A Roman Roadside Settlement at Healam Bridge:
The Iron Age to Early Medieval Evidence

Volume 2
Artefacts

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Cath Ambrey, David Fell, Richard Fraser,
Stuart Ross, Greg Speed, and Philip N. Wood

NAA
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Volume 2: Artefacts

CATH AMBREY, DAVID FELL, RICHARD FRASER, STUART ROSS,
GREG SPEED, AND PHILIP N. WOOD

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Series Editor: HANNAH RUSS

Illustrations by

CATHERINE CHISMAN, ANDREW DURKIN, DAWN KNOWLES, AND DAMIEN RONAN

MARGARET FINCH AND ROGER SIMPSON (FINDS)

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Cover image: Excavations at Healam West
Inset 1: Enamelled, heart-shaped stud. A1DB09, RF 444, context 5034, Field 63
Inset 2: Upper, double feed-pipe millstone. A1DB09, RF 28, context 1143, Field 23
Inset 3: Denarius *of Julia Maesa, AD 218-222. A1DB09, RF 59, context 5009, Field 63*

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The archaeological work undertaken on the A1 Dishforth to Barton (A1D2B) scheme is the result of the significant efforts and commitment of a large number of people from many organisations, extending over a period of at least 10 years. Our express thanks are extended to all those involved in helping to deliver the scheme successfully.

The principal organisations involved were the Highways Agency (HA, now Highways England) as the Client, and the Carillion-Morgan Sindall Joint Venture (JV), who were the Principal Contractor. AECOM acted as designers in conjunction with Grontmij (now Sweco) and RPS. WS Atkins acted as archaeological consultants to the HA and AECOM undertook this role on behalf of the JV. Northern Archaeological Associates (NAA) undertook the archaeological investigations on behalf of the JV. External archaeological advice was provided by Historic England (Yorkshire Region) and North Yorkshire County Council Heritage Unit. The archaeological works were managed through a Cultural Heritage Liaison (CHL) group comprising representatives of each of the above organisations.

The successful integration of the complex civil engineering works with the archaeological investigations was achieved through regular CHL group meetings. Special thanks are due to Helen Maclean (AECOM Assistant Manager) and Blaise Vyner (AECOM Cultural Heritage Team Leader) for their direction of the CHL group meetings. Valued guidance was provided by Historic England's John Hinchliffe and subsequently by Neil Redfern, in conjunction with successive Science Advisors, Ian Panter and Andy Hammon. We are also grateful to the North Yorkshire County Council Heritage Unit, represented by Neil Campling, Gail Falkingham, and Lucie Hawkins. At the Highways Agency we are indebted to Alan Duckworth and, later, by Mike Bloxham, and the Highways Agency's Archaeological Advisor, Rob Sutton (WS Atkins). Thanks are also extended to Chris Stones (Morgan Sindall), and Dom Stones, Andy Barker, and Louise Crook (all AECOM).

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At NAA the project was managed by Richard Fraser and Paul Johnson acted as Fieldwork Manager. Philip N. Wood directed the excavations at Healam with support from Cath Ambrey, David Fell, and Stuart Ross. Stuart Ross directed the excavations at Humphrey Balk Lane and Londonderry, and Cath Ambrey directed the investigation of the enclosure at Dishforth. Giles MacFarland and Damien Ronan undertook the site surveys and photography, and Damion Churchill and Miranda Haigh carried out much of the archive consolidation. Tania Simpson, Sarah Parker, and Mary Fraser undertook much of the administration.

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PREFACE

This two-volume set presents the results of the archaeological investigations undertaken during widening and upgrading of a section of the A1(T) dual-carriageway to motorway standard between Dishforth Interchange and Leeming Bar in North Yorkshire (Fig. i). This road section represented the southern half of an overall road improvement scheme called the A1 Dishforth to Barton Improvement. At the time of writing, the northern half of the route, continuing northwards from Leeming Bar to Barton, was under construction and due to be completed in 2017, and is the subject of future publications.

Volume 1 presents an introductory chapter, which details the project background, describes the route and its topography, geology and archaeological background, and the archaeological methodology employed; this is followed by a description of the Iron Age remains found along the scheme (Chapter 2). Chapter 3 details the extensive Roman remains investigated at Healam Bridge, while Chapter 4 describes other Roman-period discoveries along the route. Chapter 5 details the post-Roman evidence from Healam Bridge. Chapter 6 provides a discussion of the evidence and seeks to set the results in their wider context. The remaining part of Volume 1 (Chapters 7-9) contains the human remains, environmental, and radiocarbon dating evidence.

Volume 2 (this volume, Chapters 10-14) contains the specialist reports on the artefactual remains recovered.

Appendices for Volumes 1 and 2 contain specialist data and can be found via the ADS website. A full list of online resources available on ADS can be found in Appendix A.

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The motorway route extends for 22km, between the Dishforth Interchange (SE 3691 7287), where the A1(M) joins the A19, to Leeming Bar (SE 2785 9144). It lies along a ridge of higher ground to the east of Ripon and Bedale and west of Thirsk and Northallerton. The route passes through fifteen parishes: Hutton Conyers; Dishforth; Rainton with Newby; Baldersby; Melmerby; Howe; Ainderby Quernhow; Sinderby; Kirklington-cum-Upsland; Pickhill with Roxby; Burneston; Theakston; Exelby; Leeming and Newton; and Aiskew. However, it avoids the villages of Dishforth, Pickhill, Burneston, Londonderry, and Leeming. Whilst there were a small number of farms, inns, and cafes immediately alongside the route prior to construction of the motorway, there were no settlements of any size. This seems to have been the pattern from the post-Roman period to the present day.

Proposals for an upgrade to motorway status of the dual-carriageway section of the A1 between Dishforth and Barton, North Yorkshire, were developed during the mid-1990s. At this time a Conceptual Arrangement was designed and promulgated, but budgetary constraints prevented the construction of the road. As part of the evaluation for this earlier development proposal, several programmes of trial trenching were undertaken along the route in 1994-5 in order to determine the nature, date, extent and quality of survival of archaeological features. In conjunction with the renewed initiative to upgrade the A1, the archaeology along the route was reviewed and a programme of palaeoarchaeological survey, fieldwalking, metal detecting, additional geophysical survey and trial trenching was undertaken in 2005 in order to inform proposals for the design of the road and a strategy for mitigation of damage to archaeology.

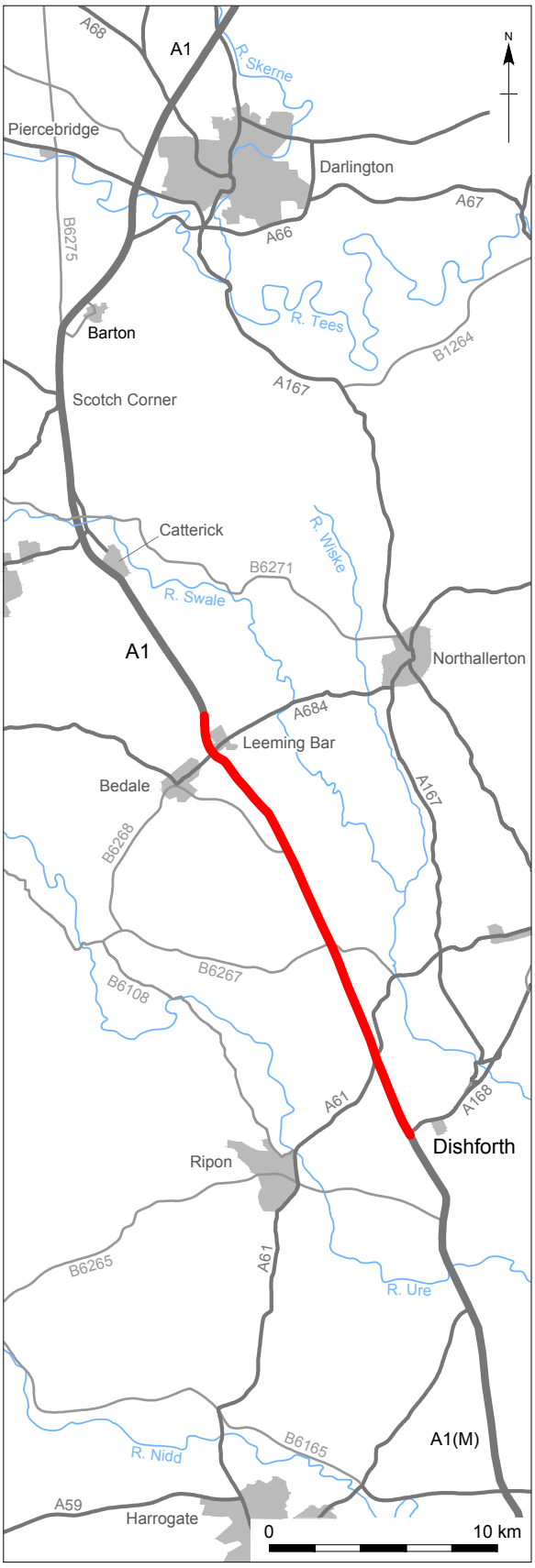


Figure i: The route of the motorway scheme

Construction of the upgrade between Dishforth and Leeming Bar commenced in late March 2009 and, with

the exception of the area around Healam Bridge, the scheme comprised widening on line either to the east or west of the existing trunk road. At Healam Bridge, in order to limit the impact of the scheme on the scheduled monument and the listed stone bridge, the design comprised an alignment for the new road which passed to the east of the apparent focus of Roman military and civilian activity.

The main excavation works on the Dishforth to Leeming Bar section, undertaken in 2009-2010, were concentrated on the major Roman settlement site at Healam Bridge to the south of Leeming Bar, where the alignment of the new road unavoidably had an impact on parts of the periphery of the settlement area. This volume presents the results of this work, together with excavations at other Roman sites along the route including a Roman settlement near Baldersby, a probable farmstead enclosure at Dishforth, a section of Dere Street north of Leeming Bar, and several smaller sites.

Field numbers referred to in this report were allocated to fields likely to be affected by the overall road improvement scheme at the outset of the project, and ran from south to north from Dishforth to Leeming Bar (Fields 1-127; Figs. ii and iii; Appendix B Table 98). The section of the route passing through the scheduled area at Healam Bridge lay within Fields 60 to 64; these form the focus of the findings presented in this volume.

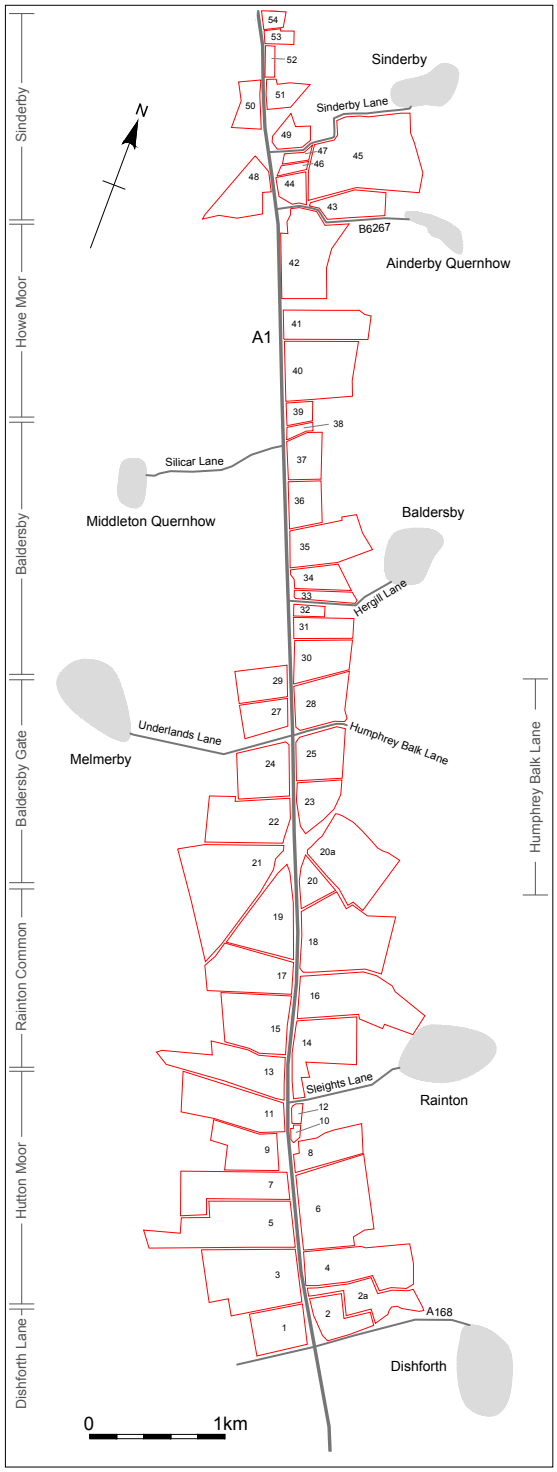


Figure ii: Field locations, Fields 1-54

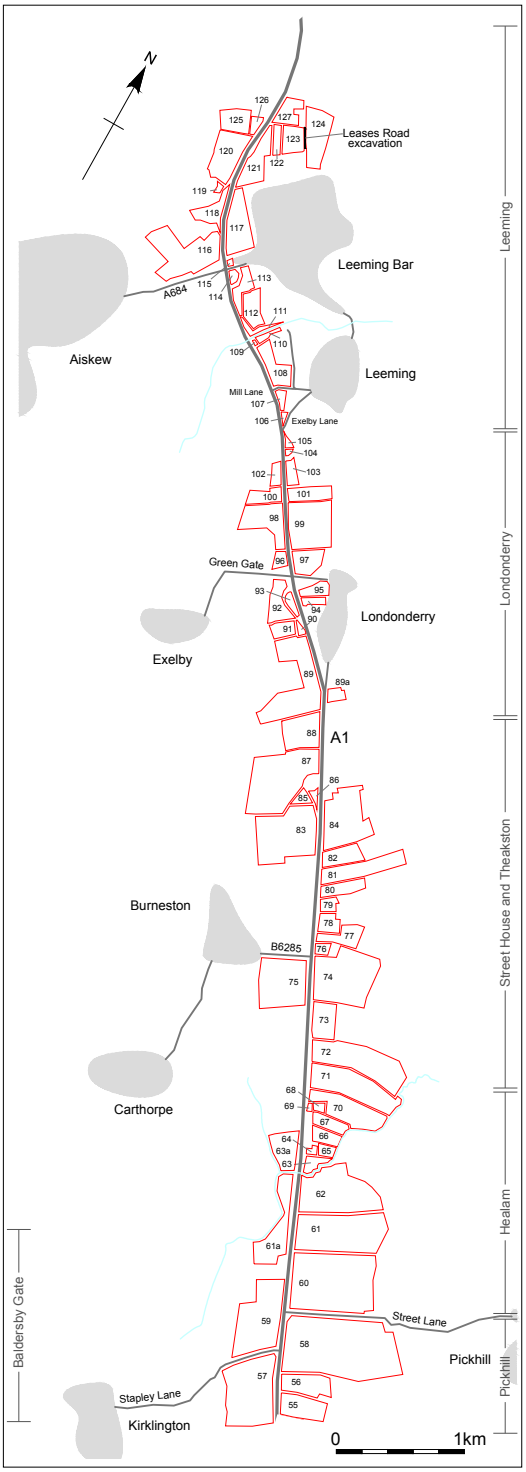


Figure iii: Field locations, Fields 55-127

SUMMARY

Upgrading of the A1 road in North Yorkshire to motorway status has provided a significant opportunity to study a section of this historic and nationally important route. The scheme, which ran from the Dishforth Interchange to Leeming Bar near Bedale, covered a distance of 22km through the Vale of Mowbray, a low lying area of rich agricultural land occupying an interfluve ridge between the River Swale and the River Ure.

The road has been in existence for almost 2000 years, acting variously as a focus for travel, settlement, and as a major boundary in the landscape. During the Roman period, it formed one of the principal north-south routes in the north of the province, linking two of the relatively few urban centres; Isurium at Aldborough and Cataractonium at Catterick. In the medieval period, it formed part of the route between London and Carlisle, and as such it remained one of the most prominent features of the area. Its importance increased in the post-medieval period and its early designation as a turnpike and use as a postal road (the Great North Road) resulted in the development of large farms and inns along the roadside.

The Roman road, now widely known by its late Anglo-Saxon name of Dere Street, may have formalised a route with prehistoric origins. A combination of environmental evidence from peat cores and excavated Iron Age remains at points along the route provided evidence of widespread tree clearance, extensive field systems, and trackways indicating that this was a populated and organised landscape prior to its annexation by the Romans in the later 1st century AD.

The most significant site encountered was the Roman settlement at Healam Bridge, a site which was poorly understood until archaeological work connected to the road scheme was undertaken. The work has shown this site to have been a major roadside settlement of considerable complexity. It lay strategically between two Roman towns and would have been one of the largest settlements in Roman North Yorkshire, an area of few urban or semi-urban communities.

The Healam Bridge settlement covered an area of at least 18ha, along nearly a kilometre of the Roman road. The excavation investigated 15% of the known site, making it one of the most extensively excavated roadside settlements in the north of Roman Britain. The route of the motorway was positioned to avoid the known core of the settlement, but the excavation nevertheless examined a substantial transect of the site. Importantly, on the slopes beside the nearby Healam Beck, a well-preserved, deep sequence of partially waterlogged deposits were preserved, containing multiple phases of building and showing episodes of land reclamation and flood defence.

The excavated evidence suggests that the settlement at Healam Bridge was probably a Hadrianic foundation, although there was evidence that Dere Street had been constructed through this area by the late 1st century AD. The absence of a significant assemblage of military equipment linked to the evidence for a highly Romanised diet and tableware assemblage suggests that the site was initially occupied by people from elsewhere in England or from further afield, but not by the Roman army. After an apparent contraction during the 3rd century, the settlement saw renewed activity during the 4th century, including evidence for intensive crop processing. Evidence for occupation continued into the 5th century AD.

The settlement contained and was surrounded by substantial areas of grazing land. There is widespread evidence that equids were present in significant numbers, and it is suggested that mules were kept and possibly bred here. The supply of these animals represents an important part of the settlement's economy, perhaps a dominant one, and it is possible that the settlement was established deliberately to supply transport for the army and other branches of the government. The site's location, one day's travel between the two Roman towns, would also have made it a natural market centre.

Healam Bridge, although by far the largest, was not the sole Roman period site encountered. Parts of two other Roman-period settlements were also found in the southern part of the scheme and evidence for Dere Street itself was also investigated in several locations where it was found to be preserved beneath the former course of the Great North Road.

RÉSUMÉ

D'importants travaux d'aménagement ont été entrepris sur certains tronçons de la route A1 en vue de la rendre conforme aux normes réglementaires en matière de trafic autoroutier. Ces travaux ont ainsi fourni une parfaite opportunité d'étudier une section de cette route nationale d'importance historique. Le programme, de vaste envergure, couvrait une importante superficie située entre l'échangeur de Dishforth et le village de Leeming Bar (à proximité de Bedale, Yorkshire du Nord). Le projet s'étendait sur une distance de vingt-deux kilomètres à travers la vallée de Mowbray, vaste pénéplaine aux riches terres agricoles située entre la rivière Ure et son affluent, la rivière Swale.

Cette route, dont l'existence remonte à près de 2000 ans, a depuis toujours marqué le paysage, facilitant les déplacements au sein du territoire et permettant l'établissement de divers groupes de population. Durant la période romaine, il s'agissait de l'un des principaux axes routiers joignant le Nord et le Sud de la province de Bretagne. Elle reliait deux des quelques rares centres urbains présents à l'époque au Nord du territoire : Isurium (Aldborough, Yorkshire du Nord) et Cataractonium (Catterick, Yorkshire du Nord). Au cours de la période médiévale, elle fut intégrée à la route reliant les villes de Londres et de Carlisle. D'importance nationale, cette route n'a eu de cesse de s'accroitre tout au long de son histoire et a fini par laisser son empreinte sur le paysage. Par la suite, elle devint l'une des premières autoroutes à péage et fut largement usitée comme route postale (aussi connue sous le nom de Grande Route du Nord). De ce fait, plusieurs relais postaux ainsi que d'immenses fermes et auberges vinrent s'implanter dans la région.

Il semblerait que la route romaine, baptisée Dere Street au cours de la période anglo-saxonne, puise ses fondements sur une route plus ancienne dont les origines remonteraient à la période préhistorique. Les quelques vestiges (datant de l'époque de l'âge du Bronze) exhumés ça et là le long de la route, couplés aux études environnementales effectuées sur plusieurs tourbières de la région ont permis en effet de mettre en évidence une importante déforestation ainsi qu'un travail intensif de la terre, prouvant que les lieux furent occupés bien avant l'annexion de la Bretagne par les romains à la fin du Ier siècle AD.

