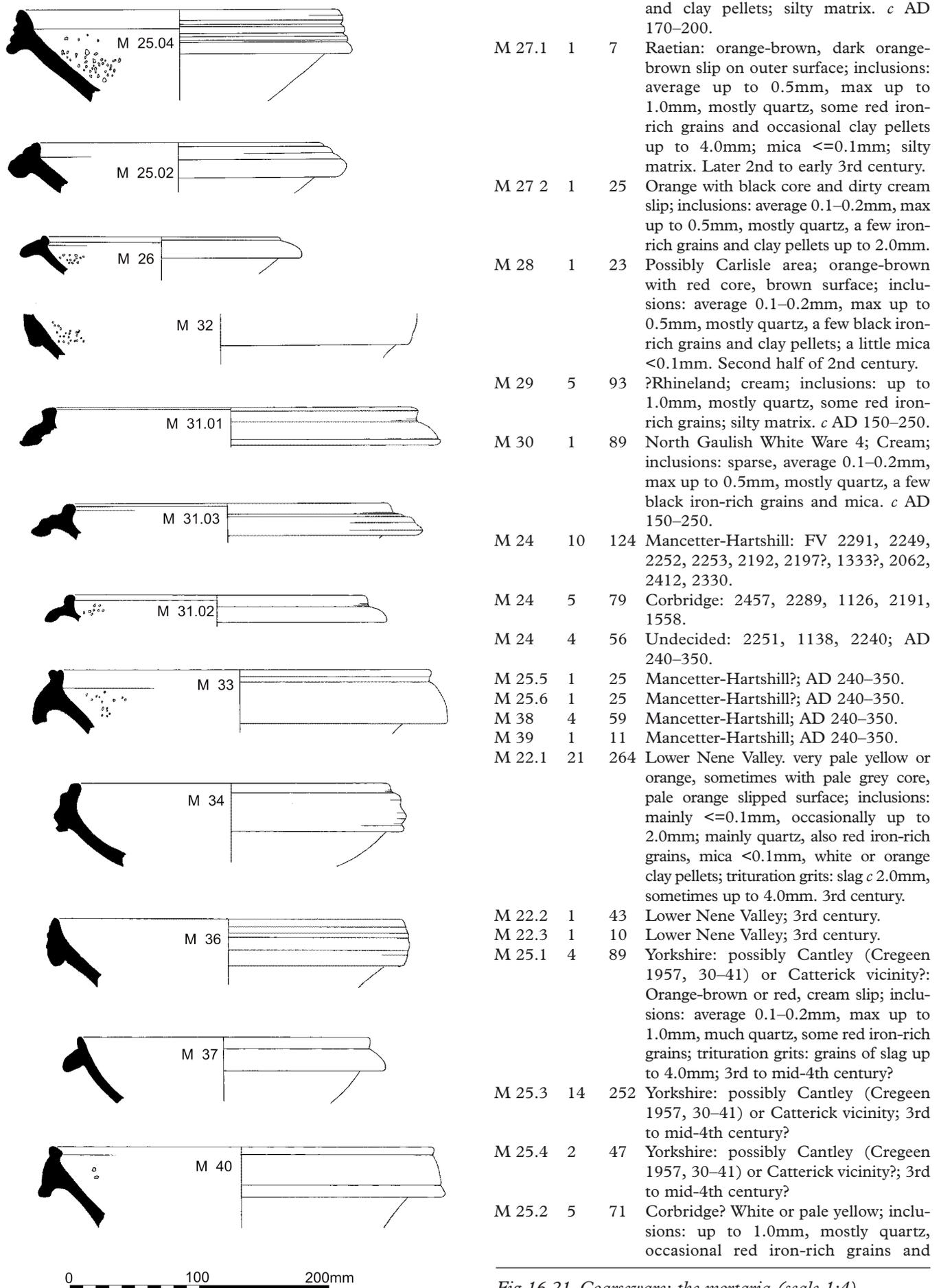


Fig 16.21 Coarseware: the mortaria (scale 1:4).

			quartz-rich clay pellets; silty matrix; trituration grits: grains of slag, 4.0–8.0mm. 3rd to mid-4th century?
M 26	4	44	Crambeck white ware: pale cream with a cream surface; hard with an irregular fracture and a rough feel; the composition, relative proportion and texture of the inclusions is similar to that of the reduced ware. The main difference is that quartz is common rather than abundant and slightly coarser; the trituration grits are abundant, well-sorted, angular grains of slag, 1.5–5.5mm, average 3.0–4.5mm. <i>c</i> AD 270+
M 26	21	352	Crambeck Parchment Ware: <i>see</i> bowls BO 121–126.
M 32	1	4	Oxford white ware; off-white or cream, dark blue-grey core; inclusions: mostly <=0.1mm, some up to 0.2mm; mostly quartz, a little red iron-rich grains and gold mica <0.1mm; trituration grits: well-sorted rounded quartz up to 2.0mm. Young (1977) Type M 14 – AD 180–240.
M 31.1	1	17	Oxford white ware: Young (1977) Type M 17 – AD 240–300.
M 31.3	1	5	Oxford white ware; Young (1977) Type M 17 – AD 240–300.
M 31.2	1	20	Oxford red colour-coated ware: orange-brown with slip of similar colour; inclusions: quartz 0.1–0.2mm and some mica in a silty matrix; trituration grits: well-sorted, rounded quartz up to 2.0mm. Young (1977) Type C – AD 100 to 4th century.
M 33	3	24	Orange-brown, pale grey-brown core; pale yellow slipped surface; inclusions: average up to 0.5mm, max up to 1.0mm, mostly quartz, a few red iron-rich grains and pale yellow clay pellets; trituration grits: slag, 2.0–4.0mm. 3rd to 4th century?
M 34	1	18	Orange-brown, pale yellow slipped outer surface; inclusions: average 0.1–0.2mm, max up to 1.0mm, mostly quartz, a few red iron-rich grains and rock fragments. 3rd to 4th century?
M 36	1	5	Orange-brown, grey-brown, pale yellow slip; inclusions: up to 0.5mm, much well-sorted quartz, a few iron-rich grains; 3rd to 4th century?
M 37	1	8	Soft, pale orange, pale brown core; inclusions: sparse, 0.1–0.2mm, occasional quartz and red iron-rich grains; silty matrix. 3rd century?
M 40	1	11	Slightly pinkish-white; inclusions: sparse, 0.1–0.2mm, occasional red iron-rich grains and mica. 3rd century?

Stamped mortaria (Fig 16.22)

K F Hartley

The small number (five) of mortarium stamps in more than 400kg of coarse pottery recovered during eight seasons of excavation is striking. Moreover, the overall total of stamped mortaria from Housesteads is ten, again only a small total.

1. 6671 H20:4:44 H20 Phase 3b

Hard, creamy white, fine-textured fabric with moderate, ill-sorted quartz, and fewer grey, black and orange-brown (?slag) inclusions. Trituration grit consists of hard blackish material. Dr 33cm.

Two stamps of Sennius are impressed close together. Sennius worked at Mancetter, Warwickshire (Hemsley 1961, 11). At least 56 of his mortaria are known from sites other than Mancetter, throughout the midlands and north of England. This includes 17 found in a gutter deposit at Wroxeter, in a similar context to an even larger deposit of samian ware (Atkinson 1942, 127–9 and 279–80). The date of his work rests largely on the date of this deposit, where the samian is dated AD 160–80 and the latest associated coins (worn), are dated AD 155. Sennius used only one stamp type and the range of his forms is fairly limited. A date of AD 150–70+ seems to be indicated, though his total absence from Scotland may indicate an initial date nearer to AD 155. He was one of the latest generation of potters to stamp their mortaria in the Mancetter-Hartshill potteries.

2. 7669 H20:4:19 H20 Phase 3b

Fine-textured, rather powdery, cream fabric with moderate+ inclusions of small quartz with some orange-brown material. The surviving trituration grit is red-brown and dark brown. Dr 30cm.

The incompletely impressed stamp, JARRI, is from the most commonly used stamp type of Sarrius, the most prolific of all British potters stamping mortaria in the 2nd century. It was used primarily in his most important workshops in the Mancetter-Hartshill potteries but also at Rossington Bridge and at Bearsden on the western sector of the Antonine Wall. This is clearly a product of the midland factory (for further details of his career see Buckland *et al* 2001, 45–7 and Breeze, forthcoming).

The overall date of Sarrius's activity is assessed from the abundance of his work at forts on the Antonine Wall, its absence from Pennine forts unoccupied *c* AD 120–60, his rim-forms and his possible association with Iunius at one of his Mancetter kilns. A stamp from Verulamium is dated *c* AD 155–60 (Frere 1972, no. 35) and one is recorded from a Period 1a deposit at Birdoswald (Birley 1930, 187, no. 2, 'with illegible stamp'). The evidence points to his overall activity lying within the period AD 135–70 and it is likely that this was one of his later dies.

3. 6779+ H20:5:36, H20 Phases 3b and 4a FV 1233 M7 6829 H20:4:23

Five stamped sherds (three joining), from a mortarium in hard, orange-brown fabric with grey core and cream slip. A further 15 sherds were preserved from this vessel. All but one of the stamped sherds occurred in context H20:5:36. Inclusions: fairly frequent, mostly quartz with rare red-brown and black (?slag). The trituration grit consists of well-mixed, ill-sorted, quartz, red-brown sandstone and haematite. Dr 25cm.

This wall-sided mortarium has one stamp impressed upside down along the wall, reading RBIVSII, with badly damaged R and reversed S, and the upper part of the R of the complementary stamp, also upside down. The potter's name is uncertain, but the two verticals may stand for FE, though it is not a normal use. His mortaria are now known from Bainbridge; Catterick; Corbridge (3); Hartshill; Hibaldstow; Housesteads and probably the York area (Yorkshire Museum) in England, and from Bothwellhaugh in Scotland. All but the Bainbridge, Catterick and Housesteads mortaria are in the white fabric typical of the Mancetter-Hartshill potteries, where he undoubtedly worked. It is not certain where the other three mortaria were made. Orange-brown fabric was occasionally used for mortaria in these potteries, but even that rare use is

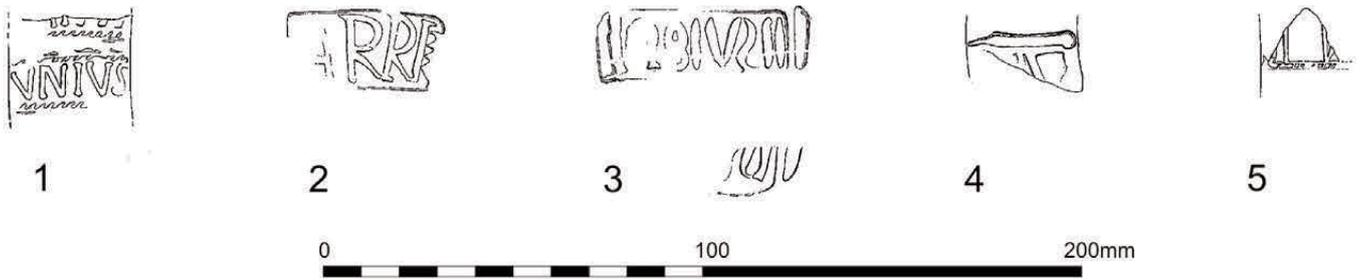


Fig 16.22 The mortaria stamps (scale 1:2).

almost entirely, if not entirely, limited to the early 2nd century. The fabric is not considered to have been produced at Rossington Bridge (P Buckland pers comm); the fabric is similar to one believed to have been produced in the Catterick area but only further finds or more detailed examination of the fabric will clarify the issue. The mortarium at Bothwellhaugh and the wall-sided form used for all three mortaria indicates an Antonine date and his remaining rim-profiles, all incidentally flanged, fit such a date, probably within the period AD 140–70. Slightly worn but the slip has only been worn away in bands on the interior, surviving in the basal area; it is only worn away round the edge of the underside of the base.

4. 2683 H13:10:20 (probable backfill of Bosanquet trench) Flange fragment in cream fabric, softened through weathering, with very ill-sorted quartz and red-brown (some very large) inclusions. Part of the V and the upper tip of the D survives from a retrograde stamp of Cudrenus. Mortaria of his are now known from the following sites: Binchester (2); Carrawburgh; Chesters (2–3); Vindolanda (2); Corbridge (at least 13–26); Halton Chesters; Housesteads; Ingleby Barwick; South Shields and Newstead. Cudrenus used only one stamp type and his fabric, distribution and rim-profiles all support activity at Corbridge, and J P Gillam noted similarities in his work to that of the Saturninus whose die was found there (Birley and Gillam 1948, 179). His work is confined to north-eastern England with only one example from Scotland; at least half of his mortaria outside Corbridge are from sites on Hadrian’s Wall. AD 155–80+ is the optimum date for his work since there is no question of it pre-dating the Antonine Wall.

5. (no SF no.) H20:6:51 H20 Phase 3b FV 1108 A fragment with almost complete rim-section in hard, fine-textured cream fabric with moderate quartz and red-brown and black (?slag) inclusions. No trituration grit survives. The vessel can be attributed on fabric and the stamp-border to the Mancetter-Hartshill potteries. One corner of a stamp survives with fine borders composed of diagonal bars. It is almost certainly a stamp of Iunius, with part of the initial IVN[...], with reversed N. When a larger example preserving this corner is found it will be possible to get a secure identification. The optimum date based on the use of this type of fine border, which was mainly used by Iunius and Maurius, is within the period AD 140–70.

Flagons (Fig 16.23)

Type	Total	Eve	Fabric
FL 1	1	5	Red, smooth black outer surface; inclusions: average 0.1–0.2mm, max up to 0.5mm, quartz red iron-rich grains and mica.
FL 2	1	5	Pale pink, pale yellow surface; inclusions: up to 0.5mm, iron-rich grains; silty matrix.

FL 3	1	4	Cream; inclusions: sparse, 0.1–0.2mm, mostly quartz; silty matrix.
FL 4	1	6	Brown, with dark grey core, and black surface; inclusions: sparse, up to 1.0mm, quartz and red iron-rich grains; silty matrix.
FL 5	1	5	Dull orange brown, dark grey smooth surface; inclusions: average 0.1–0.2mm, max up to 1.0mm, quartz, red and black iron-rich grains and fine mica (<0.1mm).
FL 6	1	7	Orange pink; inclusions: up to 0.5mm, mostly quartz.
FL 7		5	Orange, browner core, dark brown slipped surface; inclusions: up to 0.5mm, quartz and a few red iron-rich grains.
FL 8	1	3	Pale orange; inclusions: up to 0.5mm, quartz and a few red iron-rich grains.
FL 9	1	5	Orange, smooth surface; inclusions: average <=0.1mm, max up to 1.0mm, quartz, occasional red iron-rich grains, and orange clay pellets.
FL 10	1	5	Pale orange; inclusions: average <=0.1mm, max up to 1.0mm, quartz, occasional red iron-rich grains, and orange clay pellets; same fabric as FL 9.
FL 11	1	5	Pale yellow, black core; inclusions: <=0.1mm, much quartz and few black iron-rich grains (not illustrated).
FL 12	1	7	Dark red with smooth black surface; inclusions: 0.1–0.2mm, quartz and a few iron-rich grains; well-fired.
FL 13	1	4	Orange brown; inclusions: average <=0.1mm, max up to 0.5mm, quartz, a few iron-rich grains, fine mica (<0.1mm); silty matrix.
FL 14	1	30	Pale grey, with dark grey core; inclusions: sparse, 0.1–0.2mm, quartz and a few black iron-rich grains; silty matrix.
FL 15	1	3	Pale yellow; inclusions: 0.1–0.2mm, quartz, black and red iron-rich grains, mica.
FL 16	1	5	Pale yellow; inclusions: up to 1.0mm, quartz and a few rock fragments.
FL 17	1	5	Cream; inclusions: up to 0.5mm, quartz and red iron-rich grains.
FL 18	1	6	Dark grey; inclusions: average 0.1–0.2mm, max up to 2.0mm, mostly quartz, a few black clay pellets up to 2.0mm.
FL 19		4	Gritty orange-brown; inclusions: up to 0.5mm, much quartz, some limestone, a few red iron-rich grains.

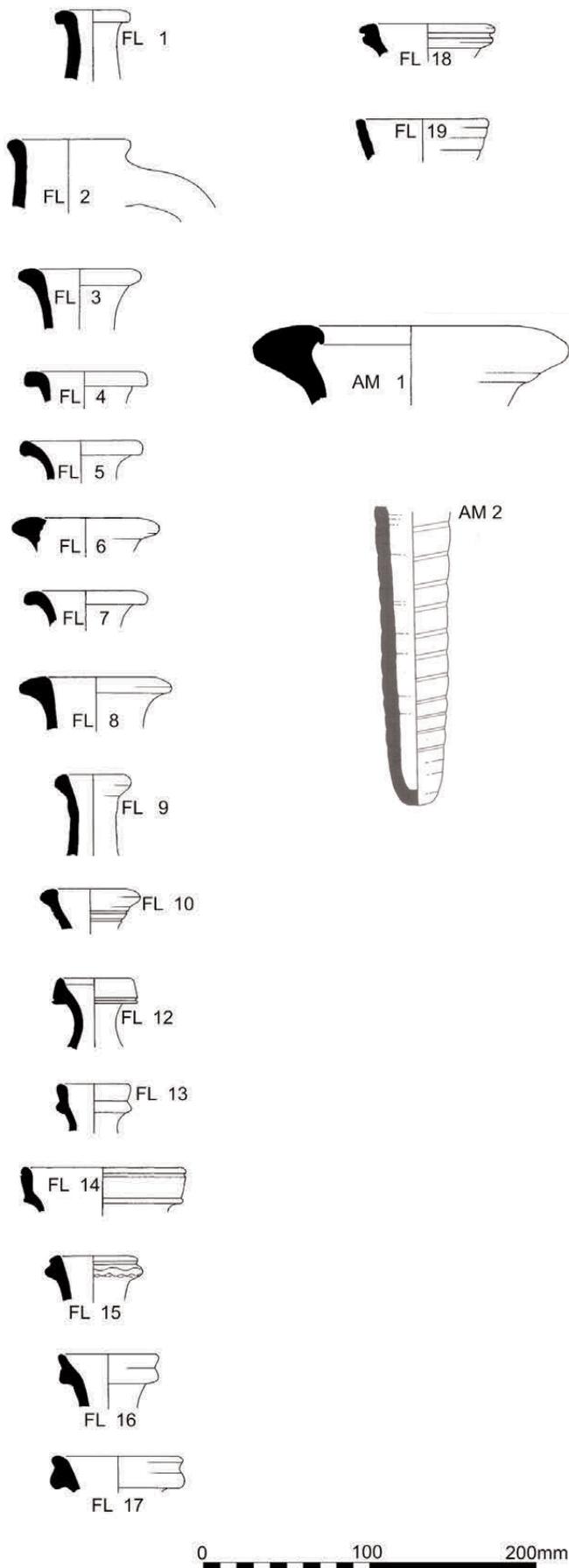


Fig 16.23 Coarseware: the flagons and amphorae (scale 1:4).

Amphorae (Figs 16.23–16.24)

Dressel 20

The amphora is distinguished by a large globular body with thick, sharply bent or oval-shaped handles; short neck, often with an internally concave rim and a small basal knob. The production centre lay in Baetica (southern Spain), along the River Guadalquivir, between Seville and Cordoba. It was the most common amphora type in the Roman West from the late 1st to the early 3rd centuries.

AM 1. Dressel 20 = Baetican (Late) amphorae 2 (BAT AM 2) of the National Fabric Reference Collection (Tomber and Dore 1998, 85). It is distinctive in its dense, very hard and fine appearance with a thick grey core and buff external surface. The external surface is normally slipped or self-slipped to pale brown or buff.

Carrot amphora?

Hollow, ribbed spike of an amphora. The surviving length is 180mm and the diameter at the broken top end only 45mm, suggesting that the complete vessel would have had a narrow body. This is supported by its *in situ* findspot in a stone setting close to the inner face of the west wall of the Barrack XIII centurion's quarters (see Fig 16.24); only a narrow vessel could have stood upright at this spot. It is difficult to identify the exact form involved. In a British context, its resemblance to the shape of a carrot amphora (Peacock and Williams 1986, fig 42; Camulodunum 189, Peacock and Williams Class 12 amphorae) or the even later Chalk 6 type (*ibid*, fig 118; Peacock and Williams Class 50 amphorae) has been noted, though with the proviso that the fabric of the Housesteads example is very different from those commonly associated with the above forms (D F Williams pers comm, 1989). However, in form the typology of the carrot amphora is rather heterogeneous, including vessels of different sizes, rim diameters, tapered bodies and hollow spikes. Examples very similar to the Housesteads 'base spike' are known and it may well be that the fragment does indeed come from a carrot amphora, but one that was manufactured at a source as yet unidentified (G Forster pers comm).

AM 2. Hollow, ribbed spike of an amphora in a hard, roughish sandy fabric, light pinkish-buff in colour. Contains frequent, well-sorted, subangular grains of quartz, normally under 0.30mm in size, together with flecks of mica and a little chert and quartzite, all set in an anisotropic clay matrix. The 'carrot amphora' and Chalk amphora fabrics are respectively Peacock and Williams Class 12 amphorae (P&W AM 12) and Peacock and Williams Class 50 amphorae (P&W AM 50) of the National Fabric Reference Collection (Tomber and Dore 1998, 106, 110).

Beakers (Figs 16.25–16.26)

Symonds = Symonds 1992.

Type	Total	Eye	Fabric
BK 1	1	30	Bag-shaped beaker with fine, everted rim; Central Gaulish fabric (Symonds Group 10). Mid-2nd to mid-3rd century.
BK 2	1	15	Bag-shaped beaker (possibly with barbotine decoration); Central Gaulish fabric (Symonds Group 10 or 11). Mid-2nd to mid-3rd century.



Fig 16.24 Stone setting H13:1:129 with amphora spike in situ in the centurion's quarters.

BK 3	1	15	Body sherd from an unindented globular beaker; Central Gaulish fabric (Symonds Group 9). Mid-2nd to mid-3rd century.	BK 15	3	5	Wilderspool type; pale orange, red core, mid-brown surface; inclusions: sparse quartz and large orange-brown clay pellets up to 2.0mm, set in a silty matrix. <i>c</i> AD 100–160.
BK 4	4	83	Rim sherds from globular beakers; either plain (Symonds Group 9) or indented (Symonds Group 14); Central Gaulish fabric. Early 3rd century (see Symonds 1992, 26).	BK 16			Base sherd of a vessel such as BK 15 0.
BK 5			Wall sherd from a pedestal beaker with barbotine decoration (Symonds Group 11); Central Gaulish fabric. Mid-2nd to mid-3rd century.	BK 17	1	20	Everted rim beaker; Wilderspool type; probably originally rough-cast; pale orange, pale brown core, mid-brown surface; inclusions: mainly ≤ 0.2 mm, some up to 0.5mm; quartz and red iron-rich grains set in a silty matrix. <i>c</i> AD 100–160.
BK 6			Base sherd from a pedestalled vessel: either a beaker (such as Symonds Group 11), or possibly a cup (such as Symonds Group 7, or 8); Central Gaulish fabric. Mid-2nd to mid-3rd century (not illustrated).	BK 18			Wall sherds from pentice beakers; North Gaulish Reduced ware (NOG RE); made in NW Gaul, probably in the Somme Valley area; imported into Britain in the late 2nd and early to mid-3rd centuries (Richardson and Tyers 1984; Richardson 1986) (not illustrated).
BK 7	9	206	Rim sherds from indented beakers (Symonds Groups 33, 34 or 35); Trier fabric ('Moselkeramik'). 3rd century.	BK 19	4	97	Small bag-shaped colour-coated beakers with cornice rims; as Gillam type 86; Lower Nene Valley Colour Coat (LNV CC). 2nd half of 2nd to early 3rd century.
BK 8			Wall sherds from globular beakers as Symonds Group 33; Trier fabric. 3rd century (not illustrated).	BK 20	3	35	Bag-shaped colour-coated beakers with plain rims; some with vegetable decoration <i>en barbotine</i> ; as Gillam types 77, 79; all Lower Nene Valley (LNV CC). Late 2nd to early 3rd century.
BK 10	1	25	Large indented beaker (Symonds Group 35); Trier fabric. 3rd century.	BK 21	5	48	Rim sherds from bag-shaped beakers with devolved cornice rims; as Gillam types 84, 88, 89; some colour coated, Lower Nene Valley (LNV CC): 1077, 1136, 1617; others same fabric as BK 15 and 17: 848, 2292. Late 2nd to early 3rd century.
BK 11			Miscellaneous fragments of beakers in Trier fabric. 3rd century (not illustrated).	BK 22	5	145	Rim sherds from colour-coated plain-rim indented beakers, as Gillam type 53, 54; all Lower Nene Valley fabric (LNV CC). 3rd century
BK 12	1	30	Pinkish-brown, smooth black slipped surface; inclusions: abundant, up to 0.5mm, much quartz, less red iron-rich grains.	BK 23	4	71	Rim sherds from colour-coated globular beakers as BK 7 0; all Lower Nene Valley (LNV CC). 3rd century.
BK 13	6	91	Orange fabric, blue-grey core, dark brown colour coat covering rough-casting composed of fine clay particles; inclusions: abundant quartz, sparse iron-rich grains and mica, all ≤ 0.1 mm. <i>c</i> AD 100–150.				
BK 14	2	25	Wilderspool type; orange-red, orange-brown surface with clay particle rough-casting; inclusions: mainly ≤ 0.1 mm, some up to 0.2mm, sparse quartz and red iron-rich grains. <i>c</i> AD 100–160.				

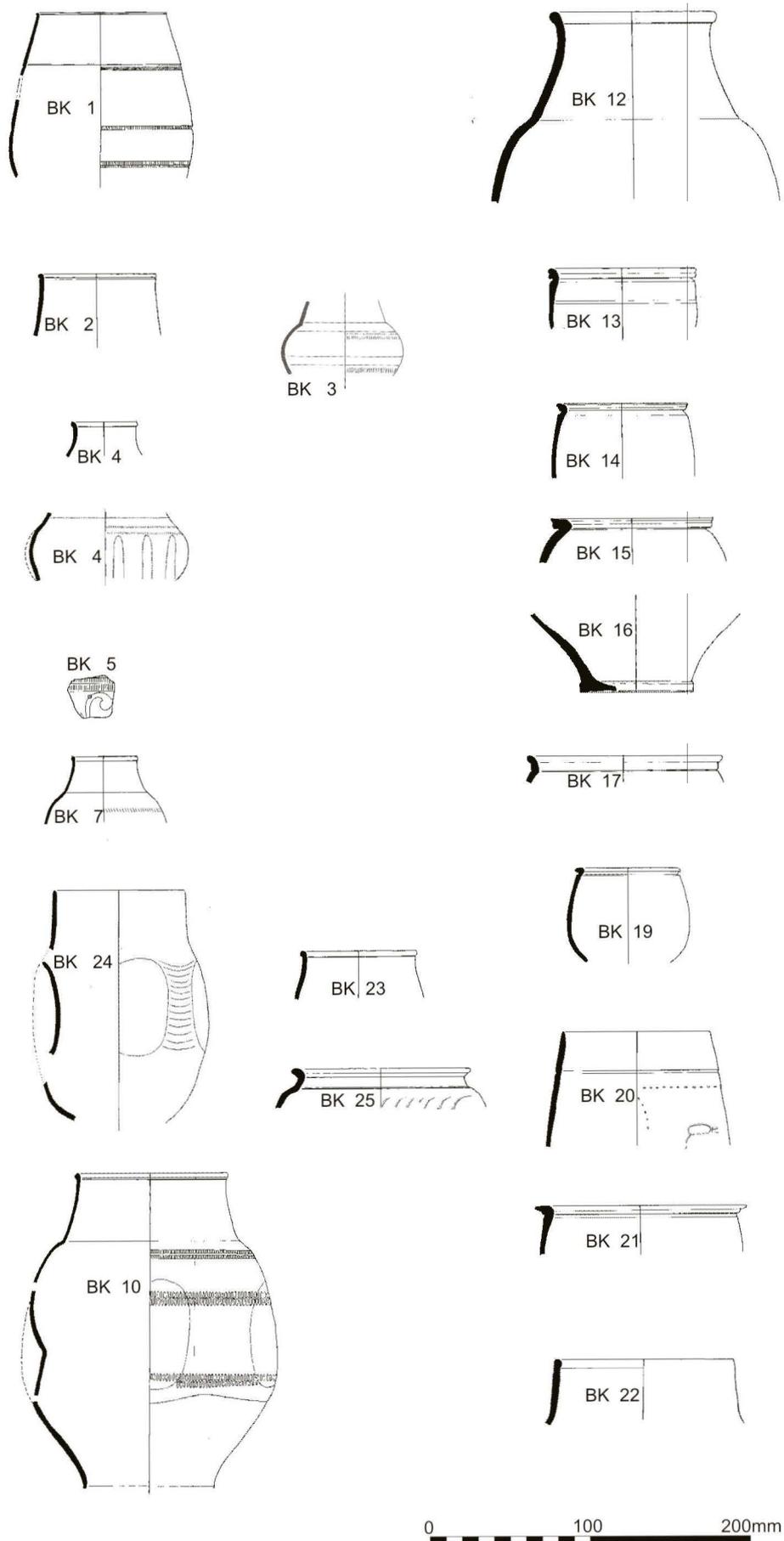
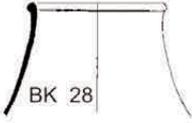
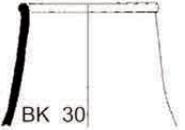
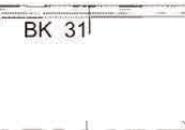
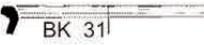
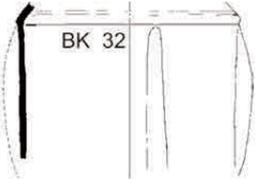
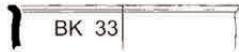
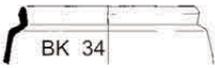
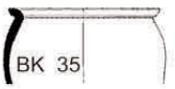
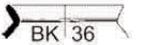
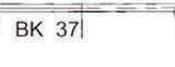
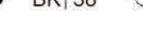


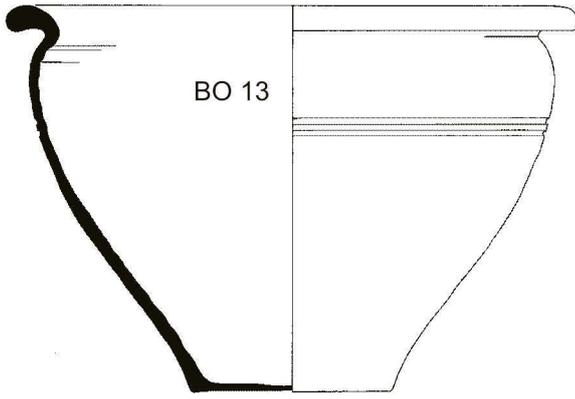
Fig 16.25 Coarseware: the beakers (scale 1:4).

	BK 28	1	20	Colour-coated indented beaker with plain rim and scale-pattern decoration; as Gillam type 53; Lower Nene Valley (LNV CC). 3rd century.
	BK 29	4	68	Colour-coated indented beaker with developed neck and scale-pattern decoration; as Gillam type 53; all Lower Nene Valley (LNV CC). 3rd century.
	BK 26			Wall sherds from colour-coated bag-shaped beakers with animals <i>en barbotine</i> ('Hunt Cups'); all Lower Nene Valley (LNV CC). Late 2nd to early 3rd century (not illustrated).
	BK 27			Wall sherds from colour-coated beakers with white painted decoration over the colour coat; all probably lower Nene Valley (LNV CC). 3rd to 4th century (not illustrated).
	BK 28	7	80	Rim sherds from colour-coated globular beakers similar to Trier types (Symonds Groups 32-35); all Lower Nene Valley (LNV CC). 3rd to 4th century
	BK 29	5	217	Rim sherds from colour-coated beakers with tall 'funnel' necks; all Lower Nene Valley (LNV CC). 4th century.
	BK 30	1	30	'Funnel' neck beaker; white, pale blue-grey core, dark grey surface; inclusions: mainly $\leq 0.1\text{mm}$ some up to 0.5mm ; much fine quartz, some larger black iron-rich grains; probably Crambeck. Late 3rd to 4th century.
	BK 31	1	15	Everted rim beaker; orange-red, dark purplish-red semi-lustrous colour-coat; inclusions: up to 0.5mm ; red iron-rich grains and white, quartz-rich clay pellets in a well-fired, silty matrix. 3rd century?
	BK 32			Off-white, dark grey powdery surface; inclusions: discrete, mainly $\leq 0.2\text{mm}$; quartz and black iron-rich grains. 3rd century?
	BK 33	1	14	Dull red-brown, dark grey surface; inclusions: mainly $\leq 0.5\text{mm}$, mainly quartz.
	BK 34	1	10	Dark grey-brown, black core, smooth burnished black surface; inclusions: sparse, up to 0.5mm ; matrix coloured clay pellets. Late 1st to early 2nd century.
	BK 35	1	22	Pale brown, rough off-white surface; inclusions: mainly $\leq 0.2\text{mm}$, some up to 1.0mm ; abundant quartz, sparse red iron-rich grains.
	BK 36	1	20	Dark grey, rough black surface; inclusions: mainly $\leq 0.2\text{mm}$; well-sorted, abundant quartz. Mid-2nd to early 3rd century.
	BK 37	1	17	Pale grey, black core, smooth dark grey surface; inclusions: sparse, up to 1.0mm ; clay pellets in a silty matrix.
	BK 38	1	20	Dull brownish-grey, pale grey core, brownish-grey surface; inclusions: mainly $\leq 0.1\text{mm}$ some up to 1.0mm ; much fine quartz and black iron-rich grains, larger dark-coloured clay pellets.
	BK 39	1	10	Pale grey, dark grey surface; inclusions: mainly $\leq 0.2\text{mm}$; well-sorted, abundant quartz.

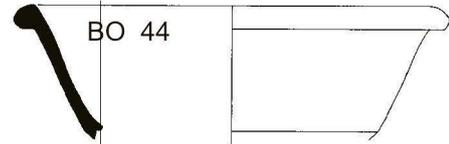
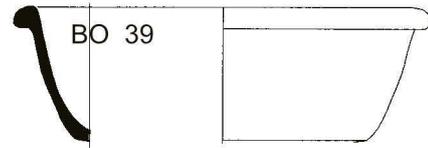
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Fig 16.26 Coarseware: the beakers (scale 1:4).

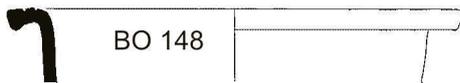
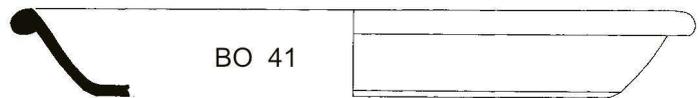
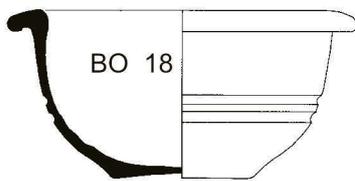
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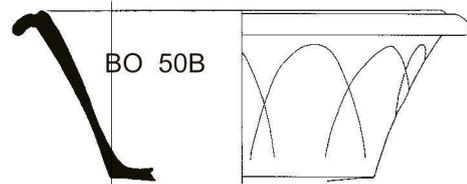
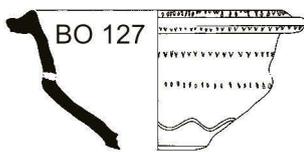
BLOCK 5 BB2 Bowls: Later (Large Rounded Rim) Types



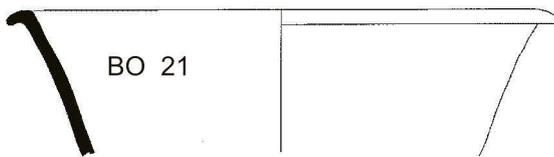
BLOCK 2 Early Non-BB bowls



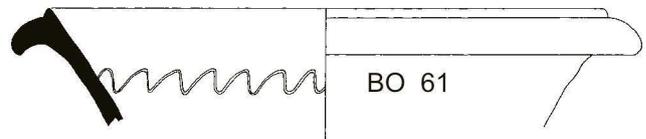
BLOCK 6 Grooved Flange Rim (Incipient Flange) Bowls in BB1



BLOCK 3 Flat Rim Bowls and Dishes in BB1 and related fabrics



BLOCK 7 Truncated Conical Flanged Bowls (All Fabrics)



BLOCK 4 BB2 Bowls - Earlier Types

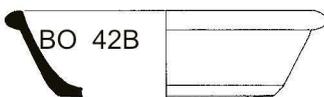
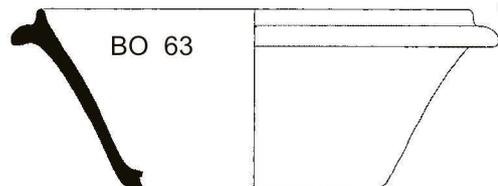
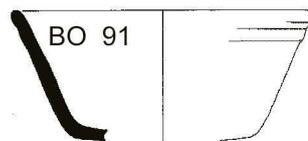
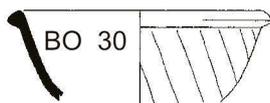
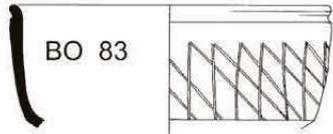
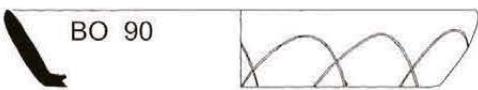


Fig 16.27–16.28 (above and facing) Coarseware blocks (scale 1:4).

BLOCK 8 Bowls and Dishes with groove below rim in BB1



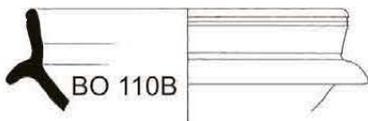
BLOCK 9 Plain Rim Dishes in BB1



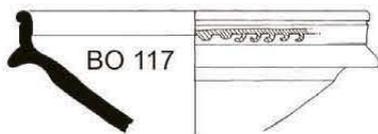
BLOCK 10 Plain Rim Dishes in Crambeck Ware



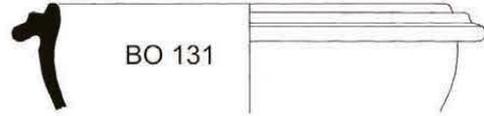
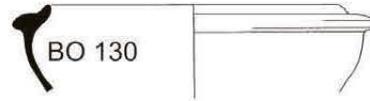
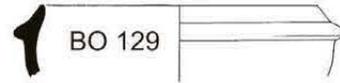
BLOCK 11 Bowls with girth flanges, in red and grey (Crambeck and related) fabrics



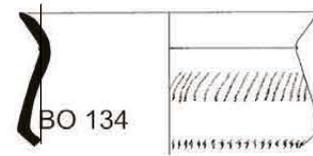
BLOCK 12 All Painted Crambeck Bowls, Dishes and Mortaria



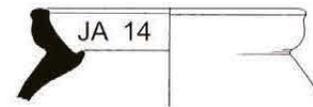
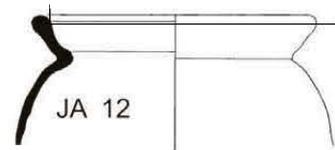
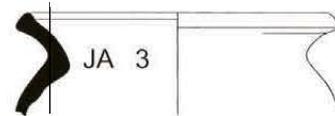
BLOCK 13 Miscellaneous Bowls



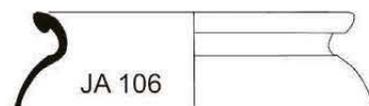
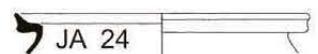
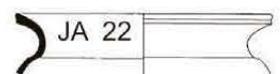
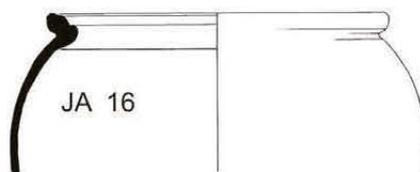
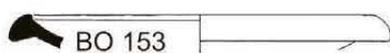
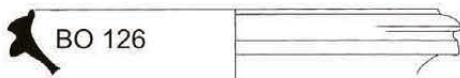
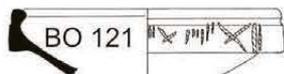
BLOCK 14 Throlam/Norton WMJs



BLOCK 15 All Dales/Derbyshire Lid-seated Jars



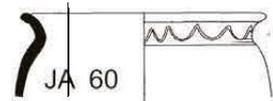
BLOCK 16 All Thameside (Mucking) Jars



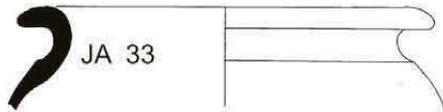
BLOCK 17 Huntcliff Type Jars



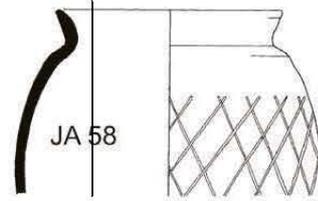
BLOCK 23 BB1 Jars Early - upright rim wavy line on neck



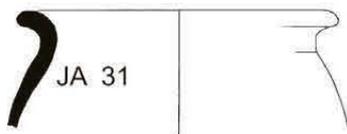
BLOCK 18 Almost Huntcliff Type Jar



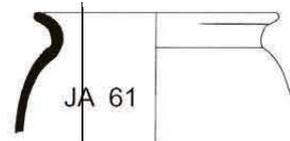
BLOCK 24 BB1 Jars Early



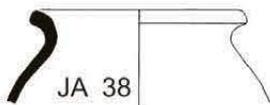
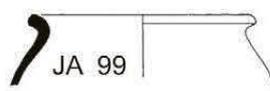
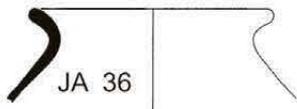
BLOCK 19 Non-Huntcliff Calcite Gritted Jars



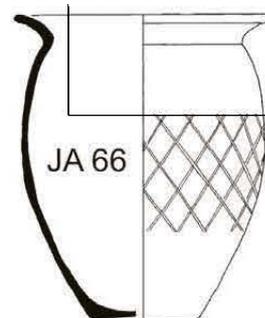
BLOCK 25 BB1 Jars Early



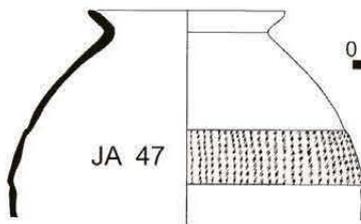
BLOCK 20 Early Everted Rim Jars



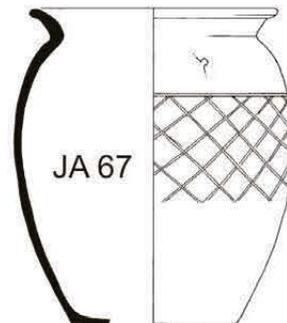
BLOCK 26 BB1 Jars Late (but without scored line)



BLOCK 21 Everted Rim Jars



BLOCK 27 BB1 Jars Late (with scored line)



BLOCK 22 All BB2 jars (including neckless)

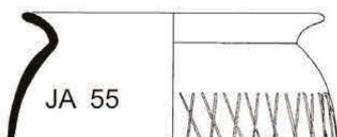
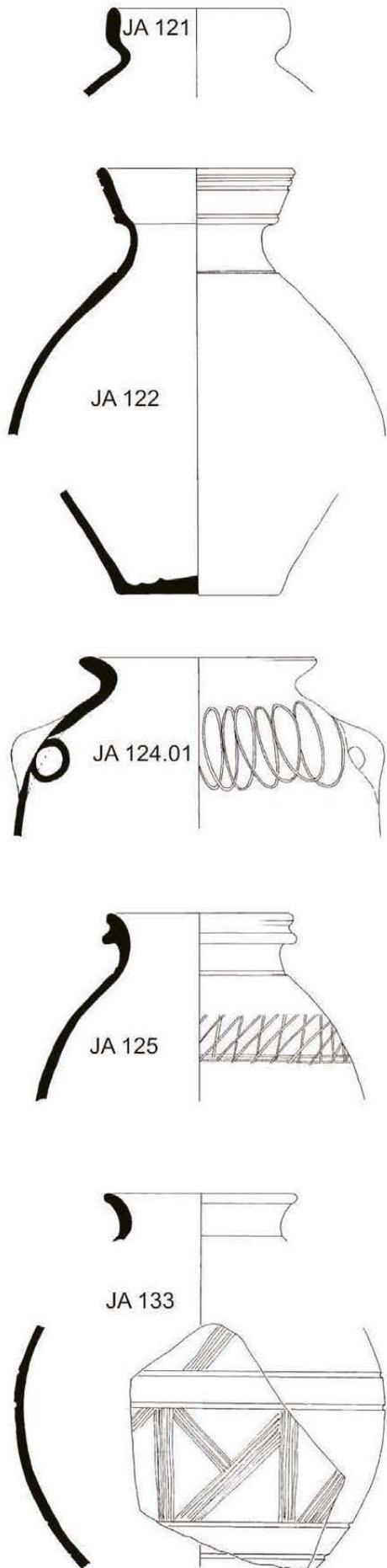
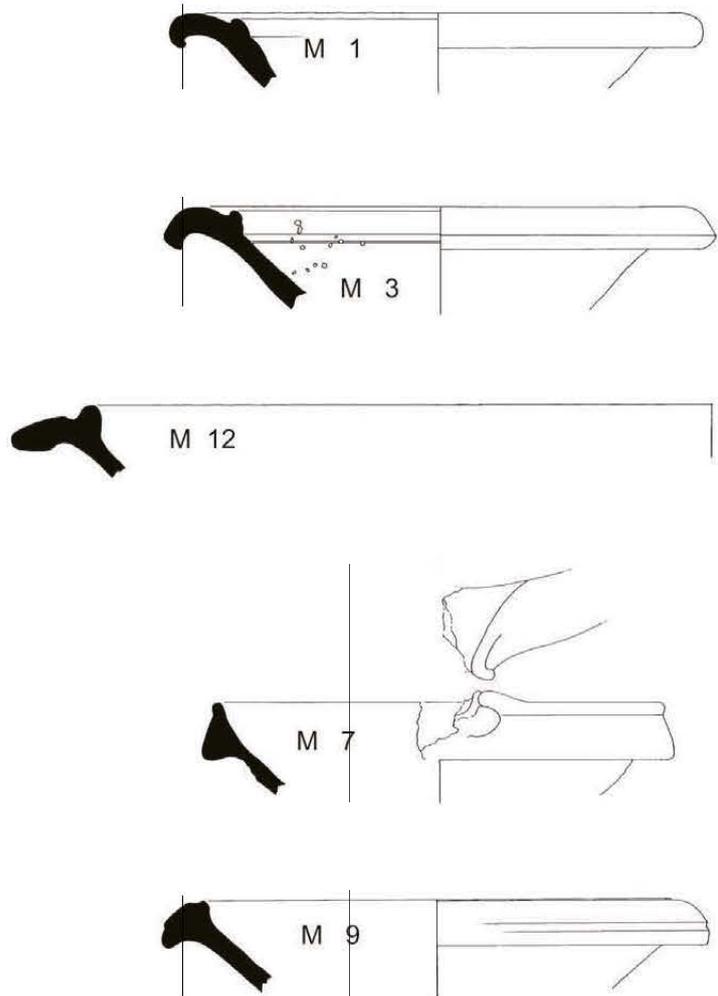


Fig 16.29 Coarseware blocks (scale 1:4).

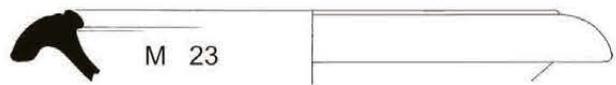
BLOCK 28 Miscellaneous Late NMJs



BLOCK 29 Mortaria whose date should be confined to the 2nd C



BLOCK 30 Late 2nd C Hartshill Mancetter Type (Corbridge Fabric)



BLOCK 31 L 2nd - E 3rd C Hartshill Mancetter Type (Hartshill Mancetter Fabric)

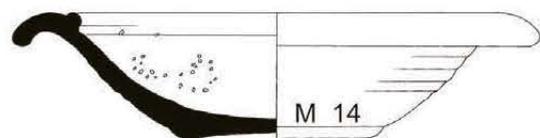
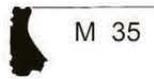
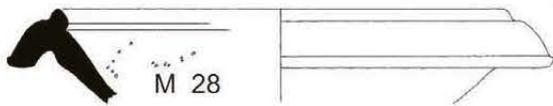
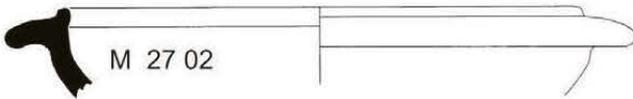
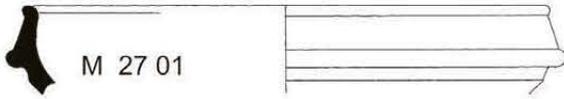


Fig 16.30 Coarseware blocks (scale 1:4).

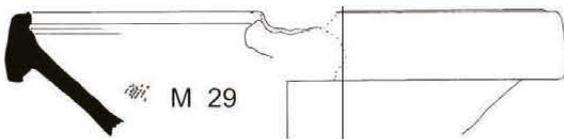
BLOCK 32 Colchester



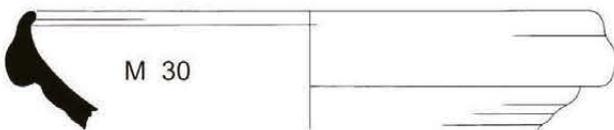
BLOCK 33 Raetian



BLOCK 34 Rhineland



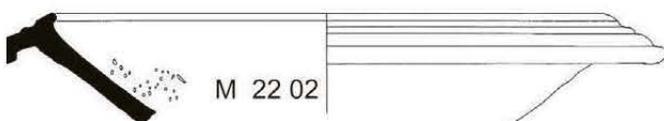
BLOCK 35 North Gaulish White Ware 4



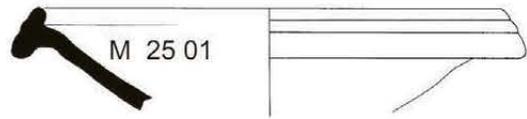
BLOCK 36 3rd C Hartshill Mancetter Hammer Head



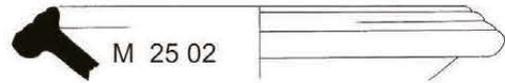
BLOCK 37 Lower Nene Valley



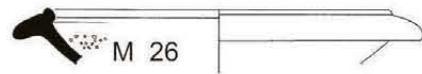
BLOCK 38 Yorkshire (possibly Cantley)



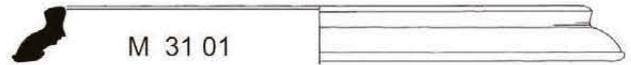
BLOCK 39 Late (Corbridge?)



BLOCK 40 Crambeck White Ware



BLOCK 41 Oxford



BLOCK 42 Miscellaneous Late

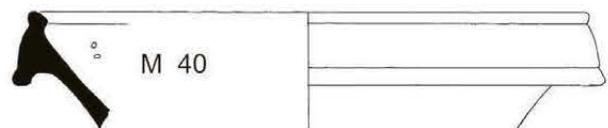
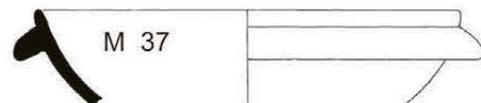
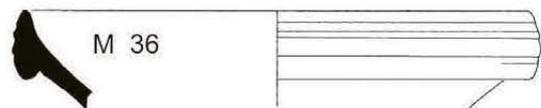
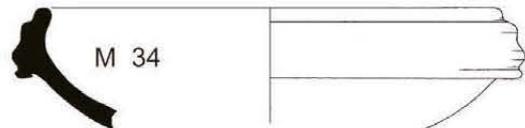
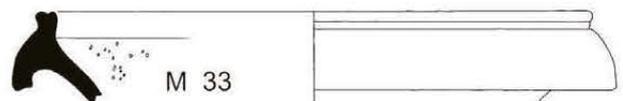
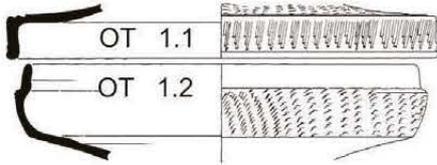


Fig 16.31 Coarseware blocks (scale 1:4).

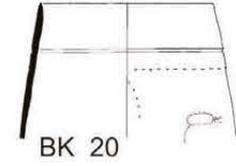
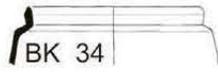
BLOCK 43 Castor Box



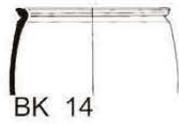
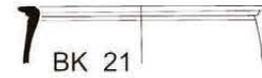
BLOCK 47 L2 - E3 C
Lower Nene Valley



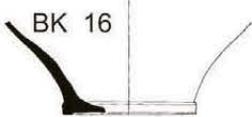
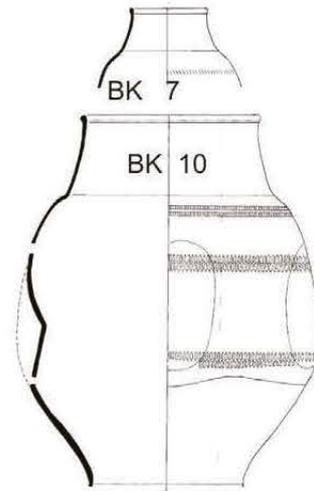
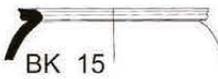
BLOCK 44 L1-E2 C Beakers



BLOCK 45 Beakers 1st half of
2nd C Many Rough Cast



BLOCK 48 3rd C



BLOCK 46 Late 2nd-Early 3rd C.
Central Gaulish & Rhineland

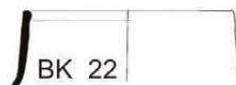
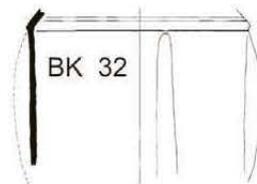
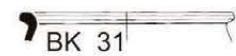
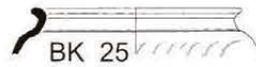
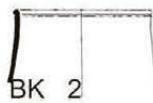
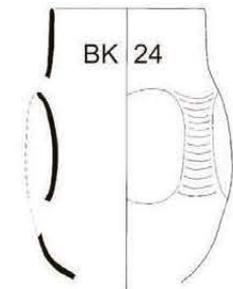
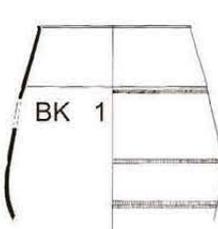


Fig 16.32 Coarseware blocks (scale 1:4).

BLOCK 49 Late 3rd C - 4th C

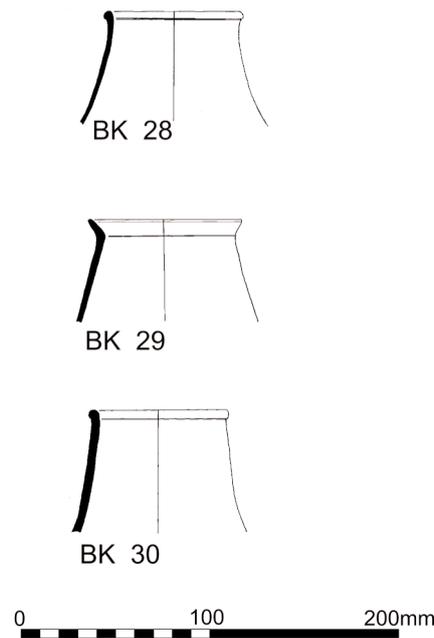


Fig 16.33 Coarseware blocks (scale 1:4).

Table 16.2 Coarseware blocks by context

(see concordance chart Tables 1.3 and 1.4 for a key to the phasing used below; see also Figs 16.27–16.33)

Block no.	phase	site	area	context	form	code		FVN
1			0	0	BO	7	0	1662
1		S1	13	78	BO	13	0	2344
1	3b	20	7	64	BO	5	0	1347
1	4b	20	5	11	BO	14	0	1255
1	4b	20	6	75	BO	2	0	1110
1	4b	20	9	3	BO	7	0	1445
1	4c	20	4	10	BO	13	0	1145
1	4c	20	6	18	BO	7	0	1079
1	4c	20	6	2	BO	12	0	1052
1	4c	20	9	4	BO	7	0	1445
1	BA	13	5	13	BO	13	0	212
1	BA5+	13	1	54	BO	7	0	646
1	CH1	13	2	8	BO	5	0	728
1	CH1	13	4	9	BO	13	0	825
1	CH1	13	6	12	BO	12	0	2086
1	CH3	13	4	3	BO	13	0	825
1	CH3	13	5	3	BO	2	0	189
1	CH3	13	5	3	BO	2	0	189
1	CH3	13	6	5	BO	3	0	580
1	CH3	13	6	5	BO	3	0	571
1	CH3	13	6	5	BO	9	0	577
1	CH3	13	7	1	BO	3	0	525
1	M	13	0	0	BO	16	0	252
1	M	13	0	0	BO	5	0	989
1	M	13	0	2	BO	4	0	286
1	M	13	1	0	BO	10	0	86
1	M	13	2	0	BO	4	0	925
1	M	13	5	0	BO	12	0	124
1	M	13	5	0	BO	5	0	122

<i>Block no.</i>	<i>phase</i>	<i>site</i>	<i>area</i>	<i>context</i>	<i>form</i>	<i>code</i>		<i>FVN</i>
1	M	13	5	0	BO	13	0	123
1	M	13	6	0	BO	9	0	559
1	M	13	7	0	BO	6	0	502
1	M	13	7	5	BO	2	0	528
1	M	13	8	0	BO	3	0	346
1	M	13	8	0	BO	13	0	344
1	M	13	10	0	BO	6	0	395
1	M	13	10	0	BO	13	0	396
1	M	13	11	1	BO	13	0	880
1	M	13	11	0	BO	10	0	850
1	M	14	9	1	BO	5	0	1645
1	M	20	6	0	BO	17	0	1023
1	M	20	6	0	BO	16	0	1019
1	M	20	6	0	BO	2	0	1020
1	M	20	6	0	BO	2	0	1027
1	M	20	7	0	BO	15	0	1266
1	M	20	7	0	BO	1	0	1281
1	M	20	7	0	BO	5	0	1267
1	M	20	7	0	BO	5	0	1265
1	M	21	2	1	BO	13	0	1584
1	Med?/M	20	8	3	BO	8	0	1380
2		S1	13	78	BO	148	0	2364
2	2b	21	2	44	BO	18	0	1573
2	2e	21	2	37	BO	18	0	1593
2	3b/4b?	21	1	8	BO	18	0	1601
2	4b	21	2	11	BO	18	0	1573
2	M	21	3	1	BO	127	0	1618
3		20	0	0	BO	24	0	1362
3		20	0	0	BO	20	0	1365
3	?	13	11	19	BO	23	0	890
3	1b	21	2	22	BO	27	0	1594
3	2e/3r?	21	2	41	BO	27	0	2432
3	3a	20	5	20	BO	21	0	1474
3	3b	20	3	23	BO	23	0	2312
3	3b	20	3	19	BO	23	0	2308
3	3b	20	4	63	BO	25	0	1170
3	3b	20	4	63	BO	23	0	1174
3	3b	20	4	29	BO	23	0	1201
3	3b	20	4	44	BO	23	0	1165
3	3b	20	4	22	BO	25	0	1183
3	3b	20	4	44	BO	25	0	1163
3	3c	21	1	4	BO	23	0	1599
3	3d/4a/4b	20	9	9	BO	21	0	1464
3	4	15	1	97	BO	23	0	2032
3	4a	20	3	39	BO	27	0	2317
3	4a	20	4	1	BO	23	0	2098
3	4a	20	4	1	BO	25	0	2096
3	4a	20	4	1	BO	27	0	2123
3	4a	20	8	8	BO	25	0	1388
3	4b	21	2	30	BO	27	0	1590
3	4b+	21	2	18	BO	27	0	1594
3	4c	20	4	37	BO	23	0	2435
3	4c	20	4	37	BO	27	0	2436
3	BA	13	6	28	BO	23	0	787
3	BA	13	9	11	BO	22	0	954
3	BA	13	9	11	BO	26	0	955
3	CH1	13	8	5	BO	23	0	738
3	M	13	7	0	BO	23	0	505
3	M	14	5	2	BO	27	0	2078
3	M	20	4	0	BO	23	0	2247
3	M	20	4	0	BO	25	0	2245
3	M	21	2	2	BO	23	0	1578
3	M	21	4	1	BO	25	0	2038
3	Med?/M	20	8	3	BO	26	0	1382