Le site d'Healam Bridge reste l'une des implantations romaines les plus remarquables observées dans la région. De par sa stratigraphie des plus complexes, l'interprétation de ce site fut pendant longtemps un travail des plus laborieux. Grâce aux fouilles préventives orchestrées lors des travaux d'aménagement de l'A1, les archéologues ont exhumé d'importants vestiges qui ont permis de combler les nombreuses lacunes concernant cette importante zone d'occupation située le long de la route. Les vestiges exhumés tendent à prouver qu'il s'agissait là de l'une des plus imposantes colonies dans le Nord du Yorkshire. Située entre deux villes romaines, elle occupait une position stratégique dans cette partie du territoire où les agglomérations urbaines et suburbaines ne faisaient pas légion.

Le site d'Healam Bridge, d'une superficie d'au moins 18 ha, longe la route sur près d'un kilomètre. Les fouilles entreprises se sont étendues sur environ 15% de la superficie totale du site. Se faisant, Healam Bridge reste à ce jour l'une des zones d'occupation les plus investiguées le long de la route romaine au Nord de la province. Bien que l'itinéraire de l'autoroute ait été planifié afin d'éviter d'empiéter sur les parties actuellement connues du site, des fouilles préventives ont été entreprises sur un large transect de la zone d'occupation. Il est important de noter que des dépôts partiellement aqueux ont également été découverts le long des berges du ruisseau Healam Beck, offrant à l'occasion une importante séquence stratigraphique et démontrant que la région a été, à maintes occasions, victime d'inondations. Plusieurs phases de construction (présence de structures défensives telles que des barrages) ont été observées au sein de cette séquence.

Les restes archéologiques exhumés à Healam Bridge suggèrent une première implantation remontant à l'époque de l'empereur Hadrien. Toutefois, il semblerait, de par la présence de restes épars le long de Dere Street, que la construction de la route aurait quant à elle été achevée à la fin du Ier siècle AD. L'absence flagrante d'équipement militaire, couplée à une alimentation et une vaisselle des plus raffinées tendent à prouver que le site n'aurait pas été, dans un premier temps, occupé par l'armée romaine. Il est probable que les occupants soient venus d'autres régions de la province. Après une période prospère, le site connut une régression économique au cours du IIIe siècle. Toutefois, Healam Bridge bénéficia d'un nouvel essor économique au cours du IVe siècle comme en attestent les nombreux vestiges d'agriculture présents dans les environs. Le site continua à prospérer comme le montrent les nombreux témoins d'occupation au cours du Ve siècle.

Le site ainsi que ses environs comprenaient d'innombrables pâtures. De nombreux équidés furent identifiés au sein de l'ensemble du matériel archéozoologique. L'étude des ossements exhumés a révélé la présence de mules et il semblerait que ces dernières aient été élevées in situ. Leur présence sur le site n'était pas anodine puisqu'elles faisaient parties intégrantes de l'économie locale, offrant transport à l'armée ainsi qu'aux autres diverses structures gouvernementales. De par sa position idéale, à une journée de marche de chacune des deux villes romaines avoisinantes, il est fort probable que l'endroit ait été un lieu de passage prisé, ce qui en aurait fait un lieu de premier choix en matière de commerce.

Bien que le site d'Healam Bridge soit de loin le plus imposant de tous, d'autres emplacements datant de la période romaine ont été également découverts. Deux autres zones d'occupation d'époque romaine ont ainsi été partiellement exhumées, plus au Sud, au cours du programme d'aménagement. En outre, plusieurs traces de l'ancienne route romaine ont été retrouvées en divers endroits, conservées sous l'actuelle Grande Route du Nord.

ZUSAMMENFASSUNG

Die Erweiterung der A1 in North Yorkshire auf Autobahnstatus ergab die Gelegenheit einen Teil dieser historischen und von nationalem Interesse wichtige Straße zu untersuchen. Das Projekt reicht vom Autobahnkreuz Dishforth bis zu Leeming Bar, in der Nähe von Bedale. Es erstreckt sich auf einer Strecke von 22km durch das Mowbray Tal, ein niedriger, landwirtschaftlich reicher Kamm zwischen dem Swale und dem Ure Fluss.

Die Straße existiert seit fast 2 000 Jahren und ist ein Mittelpunkt für Reisen, Siedlungen und repräsentiert eine markante Grenze in der Landschaft. Sie stellte während der Römerzeit eine Haupt- Nord-Süd-Achse in der nördlichen Provinz dar, die zwei der wenigen städtischen Zentren, Isurium bei Aldborough und Catarctonium bei Catterick, verbindet. Im Mittelalter war die Straße Teil der Strecke zwischen London und Carlisle und stellte somit ein markantes Merkmal des Gebietes dar. Die Bedeutung der Straße nahm nach dem Mittelalter weiter zu, da sie, auf Grund ihrer früheren Bezeichnung als Schnellstraße, von der Post bevorzugt wurde. Folglich entsprangen zahlreiche Landgüter, Bauernhöfe und Gasthäuser entlang des Weges.

Diese ursprünglich römische Straße ist heute bekannt unter dem spät-angelsächsischen Namen "Dere Street" und könnte eine Route mit prähistorischer Herkunft darstellen. Die Zusammensetzung von umweltgeschichtlichen Befunden aus Torfkernen und ausgegrabenen eisenzeitlichen Funden an Stellen entlang der Straße liefern Beweise von weitverbreiteter Baumfällung sowie von umfangreichen Feldsystemen und -wegen. Das bedeutet, dass es sich um eine besiedelte und organisierte Landschaft handelte, bevor diese im ausgehenden ersten Jahrhundert von den Römern eingenommen wurde.

Die bedeutendste Fundstelle ist die römische Siedlung bei Healam Bridge, die vor dieser archäologischen Arbeit missgedeutet wurde. Das Projekt hat gezeigt, dass die Fundstelle eine grosse am Straßenrand gelegene Siedlung von erheblicher Komplexität darstellte. Sie lag strategisch zwischen zwei römischen Städten und war eine der größten Siedlungen im römischen North Yorkshire, ein Gebiet mit wenigen städtischen oder semi-urbanen Gesellschaften.

Die "Healam Bridge" Siedlung bedeckte eine Fläche von mindestens 18 ha. Dabei erstreckte sie sich fast einen Kilometer entlang der römischen Straße. Die Grabung untersuchte 15% der bekannten Fundstelle und ist damit eine der umfangreichsten ausgegrabenen Straßenrandsiedlungen im Norden von römisch Britannia. Die Autobahnstrecke wurde so gelegt, dass sie den bekannten Siedlungskern umgeht, jedoch untersuchte die Ausgrabung einen wesentlichen Transekt des Geländes. Auf den Hängen des nahe gelegen Healam Beck wurde eine gut erhalte, tiefe Sequenz von Nassholzfunden angetroffen, die verschiedene Bauphasen enthält und Zeugnisse von Landrückgewinnung und Hochwasserschutz liefert.

Die ausgegrabenen Befunde lassen die Vermutung zu, dass die Siedlung bei Healam Bridge in der Hadrianische Epoche gegründet wurde, obwohl es Hinweise gibt, dass "Dere Street" in diesem Gebiet erst im späteren ersten Jahrhundert errichtet wurde. Das Fehlen von militärischer Ausrüstung, sowie Hinweise auf stark romanisierte Ernährung und Befunde von Essgeschirr zeugen davon, dass die Fundstelle ursprünglich nicht durch die römische Armee, sondern von Menschen besiedelt war, die aus anderen Teilen von England oder weiteren Gebieten stammten,. Nach einer scheinbaren Verkeinerung während des 3. Jahrhunderts gab es im 4. Jahrhundert erneutes Aufleben der Siedlung, belegt durch Befunde für eine intensive Ernteverarbeitung. Die Besiedlung dauerte fort bis in das 5. Jahrhundert.

Die Siedlung war umgeben von umfangreichem Weideland. Es gibt bedeutende Befunde fuer die Anwesenheit von zahlreichen Equiden, und es wird vorgeschlagen, dass Maultiere gehalten und möglicherweise gezüchtet wurden. Vorrat dieser Tiere stellte einen wichtigen Teil der Siedlungswirtschaft dar und spielte vielleicht sogar eine dominante Rolle. Es ist möglich, dass die Siedlung mit dem Zweck gegründet wurde, um die Armee und andere Teile der Regierung mit Transportmitteln zu versorgen. Die Lage der Fundstelle, einen Tag weit zwischen den beiden römischen Städten gelegen, haette ein natürliches Marktzentrum gebildet.

Healam Bridge, obwohl bei weitem die größte, war nicht die einzige Fundstelle aus der römischen Zeit dieses Projekts. Teile von zwei anderen römischen Siedlungen wurden im südlichen Teil der Trasse entdeckt, und Beweise für "Dere Street" selbst wurden an verschieden Stellen untersucht, erhalten unter dem ehemaligen Verlauf der Great North Road.

CHAPTER 10 - POTTERY

LATE PREHISTORIC AND ROMAN PERIOD HANDMADE POTTERY

Chris Cumberpatch

Introduction

The assemblage of pre-Roman Iron Age (PRIA) and Roman period handmade pottery consisted of a total of 847 sherds weighing 7,201g, and represented a maximum of 733 vessels (including some possible early prehistoric sherds). The details are summarised in Table 99 (excluding Field 63) and Table 102 (Field 63), also see Cumberpatch (2011a). Handmade sherds of post-Roman date were extracted from the assemblage and are discussed in Section 10.6, below.

The pottery

The pottery was classified according to a scheme based on that proposed by Didsbury (2003; 2009a) with modifications developed during the analysis of assemblages from sites on the Easington to Ganstead pipeline in Holderness (Cumberpatch 2016). The basic division into three fabric groups, H1/H4, H2, and H3, was maintained but in each case modifying terms were added to subdivide the individual groups (see also Rigby 2004 for a parallel classification). Details of the characteristics of individual fabrics are given in Table 100. It should be noted that the divisions represent fabric *groups* rather than fabric *types* in that there was a significant degree of variation between the fabrics within each group in terms of the density and size of the inclusions, even while the types of inclusions did seem to be mutually exclusive and to represent a real difference within the pottery assemblage as a whole.

The problems involved in the construction of a chrono-typological scheme of the type used in conventional studies of pottery have been discussed extensively elsewhere (Mackey 2003; Didsbury 2004a; Rigby 2004) and need not be reiterated here. Very few handmade vessel forms seem to have any specific chronological significance and most appear to continue in use from the late pre-Roman Iron Age (LPRIA) into the Roman period with little or no change. For this reason the spot-dates proposed by Leary (Section 10.2, below) based on the Roman and Romano-British wheel-thrown forms have been transferred to Table 99 to provide a chronological framework for the handmade wares. Chronological issues related to specific types of vessels identified in the assemblages are discussed below.

Further sub-divisions of the groups include H2 Quartz, H2 Rock, and H2 Rock and Quartz. Details of individual sherds and vessels are given in Tables 99 and 102. Such a degree of variability is to be expected in a situation where production was probably organised on a household basis within individual settlements (although see Didsbury 2003, 22-3 for a brief discussion of the possible movement of pots and/or raw material). The degree of variability should not, however, obscure the extent of regularity within this and other assemblages. The basic distinction between H1/H4 and H2 fabrics is consistent and it is probable that a detailed analysis of inclusion size and type, and vessel form would reveal further regularities which are at present qualitative in character.

The classification of the vessel forms follows the scheme used for the assemblages from the excavations on the line of the Easington to Ganstead pipeline (Cumberpatch 2016) which represents an attempt to produce a classification of the vessel forms which goes beyond simply describing them as 'jars' (Table 101). The focus on rim shape reflects the scarcity of complete vessel profiles within the assemblage but even lacking this, it serves to draw attention to the degree of regularity within the general class of handmade pottery. Use of the same scheme to organise larger assemblages suggests that, as with the fabrics, superficial variability is combined with a degree of underlying regularity which implies adherence to socio-technical norms which acted to structure the production of pottery. The fact that there does not seem to have been any significant change in vessel form over a long period of time, not only renders the construction of conventional chrono-typologies difficult, also implies the existence of robust cultural rules that acted to structure the manufacture of pottery. It seems likely that complex relationships existed between the functional requirements of the pottery, habitual practice and phenomenological distinctions between vessel types.

The term 'Barrel jar' refers to a plain jar form with a rounded, slightly inturned rim forming the termination of a barrel-shaped body, as shown in Rigby's schematic illustration (2004, fig. 4; see also Challis and Harding 1975, 74). While other types of vessel may have barrel-shaped bodies, they show a variety of different rim forms (notably vertical rims) and so have been defined as separate types. Rigby has assigned the type to the period between *c*.900-400 BC (figs. 16: 1, 35: 2, 50: 11, 76: 11), but other authors, notably Challis and Harding (1975, 74) and Didsbury (2003, 25, fig. 23: 19; 2009b, fig. 23: 21), propose a much wider date range spanning the later Iron Age which would seem to be supported by the evidence from Fields 63 and 61A where Barrel jars were associated with Romano-British wheel-thrown pottery. Examples are shown in Figure 147, nos. 5 and 8.

A form which may be seen as related to the Barrel jar is the Beaded Rim Globular jar, one example of which was identified in Field 63 (context 5084; Fig. 147, no. 4). This class of vessels is distinguished from the Barrel jars by a greater degree of inturn and a small beaded rim. They are typically small vessels with parallels in Rigby's Bead Rim Globular jars (2004, 40) which she dates to the period between *c*.100 BC and *c*.AD 100. The example from Field 63 was associated with wheel-thrown pottery of late 3rd to 4th century AD, albeit from a context containing a considerable quantity of earlier residual material.

The most basic shape, the Everted Rim jar, is a ubiquitous form which occurs in most assemblages of PRIA and Roman date and was amongst the commonest of the forms found in the assemblage considered here. Examples can range widely in size and in the specific details of the rim, shoulder and body which makes accurate sub-division difficult. Rigby's divisions of the type (2004, figs. 6 and 7) could not be followed with any degree of precision and the characteristics of the individual vessels are noted in Tables 99 and 102. Examples are shown in Figure 147, nos. 2, 6, and 10.

Vertical Rim jars were distinguished, as the name implies, by the orientation of the rim which was vertical or near-vertical, in contrast with the Everted Rim jars, even while the body shape may not have differed to any significant extent from other forms. The range of variation in the type can be considerable (Challis and Harding

Table 99: Pre-Roman Iron Age and Roman period handmade pottery (excluding Field 63)

Field	Context	Type	No	Wt (g)	ENV	Diam.	EVE	Part	Form and Decoration	Spot date	Date range
1	3249	H4	22	5	22	N/A	N/A	Base and BS	Hollow ware U/Dec	Late 3rd to mid-4th century AD	LPRIA-Roman
20	802	H2 Rock type	1	1	1	N/A	N/A	BS	U/ID U/Dec		?Post-Roman
20	1068	H2 Quartz	1	5	1	N/A	N/A	BS	Hollow ware U/Dec		LPRIA-Roman
23	1061	H4 Vesicular	6	48	4	N/A	N/A	BS	Hollow ware U/Dec		PRIA - Roman
23	1101	Fired clay	6	23	6	N/A	N/A	Fragments	U/ID U/Dec		Undated
23	1140	H4 type	1	7	1	U/ID	N/A	Rim	Jar U/Dec	Romano-British	PRIA - Roman
23	1147	H2 Quartz	39	512	39	N/A	N/A	BS	Hollow ware U/Dec		PRIA – Roman
23	1147	H2 Quartz	1	10	1	N/A	N/A	BS	Hollow ware U/Dec		PRIA - Roman
23	1147	H2 Quartz	3	4	3	N/A	N/A	BS / flake	Hollow ware U/Dec		PRIA - Roman
23	1147	H2 Quartz	1	52	1	14	15	Rim	Wedge-rim globular jar U/Dec		*c*.100BC - 100AD
23	1147	H2 Quartz	1	20	1	U/ID	N/A	Rim	Wedge-rim globular jar U/Dec		*c*.100BC - 100AD
23	1147	H4 Vesicular	1	9	1	N/A	N/A	BS	Hollow ware U/Dec		PRIA - Roman
23	1147	H4 Vesicular	1	6	1	U/ID	N/A	Rim	Jar U/Dec		PRIA - Roman
23	1148	Fired clay	1	1	1	N/A	N/A	BS	U/ID U/Dec		Undated
23	1401	H2 Quartz	2	12	2	N/A	N/A	BS	Hollow ware U/Dec		PRIA - Roman
23	1413	H2 Quartz	2	39	2	N/A	N/A	BS	Hollow ware U/Dec		PRIA - Roman
23	1413	H2 Quartz	1	2	1	N/A	N/A	BS	Hollow ware U/Dec		PRIA - Roman
23	1430	H2 Quartz	2	19	1	N/A	N/A	BS/ Shoulder	Jar Smoothed ext	Late 3rd - 4th century AD	PRIA - Roman
23	1436	H4 Vesicular	36	109	36	N/A	N/A	BS	Hollow ware U/Dec		PRIA - Roman
23	1440	H2 Fine	2	2	2	N/A	N/A	BS	Hollow ware U/Dec		PRIA - Roman
23	1440	H2 Quartz	3	167	1	18	14	Rim	Wedge-rim globular jar U/Dec		*c*.100BC - 100AD
23	1440	H2 Quartz&Rock	1	7	1	U/ID	N/A	Rim	?Open jar U/Dec		PRIA - Roman
23	1492	H2 Fine quartz	4	3	4	N/A	N/A	Flakes	Hollow ware U/Dec		PRIA – Roman
23	1492	H2 Quartz	3	30	1	N/A	N/A	Base	Hollow ware U/Dec		PRIA - Roman
23	1492	H2 Quartz	7	12	7	N/A	N/A	BS	Hollow ware U/Dec		PRIA - Roman
23	1551	?Crucible	3	1	3	N/A	N/A	Fragments	U/ID U/Dec		Undated
23	1551	H2 Quartz	1	1	1	N/A	N/A	BS	U/ID U/Dec		PRIA – Roman
23	1551	H4 Vesicular	1	3	1	N/A	N/A	BS	Hollow ware U/Dec		PRIA - Roman
23	1554	H4	16	159	1	N/A	N/A	BS	Hollow ware U/Dec	1st half 2nd century AD	PRIA – Roman
23	1649	H4	1	1	1	N/A	N/A	BS/Flake	Hollow ware U/Dec	Romano-British	LPRIA-Roman

Table 99 continued: Pre-Roman Iron Age and Roman period handmade pottery (excluding Field 63)

Field	Context	Type	No	Wt (g)	ENV	Diam.	EVE	Part	Form and Decoration	Spot date	Date range
23	1665	H2 Quartz	5	42	1	16	10	Rim and BS	Vertical Rim jar U/Dec		PRIA - Roman
23	1720	H2 Type	1	45	1	N/A	N/A	Footed base	Hollow ware U/Dec		PRIA - Roman
23	1720	H4 type	1	19	1	22	5	Rim	Vertical Rim jar U/Dec		PRIA - Roman
23	1754	H2 Fine	1	8	1	N/A	N/A	Base	Hollow ware U/Dec	3rd century AD?	LPRIA-Roman
23	1855	H2 Quartz	1	9	1	N/A	N/A	BS	Hollow ware U/Dec		LPRIA-Roman
23	1856	H2 Quartz	2	6	2	N/A	N/A	BS	Hollow ware U/Dec		PRIA - Roman
23	1856	H2 Quartz	5	155	1	N/A	N/A	BS	Large jar U/Dec		PRIA - Roman
23	1868	H2 Fine	1	1	1	N/A	N/A	BS/Flake	U/ID U/Dec		LPRIA-Roman
23	1868	H2 Quartz	2	67	1	19	11	Rim	Everted Rim jar Smoothed surface		?100BC - 100AD
23	1868	H2 Quartz	23	103	13	N/A	N/A	BS	Hollow ware Smoothed ext		PRIA - Early Roman
23	1868	H2 Quartz	1	18	1	U/ID	U/ID	Rim	Lid-seated jar Smoothed surfaces int		600BC - 400BC
23	1877	H2 Quartz	11	14	11	N/A	N/A	BS	Hollow ware U/Dec		LPRIA-Roman
25	1065	H4	10	14	10	N/A	N/A	BS	Hollow ware U/Dec	AD 360+	LPRIA-Roman
25	1144	H3 Quartz	1	11	1	U/ID	U/ID	Rim	Everted Rim jar type U/Dec		PRIA - Roman
25	1478	H2 Quartz	1	8	1	N/A	N/A	BS	U/ID U/Dec		PRIA - Roman
25	1617	H2 Fine	1	5	1	N/A	N/A	BS	Hollow ware Smoothed ext		PRIA - Roman
25	1643	H2 type	4	9	4	N/A	N/A	BS	U/ID U/Dec	Late 3rd to 4th century AD	LPRIA-Roman
25	1643	H4	1	30	1	N/A	N/A	Base	Hollow ware U/Dec	Late 3rd to 4th century AD	LPRIA-Roman
25	1644	H4	2	8	2	N/A	N/A	BS	Hollow ware U/Dec	AD 360+	LPRIA-Roman
25	1653	H4	6	6	6	N/A	N/A	BS	Hollow ware U/Dec	Late 3rd to 4th century AD	LPRIA-Roman
25	1654	H3	1	1	1	N/A	N/A	BS	Hollow ware U/Dec	Late 3rd to 4th century AD	LPRIA-Roman
25	1687	?Early PreH	1	4	1	N/A	N/A	?Rim	U/ID Parallel incised lines on ?rim		Early Pre-H
25	1687	?Early PreH	78	55	78	N/A	N/A	BS/Frags	U/ID U/Dec		Early Pre-H
25	1687	H2 type (Early Pre H?)	57	41	57	N/A	N/A	Fragments	U/ID U/Dec		Early Pre-H
25	1718	H4	3	6	3	N/A	N/A	BS	Hollow ware U/Dec		LPRIA-Roman
25	1738	Fired clay	4	11	3	N/A	N/A	?BS	U/ID U/Dec		Undated
42	4031	H type	1	44	1	N/A	N/A	Footed base	Hollow ware U/Dec		?Early Pre-H
42	4031	H type	6	10	4	N/A	N/A	BS	Hollow ware U/Dec		?Early Pre-H
42	4031	H2 Quartz	13	12	13	N/A	N/A	BS	U/ID U/Dec		?PRIA-Roman

Table 99 continued: Pre-Roman Iron Age and Roman period handmade pottery (excluding Field 63)

Field	Context	Type	No	Wt (g)	ENV	Diam.	EVE	Part	Form and Decoration	Spot date	Date range
42	4031	H2 Rock	2	15	2	N/A	N/A	BS	Hollow ware U/Dec		?PRIA - Roman
42	4033	H type	3	14	3	N/A	N/A	BS	Hollow ware U/Dec		?Early Pre-H
42	4033	H2 Rock	2	58	1	N/A	N/A	BS	Hollow ware U/Dec		?Early Pre-H
42	4033	H2 type	18	83	16	N/A	N/A	BS	Hollow ware U/Dec		?Early Pre-H
42	4043	H2 Fine	1	4	1	N/A	N/A	Rim	Open jar U/Dec	3rd century AD	LPRIA-Roman
47	1295	H2 type	4	1	4	N/A	N/A	Fragments	U/ID U/Dec		LPRIA-Roman
47	1295	H4 Fine	30	30	30	N/A	N/A	BS	Hollow ware U/Dec		LPRIA-Roman
61	2275	H2 Fine	4	15	2	N/A	N/A	BS/Flake	U/ID U/Dec		PRIA - Roman
61	2315	H type	3	86	1	N/A	N/A	BS	Hollow ware U/Dec	Mid-1st to 3rd century AD	?Early Pre-H
61	2315	H2 Quartz type	2	19	1	N/A	N/A	BS	Hollow ware U/Dec	Mid-1st to 3rd century AD	PRIA - Roman
62	2141	H2 Fine	1	7	1	N/A	N/A	BS	Hollow ware U/Dec	Late 3rd to 4th century AD	PRIA - Roman
62	2158	H2 Fine	2	6	2	N/A	N/A	BS	Hollow ware U/Dec	Late 3rd to 4 th century AD	PRIA - Roman
62	2180	H2 Fine	3	17	1	N/A	N/A	BS	Hollow ware Smoothed ext	Romano-British	PRIA - Roman
62	2261	H2 Fine	2	3	1	N/A	N/A	BS	Hollow ware U/Dec	Hadrianic/Antonine	PRIA - Roman
62	2381	H2 Fine	1	2	1	N/A	N/A	BS	Hollow ware U/Dec	Early 2nd century AD	PRIA - Roman
62	2632	H2 type	3	17	3	N/A	N/A	Fragments	Hollow ware U/Dec		PRIA - Roman
62	2632	H4	4	14	4	N/A	N/A	BS	Hollow ware U/Dec		PRIA - Roman
64	6812	H2 Fine	1	11	1	N/A	N/A	Rim	Barrel jar Burnished int and ext	Late 3rd to early 4th century AD	?LPRIA-Roman
64	6812	H2 Fine	2	18	2	N/A	N/A	BS	Hollow ware U/Dec	Late 3rd to early 4th century AD	LPRIA-Roman
64	6813	H2 Quartz	8	261	6	N/A	N/A	Base and BS	Hollow ware U/Dec		PRIA - Roman
64	6883	H2 Quartz	1	4	1	N/A	N/A	BS	U/ID U/Dec	Hadrianic	PRIA – Roman
64	6884	H2 Quartz	3	20	3	N/A	N/A	BS	Hollow ware U/Dec	Hadrianic/ Antonine	PRIA - Roman
64	7188	Fired clay	1	1	1	N/A	N/A	BS	Hollow ware U/Dec		LPRIA-Roman
64	7456	H2 Fine	1	30	1	N/A	N/A	BS	Hollow ware Smoothed int and ext		PRIA - Roman
73	1167	Fired clay	5	1	5	N/A	N/A	Fragments	U/ID U/Dec		LPRIA-Roman
74	7045	H2 Quartz&Mica	1	29	1	N/A	N/A	BS	Hollow ware U/Dec		PRIA - Roman
99	6052	?Early PreH	8	13	8	N/A	N/A	BS	Hollow ware U/Dec		?Early prehistoric
99	6052	H2 ?Grog	1	8	1	N/A	N/A	BS	Hollow ware U/Dec		PRIA - Roman
103	6010	H2 Rock&Quartz	1	126	1	N/A	N/A	BS	Large jar U/Dec		PRIA - Roman
33/ Pond	4020	H type	5	28	4	N/A	N/A	BS	Hollow ware U/Dec		?Early Pre-H

Table 99 continued: Pre-Roman Iron Age and Roman period handmade pottery (excluding Field 63)

Field	Context	Type	No	Wt (g)	ENV	Diam.	EVE	Part	Form and Decoration	Spot date	Date range
33/ Pond	4020	H2 Rock	2	10	2	N/A	N/A	BS	Hollow ware U/Dec		?PRIA-Roman
33/ Pond	4020	H2 Rock	2	23	2	N/A	N/A	BS	Hollow ware Rilled surface ext		?Early Pre-H
33/ Pond	4020	H2 type	17	21	17	N/A	N/A	BS	Hollow ware U/Dec		?PRIA-Roman
61A	2117	H1 Calcite	1	5	1	N/A	N/A	BS	Hollow ware U/Dec	Medieval	LPRIA-Roman
61A	8015	H2 Quartz	1	28	1	U/ID	U/ID	Rim	Vertical Rim jar Burnished ext surface	Hadrianic-early Antonine	PRIA - Roman
61A	8015	H2 Quartz	1	37	1	12	14	Rim	Wedge-rim jar Smoothed int and ext	Hadrianic-early Antonine	PRIA – Roman
61A	8026	H2 Quartz	1	30	1	N/A	N/A	BS	Hollow ware Smoothed int and ext	Mid-late 2nd to mid-3rd century AD	PRIA – Roman
61A	8031	H2 Quartz	4	94	4	N/A	N/A	Base and BS	Hollow ware Burnished int and ext	Late 3rd to 4th/5th century AD, residual	PRIA – Roman
61A	8063	H2 Fine	1	1	1	N/A	N/A	BS	Hollow ware Impressed line ext		LPRIA-Roman
61A	8067	H2 Quartz	1	24	1	U/ID	U/ID	Rim	Everted Rim jar Smoothed int and ext		PRIA – Roman
61A	8070	H4	2	20	1	N/A	N/A	Flake	Hollow ware U/Dec	Hadrianic- Antonine	PRIA – Roman
61A	8095	H3 Quartz	8	148	5	19	15	Rim and BS	Barrel jar Smoothed int and ext	Romano-British	PRIA – Roman
61A	8178	H2 Rock&Quartz	1	16	1	N/A	N/A	Base	Hollow ware Smoothed int and ext	Early 3rd century	PRIA - Roman
61A	8266	H2 Quartz	1	6	1	N/A	N/A	Base	Hollow ware U/Dec	Early Antonine	PRIA - Roman
61A	8291	H2 Fine	1	1	1	N/A	N/A	BS	Hollow ware U/Dec		LPRIA-Roman
61A	8309	H2	4	2	4	N/A	N/A	BS	U/ID U/Dec	3rd century AD+	LPRIA-Roman
61A	8323	H2 Fine	1	5	1	N/A	N/A	BS	Hollow ware U/Dec	Hadrianic-early Antonine	LPRIA-Roman
61A	8339	H2 Quartz	2	2	2	N/A	N/A	BS	Hollow ware U/Dec	1st century AD?	PRIA - Roman
61A	8349	H2 type	1	1	1	N/A	N/A	BS	Hollow ware U/Dec		LPRIA-Roman
61A	8352	H2 Quartz	1	10	1	N/A	N/A	BS	Hollow ware U/Dec	Hadrianic- Antonine	LPRIA-Roman
61A	8366	H2 Quartz	1	28	1	N/A	N/A	BS	Hollow ware Burnished int and ext	Hadrianic-early Antonine	PRIA - Roman
61A	8452	H2 Quartz	3	80	1	N/A	N/A	Base	Jar Smoothed ext	Hadrianic-early Antonine	PRIA - Roman
63/64	7486	H2 Quartz	7	133	6	N/A	N/A	BS	Hollow ware U/Dec	3rd century AD	PRIA - Roman
63/64	7486	H2 Quartz	4	29	4	N/A	N/A	BS	Hollow ware U/Dec	3rd century AD	PRIA – Roman
63/64	7486	H2 Quartz	5	100	1	N/A	N/A	BS/ Shoulder	Jar U/Dec	3rd century AD	PRIA – Roman
U/ID	7	H4	1	8	1	N/A	N/A	Base	Hollow ware U/Dec		LPRIA-Roman
U/ID	253	H2 Rock	1	7	1	N/A	N/A	BS	Hollow ware U/Dec		LPRIA-Roman
Totals			**612**	**3842**	**543**						

No - sherd count; Wt - weight; ENV - estimated number of vessels; Diam. - diameter; EVE - estimate vessel equivalent; BS - body sherd; U/Dec - undecorated; U/ID - unidentified; int - interior; ext - exterior; Pre-H - prehistoric; PRIA - pre-Roman Iron Age; LPRIA - Late pre-Roman Iron Age.

Fabric group	Description
H1	Fabrics containing calcareous temper, including calcite, shell, and chalk
H1 Calcite	Fabrics containing calcite inclusions; usually angular but of varying size
H1 Shell	Fabrics contain shell inclusions; may include regional imports from Lincolnshire
H1 Chalk	Fabrics containing white to grey chalky inclusions, usually rounded to sub-rounded in shape; cf. CTW (Rigby 2004)
H2	The general category for fabrics which contain non-soluble stone temper, notably quartz and igneous rock fragments (cf. ETW; Rigby 2004). Highly variable and sub-divided by inclusion type with details in Tables 99 and 102
H2 Fine	A distinctive fine sandy textured fabric containing abundant fine quartz grit (<0.2mm) and only occasionally a small proportion of larger quartz grit and generally no rock fragments
H3	Sherds containing both calcareous and non-calcareous inclusions, with variants as for H2, above
H4	Vesicular wares of type H1 which have been particularly badly affected by the action of acidic ground water resulting in the removal in solution of the calcareous inclusions
H type	Unidentifiable fragments of handmade pottery, normally of H2 type but including possible early prehistoric sherds as specified in Tables 99 and 102
Fired clay	Small fragments of fired clay

Table 100: Fabric groups for handmade pottery

1975, fig. 49-1, fig. 39-7; Cumberpatch 2016; Didsbury 2003, fig. 19: 10, 15; fig. 20: 35; fig. 21: 49; fig. 22: 65; fig. 26: 139; fig. 27: 156, 161; fig. 28: 182; see also Rigby 1980, fig. 46: 205 and 206). Brief descriptions of the various vessels are given in Tables 99 and 102 and an example is shown in Figure 147, no. 7.

Wedge-rimmed jars are distinguished from the Everted Rim jar group by the thickened internal angle which forms a distinctive 'wedge' profile when seen in cross-section (see, for example, Rigby 2004, fig. 26: 5). The globular form (Fig. 147, no. 9) and the plain form are distinguished by the shape of the body and it is unclear whether this has any wider significance. Rigby's dating of the form to the period *c*.100 BC to *c*.AD 140 was not directly contradicted by the evidence from the sites considered here as the Wedge-rimmed Globular jars were not associated with any wheel-thrown forms (contexts 1147 and 1440) although, the plain Wedge-rim jar (context 8015) was associated with slightly later Hadrianic to Antonine wares. This vessel is shown in Figure 147, no. 3.

Funnel-rimmed jars are a distinctive group defined by their tall, slightly everted rims, usually with flat or rounded lips but which are sometimes slightly bulged to give a beaded profile. The profile of the rim is typically funnel-shaped, particularly when the rim is a long one while the shoulder/body can be rounded, narrow-shouldered or pear-shaped. Generally they appear to be a common type and examples include Challis and Harding 1975, fig. 46: 1, 4 (Pale End), fig. 49: 2 (Levisham Moor A), fig. 50: 11 (Levisham Moor D); Cumberpatch 2006, fig. 23: 12; Didsbury 2009a, fig. 177: 30 and 36; 2009b, fig. 23: 23. The late date of the single example from Field 63 (context 5028) was consistent with other late dates for the form (Cumberpatch 2016) although in common with most handmade vessel forms there is little indication that they do also not occur in PRIA contexts.

The Open jar category is an extremely wide one and has been defined as a straight-sided jar with no constricted neck and parallel walls. The type can be difficult to distinguish from vertical rim jars when small rim fragments are involved and this may lead to it being under-represented in some assemblages. Parallels include Challis and Harding 1975 fig. 31:2 (Danes Graves) and fig. 33: 11 (Garton Slack); Didsbury 2003, fig. 26: 150; Didsbury 2009b fig. 22: 2; Didsbury and Vince 2011 fig. 151: 1; and Rigby's thick-walled, wide-mouthed shapeless jars (2004, 38) may be of a similar type although the proposed early date (*c*.900BC – *c*.600BC) was not consistent with the appearance of the type in Field 63 (context 5028, Table 101) or with examples from Holderness (Cumberpatch 2016). A variant of the form, the Everted Rim Open jar (Field 63, context 5581) was distinguished by its small everted rim on an open body. Possible parallels include Didsbury 2003, fig. 20: 29, fig. 21:55, fig. 23: 83, fig. 25: 128; Didsbury 2009b, fig. 22: 14; and Didsbury and Vince 2011, fig. 150: 10.

Although the majority of identifiable vessels were not specifically datable, an exception may have been the lid-seated jar type which it has been suggested (Didsbury and Vince 2011 fig. 152.6 and 152.7; see also Rigby 2004, 39) to belong to the period *c*.600 BC to *c*.400 BC. There was nothing in the context in which the sole example from the sites considered here was found (Field 23, context 1868; Figure 147: 11) to contradict this date (other than a speculative date range of *c*.100 BC to *c*.AD 100 for an Everted Rim jar based on a perhaps dubious suggestion by Rigby) to contradict this.

Other vessel forms were unidentified and fell into the class of Hollow ware or jars. Exceptions included sherds with a wide curvature indicating that they were part of larger than average vessels, possibly storage jars.

Vessel type	Estimated (maximum) number of vessels
?Lid	1
?Open jar	1
Barrel jar	7
Beaded Rim Globular jar	1
Everted Rim jar	11
Everted Rim jar type	1
Everted Rim Open jar	1
Funnel Rim jar	1
Large jar	2
Lid-seated jar	1
Open jar	4
Vertical Rim jar	11
Vertical Rim jar type	2
Wedge-rim Globular jar	3
Wedge-rim jar	1

Table 101: Handmade pottery vessel forms

Discussion

Field 1

The assemblage from Field 1 came from context 3249, the primary fill of pit 3250. Context 3249 produced a base and body sherds all in a vesicular H4 fabric and were associated with wheel-thrown pottery of late Roman date.

Field 20

Two contexts in Field 20, 802 and 1068, produced single sherds from environmental samples (AA and AB) in two H2 fabrics. The sherd from context 802 was slightly anomalous and could post-date the Roman period although the size of the sherd precluded any definite conclusion as to the date.

Field 23

Field 23 produced a substantial group of sherds which included a number of rim sherds some of which had parallels with examples described by Rigby (2004). Few were datable with any degree of precision but this number included the lid-seated rim of a jar (context 1868) which Rigby has suggested belongs to the period between *c*.600 BC and *c*.400 BC (2004, 39; see also Didsbury and Vince 2011, 193 and fig. 137, nos. 6 and 7). A second well-preserved rim from the same context appeared to be somewhat later in date but the form was far from distinctive and some caution must be exercised in asserting a definite late date.

Context 1440 included the rim of a type described by Rigby as a 'Wedge-rimmed Globular jar' of a type dating to the period between *c*.100 BC and *c*.AD 100 but again, the date range must be treated with some caution as the form was not a particularly unusual or distinctive one. Only five contexts containing handmade pottery produced datable Roman pottery (1140, 1430, 1554, 1649, and 1754) and this varied in date between the first half of the 2nd century AD and the later 3rd to 4th centuries AD. None of these contexts produced diagnostic handmade sherds.

The majority of sherds were tempered with quartz of varying size grades with H4 wares from contexts 1554, 1649, and 1720. Rock tempered sherds were notable by their virtual absence and the fact that the calcareously tempered sherds were all vesicular in character points to an acidic burial environment.

Field 25

Context 1738 produced fragments of finely textured fired clay but it was far from clear that these were sherds from pottery vessels and they could have been pieces of hearths or even ovens.

The remaining contexts produced small assemblages which displayed the expected degree of variation in the type, size, and density of the inclusions. H2, H3, and H4 wares were all represented although most of the sherds were heavily fragmented. The dating of these sherds was uncertain, although all were of later prehistoric/Roman period type and only one small, unidentifiable, rim fragment was present (context 1144). The sherds from contexts 1643, 1644, 1653, and 1654 were all associated with wheel-thrown pottery of later Roman (3rd to 4th century AD) date.

Field 47

The processing of environmental samples from Field 47 produced an assemblage of small, shattered sherds of probable later prehistoric type (context 1295 AA). With an average sherd weight of only 0.9g it was difficult to draw any definite conclusions from this assemblage.

Field 61

The fills of two ditches in Field 61 (contexts 2275 and 2315) produced small assemblages of quartz tempered sherds of diverse type. Context 2315 also contained wheel-thrown sherds of mid-1st to 3rd century AD date but in spite of this the character of the sherds was slightly unusual. One sherd was of such an ambiguous nature that an early prehistoric or even an early post-Roman date could not be ruled out. The sherds from context 2275 had a distinctive coarse gritty textured fabric, a trait also seen in groups of sherds from other fields, notably Field 61A where they were associated with a large quantity of Roman material.

Field 61A

Seventeen contexts in Field 61A produced handmade pottery, the majority of which were associated with datable wheel-thrown pottery (and, in the case of context 2117, with medieval pottery). In spite of the diversity of contexts involved, the handmade pottery assemblage was distinguished by the homogeneity of the fabrics which were predominantly hard, black, and densely tempered with angular to sub-angular quartz grit. Smoothed and burnished surfaces were common and the group also included a variety of rim sherds including Vertical Rim, Everted Rim, and Wedge-rim jars forms and a Barrel jar, none of them datable types. Wheel-thrown pottery associated with the handmade wares covered a wide date range from the Hadrianic/early Antonine period to the 3rd century AD. In the case of context 8031 the latest pottery was of late 3rd to 4th or 5th century AD date but a considerable quantity of earlier wheel-thrown pottery was also present (residual in later contexts).

Field 62

Small numbers of body sherds in fine quartz and rock tempered fabrics were recovered from six contexts in Field 62 (2141, 2158, 2180, 2261, 2381, and 2362). The general impression was of a group of broadly similar fabrics of later prehistoric or Roman period type and all but the group from context 2362 (heavily abraded and shattered) were associated with wheel-thrown pottery ranging in date from the mid-1st century AD to the 4th century AD. It was difficult to draw any conclusions from the assemblage given the lack of diagnostic sherds and the evidence from other sites that fine H2 fabrics have an extremely long history and changed little in response to wider social and political changes.