Table 16.2 (cont'd)

<i>Block no.</i>	<i>phase</i>	<i>site</i>	<i>area</i>	<i>context</i>	<i>form</i>	<i>code</i>		<i>FDN</i>
4		S1	13	78	BO	35	0	2384
4		S1	13	78	BO	35	0	2384
4	-	20	4	55	BO	42	0	1160
4	?	13	1	98	BO	92	0	612
4	?	13	11	19	BO	32	0	889
4	3b	20	3	46	BO	32	0	2318
4	3b	20	4	35	BO	91	0	1178
4	3b	20	4	29	BO	30	0	1198
4	3b	20	4	29	BO	91	0	1200
4	3b	20	4	44	BO	42	0	1164
4	3b	20	4	44	BO	42	0	1162
4	3b	20	4	62	BO	42	0	1194
4	3b	20	5	36	BO	43	0	1238
4	3b	20	6	48	BO	38	0	1107
4	3b	20	8	23	BO	42	0	1524
4	3b	20	8	44	BO	31	0	1506
4	3b	20	8	63	BO	32	0	1533
4	3b	20	8	63	BO	32	0	1532
4	3b	21	3	44	BO	33	0	1640
4	3b/4b?	21	1	8	BO	42	0	1603
4	3d	20	8	6	BO	92	0	1416
4	4	SE	1	29	BO	34	0	1668
4	4	SE	1	29	BO	91	0	1669
4	4a	20	4	1	BO	42	0	2100
4	4a	20	4	1	BO	35	0	2102
4	4a	20	4	1	BO	42	0	2109
4	4a	20	4	16	BO	42	0	1116
4	4a	20	4	1	BO	42	0	2165
4	4a	20	4	1	BO	35	0	2128
4	4a	20	4	1	BO	91	0	2103
4	4a	20	4	1	BO	42	0	2124
4	4a	20	4	1	BO	35	0	2102
4	4a	20	4	1	BO	42	0	2107
4	4a	20	4	1	BO	42	0	2106
4	4a	20	4	1	BO	91	0	2104
4	4a	20	4	13	BO	42	0	1135
4	4a	20	4	1	BO	35	0	2128
4	4a	20	5	12	BO	35	0	1485
4	4a	20	5	12	BO	35	0	1485
4	4a	20	7	49	BO	91	0	1336
4	4a	20	8	68	BO	42	0	1511
4	4a/4b	20	7	2	BO	91	0	1318
4	4b	20	9	2	BO	42	0	1444
4	4b	21	2	12	BO	91	0	1576
4	4c	20	3	11	BO	91	0	2294
4	4c	20	5	8	BO	35	0	1490
4	4c	20	5	8	BO	35	0	1490
4	4c	20	6	2	BO	91	0	1046
4	4c	20	8	17	BO	42	0	1413
4	4e	20	7	34	BO	42	0	1341
4	BA	13	5	13	BO	42	0	216
4	BA	13	11	31	BO	30	0	893
4	BA4	13	1	100	BO	91	0	617
4	BA5+	13	1	54	BO	91	0	643
4	CH1	13	0	12	BO	42	0	300
4	CH1	13	2	8	BO	42	0	731
4	CH1	13	2	8	BO	42	0	730
4	CH1	13	8	5	BO	91	0	741
4	CH1?	13	11	4	BO	42	0	884
4	CH2	13	6	38	BO	42	0	780
4	M	13	1	0	BO	91	0	94
4	M	13	1	170	BO	91	0	643

<i>Block no.</i>	<i>phase</i>	<i>site</i>	<i>area</i>	<i>context</i>	<i>form</i>	<i>code</i>		<i>FVN</i>
4	M	13	8	0	BO	42	0	339
4	M	13	8	0	BO	42	0	338
4	M	13	9	3	BO	91	0	705
4	M	13	10	0	BO	42	0	401
4	M	13	11	0	BO	42	0	843
4	M	20	2	0	BO	42	0	1502
4	M	20	3	0	BO	35	0	2272
4	M	20	3	0	BO	35	0	2272
4	M	20	3	0	BO	91	0	2267
4	M	20	4	0	BO	42	0	2241
4	M	20	4	0	BO	42	0	2235
4	M	20	4	0	BO	42	0	2224
4	M	20	6	0	BO	42	0	1036
4	M	21	2	1	BO	42	0	1585
4	M	21	4	1	BO	42	0	2040
4	M?	14	3	4	BO	91	0	2071
5		20	0	0	BO	41	0	1366
5		C	13	78	BO	41	0	2414
5	-	20	6	62	BO	40	0	1083
5	2b	20	4	79	BO	39	0	1148
5	3a	20	5	20	BO	41	0	1476
5	3b	20	4	22	BO	39	0	1184
5	3b	20	4	35	BO	39	0	1179
5	3b	20	5	36	BO	39	0	1234
5	3b	20	5	36	BO	44	0	1235
5	3b	20	5	31	BO	39	0	1227
5	3b	20	6	23	BO	39	0	1153
5	3b	20	6	23	BO	39	0	1152
5	3b	20	6	48	BO	40	0	1105
5	3b	20	8	23	BO	39	0	1523
5	3b	20	8	63	BO	37	0	1531
5	3b	20	8	63	BO	40	0	1530
5	3b	20	8	63	BO	39	0	1525
5	3b	20	9	45	BO	39	0	1451
5	3b	20	9	10	BO	39	0	1436
5	3b	20	9	10	BO	40	0	1649
5	3b	20	9	10	BO	40	0	1435
5	3b/4b?	21	1	8	BO	37	0	1604
5	3c/M	21	1	3	BO	37	0	2430
5	3d	20	8	22	BO	39	0	369
5	3d	20	8	22	BO	37	0	1550
5	3d/4a/4b	20	9	9	BO	39	0	1651
5	3d/4a/4b	20	9	9	BO	44	0	1466
5	3d/4a?	20	6	19	BO	40	0	1092
5	4a	20	4	1	BO	37	0	2101
5	4a	20	4	16	BO	39	0	1117
5	4a	20	4	1	BO	37	0	2127
5	4a	20	4	1	BO	37	0	2125
5	4a	20	6	4	BO	39	0	1062
5	4a	20	6	4	BO	44	0	1063
5	4a	20	7	15	BO	44	0	1357
5	4a	20	8	8	BO	41	0	1390
5	4a	20	8	8	BO	40	0	1391
5	4a/4b	20	7	2	BO	40	0	1315
5	4a/4b	20	7	2	BO	44	0	1314
5	4b	20	9	2	BO	39	0	1443
5	4b	21	2	30	BO	44	0	1589
5	4b+	21	2	18	BO	40	0	1595
5	4c	20	6	2	BO	40	0	1053
5	4c	20	9	5	BO	39	0	1440
5	BA	13	10	7	BO	39	0	431
5	BA5	13	0	29	BO	39	0	603
5	BA5	13	0	29	BO	40	0	604
5	CH1	13	5	4	BO	44	0	774

Table 16.2 (cont'd)

<i>Block no.</i>	<i>phase</i>	<i>site</i>	<i>area</i>	<i>context</i>	<i>form</i>	<i>code</i>		<i>FVN</i>
5	CH1?	13	10	8	BO	40	0	962
5	CH1?	13	10	8	BO	39	0	437
5	M	13	1	0	BO	40	0	87
5	M	13	1	170	BO	40	0	626
5	M	13	4	0	BO	39	0	795
5	M	13	5	0	BO	39	0	765
5	M	13	5	0	BO	40	0	131
5	M	13	5	0	BO	39	0	128
5	M	13	6	0	BO	44	0	551
5	M	13	8	0	BO	39	0	340
5	M	13	9	0	BO	39	0	684
5	M	13	10	10	BO	39	0	440
5	M	13	11	0	BO	39	0	842
5	M	15	1	1	BO	37	0	2001
5	M	20	4	0	BO	37	0	2236
5	M	20	4	0	BO	37	0	2237
5	M	20	4	0	BO	37	0	2244
5	M	20	5	4	BO	40	0	1472
6	2b	20	3	12	BO	50	0	2307
6	2e	21	1	43	BO	50	0	1611
6	3a	20	5	20	BO	50	0	1475
6	3d/4a/4b	20	9	9	BO	50	0	1652
6	3d/4a/4b	20	9	9	BO	50	0	1467
6	3d/4a/4b	20	9	9	BO	53	0	1468
6	3d/4a?	20	6	19	BO	54	0	1095
6	3r/4r	21	3	18	BO	56	0	1624
6	4a	20	3	39	BO	52	0	2313
6	4a	20	4	1	BO	54	0	2167
6	4a	20	4	1	BO	50	0	2091
6	4a	20	4	1	BO	54	0	2115
6	4a	20	4	1	BO	50	0	2122
6	4a	20	4	1	BO	52	0	2129
6	4a	20	4	1	BO	52	0	2112
6	4a	20	6	33	BO	50	0	1103
6	4a	20	7	1	BO	52	0	1300
6	4a	20	8	8	BO	50	0	1387
6	4a/4b	20	7	2	BO	56	0	1313
6	4b	20	8	16	BO	56	0	1419
6	4b	20	8	16	BO	50	0	1420
6	4c	20	6	2	BO	56	0	1044
6	4c	20	7	3	BO	55	0	1331
6	BA	13	5	13	BO	51	0	215
6	BA	13	11	20	BO	50	0	891
6	BA3	13	1	172	BO	50	0	26
6	BA5/CH1	13	0	22	BO	50	0	305
6	CH1	13	4	4	BO	54	0	826
6	CH1	13	8	18	BO	54	0	366
6	CH1	13	8	5	BO	51	0	746
6	CH1	13	11	14	BO	50	0	888
6	CH1?	13	11	4	BO	50	0	883
6	CH3	13	5	3	BO	50	0	192
6	CH3	13	5	3	BO	50	0	192
6	M	13	0	0	BO	52	0	244
6	M	13	1	0	BO	56	0	62
6	M	13	5	0	BO	56	0	118
6	M	13	5	0	BO	50	0	114
6	M	13	6	0	BO	50	0	546
6	M	13	8	0	BO	56	0	587
6	M	13	8	0	BO	56	0	586
6	M	13	10	0	BO	50	0	403
6	M	13	11	0	BO	50	0	844
6	M	20	3	0	BO	51	0	2275

<i>Block no.</i>	<i>phase</i>	<i>site</i>	<i>area</i>	<i>context</i>	<i>form</i>	<i>code</i>		<i>FVN</i>
6	M	20	4	0	BO	51	0	2219
6	M	20	6	0	BO	54	0	1009
6	M	20	7	0	BO	56	0	1268
6	M	20	7	0	BO	56	0	1260
6	M	21	2	1	BO	56	0	1583
6	M	21	2	1	BO	56	0	1582
7		C	13	78	BO	71	0	2418
7		C	13	78	BO	71	0	2417
7		S	13	0	BO	57	0	2405
7		S	13	0	BO	65	0	2406
7		S	13	0	BO	69	0	2421
7		S1	13	78	BO	57	0	2394
7		S1	13	78	BO	80	0	2341
7		S1	13	78	BO	57	0	2366
7		S1	13	78	BO	73	0	2347
7		S1	13	78	BO	63	0	2387
7		S1	13	78	BO	57	0	2340
7		S1	13	78	BO	71	0	2338
7		S1	13	78	BO	61	0	2343
7		S1	13	78	BO	71	0	2342
7		S1	13	78	BO	71	0	2337
7		S1	13	78	BO	73	0	2346
7		S1	13	78	BO	73	0	2348
7		S1	13	78	BO	73	0	2373
7		S1	13	78	BO	73	0	2393
7		S1	13	78	BO	73	0	2355
7	-	21	2	39	BO	64	0	1559
7	3d	20	8	22	BO	58	0	1547
7	4	SE	1	2	BO	70	0	1680
7	4	SE	1	25	BO	70	0	1663
7	4	SE	1	23	BO	63	0	1665
7	4	SE	1	13	BO	69	0	2447
7	4	SE	1	29	BO	62	0	1667
7	4a	20	4	1	BO	60	0	2131
7	4a	20	7	1	BO	57	0	1299
7	4b	20	5	11	BO	63	0	1253
7	4c	20	6	2	BO	57	0	1042
7	4c	20	6	22	BO	77	0	1085
7	4c	20	6	2	BO	71	0	1043
7	4c	20	7	3	BO	62	0	1332
7	4c	20	8	34	BO	57	0	1515
7	4c	20	8	17	BO	57	0	1414
7	4c	20	9	5	BO	71	0	1438
7	4c	20	9	4	BO	64	0	1647
7	4r	21	4	2	BO	71	0	2043
7	CH1	13	0	23	BO	64	0	311
7	CH1	13	6	12	BO	64	0	2085
7	CH1	13	6	12	BO	58	0	581
7	CH2	13	0	1	BO	59	0	276
7	CH2	13	0	13	BO	64	0	302
7	CH2	13	1	56	BO	68	0	619
7	CH2	13	1	35	BO	70	0	618
7	CH2	13	6	20	BO	65	0	480
7	CH2	13	8	3	BO	60	0	359
7	CH3	13	1	21	BO	59	0	11
7	CH3	13	1	17	BO	75	0	24
7	CH3	13	1	12	BO	59	0	223
7	CH3	13	1	12	BO	65	0	222
7	CH3	13	3	1	BO	75	0	917
7	CH3	13	4	3	BO	64	0	811
7	CH3	13	4	3	BO	67	0	810
7	CH3	13	4	3	BO	74	0	809
7	CH3	13	5	3	BO	64	0	188
7	CH3	13	5	3	BO	64	0	188

Table 16.2 (cont'd)

<i>Block no.</i>	<i>phase</i>	<i>site</i>	<i>area</i>	<i>context</i>	<i>form</i>	<i>code</i>		<i>FVN</i>
7	CH3	13	6	11	BO	64	0	475
7	CH3	13	6	11	BO	73	0	473
7	CH3	13	6	5	BO	66	0	576
7	CH3	13	6	5	BO	64	0	579
7	CH3	13	7	1	BO	57	0	517
7	CH3+	13	1	11	BO	79	0	45
7	CH3+	13	1	11	BO	72	0	46
7	CH3+/M	13	8	1	BO	57	0	2452
7	CH3+/M	13	8	2	BO	76	0	354
7	M	13	0	0	BO	63	0	259
7	M	13	0	0	BO	71	0	2089
7	M	13	0	0	BO	63	0	2088
7	M	13	0	0	BO	74	0	984
7	M	13	0	0	BO	62	0	253
7	M	13	0	0	BO	75	0	251
7	M	13	0	0	BO	71	0	248
7	M	13	0	2	BO	70	0	285
7	M	13	0	0	BO	57	0	245
7	M	13	0	0	BO	61	0	257
7	M	13	0	0	BO	63	0	258
7	M	13	0	0	BO	66	0	2090
7	M	13	0	2	BO	70	0	282
7	M	13	0	2	BO	59	0	284
7	M	13	0	0	BO	57	0	254
7	M	13	1	0	BO	72	0	65
7	M	13	1	0	BO	59	0	57
7	M	13	1	0	BO	59	0	61
7	M	13	1	0	BO	63	0	68
7	M	13	1	0	BO	61	0	56
7	M	13	1	0	BO	63	0	63
7	M	13	1	0	BO	81	0	75
7	M	13	1	0	BO	62	0	59
7	M	13	1	170	BO	72	0	639
7	M	13	1	0	BO	57	0	60
7	M	13	1	0	BO	57	0	66
7	M	13	1	0	BO	79	0	64
7	M	13	1	0	BO	57	0	58
7	M	13	1	170	BO	67	0	638
7	M	13	1	0	BO	59	0	67
7	M	13	2	0	BO	65	0	923
7	M	13	2	0	BO	71	0	922
7	M	13	3	0	BO	77	0	899
7	M	13	3	0	BO	61	0	901
7	M	13	4	0	BO	73	0	804
7	M	13	4	6	BO	63	0	830
7	M	13	5	0	BO	62	0	759
7	M	13	5	2	BO	57	0	206
7	M	13	5	0	BO	57	0	760
7	M	13	5	0	BO	65	0	117
7	M	13	5	0	BO	77	0	761
7	M	13	5	0	BO	74	0	116
7	M	13	5	0	BO	74	0	115
7	M	13	5	0	BO	63	0	119
7	M	13	5	0	BO	65	0	149
7	M	13	5	0	BO	63	0	120
7	M	13	6	0	BO	70	0	543
7	M	13	6	0	BO	65	0	783
7	M	13	6	0	BO	82	0	542
7	M	13	6	0	BO	62	0	464
7	M	13	6	1	BO	63	0	467
7	M	13	6	0	BO	70	0	541
7	M	13	6	0	BO	70	0	544

<i>Block no.</i>	<i>phase</i>	<i>site</i>	<i>area</i>	<i>context</i>	<i>form</i>	<i>code</i>		<i>FVN</i>
7	M	13	7	0	BO	57	0	495
7	M	13	7	0	BO	76	0	498
7	M	13	7	0	BO	57	0	497
7	M	13	8	0	BO	75	0	324
7	M	13	8	0	BO	73	0	325
7	M	13	8	0	BO	59	0	322
7	M	13	8	0	BO	63	0	329
7	M	13	8	0	BO	57	0	326
7	M	13	8	0	BO	57	0	327
7	M	13	8	0	BO	62	0	321
7	M	13	9	0	BO	71	0	665
7	M	13	9	0	BO	71	0	672
7	M	13	9	0	BO	63	0	670
7	M	13	9	0	BO	60	0	667
7	M	13	9	0	BO	59	0	669
7	M	13	9	0	BO	71	0	671
7	M	13	9	0	BO	57	0	666
7	M	13	9	0	BO	63	0	668
7	M	13	10	11	BO	57	0	447
7	M	13	10	0	BO	80	0	405
7	M	13	10	0	BO	62	0	409
7	M	13	10	1	BO	62	0	418
7	M	13	10	11	BO	57	0	446
7	M	13	10	0	BO	57	0	407
7	M	13	11	1	BO	62	0	868
7	M	13	11	1	BO	57	0	869
7	M	13	11	0	BO	64	0	837
7	M	13	11	1	BO	60	0	867
7	M	13	11	0	BO	62	0	836
7	M	14	4	1	BO	74	0	2073
7	M	14	9	2	BO	78	0	1642
7	M	15	1	1	BO	71	0	2007
7	M	20	3	0	BO	73	0	2271
7	M	20	3	0	BO	69	0	2270
7	M	20	4	0	BO	63	0	2210
7	M	20	5	0	BO	62	0	1209
7	M	20	6	0	BO	63	0	1005
7	M	20	6	0	BO	68	0	1006
7	M	20	6	0	BO	64	0	1011
7	M	20	6	0	BO	69	0	1060
7	M	20	6	0	BO	71	0	1010
7	M	20	6	0	BO	59	0	1008
7	M	20	6	0	BO	65	0	1007
7	M	20	9	1	BO	57	0	1423
7	M	20	9	1	BO	60	0	1422
7	M	21	4	1	BO	63	0	2039
8	3b	20	5	31	BO	84	0	1225
8	3b	20	5	43	BO	85	0	1492
8	3b	20	5	36	BO	85	0	1242
8	3b	20	9	45	BO	85	0	1450
8	3r?	21	2	10	BO	85	0	1562
8	4a	20	4	13	BO	84	0	1129
8	4a	20	6	4	BO	85	0	1075
8	4a	20	6	4	BO	85	0	1064
8	4b	20	6	3	BO	85	0	1058
8	4c	20	8	12	BO	85	0	1409
8	BA3	13	1	202	BO	83	0	42
8	CH1	13	8	5	BO	85	0	742
8	CH1	13	11	8	BO	83	0	886
8	M	13	5	0	BO	85	0	133
8	M	13	5	0	BO	83	0	126
8	M	13	10	1	BO	85	0	427
8	M	20	6	0	BO	85	0	1035
9	2b	20	6	40	BO	86	0	1081

Table 16.2 (cont'd)

<i>Block no.</i>	<i>phase</i>	<i>site</i>	<i>area</i>	<i>context</i>	<i>form</i>	<i>code</i>		<i>FDN</i>
9	2r/3r	21	3	121	BO	86	0	1629
9	3a	20	5	20	BO	86	0	1477
9	3b	20	7	64	BO	90	0	1350
9	3d	20	8	22	BO	86	0	370
9	3d	20	8	22	BO	86	0	371
9	3d/4a/4b	20	9	9	BO	86	0	1463
9	4a	20	4	1	BO	86	0	2162
9	4a	20	4	1	BO	86	0	2159
9	4a	20	4	1	BO	86	0	2158
9	4a	20	4	1	BO	86	0	2157
9	4a	20	4	1	BO	86	0	2153
9	4a	20	4	1	BO	86	0	2156
9	4a	20	4	1	BO	86	0	2154
9	4a	20	4	1	BO	86	0	2152
9	4a	20	4	1	BO	86	0	2121
9	4a	20	6	21	BO	90	0	1096
9	4a	20	7	15	BO	86	0	1359
9	4a	20	7	1	BO	86	0	1301
9	4a	20	7	17	BO	86	0	1352
9	4a	20	7	27	BO	86	0	1293
9	4a	20	7	49	BO	86	0	1338
9	4a	20	8	40	BO	86	0	1513
9	4a	20	8	8	BO	86	0	1389
9	4a	20	8	48	BO	86	0	1519
9	4a	21	3	31	BO	86	0	1619
9	4a/4b	20	7	2	BO	86	0	1320
9	4a/4b	20	7	2	BO	86	0	1319
9	4a/4b	20	7	2	BO	86	0	1328
9	4b	20	5	11	BO	86	0	1254
9	4b	20	6	75	BO	86	0	1112
9	4b	20	8	16	BO	86	0	1421
9	4b	20	8	2	BO	86	0	1372
9	4b	21	2	12	BO	86	0	1577
9	4b	21	2	30	BO	88	0	1592
9	4b+	21	2	18	BO	86	0	1596
9	4b+	21	2	28	BO	90	0	1557
9	4c	20	3	11	BO	86	0	2295
9	4c	20	4	2	BO	86	0	2177
9	4c	20	4	2	BO	86	0	2178
9	4c	20	5	8	BO	86	0	1488
9	4c	20	7	4	BO	86	0	1309
9	4c	20	9	5	BO	86	0	1441
9	4c	20	9	39	BO	86	0	1433
9	BA	13	6	27	BO	86	0	786
9	BA	13	7	4	BO	86	0	529
9	BA	13	9	11	BO	86	0	708
9	BA	13	9	11	BO	86	0	956
9	BA	13	11	29	BO	86	0	597
9	BA/CH1	13	9	13	BO	86	0	953
9	BA4/5	13	0	28	BO	87	0	601
9	BA5	13	0	11	BO	86	0	297
9	BA5+	13	1	54	BO	88	0	633
9	BA5+	13	1	54	BO	86	0	632
9	BA5+	13	1	54	BO	86	0	645
9	BA5+	13	1	86	BO	90	0	621
9	BA5+	13	1	54	BO	86	0	644
9	BA5/CH1	13	0	22	BO	87	0	2458
9	CH1	13	0	12	BO	90	0	299
9	CH1	13	1	82	BO	86	0	610
9	CH1	13	2	8	BO	86	0	732
9	CH1	13	5	17	BO	86	0	173
9	CH1	13	8	5	BO	86	0	739

<i>Block no.</i>	<i>phase</i>	<i>site</i>	<i>area</i>	<i>context</i>	<i>form</i>	<i>code</i>		<i>FVN</i>
9	CH1	13	11	14	BO	86	0	594
9	CH2	13	0	13	BO	86	0	303
9	CH2	13	0	14	BO	86	0	304
9	CH2	13	6	4	BO	86	0	470
9	CH2	13	6	4	BO	86	0	2084
9	CH2	13	10	30	BO	86	0	961
9	CH2	13	10	20	BO	86	0	944
9	CH2?	13	1	46	BO	86	0	623
9	CH3	13	1	17	BO	86	0	22
9	CH3	13	1	21	BO	88	0	14
9	CH3	13	4	18	BO	86	0	608
9	CH3	13	4	3	BO	86	0	824
9	CH3	13	5	3	BO	86	0	186
9	CH3	13	5	3	BO	88	0	187
9	CH3	13	5	3	BO	88	0	187
9	CH3	13	5	3	BO	86	0	186
9	CH3	13	5	3	BO	86	0	194
9	CH3	13	5	3	BO	86	0	194
9	CH3	13	6	5	BO	86	0	566
9	CH3	13	7	1	BO	86	0	520
9	CH3+	13	6	13	BO	86	0	584
9	CH3+/M	13	8	2	BO	86	0	2456
9	CON	13	7	15	BO	90	0	950
9	M	13	0	0	BO	86	0	243
9	M	13	0	0	BO	86	0	993
9	M	13	0	0	BO	86	0	249
9	M	13	0	2	BO	86	0	280
9	M	13	0	0	BO	86	0	242
9	M	13	0	2	BO	86	0	287
9	M	13	1	0	BO	86	0	95
9	M	13	1	0	BO	86	0	90
9	M	13	1	170	BO	86	0	627
9	M	13	1	0	BO	86	0	92
9	M	13	1	0	BO	89	0	93
9	M	13	1	170	BO	86	0	628
9	M	13	4	6	BO	86	0	828
9	M	13	4	0	BO	86	0	792
9	M	13	4	0	BO	86	0	791
9	M	13	5	0	BO	86	0	130
9	M	13	5	2	BO	86	0	205
9	M	13	5	0	BO	86	0	764
9	M	13	5	0	BO	86	0	763
9	M	13	6	0	BO	86	0	547
9	M	13	8	0	BO	88	0	336
9	M	13	8	0	BO	86	0	337
9	M	13	9	3	BO	86	0	703
9	M	13	9	3	BO	86	0	707
9	M	13	9	0	BO	86	0	676
9	M	13	9	3	BO	86	0	704
9	M	13	9	3	BO	86	0	706
9	M	13	10	17	BO	86	0	460
9	M	13	10	17	BO	86	0	459
9	M	13	10	11	BO	86	0	449
9	M	13	10	0	BO	90	0	400
9	M	13	10	0	BO	86	0	398
9	M	13	11	0	BO	86	0	849
9	M	14	3	1	BO	86	0	2064
9	M	20	3	0	BO	86	0	2266
9	M	20	4	0	BO	86	0	2227
9	M	20	4	0	BO	86	0	2230
9	M	20	4	0	BO	86	0	2229
9	M	20	4	0	BO	86	0	2225
9	M	20	4	0	BO	86	0	2222
9	M	20	4	0	BO	86	0	2223

Table 16.2 (cont'd)

<i>Block no.</i>	<i>phase</i>	<i>site</i>	<i>area</i>	<i>context</i>	<i>form</i>	<i>code</i>		<i>FVN</i>
9	M	20	4	0	BO	86	0	2231
9	M	20	4	0	BO	86	0	2226
9	M	20	6	0	BO	86	0	1034
9	M	20	6	0	BO	86	0	1033
9	M	20	7	0	BO	86	0	1270
9	M	20	7	0	BO	86	0	1269
9	M?	14	5	4	BO	86	0	2080
9	PR	13	8	28	BO	90	0	376
10		S1	13	78	BO	94	0	2358
10		S1	13	78	BO	97	0	2349
10		S1	13	78	BO	94	0	2351
10	-	20	4	55	BO	94	0	1159
10	4	SE	1	12	BO	93	0	1659
10	4	SE	1	29	BO	94	0	1670
10	4a	20	5	29	BO	93	0	1247
10	4a	20	7	43	BO	96	0	1339
10	4b+	21	2	18	BO	94	0	1597
10	4c	20	5	8	BO	94	0	1489
10	4c	20	6	22	BO	94	0	1087
10	4c	20	8	34	BO	93	0	1516
10	4c	20	8	34	BO	96	0	1517
10	4c	20	9	6	BO	94	0	1447
10	CH2	13	1	8	BO	96	0	721
10	CH2	13	1	8	BO	93	0	720
10	CH2	13	8	3	BO	93	0	362
10	CH3	13	2	2	BO	93	0	935
10	CH3	13	2	2	BO	94	0	936
10	CH3	13	7	1	BO	95	0	521
10	CH3	13	7	1	BO	97	0	519
10	CH3+	13	1	11	BO	94	0	47
10	M	13	0	2	BO	96	0	290
10	M	13	0	0	BO	97	0	599
10	M	13	1	0	BO	94	0	89
10	M	13	4	0	BO	94	0	789
10	M	13	4	0	BO	93	0	790
10	M	13	5	0	BO	96	0	129
10	M	13	6	0	BO	96	0	550
10	M	13	6	0	BO	93	0	548
10	M	13	7	0	BO	94	0	501
10	M	13	7	0	BO	94	0	500
10	M	13	9	0	BO	93	0	679
10	M	13	9	0	BO	93	0	678
10	M	13	9	0	BO	97	0	677
10	M	13	10	11	BO	96	0	448
10	M	13	10	0	BO	94	0	397
10	M	13	10	0	BO	94	0	399
10	M	13	10	1	BO	96	0	419
10	M	14	9	2	BO	96	0	1643
10	M	20	2	0	BO	93	0	1499
10	M	20	9	1	BO	96	0	1427
10	M	21	4	9	BO	94	0	2052
11		S1	13	78	BO	110	0	2392
11	3	14	9	5	BO	111	0	1644
11	4	SE	1	2	BO	109	0	1675
11	4r	21	4	2	BO	111	0	2046
11	CH3	13	1	21	BO	113	0	15
11	CH3	13	7	1	BO	115	0	516
11	M	13	0	0	BO	109	0	256
11	M	13	0	0	BO	116	0	982
11	M	13	1	0	BO	110	0	96
11	M	13	2	0	BO	116	0	921
11	M	13	5	0	BO	111	0	132