Field 63

Field 63 produced the largest and most diverse assemblage of handmade pottery from any of the fields investigated in the course of the project, and this group is summarised separately in Table 101 with additional context and phasing information. The field also produced a small quantity of handmade pottery of post-Roman date, notably a spouted pitcher from context 5028 and a stamp-decorated sherd from context 5990. These sherds

Table 102: pre-Roman Iron Age and Roman period handmade pottery from Field 63

Field	Phase	Context	Type	No	Wt (g)	ENV	Part	Form Decoration	Date range
63		5255	H2 Fine	1	2	1	Rim	Vertical Rim jar? Smoothed int and ext	LPRIA-Roman
63		5300	H2 Fine	1	1	1	BS	Hollow ware U/Dec	LPRIA-Roman
63		5389	H2 Quartz	1	13	1	Base	Hollow ware U/Dec	LPRIA-Roman
63		5389	H2 Quartz	5	8	5	BS	Hollow ware U/Dec	LPRIA-Roman
63		5412	H2 type	2	2	2	BS	Hollow ware U/Dec	LPRIA-Roman
63		5558	H2 Quartz	1	4	1	BS	Hollow ware U/Dec	LPRIA-Roman
63		5702	H2 Fine	1	10	1	BS	Hollow ware U/Dec	LPRIA-Roman
63		5827	Fired clay	9	29	8	Fragments	U/ID U/Dec	?Pre-H
63		7444	H2 Fine	1	1	1	BS	U/ID U/Dec	LPRIA-Roman
63		7444	H2 type	1	2	1	BS	U/ID U/Dec	LPRIA-Roman
63		7508	H2 Quartz&Rock	1	1	1	Flake	U/ID U/Dec	LPRIA-Roman
63		7860	H2 Rock	1	2	1	BS	Hollow ware U/Dec	LPRIA-Roman
63NN	N1	5953	H2 Fine	1	16	1	BS	Hollow ware Smoothed ext	PRIA – Roman
63NN	N1	6799	H2 Quartz	1	4	1	BS	Hollow ware Smoothed int and ext	PRIA – Roman
63NN	N1	6801	H2 Fine	1	19	1	Rim	Vertical Rim jar Burnished int and ext. Diam. 12cm	PRIA – Roman
63NN	N1	6978	H2 Quartz	1	23	1	Rim	Vertical Rim jar Burnished int and ext. Diam. 13cm	PRIA – Roman
63NN	N1	7222	H2 Quartz	2	7	1	BS	Hollow ware Burnished ext	PRIA – Roman
63NN	N2	5428	H3 Rock and Chalk	1	9	1	BS	Hollow ware U/Dec	PRIA – Roman
63NN	N2	5631	H2 Rock and Quartz	1	10	1	BS	Hollow ware U/Dec	PRIA – Roman
63NN	N2	5863	H2 Quartz	1	56	1	Rim	Everted Rim jar U/Dec. Diam. 13cm	PRIA – Roman
63NN	N2	5886	H2 Quartz	1	26	1	BS	Hollow ware Smoothed int and ext	PRIA – Roman
63NN	N2	5938	H2 Fine	1	4	1	BS	Hollow ware Smoothed ext	PRIA - Roman
63NN	N3	5001	H1 Calcite and Chalk	1	26	1	BS	Hollow ware U/Dec	PRIA - Roman
63NN	N3	5001	H2 Quartz	1	33	1	BS	Hollow ware Smoothed ext	PRIA - Roman
63NN	N3	5019	H2 Quartz	1	34	1	BS/Shoulder	Hollow ware Smoothed ext	PRIA – Roman
63NN	N3	5019	H2 Quartz	2	39	1	BS	Hollow ware U/Dec	PRIA - Roman
63NN	N3	5019	H2 Quartz	1	25	1	BS	Hollow ware Smoothed ext	PRIA – Roman
63NN	N3	5019	H2 Quartz	6	63	6	BS	Hollow ware U/Dec	PRIA – Roman
63NN	N3	5019	H2 Quartz	2	13	2	BS	Hollow ware U/Dec	PRIA – Roman
63NS	3	5361	H2 Quartz	3	20	3	BS	Hollow ware Burnished ext	PRIA - Roman
63NS	1a	5059	H2 Fine	1	7	1	BS	Hollow ware Burnished int and ext	PRIA - Roman
63NS	1a	5059	H2 Quartz	1	15	1	BS	Hollow ware U/Dec	PRIA - Roman
63NS	1a	5084	H2 Quartz	1	40	1	Rim	Beaded Rim Globular jar U/Dec. Diam 7cm	PRIA - Roman
63NS	1a	5142 River	H2 Quartz	1	11	1	BS	Hollow ware U/Dec	PRIA - Roman
63NS	1a	5609 G5610	H2 Quartz	1	10	1	BS	Hollow ware Smoothed ext	PRIA - Roman

Table 102 continued: pre-Roman Iron Age and Roman period handmade pottery from Field 63

Field	Phase	Context	Type	No	Wt (g)	ENV	Part	Form Decoration	Date range
63NS	1a	7092 PH7051	H2 Quartz	1	26	1	BS	Hollow ware Smoothed ext	PRIA - Roman
63NS	1a	7161 P7160	H2 Rock and Quartz	1	10	1	BS	U/ID U/Dec	PRIA – Roman
63NS	1a	7421 Pit/kiln 7420	H3 Vesicular	5	8	5	Flakes	U/ID U/Dec	PRIA – Roman
63NS	1a	7423	H2 Fine	1	2	1	BS/Flake	U/ID U/Dec	LPRIA-Roman
63NS	1b	7011	Fired clay	1	1	1	BS	Hollow ware U/Dec	LPRIA-Roman
63NS	1b	7151	H2 Quartz	1	143	1	Base	Jar Smoothed int and ext	PRIA - Roman
63NS	1b	7404	H2 Fine	1	6	1	BS	Hollow ware Smoothed int and ext	PRIA - Roman
63NS	1c	5035	H3	1	3	1	BS	Hollow ware U/Dec	PRIA - Roman
63NS	1c	5050	H2 Quartz	1	13	1	BS	Hollow ware U/Dec	PRIA - Roman
63NS	1c	6844	H2 Fine	1	18	1	Rim	Everted Rim jar Burnished int and ext. Diam. 9cm	Late R-B
63NS	1c	6844	H2 Fine	2	14	2	BS	Hollow ware Burnished int and ext	PRIA - Roman
63NS	1c	6922	H2 Quartz	1	2	1	Rim	Vertical Rim jar U/Dec	PRIA - Roman
63NS	1c	6924	H2 Quartz	1	22	1	Rim	Everted Rim jar U/Dec	LPRIA-Roman
63NS	1c	7536	H2 Quartz	3	105	3	BS	Hollow ware U/Dec	PRIA - Roman
63NS	1c	7536	H2 Quartz	6	276	2	Rim and BS	Vertical Rim jar U/Dec. Diam 15cm	PRIA - Roman
63NS	1d	5121	Fired clay	1	47	1	BS	U/ID U/Dec	PRIA - Roman
63NS	1d	5285	H2 Quartz	1	20	1	Rim	Vertical Rim jar U/Dec	PRIA - Roman
63NS	2a	5038	H2 Quartz	1	8	1	BS	Hollow ware U/Dec	PRIA - Roman
63NS	2a	5042	H2 Quartz	1	27	1	Base	Hollow ware U/Dec	PRIA - Roman
63NS	2a	5042	H2 Quartz	3	83	1	BS and shoulder	Vertical Rim jar type Burnished ext	PRIA - Roman
63NS	2a	5042	H2 Quartz	7	166	6	BS	Hollow ware Smoothed ext	PRIA - Roman
63NS	2a	5042	H2 Quartz	4	1	4	Flakes	Hollow ware U/Dec	PRIA – Roman
63NS	2a	5042	H2 Quartz	4	47	4	BS	Hollow ware U/Dec	PRIA – Roman
63NS	2a	5042	H2 Quartz	2	13	2	BS	Hollow ware U/Dec	PRIA – Roman
63NS	2a	5237	H3	1	4	1	BS	Hollow ware U/Dec	PRIA - Roman
63NS	2a	5581	H2 Quartz	1	13	1	Rim	Everted Rim Open jar Smoothed ext	PRIA - Roman
63NS	2a	5581	H2 Quartz	5	34	3	BS	Hollow ware U/Dec	PRIA - Roman
63NS	2a	5867	H2 Quartz	1	17	1	Base	Hollow ware U/Dec	PRIA - Roman
63NS	2a	6683	H2 Quartz	11	149	1	Profile	Barrel jar Smoothed int and ext. Diam. 9cm	PRIA - Roman
63NS	2b	5031	H2 Quartz	3	40	2	BS	Hollow ware Smoothed ext	PRIA - Roman
63NS	2b	5031	H3	2	11	1	BS	Hollow ware Smoothed ext	PRIA - Roman
63NS	2b	5279	H2 Quartz	3	22	2	BS	Hollow ware Burnished ext	PRIA - Roman
63NS	2b	5336	H2 Fine	1	6	1	BS	Hollow ware Smoothed int and ext	PRIA - Roman
63NS	2b	5336	H2 Fine	1	7	1	BS	Hollow ware U/Dec	PRIA - Roman
63NS	2b	5548	H2 Fine	1	12	1	BS	Hollow ware U/Dec	PRIA - Roman

Table 102 continued: pre-Roman Iron Age and Roman period handmade pottery from Field 63

Field	Phase	Context	Type	No	Wt (g)	ENV	Part	Form Decoration	Date range
63NS	2b	5561	H2 Quartz	9	96	7	BS	Hollow ware U/Dec	PRIA - Roman
63NS	2c	5002	Fired clay	2	9	2	Frags	U/ID U/Dec	LPRIA-Roman
63NS	2c	5002	Fired clay	1	1	1	Frag.	U/ID U/Dec	LPRIA-Roman
63NS	2c	5027	H2 Quartz	1	47	1	Base	Hollow ware Smoothed int and ext	PRIA - Roman
63NS	2c	5028	H2 Fine	1	40	1	BS	Hollow ware Smoothed ext	PRIA - Roman
63NS	2c	5028	H2 Fine	1	28	1	Rim	Funnel Rim jar Burnished int and ext. Diam. 28cm	PRIA - Roman
63NS	2c	5028	H2 Quartz	1	14	1	Rim	Vertical Rim jar Smoothed ext	PRIA - Roman
63NS	2c	5028	H2 Quartz	5	207	2	Rim	Everted Rim jar Profiled rim w/grooves. Diam. 26cm	PRIA - Roman
63NS	2c	5028	H2 Quartz	22	301	9	BS	Hollow ware U/Dec	PRIA - Roman
63NS	2c	5028	H2 Quartz	1	7	1	Rim	Everted Rim jar Smoothed ext. Diam. 26cm	PRIA - Roman
63NS	2c	5028	H2 Quartz	1	11	1	Rim	Vertical Rim jar U/Dec	PRIA - Roman
63NS	2c	5028	H2 Quartz	1	15	1	Rim	Open jar U/Dec	PRIA - Roman
63NS	2c	5028	H2 Quartz	1	6	1	Rim	Everted Rim jar U/Dec	PRIA - Roman
63NS	2c	5028	H2 Quartz	4	22	4	BS	Hollow ware U/Dec	PRIA – Roman
63NS	2c	5028	H2 Quartz	14	209	14	BS	Hollow ware U/Dec	PRIA – Roman
63NS	2c	5028	H2 Quartz	1	39	1	BS	Hollow ware U/Dec	PRIA – Roman
63NS	2c	5028	H2 Rock and Quartz	1	34	1	BS	Hollow ware U/Dec	PRIA – Roman
63NS	2c	5028	H2 type	2	55	1	?Lid handle	Hollow ware Smoothed int and ext	?C2nd – C4th
63NS	2c	5045	H1 Chalk	1	4	1	BS	Hollow ware U/Dec	PRIA - Roman
63NS	2c	5045	H2 Fine	1	11	1	Rim	Everted Rim jar U/Dec	PRIA - Roman
63NS	2c	5045	H2 Fine	1	9	1	Rim	Everted Rim jar U/Dec	PRIA - Roman
63NS	2c	5583	H3	2	23	1	BS	Hollow ware Smoothed int and ext	PRIA - Roman
63NS	2c	6808	H3 Rock and Chalk	5	30	5	BS/Flake	Hollow ware U/Dec	PRIA - Roman
63NS	2c	7089	H2 Quartz	1	23	1	BS	Hollow ware U/Dec	PRIA - Roman
63NS	2d	5037	H2 Fine	1	12	1	BS	Hollow ware Burnished int and ext	PRIA - Roman
63NS	2d	5037	H2 Fine	1	15	1	Base	Hollow ware Burnished int and ext	PRIA - Roman
63T	Tr26	9036	H2 Fine	1	2	1	BS	Hollow ware U/Dec	LPRIA-Roman
63T	Tr26	9036	H2 Fine	1	2	1	BS	Hollow ware U/Dec	LPRIA-Roman
63T	Tr26	9036	H2 Quartz	1	30	1	Flat base	Hollow ware Smoothed ext	PRIA - Roman
63T	Tr26	9036	H2 Quartz	10	86	10	BS	Hollow ware U/Dec	PRIA - Roman
63T	Tr27	9089	H2 Rock	1	10	1	BS	Hollow ware U/Dec	PRIA - Roman
Total				**235**	**3359**	**190**			

No - sherd count; Wt - weight; ENV - estimated number of vessels; Diam. - diameter; EVE - estimate vessel equivalent; BS - body sherd; U/Dec - undecorated; U/ID - unidentified; int - interior; ext - exterior; Pre-H - prehistoric; PRIA - pre-Roman Iron Age; LPRIA - Late pre-Roman Iron Age.

and a small number of body sherds of a similar date have been discussed in Section 10.67 below. The same context also produced an unusual narrow base or, more probably, a lid and handle, possibly a handmade copy of a Roman form (Fig. 147, no. 1).

The range of fabrics was wide both within the H2 group and between groups H1/H4, H2, and H3, although quartz tempered fabrics (which include the majority of the 'H2 Fine' group) were the commonest by a wide margin (Table 103). The H3 group may have included some early post-Roman sherds but distinguishing these from earlier types was difficult, particularly when small or abraded body sherds were involved.

A high proportion of the pottery was burnished or smoothed externally and the fabrics were generally robust in character and well-finished. Table 104 shows the total numbers of vessel types identified. The majority, represented by body sherds cannot be any more closely identified than as examples of Hollow wares and jar forms of different types; there was a notable absence of any closely datable types. The two commonest forms, Everted Rim jars and Vertical Rim jars are ubiquitous on sites of later prehistoric and Roman period date and appear to represent the commonest types of vessel in used over a considerable period of time (Cumberpatch 2016).

Table 101 shows the assemblage sub-divided (where possible) by phase and by the areas defined on the site (Field 63 North, southern area; 63NS, Field 63 North, northern area; 63NN, and Field 63 trenches; 63T). It was unfortunate, given the quality of the dating evidence provided by the wheel-thrown pottery, that the quantities of handmade pottery from individual phases was so limited as to render inferences drawn from the data questionable on statistical grounds. While Everted Rim jars were commonest in Phase 2c of the southern area of Field 63, any inferences drawn from this must acknowledge the fact that this involved only five out of a total of eight examples and that Phase 2c consisted largely of midden deposits which produced 30% of the total amount of pottery (by ENV; 25% by weight) from Field 63 as a whole. Other figures were similarly compromised and to this must be added the issue of residuality which in some cases was attested to by the evidence of the wheel-thrown pottery. Examples containing significant residual elements included contexts 5042, 5336, and 5045, with the latter forming part of the midden. As a result of this, it was difficult to draw any far-reaching conclusions from the assemblage beyond the most superficial. It is, for example, notable that calcite tempered fabrics occurred extremely rarely even where the wheel-thrown pottery indicated a late date for the context when evidence from elsewhere might be thought to indicate that a high proportion should be present.

Field 63/64

Context 7486 produced a small group of sixteen sherds, five of them from a single jar. All were body sherds in similar quartz-tempered fabrics.

Field 64

Field 64 produced a small quantity of handmade pottery from six contexts (6812, 6813, 6883, 6884, 7188, and 7456) and this was of a similar type to the hard, black quartz tempered wares identified in Fields 61A and 63. In some cases the sherds were associated with groups of material of Romano-British date but only one handmade rim sherd was present; a Barrel jar from context 6812. This type appears to have a very broad date range and its occurrence in a later 3rd to 4th century AD context was not improbable even if the possibility of it being residual is set aside.

Fabric group	Estimated (maximum) number of vessels (MNV)
Fired clay	13
H1 Calcite and Chalk	1
H1 Chalk	1
H2 Fine	24
H2 Quartz	126
H2 Rock	2
H2 Rock and Quartz	4
H2 type	4
H3	4
H3 Rock and Chalk	6
H3 Vesicular	5

Table 103: Handmade pottery fabric groups from Field 63 (all areas and phases)

Vessel type	Estimated (maximum) number of vessels (MNV)
Barrel jar	1
Beaded Rim Globular jar	1
Everted Rim jar	9
Everted Rim Open jar	1
Funnel Rim jar	1
Hollow ware	144
Open jar	1
Vertical Rim jar	8
Vertical Rim jar type	2
U/ID	22

Table 104: Handmade vessel types from Field 63 (all areas and phases)

Field 73

Context 1167 in Field 73 produced a small quantity of fired clay. Although similar to later prehistoric pottery fabrics in general appearance, no realistic date range can be ascribed to it.

Field 74

Only one sherd of handmade pottery was recovered from Field 74 (context 7045). This was unusual in that, in addition to the quartz sand, it also contained quantities of biotite, a rare but not unknown component of H2 fabrics.

Field 99

Context 6052, the fill of a pit in Field 99 produced nine sherds of handmade pottery. One of these, a fragment in a soft unidentified fabric, could only be broadly dated to the later prehistoric or Roman period. Eight small abraded sherds may have been of early prehistoric date, which raises the question of the date of the entire group from this feature.

Field 103

Field 103 produced only one sherd of handmade pottery, a large body sherd in a quartz and rock tempered fabric from context 6010, a subsoil context. It was not associated with any other finds and could only be broadly dated to the later prehistoric or Roman periods.

Conclusion

The assemblages of handmade pottery recovered from the excavations on the line of the A1 are of considerable interest in that in most cases they represent the continuation into the Roman period of traditions of pottery manufacture which date back into pre-Roman Iron Age period. In general terms the fabrics conform to the patterns seen in more widely in East and North Yorkshire and the quantity of pottery contrasts sharply with the aceramic pattern typical of the later prehistoric period in West and South Yorkshire. At the level of individual vessels and sherds the assemblages show the normal range of variation in fabric and vessel form also seen on sites in eastern and north-eastern Yorkshire.

The co-occurrence of datable material of Roman and Romano-British type alongside the handmade wares was useful, indicating the late continuation of handmade pottery production and the persistence of traditional vessel forms into then later Roman period. While it would be highly desirable to be able to provide closer date ranges for specific vessel types, the assemblages considered here were to small and too much affected by the presence of residual (and, in some cases, intrusive) pottery for this to be possible with any degree of certainty.

The importance of handmade pottery manufacture in the later Roman period using calcite temper has been documented by Swan (2002, 65) but did not appear to be reflected in the representation of H1/H4 wares in contexts with late Roman pottery in, for example, Field 63. This is an issue which requires further investigation at the regional level in order to overcome factors affecting individual sites

Additional material of late Iron Age or Romano-British date from Field 61

Blaise Vyner

Treatment

In the fabric description hyphenated colours indicate the variation in colour expected from poorly controlled

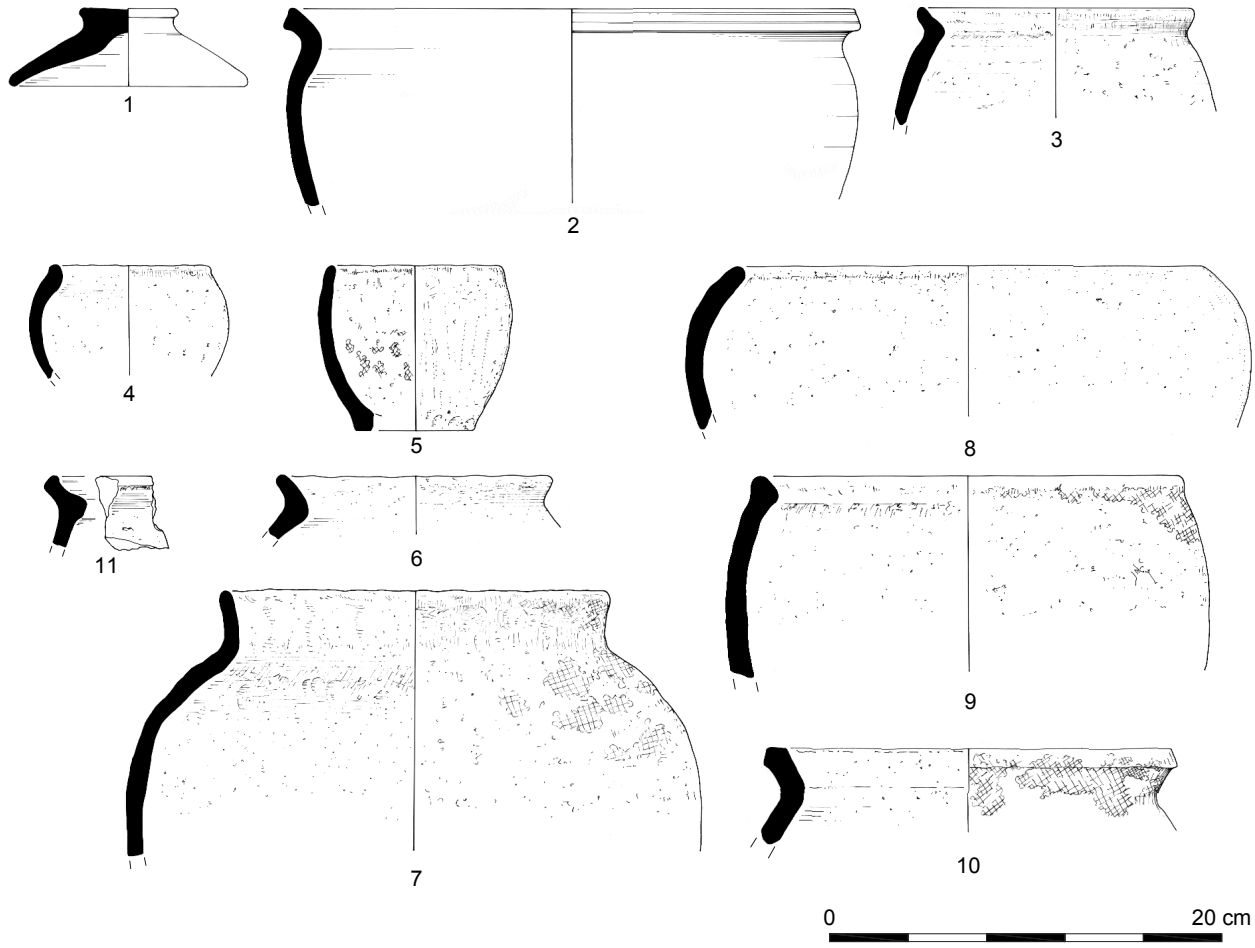


Figure 147: Late prehistoric and Roman period handmade pottery

Illustrated vessels

1. Lid/handle (Field 63, context 5028)
2. Everted Rim jar (Field 63, context 5028)
3. Wedge-rim jar (Field 61A, context 8015)
4. Beaded Rim Globular jar (Field 63, context 5084)
5. Barrel jar (Field 63, context 6683)
6. Everted Rim jar (Field 63, context 5863)
7. Vertical Rim jar (Field 63, context 7536)
8. Barrel jar (Field 61A, context 8095)
9. Wedge-rim Globular jar (Field 23, context 1440)
10. Everted Rim jar (Field 23, context 1868)
11. Lid-seated jar (Field 23, context 1868)

firing conditions, the first colour being that most in evidence. Grit sizes are expressed as small (<3mm), medium (3-6mm), large (6-9mm), and very large (≥10mm). As a general guide, grit quantities have been described in relation to the estimated average number of pieces visible per 100mm square: occasional (1 or less), few (2), many (3 to 4), and numerous (5 or more). Sherd weight has been rounded to the nearest 5g. No thin section analysis has been done and identification has been made using a 25× microscope lens. Quantification excludes fragments (indicated by +) with a total surface area of less than 100mm^2, although these fragments are included in fabric weights.

Context 2315

Sherds from a cylindrical ceramic container, exterior surface and fabric dark terracotta, interior surface dark terracotta-purple, occasional small and medium-sized ?sandstone grits, occasional medium-sized cavities from which grits have leached, laminated fabric, wall thickness typically 13mm. The exterior surface is well-formed but the interior is only roughly shaped. Salt container or briquetage. Sherd count 3, total weight 80g.

Sherd (broken), exterior surface mid-grey, interior surface light grey, fabric varying between the two colours, quartz sand-gritted fabric, wall thickness 8mm. The fabric has been fired, or re-fired, to a high temperature and may have been associated with metalworking.

Briquetage has been recognised from a number of sites in the Lower Tees Valley and occasionally from north-east Yorkshire, including the Scotch Corner Hotel site on the A1 (Willis 1995) and the nearby A66 Scotch Corner site SCA15 (Vyner 2013, 82-3). Briquetage fabric is usually notable for its open character, with cavities from which vegetation has burnt, but variant fabrics without vegetation tempering, as seen here, are known from the salt-producing site at Street House, Loftus (Sherlock and Vyner 2013, 61). Briquetage is a feature of settlement sites of latest Iron Age date, so there is no reason why it should not occur in early contexts in a military establishment either as an interim arrangement prior to the establishment of Roman supplies, or as a supplementary supply from local sources.

The second fabric type from this context is similar to crucible sherds which have also been found on some later pre-Roman Iron Age sites in the region, although these are usually in a somewhat finer fabric, as at Thorpe Thewles (Swain 1987, 100). The vessel has been fired to a high temperature and may have been associated with metalworking.

ROMANO-BRITISH POTTERY

Ruth Leary with contributions from David Williams and Kay Hartley

Introduction

There were 12,536 sherds of Romano-British (which includes coarse wares, amphora, mortaria, and samian wares) pottery (*c*.350kg). The pottery was catalogued recording fabric, form, decoration, condition, and abrasion, and was quantified in full by sherd count, weight, and estimated vessel equivalents (EVEs). This raw data can be found online via the Archaeology Data Service (ADS) (Appendix H, Tables 114 and 115). The quantities of pottery sherds recovered from the excavated fields are shown in Table 105. The Roman pottery was concentrated in two areas, Healam and Fields 23 and 25 and these are discussed in detail below. Pottery from other fields is summarised.

Field	Sherd count	Weight (g)	Rim %
1	118	2,406.9	218
101	3	8.4	14
108	3	24.8	5
112A	3	16.6	
20	2	5	
22	2	4.5	
23	83	826.8	64
25	228	2,868.93	157
28	6	50.3	
33	1	2.6	
35	4	7.8	
42	1	2.4	
47	8	21.5	
58	9	157.4	13
61	115	897.5	67
61A	1,534	34,403.2	2,602
61B	46	552.1	6
62	707	11,959.7	1,105
63	8,965	274,401.28	17,404
64	692	21,383.8	1078
73	2	12.4	
93	1	4.4	
EVAL	3	32	17
Total	**12,536**	**350,050.31**	**22,750**
Healam only	**12,057**	**343,470.58**	**22,251**

Table 105: Quantities of Romano-British pottery by field

Fabrics and forms

The pottery was examined in context groups and catalogued according to the *Guidelines of the Study Group for Romano-British Pottery for Basic Archiving* (Darling 2004). The fabrics were recorded in broad groups and source suggested where appropriate. The fabric series was cross-referenced with the York (Monaghan 1997) and Catterick fabric series (Bell and Evans 2002; Evans 2002 CD87, ch 9.7) and National Fabric Collection codes (Tomber and Dore 1998) are included where possible. Details of fabric variations were recorded where appropriate. It should be noted that two quite different and unrelated fabric series were used in the Catterick report and so only broad comparisons are made here. It was not possible to examine the Catterick fabric series and so use it as the basis of the cataloguing at Healam.

Fabric descriptions and forms in each fabric

The fabric of the pottery was first examined by eye and sorted into fabric groups on the basis of colour, hardness, feel, fracture, inclusions, and manufacturing technique. A sample of the sherds was further examined under a x30 binocular microscope to verify these divisions. The size of the sample was as large as was felt necessary for each fabric group.

Colour: narrative description only

Hardness: after Peacock 1977
soft - can be scratched by finger nail
hard - can be scratched with penknife blade
very hard - cannot be scratched

Feel: tactile qualities
smooth - no irregularities
rough - irregularities can be felt
sandy - grains can be felt across the surface
leathery - smoothed surface like polished leather
soapy - smooth feel like soap

Fracture: visual texture of fresh break, after Orton 1980
smooth - flat or slightly curved with no visible irregularities
irregular - medium, fairly widely spaced irregularities
finely irregular - small, fairly closely spaced irregularities
laminar - stepped effect
hackly - large and generally angular irregularities

Inclusions

Type: after Peacock 1977

Frequency: indicated on a 4-point scale - abundant, moderate, sparse and rare; where abundant is a break packed with an inclusion and rare is a break with only one or two of an inclusion.

Sorting: after Orton 1980

Shape: angular - convex shape, sharp corners
subangular - convex shape, rounded corners
rounded - convex shape no corners
platey - flat

Size: subvisible - only just visible at x30 and too small to measure
fine - 0.1-0.25mm
medium - 0.25-0.5
coarse - 0.5-1mm
very coarse - over 1mm

A: Amphorae

See Williams (Section 10.5) for details

GAL AM Gaulish wine amphora series as Tomber and Dore 1998, GAL AM.

Dr 20 Dressel 20 amphora. Spanish oil amphora as Tomber and Dore 1998, BAT AM.

Dr 2-4 Dressel 2-4 Italian wine amphora.

VER AM Verulamium amphora as Tomber and Dore 1998, VER WH.

B: Black-burnished ware

BB1 Tomber and Dore 1998, DOR BB1. This group includes some sherds which may belong to the late Catterick BB1 group and these are noted in the catalogue.

Bowls and dishes with flat-, grooved flat-, grooved-, and plain-rims, developed flanged bowls, a small jar/beakers (Gillam 1976, nos. 16, 19, and 26-8), everted and splayed-rim jars (Gillam 1976, nos. 2-4 and 7-11), neckless everted-rim jars (Gillam 1976, nos. 30-32), a lugged jar and a flagon (Gillam 1976, no. 15; Wallace and Webster 1989, fig. 1).

BB2 Black-burnished ware category 2. Tomber and Dore 1998, BB2.

BB1T BB1 copy, wheel-made. Dark grey with brown margins and grey core. Hard with sandy feel and hackly fracture. Abundant medium, well sorted, subrounded quartz. Possibly a South Yorkshire product but not typical in texture (Buckland *et al.* 1980).

Flat- and grooved-rim bowls, everted-rim jars (Gillam 1976, nos. 2, 3, and 4) and two small jar/beakers (Gillam 1976, nos. 19 and 20).

BB2T Similar to GRB8, possibly BB2. Triangular-rim dishes.

C: Calcareous fabrics

EYCT Calcite-gritted ware. This group covers Huntcliff and pre-Huntcliff calcite-gritted wares from East Yorkshire. As Tomber and Dore 1998, HUN CG. Subgroups are noted in the quantified catalogue - EYCT scarce with scarce calcite inclusions, EYCT gritty with gritty quartz inclusions, noted where calcite is scarce, EYCT sparse fine and sandy with fine quartz inclusions.

Pre-Huntcliff type and Huntcliff type jars, Huntcliff type jar with double lid seating, double lid-seated rim jar, blunt ended, everted-rim jar, S-profile wide-mouthed jar lugged jars, necked jars with everted rim tip, plain-rim dish developed flanged bowl and dish with slightly thickened rim.

CTA1 Buff shell-tempered ware. Soapy feel and laminated fracture. Abundant ill-sorted shell inclusions. Northamptonshire type. Lid-seated jar with rebate at upper limit of rim.

CTA2 Dales ware. Brown with brown/red margins and moderate shell inclusions. Tomber and Dore 1998, DAL SH. Dales type jars and an everted bifid rim jar.

CT Non-specific calcareous inclusions.

LOOL Black/brown ware with moderate, medium rounded white inclusions – limestone ooliths. Bodysherds only.

BS: Brown sandy wares

BSA Grey with buff margins and grey core. Hard, fine and smooth. Sparse, medium to fine quartz and rare, rounded coarse dark inclusions, moderate? subvisible quartz and mica. One large inclusion with cemented quartz includes a large mica flake - ?a granite.

BSB Dark grey brown with brown core. Smooth and soft with irregular fracture. Moderate, medium, subrounded quartz and sparse rounded white inclusions – reactive and silver mica. Bodysherds from a carinated bowl or jar, probably of the late 1st century. Maybe better grouped as early grey ware.

F: Fine wares

NV1 Nene Valley colour-coated ware, Tomber and Dore 1998, LNV CC. Fragment of rouletted beaker, probably rim shoulder of pentice-moulded beaker.

Koln White ware with brown/black colour coat. Rough cast beakers and beakers decorated en barbotine including animal figures. Tomber and Dore 1998, KOL CC.

CC1 Buff roughcast. Soft cream ware with brown colour

coat. Sparse fine quartz and red inclusions and sparse mica. Import. Roughcast ware beakers with cornice rim.

CC2 Orange roughcast. Orange with brown colour coat and often grey core. Hard and fine with sparse to moderate, fine quartz and sparse red/brown inclusions. Similar to C19 at York identified as Middle Rhineland. Perhaps belonging to the Argonne group. Roughcast ware beakers with cornice rim.

CC3 Cream, smooth, hard with irregular fracture. Moderate fine quartz and sparse fine white and brown inclusions. Mica coated with red colour coat. ?Central Gaulish Pompeian red ware CNG PR3. Indeterminate sherd.

CC4 Grey with dark grey colour coat outside and white paint. Hard, smooth with irregular fracture. Moderate, medium subangular quartz as OAB1 and sparse medium rounded white inclusions. Globular long-necked painted beaker of late 3rd to 4th century form. Presumably a local late colour-coated ware.

Red CC Dark red colour-coated ware with dark orange fabric with large white inclusions- non reactive. Perhaps a coarse NV2. One pedestal base of beaker of uncertain type.

CG BS Central Gaulish black slipped ware. Tomber and Dore 1998, CNG BS. Rouletted beaker bodysherds, a "teardrop" beaker (Monaghan 1997, form KL) and a small plain-rim cup. Mid-2nd to early 3rd century AD.

CNG CC1 Central Gaulish Colour-coated white ware. Tomber and Dore 1998, CNG CC12. Sherd with linear barbotine decoration.

CNG CC2 Central Gaulish Colour-coated cream ware. Tomber and Dore 1998, CNG CC2. Roughcast sherd.

CNG GL2 Central Gaulish cream glazed ware. Tomber and Dore 1998, CNG GL2. Single bodysherd.

COL CC Colchester Colour-coated ware. Tomber and Dore 1998, COL CC2. Single cornice-rim bag beaker with applied deer motif.

Trier Black-slip ware from Trier kilns. Rouletted beaker bodysherds. Tomber and Dore 1998, MOS BS.

M: Mortaria

See Leary and Hartley (Section 10.4) for details)

O: Oxidised wares

OAA1 Pale orange, soft, with sparse, medium, subangular quartz and rounded orange inclusions. A shallow flanged bowl, probably an Ebor product (Monaghan 1997, fig. 322; Swan 2002, fig. 11, no. 141). Probably Ebor 3.

OAA2 Orange with grey core. Hard, smooth with finely irregular fracture. Moderate fine quartz and mica and rare coarse rounded red/brown and grey inclusions. Finer end of OAB1 range. Catterick O4.

Hemi-spherical bowl and an everted-rim vessel, probably a flagon. Perhaps local.

OAA3 Orange, hard, smooth and fairly smooth fracture. Moderate fine quartz and sparse medium quartz and red/brown inclusions. Finer than OAA2 but not as fine as OAA1. Catterick O4C.

Hemi-spherical bowl, moulded-rim bowl and shallow flanged bowl as OAA1 vessel above, roughcast beakers, a neckless, everted-rim jar and everted-rim flasks or flagons. Hadrianic-Antonine range similar to Ebor types.

This finer oxidised ware group include examples which are very similar to Ebor 3 in fabric and others which have more very fine quartz. The forms demonstrate a close link with Hadrianic-early Antonine vessel range at York.

OAB1 Orange, sometimes with grey core, moderate, medium, subangular quartz and sparse subrounded and rounded soft orange/brown inclusions, possible clay pellets, and white inclusions. Includes examples very like/identical to Ebor 1. One vessel in this group had the addition of a mica slip and is classified as OAB1 MG.

Range of vessel types found in Ebor range including ring-necked, splayed ring-necked pulley-mouthed and cupped-rim flagons, a jug (Swan 2002, fig. 8, no. 84), hemi-spherical bead-rim bowls, flat-rim bowls, flanged bowls, bowl with low flange around lower body, everted-rim beakers, roughcast beakers, a cup (Swan 2002, fig. 8, no. 99), a colander, knobbed lids with plain or bead rims, wide-mouthed jars with everted rims and face or head pot fragments which may belong here or a later group. Catterick O3.

OAB2 Pinkish orange with grey to buff core. Fairly hard, slightly powdery with fairly smooth fracture. Moderate, fine, subangular quartz, sparse medium rounded iron oxides. Two forms were present a hooked-rim, narrow-mouthed jar and a wedge-rim wide-mouthed jar. These compare well with Severn Valley forms but, could, alternatively be from kilns in the north-west on the Cheshire Plain. The forms do not indicate a local source.

OAB3 Buff/biscuit colour. Hard with fairly smooth feel and irregular fracture. Moderate, medium, subangular quartz and sparse subrounded and rounded soft orange/brown inclusions with moderate silver mica. Possibly a mixed group. Roughcast ware sherds, a developed flanged bowl and a hooked-rim narrow-necked jar.

OAB4 Orange- late red ware. Bright orange with grey core with orange surface self-slip. Hard, smooth with hackly fracture. Abundant, medium, well-sorted, subangular quartz. A sherd from a Dr.38 type bowl.

OAB5 Orange, darker than OAB4. Hard with sandy feel and hackly fracture. Abundant, well-sorted, medium, subangular quartz. A range of flanged bowls and dishes including one example from a handled bowl of Continental type (Swan 2002, fig. 9, no. 118), an everted-rim and a pulley-rim flagon, an indented beaker (Swan and McBride 2002, fig. 14.2, no. 14, late 2nd to early 3rd century AD) and face or headpot fragments. It is not clear if this is a variant of OAB1 or perhaps a later group.

OAB6 Pale oxidised ware with grey core. Soft and powdery with irregular fracture. Moderate, medium/ fine, subangular quartz. Perhaps a variant of OAB1. Headpot.

OAB7 Oxidised, slightly sandy, hard with irregular fracture. Moderate, medium to coarse subangular

quartz and sparse medium/fine orange brown inclusions. This is perhaps related to fabric BSB. Cordoned and carinated bowl. Late 1st to early 2nd century AD.

OBA1 Buff/cream with orange/brown exterior surface and grey core. Smooth, hard but brittle. Moderate subvisible quartz and mica, rare medium quartz and medium white inclusions. Bead-rim bowl, probably hemi-spherical.

OBA2 As OAA3 but buff. Bodysherds only.

OBB1 Light orange/buff with grey core. Hard, quite smooth and finely irregular fracture. Moderate fine/medium quartz and sparse medium quartz. Sparse red/brown and white inclusions and voids and silver mica. Carinated bowl, bifid-rim narrow-mouthed jar, roughcast ware, bead-rim hemi-spherical bowl and pulley-rim flagon. The types suggest this is a variant of OAB1.

One buff medium-quartz-tempered jar was of a quite different type. This had a double channelled-rim with outer edge slashed and belonged to a type found in Bedfordshire and Northamptonshire (Brown and Woodfield 1983, 80, 2nd century AD pink/cream sandy wares channel- rim jars and fig. 23, no. 81; Marney 1989, fig. 35, nos. 45-6).

OAC1 Oxidised, sandy, hard with hackly fracture. Abundant medium and coarse quartz, subangular and rounded red/brown inclusions. Not as coarse as Ebor 2 but a very gritty Ebor 1. Cupped-rim jar as Derbyshire type jar.

Ebor2 The coarser Ebor fabric. Monaghan 1997, E2.

Ebor3 The very fine Ebor fabric. Monaghan 1997, E3

Ebor6 The red painted Ebor fabric. Monaghan 1997, E6

RSA1 As OAA3 with red slip. Plain everted-rim beaker and roughcast beaker sherds.