<i>Block no.</i>	<i>phase</i>	<i>site</i>	<i>area</i>	<i>context</i>	<i>form</i>	<i>code</i>		<i>FVN</i>
11	M	13	6	0	BO	110	0	545
11	M	13	9	0	BO	110	0	673
11	M	13	9	0	BO	114	0	674
11	M	13	10	0	BO	109	0	404
11	M	13	10	11	BO	110	0	445
11	M	13	11	1	BO	112	0	860
11	M	21	3	19	BO	111	0	1623
12		S	13	0	BO	126	0	2403
12		S	13	0	BO	126	0	2402
12		S1	13	78	BO	117	0	2334
12		S1	13	78	BO	118	0	2335
12		S1	13	78	BO	118	0	2390
12		S1	13	78	BO	118	0	2322
12		S1	13	78	BO	126	0	2339
12		S1	13	78	BO	122	0	2333
12		S1	13	78	BO	118	0	2323
12		S1	13	78	BO	118	0	2331
12		S1	13	78	BO	122	0	2362
12		SE	1	0	BO	119	0	1684
12	4	SE	1	29	BO	122	0	1672
12	4	SE	1	2	BO	122	0	1678
12	4	SE	1	2	BO	117	0	1676
12	4a	20	4	1	BO	118	0	2140
12	4c	20	6	2	BO	126	0	1038
12	4r	21	4	2	BO	153	0	2047
12	CH2	13	1	8	BO	118	0	723
12	CH3	13	2	2	BO	118	0	933
12	M	13	0	2	BO	117	0	288
12	M	13	0	0	BO	124	0	977
12	M	13	0	0	BO	124	0	267
12	M	13	2	0	BO	124	0	924
12	M	13	3	0	BO	125	0	898
12	M	13	5	0	BO	117	0	864
12	M	13	5	0	BO	122	0	139
12	M	13	5	0	BO	126	0	121
12	M	13	7	0	BO	125	0	494
12	M	13	8	0	BO	124	0	315
12	M	13	9	0	BO	122	0	680
12	M	13	11	1	BO	117	0	595
12	M	13	11	1	BO	121	0	861
12	M	13	11	1	BO	125	0	862
12	M	13	11	1	BO	117	0	863
12	M	13	11	1	BO	119	0	865
12	M	13	11	1	BO	120	0	866
12	M	13	11	0	BO	121	0	841
12	M	13	11	1	BO	117	0	864
12	M	15	1	2	BO	118	0	2012
12	M	20	6	0	BO	120	0	1025
12	M?	21	3	20	BO	123	0	1620
13	M	13	1	0	BO	131	0	85
13	M	13	8	0	BO	130	0	323
13	M	13	9	0	BO	129	0	675
13	M	13	10	0	BO	130	0	408
13	M	13	11	0	BO	129	0	835
13	M	20	7	0	BO	131	0	1276
14	4a	20	4	1	BO	133	0	2172
14	CH3	13	4	3	BO	133	0	814
14	CH3	13	4	3	BO	134	0	813
15		S1	13	78	JA	8	0	2350
15	-	21	1	20	JA	13	0	1609
15	?	13	4	2	JA	14	0	806
15	3b	20	6	23	JA	100	0	1154
15	4a	20	4	16	JA	1	0	1120
15	4a	20	7	15	JA	8	0	1360

Table 16.2 (cont'd)

<i>Block no.</i>	<i>phase</i>	<i>site</i>	<i>area</i>	<i>context</i>	<i>form</i>	<i>code</i>		<i>FDN</i>
15	4a	20	7	32	JA	5	0	1294
15	4a/4b	20	7	2	JA	13	0	1323
15	4b	20	6	56	JA	11	0	1100
15	4b	20	8	2	JA	8	0	1375
15	4c	20	4	11	JA	8	0	1128
15	4c	20	6	2	JA	13	0	1047
15	4c	20	6	22	JA	11	0	1088
15	4c	20	7	4	JA	10	0	1306
15	4c	20	7	3	JA	10	0	1344
15	4c	20	7	3	JA	1	0	1343
15	4c	20	8	12	JA	11	0	1415
15	4c	20	8	12	JA	1	0	1407
15	4e	20	9	26	JA	5	0	1430
15	CH1	13	2	8	JA	11	0	733
15	CH1	13	5	4	JA	8	0	200
15	CH1	13	9	12	JA	8	0	710
15	CH2	13	1	56	JA	1	0	620
15	CH2	13	2	10	JA	8	0	941
15	CH2	13	7	3	JA	11	0	527
15	CH2	13	8	9	JA	11	0	364
15	CH3	13	1	12	JA	5	0	225
15	CH3	13	1	12	JA	4	0	224
15	CH3	13	4	3	JA	8	0	818
15	CH3	13	4	3	JA	1	0	819
15	CH3	13	4	3	JA	14	0	812
15	CH3	13	5	3	JA	8	0	185
15	CH3	13	5	3	JA	8	0	185
15	CH3	13	7	1	JA	11	0	526
15	CH3	13	8	11	JA	11	0	364
15	CH3+	13	6	13	JA	10	0	582
15	CH3+/M	13	8	1	JA	11	0	2453
15	M	13	0	0	JA	11	0	238
15	M	13	0	0	JA	8	0	986
15	M	13	0	2	JA	9	0	289
15	M	13	0	0	JA	8	0	255
15	M	13	0	0	JA	13	0	241
15	M	13	0	0	JA	11	0	992
15	M	13	1	0	JA	1	0	91
15	M	13	1	170	JA	5	0	640
15	M	13	4	0	JA	1	0	796
15	M	13	5	0	JA	2	0	152
15	M	13	5	0	JA	1	0	148
15	M	13	5	0	JA	8	0	150
15	M	13	5	0	JA	21	0	146
15	M	13	6	0	JA	1	0	558
15	M	13	6	0	JA	1	0	784
15	M	13	6	0	JA	11	0	556
15	M	13	6	0	JA	5	0	557
15	M	13	6	0	JA	1	0	539
15	M	13	7	0	JA	5	0	483
15	M	13	7	0	JA	1	0	484
15	M	13	8	0	JA	11	0	331
15	M	13	8	0	JA	5	0	332
15	M	13	8	0	JA	1	0	333
15	M	13	8	0	JA	13	0	334
15	M	13	8	0	JA	6	0	330
15	M	13	9	0	JA	11	0	690
15	M	13	9	0	JA	7	0	691
15	M	13	9	0	JA	14	0	693
15	M	13	9	0	JA	7	0	689
15	M	13	9	0	JA	8	0	692
15	M	13	10	0	JA	1	0	389

<i>Block no.</i>	<i>phase</i>	<i>site</i>	<i>area</i>	<i>context</i>	<i>form</i>	<i>code</i>		<i>FVN</i>
15	M	13	10	1	JA	1	0	426
15	M	13	10	0	JA	11	0	388
15	M	13	10	17	JA	1	0	458
15	M	13	10	11	JA	10	0	452
15	M	13	11	1	JA	5	0	881
15	M	13	11	1	JA	10	0	878
15	M	15	1	1	JA	11	0	2004
15	M	20	2	0	JA	1	0	1501
15	M	20	4	0	JA	11	0	2242
15	M	20	4	0	JA	8	0	2232
15	M	20	5	0	JA	3	0	1248
15	M	20	6	0	JA	11	0	1030
15	M	20	6	0	JA	1	0	1061
15	M	20	6	0	JA	11	0	1032
15	M	20	6	0	JA	8	0	1031
15	M	20	6	0	JA	5	0	1022
15	M	20	6	0	JA	14	0	1018
15	M	20	7	0	JA	5	0	1274
15	M	20	7	0	JA	10	0	1273
15	M	20	7	0	JA	12	0	1272
15	M	20	9	1	JA	8	0	1428
15	M	21	4	9	JA	14	0	2055
15	Med?/M	20	8	3	JA	1	0	1384
15	PR	13	8	28	JA	1	0	373
16		20	0	0	JA	19	0	1363
16	?	13	11	40	JA	16	0	894
16	3b	20	4	22	JA	105	0	1187
16	3b	20	4	44	JA	16	0	1166
16	3b	20	4	22	JA	16	0	1182
16	3b	20	4	22	JA	16	0	1181
16	3b	20	5	31	JA	103	0	1224
16	3b	20	6	23	JA	104	0	1155
16	3d	20	8	22	JA	16	0	1543
16	3d/4a/4b	20	9	9	JA	103	0	1462
16	3d/4a/4b	20	9	9	JA	102	0	1459
16	4a	20	4	1	JA	19	0	2099
16	4a	20	4	1	JA	16	0	2108
16	4a	20	4	1	JA	23	0	2110
16	4a	20	4	1	JA	16	0	2168
16	4a	20	4	13	JA	103	0	1133
16	4a	20	4	1	JA	16	0	2169
16	4a	20	4	1	JA	16	0	2170
16	4a	20	4	1	JA	16	0	2171
16	4a	20	4	13	JA	16	0	1134
16	4a	20	4	13	JA	104	0	1131
16	4a	20	4	1	JA	16	0	2126
16	4a	20	5	12	JA	17	0	1482
16	4a	20	6	4	JA	22	0	1067
16	4a	20	6	4	JA	23	0	1066
16	4a	20	7	1	JA	16	0	1296
16	4a	20	7	49	JA	24	0	1337
16	4a	20	8	42	JA	105	0	1512
16	4a	20	8	47	JA	24	0	1536
16	4b	20	6	56	JA	106	0	1101
16	4b+	21	2	29	JA	106	0	1569
16	4c	20	3	11	JA	16	0	2304
16	4c	20	4	2	JA	19	0	2175
16	BA1	13	1	247	JA	106	0	40
16	CH1	13	4	9	JA	106	0	832
16	CH1	13	8	5	JA	16	0	745
16	CH2	13	10	20	JA	107	0	943
16	CH3	13	1	12	JA	22	0	230
16	CH3	13	4	18	JA	106	0	607
16	M	13	1	170	JA	18	0	629

Table 16.2 (cont'd)

<i>Block no.</i>	<i>phase</i>	<i>site</i>	<i>area</i>	<i>context</i>	<i>form</i>	<i>code</i>		<i>FVN</i>
16	M	13	4	0	JA	106	0	799
16	M	13	5	0	JA	106	0	154
16	M	13	10	0	JA	16	0	394
16	M	14	3	1	JA	16	0	2067
16	M	20	2	4	JA	16	0	1503
16	M	20	3	0	JA	105	0	2263
16	M	20	4	0	JA	23	0	2234
16	M	20	7	0	JA	22	0	1288
16	M?	14	5	4	JA	23	0	2079
17		S1	13	78	JA	27	0	2367
17		S1	13	78	JA	27	0	2365
17		S1	13	78	JA	27	0	2369
17		S1	13	78	JA	27	0	2370
17		S1	13	78	JA	27	0	2371
17		S1	13	78	JA	27	0	2398
17		S1	13	78	JA	27	0	2359
17		S1	13	78	JA	27	0	2357
17		S1	13	78	JA	27	0	2361
17		S1	13	78	JA	27	0	2360
17	4	SE	1	2	JA	27	0	1673
17	4	SE	1	2	JA	27	0	1674
17	4	SE	1	10	JA	27	0	1660
17	4	SE	1	29	JA	27	0	1666
17	4r	21	4	2	JA	27	0	2042
17	5	15	1	64	JA	27	0	2027
17	CH1?	13	10	8	JA	27	0	434
17	CH2	13	1	8	JA	27	0	716
17	CH2	13	5	12	JA	27	0	176
17	CH3	13	1	12	JA	27	0	4
17	CH3	13	2	2	JA	27	0	939
17	CH3	13	3	1	JA	27	0	918
17	CH3	13	4	3	JA	27	0	808
17	CH3	13	7	1	JA	27	0	513
17	CH3+	13	1	11	JA	27	0	963
17	CH3+	13	1	11	JA	27	0	965
17	CH3+	13	1	11	JA	27	0	964
17	CH3+	13	1	11	JA	27	0	54
17	EMed?	13	11	24	JA	27	0	892
17	M	13	0	0	JA	27	0	996
17	M	13	0	0	JA	27	0	263
17	M	13	0	0	JA	27	0	250
17	M	13	0	0	JA	27	0	997
17	M	13	0	0	JA	27	0	239
17	M	13	0	2	JA	27	0	972
17	M	13	1	0	JA	27	0	76
17	M	13	1	0	JA	27	0	82
17	M	13	1	0	JA	27	0	83
17	M	13	1	0	JA	27	0	84
17	M	13	1	0	JA	27	0	77
17	M	13	1	0	JA	27	0	79
17	M	13	1	0	JA	27	0	80
17	M	13	3	0	JA	27	0	909
17	M	13	3	0	JA	27	0	904
17	M	13	3	0	JA	27	0	911
17	M	13	3	0	JA	27	0	908
17	M	13	5	0	JA	27	0	161
17	M	13	5	0	JA	27	0	160
17	M	13	5	0	JA	27	0	758
17	M	13	5	0	JA	27	0	757
17	M	13	5	0	JA	27	0	755
17	M	13	5	0	JA	27	0	754
17	M	13	5	0	JA	27	0	159

<i>Block no.</i>	<i>phase</i>	<i>site</i>	<i>area</i>	<i>context</i>	<i>form</i>	<i>code</i>		<i>FVN</i>
17	M	13	5	0	JA	27	0	158
17	M	13	5	0	JA	27	0	162
17	M	13	5	0	JA	27	0	169
17	M	13	5	0	JA	27	0	163
17	M	13	5	0	JA	27	0	164
17	M	13	5	0	JA	27	0	167
17	M	13	5	0	JA	27	0	166
17	M	13	5	0	JA	27	0	165
17	M	13	6	0	JA	27	0	537
17	M	13	6	0	JA	27	0	540
17	M	13	6	1	JA	27	0	468
17	M	13	7	0	JA	27	0	486
17	M	13	7	0	JA	27	0	959
17	M	13	8	0	JA	27	0	349
17	M	13	9	0	JA	27	0	657
17	M	13	9	3	JA	27	0	702
17	M	13	9	0	JA	27	0	659
17	M	13	9	3	JA	27	0	699
17	M	13	10	11	JA	27	0	454
17	M	13	10	0	JA	27	0	410
17	M	13	10	0	JA	27	0	412
17	M	13	10	0	JA	27	0	413
17	M	13	10	0	JA	27	0	414
17	M	13	10	1	JA	27	0	425
17	M	13	10	11	JA	27	0	453
17	M	13	10	1	JA	27	0	423
17	M	13	10	11	JA	27	0	455
17	M	13	11	0	JA	27	0	852
17	M	13	11	0	JA	27	0	854
17	M	13	11	0	JA	27	0	855
17	M	13	11	1	JA	27	0	875
17	M	13	11	1	JA	27	0	870
17	M	13	11	0	JA	27	0	853
17	M	15	1	2	JA	27	0	2010
17	M	15	1	1	JA	27	0	2003
17	M	20	4	0	JA	27	0	2199
17	M	20	6	0	JA	27	0	1012
18		S1	13	78	JA	33	0	2368
18		S1	13	78	JA	33	0	2400
18		S1	13	78	JA	33	0	2399
18	CH2	13	1	50	JA	33	0	2451
18	CH2	13	1	8	JA	33	0	717
18	M	13	1	0	JA	33	0	81
18	M	13	5	0	JA	33	0	168
18	M	13	5	0	JA	33	0	756
18	M	13	9	3	JA	33	0	698
18	M	13	11	1	JA	33	0	872
18	M	13	11	1	JA	33	0	873
18	M	13	11	1	JA	33	0	871
19		S 2	13	78	JA	29	0	2408
19		S1	13	78	JA	29	0	2377
19		S1	13	78	JA	29	0	2372
19		S1	13	78	JA	29	0	2397
19	?/CH3	13	6	14	JA	34	0	476
19	4c	20	8	33	JA	30	0	1510
19	CH1	13	0	12	JA	30	0	301
19	CH1	13	2	8	JA	30	0	734
19	CH2	13	1	8	JA	30	0	718
19	CH3	13	1	12	JA	29	0	3
19	CH3	13	1	12	JA	32	0	5
19	CH3	13	2	2	JA	30	0	938
19	CH3	13	7	1	JA	30	0	512
19	M	13	1	170	JA	30	0	641
19	M	13	1	0	JA	31	0	78

Table 16.2 (cont'd)

<i>Block no.</i>	<i>phase</i>	<i>site</i>	<i>area</i>	<i>context</i>	<i>form</i>	<i>code</i>		<i>FVN</i>
19	M	13	3	0	JA	30	0	906
19	M	13	4	0	JA	30	0	793
19	M	13	6	0	JA	31	0	538
19	M	13	6	0	JA	30	0	463
19	M	13	7	0	JA	30	0	485
19	M	13	8	0	JA	32	0	348
19	M	13	9	0	JA	32	0	658
19	M	13	9	0	JA	30	0	662
19	M	13	9	3	JA	30	0	700
19	M	13	9	3	JA	30	0	701
19	M	13	9	0	JA	30	0	661
19	M	13	9	0	JA	32	0	656
19	M	13	10	1	JA	31	0	424
19	M	13	10	0	JA	31	0	415
19	M	13	10	0	JA	30	0	411
19	M	13	11	1	JA	31	0	877
19	M	13	11	1	JA	31	0	876
19	M	13	11	1	JA	30	0	874
19	M	20	6	0	JA	28	0	1013
19	M	20	7	0	JA	31	0	1263
19	M	20	7	0	JA	34	0	1261
19	M	20	7	0	JA	31	0	1262
19	M	20	8	1	JA	34	0	1370
20	2b	20	6	59	JA	44	0	1080
20	2b	20	9	30	JA	44	0	1431
20	4a	20	4	1	JA	148	0	2134
20	4c	20	8	12	JA	38	0	1410
20	CH1?	13	10	8	JA	36	0	435
20	CH2	13	2	10	JA	38	0	940
20	CH3	13	2	2	JA	36	0	930
20	CH3+	13	1	11	JA	98	0	48
20	M	13	0	0	JA	38	0	990
20	M	13	1	0	JA	38	0	73
20	M	13	5	0	JA	98	0	153
20	M	13	6	0	JA	36	0	554
20	M	13	7	0	JA	99	0	960
20	M	13	7	0	JA	44	0	503
20	M	21	3	1	JA	98	0	1636
20	M	21	3	1	JA	44	0	1635
21	3b	20	5	36	JA	47	0	1241
21	3b	20	7	64	JA	45	0	1346
21	4a	20	4	1	JA	45	0	2150
21	4a	20	8	8	JA	45	0	1402
21	4c	20	6	2	JA	45	1	1049
21	4c	20	7	4	JA	45	0	1305
21	BA	13	5	13	JA	47	0	213
21	CH2	13	1	8	JA	45	0	725
21	CH3	13	5	3	JA	45	0	181
21	CH3	13	5	3	JA	45	0	181
21	M	13	5	0	JA	45	1	151
21	M	20	4	0	JA	45	0	2211
21	M	20	4	0	JA	45	0	2218
22	2b	20	4	79	JA	55	0	1149
22	3b	20	4	35	JA	55	0	1177
22	3b	20	4	44	JA	55	0	1169
22	3b	20	4	19	JA	55	0	2422
22	3b	20	5	43	JA	56	0	1494
22	3b	20	6	48	JA	55	0	1106
22	3b	20	8	63	JA	55	0	1529
22	3b	20	8	63	JA	55	0	1528
22	3b	20	8	23	JA	55	0	1522
22	3b	20	9	45	JA	55	0	1449

<i>Block no.</i>	<i>phase</i>	<i>site</i>	<i>area</i>	<i>context</i>	<i>form</i>	<i>code</i>		<i>FVN</i>
22	3b	21	4	19	JA	55	0	2056
22	3c	21	1	4	JA	56	0	1600
22	3c	21	1	35	JA	55	0	1610
22	3d	20	8	22	JA	55	0	1537
22	3d	20	8	22	JA	55	0	1545
22	3d/4a/4b	20	9	11	JA	55	0	1456
22	4a	20	3	39	JA	55	0	2315
22	4a	20	4	16	JA	55	0	1122
22	4a	20	4	1	JA	55	0	2113
22	4a	20	4	16	JA	55	0	1119
22	4a	20	4	1	JA	55	0	2130
22	4a	20	4	21	JA	55	0	2426
22	4a	20	4	21	JA	55	0	2425
22	4a	20	4	21	JA	55	0	2423
22	4a	20	4	21	JA	55	0	2424
22	4a	20	6	4	JA	55	0	1074
22	4a	20	8	8	JA	55	0	2428
22	4a	20	8	8	JA	55	0	2429
22	4a	20	8	8	JA	55	0	1398
22	4b	20	8	7	JA	55	0	2427
22	4b	21	2	11	JA	55	0	1572
22	4c	20	3	11	JA	55	0	2302
22	BA	13	6	31	JA	55	0	788
22	BA5	13	0	29	JA	55	0	602
22	CH1	13	8	5	JA	56	0	740
22	CH2	13	0	1	JA	55	0	275
22	CH2	13	1	8	JA	55	0	726
22	CH2	13	5	12	JA	55	0	174
22	CH3+/M	13	8	1	JA	55	0	2454
22	M	13	5	0	JA	55	0	145
22	M	13	11	1	JA	56	1	879
22	M	14	3	1	JA	151	0	2069
22	M	14	5	5	JA	55	0	2081
22	M	14	5	5	JA	55	0	2082
22	M	20	4	0	JA	55	0	2233
22	M	20	4	0	JA	55	0	2220
23	3c	20	4	3	JA	60	0	2179
23	4	SE	1	17	JA	59	0	1661
23	4	SE	1	19	JA	59	0	1661
23	4b	21	2	12	JA	60	0	1575
23	4c	20	3	11	JA	62	0	2300
23	BA	13	9	21	JA	60	0	958
23	BA1	13	1	220	JA	60	0	17
23	BA3?	13	1	145	JA	59	0	616
23	M	13	8	0	JA	62	0	341
23	M	13	9	0	JA	62	0	664
23	M	13	10	0	JA	60	0	393
23	M	20	4	0	JA	62	0	2208
23	PR	13	8	28	JA	60	0	375
24	?	15	1	160	JA	58	0	2036
24	3b	20	4	63	JA	57	0	1173
24	3b	20	8	63	JA	58	0	1552
24	3b	20	8	63	JA	58	0	1526
24	BA	13	5	30	JA	57	0	778
24	M	20	5	10	JA	57	0	1243
25	3b	20	4	44	JA	61	0	1168
25	3b	20	5	43	JA	61	0	1493
25	3d	20	8	22	JA	61	0	1541
25	4a	20	3	39	JA	61	0	2314
25	4c	20	6	2	JA	61	0	1048
25	4c	20	9	39	JA	61	0	1432
25	BA	13	5	13	JA	61	0	214
25	CH2	13	11	11	JA	65	0	887
25	M	13	7	0	JA	61	0	504

Table 16.2 (cont'd)

<i>Block no.</i>	<i>phase</i>	<i>site</i>	<i>area</i>	<i>context</i>	<i>form</i>	<i>code</i>		<i>FDN</i>
26	3c	21	1	4	JA	74	0	1598
26	4a	20	7	15	JA	74	0	1358
26	4a	20	7	27	JA	66	0	1292
26	4a	20	8	8	JA	72	0	1404
26	4b	20	6	75	JA	68	0	1111
26	4c	20	7	3	JA	68	0	1330
26	4c	20	7	3	JA	74	0	1345
26	BA5/CH1	13	0	22	JA	66	0	306
26	BA5/CH1	13	0	22	JA	72	0	309
26	BA5/CH1	13	0	22	JA	72	0	310
26	CH1	13	5	4	JA	74	0	199
26	CH2	13	6	4	JA	69	0	471
26	M	13	0	2	JA	66	0	281
26	M	20	4	0	JA	68	0	2215
27		20	0	0	JA	70	0	1361
27	3d/4a/4b	20	9	9	JA	63	0	1461
27	4a	20	4	16	JA	73	0	1124
27	4a	20	4	1	JA	70	0	2093
27	4a	20	5	12	JA	70	0	1484
27	4a	20	6	4	JA	64	0	1072
27	4a	20	6	4	JA	63	0	1071
27	4a	20	7	24	JA	73	0	1290
27	4a	20	7	17	JA	73	0	1351
27	4a	20	8	8	JA	70	0	1392
27	4a	20	8	8	JA	67	0	1386
27	4a	20	8	47	JA	70	0	1535
27	4a/4b	20	7	2	JA	71	0	1321
27	4b	20	5	26	JA	63	0	1496
27	4b	20	6	3	JA	64	0	1056
27	4b	20	6	3	JA	63	0	1059
27	4b	20	6	28	JA	70	0	1470
27	4b	20	8	2	JA	63	0	1373
27	4b	20	8	16	JA	70	0	1418
27	4b	20	8	2	JA	73	0	1374
27	4c	20	3	11	JA	70	0	2298
27	4c	20	3	11	JA	70	0	2297
27	4c	20	3	10	JA	70	0	2284
27	4c	20	3	20	JA	70	0	2311
27	4c	20	3	11	JA	70	0	2296
27	4c	20	3	10	JA	70	0	2286
27	4c	20	3	11	JA	63	0	2303
27	4c	20	3	20	JA	70	0	2309
27	4c	20	6	2	JA	63	0	1051
27	4c	20	6	18	JA	63	0	1076
27	4c	20	7	4	JA	63	0	1302
27	4c	20	7	4	JA	70	0	1307
27	4c	20	7	3	JA	63	0	1329
27	BA5/CH1	13	0	22	JA	63	0	308
27	CH1	13	2	8	JA	70	0	729
27	CH1	13	8	5	JA	63	0	736
27	CH1	13	9	12	JA	63	0	709
27	CH2	13	1	29	JA	63	0	25
27	CH2	13	8	9	JA	63	0	365
27	CH3	13	4	3	JA	64	0	817
27	CH3	13	4	3	JA	71	0	816
27	CH3	13	4	3	JA	70	0	815
27	CH3	13	5	3	JA	70	0	191
27	CH3	13	5	3	JA	70	0	191
27	CH3	13	5	3	JA	70	0	190
27	CH3	13	5	3	JA	70	0	208
27	CH3	13	5	3	JA	70	0	208
27	CH3	13	5	3	JA	70	0	190

<i>Block no.</i>	<i>phase</i>	<i>site</i>	<i>area</i>	<i>context</i>	<i>form</i>	<i>code</i>		<i>FVN</i>
27	CH3	13	6	5	JA	63	0	574
27	CH3	13	6	11	JA	70	0	474
27	CH3	13	6	5	JA	63	0	573
27	M	13	0	2	JA	63	0	283
27	M	13	4	0	JA	63	0	798
27	M	13	10	0	JA	73	0	390
27	M	13	11	0	JA	64	0	846
27	M	20	3	0	JA	64	0	2265
27	M	20	3	0	JA	70	0	2262
27	M	20	3	0	JA	70	0	2261
27	M	20	4	0	JA	70	0	2201
27	M	20	4	0	JA	63	0	2202
27	M	20	4	0	JA	70	0	2203
27	M	20	4	0	JA	70	0	2204
27	M	20	4	0	JA	70	0	2205
27	M	20	4	0	JA	70	0	2206
27	M	20	7	0	JA	63	0	1277
27	M	20	7	0	JA	64	0	1278
27	M	20	7	0	JA	63	0	1284
27	M	20	7	0	JA	63	0	1286
27	M	20	8	1	JA	73	0	1371
27	M	21	2	1	JA	71	0	1580
27	M	21	2	1	JA	64	0	1579
27	PR	13	8	14	JA	70	0	747
28		C	13	78	JA	125	0	2416
28	3b	20	7	64	JA	125	0	1348
28	4a	20	4	16	JA	133	0	1123
28	4a	20	4	1	JA	133	0	2147
28	4c	20	4	10	JA	125	0	1143
28	4c	20	8	12	JA	123	0	1408
28	4c	20	9	5	JA	121	0	1439
28	BA	13	5	13	JA	122	0	195
28	CH1	13	9	12	JA	121	0	711
28	CH2	13	1	13	JA	121	0	8
28	CH3	13	0	21	JA	125	0	973
28	CH3	13	1	12	JA	124.1	0	233
28	CH3	13	1	12	JA	121	0	219
28	CH3	13	1	12	JA	125	0	231
28	CH3	13	2	2	JA	138	0	932
28	CH3	13	5	3	JA	122	0	195
28	CH3	13	5	3	JA	122	0	195
28	M	13	0	0	JA	121	0	987
28	M	13	1	0	JA	125	0	71
28	M	13	5	0	JA	125	0	142
28	M	13	5	0	JA	136	0	141
28	M	13	7	0	JA	139	0	499
28	M	13	9	0	JA	135	0	681
28	M	13	9	15	JA	121	0	946
28	M	13	10	0	JA	121	0	402
28	M	13	10	1	JA	125	0	422
28	M	20	3	0	JA	125	0	2273
28	M	20	4	0	JA	135	0	2200
28	M	20	6	0	JA	111	0	1026
28	M	20	6	0	JA	121	0	1021
29	3b	20	4	29	M	2	0	1195
29	3b	20	5	36	M	10	0	1230
29	3b	20	5	31	M	3	0	1222
29	3b	20	5	36	M	7	0	1233
29	3b	20	5	31	M	5	0	1220
29	3b	20	5	32	M	3	0	1434
29	3b	20	6	23	M	7	0	1150
29	3b	20	9	10	M	3	0	1434
29	4	SE	1	29	M	12	0	1671
29	4c	20	8	17	M	13	0	1411

Table 16.2 (cont'd)