RSB1 As OAB1 with red slip. Plain-rim cup (Swan 2002, fig. 11, no.146 Wetterau bowl) and a possible flange with two rows of horizontal impressions or rouletted impressions from a tazze or bowl or perhaps a reeded-rim jar or as Swan 2002, fig. 4, no. 44 from Malton. Swan gives a parallel in Gaul, and a Flavian-early Hadrianic date range.

SV Severn Valley type ware. Orange with buff core. Hard, smooth and smooth fracture. Sparse, coarse angular quartz and rounded white/buff inclusions. Fine Severn Valley type ware but as OAB2 could be from kilns in north-west. Wedge-rim from wide-mouthed jar and bodysherds from narrow-necked jar with zone of burnished lines.

CRA OX Crambeck red ware. Corder 1937, type 5 copying samian form Dr.38.

DBY Derbyshire ware. Tomber and Dore 1998, DER CO.

FLA: White wares

FLA1 Cream with traces of darker self-slip, Soft with powdery feel and smooth fracture. Rare, fine quartz and rare, medium, rounded, white inclusions and red/brown inclusions.

This group included a fine cream rilled beaker of a type made at York (Swan 2002, fig. 8, nos. 87-8) which Swan considered to be based on a vessel made in the Wetterau range dating to the Hadrianic-Antonine period. Cream Ebor is not unknown. Other sherds in this fabric included a footring base, probably of a flagon, a plain base from a small vessel or miniature and a triangular rim from a narrow-mouthed vessel perhaps a honeypot type. Catterick W4 group.

FLA2 White smooth, hard with finely irregular fracture. Moderate, well-sorted, fine quartz and sparse fine red/brown inclusions.

This group included sherds from a two handled flagon/jug, the rim of an everting ring-necked flagon with large top ring, of Hadrianic or Hadrianic-early Antonine date and a flanged bowl decorated with painted orange blobs on the flange. This last vessel is in Monaghan's York type series (1997, 885 and type BF2, no 3944) in both Ebor and also white ware (Perrin 1990, fig. 126, no. 1417) and the white ware bowls were attributed to the Mancetter-Hartshill industry. Catterick W2.

FLA3 Yellowish cream with light orange core. Hard, sandy feel and irregular fracture. Moderate, fine to medium, subangular quartz and sparse rounded red/brown inclusions and white reactive inclusions. Very similar sherds were identified as Gallic amphora sherds and these may belong to this or a related group.

FLA4 White, hard, smooth with slightly irregular fracture. Moderate, medium subangular quartz and sparse medium rounded red/brown inclusions. Sherds from a flagon handle and an open vessel were identified. Source unknown.

FLA5 White, sometimes with pink core. Hard, smooth with finely irregular fracture. Moderate, medium subangular and angular, translucent and milky quartz and sparse medium rounded red/brown inclusions. Splayed ring-necked flagon.

FLA6 Pinkish cream ware. Soft with smooth feel and finely irregular fracture. Moderate fine silver mica and sparse medium, subrounded quartz and medium, rounded orange-brown inclusions. A very micaceous fabric. Footring base.

NV PMT Nene Valley Parchment ware. Moderate, fine quartz and sparse red/brown inclusions. Closely comparable to NV1. Flasks with brown painted horizontal bands.

CRA PA Crambeck Parchment ware Tomber and Dore 1998, CRA PA. Corder 1937, types 5b, 9 and 10 and painted beaker (Corder 1928, no. 94) were identified.

FLB: White slipped ware

FLB1 As OAA1 with white slip. Most of the white-slipped group were relatively fine. Forms included upright ring-necked flagons of late 1st to early 2nd century type (Gillam 1970, no. 2), more everted-ring necked flagons with pronounced top rings (Gillam 1970, nos. 4 and 8, late 1st-Hadrianic and mid-2nd century), splayed ring-necked (Gillam 1970, no. 9, mid-2nd century AD), cup-rim (Monaghan 1997, type FC), pulley-mouthed (Monaghan 1997, type FP), and one disc mouthed flagon (Monaghan 1997, type FD). Catterick O1.

FLB2 As OAB1 with white slip. Pulley-mouth flagon (Monaghan 1997, FP, Bell and Evans 2002, Catterick type F6, late 2nd to mid-3rd century AD. Catterick O2.

FLB3 As OAB1 with white slip outside and red/brown slip? coating inside. Bodysherds and footring base only.

R: Reduced coarse wares

GRA1 Medium to light grey. Soft, powdery with smooth fracture. Rare fine or medium quartz and fine white inclusions. Catterick R12C. Flat-rim bowls, bead-rim hemi-spherical bowl with bosses (Monaghan 1997, types BD and BH1), small everted rim plain beaker, everted rim beaker (cf. Howe *et al*. 1980, no. 41, first quarter of the 3rd century AD), indented beaker sherds, rusticated jars, everted rim, narrow-mouthed jar, plain-rim dish or platter, everted-rim wide-mouthed jar and plain rim lids. The forms predominantly dated through the 2nd century with a small number of early 3rd century forms.

GRA2 Black or dark grey, very hard, smooth ware with subvisible fine quartz.

This group includes a very thin everted rim beaker which is close to eggshell TN in fineness. Other types were roughcast beakers, a bead-rim beaker with two rows of comb tip impressed decoration on the top of the rim and on the shoulder cordon and barbotine dots outside the upper body, perhaps a girth beaker type. This group also included an everted-rim narrow-mouthed jar with wavy line burnish on the neck. Apart from this last vessel the forms indicate an early date range late 1st to early 2nd century. The roughcast beaker is very globular in form indicating an early date.

GRA3 Grey, hard, smooth with finely irregular fracture. Abundant, very fine quartz. This group is late – including late 3rd to 4th century developed flanged bowls, narrow- and wide-mouthed jars with the curvilinear burnishing common on such vessels in the 3rd and 4th century. This may be one of the Holme-on-Spalding products. Catterick R6.

GRA4 Dark brown black, hard and smooth. Smooth fracture. Sparse fine quartz and abundant mica on surface. Like GRB11 but finer. Catterick R3B? Hemi-spherical bowls with quite short zones between rim and upper body grooves, carinated bodysherd from open vessel with combed decoration similar to London ware types, carinated bowl.

GRA5 Medium grey with brown core. Hard, smooth feel and fracture. Abundant fine quart and sparse coarse rounded, ferrous inclusions. Slightly micaceous surface. Like GRA3 but not so hard fired. An everted-rim narrow-necked jar. Parisian ware Catterick R2?

GRB1 Medium-light grey, usually with buff or brown margins, irregular fracture and slightly sandy feel, sparse to moderate, medium, subangular quartz with fine subvisible quartz. Finer than GRB3 and less quartz than GRB6. A wide range of forms present - bowls with flat, triangular and bead rims, hemi-spherical bead-rim bowls, reeded-rim bowls, moulded rim bowls, ring-and-dot beaker, everted and bead rim beakers, indented beakers, a handled small jar/beaker grooved-rim dish, an everted-rim flagon, two handle flagon (Swan 2002, fig. 7, no. 69), neckless everted-rim jars with rustication or shoulder grooves, simple everted–rim jars, everted-rim jars with acute lattice burnish, Dales type jars, bead-rim jars, lids, narrow-mouthed jars with bead and everted rims, a lugged jar and a possible African-type bowl (Monaghan 1997, type BA3). Apart from the African bowl, the Dales type jars and the indented beakers, the types date to the late 1st to early 2nd century or the Hadrianic-early Antonine period. Catterick R1.

GRB2 Light brownish grey. Hard, slightly sandy feel, irregular fracture. Moderate to abundant medium subangular quartz, mica and sparse, coarse rounded red/brown inclusions. Finer than GRB3 and probably same fabric as GRB6 but generally softer fired. Everted rim sherd and a rusticated sherd give an early date, mid-1st to early 2nd century.

GRB3 Grey, harsh with hackly fracture. Abundant, medium, subangular quartz. Like Malton and York area grey wares. Flat- and bead-rim bowls, colander, plain-rim dishes (Gillam 1976, no. 97), jar sherd with acute and obtuse lattice, and combed wavy line decoration, Dales type jar, everted-rim jar with slight rebate, neckless everted rim jar copying BB1 types (Gillam 1976, no. 30), narrow-necked jars, wide-mouthed jar/bowls with everted, rolled out and bead rims and sub-Dales type jar with everted rim, beaded at tip to form internal rebate. The forms suggested a later date range from the Antonine period to the late 3rd century and included a developed flanged bowl and a sub Dales type jar.

GRB4 Dark grey with buff margins and dark grey core. Hard and lumpy. Moderate fine quartz and sparse medium quartz and coarse granitic? Inclusions. Only a simple base and a rilled bodysherd were present from Healam but a rebated jar rim from Field 23 would fit more easily in the 3rd and 4th century rather than the 1st or 2nd century although the precise form and fabric were not readily paralleled. Rilled jars from South Yorkshire and also the East Midlands are of mid-2nd to mid-3rd century AD date (Buckland and Dolby 1980, type Ec.). This may better belong in the GRC group.

GRB5 Grey with buff margins and grey core. Hard, sandy with irregular fracture. Moderate-abundant subangular quartz and sparse coarse sandstone? A variant of GRB6? Flat-rim bowls, ring-and-dot beaker, and Smith pot (Braithwaite 2007, type 21). Possibly a mixed group.

GRB6 Medium grey, sometimes buff/grey ware, sandy with moderate medium subrounded and subangular quartz. Hard. Similar to GRB3 but finer- smaller and fewer quartz. Similar to Ebor grey ware. A wide range of forms present - bowls with flat, triangular and bead rims, hemi-spherical bead-rim bowls, reeded-rim bowls, incomplete rim and body of flanged bowl with traces of burnished line decoration on flange and inside body (compare at Dragonby in the early 2nd century, Swan 1996, fig. 20.34, no. 1458), moulded rim bowls, everted and bead rim beakers, cheese-press, plain and grooved-rim dishes, neckless everted-rim jars with rustication or acute lattice burnish, simple everted–rim jars, everted-rim jars with acute lattice burnish, later more curved everted-rim jars, Dales type

jars, bead-rim jars (Monaghan 1997, type JP), cupped-rim jar, pinched out lug jar, lids, narrow-mouthed jars with bead and everted rims, a lugged jar, two handled jug (Swan 2002, fig. 7, no. 69 and a face pot). Apart from the Dales type jars, the types dated to the late 1st to early 2nd century or the Hadrianic-early Antonine period. Catterick R1D.

GRB7 As GRB1 but with sparse medium rounded and subangular white soft inclusions. Flat-rim bowls, grooved-rim dish and jars with acute lattice burnish.

GRB8 Dark grey/black with brown core. Hackly, harsh feel with abundant medium-coarse, subangular quartz and sparse medium/coarse brown inclusions. Most like BB1 and possibly a variant fabric. Developed flanged bowls, grooved-rim dishes, everted rim jars with acute lattice burnish, a splayed-rim jar, rusticated jar sherds, and everted rim narrow-necked jars suggested a date range from the early 2nd to 3rd century AD.

GRB9 Medium grey, very hard with harsh feel. Hackly fracture. As GRB3 but with sparse coarse rounded white inclusions- chalk or limestone? Narrow-necked jar with heavy bead rim internally rebated.

GRB10 Dark grey, hard, sandy with irregular fracture. Similar to some South Yorkshire grey wares. Moderate-sparse, medium, subangular/subrounded quartz and sparse medium rounded brown inclusions. Rare soft white inclusions – long and thin or subangular. Probably the 3rd century dark faced grey ware group. Bodysherds from jars and wide-mouthed jars.

GRB11 Dark grey-brown/black with grey or light grey/buff core. Smooth and hard with finely irregular fracture. Moderate fine to medium subangular quartz as GRB1 and coarse rounded brown inclusions. Everted-rim BB2 type jars with acute lattice burnish, bead-rim hemi-spherical bowls, bead-rim bowl, developed flanged bowl, grooved-rim dishes, lugged jars, rolled over rim, wide-mouthed jars.

GRB12 Dark grey with lighter grey or buff core. Hard and smooth with finely irregular fracture. Moderate, medium, subangular quartz and sparse medium rounded orange brown inclusions. Similar to GRB1 but black surfaces and brown/buff core. Quite distinctive. Ring-and-dot beaker, trefoil mouthed flagon, neckless everted-rim jar with acute lattice burnish. Forms point to Trajanic-Hadrianic date range.

GRB13 Grey-brownish grey. Hard with smooth feel and finely hackly fracture. Abundant fine quartz, well sorted. Wheel thrown most like BB1 but finer. Jars with acute lattice burnish, flat-rim bowl with acute lattice burnish, lid and small everted rim jar or beaker.

GRB14 Dark grey with brown margin and dark grey core. Hard, brittle and smooth. Sparse, medium, subangular quartz. Small everted rim jar or beaker and rouletted bodysherds.

GRB15 Light grey with lighter core, powdery, hard with finely irregular fracture. Abundant fine quartz. Micaceous surfaces. Plain lids and bodysherds with acute lattice burnish and oblique comb tip stamped decoration.

GRB16 Grey, hard with sandy or rough feel and hackly fracture. Abundant, medium to coarse, subrounded and rounded quartz and sparse rounded coarse black/brown inclusions. Most like South Yorkshire grey wares. BB1 type everted rim jars with acute lattice burnish, neckless everted rim jar, flat-rim dish and narrow-necked jar with heavy bead rim internally rebated.

GRB17 Dark grey surfaces with buff margins and dark grey core. Hard and sandy feel, irregular fracture. Moderate, medium, subangular, and subrounded quartz and granites and brown ferric inclusions. Sparse medium silver mica. Small everted rim jar or beaker and reeded-rim bowl.

GRB18 Grey with dark grey surfaces. Hard with irregular fracture Moderate, medium/fine subangular quartz and sparse coarse subangular quartz and ?granitic inclusion, moderate fine silver mica. Possibly handmade. Burnished bodysherds.

GRB19 Grey, hard quite smooth and finely hackly. Abundant fine/medium quartz 0.1- 0.3mm and some coarser quartz 0.3-0.4mm. Bodysherds only.

GRB20 Grey with buff/brown margins. Abundant, medium subangular quartz and very micaceous surfaces. Unusual jar with prominent cordon on shoulder and upright rim.

GRB21 Grey/brown with grey core. Finely sandy feel, hard with hackly fracture. Abundant medium, subangular and subrounded quartz – similar size to GRB8 and BB1 but more common than GRB8.

GRB22 Black, hard, slightly gritty. Hackly fracture. Moderate, ill-sorted medium subangular quartz and sparse white inclusions- platey and irregular. Similar to Lincolnshire 1st-2nd century AD coarse ware, carinated cordoned bowl and lid.

GRB23 Grey with orange core and interior. Hard, sandy irregular fracture with abundant medium quartz. Narrow-necked jar with double wavy line burnish on outside body.

CRA RE Crambeck grey ware. Corder 1937, types 1, 1B, 2, 2b, 3, 3a, 4, 10a, 11, 12, 13, 14, and a narrow-necked jar (Corder 1928, no. 185).

GRC1 Grey with greyish white core. Harsh feel, hard with irregular fracture. Moderate ill-sorted medium-coarse subangular quartz. Like CRA RE but inclusions too coarse and relatively rare compared with CRA RE. Everted rim from narrow-mouthed jar and bodysherds with acute lattice burnish.

GRC2 Gritty grey ware. Brownish grey with buff margins. Hard and gritty with sparse, coarse angular and subangular inclusions – quartz and other dark grey inclusions. moderate mica. Two forms – a Dales type jar and a single lid-seated jar. One bodysherd with burnished linear decoration.

GRC3 Brown-grey. Hard, gritty with moderate, ill-sorted, subangular, coarse quartz, possibly some erratics. Flanged bowl, jar with tall everted, squared rim belonging to sub-Dales group or possibly Knapton type jar group.

GRC4 Brown with thin grey surfaces. Hard and gritty with moderate, ill-sorted. Coarse, subangular quartz and grey laminated inclusions. Sub-Dales type jar.

NB GRC1 may well be a subgroup of Crambeck ware but the other three fabrics are linked by their general grittiness and the forms made – sub-Dales types and lid-seated variants- link them together and to Croom *et al.*'s (2008) gritty grey ware group of the late 3rd to 4th century. Recent analysis of this group demonstrated its heterogeneous nature.

GTA: Grog-tempered wares

GTA1 Greyish buff with dark grey core. Slightly bumpy feel, hard with finely irregular fracture. Sparse, medium quartz and very fine quartz, sparse medium angular buff grog. Deep wide-mouthed bowls/jars with club rims and externally grooved club/bead rims of a type made in the Trent Valley in the later 1st and 2nd century.

GTA2 Handmade grey ware, porridgy and uneven feel. Very irregular fracture. Moderate/abundant coarse angular and subangular grey, buff and cream inclusions - ?grog - rare burnt organics. One bodysherd with acute lattice burnish. Almost certainly a local ware, native.

GTA Cream. A soft, powdery cream fabric with rare very coarse, rounded white inclusions with some reddish ones. The white inclusions are not reactive and may be clay pellets of some sort. One bodysherd.

PNG GT Pink grog ware, a late Northamptonshire product. Tomber and Dore 1998, PNK GT.

Summary of romano-british pottery by field

Field 1

Sherds from a Hadrianic-Antonine black burnished ware 1 (BB1) grooved-rim dish came from fill 3254 of ditch 3255 and primary fill 3249 of pit 3250 contained sherds from two Crambeck ware type 2a dishes (Corder 1937), an EYCT jar base and sherds from two proto-Huntcliff jars, MCRA M2 reeded mortarium of the late 3rd to 4th century AD, and a gritty grey ware Dales type jar all pointed to a date in the late 3rd to early or mid-4th century AD. Crambeck ware from deposit 3247 gave a similar date range to this last group. Scorching and sooting in the BB1 dish and proto-Huntcliff jars suggested domestic use and nothing here indicated high status.

Field 20

Two small undiagnostic grey ware scraps from fill 1010 of ditch recut 1009, gave a Roman date but were not closely datable.

Field 22

Three sherds including a possible medieval sherd and two very abraded fragments, one oxidised, the other reduced, which lacked any datable features came from fill 868 of pit 866.

Fields 23 and 25

A total of 83 sherds (826g) of Romano-British pottery were found in contexts in Field 23, and 228 sherds (2,869g) in Field 25. The assemblage from Field 23 included both early Roman material dating to the late 1st to early 2nd century AD and small quantities of late Roman pottery of the late 3rd to 4th century AD. The pottery from Field 25 contrasted with that from Field 23 in being considerably later including types not made before AD 360 and AD 370. Only one sherd was of 2nd century AD date and although the date range of some of the other types began as early as the late 3rd century AD, there was no reason to suppose that most or indeed all of the pottery did not belong to second half of the 4th century AD. The assemblages were both abraded in condition.

Chronology

The Romano-British assemblage divided into two main phases, a very small early group of mid-/late 1st to early 2nd century AD which was probably contemporary with the earliest activity at Healam Bridge, and a larger late group associated with a rural settlement or perhaps a small roadside settlement using some Roman table wares and able to acquire small quantities of traded wares. The lack of 3rd century AD types and the dominance of East Yorkshire coarse wares in this late group indicated a 4th century AD date range. Only one pre-Huntcliff type jar was identified, the remainder being Huntcliff type jars, and several signal station types were present. Crambeck Parchment ware was present and all these factors suggested a date range in the late 4th to early 5th century AD, after *c*.AD 360/70.

Although a small group, if the relative proportions of calcite-gritted, Crambeck and grey wares is compared using weight with the late 4th to early 5th century AD group at Piercebridge (Croom *et al*. 2008) a close match can be seen, Table 106.

The pottery was concentrated in the earth-dug features, particularly the pits, with the ditches not far behind, see Table 107. Quantities were rather too small to be used to indicate functional differences within different areas or phases of the site.