<i>Block no.</i>	<i>phase</i>	<i>site</i>	<i>area</i>	<i>context</i>	<i>form</i>	<i>code</i>		<i>FDN</i>
29	CH1	13	1	2	M	11	0	41
29	CH3	13	3	1	M	1	0	915
29	CH3	13	4	3	M	4	0	820
29	M	13	0	0	M	9	0	978
29	M	13	0	0	M	6	0	980
30		S1	13	78	M	23	2	2375
30	4a	20	4	9	M	23	0	2180
30	M	20	4	0	M	23	3	2198
31		20	0	0	M	16	0	1369
31	?	20	4	85	M	14	0	1176
31	2e	21	3	82	M	14	0	1639
31	3a/3b	20	6	25	M	17	0	1104
31	3b	20	5	37	M	14	0	1229
31	3d/4a?	20	6	19	M	17	0	1090
31	4a	20	4	1	M	17	0	2141
31	4a	20	4	16	M	20	0	1113
31	4a	20	5	12	M	18	0	1480
31	4a	20	7	15	M	15	0	1356
31	4a	20	7	27	M	18	0	1291
31	4a	20	8	8	M	16	0	1396
31	4b	20	4	20	M	16	0	1175
31	4c	20	3	11	M	17	0	2290
31	BA	13	5	26	M	17	0	2083
31	BA5+	13	1	75	M	20	0	649
31	CH3	13	4	3	M	21	0	823
31	M	13	0	0	M	17	0	976
31	M	13	1	170	M	20	0	636
31	M	13	10	0	M	15	0	378
31	M	13	11	0	M	16	0	834
31	M	13	11	0	M	20	0	833
31	M	14	5	2	M	17	0	2077
31	M	20	5	0	M	16	0	1207
31	M	20	5	0	M	20	0	1219
31	M	21	2	1	M	14	0	1581
31	Med?/M	20	8	3	M	16	0	1377
32	3b	20	5	40	M	35	0	1495
33		SE	1	0	M	27	2	1683
33	1c	21	3	79	M	27	1	1627
33	4a	20	4	1	M	28	0	2136
33	4a	20	4	1	M	28	0	2135
34	3b	20	5	36	M	29	0	1231
34	3b?	20	4	24	M	29	0	1202
34	3d/4a/4b	20	9	9	M	29	0	1458
34	4a	20	4	1	M	29	0	2137
34	M	14	3	1	M	29	0	2068
35	4a	20	4	1	M	30	0	2138
35	M	20	5	0	M	30	0	1206
36		S	13	0	M	24	0	2412
36		S1	13	78	M	24	0	2330
36	4a	20	4	1	M	39	0	2139
36	4b	20	6	56	M	25	5	1098
36	4b+	21	2	28	M	24	0	1558
36	4c	20	3	11	M	24	0	2291
36	4c	20	3	11	M	24	0	2289
36	4c	20	4	11	M	24	0	1126
36	4c	20	4	10	M	24	0	1138
36	4c	20	7	3	M	24	0	1333
36	4c	20	7	3	M	24	0	1333
36	4c	20	8	12	M	25	5	1406
36	4c	20	8	36	M	25	6	1518
36	M	13	3	0	M	24	0	2457
36	M	20	3	0	M	24	0	2253

<i>Block no.</i>	<i>phase</i>	<i>site</i>	<i>area</i>	<i>context</i>	<i>form</i>	<i>code</i>		<i>FVN</i>
36	M	20	3	0	M	25	6	2257
36	M	20	3	0	M	24	0	2252
36	M	20	3	0	M	24	0	2249
36	M	20	3	0	M	24	0	2251
36	M	20	4	0	M	24	0	2192
36	M	20	4	0	M	24	0	2191
36	M	20	4	0	M	38	0	2195
36	M	20	4	0	M	24	0	2240
36	M	20	4	0	M	38	0	2196
36	M	20	4	0	M	24	0	2197
36	M	20	5	0	M	38	0	1204
36	M	20	6	0	M	38	0	1003
36	M	21	5	3	M	24	0	2062
37		S1	13	78	M	22	1	2324
37		S1	13	78	M	22	1	2329
37	4	SE	1	2	M	22	1	1681
37	4	SE	1	2	M	22	1	1681
37	4a	20	7	1	M	22	1	1295
37	4b	20	6	75	M	22	1	1109
37	CH2	13	1	8	M	22	1	713
37	CH2	13	6	20	M	22	1	479
37	CH3	13	1	14	M	22	1	615
37	M	13	0	0	M	22	3	264
37	M	13	1	0	M	22	1	99
37	M	13	3	0	M	22	1	895
37	M	13	3	0	M	22	2	897
37	M	13	4	0	M	22	1	800
37	M	13	5	0	M	22	1	105
37	M	13	5	0	M	22	1	106
37	M	13	5	0	M	22	1	108
37	M	13	6	0	M	22	2	532
37	M	13	6	1	M	22	1	466
37	M	13	8	0	M	22	1	318
37	M	13	9	3	M	22	1	696
37	M	13	9	0	M	22	1	650
37	M	20	3	0	M	22	1	2254
37	M	20	6	0	M	22	1	1001
38		S1	13	78	M	25	3	2389
38		S1	13	78	M	25	1	2327
38	4b	20	5	11	M	25	3	1252
38	4c	20	6	2	M	25	3	1041
38	4c	20	9	5	M	25	3	1437
38	CH2	13	8	3	M	25	1	356
38	CH3	13	1	17	M	25	4	19
38	CH3	13	6	5	M	25	1	568
38	CH3	13	6	5	M	25	3	563
38	CH3	13	7	1	M	25	3	514
38	CH3+	13	1	11	M	25	3	51
38	M	13	1	0	M	25	1	101
38	M	13	1	0	M	25	3	97
38	M	13	3	0	M	25	3	896
38	M	13	7	0	M	25	3	493
38	M	13	9	0	M	25	3	652
38	M	13	9	0	M	25	3	654
38	M	13	9	3	M	25	4	695
38	M	13	10	0	M	25	3	381
38	M	20	2	0	M	25	3	1497
38	PR	13	8	25	M	25	1	748
39	4a/4b	20	9	13	M	25	2	1452
39	4c	20	6	2	M	25	2	1039
39	4c	20	8	34	M	25	2	1514
39	CH2	13	8	3	M	25	2	357
39	M	20	3	0	M	25	2	2250
39	M	20	4	0	M	25	2	2193

Table 16.2 (cont'd)

<i>Block no.</i>	<i>phase</i>	<i>site</i>	<i>area</i>	<i>context</i>	<i>form</i>	<i>code</i>		<i>FVN</i>
40		C	13	78	M	26	0	2415
40		S1	13	78	M	26	0	2388
40	M	15	1	2	M	26	0	2013
40	M	20	4	0	M	26	0	2194
41	4r	21	4	2	M	32	0	2044
41	M	13	10	0	M	31	3	386
41	M	20	9	1	M	31	2	1424
41	Med?/M	20	8	3	M	31	1	1378
42		20	0	0	M	40	0	1367
42	-	21	2	39	M	33	0	1560
42	3b	20	4	26	M	34	0	1147
42	3r	21	2	3	M	33	0	1560
42	M	13	4	0	M	36	0	801
42	M	13	7	0	M	37	0	496
42	M	21	4	1	M	33	0	2041
44	3b	21	4	36	BK	34	0	2057
45	2b	21	2	6	BK	15	0	1574
45	3a	20	4	38	BK	16	0	1161
45	4	15	1	40	BK	15	0	2026
45	4	15	1	4	BK	14	0	2018
45	4	15	1	75	BK	14	0	2030
45	4b	21	2	11	BK	17	0	1564
45	BA	13	5	26	BK	13	0	777
45	BA2	13	1	213	BK	13	0	28
45	CH1	13	2	8	BK	13	0	1000
45	M	13	5	0	BK	13	0	137
45	M	15	1	5	BK	13	0	2019
45	M	21	1	1	BK	15	0	1612
45	M	21	1	1	BK	13	0	1613
46	4a	20	4	1	BK	36	0	2133
46	4a/4b	20	7	2	BK	2	0	1316
46	M	13	1	170	BK	5	0	631
46	M	13	11	0	BK	1	0	856
47		S	13	0	BK	20	0	2420
47	3b	20	5	31	BK	19	0	1221
47	3b	20	5	30	BK	20	0	1478
47	4a	20	4	13	BK	21	0	1136
47	4a	20	8	8	BK	20	0	1399
47	4b	21	2	11	BK	19	0	1565
47	4b?	21	5	11	BK	20	0	2063
47	4c	20	3	11	BK	19	0	2293
47	4c	20	3	11	BK	21	0	2292
47	4c	20	6	18	BK	21	0	1077
47	CH3	13	4	18	BK	20	0	609
47	M	13	11	0	BK	21	0	848
47	M	21	1	92	BK	21	0	1617
47	M	21	3	1	BK	19	0	1633
48	3b	20	5	36	BK	25	0	1232
48	4a	20	4	21	BK	25	0	1190
48	4a	20	4	1	BK	22	0	2188
48	4a	20	4	1	BK	25	0	2187
48	4a	20	4	1	BK	23	0	2185
48	4a	20	4	1	BK	22	0	2189
48	4a	20	5	12	BK	25	0	1481
48	4a/4b	20	7	2	BK	4	0	1317
48	4c	20	3	10	BK	4	0	2282
48	4c	20	3	10	BK	23	0	2283
48	4c	20	4	11	BK	7	0	1127
48	4c	20	4	10	BK	22	0	1142
48	4c	20	5	8	BK	32	0	1491
48	BA	13	5	13	BK	23	0	2465
48	BA	13	5	13	BK	24	0	211

<i>Block no.</i>	<i>phase</i>	<i>site</i>	<i>area</i>	<i>context</i>	<i>form</i>	<i>code</i>		<i>FVN</i>
48	BA	13	11	29	BK	10	0	596
48	BA5	13	0	29	BK	23	0	605
48	CH2	13	1	8	BK	4	0	722
48	CH3	13	1	21	BK	7	0	13
48	CH3	13	5	3	BK	7	0	182
48	CH3	13	5	3	BK	7	0	182
48	M	13	1	0	BK	7	0	74
48	M	13	1	170	BK	7	0	630
48	M	13	6	0	BK	7	0	552
48	M	13	11	0	BK	4	0	857
48	M	20	3	0	BK	7	0	2260
48	M	20	3	0	BK	31	0	2259
48	M	20	5	0	BK	7	0	1213
48	M	20	6	0	BK	22	0	1017
48	M	21	3	1	BK	22	0	1634
48	Med?/M	20	8	3	BK	7	0	1385
49	3r	21	4	4	BK	28	0	2050
49	4c	20	7	3	BK	30	0	1342
49	BA5+	13	1	86	BK	28	0	622
49	CH2	13	6	20	BK	28	0	481
49	CON	13	7	15	BK	28	0	952
49	M	13	0	0	BK	28	0	600
49	M	13	5	0	BK	28	0	136
49	M	13	11	1	BK	29	0	882
49	M	20	4	0	BK	29	0	2183
49	M	20	5	0	BK	29	0	1211
49	M	20	5	0	BK	29	0	1214
49	M	20	5	0	BK	28	0	1212
49	M	20	6	0	BK	29	0	1014

17 The glass vessels

D Allen

Discussion

This collection of Roman glass from the north-east quarter of Housesteads was in extremely fragmentary condition and, with the exception of bottle No. 19, only very small pieces have survived. However, several have sufficient diagnostic features to make identification possible, and it is clear that several fine items of tableware as well as utilitarian containers were once in use on the site. This report was completed in 1983.

The commonest glass vessel finds were fragments of blue-green bottles, extremely common containers of 1st- and 2nd-century date. A few less common container fragments, some of them of mid- to later Roman date (Nos 29–30) were also present. Among the fragments of better-quality tableware there are several that may be surprisingly early in date, although none were large enough to be completely certain of their identifications (Nos 1, 3 and 4). That some 1st-century glassware was present on the site is shown by the pillar-moulded bowl fragment No. 2, but several common Flavian and early 2nd-century types such as long-necked flagons, globular jars and facet-cut beakers were notably absent. Most interesting among the mid- to later Roman finds is the figure-cut fragment, No. 33, which represents a group of vessels rarely found in Britain and shows once again that tableware of the highest quality was in use at Housesteads, as at other sites along the Wall (see Charlesworth 1959).

Catalogue

Coloured and blue-green glass

Cast and ground

1. 8878–9 H21:1:37

Small fragment of millefiori glass, apparently yellow flowers with turquoise centres in a wine-coloured ground. Not illustrated.

Only one tiny fragment of millefiori glass was included in this collection. Manufacture involved the fusing together of coloured sections of glass rods and it was used until soon after the middle of the 1st century AD for the production of a variety of cast and ground bowls, dishes and cups. Finds are not common in Britain but fragments have been recovered from sites as far north as Chesters and Corbridge (Site Museums), Carlisle (Keays Lane, Carlisle Archaeological Trust excavations), Nether Denton and Tealing in Angus (Charlesworth 1959, 36). During the 2nd and 3rd centuries rare vessels of blown millefiori glass were made, and it is always possible that this fragment belongs to this later group, since it is too small to determine its method of manufacture with any certainty. Examples include a small jug from a grave dated *c* AD 100 at Vindonissa (Berger 1960, 14, no. 14, pls 1 and 20) two more jugs from 3rd-century graves at Cologne and Sackrau (Fremersdorf 1958, 51, pls 110 and a fragment

from a context dated AD 280–90 at Verulamium (Charlesworth 1972, 212, xvi, no. 1 fig 79:63).

2. 3561 H13:11:29

Fragment of a pillar-moulded bowl of blue-green glass; surfaces dulled and chipped. Upper part of one rib extant, fire-polished outside, rotary-polished within. Not illustrated.

Pillar-moulded bowl fragments of blue-green glass are extremely common finds on 1st-century sites in Britain and elsewhere, and a few complete examples have also been found in burials (eg Price 1975, 18–20, no. 1, group 3, fig 10.1 from Thornborough, Bucks). Manufacture continued until *c* AD 75–80, but examples of this sturdy vessel form must have continued in use for some years after this, since fragments have been found in northern Britain and elsewhere on sites that were not occupied until the early 2nd century (Charlesworth 1972, 198–9).

Mould-blown

3. 3819 H13:--: (Fig 17.1)

Small fragment of blue-green glass with part of three vertical mould-blown ribs extant.

This small fragment of mould-blown glass is most likely to have come from a ribbed bowl of a type made from about the middle of the 1st century AD until sometime within the Flavian period. Two examples were found at Verulamium in contexts dated AD 60–75 and AD 105–15 (Charlesworth 1972, 196, ii, nos 1 and 3, fig 74.2), an almost complete bowl was found in a Neronian pit at Usk (Price 1995), and a fairly large fragment came from excavations in Blackfriars Street, Carlisle (Carlisle Archaeological Trust). Alternatively, the vertical ribs on this fragment may be part of a lower body frieze of a more elaborately decorated vessel belonging to a group of mid-1st-century date. These bear moulded decoration characterised by stylised vegetable motifs, often with convivial inscriptions and/or the signatures of the makers: Ennion, Jason and others (Harden 1935). Many of these were made in Italy and British finds are rare, but include one or possibly two fragments from Camulodunum, dated before AD 65 (Harden 1947, 299–300 nos 48–9, pls LXXXVI–LXXXVII), four from Brockley Hill, Middlesex (Harden 1973, 106–7, fig 8, no. G1; other finds discussed), and a ribbed fragment similar to the Housesteads piece from Quinton, Northants (Harden 1979, 152–3).

Blown

4. 451 H13:9:3

Tiny fragment apparently of two-layered or cased glass: emerald green and colourless. Not illustrated.

This may be a fragment of cased glass, from a vessel that has been formed by blowing a bulb of one metal inside one of another colour. This decorative technique was popular during the middle of the 1st century AD, and was most often used on simple hemispherical cups, substantially complete examples of which come from Vindonissa (Berger 1960, 43–5, no. 104, pls 7 and 17) and Cologne (Fremersdorf 1958, 22, pl 6). Usually the inner layer was opaque white and the outer layer a bright colour such as emerald green, amber or blue, but there is a pink and colourless fragment from a

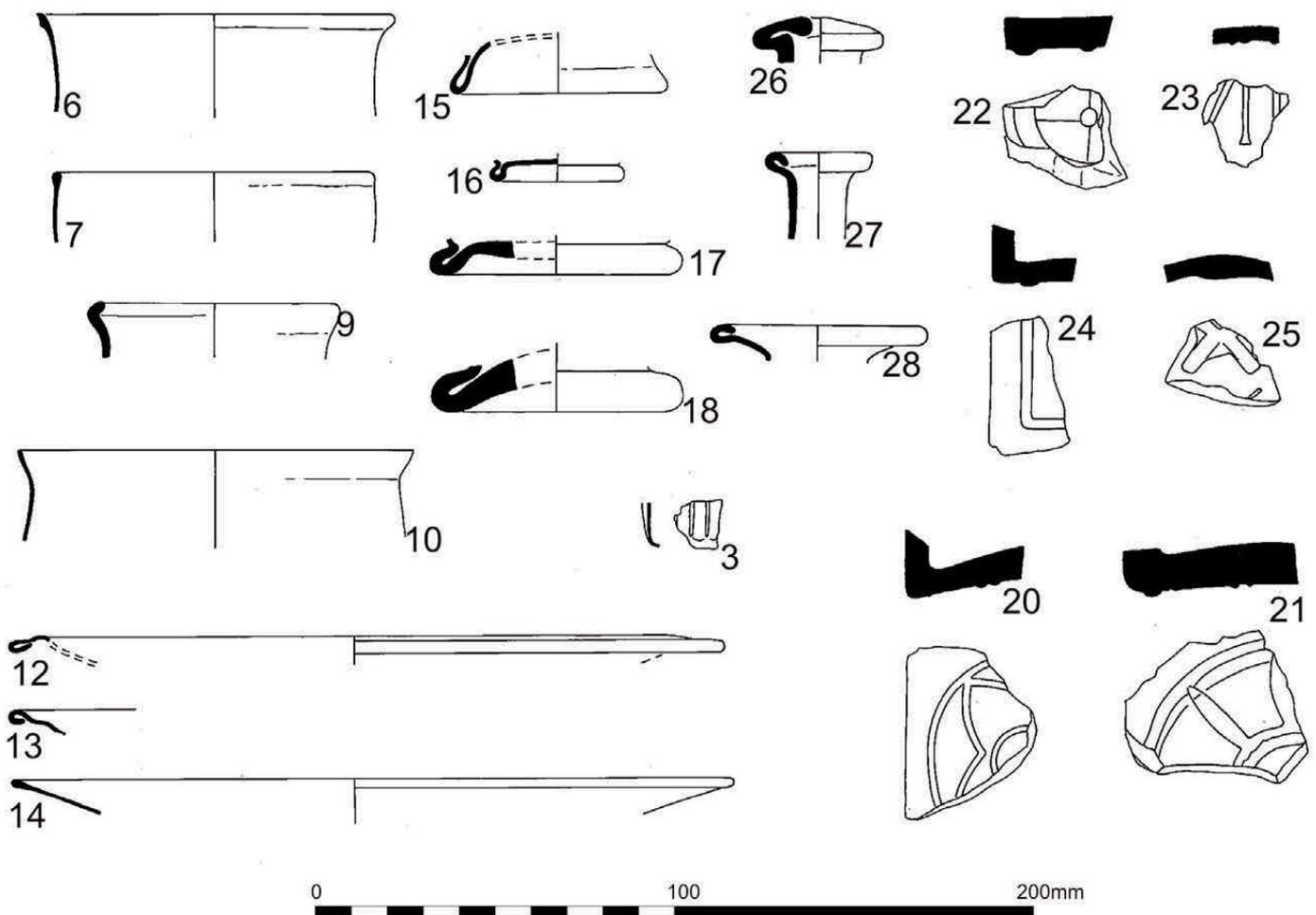


Fig 17.1 Glass vessels.

pre-conquest deposit at Camulodunum (Harden 1947, 297, no. 37, pl LXXXVII) and a blue and colourless fragment from Chichester (Charlesworth 1981, 293, fig 15.1). Finds are quite rare in Britain, and none has previously been found this far north. However, No. 4 is so indeterminate and small that it is always possible that it may only be two pieces of glass fused by fire!

5. 8761 HSE:1:1

Fragment of blue-green glass with part of a marvered spiral thread of opaque yellow extant. Not illustrated.

Marvered threads were used as decoration on a variety of vessels at different dates during the Roman period and this piece cannot therefore be closely identified.

6. 792-802 H13:2:3 (Fig 17.1)

Rim fragment of a bowl or beaker of clear blue-green glass. Rim fire-rounded and thickened and turned outward, diameter *c* 100mm.

7. 9370 H21:2:10 (Fig 17.1)

Rim fragment of a beaker of blue-green glass; surfaces dulled. Rim fire-rounded and thickened and turned very slightly inward, diameter *c* 90mm.

8. 3548 H13:1:13

Rim fragment similar to above, clear blue-green glass, diameter *c* 80mm. Not illustrated.

9. 3490 H13:0:29 (Fig 17.1)

Rim fragment of a beaker of blue-green glass; a few bubbles within the metal. Rim fire-rounded and thickened and turned inward, diameter *c* 60mm.

10. 610 H13:0:0 (Fig 17.1)

Rim fragment of a bowl or beaker of clear blue-green glass; a few bubbles within the metal. Rim outflared, broken off flat and roughly ground, diameter *c* 110mm. Band of very faint horizontal wheel-incised lines beneath rim. One edge slightly distorted by fire.

11. 673-80 H13:1:12

Rim and body fragments of the same vessel as above, or one very similar. More horizontal wheel-incised lines further down side. No fragments joining. Not illustrated.

Rim fragments 6-11 have no sufficient diagnostic features to identify them with certainty. They could represent any of a wide variety of bowls, beakers and cups in use throughout the Roman period.

12. 5773 H20:7:2 (Fig 17.1)

Rim fragment of a shallow plate of thin blue-green glass. Rim folded outward, downward and inward, diameter *c* 198mm.

13. (no SF no.) H13:11:0 (Fig 17.1)

Rim fragment similar to above, clear blue-green glass, diameter indeterminate.

14. (no SF no.) H13:11:0 (Fig 17.1)

Rim fragment of a shallow plate of blue-green glass; surfaces dulled. Rim fire-rounded and thickened, diameter *c* 200mm.

Nos 12-14 are all rim fragments of large, shallow plates that occurred in both oval and circular forms during the mid- to later Roman periods (Isings 1957, 116-17, form 97a-b). A folded rim fragment of this type from a late Roman context at Chichester was found with mortar adhering to it and was

identified by Charlesworth as a piece of crown window glass (1978, 270, no. 48, fig 10.23), and this possible interpretation was also placed on a similar fragment from Exeter (Charlesworth 1979, 227–9, fig 71.42). However, since crown window glass is otherwise virtually unknown in the Roman period it seems likely that most finds actually represent plates. They seem to belong mainly to the later 2nd and 3rd centuries: the Exeter fragment described above is dated to this period, several fragments with both folded and fire-rounded rims came from deposits dated AD 160–230 and mid- to later 3rd century at the Caerleon fortress baths (Allen 1986) and a complete vessel of turquoise glass came from a 2nd-century grave at Langley in Kent (Jessup 1959, 26–7, group 4, pl VIII.1).

15. 3819 H13:–:– (Fig 17.1)

Base fragment of clear blue-green glass; fairly bubbly. High pushed in tubular base-ring, diameter *c* 60mm, domed base.

16. 6607 H20:6:23 and 6814 H20:6:48 (Fig 17.1)

Joining fragments forming complete base of blue-green glass; surfaces dulled. Pushed-in tubular base-ring, diameter 36mm; broken edges of vessel wall apparently chipped away leaving smooth edge.

17. 6080–82 H20:6:4 (Fig 17.1)

Base fragment of blue-green glass; surfaces dulled. Pushed-in slightly tubular base-ring, diameter *c* 70mm.

18. 2391 H13:5:22 (Fig 17.1)

Heavy base fragment of pale green glass; surfaces scratched and dulled. Pushed-in solid base-ring, diameter *c* 70mm, domed base.

Base fragments 15–18 could represent any of a wide variety of vessel types of any Roman date. Most interesting is No. 16, which has had the broken vessel walls chipped away leaving a smooth-edged disc, presumably for reuse as a gaming piece or counter of some sort. Such reuse of glass fragments was quite common during Roman times. Two more bases are catalogued below (Nos 43 and 49), and others have been found at Fishbourne (Harden and Price 1971, 352, no. 77, fig 141) and York (Yorkshire Museum).

19. 3120 H13:2:8 (Fig 17.2)

Fragmentary square bottle of clear bubbly blue-green glass; broken and mended, some fragments missing but complete profile extant. Blown into a square-sectioned body mould, design in relief on base: two concentric circles with four arcs forming a concave-sided figure between them. Cylindrical neck, rim folded outward, upward and inward; angular multi-ribbed handle attached beneath rim and at shoulder. Height *c* 167mm, diameter of rim 52mm, width of sides at base 88mm.

20. 585 H13:0:0 (Fig 17.1)

Base fragment of a prismatic bottle of blue-green glass; shattered and crystalline. Moulded design in relief: part of two concentric circles extant with ?flower petal between them.

21. 911–13 H13:5:3 (Fig 17.1)

Thick base fragment of a prismatic bottle of dark blue-green glass; surfaces dulled. Moulded design in relief: part of a ?spoked wheel extant.

22. 5455–8 H20:7:0 (Fig 17.1)

Thick base fragment of a prismatic bottle of blue-green glass. Moulded design in relief: part of one circle with central dot extant, very thin right-angled cross visible over centre.

23. 8316 H20:8:8 (Fig 17.1)

Base fragment of a prismatic bottle of blue-green glass; surfaces dulled. Moulded design in relief: part of what are probably letters of the alphabet extant – ?M followed by another vertical.

24. 831–3 H13:2:2 (Fig 17.1)

Base fragment of a square bottle of clear blue-green glass. Moulded design in relief: part of a square extant.

25. 5662–3 H20:4:1 (Fig 17.1)

Base fragment of a prismatic bottle of dark blue-green glass; surfaces dulled. Moulded design in relief: part of a diagonal cross extant together with part of a pontil mark.

Number 19 is the substantial part of a square bottle and fragments 20–5 are all base fragments of similar square or perhaps hexagonal or rectangular vessels. These and the cylindrical bottles of the same broad group were used as containers for a wide variety of liquid and semi-liquid substances, and were extremely common during the 1st and 2nd centuries AD. They represent the commonest glass vessel finds on the site. Characteristics have been discussed by Charlesworth (1966), who describes some of the wide variety of basal trade-marks that provide the opportunity of matching products from the same glasshouses. Commonest are varying numbers of concentric circles, but many other designs also occur. The spoked wheel on No. 21, for example, has been found on bottles from Corbridge, Lullingstone and Silchester (Charlesworth 1966, 34, figs 13–14) The design on No. 20 can be matched by a bottle base from Silchester (Reading Museum) and designs similar to that on No. 19 occur on a square bottle from Caistor-by-Norwich (Norwich Castle Museum) and hexagonal bottles from Oxford Street, Leicester (Jewry Wall Museum), and Girton College, Cambridge (Cambridge Museum of Archaeology and Ethnology). Bottle bases with diagonal crosses surrounded by one, two or three concentric circles and/or squares have been discussed by Charlesworth (1966, 33–4, figs 11–12), as have marks comprising various letters of the alphabet (1966, 36, figs 15–19). There are insufficient remains of Nos 25 and 23 to match them with any more complete vessels. Number 22 is interesting in that the faint diagonal cross over the centre probably shows how the circles were marked out for accuracy on the mould.

26. 5837–46 H20:4:1 (Fig 17.1)

Rim fragment of a bottle or flask of blue-green glass; surfaces dulled. Rim folded outward, upward and inward, leaving only a very narrow opening (4 × 1.5mm). Diameter of rim 36mm.

27. 3041 H13:1:46 (Fig 17.1)

Rim fragment of a flask of clear blue-green glass. Rim folded outward, upward and inward, diameter *c* 30mm.

28. 2579 H13:8:25 (Fig 17.1)

Rim fragment of a flask of clear blue-green glass. Funnel-shaped rim, folded outward, upward and inward, diameter *c* 60mm.

Fragments 26–8 may be from any of a variety of flask or bottle forms. Number 26 is particularly interesting because of the extremely small size of the opening left in the rim. Globular bath-flasks (Isings 1957, 78–9, form 61) were occasionally given this feature, presumably to regulate the flow of oil from the vessel, and it is possible that this is the form represented here. This group of containers was common from the later 1st to the 3rd centuries.

29. 5664 H20:4:1 (Fig 17.2)

Base of an unguent bottle or flask of blue-green glass; pin-head bubbles within the metal. Blown into a hexagonal-sectioned body mould, faint design in relief on base: a hexagon surrounding a smaller central hexagon, not concentric, partly obscured by an off-centre pontil mark. Width of side at base 12mm.

Small mould-blown hexagonal-bodied vessels were occasionally made with two dolphin handles as a variant of the globular-bodied bath-flasks discussed above, and it is probably to this group of vessels that No. 29 belongs. There is a

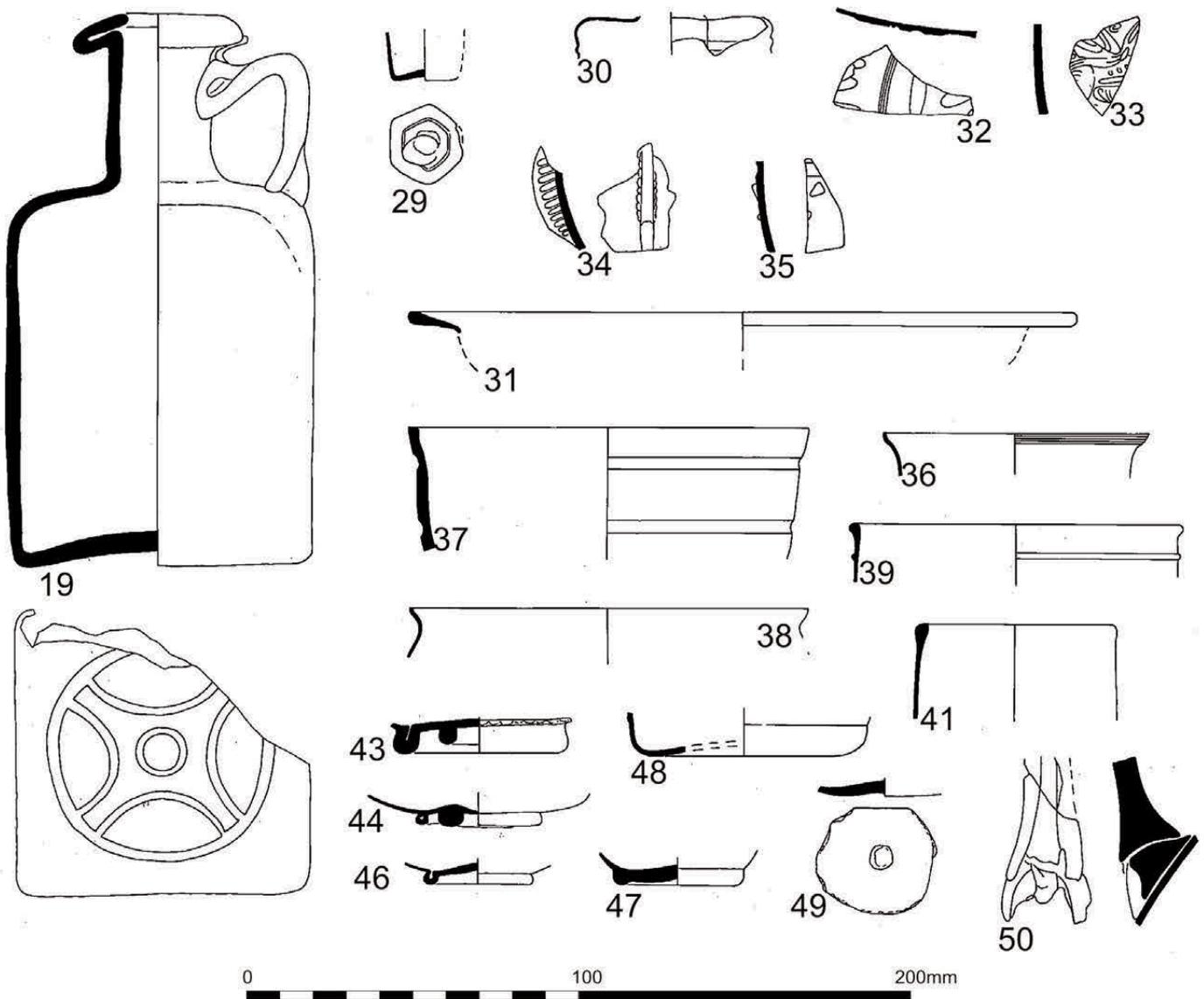


Fig 17.2 Glass vessels.

complete example in Liège Museum (Vanderhoeven 1961, 111–12, nos 125–6, pl XXIX), and another from Silchester (Reading Museum). Dated finds are rare, but they are perhaps most likely to belong to the later 2nd or 3rd centuries, when the greatest variety of bath-flasks were being made.