The small site assemblage was in keeping with a rural

Ware	F23&25	Piercebridge
Crambeck grey	24.5g	23.1g
Crambeck parchment	3g	3.22g
Calcite gritted	41.5g	42.87g

Table 106: Comparison of relative quantities of Crambeck, calcite-gritted and greywares from Fields 23 and 25 with a late 4th to early 5th century group at Piercebridge, using sherd weight values (grams)

Type	Sherd count	Weight (g)
Cobbled surface	1	107.7
Ditches	185	946.5
Enclosure ditches	12	-
Furrow	5	-
Gully	7	47.4
Layer	23	103.9
Pits	189	2170.33
Subsoil	2	21.4
Topsoil	6	162.1

Table 107: Quantities of pottery from different feature types from Fields 23 and 25

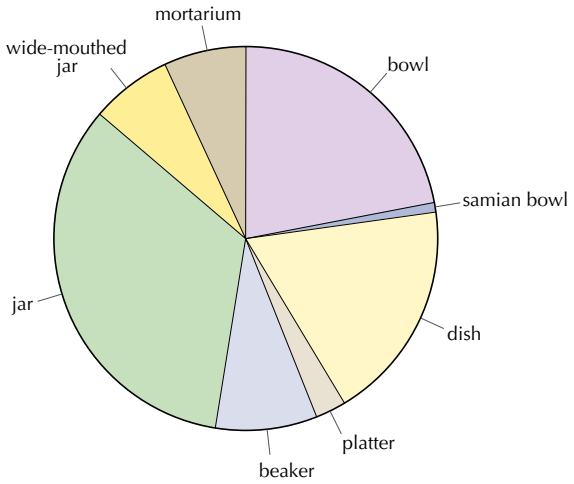


Figure 148: Fields 23 and 25 relative quantities of vessel types (EVEs)

Fabric type	Rel % count	Rel % weight (g)	Rel % EVES
A GAL AM	4.8	3.2	
BB1T	0.3	0.3	
BB1	0.6	0.8	
BSA	3.8	1.6	8.6
CRA PA	2.2	3.0	6.9
CRA RE	10.5	24.5	25.4
CRA WH	0.3	1.1	2.2
CT/H2	3.2		
CTA2	0.6	0.3	
EYCT	52.7	41.5	35.8
GRB1	7.9	6.0	
GRB2	1.0	0.7	
GRB3	1.0	1.2	
GRB4	0.3	2.4	8.6
GRB5	3.8	3.9	6.9
GRB6	0.3	0.2	
GRC	0.3	2.8	
M	1.6	4.6	4.7
NV	0.3	0.1	
OAA1	0.3	0.1	
OAA2	1.6	0.5	
OAB	0.6	0.3	
OAB1	0.3	0.1	
SAMCG	0.6	0.2	0.9
SAMEG	0.6	0.5	
SAMLG	0.3	0.2	
Totals	**315**	**3,835**	**2.32**

Table 108: Fields 23 and 25 relative quantities of wares; sherd count, weight (g), and estimated vessel equivalents (EVEs) for Romano-British pottery

site, although the presence of amphorae and samian, as well as a fine ware colour-coated beaker, demonstrates limited wide-flung trading links and a taste for vessels associated with Roman style dining. Coarse wares, particularly calcite-gritted ware and Crambeck wares, dominated the assemblage with very small amounts of grey ware possibly from small scale industries nearer the site. The impression of an inclination for more 'civilised' dining habits was confirmed by the proportions of table wares such as dishes, platters and bowls to jars which at around 44% (Fig. 148): 41% is high compared with figures for rural sites collected by Evans for 4th century AD sites (1993, fig. 13) and was higher than the figures Evans gives for a late 4th century AD group previously excavated at Healam Bridge (33% bowls and dishes, 49% jars; 1993, appendix 1). The small amount of early Roman pottery from the site was difficult to evaluate but was likely to have come from casual disposal on the margins of the site.

As noted above the majority of the assemblage came from the East Yorkshire kilns making Crambeck and calcite-gritted wares. Very small numbers of vessels came from further away such as a beaker from the Nene Valley, a mortarium from Mancetter-Hartshill, samian and wine amphora from Gaul, Dales ware from Humberside or North Lincolnshire, one jar perhaps from the Doncaster area, and grey wares from East Yorkshire.

Condition

One sherd had a post-firing perforation, probably a repair hole. This was a Crambeck grey ware vessel of unknown type. Two vessels, an MH mortarium and a Crambeck grey ware bowl showed marked signs of wear inside the body and four groups of EYCT sherds from jars had burnt accretions outside the body, presumably from cooking spills. Slight signs of scorching were also noted on two Crambeck grey ware vessels, one an open vessel with a foot-ring base. The wear and evidence of repair is consistent with the late date suggested for the majority of the pottery.

Discussion of stratified groups

EARLY ROMAN

The earliest features lay at the southern end of the site and generally contained pottery which dated from the mid-1st to 2nd centuries AD. The earliest phase of the north-eastern trackway ditch (1801) contained handmade pottery of pre-Roman or very early Roman date from fill 1856, and fill 1816 contained mid- to late 1st century AD BSA fabric cordoned beaker that was associated with intrusive East Yorkshire calcite-gritted ware dating to the late 3rd to 4th century AD. Enclosure 1917 also had handmade sherds in fill 1101 of ditch 1096 and a sherd from a samian bowl (form Dr.29) was recovered from the fill (1121) of ditch 1120 which dated to c.AD 40-85. The ditches which formed the later phase of the trackway contained undiagnostic bodysherds of Roman type from fill 1582 of the south-western ditch (1581), and likely 2nd century AD or later sherds from a narrow necked GRB vessel were recovered from the north-eastern ditch (1852).

The enclosure ditch (1676) also contained handmade sherds of pre- or early Roman date in some of its lowest fills but undiagnostic bodysherds of Roman type were also present, therefore these may have been redeposited from ditch 1801 or 1852 through which 1676 was cut.

Two of the middle fills contained pottery that dated to the first half of the 2nd century AD and included an unclassified sherd from fill 1554 and sherds of Hadrianic/ Antonine black-burnished 1, and a sherd from a samian dish dated to AD 120-200 from fill 1560. Fill 1829 of the enclosure ditch contained a Crambeck ware sherd dating to the late 3rd to 4th century AD which was considered intrusive.

A vessel with rouletted zones defined by raised cordoned was recovered from pit 1408 which compared with butt beaker derived forms dating to the pre- or early Flavian period and undiagnostic Roman bodysherds came from pit 1448.

Enclosure 1441 contained a reeded OAB handle from a flagon from fill 1093 which may date to the 2nd century AD (1094), and the possible enclosure 1918 to the north contained handmade sherds within fills 1061 and 1665.

LATE ROMAN

The features interpreted as being late Roman were recorded across all parts of the site, some of which contained pottery sherds which ranged in date from the late 3rd to the 4th century AD.

To the south and within Field 23, ditch 1791 contained a sherd of Roman amphora, which cannot be more precisely dated than the mid-1st to 3rd centuries AD, and handmade sherds were recovered from fill 1430 that were associated with CRE RE bodysherds dated to the late 3rd to 4th century AD. Ditches 1439, 1411, and 1916 contained a range of residual types that included handmade sherds, Roman coarse wares and a grey rusticated sherd of the mid-1st to early 2nd century AD from fill 1490 of ditch 1439. A large GRB4 sherd from a rebated rim jar recovered from the fill of ditch 1491 compared with a group of late lid-seated jar forms in the north spanning the 3rd and 4th centuries AD.

A GRC base sherd from cobbled surface 1705 was not dated but its similarity to Crambeck ware in colour may point to a late Roman date. Sherds from a wide-mouthed jar with simple everted rim and stabbed or possibly rouletted decoration outside the upper body from linear feature 1778 are likely to belong to the 3rd century AD on typological grounds. The pottery from pit 1755 comprised shell tempered sherds closely comparable to Dales ware and may be contemporary with this 4th century AD activity, although an earlier date in the 3rd century AD is possible.

Within Field 25 the southernmost L-shaped ditch (1067) contained a Crambeck grey ware basal sherd dating to the late 3rd to 4th century AD within its upper fill (1618), and ditch 1128 contained undiagnostic Roman bodysherds from fill 1130. Ditch 1921 contained a grey ware sherd from a necked jar that was likely to be 2nd century AD or later, and a BB1T bodysherd from a jar with acute lattice burnish from the upper fill 1565 which gave a date in the Hadrianic-Antonine period. The lower fill (1145) of this ditch also contained a sherd of CRA WH Type 6 mortarium dated to the 4th century AD suggesting the earlier types were residual. Ditch 1922 contained undiagnostic Roman coarse wares along with Crambeck and East Yorkshire calcite-gritted wares from fills 1616, 1685, 1741, and 1768, which dated to the late 3rd to 4th centuries and in some cases (as with 1768) this could be refined to AD 360/370.

Crambeck wares and East Yorkshire calcite-gritted wares were also recovered from a group of pits and postholes located within the northern part of Field 25. These sherds were recorded in many of the fills of pits 886, 1031, and 1673, and within both the post-packing material and post-pipe fill within posthole 1646. Of these, only the sherds from pit 1673 did not give a date after *c*.AD 360/370.

Catalogue of illustrated sherds *(Fig. 149)*

1. OBA1 bodysherd from straight-walled vessel with zones of rouletting defined by raised rounded cordon similar to a butt beaker derived vessel. ?Mid-1st century AD. The sherds were in very poor condition making identification less secure. 11g. 1406 fill of pit 1408, early Roman.

2. GRB2 rusticated bodysherd, mid-1st to early 2nd century AD. 12g. 1490 fill of ditch 1439, late Roman.

3. BB1T bodysherd from jar with acute lattice burnish as 2nd century AD BB1 jars. Wheel-made. 13g. 1565 upper fill ditch 1921, late Roman.

4. BSA rim, base, and bodysherds from closed vessel with sloping neck and short everted rim, grooved at shoulder. The fabric and form point to an early date, perhaps late 1st to early 2nd century AD. 63g. 1816 fill of ditch 1817, early Roman.

5. GRB5 wide-mouthed jar with everted rim and stabbing on upper body. The form compares with wide-mouthed vessels of the 3rd century AD such as those made at Norton (Hayes and Whitley 1950, type 6), although the fabric is unlike that kiln group and the decoration is unusual. 140g. 1779 fill of ditch 1778, late Roman.

6. GRB4 jar with lid-seated rim and slightly rippled upper body. An unusual form in detail but this vessel was most likely to belong to the lid seated jar series found in the north in the 3rd and 4th centuries AD. 94g. 1558 fill of ditch 1491, late Roman.

7. NV1 small sherd from beaker with faint rouletting. Probably from the shoulder of a pentice-moulded beaker of 4th century AD type (Perrin 1999, 97). 2.1g. 1072 fill of pit 1031, late Roman.

8. EYCT plain rim dish. Monaghan 1997, no. 4027, 4th to early 5th century AD. Signal Station type 31 (Hull 1932). 76g. 1685 fill of ditch 1922, late Roman.

9. EYCT flanged bowl with small bead rim. Monaghan 1997, no. 4042-3, 4th to early 5th century AD. Signal Station type 28 (Hull 1932). 35g. 885 fill of pit 886, late Roman.

10. EYCT pre-Huntcliff jar rim with everted, curving rim like Huntcliff jar but lacking groove. Bell and Evans 2002, type J6.3 dated *c*.AD 340-70. 29g. 1642 upper fill pit 1646, late Roman.

11. EYCT Huntcliff jar, mid-4th to early 5th century AD. 37g. 1065 fill of pit 1031, late Roman.

12. CRA RE flanged bowl, Corder 1937, type 1, late 3rd to 4th century AD. 240g. 1653 secondary fill of pit 1673, late Roman.

13. CRA RE grooved-rim dish, Corder 1937 type 2, late 3rd to 4th century AD. 260g. 1578 primary fill of pit 1031, late Roman.

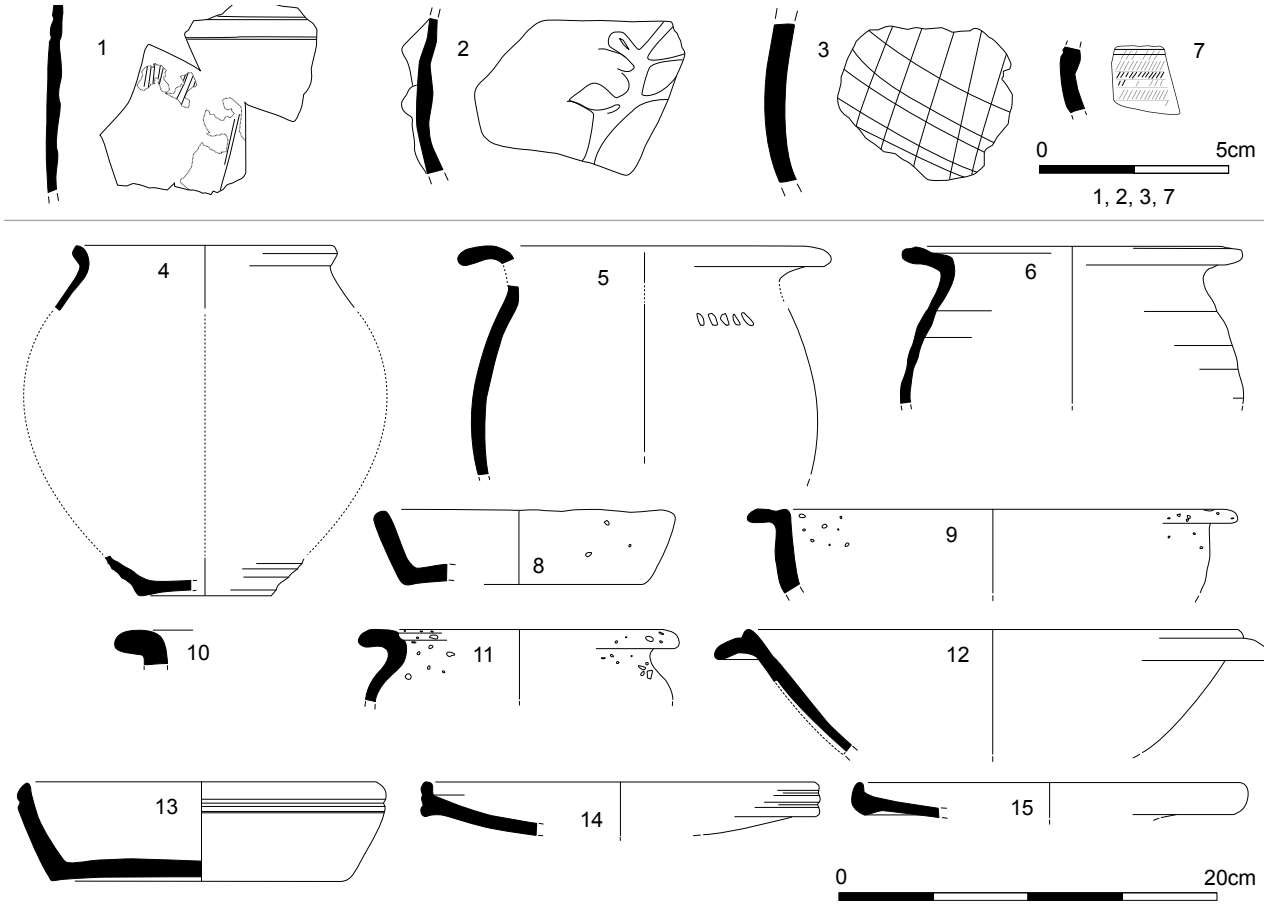


Figure 149: Roman pottery (not Healam)

14. CRA PA Corder 1937, type 9. AD 370+, Bidwell 2005. 45g. 1072 fill of pit 1031, late Roman.

15. CRA PA Corder 1937, type 10. AD 370+, Bidwell 2005. 19g. 1072 fill of pit 1031, late Roman.

FIELD 28

A small group of six sherds from secondary fill 1800 of ditch 1798 included a NV1 sherd likely to be late 2nd to 3rd century AD in date.

FIELD 33

Fill 3184 of ditch 3183 contained an undiagnostic oxidised sherd only broadly datable to the Roman period.

FIELD 34

Two very abraded sherds from a Hadrianic-Antonine black-burnished ware 1 jar came from fill 1176 of ditch 1180.

FIELD 42

One NV sherd with painted decoration came from fill 4043 of ditch recut 4047 and dated to the 3rd century AD.

FIELD 58

Fill 926 of ditch 925 included a sherd from a black sand amphora which was likely to be of 1st century AD date but in the absence of diagnostic sherds could be from a 3rd century AD vessel. A Dressel 20 amphora sherd came from upper fill 928 of ditch 927. A mortarium or flanged bowl sherd from fill 938 of ditch 937 was given a preliminary date in the late 1st to early 2nd century AD and a fragment of mortarium from primary fill 939 of ditch 937 was from Mancetter-Hartshill and dated after *c*.AD 140. Mancetter-Hartshill mortarium sherds from fill 926 of ditch 925 were later than the mid-2nd century AD.

Healam bridge

Some 12,057 sherds of Romano-British pottery, weighing *c*.343kg and 222 estimated vessel equivalents (EVEs), came from Healam Fields 61, 61A, 62, 63, and 64. The Roman pottery can be divided predominantly into two large chronological groups; the Hadrianic-Antonine period and the late 3rd to 4th century AD, with a smaller group spanning the late 2nd to 3rd century. There were also peaks in the Hadrianic-early Antonine period and in the late 4th to early 5th century AD. In addition to these groups smaller amounts of Flavian-Trajanic pottery were identified and a small number of features could be dated to this period. The Hadrianic-early Antonine group compared with assemblages from sites related to the military or official life of the province such as military *vici* or small towns, while the later groups had types typical of other late rural groups in Yorkshire.

Chronology

The phasing was based on the stratigraphy but the correlation across the different areas of excavation relied on the artefactual and C14 dating. In some instances the correlation was imprecise due to the pottery chronology not coinciding exactly with the stratigraphic changes, as might be expected. In addition, some accumulations were assigned to the phase in which they first appeared but clearly continued to accumulate beyond that phase. The riverine deposits north of Healam Beck are a good

example of this. Moreover, the number of cross-joins identified, particularly in the deeply stratified area of Field 63, indicated a great deal of redeposition of earlier pottery was still occurring as late as Phase 3 and this affected the proportions of both vessel types and pottery fabrics in later phases, altering the profile one might expect in late Roman deposits. These factors are discussed in full where relevant.

In the deeply stratified area of Field 63 clear phasing was deduced from the stratification, but in the other fields changes were more sporadic and localised in character and detailed sub-phasing was not possible. The chronology in these areas is discussed by group or feature.

The pottery chronology is discussed in phase and sub-phase order with each area discussed separately within that overall structure.

Phase 1

In Phase 1 some Flavian-Trajanic types were present such as a reeded-rim bowl, rusticated jars, ring and dot beakers and neckless jars with short everted rims (Monaghan 1997, types BC1, JA, KP, and JR). Groups with Flavian-Trajanic pottery alone included the rusticated sherds from fill 7345 of pit 7344, a carinated bowl from fill 2590 of early ditch 2468/2462 in Field 62, Phase 1, and a group comprising a late 1st-early 2nd century reeded-rim bowl, a ring and dot beaker, rusticated ware, a carinated cordoned bowl, two ring necked flagons, mica gilt flanged bowl, sherds from two mortaria, a MCTR WS3 vessel, probably from Catterick, are likely to date to the 2nd century, and a MNOG WH4 mortarium dating to AD 65-110. Three samian vessels dated to AD 70-100 were recovered from ditch 9035 and recut 9049 in Trench 26 near the road. Otherwise these early types occurred with diagnostically later forms and fabrics of the early 2nd century or the Hadrianic-early Antonine period. Pit 7344 was stratigraphically later than 7619 which contained a sherd from an East Gaulish samian dish Dr.31R dated AD 150-250. The rest of the pottery types from Phase 1 features suggested infilling and perhaps use of the building structures in this phase belonged to the early 2nd century onwards.

Medium-mouthed jars in Phase 1 were predominantly jars with fairly upright everted rims or short everted rims and acute lattice burnish dating to the early to mid-2nd century in BB1 (Gillam 1976, nos. 2 and 3) and grey wares (Monaghan 1997, JC1 and JC2). These types accounted for over 60% of the medium-mouthed jar group with a further 20% made up of the rusticated jars and the neckless jars with short everted rims common in the Flavian-Trajanic period (Monaghan 1997, JR and JE2). Small numbers of other types such as a GRC jar with upright rim rebated internally at the tip, similar to a form made at Roxby in the Antonine period (Stead and Rigby 1986, type A), and 2nd century channel-rim jars in oxidised wares in Northamptonshire (Brown and Woodfield 1983, 80, fabrics 26, 33, 34, 36, 38, and 41, fig. 19, no. 4, and fig. 23, nos. 80-86) were also present. One very unusual vessel with a short turned out rim and pronounced shoulder cordon was in a micaceous grey ware GRB21; sherds were present in Phase 1a context 7605, fill of posthole 7511. Late types such as the lid-seated group, the Huntcliff group, and the Dales ware jars came from unsealed deposits or were intrusive and belong in Phases 2 or 3.

Within Phase 1 the Flavian-Trajanic neckless jar with short everted rim was more common in Field 61 Phase 1 and 1a and Field 63 Phase 1 (not sub-phased), and the rusticated jars were most common in Field 63 Phase 1. In the deeply stratified area in Field 63, the earliest BB1 type jars with upright or everted rims of the early to mid-2nd century were most common in Phases 1a and 1b, being replaced with more grey ware, everted-rim jars in Phases 1c and 1d. A rise in the Flavian-Trajanic neckless everted-rim jars in Phase 1c may indicate the disturbance of earlier material.