30 792–802 H13:2:3 (Fig 17.2)

Shoulder fragment, almost certainly from a barrel-shaped bottle of clear, bubbly blue-green glass. Blown into a bipartite mould – part of vertical mould seam and two horizontal cordons extant. Diameter of shoulder *c* 60mm.

Number 30 is almost certainly a shoulder fragment of a mould-blown barrel-shaped bottle of a type fairly common during the 3rd and 4th centuries. Many bear basal trademarks comprising the maker's name, most commonly Frontinus, and the distribution of finds indicates that they were manufactured in northern France (Price 1978, 76–7, fig 61). Both one- and two-handled vessels occur, and dated examples show that the former were made first, with several coming from contexts of the first half of the 2nd century (Isings 1957, 106–8, form 89; Berger 1960, 83, no. 212, pls 14 and 22 from Vindonissa; Goethert-Polaschek 1977, 203, no. 1246 from Wederath). Most, however, belong to the 3rd and 4th centuries (Isings 1957, 106–8 and 158, form 128).

British finds are much less common than the earlier bottle types discussed above, but complete examples come from Faversham, Kent (Harden *et al* 1968, 62, no. 79), Milton next Sittingbourne, Kent (Thorpe 1949, 6, pl IIb), and Butt Road, Colchester (CAT 1978, 1 and 3), and small body fragments have turned up on a number of sites including York (Minster excavations) and Coventina's Well, Carrawburgh (Chesters Site Museum).

Colourless glass

Cast and ground

31. 3050–51 H13:11:4 (Fig 17.2)

Rim fragment of a shallow bowl or plate of colourless glass. Cast and rotary polished, part of flaring thickened lip extant, diameter *c* 200mm.

Colourless cast and ground bowls and plates replaced coloured vessels made by the same methods during the Flavian period, and continued to be popular until about AD 125–30. Rims were made both with and without an overhanging edge, and No. 31 is an example of the latter. Some of these vessels were made in Alexandria, but north-western

finds are likely to have been imported from glasshouses in Italy. A small bowl of this type came from a deposit dated not later than the mid-2nd century at Wroxeter (Bushe-Fox 1914, 20–1, fig 12), and rim fragments have been found at Corbridge, Caerhun, the latter from a context dated AD 90–110 (Charlesworth 1959, 38–40, figs 2, and 3.4) and Fishbourne, in a context dated AD 75–100 (Harden and Price 1971, 331–2, no. 25, fig 138).

Blown

32. 8790 H21:2:11 (Fig 17.2)

Base fragment of a shallow bowl of buff-colourless glass; surfaces dulled. Outer surface facet- and linear-cut: part of two concentric circles and a series of oval facets extant.

This fragment is part of the base of a shallow curved bowl decorated with facet-cutting. Such vessels were made from the middle of the 2nd to the earlier 4th centuries, and were probably imported from the Rhineland. It is possible that No. 32 belongs to a group manufactured during the earlier part of this date range, characterised by a decoration of rows of oval facets around the sides and on the base, the latter surrounded by a ring of oval facets, and the two zones separated by wheel-cut lines. Examples come from a burial dated AD 140–90 at Ospringe in Kent (Whiting *et al* 1931, 34–5, pl XXXII:340), a burial dated AD 140–70 at Nida-Heddernheim in Germany (Welker 1978, 504f, fig 1, pl 57), a burial at Esch in the Netherlands dated to the late 2nd or early 3rd century, but containing some earlier material (van den Hurk 1975, 85, no. IV.29, fig 30), and there is a deeper vessel from a pit dated AD 155–65 at Park Street, Towcester (Price 1980, 63–4 no. 1, fig 14).

33. 1944 H13:8:11 (Fig 17.2)

Fragment of yellowish-colourless glass. Outer surface facet-cut and engraved, original design indeterminable. Some slight damage by fire has caused some facets to become smoothed.

This fragment, although small, bears very characteristic decoration that identifies it as belonging to a group of vessels with figured scenes formed from cut facets with engraved details. The piece is too small to enable recognition of the subject depicted, and the fact that the surface appears to have been damaged slightly by fire makes this even less possible. Fremersdorf (1951) once claimed that all vessels thus decorated were manufactured in a single Cologne workshop in the early 3rd century but Harden has preferred to see an eastern origin and a manufacturing date in the 2nd century for the group (1960, 45–7). It now seems clear, however, that vessels bearing this style of decoration were made over a considerable period of time and it is quite likely that some originated in the east and others in the west. One of the earliest examples is a beaker from a Flavian deposit in the amphitheatre at Caerleon (Wheeler 1928, 170, no. 1; Boon 1967, 98, fig 3) and late vessels include a bottle from a 4th-century grave at Hohensülzen in Germany and a fragmentary flask from a late 3rd- or 4th-century context at Caerleon (Boon 1968). The vessels most commonly given this style of decoration, however, are hemispherical bowls with curvilinear engraving beneath the rim and mythological or occasionally genre scenes covering the body. This group probably belongs to the later 2nd or earlier 3rd century. Most famous is a complete example showing a scene from the myth of Actaeon and Artemis, from Leuna-Merseburg in Germany, and now in the British Museum (Harden *et al* 1968, 70–71, no. 94). A list of vessels and fragments has been published by Ettlinger (1974, 53–9) with

reference to a fragment from Baden in Switzerland. British finds are quite rare, and include fragments from Castlesteads (Charlesworth 1959, 48 fig 7.3), Bowcombe Down on the Isle of Wight (Harden 1969, 54–5, pl V, G), Caerleon (Boon 1968, 83, fig 6), York (Yorkshire Museum) and Verulamium (Verulamium Museum).

34. 3741 H13:5:0 (Fig 17.2)

Fragment of colourless glass; part of one pinched-out rib extant, decorated with a ribbed pattern, impressed into glass when still warm and pliable.

Decoration comprising series of pinched-out spikes and ribs was used on a variety of vessels, but particularly hemispherical bowls and cups, during the later 2nd and 3rd centuries, and, to a lesser extent, during the 4th century. Several complete examples have been found in the Rhineland and Gaul where they were probably made (Fremersdorf 1962, 31, pls 34–5; Doppelfeld 1966, pls 94–5; Morin-Jean 1913, 226f, figs 307–10), and there is another from a grave at Brougham Roman cemetery (Carlisle Museum and Art Gallery). Fragments occur at a number of sites including Corbridge (Bulmer 1955, 131, no. 20) and South Shields (Museum of Antiquities, Newcastle).

35. 8726 H21:1:9 (Fig 17.2)

Fragment of colourless glass; part of one horizontal wheel-cut groove, and two applied blobs of dark blue glass extant.

The decorative technique of applying blobs of coloured glass, especially blue, amber and green, usually in simple patterns such as single rows or groups of three, was extremely popular in the Rhineland during the 4th century (Fremersdorf 1962). Finds are less common in Britain, but fragments have turned up in late contexts at sites such as Carrawburgh, Corbridge (Charlesworth 1959, 50, fig 8, 2), Portchester (Harden 1975, 371, nos 10c–d, fig 198), Silchester (Reading Museum) and Wroxeter (Clive House Museum, Shrewsbury). The most complete British find, and the only one from a burial known to me, came from a late grave at Chignall St James, Essex (Essex Archaeological Unit excavations).

36. 1933 H13:8:24 (Fig 17.2)

Rim fragment of a beaker of colourless glass. Rim outflared, broken off and ground smooth, thin band of horizontal wheel-incised lines immediately beneath. Diameter of rim *c* 80mm.

37. 7854 H14:9:2 (Fig 17.2)

Rim fragment of a bowl of greenish-colourless glass; very scratched. Rim outflared slightly, broken off and ground smooth, wide horizontal wheel-cut groove beneath and another further down the side. Diameter of rim *c* 120mm.

38. 7970 H20:8:38 (Fig 17.2)

Rim fragment of a bowl of colourless glass; surfaces dulled. Rim outflared and ground smooth, diameter *c* 120mm.

Little can be said about rim fragments 36–7, except that colourless beakers with outflared, ground rims, decorated with horizontal wheel-cut lines were made in a variety of shapes and were common from the Flavian period onwards. The shape of No. 38 suggests that it belonged to a hemispherical vessel; these were made with a variety of decorations from the earlier 2nd to the 4th centuries.

39. 1580–81 H13:7:4 (Fig 17.2)

Two joining rim fragments of a cup of clear colourless glass. Rim fire-rounded and thickened and turned outward slightly, applied horizontal self-coloured trail beneath. Diameter of rim *c* 100mm.

40. Not illustrated:

a. 2513 H13:10:8

Rim fragment similar to above.

b. 5522–9 H20:4:1

Rim fragment similar to above.

c 3821 H20:U/S

Rim fragment similar to above.

41. 8042 H20:7:33 (Fig 17.2)

Rim fragment of a cup of colourless glass; surfaces streaky and dulled. Vertical rim fire-rounded and thickened, diameter *c* 60mm.

42. Not illustrated:

a. 2114–15 H13:0:2

Rim fragment similar to above.

b. 3043–4 H13:1:63

Rim fragment similar to above.

c. 5392–3 H20:2:2

Rim fragment similar to above.

d. 5388 H20:6:0

Rim fragment similar to above.

e. 8080 H20:8:47

Rim fragment similar to above.

43. 3052 H13:11:4 (Fig 17.2)

Base of a cup of greenish-colourless glass; pinhead bubbles within the metal surfaces dulled. Two concentric base-rings, the outer pushed-in solid, the inner an applied coil with pontil mark on the inside edge. Diameter of outer base-ring 52mm. Broken edges of vessel walls have been chipped away, presumably to enable reuse of base.

44. 7670 H20:3:11 (Fig 17.2)

Base fragment of a cup of greenish-colourless glass, similar to above but more roughly made; metal bubbly. Outer pushed-in tubular base-ring, inner applied coil, neither an exact circle. Outer base-ring *c* 37 × 40mm.

45. Not illustrated:

a. 3139–41 H13:1:80

Fragment of the inner coil of a base similar to above.

b. 2568 H13:8:5

As above.

c. 8515 H20:6:75

As above.

d. 7636 H20:7:27

As above.

e. 6441 H20:7:2

As above.

f. 8786 H21:4:47

As above.

Rim fragments 39–40 and 41–2 belong to two closely related groups of cups, both characterised by a fire-rounded rim, cylindrical body, and usually two concentric base-rings. Base fragments 43–5 may therefore belong to vessels of either type. Differences lie in the rim, which is everted slightly in the case of vessels represented by fragments 39–40, and vertical or turned inward very slightly on those represented by Nos 41–2, and in the decoration.

The first group most often simply has a horizontal self-coloured trail beneath the rim, and another above the base. The most famous example of the type is a complete vessel from a grave at Baldock, Hertfordshire (Percival Westell 1931, 275–6, no. 4828, fig 6) and three more substantially complete cups were found in a deposit dated *c* AD 128–39/42 in the commanding officer's house at Housesteads (Charlesworth 1971b, 34–6, figs 1–3). The type seems to belong mainly to the 2nd century, and was one of the commonest glass types in use at this period. The most famous example of the vessels represented by fragments 41–2 came from a grave at Airlie in Angus (Curle 1932, 291, fig 3), and the name 'Airlie cups' is often given to the type after this piece. These vessels are slightly later in date than the group described above, belonging to the later 2nd and earlier 3rd centuries. They are even more common, and were given a wider range of decoration (Fremersdorf 1970). A small fragment with painted decoration is included among earlier finds from Housesteads (Charlesworth 1959, 44, fig 5). The fact that base fragment No. 43 has been chipped around for reuse has already been noted above.

46. 6665 H20:4:13 (Fig 17.2)

Base fragment, probably of a cup, of clear colourless glass. Pushed-in tubular base-ring, diameter 33mm, base rises to low mound in centre.

47. 8176 H20:9:19 (Fig 17.2)

Base fragment of a beaker or jar of greenish-colourless glass; pinhead bubbles within the metal. Slightly thickened base-ring, diameter 40mm.

48. 3704 H13:1:94 (Fig 17.2)

Base fragment of a beaker or flask of colourless glass; surfaces dulled. Apparently cylindrical body, with part of a horizontal ridge extant around lower part; slightly concave base, diameter *c* 60mm.

49. 3055–92 H13:11:0 (Fig 17.2)

Base fragment, perhaps of a globular bowl or flask of colourless glass; some pinhead bubbles within the metal. Base slightly concave with central pontil mark, broken edges chipped around to make a roughly circular disc, presumably for reuse as a gaming piece or counter, diameter *c* 35mm.

None of base fragments 46–9 can be closely identified but, once again, No. 49 is interesting in that it has apparently been fashioned for reuse.

50. 6080–87 H20:6:4 (Fig 17.2)

Three-ribbed handle fragment of greenish-colourless glass. Lower part extant – three ribs extended into claws to grip another similar three-ribbed shoulder attachment adhering to vessel wall. Width of handle *c* 18mm.

The vessel type to which handle fragment No. 50 belonged cannot be identified with certainty, but the formation of the shoulder attachment, with an extra three-ribbed piece between the vessel wall and the handle itself, is very unusual and is worthy of note.

18 The graffiti

R O S Tomlin

The graffiti from the north-east corner of the fort have all been scratched after firing and, except for No. 7, in capital letters. Where identifiable, they are personal names, either 'Celtic' (Nos 7, 13, 14, 15) or 'Roman' (Nos 3, 6), in the nominative or genitive case, presumably the owner's. The most interesting names are *Neuto* (No. 14), apparently Tungrian, and the unique *Paiatius* (No. 15).

Incised on samian (Fig 18.1)

1. 5926 H20:1:3 *RIB* 2501.27
Two conjoining sherds from the base of a form 31 vessel: AII[...]
Preceded by decorative hatching. *Ae[lius]*, etc.
2. 7512 H20:9:9
Wall sherd: R[...]
3. 3560 H13:11:40 *RIB* 2501.622
Wall sherd of a form 31R vessel with Roman repair: VITALI[...]
Probably *Vitali[s]*, but *Vi[tali]anus* is found at Housesteads (*RIB* 1592).
4. 7653 H20:4:13 *RIB* 2501.659
Base sherd of a form 18/31R vessel: [...]ATI
5. 7734 H20:3:30 *RIB* 2501.679
Wall sherd of a form 31 vessel: [...]DAT[...]
6. 2991 H13:11:0 *RIB* 2501.752
Base sherd of a form 18/31R? vessel: [...]MITIV[...]
Probably *[Pri]mitiv[us or i]*
7. 5244 H20:5:0 *RIB* 2501.775
Wall sherd of a form 18/31R vessel, in cursive letters: [...]OVIR
Probably a 'Celtic' name-ending, eg *Sacrovir(os)*, *Senovir(os)*, etc
8. 4086 H20:1:0 *RIB* 2501.806
Base sherd: [...]. VAL[...]
9. 9563 H20:4:21 *RIB* 2501.814
Base sherd of a form 18/31R? vessel, on the wall: [...]VIII
10. 7735 H20:3:1 *RIB* 2501.823
Foot-ring sherd: [...]. [1-2]VIN[...]
Perhaps [...]i[Q]uin[us]t[us] i
11. 9560 H13:5:20 *RIB* 2501.829
Half the base and complete profile of a form 31 vessel, on the wall: [1-3]VNTIVI[...]
There are a few Latin adjectives in *-antivus* and *-entivus*, but apparently none in *-untivus*; just possibly a theophoric personal name from *Vanauns* (or *Vanauntes*), a god worshipped by Tungrians (*RIB* 1991).
12. 2719 H13:4:15
Three wall sherds, two conjoining, of a form 31R? vessel: a crude grid of intersecting lines; not letters.

Incised on coarseware (Fig 18.1)

13. 8114 H20:8:8 FV 1397? *RIB* 2503.206
Sherds from a BB2 round-rim bowl or dish (late 2nd to early 3rd century): BELICIANI.
This 'Celtic' name is usually spelt *Bellicianus* (eg *CIL* VII 1255, Caerwent), but is sometimes found with one 'i' (for example *RIB* 375, Caerleon).
14. 9564 H21:4:7 and H21:4:36 *RIB* 2503.355
Two conjoining rim sherds of a BB2 bowl with rim of triangular section (Chapter 16, form BO 39: c 160-210), apparently complete: NIIVTO
The name *Neuto* is once attested, on an altar at the shrine of Nehalennia in the East Scheldt estuary (Stuart and Bogaers 1971, no. 30; *AE* 1975, 644); and as *Neutto* once in the territory of the Tungri (*CIL* XIII 3628). It could well be a Tungrian personal name, therefore, of a member of the 3rd- and 4th-century garrison of Housesteads, the *cohors I Tungrorum*. Since this unit had been based in Britain since the Flavian period (Tacitus, *Agric* 36.1, etc), the survival after more than a century of a native personal name, if not of recruitment from the original homeland, is worthy of note.
15. 6965 H20:4:19 *RIB* 2503.369
Rim sherd of a BB2 round rim bowl (Chapter 16, form BO 39: c 160-210): PAIATIVS
The name, unless a mistake (eg for *Pacatius*, cf *RIB* 1599 (Housesteads), *Pacatianus*), seems to be unattested; it is apparently formed from the very rare 'Celtic' name *Paius* (*CIL* V 1956, cf *AE* 1976, 392, *C Doius Pa[. Jus]*).
16. 4579 H20:4:0
Wall sherd of a BB1? vessel: R[...]
17. 9561 H20:4:19
Wall sherd of a grey ware jar: S E[...]
The first letter could be G. Perhaps the owner's initials, cf *RIB* 1389, S E'? (a centurion).
18. 9562 H15:1:4
Rim sherd of parchment ware mortarium with traces of painted decoration on the rim (Chapter 16, form BO 151: c 360+), scratched on the side: [...]P
Below, a horizontal line; the whole enclosed by a figure like an inverted 'h' which could be M, N, VI, etc.
19. 4635 H20:6:0
Rim sherd of a BB1 cooking pot: [...]NA
20. 7198 H20:9:2
Base? sherd of a BB1? vessel: [...]*[...]



Fig 18.1 The graffiti (scale 1:2).

19 The botanical evidence

M Van der Veen

In total, nine samples were analysed for plant remains. Five samples came from waterlogged deposits and, of these, 2.5kg were washed through a series of sieves down to 300 micron mesh size. The samples were then subjected to paraffin separation and sorted microscopically, while the residues were dry sorted. The four samples from the non-waterlogged deposits were processed using water flotation over a 500 micron sieve to extract the carbonised plant remains. This report was completed in 1982, with some further discussion of contexts added by the editor.

The samples came from the following contexts:

H21:1:79–80 organic deposits at the base of the robber trench for the primary north-east angle tower.

date: early 2nd century AD (Hadrianic) or late 2nd to early 3rd century AD.

H21:2:40 organic deposits at the base of the primary east rampart.

date: early 2nd century AD (Hadrianic).

H20:5:94, 6:73 organic deposits within the primary north rampart.

date: early 2nd century AD (Hadrianic).

H21:3:91 lens of charcoal in clay layer 3:90, above flags of oven 3:88.

date: late 2nd to 3rd century.

H20:5:37 charcoal layer, part of the make-up levels for the first phase of the later rampart (H20/3b).

date: second half 3rd century.

H21:3:39 charcoal layer, abutting the large stone hearth (3:40) in the interval tower.

date: late 3rd or early 4th century.

H21:3:25 charcoal layer, sealed below a late cobble surface (3:26); cleaning from the interval tower.

date: mid-4th century?

The results of the analysis of the samples from the waterlogged deposits are shown in Table 19.1. The habitat column indicates where the plants most commonly grow. Of Habitat A, arable land and disturbed places, only *Triticum aestivum*, bread wheat, definitely originates from an arable field. All the other species in this category can occur in arable land, but also occur commonly in other disturbed places, including open land around settlements and buildings, along trackways etc. A large number of species belong to Habitat G, grassland. This includes pasture, meadows, in general open, grassy areas. Four species belong to Habitat W, that of woodland, wood margins and hedgerows. They are hazel, blackthorn, barren strawberry and raspberry. All four can be found in hedges. Several species belong to Habitat M, which represents marshy or very damp ground. One genus in this category, *Carex* sp (sedge), accounts for no less than 1500 seeds.

Some species from the grassland habitat also occur in this habitat, indicating a preference for damp, wet grassland. The presence of *Calluna*, heather, refers to heathland, moors or bogs, Habitat H.

It is not quite clear how accurately the plants found in the samples reflect the local vegetation at the period of the construction of the rampart. The deposits are very localised and do not appear to be part of the old ground surface. It is even more difficult to interpret the samples from within the rampart. Could they originate from turves cut to make up the rampart? The plant remains in H20:5:94 are very similar to the samples from the base of the rampart. The results from sample H20:6:73, however, are rather different. In contrast to the other samples, which contain a large amount of different species, this sample contains almost solely *Juncus* (rush) pollen. (*Editors note*: Most problematic of all is the uncertainty regarding the integrity of contexts H21:1:79–80. These were initially interpreted as primary rampart deposits and their composition is similar to layers H21:2:40, H20:5:94 and H20:6:73, with pieces of leather tentage also present, presumably representing rubbish deposits, as in H21:2:40. However, further analysis of the excavation record has revealed that H21:1:79–80 lay at the base of the robber trench (H21:1:78) for one of the primary north-east angle walls (see Chapters 3 and 4). The sketched section drawing (Fig 2.5) suggests these deposits did not extend beyond the limits of that trench. Unfortunately, the somewhat schematic nature of the drawing means it is not possible to determine whether H21:1:79–80 were simply rubbish deposits that were initially dumped at the base of the primary rampart and were later cut and briefly exposed by the robber trench at the end of the 2nd or beginning of the 3rd century, or, alternatively, represented rubbish contemporary with the demolition and robbing of the primary angle tower which was deposited in the trench before it was backfilled. If the former is the case, then pollen from two different periods could conceivably be present in the sample.)

Assuming the deposits we are dealing with reflect in some way the environment in the immediate vicinity of the fort, the picture that emerges, is one of open grassland, very wet in places, allowing the growth of sedges and rushes, and with some heathland nearby. Except for some hedges with hazel and hawthorn there is no evidence for any trees. The other rare component in the samples is the wasteland habitat. Many different weed species will have grown in and around the fort.

The four samples from the non-waterlogged deposits contained 3 seeds of *Plantago lanceolata* (ribwort), 4 seeds of *Carex* spp (sedges), 1 seed of *Rumex acetosa* (sorrel), 3 unidentified seeds and some *Calluna/Erica* (heather) fragments. So these samples

Table 19.1 Number of seeds and fruits for each waterlogged sample

Date: early 2nd century AD (Hadrianic), but see discussion of contexts H21:1:79–80

Key to habitat column: A = arable land and other disturbed places

G = grassland

H = heathland, moors, bogs

M = marshy and very damp ground

W = woodland, wood margins and hedgerows

Other abbreviations: × = fragments like leaves present, but not individually counted

<i>species</i>	<i>habitat</i>	H21:1:79	H21:1:80	H21:2:40	H20:5:94	H20:6:73	<i>total</i>
Ranunculaceae							
cf <i>Caltha palustris</i> L (kingcup)	M	1	–	–	–	–	1
<i>Ranunculus acris</i> L (meadow buttercup)	G	5	15	–	3	–	23
<i>Ranunculus repens</i> L (creeping buttercup)	G	28	90	5	8	–	131
<i>Ranunculus</i> sp	–	5	23	–	244	–	272
Cruciferae							
<i>Brassica</i> sp.	A	2	4	–	–	–	6
<i>Raphanus raphanistrum</i> L (wild radish)	A	1	–	–	–	–	1
Violaceae							
<i>Viola</i> sp (violet)	–	–	1	–	15	–	16
Caryophyllaceae							
<i>Agrostemma githago</i> L (corn cockle)	A	3	2	–	–	–	5
<i>Silene vulgaris</i> (Moench) Garcke (bladder campion)	A	1	–	–	–	–	1
<i>Stellaria gramineae</i> L (lesser stitchwort)	G	9	12	–	–	–	21
<i>Stellaria media</i> (L) Vill (chickweed)	A	17	30	163	6	–	216
Portulacaceae							
<i>Montia fontana</i> L (blinks)	M&G	–	–	10	–	–	10
<i>Montia fontana</i> ssp <i>chondrosperma</i> (Fenzl) S M Walters (blinks)	M&G	13	31	83	3	–	130
Chenopodiaceae							
<i>Atriplex</i> sp	–	–	–	1	–	–	1
<i>Chenopodium</i> sp	–	6	8	3	–	–	17
Linaceae							
<i>Linum catharticum</i> L (purging flax)	G	107	250	–	5	–	362
Rosaceae							
<i>Aphanes arvensis</i> L (parsley piert)	A	8	20	100	2	–	130
<i>Potentilla sterilis</i> (L) Garcke (barren strawberry)	W	66	105	3	25	–	199
<i>Prunus spinosa</i> L (blackthorn)	W	–	1	–	–	–	1
<i>Rubus idaeus</i> L (raspberry)	W	–	1	20	–	–	21
Umbelliferae							
Umbelliferae indet.	–	2	–	–	–	–	2
Polygonaceae							
<i>Polygonum aviculare</i> L (knotgrass)	A	19	9	47	–	–	75
<i>Polygonum convolvulus</i> L (black bindweed)	A	1	–	–	–	–	1
<i>Polygonum lapathifolium/persicaria</i> (pale persicaria)	A	5	5	1	2	–	13
<i>Rumex acetosa</i> L (sorrel)	G	–	3	–	–	–	3
<i>Rumex acetosella</i> L (sheep's sorrel)	G&A	–	90	1	2	–	93
Fagaceae							
<i>Corylus avellana</i> L (hazel)	W	–	2	–	–	–	2
Ericaceae							
<i>Calluna vulgaris</i> (L) Hull (heather)	H	×	×	–	×	–	×
Scrophulariaceae							
<i>Rhinanthus</i> sp L (yellow rattle)	–	16	13	–	–	–	29
Labiatae							
<i>Ajuga reptans</i> L (bugle)	G	–	–	–	5	–	5
<i>Galeopsis</i> sp (hemp nettle)	–	6	5	96	1	–	108
<i>Prunella vulgaris</i> L (self-heal)	G	81	23	–	25	–	129
<i>Stachys palustris</i> L (marsh woundwort)	M	–	–	–	1	–	1
Plantaginaceae							
<i>Plantago lanceolata</i> L (ribwort)	G	14	4	–	–	–	18

Table 19.1 (cont'd)

<i>species</i>	<i>habitat</i>	<i>H21:1:79</i>	<i>H21:1:80</i>	<i>H21:2:40</i>	<i>H20:5:94</i>	<i>H20:6:73</i>	<i>total</i>
Compositae							
<i>Cirsium</i> sp (thistle)	–	–	1	–	–	–	1
<i>Leontodon</i> sp (hawkbit)	G	1	–	–	–	–	1
Compositae indet	–	–	–	–	5	–	5
Juncaceae							
<i>Juncus</i> sp (rush)	M&G	18	–	–	105	100+	223+
<i>Luzula campestris</i> (L) D C (sheep's brush)	G	12	1	–	–	–	13
Cyperaceae							
<i>Carex</i> spp (sedges)	M	249	414	7	917	1	1588
<i>Eleocharis palustris</i> (L) Roem & Schult (common spike-rush)	M	2	–	–	–	–	2
Gramineae							
<i>Triticum aestivum</i> L (bread wheat)	A	–	1	–	–	–	1
Gramineae indet (grasses)	G	31	103	–	18	–	152
mosses, not further identified	–	×	×	×	×	–	×
indet	–	15	18	3	13	–	49
<i>Total</i>		744	1285	543	1405	101+	4078

also indicate the presence of grassland, damp ground and heathland.

Neither of the two categories of samples contained any evidence for economic or domestic activities.

20 The metalworking debris

D B Dungworth and D Starley

Introduction

This report describes the evidence for metalworking recovered from the excavations carried out between 1974 and 1981 in the north-east corner of the fort (for details see Starley 1996 and Dungworth 2001). Most of the metalworking debris was recovered from the rampart areas. During Phase II the north and east ramparts were removed and several workshops, associated with a number of large hearths of uncertain purpose, were constructed. The excavations of the workshop areas (in particular the northern workshop in the east rampart) recovered substantial quantities of crucibles, slag, moulds and copper alloy scrap and waste. This is a remarkably complete assemblage of all the sorts of metalworking evidence that can be recovered archaeologically. The removal and subsequent reinstatement of the ramparts (and other activities) resulted in limited survival of deposits and features associated with the workshops. Indeed, much of the copper alloy working debris was recovered from a dumped deposit (H21:2:48) within a road surface immediately outside the workshop.

Classification of metalworking debris

The metalworking debris was examined and classified based on simple characteristics such as size, shape, colour and texture (Bayley *et al* 2001). This allows the identification of the types of metalworking activities that took place. The debris includes iron smithing slags (see Starley 1996 for further details) and a wide range of debris from working copper alloys (see Dungworth 2001 for further details). The evidence for working copper alloys was examined in greater detail to investigate if the army produced its own equipment.

The 12kg of ironworking slags recovered included smithing hearth bottoms and non-diagnostic ironworking slags. Smithing hearth bottoms are plano-convex lumps of slag that form inside a blacksmith's hearth (McDonnell 1991). Most of the smithing hearth bottoms were recovered from late Roman or post-Roman contexts, and the north rampart area (H20). None of the ironworking slags recovered showed any diagnostic features to indicate that the production of iron from iron ores (smelting) took place. The non-diagnostic ironworking slags lack any distinctive features that would allow them to be linked to particular ironworking processes (ie smelting or smithing). Given the lack of iron smelting slags, however, it is likely that all of the non-diagnostic ironworking slags were produced during iron smithing. The quantity of iron smithing slag recovered is not particularly great and the assemblage

is likely to have resulted from the occasional repair of iron artefacts rather than the manufacture of large quantities of new artefacts.

The furnaces and hearths used in metalworking activities were commonly built using clay. The high temperatures achieved led to the vitrification of the inner surfaces of the clay. This vitrified ceramic lining material has a distinctive oxidised fired outer surface and a reduced fired, vitrified inner surface. Most of the vitrified hearth lining recovered came from contexts containing evidence for copper working (Fort Phase II and Site H21). It is likely that most of the vitrified hearth lining represents the remains of hearths used for copper working.

A very small amount of fuel ash slag was recovered. This is a very lightweight, light coloured (grey-brown), highly porous material that results from the reaction between alkaline fuel ash and silicates from soil, sand or clay at elevated temperatures. The reaction is shared by many pyrotechnological processes and the slag is not diagnostic of any particular process.

Evidence for the casting and working of copper alloys was recognised in a number of forms: crucibles, moulds, copper alloy scrap/offcuts copper alloy droplets (casting waste) and copper alloy slag. Most of this material was found in Phase II contexts in area H21; the material from later contexts is probably residual.

In all, 75 crucible fragments, weighing over 700g in total and representing around 50 different vessels, were recovered from Housesteads. This is a large assemblage compared to the two or three vessels from the *fabrica* at Exeter (Bayley 1989a, 1), the 12 fragments from Sheepen, Colchester (Bayley 1985), or the 80 fragments from Caerleon (Bayley 1989b). None of the crucibles survived complete, but the fragments clearly represented a wide range of forms; from hand-made triangular to wheel-thrown (with and without extra outer layers of ceramic material, Bayley *et al* 2001, fig 22). The most complete examples had maximum diameters of 50–60mm and maximum heights of 60–70mm, giving internal volumes of 100–200ml. Most of the crucible fragments were heavily vitrified and some had black or red external glazes, the latter being a clear indicator of the presence of copper, while others had copper corrosion products (green) attached.

The surviving mould fragments are not typical of those that are usually found; they lack the characteristic soft fabrics, oxidised-fired outer surfaces and reduced-fired inner surfaces typical of ceramic moulds (Bayley *et al* 2001, 16–17, figs 24 and 26). Most of the moulds were a uniform dark brown to grey colour and a few showed signs of vitrification (both on external surfaces and on the modelled surfaces). This is likely

Table 20.1 Summary of metalworking evidence by phase (weight in grammes)

	<i>Phase</i>					<i>total</i>
	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>	<i>M</i>	
smithing hearth bottom	0	540	400	1900	1900	4740
non-diagnostic ironworking slag	122	832	1935	1207	3510	7606
vitrified hearth lining	0	399	10	15	475	899
fuel ash slag	0	3	0	0	0	3
crucible	10	514	18	45	146	733
mould	0	126	0	0	0	126
copper alloy scrap/offcuts ^a	0	59	7	19	2	87
copper alloy droplets	6	330	45	13	8	402
'copper alloy slag'	5	716	0	3	57	781
Total	143	3519	2415	3202	6098	15377

a Only a small proportion of the possible copper alloy scrap (offcuts) from the site was submitted for examination, the rest is reported in the catalogue of copper alloy artefacts (*see* Chapter 14).

Table 20.2 Summary of metalworking evidence by area (weight in grammes)

	<i>Site</i>						<i>total</i>
	<i>H13</i>	<i>H14</i>	<i>H15</i>	<i>H20</i>	<i>H21</i>	<i>HSE</i>	
smithing hearth bottom	220	400	660	2050	1410	0	4740
non-diagnostic ironworking slag	995	1500	465	2385	2241	20	7606
vitrified hearth lining	140	0	50	33	671	5	899
fuel ash slag	0	3	0	0	0	0	3
crucible	10	0	0	71	636	16	733
mould	0	0	0	0	126	0	126
copper alloy scrap/offcuts	0	0	0	0	68	19	87
copper alloy droplets	0	0	13	170	219	0	402
'copper alloy slag'	0	0	0	50	731	0	781
	1365	1903	1188	4759	6102	60	15377

to have occurred accidentally after the moulds had been used. Indeed, this extra accidental firing made the moulds more robust and this may account for the survival of these fragments (especially given that most were recovered from a dump of material on a road surface). It is likely that the surviving examples are a small fraction of those made at Housesteads. The condition of the mould fragments makes it difficult to identify the artefacts that had been cast in them; however, they all appear to be fragments of two-piece moulds and the majority had been used to manufacture small, flat artefacts. The use of 'scanning EDXRF analysis' allowed the identification of the artefacts cast as small buckles.

One mould fragment (Fig 20.1), which had suffered relatively little from later reheating, indicates that several buckles may have been cast together in a single operation. The central part of Figure 20.1 shows the dividing line between the actual mould on the left and the packing clay on the right. Another mould would have been fixed to the right of the packing clay. The casting of spoons at Castleford, Yorkshire (Bayley and Budd 1998, 200), and brooches at Mont Beuvray (Bibracte), France (Guillaumet 1994, 11–12), made

use of multiple moulds, whereby the individual moulds were arranged in cones so that 16 items could be cast at once. The arrangement of the Housesteads multiple mould and the number of objects cast together remain uncertain; however, the use of multiple moulds implies that production occurred on a substantial scale and was not just occasional repair or replacement.

Substantial quantities of copper alloy casting waste (amorphous droplets) were included within the assemblage. In the context of the materials described above, these are most likely to be waste products of casting. The offcuts of copper alloy took a limited range of forms; most common were small trimmed fragments of thin sheet, but small bars with tapered ends were also present, showing that copper artefacts were wrought as well as cast. It is assumed that this material was collected for the casting of new artefacts. Most of the scrap and offcuts are reported in the copper alloy catalogue (*see* Chapter 14) which lists over 100 fragments of sheet, wire and rod. Most of these were recovered from the eastern rampart (H21), with lesser amounts from the northern rampart (H20) and almost none from the barrack block (H13).

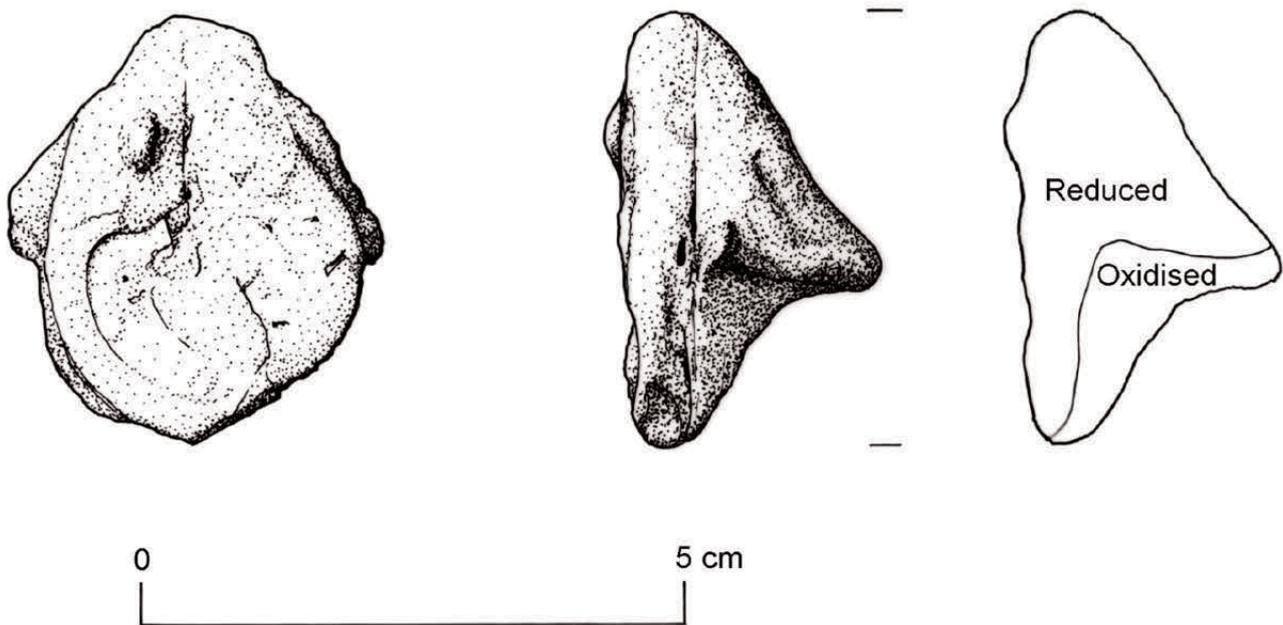


Fig 20.1 Fragment of a multiple mould.

The 'copper alloy slag' consisted of fairly small, generally black lumps of slag which lacked any clear morphology that would link them to a particular process, but which had red or green patches on the surface indicating the presence of copper alloys. Visually these lumps of slag resembled undiagnostic ironworking slags, although they could be distinguished from such slags by their colour. The quantity and morphology of the 'copper alloy slags' recovered shows that they could not have been produced by smelting copper ores. The study of the micro-morphology of several specimens (see below) showed that much of the 'copper alloy slag' actually consists of highly vitrified fragments of crucible.

Analysis of debris from copper alloy working

Some of the copper alloy working debris was investigated using scientific techniques to determine chemical composition and microstructure. Most of the debris was analysed semi-quantitatively using energy dispersive X-ray fluorescence (EDXRF). A selection of metal, crucibles and slag was then analysed quantitatively using a scanning electron microscope with an attached X-ray spectrometer (SEM-EDS). This work explored methodological issues relating to such debris and how it can be used to understand copper-working processes. This report focuses on the results in so far as they indicate which copper-working processes took place at Housesteads; details of the methodological results can be found in Dungworth (2001).

Copper alloys are usually assigned names depending on the range and quantity of other elements present. The terms used for this report are as follows:

- bronze: an alloy rich in tin ($\text{Sn} > 5\%$) with low levels of zinc ($\text{Zn} < 5\%$)
- brass: an alloy rich in zinc ($\text{Zn} > 15\%$) with low levels of tin ($\text{Sn} > 5\%$)
- copper: an alloy containing low levels of zinc and tin ($< 5\%$)
- gunmetal: an alloy containing moderate levels of both zinc and tin

In addition, alloys are classed as leaded or unleaded depending on the lead content (those alloys where $\text{Pb} > 1\%$ are leaded).

Analysis of copper alloy scrap/offcuts

Thirty-one samples of copper alloy scrap/offcuts from context H21:2:48 were selected for quantitative analysis by SEM-EDS (Table 20.3). Most of these are copper or bronze, and the levels of lead are rather low. The low proportion of leaded alloys is to be expected as such alloys are well suited for the sort of wrought (hammered) work that would produce offcuts.

Analysis of copper alloy waste (droplets)

Sixteen samples of copper alloy waste (droplets) from context H21:2:48 were selected for analysis. Most of these are bronze with fairly high levels of lead. The high proportion of leaded alloys is to be expected for casting of copper alloys, as lead lowers the melting temperature of the alloy and lowers the viscosity of the molten metal. Roman cast copper alloys usually have higher levels of lead than wrought metal (Dungworth 1995, table 6:3).

While early Roman military copper alloy fittings (in particular legionary and cavalry equipment) were usually made from brass (Bishop and Coulston 1993, 191),

Table 20.3 Quantitative analysis (SEM-EDS) of copper alloy scrap/offcuts

<i>Sample number</i>	<i>Cu</i>	<i>Zn</i>	<i>Sn</i>	<i>Pb</i>	<i>Fe</i>	<i>alloy type</i>
1	86	<0.1	13.8	<0.5	0.2	bronze
2	85	<0.1	14.4	<0.5	0.1	bronze
3	97	<0.1	1.8	<0.5	<0.1	copper
4	77	19.7	2.4	<0.5	0.6	brass
5	88	0.6	11.7	<0.5	0.2	bronze
6	88	0.4	11.3	<0.5	0.2	bronze
7	97	0.4	1.7	<0.5	0.4	copper
8	83	0.6	15.5	1.2	0.2	lead bronze
9	89	0.5	10.4	<0.5	0.2	bronze
10	97	<0.1	1.6	0.8	0.4	copper
11	97	<0.1	1.8	<0.5	<0.1	copper
12	87	0.4	11.6	0.7	0.3	bronze
13	88	<0.1	10.3	1.0	<0.1	bronze
14	97	<0.1	1.6	<0.5	0.4	copper
15	87	0.5	11.6	<0.5	0.3	bronze
16	87	0.7	11.0	0.7	<0.1	bronze
17	84	11.8	2.1	1.0	0.7	gunmetal
18	87	<0.1	12.1	<0.5	0.2	bronze
19	99	0.6	<0.1	<0.5	0.2	copper
20	89	0.5	10.9	0.7	0.1	bronze
21	86	1.3	11.5	1.9	<0.1	lead bronze
22	87	<0.1	12.4	<0.5	<0.1	bronze
23	98	0.3	1.2	0.7	0.4	copper
24	91	<0.1	9.9	<0.5	<0.1	bronze
25	85	2.4	8.8	4.3	<0.1	lead bronze
26	90	0.4	8.8	<0.5	0.3	bronze
27	89	0.5	9.8	0.7	0.3	bronze
28	86	7.0	5.8	<0.5	0.2	gunmetal
29	89	0.4	9.5	<0.5	0.3	bronze
30	91	<0.1	10.3	4.8	<0.1	lead bronze
31	83	11.0	4.5	1.2	0.3	lead gunmetal
mean	89	1.9	8.1	0.6	0.2	
	±5.3	±4.4	±4.7	±1.2	±0.2	

Table 20.4 Quantitative analysis (SEM-EDS) of copper alloy waste (droplet)

<i>Sample number</i>	<i>Cu</i>	<i>Zn</i>	<i>Sn</i>	<i>Pb</i>	<i>Fe</i>	<i>alloy type</i>
1	95	<0.1	2.3	1.1	0.5	lead copper
2	92	<0.1	4.1	4.1	<0.1	lead copper
3	75	1.1	16.0	7.5	<0.1	lead bronze
4	55	1.2	10.2	33.0	0.2	lead bronze
5	84	0.7	10.1	4.0	0.3	lead bronze
6	80	1.1	8.5	<0.5	<0.1	bronze
7	78	3.2	8.0	10.2	0.3	lead bronze
8	79	0.5	10.9	8.9	0.1	lead bronze
9	84	<0.1	10.4	5.1	0.3	lead bronze
10	72	4.4	7.3	15.5	<0.1	lead bronze
11	77	5.0	9.4	7.5	0.7	lead bronze
12	57	2.3	8.8	30.0	0.2	lead bronze
13	95	<0.1	1.3	0.8	0.5	copper
14	79	0.7	13.3	6.1	0.2	lead bronze
15	82	<0.1	11.6	5.4	0.6	lead bronze
16	90	2.7	6.2	<0.5	0.3	gunmetal
mean	80	1.4	8.7	8.7	0.3	
	±11.5	±1.6	±3.8	±9.8	±0.2	

from the 2nd century AD onwards, many Roman military fittings were made from leaded bronze (Dungworth 1995). Thus the composition of the waste (droplets) are similar to contemporary military equipment.

Comparing the results for the scrap and the waste showed some interesting similarities and differences. The average tin and zinc contents are almost identical, while the lead levels are much higher in the waste (droplets) than in the scrap/offcuts. If the scrap/offcuts were the raw material used in casting then lead must have been added during melting.

Examination and analysis of crucibles

Six crucibles from context H21:2:48 were selected for detailed SEM-EDS examination and analysis. These were selected to represent the range of fabrics, forms and degrees of vitrification. SEM examination was primarily carried out in back scatter mode, which provides atomic number contrast images. This enabled the identification of particular areas of crucible, for example areas largely unaltered by heating, quartz inclusions, porosity, and areas of vitrification (present on internal and external surfaces and at the lip). The results are summarised in Table 20.5.

Despite the apparent variety of fabrics and forms of the crucibles, they all have very similar microstructures and chemical compositions. The crucible fabrics were

moderately porous and contained a high proportion of silica (sand) inclusions (Fig 20.2). Overall, the chemical composition of the crucible fabric (high in silica and alumina) would have ensured that it was suitably refractory.

The vitrified surfaces of the crucible were rich in copper, zinc, tin and lead. These were usually present as oxides within a 'glass' (Fig 20.3), but occasionally as discrete droplets trapped within the vitrified layers (Fig 20.4). The proportions of these elements present in the vitrified surfaces of the crucibles tended to vary from inner to outer surface. Zinc was concentrated on the inner vitrified surfaces, tin was concentrated in the outer surface and the lip, and lead was concentrated at the lip. The proportions of copper, zinc, tin and lead present in the crucibles do not match the proportions found in the copper alloy waste (droplets).

Copper, zinc, tin and lead will migrate from molten alloy to the crucible by volatilisation and oxidation. Which mechanism is dominant depends on the success that the copper worker had in maintaining a proper 'reducing' atmosphere in the crucible. Each element tends to be volatilised or oxidised to varying degrees and so the proportion of copper, zinc, tin and lead present in the vitrified surfaces of crucibles will rarely match that of the copper alloys melted in the crucibles (Dungworth 2000).

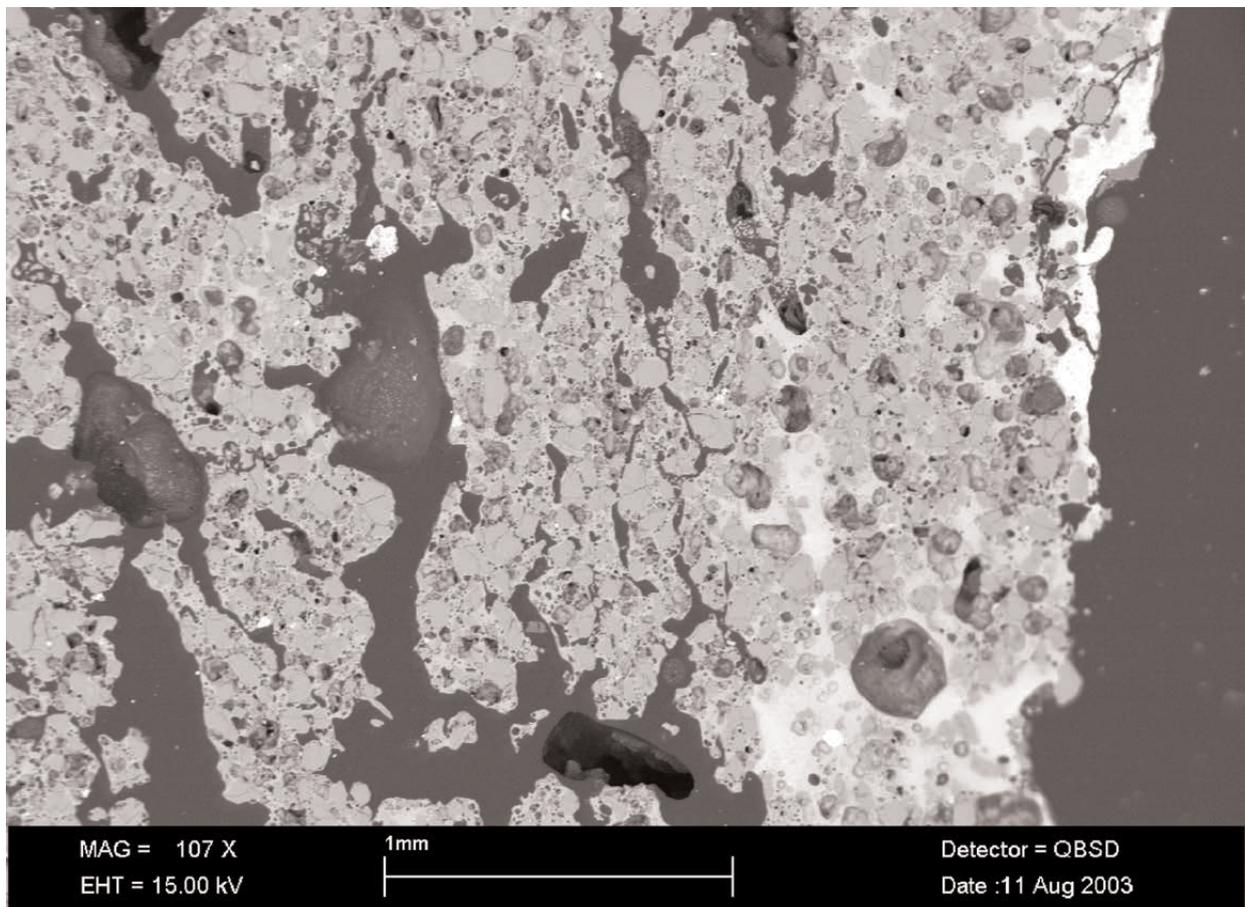


Fig 20.2 SEM image (back scatter mode) of a cross-section through a crucible.

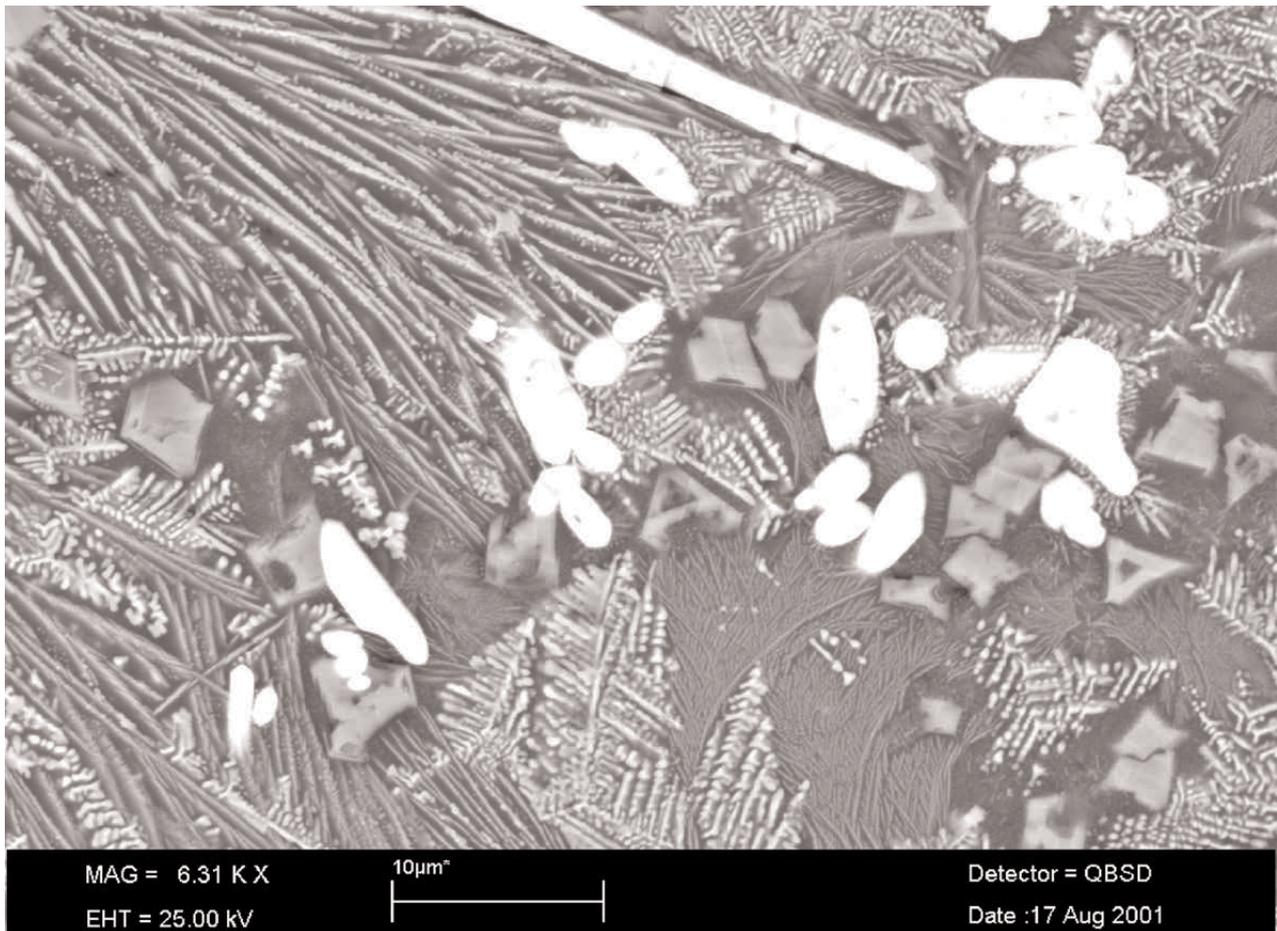


Fig 20.3 SEM image (back scatter mode) of the vitrified surface of a crucible.

Table 20.5 Summary of SEM-EDS analyses of six crucibles
(number in brackets equals the number of analyses)

	MgO	Al ₂ O ₃	SiO ₂	P ₂ O ₅	SO ₃	K ₂ O	CaO	TiO ₂	MnO	FeO	CuO	ZnO	SnO ₂	PbO
Crucible fabric (14)	0.5	20.6	68.7	0.8	0.1	1.7	0.6	0.9	0.1	5.8	<0.1	0.2	<0.4	<0.4
sd	±0.4	±5.9	±8.8	±0.7	±0.1	±0.8	±0.3	±0.3	±0.1	±2.8		±0.4		
Inner surface (14)	0.7	15.0	41.5	0.6	0.1	1.1	1.5	0.7	0.3	27.2	0.5	7.9	1.2	0.8
sd	±0.3	±5.0	±12.6	±1.1	±0.3	±0.6	±1.1	±0.3	±0.6	±12.5	±0.8	±9.0	±1.8	±0.9
Lip (11)	0.9	15.4	46.4	1.2	0.2	1.5	1.6	0.7	0.2	17.6	3.9	3.5	1.4	5.0
sd	±0.3	±4.5	±11.1	±1.3	±0.5	±0.5	±1.2	±0.2	±0.1	±9.2	±4.4	±2.5	±1.6	±10.2
Outer surface (22)	1.0	16.6	46.2	0.5	0.1	1.4	1.7	0.7	0.3	25.4	3.7	0.6	1.6	<0.4
sd	±0.6	±4.4	±12.8	±1.0	±0.2	±0.7	±1.3	±0.3	±0.3	±14.2	±8.9	±0.8	±5.0	

Moulds

A total of 126g of ceramic mould was recovered (almost all from a single context, east *intervallum* road surface H21:2:48). This is a rather small quantity, especially when compared to the large assemblages of ceramic mould that are occasionally recovered archaeologically, eg around 1800 fragments from Castleford (Bayley and Budd 1998). Nevertheless, it is a fairly large assemblage in a Roman military context.

Ceramic moulds are not usually fired to as high a temperature as pottery and so remain friable. Given that the moulds have to be broken open to retrieve the objects cast and that once used the moulds are useless, it is not surprising that such evidence rarely survives. Moulds usually survive in large quantities only when they are quickly dumped in a pit and not subsequently disturbed. The moulds from Housesteads were mostly recovered from a road surface layer immediately

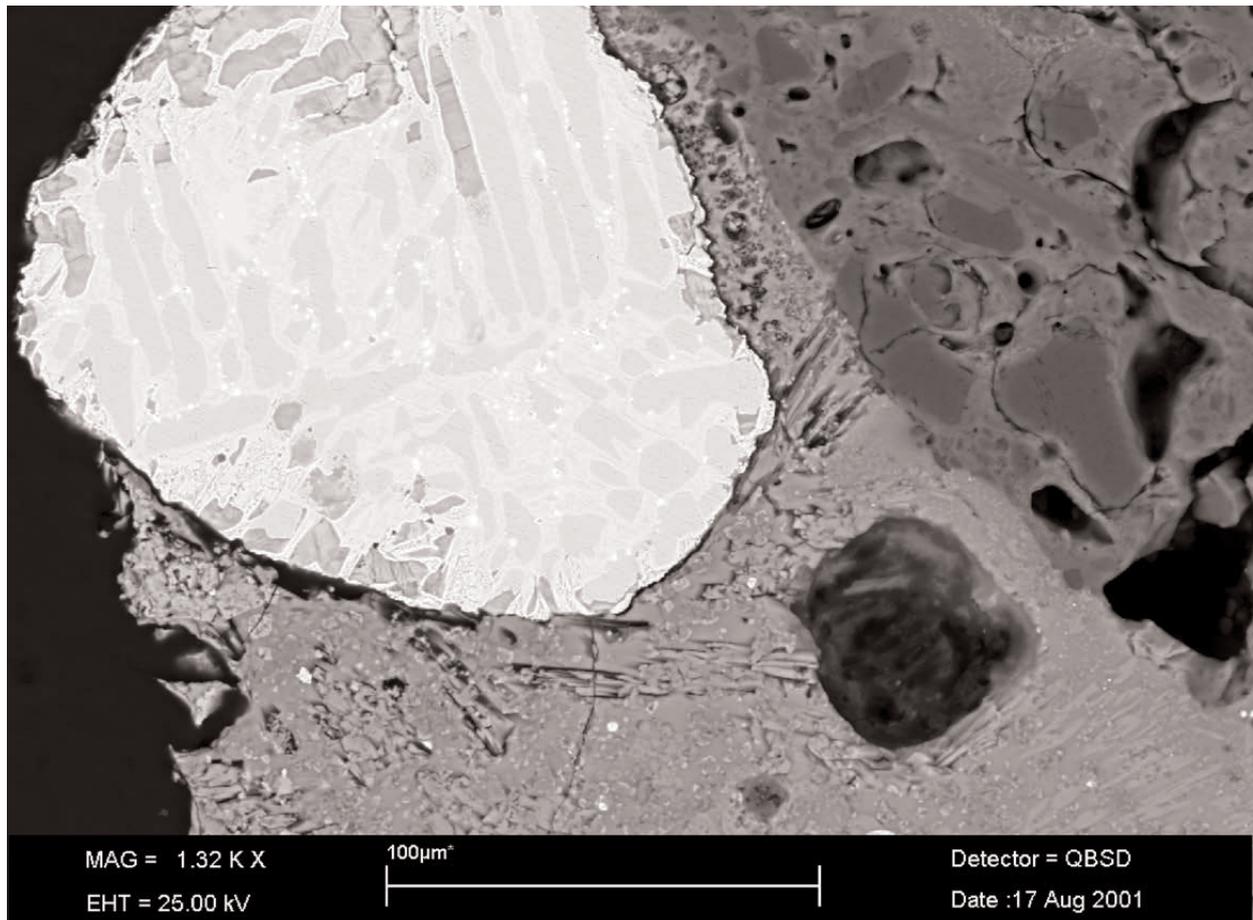


Fig 20.4 SEM image (back scatter mode) of a cross-section through the vitrified surface of a crucible containing a droplet of copper alloy.

outside the north workshop in the east rampart. The survival of the moulds was probably due to the fact that they had been accidentally fired after use, which made them less friable. It is possible that a great many more moulds were used but have not survived. In many cases, the accidental firing of the moulds after use vitrified the modelled surfaces of the moulds, and initially made identification of the artefacts that had been cast somewhat difficult.

The moulds clearly came from two-piece moulds for the manufacture of objects only a few centimetres across and a few millimetres deep. However, a simple visual examination of the moulds was only able to suggest that at least three had been used to make circular or D-shaped objects (Fig 20.1). The crucibles were analysed using EDXRF, which confirmed that they had absorbed small amounts of zinc (the most volatile element present in Roman copper alloys). It was expected that the diffusion of zinc into the mould would be most apparent in those regions where the molten metal had actually been in contact with the mould. Through 'scanning X-ray fluorescence' (cf Scott 2001) it was possible to obtain a series of elemental X-ray maps across the surface of the moulds. Figure 20.5 shows the digital images, silicon X-ray maps and zinc X-ray maps for three of the moulds. While the silicon X-ray maps

simply show the extent of the ceramic mould, the zinc X-ray maps provide some information about the form of the artefacts that had been cast.

In all three cases it appears that the same sort of object was being made: a belt buckle. The type is well known from Roman military sites (eg Oldenstein 1977, Taf 76, no. 1011) and was in use from the second half of the 2nd century to the first half of the 3rd century (Oldenstein 1977, 216). Examples are known from a number of forts along Hadrian's Wall, for instance South Shields (Allason-Jones and Miket 1984, no. 3.617), Carlisle (McCarthy 1990, no. 115), Birdoswald (Wilmott 1997, fig 227, no. 253), Newcastle (Snape and Bidwell 2002, fig 18.3, no. 21), Old Penrith (Austen 1991, fig 93, no. 662), Vindolanda (Bidwell 1985, fig 41, no. 29) and Corbridge (Knowles and Forster 1909, 409, fig 29; Forster and Knowles 1915, 244, plate 1, no. v). Examples are known from other military sites in Britain, such as Catterick (Wilson 2002, fig 253, no. 158), Chester (Newstead 1928, plate 9, no. 13), Caerleon (Zienkiewicz 1986, 175, fig 57, no. 32), and Exeter (Bidwell 1979, fig 73, no. 15), as well as much further afield, notably Dura Europos (Bishop and Coulston 1993, fig 112, 7). Moulds for this buckle type are also recorded at Tibiscum, Romania, for example (Bishop and Coulston 1993, fig 134, 3).

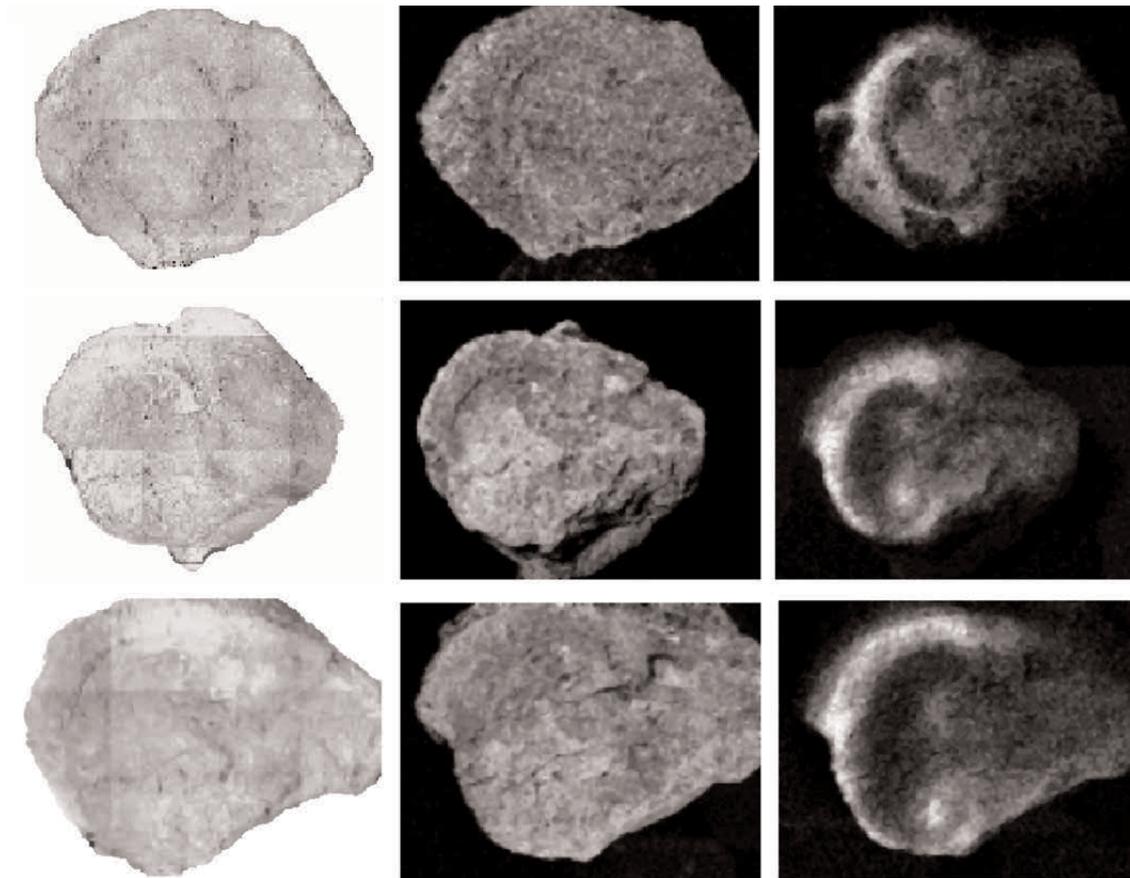


Fig 20.5 Scanning X-ray fluorescence of ceramic moulds.

The Caerleon and Vindolanda examples are both failed castings, indicating that they were probably made close to where they were found.

‘Copper alloy slag’

The examination of five samples of ‘copper alloy slag’ showed that four contained fragments of crucible embedded within them (Fig 20.6). Such slag probably formed when crucibles broke, the contents oxidised and reacted with fuel ash and fragments of the crucible.

Production of Roman copper alloy military fittings

The assemblage of debris from the working of copper alloys provides evidence that small military fittings (in particular buckles) were manufactured within the fort at Housesteads. This is important evidence, as the long-running debates over the mechanisms by which the Roman army obtained its equipment have often been based on indirect evidence.

Ancient literary accounts stress self-sufficiency for armies (eg Vegetius II, 25) and list a wide range of artisans (including blacksmiths, smiths, coppersmiths, helmet-makers, sword-cutlers, trumpet-makers, bow-makers, and arrowsmiths) who should be found within the ranks (cf *The Digest of Justinian* L, 6, 7).

Inscriptions on military equipment (MacMullen 1960), and writing tablets (Bowman 1994) or papyri (eg Youtie and Winter 1951) indicate that some items were privately owned but also show that equipment may have been issued by the army, with soldiers’ pay being deducted to cover the cost. Writing tablets and papyri also show that soldiers worked in *fabricae*. However, attempts to identify buildings within forts that could have served as *fabricae* have rarely provided compelling evidence (Bishop 1985; Bidwell 1997, 90). Nevertheless, forts have sometimes produced evidence for the production of copper alloy objects in the form of moulds, crucibles and failed castings (Bishop and Coulston 1993, 186, fig 134; Esmonde Cleary and Ferris 1996, 103–5; Oldenstein 1974). The limited extent of this evidence has led many to suggest that the Roman army was primarily engaged in repair rather than production (eg Robinson 1975).

A recent review of the evidence for the production of copper alloy artefacts along Hadrian’s Wall (Allason-Jones and Dungworth 1997) identified widespread evidence for at least small-scale copper alloy working. This evidence provided support for the idea of occasional repair/replacement rather than significant production of new objects. At Housesteads, however, there is evidence for production of copper alloy fittings on a much larger scale. Three of the surviving moulds are for identical buckles, and it is likely that more than

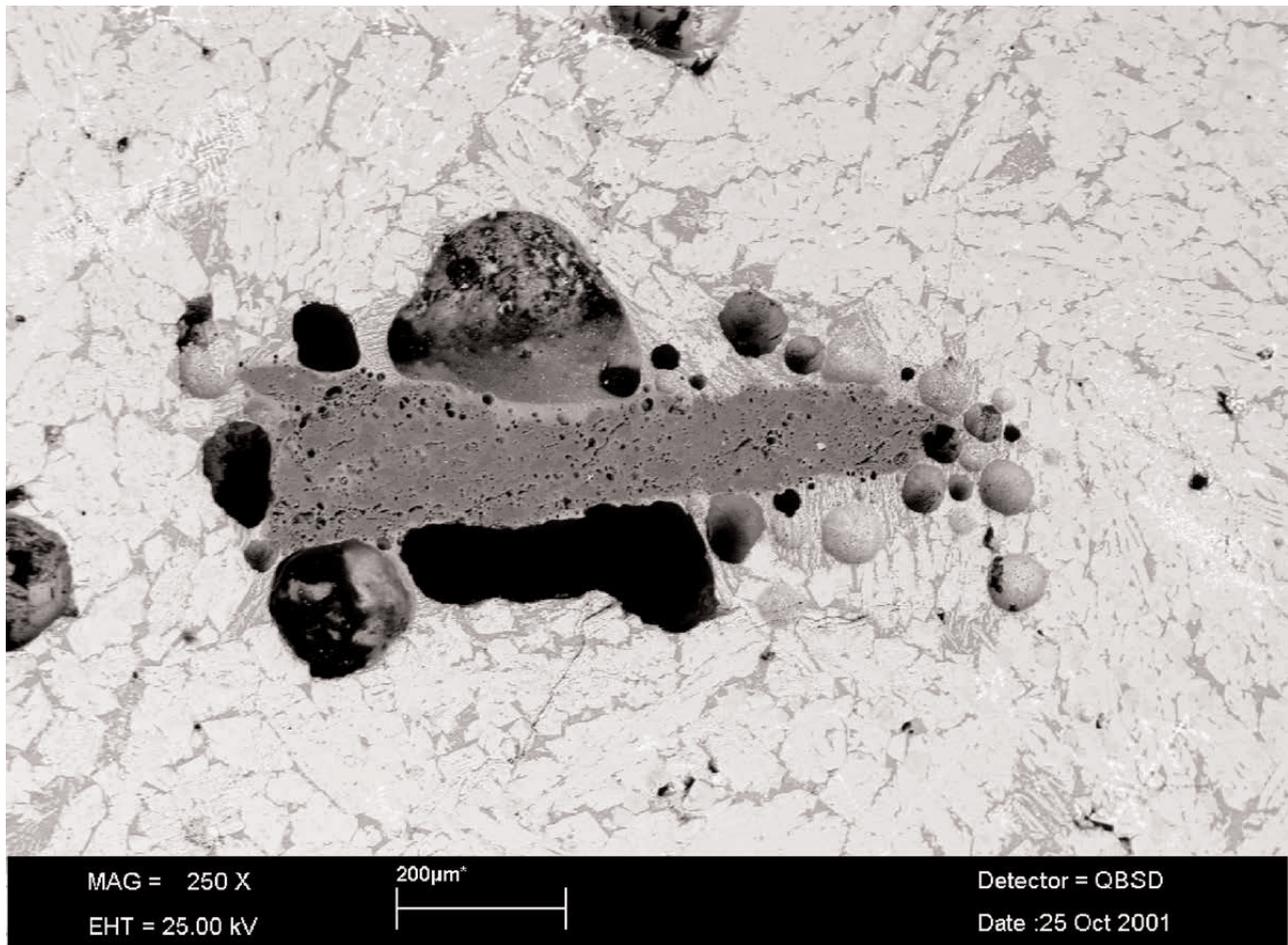


Fig 20.6 SEM image showing a 'copper alloy slag' with a crucible fragment embedded in it.

one was cast at a time. Taken with the relatively large quantities of crucibles and casting debris, it can be seen that the production of copper alloy fittings was a major activity at the fort.

The recovery of significant evidence for metalworking from the north-east corner of Housesteads contrasts with the failure to identify any building there that could be definitely identified as a *fabrica*. The recovery of metalworking evidence from buildings or areas that clearly were not *fabricae* can be paralleled at Caerleon (Zienkiewicz 1993, 54–7), which also had workshops built into the ramparts (Boon 1972, 54). Archaeological excavations of Roman forts have traditionally focused on gates and internal buildings. Ramparts and extramural areas have received less attention. It is possible that metalworking, such as that attested at Housesteads, occurred in relatively marginal locations, like the rampart workshops, and so has received less archaeological attention.

Conclusions

The metalworking debris recovered from the excavations of Housesteads fort represents a broad range of activities. Both iron smithing and copper alloy working (especially casting) took place; there was no evidence

of smelting iron or copper on site. The quantity of debris diagnostic of iron smithing recovered from stratified contexts is small and, while it indicates that some iron smithing took place, this is likely to have been an occasional activity.

The quantity of debris diagnostic of copper working is small in absolute terms (2kg) but is large for the area excavated when compared to other Roman military sites. It should also be remembered that the casting of copper alloys generally does not produce large volumes of debris. In addition, much of the debris is normally very fragile and so rarely survives well in the archaeological record. The limited space available inside the fort may have forced artisans to dispose of some debris outside the fort (in areas that have not been excavated). The series of activities in the rampart areas (construction of workshops, reinstatement of rampart and ongoing repairs to the rampart) would not be conducive to the survival of the whole assemblage of debris. The survival of such a broad range of types of debris is unusual and may represent a small fraction of the debris that was originally produced.

The few fragments of ceramic mould that survive show that the workshop products included belt buckles. Three mould fragments were for making buckles that appear to be identical. In addition, one of the

mould fragments comes from a multiple mould. This suggests that the production of these buckles occurred on a large scale. Examples of the buckle type are known on Hadrian's Wall and throughout the whole of the Roman Empire.

The analysis of the scrap metal offcuts and the waste metal droplets shows that lead was probably added to the tin bronze scrap during melting. The

analysis of the crucibles, moulds and 'copper alloy slags' demonstrated that the analysis of such debris does not generally provide a reliable indication of the sorts of alloys being cast. The proportions of alloys present in debris depend more on the chemical and physical properties of the elements than the composition of the alloy being melted.

21 The worked flint

C Waddington

The lithic assemblage, composed entirely of flint pieces, recovered during the Housesteads excavations has all come from unstratified or residual deposits. Nineteen of the flints were recovered during the 1974–81 excavations in the north-east quarter of the fort. Two additional examples, which derive from Tait's excavations in the south rampart in 1962 (HR62; cf Tait 1963), were considered to merit publication. Each flint is described in turn and the following attribute information is included:

- colour
- quality
- length, breadth, thickness (maximum dimensions unless otherwise stated)
- artefact type
- any dating associations
- other relevant information.

Catalogue

1. (no SF no.) H21:1:92
Mottled grey broken flint flake with light white patina, few impurities reasonable quality.
Length:20mm, Breadth:17mm, Thickness:3.5mm
2. (no SF no.) H13:10:20
Flint flake with all-over orange patination.
Length:14mm, Breadth:9.5mm, Thickness:6mm
3. (no SF no.) H14/H15/H21? (Fig 21.1)
Mottled grey high-quality flint flake knife with a small patch of cortex above the serrated edge. The presence of this type of cortex indicates that this piece has been struck from nodular flint. This broad flake has been edge trimmed to blunt the flake along one edge, while the opposing serrated 'corner' provides a sharp cutting edge. A band of gloss across the width of the flake below the serrated end may be the residue of resin used in securing the blade in a handle. The large size and broad nature of the flake on which this knife was produced is a characteristic typical of flakes of later Neolithic date.
Length:50mm, Breadth:28mm, Thickness:9mm (av)
4. 9151 H15:1:2
Mottled grey high-quality flint spall.
Length:16mm, Breadth:8.5mm, Thickness:1.5mm (av)
5. 8618 H21:4:21
Light grey-brown high-quality flint flake broken on at least three, and possibly four, sides. Invasive retouch along one edge with evidence of serration along an opposed edge. May have originally been a projectile point.
Length:26mm, Breadth:15mm, Thickness:2mm (av)
6. 59 H13:1:0 (Fig 21.1)
Mottled grey high-quality flint serrated blade with broken point. Serration evident along both long edges, a characteristic sometimes associated with tools used for plant processing. With a length:breadth ratio of less than 2:1, this tapering broad-bladed implement is characteristic of flintworking associated with later Neolithic assemblages.
Length:44mm, Breadth:24mm, Thickness:3mm (av)
7. 8576 H21:5:3 (Fig 21.1)
Mottled grey high-quality flint with small strip of cortex remaining down one edge. Possibly a small leaf-shaped arrowhead, an artefact type characteristic of the early Neolithic.
Length:18mm, Breadth:11.5mm, Thickness:1mm (av)
8. 4768 H20:3:0 (Fig 21.1)
A thumbnail scraper of white flint which has experienced burning apparently after it was made, giving most of the surface a more brilliant white appearance. The flake on which the scraper is made has been struck from a core that had previously had very narrow bladelets with parallel sides struck from it. Small narrow blades with parallel sides, and thumbnail scrapers themselves, are tool forms that are common in the later Mesolithic.
Length:19mm, Breadth:21mm, Thickness:4mm (av)
9. (no SF no.) H21:5:3
Mottled white and light grey broken flint flake with some impurities.
Length:29mm, Breadth:18mm, Thickness:5mm
10. (no SF no.) H21:5:3
Light grey core preparation flint with a cortical surface running two-thirds of the way up one edge. No evidence of retouch.
Length:43mm, Breadth:7mm (av), Thickness:7mm (av)
11. 9397 H14:3:1
Light grey flint flake with some white mottling. Some bifacial trimming at the broader end suggesting that it may have been used as a tool.
Length:25mm, Breadth:17mm, Thickness:6mm (av)
12. 8770 HSE:1:1
Reddy-brown trimmed flint flake with some cortex remaining along one edge. Very slight serration along the long edge. The serrated edge is still sharp and has probably been used as the working edge for processing plant material.
Length:42mm, Breadth:21mm, Thickness:1mm (av)
13. 8481 H20:8:80
White–light grey flint; small broken flint flake that may have been notched.
Length:17mm, Breadth:11mm, Thickness:1.1mm
14. 7624 H20:9:9
High-quality grey flint, possible rejuvenation flake, which has experienced patination giving most of the surface a mottled white appearance. However, the true colour of the flint is evident as a result of some flaking down one edge since the patina formed. If these latest scars were the result of retouch, and not the result of a rejuvenation attempt on an earlier flake, which had been discarded, the patina should also have been evident on the flaked edge.
Length:25mm, Breadth:22mm, Thickness:6mm (av)
15. 3425 H13:1:103
Reddy-brown high quality broken flint flake with some cortex remaining. Slight evidence of trimming on one edge.
Length:25mm, Breadth:14mm, Thickness:1.5mm (av)
16. 3021 H13:8:40
Mottled grey broken retouched flint flake with orange patina over part of it. Retouch and flaking around the

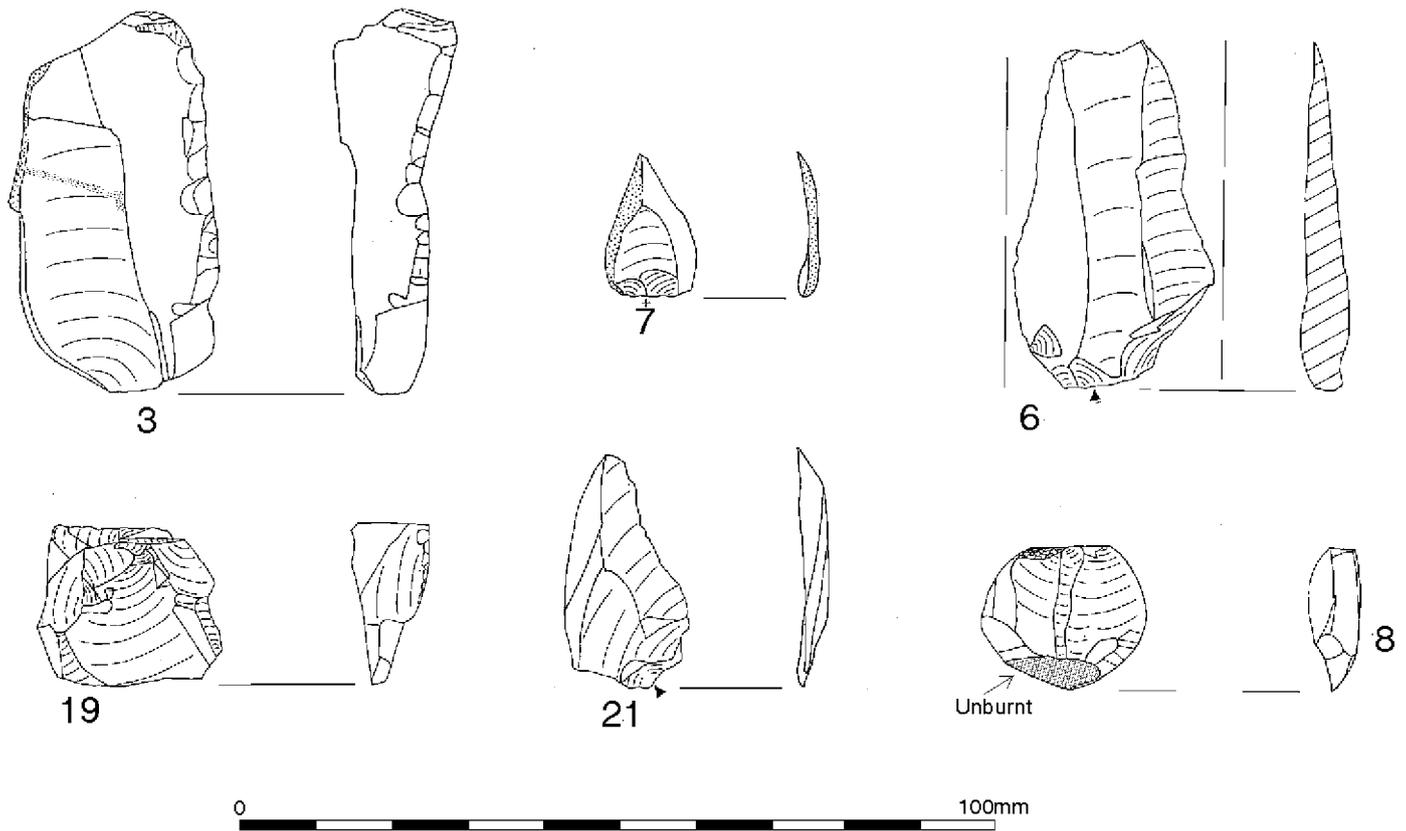


Fig 21.1 The worked flint tools (scale 1:1).

Table 21.1 Summary table of worked flint

flint	SF no. & context	colour	type	date	patinated	burnt
1	H21:1:92	mottled grey	flake	–	white	–
2	H13:10:20	–	flake	–	orange	–
3	H14/15/21?	mottled grey	flake knife	late Neolithic	–	–
4	9151 H15:1:2	mottled grey	spall	–	–	–
5	8618 H21:4:21	light grey-brown	flake (poss projectile point)	–	–	–
6	59 H13:1:0	mottled grey	serrated blade	late Neolithic	–	–
7	8576 H21:5:3	mottled grey	prob leaf-shaped arrowhead	early Neolithic	–	–
8	4768 H20:3:0	white	thumbnail scraper	Mesolithic	–	white
9	H21:5:3	white-grey	flake	–	–	–
10	H21:5:3	light grey	core prep flake	–	–	–
11	9397 H14:3:1	grey-white	flake	–	–	–
12	8770 HSE:1:1	reddy-brown	retouched flake	–	–	–
13	8481 H20:8:80	white-grey	flake	–	–	–
14	7624 H20:9:9	grey	flake, prob rejuvenated	–	mottled white	–
15	3425 H13:1:103	reddy-brown	flake	–	–	–
16	3021 H13:8:40	mottled grey	retouched flake	Neolithic	orange	–
17	2515 H13:10:24	white	flake	–	–	–
18	1751 H13:9:3	light grey	spall	–	–	–
19	68 H13:2:1	medium grey	exhausted core, pyramidal affinities	Mesolithic	–	–
20	HR62:A	reddy-brown	flake	–	–	–
21	HR62:B	light grey	prob microlith	Mesolithic	–	–
Total: 21						

three unbroken sides suggests this tool is one end of a scraper or possibly a threshing tool.

Length:25mm, Breadth:17mm, Thickness:5mm (av)

17. 2515 H13:10:24

High-quality white flint flake.

Length:20.5mm, Breadth:14mm, Thickness:6mm (av)

18. 1751 H13:9:3

Light grey small flint spall with impurities.

Length:8mm, Breadth:10mm, Thickness:3mm (av)

19. 68 H13:2:1 (Fig 21.1)

Medium grey exhausted flint core with light mottling. Narrow blade scars, some with parallel sides, on a number of facets. The shape of the core is reminiscent of a pyramidal core, a type current during the Mesolithic. The small narrow blade scars are also indicative of late Mesolithic flintworking practices.

Length:21mm, Breadth:23.5mm, Thickness:10mm

20–21. HR62 (south rampart)

Flint A Dark reddy-brown high quality flint flake with negative bulb of percussion.

Length:31mm, Breadth:27mm, Thickness:10mm

Flint B (Fig 21.1) Light grey good-quality flint microlith trimmed down both edges with a broken tip, broad butt on bulbar end suggesting it may have been hafted transversely. A broad-bladed microlith, a type more common in earlier Mesolithic assemblages, though some broad forms are manufactured throughout the whole period.

Length:30.5mm, Breadth:16mm, Thickness:2.5mm

Discussion

The lithic material in this mixed assemblage is generally of good quality flint with few impurities. Most of the flint is of nodular origin, as evidenced by the occasional patch of cortex and there being no evidence of beach pebble flint being exploited. There is a wide variety of colour within this small assemblage indicating that over time the flint used by visitors to this area has come from

a wide variety of sources. The proportion of tools to waste (8:21) of more than 1:3 is high, indicating that flintworking was not necessarily a prime activity in this area, although some flint working is represented by the exhausted pyramidal type core (No. 19).

This core has strong Mesolithic affinities, as do the microlith (No. 21) and thumbnail scraper (No. 8), a type of artefact usually associated with processing activities – particularly hides, indicating the presence of Mesolithic groups in the area. In addition, the presence of flints that have experienced heavy patination (Nos 1, 2), a process thought to take place over very long periods, also supports the case for Mesolithic occupations. The probable rejuvenated flake (No. 14), apparently worked after a patina had developed, suggests later visitors to the area were working the discarded material of earlier visitors.

The possible leaf-shaped arrowhead (No. 7) would indicate the transitory presence of early Neolithic activity in this upland area, probably in the form of hunting expeditions. The later Neolithic is better attested with a flake knife (No. 3), broad serrated blade (No. 6) and a broken retouched flake (No. 16) which may have been part of a plant processing implement. This variation in artefact types and the sort of functions with which they are usually associated are suggestive of late Neolithic domestic occupation in the area.

No chronologically diagnostic material of later periods is evident in the assemblage. In summary, the assemblage as a whole represents a chronological palimpsest extending from the later Mesolithic through to the late Neolithic. However, the diagnostic material indicates that occupation of the area was probably of a recurrent nature, probably for hunting purposes, until at least the late Neolithic.

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Abbreviations

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- AML Ancient Monuments Laboratory
- AE *Archaeologia Aeliana*.
- BAR British Archaeological Reports
- CBA Council for British Archaeology
- CIL *Corpus Inscriptionum Latinarum*
- CSEL *Corpus Scriptorum Ecclesiasticorum Latinorum*.
Vienna
- CSIR Coulston, J C and Phillips, E J 1988 *Corpus Signorum Imperii Romani: Great Britain I, 6: Hadrian's Wall West of the North Tyne, and Carlisle*.
Oxford: British Academy
- CUCAP Cambridge University Committee for Aerial
Photography
- DoE Department of the Environment
- EH English Heritage, formerly HBMCE
- HBMCE Historic Buildings and Monuments Commission
for England
- HCP Peter McGowan Associates, Crow, J, Rushworth,
A and Renshaw, J, 2002 *Housesteads Roman Fort,
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- HWA Hadrian's Wall Pictorial Archive, Museum of
Antiquities, University of Newcastle upon Tyne
- JRS *Journal of Roman Studies*
- NCL Newcastle City Library Local Studies
Photographic Collection
- NRO Northumberland Record Office
- PSAN *Proceedings of the Society of Antiquaries of Newcastle
upon Tyne*
- RCHM Royal Commission on Historical Monuments
(England)
- RCHME Royal Commission on the Historical Monuments
of England
- RIB Collingwood, R G and Wright, R P, 1965 *The
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Front cover

Building XIII under excavation in 1974, viewed from the east.