Two BB1 jars had wavy line burnish on the neck, a feature in decline by the mid-2nd century. One unusual vessel in a BB1 type ware from 5084 had a short everted rim with a groove inside the rim similar to some sort of slight lid seating. This may belong to a class made in BB1 although it had an everted rather than a bead rim (Holbrook and Bidwell 1991, in south-western BB1, fig. 36, type 10, dated 1st century AD to early Antonine or fig. 36, type 10 in south-east Dorset BB1). The distinct line inside the rim where the black slip stops suggests this is a SOW BB1 vessel. As already mentioned, a small number of rusticated jars and neckless jars with everted rims and shoulder grooves typical of the Flavian-Trajanic period were present but these would not be out of place in the Hadrianic period.

Narrow-necked jars with simple everted rims were present, predominantly in the riverine deposits and associated layers in Phase 1a – perhaps broken during usage. The form of one from riverine fill 5234 was similar to a two-handled jug form from York dated to the Trajanic-early Antonine period (Swan 2002, fig. 7, no. 69) and the two handled form was present in deposit 5232. Grey ware bodysherds with zones of oblique comb stamped lines were also present in this phase and probably came from narrow-mouthed jars. Other bodysherds with acute lattice burnish belonged in this group.

Grey ware and oxidised ware wide-mouthed jars were uncommon in Phase 1 and were made up of vessels with everted or hooked rims. One GTA vessel from layer 5237 Phase 1d had a grooved bead rim and compared well with deep bowl types from Lincolnshire (1st century types in shell-tempered ware, Rigby and Stead 1976, fig. 74, nos. 8-12, and early to mid-2nd century grey vessels with sparse shell and grog, Darling 2004b, fig. 10b) also made in the South Yorkshire kilns in grey ware in the 2nd century AD (Buckland *et al*. 1980, type Hc-d). Apart from a cordoned wide-mouthed jar from Phase 1a, most of the wide-mouthed jars came from the later sub-phases in the area of deep stratigraphy suggesting they belong in the later 2nd century. A wide-mouthed jar from 1b had a wedge-shaped rim in an oxidised ware similar to Severn Valley ware jars of the 2nd and 3rd century AD, the other a grey ware jar with everted rim and zones of burnished lattice decoration defined by double grooves. The overall form of the latter vessel with its cordon effect and lattice burnishing might point to a date in the later 2nd century AD.

Beakers included a GRB12 beaker with barbotine dot circles (Monaghan 1997, type KP2, said to be common in Trajanic levels at York), a GRA2 plain beaker with short everted rim, roughcast beakers in fabrics OAB1, Cologne colour-coated ware and Colour-coated wares CC1 and CC2. Later Nene Valley Colour-coated ware sherds were present in the unsealed riverine deposits 5142 and 6942, and Central Gaulish black-slip beaker

sherds were present in Phase 1d context 5237 and Field 64 ditch 7094. The barbotine dot beaker and the plain everted rim beaker may have been as early as the late 1st to early 2nd century AD. The colour-coated roughcast beakers were all imported types from Gaul and Cologne. At York the former were most common in the Trajanic-Hadrianic period while the Cologne types were more common in the Antonine levels (Monaghan 1997, 890-1). In Phase 1a Cologne roughcast ware was restricted to the layer 5084 which had later calcite-gritted ware indicating it remained open after Phase 1a. The locally made roughcast wares with plain everted rims or cornice rims were dated to the Trajanic-Hadrianic/early Antonine period and the Hadrianic-Antonine periods respectively at York (Monaghan 1997, types KR and KC5). Some vessels compared well with the fine Ebor 3 vessels at York and one with a red slip compares with red-slipped beakers from there (Monaghan 1997, 875-80 and fig. 323). In addition to these, a small jar/beaker in BB1 was recovered complete from riverine deposit 5234 (Gillam 1976, no 16, early to mid-2nd century AD but Holbrook and Bidwell 1991, 95, date this type from the early Antonine period) and small BB1 type jars were also present in ditch 6886 Field 64 and layer 5067 Phase 1c in Field 63. A samian beaker, De.72, was also present.

A total of 60% (EVEs) of the drinking vessels were made up of beakers and small jars while a further 40% were cups, predominantly samian. Amongst the samian, Dr.33s were the most common with nearly three times as many as Dr.27s. A small number of coarse ware cups, 3% of the drinking vessel group, were present in forms found in the Hadrianic-early Antonine phase at York, identified by Swan as an intrusive continental tradition. These cups were all in oxidised ware and compared with cups Swan considered as forms similar to those made in Wetterau ware tradition in Upper Germany (Swan 2002, fig. 8, no. 99). One cup was red-slipped and compared to a small bowl or cup made in Wetterau ware (Swan 2002, fig. 11, no. 146). Sherds from a cream firing, fine ware rilled beaker was probably a light firing Ebor fabric. Swan included this form in her Wetterau range of the Hadrianic-Antonine period.

In the deeply stratified sequence in Field 63, the roughcast beakers were most common in Phases 1c and 1d. Proportionately, the small jar group was most common in Phase 1a and simple everted-rim beakers were most common in Phase 1b. In Phase 1b beakers were either plain everted-rim beakers or roughcast beakers including oxidised wares and imported Cologne colour-coated beakers. Samian cups and beakers were relatively uncommon in Phase 1a and more than doubled in number in Phase 1b, retaining this level through Phases 1c and 1d. Cups in oxidised ware were only present in Phase 1b. Samian and oxidised cups were also strongly represented in the assemblage from Field 61A Phase 1.

Flagons were in white-slipped oxidised ware or oxidised ware. Three ring-necked forms were identified, an upright neck, an everted neck with larger top ring and a splayed neck. The upright ring-necked form is the earliest type dating to the early 2nd century (Monaghan 1997, type FR1, Bell and Evans 2002, F1 Hadrianic or later). The everted ring-necked type with prominent rim is of early to mid-2nd century date (Monaghan 1997, types FR3; Bell and Evans 2002, F1.3; Gillam 1970, no. 5, dated AD 110-50) while the splayed neck type spans the 2nd century (Monaghan 1997, type FR2 dated Trajanic-Antonine and Gillam 1970, no. 9 AD 140-80). The cup-mouthed flagon form compares with types common from the mid-2nd to mid-3rd century (Monaghan 1997, type FC dated early Antonine to early 3rd century at York). In addition FLB1 pulley rim flagons were also present (Monaghan 1997, form FP dated Hadrianic-Antonine at York but elsewhere given a late 2nd to mid-3rd century date range (Bell and Evans 2002, F6.5)). A disc-mouthed flagon is paralleled at Catterick (Bell and Evans 2002, type F7.1; Gillam 1970, no. 13) dated to *c*.AD 80-130. Sherds from two grey ware flagons were found – a GRB1 handle and a GRB12 pinch mouthed flagon (Monaghan 1997, type FT given a late 1st to 3rd century range). A double handled GRB1 jug was present in 5232 (see above). The Crambeck grey ware vessel, Corder type 14, was intrusive.

The relative quantities of the earliest ring-necked flagon forms were low (4%) in keeping with the other pottery types while the Hadrianic-early Antonine forms were the most common group (42% of all flagons and flasks in Phase 1). The later Antonine types, the cup-rim (16%) and pulley-mouthed flagons (24%) indicated late activity within Phase 1. One BB1 flagon sherd was present in Phase 1d and one ring-necked flagon with everted neck and pronounced top ring was identified in a white ware fabric (FLA2). In the sub-phased area in the early 2nd century AD the flagon group comprised equal amounts of the ring-necked flagons with prominent top ring, with splayed profile and the double handled jug with a smaller number of cup-rim forms from unsealed contexts. In Phase 1b the pulley-mouthed form appeared and dominated as well as the contemporary cup-rim flagon type (form FP dated Hadrianic-Antonine at York but elsewhere given a late 2nd to mid-3rd century date range, Bell and Evans 2002, F6.5 and Monaghan 1997, type FC dated early Antonine to early 3rd century AD). In Phase 1b the earlier ring-necked flagons were not represented except one FLB example from 7296, the collapsed wall and timber in structure 7951. In Phase 1c the number of flagons declined and seemed largely residual. In Phase 1d pulley-rim forms dominated again with cup-rim types present as well as splayed ring necked forms, the latter redeposited.

The repertoire of bowls and dishes was roughly divided equally between forms found in the black-burnished ware range, coarse ware forms copying samian types, and samian vessels, with rather more samian vessels than in coarse ware. Dishes were not very common and comprised four reduced ware vessel types with flat, plain, grooved and triangular rims (Monaghan 1997, DP3, DD, DG4, and DP7). In form the plain-rim dishes belonged to the mid-late 2nd or early 3rd century (cf. Gillam 1976, no. 77) and the grooved-rim dishes included forms of the early to mid-2nd and the mid-late 2nd century (Gillam 1976, nos. 68-9; Gillam 1970, no. 318). The flat-rim bowls and dishes were predominantly of mid-late 2nd century form (Gillam 1976, nos. 36-7 and 59-63) with a smaller number of Hadrianic types (Gillam 1976, nos. 34 or 55). Reduced ware carinated bowls with flat rims, sometimes decorated with acute lattice burnish may be an earlier equivalent to the flat-rim bowls in the Hadrianic period (Monaghan 1997, type BD). A small number of reduced ware dishes with triangular rims were present and dated from the mid-2nd to the early 3rd century; bead rim bowls or dishes were also rare and date from the late 2nd to the early 3rd century (Monaghan 1997, DP7 and DP5 respectively, Bidwell and Croom 1999, 469, type 37a and b). The dishes were, overall, less common than the deeper bowls

even in this group and the samian dishes did not make up the shortfall. The later forms in this category, flat grooved rim and developed flanged bowls, were also rare and were late additions in unsealed deposits, as were the Crambeck wall-sided bowl and platters.

In Phase 1b dishes were grooved-rim, grey, and BB1 ware types with acute lattice burnish of mid-2nd century type (Gillam 1976, no. 69). Although BB1 grooved-rim dishes are known in the Hadrianic period (Holbrook and Bidwell 1991, 99), they are more common from the early Antonine period and were made in the early Antonine kilns at Rossington Bridge. A grooved-rim dish was present in Phase 1a, layer 7065, but this was part of the unsealed riverine deposit group. A grey ware dish or bowl with flat rim, almost a bead rim rather than the BB1 type flat rim, was likely to be of mid-2nd century date or later (Monaghan 1997, type DP5). A BB1 flat-rim dish was of early Antonine form (Gillam 1976, nos. 59-61). A grooved flat rim bowl from context 6943 in structure 7951 dated to the late 2nd to early 3rd century AD.

The earliest bowls were two cordoned and carinated forms which date to the Flavian-Trajanic period. This type was not present in the York type series and may have come from outside the region. A small number of reeded-rim bowls may also date from this period although they might still be in service in the Hadrianic period, particularly given the lack of early BB1 type bowls. The most common coarse ware bowl type by far was the hemi-spherical bead-rim form (Monaghan 1997, BH). Monaghan considered this a samian form 37 copy and gave it a date range in the Hadrianic-Antonine period, while Swan argued for inspiration from Italian samian types Conspectus 37.4.3 (Swan 2002, fig. 7, no. 76 and discussion on p45-52). Both agree that these types appeared in the Hadrianic period. The bowls present here included Ebor6 painted vessels as well as OAB1 plain versions. Some grey ware hemi-spherical bowls were also found. These were less common. An OAB1 bowl with flat topped rim and grooved upper body which belonged to this category of bowl was similar to one of Swan's Wetterau types (2002, fig. 9, nos. 105 and 106). This form is also present in the north-west and dated to the Trajanic-Hadrianic period (Jones 1972, fig. 11, no. 16 from Northwich Trajanic-Hadrianic kiln group; Middlewich, Leary 2008a, 99-100). Bodysherds of hemi-spherical OAB1 bowls with rouletted decoration were found and compared with those at York dated after *c*.AD 120 (Monaghan 1997, type BH unclassified note). Two small sherds from a Parisian type bowl came from Phase 3ii but dates from this phase. This had stamped concentric circles and comb stamps.

A group of flanged segmental bowls contributed some 5% of the bowl and dish category. The more complete examples of these took the form of an OAB1 flanged bowl with high flange and low bead rim and compare with Catterick form B3.1 (Bell and Evans 2002, dated AD 120-150; Monaghan 1997, type BF2). An OAB1 flanged bowl present in ditch 9049 was of Flavian type with a high flange (Monaghan 1997, type BF1). This vessel appeared to be mica-dusted or mica-rich which Monaghan found rarely at York and suggested was current in the Trajanic-Hadrianic/early Antonine period. Another bowl type was represented by double bead or moulded rims. These compare with Monaghan type BB, a heterogeneous group found in early to mid-2nd century groups at York for which Swan suggested a Hadrianic introduction at York (2002, fig. 7, no. 77). Some of the examples may be related to a campanulate form of similar date range (Swan 2002, fig. 2, no. 14, from Trajanic-Hadrianic groups at Aldborough).

Overall bowls and dishes were less common in Phase 1a but were present at roughly comparable levels in Phases 1b-d. In Phase 1a bead-rim hemispherical bowls were the most common bowl/dish form with around half being samian and half oxidised ware. These made up about half of all the bowls, dishes, and platters. Flanged segmental bowls were also popular but the BB1 type flat-rim bowls and dishes were less common than in Phases 1b-d. The grey ware flat-rim carinated bowls were present, although not in sufficient numbers to make up for this gap. Samian dishes were present and these, with a small number of grey ware grooved-rim dishes, made up the dish group. In Phase 1b bowls such as the hemi-spherical type, including the Ebor red painted types, were present but some additional forms were identified. A fine Ebor3 bowl with grooved everted rim from 7473 belonged in Swan's Hadrianic-early Antonine group and Monaghan notes parallels dating from the mid-2nd century (Swan 2002, fig. 11, no. 137-8, and Monaghan 1997, type BM2). A handled bowl also compared with another of Swan's Wetterau related group (2002, fig. 9, no. 118) and a small OAB1 bowl or cup can be paralleled in this range (2002, fig. 11, no. 144). Another OAB1 bowl or dish with flat grooved rim was not paralleled in either the York type series or Swan's types but compared well with a dish found at Manchester (Leary 2007b, fig. 3.59, no. 113) from a mid-late 2nd century context. A most unusual collared bowl was present in this group for which a parallel was elusive, despite the vessel being shown to experts at national and international specialist groups.

In Phase 1b the samian bowls and dishes all became more numerous and the moulded rim carinated bowl form in oxidised ware appeared along with the unusual collared bowl form. The BB1 type bowls and dishes were more numerous in the form of flat-rim bowls and dishes and grooved-rim dishes. In Phase 1c the numbers of flanged segmental bowls rose and the grooved-rim dish and moulded rim carinated bowl numbers fell. The samian bowl numbers remained high but the numbers of dishes fell as the Dr.31s took the place of the Dr.18/31s. In Phase 1d the plain samian bowls remained at the same level but the proportion of moulded bowls fell as did the dishes to a lesser extent. The hemi-spherical bowl numbers also fell but the BB1 type flat-rim bowls and dishes became more common and plain-rim dishes also increased.

Unusual or less common types included a handled bowl, perhaps one of the lugged bowls in the York series, as Monaghan 1997, type BL. Another fragment from a handled vessel compares with Wetterau type handled bowls (cf. Swan 2002, fig. 9, no. 118). A number of lids were identified with plain and upturned rims and these types were not present in York before the Hadrianic period. A GRB6 fragment from a cheese press was present in layer 5042 and the base of an OAB1 colander from 5084 introduced specialist kitchen equipment.

The types recovered from Phase 1 indicate activity centering on the early to mid-2nd century. The BB1 types were predominantly of early to mid-2nd century types as were the beakers and flagons. Although the date ranges of some types extended from the late 2nd century, these were relatively uncommon and came from unsealed or late features in the sequence, described below. The 3rd and 4th century material was intrusive

from disturbed or unsealed layers and groups. Detailed study of the stratigraphy and the pottery types suggest settlement probably started in the Trajanic period with only a small number of roadside features belonging to the Flavian or Flavian-Trajanic period. Although most of the infilling of the Phase 1 features dated to the Hadrianic or early Antonine period, usage of the earliest structure and enclosures in the late Trajanic period was likely. In the area next to Healam Beck a deeply stratified area was excavated and here Phase 1 was subdivided into four sub-phases dating to the Trajanic/Hadrianic-early Antonine period, the early Antonine period, the mid-late 2nd century and the mid-late 2nd possibly extending into the early 3rd century. In the other areas these sub-phases were not found although in Field 61A, Phase 1 had two sub-phases dating to the Hadrianic period and the early Antonine period respectively. The pottery groups from the different areas are discussed in detail below.

THE SETTLEMENT IN FIELDS 63 AND 64 NORTH OF HEALAM BECK

A total of 9,751 sherds of Romano-British coarse ware and samian came from excavations in Fields 63 and 64; this group fell chronologically into two broad groups in the 2nd and 4th century, with very little dating unequivocally to the 3rd century.

To the immediate north of the beck a deeply stratified area was excavated which included water borne organic layers from which large ceramic assemblages were recovered. Accumulation of pottery in these deposits clearly continued from the early 2nd century until as late as the late 4th century and, although some degree of stratification and sequence was observed, these assemblages could not be considered sealed or secure in terms of narrow chronological groups. The occupation levels were divided into four phases with a further four sub-phases.

Phase 1a trajanic/hadrianic-early antonine (ad 98-117/117-138 to ad 138-161)

Some of the layers attributable to Phase 1a were open in later phases since late 3rd to 4th century pottery such as Crambeck grey ware and calcite-gritted ware were present within these groups. Nonetheless, large sections of broken pottery were contemporary with Phase 1a and clearly represent accumulation through this sub-phase.

Three ovens were stratified in this phase and pottery from the rake-out deposit of kiln 5413 included a BB1 jar with wavy line burnish on the neck pointing to a date *c*.AD 120-50 (Gillam 1976, no. 2) and samian dated to AD 100-120 and AD 120-200. Kiln 7115 was also associated with a grey ware sherd with acute lattice burnish copying BB1 jars of similar date range to that from kiln 5413. The samian from this kiln also dated to AD 120-200. Burnt sherds from the bead-rim, hemi-spherical bowl form typical of Hadrianic-early Antonine production at York were present in kiln 7498. These sherds all give a date in the early to mid-2nd century after *c*.AD 120.

Pottery from fill 7345 in pit 7344 included rusticated ware and nothing that has to be later than the Flavian-Trajanic period, while pit 7732 had sherds from a GRB11 reeded-rim bowl of Flavian-Trajanic type in the primary fill (7731); a BB1 jar bodysherd with acute lattice burnish and samian dated AD 140-80 and AD 135-170 in fills 7728 and 7729. A simple everted rim beaker from the primary and later fills of pit 7862 may also be Flavian-Trajanic but sherds from the later fill also included grey ware jars with acute lattice burnish copying BB1 jars of Hadrianic-Antonine date. Other pits from this area contained Hadrianic-early Antonine types such as the OAB1 hemi-spherical bowl sherds from pit 7160, the BB1 or GRB1 jar bodysherds with acute lattice burnish from pits 7583 and 7619 and part of a BB1 bowl from pit 7868. A samian sherd dated AD 150-250 was also present in pit 7619.

A sherd of samian from stake 7228, group 7915, dated to AD 140-80 and samian from stake hole 7210, group 7191, dated to AD 120-200. No further pottery was found associated with the stake arrangements but a small number of sherds from the stone spread along the beck edges, 7657, included grey ware sherds from Hadrianic-early Antonine jars with acute lattice burnish as well as samian dated to AD 120-145.

To the south of this area the latest sherd from the fill of gully 7892 dated to AD 60-100 and AD 100-120. Gravel layer 7365 associated with structure 7968 included samian dated AD 135-70 while more sherds from grey ware jars with acute lattice burnish, hemi-spherical bowls and samian sherds dated to AD 120-200 were present in occupation layer 7781, postholes 7050, 7051, 7846, 7884 although early types such as Flavian-Trajanic samian (AD 40-100, AD 70-100, AD 100-120), rusticated ware and a ring and dot beaker were also present. A samian sherd from pit 7788 gave a date range of AD 150-200 while one from posthole 7894 dated to AD 115-135. The two gullies 6956 and 7086 contained samian sherds broadly dated to AD 120-200.

A flanged calcite-gritted ware bowl was present in deposit 5084 and this was a late addition in the late 3rd to 4th century, as was a CRA RE platter type 10b from 5234, of the same date range. A MCRA PA mortarium from 5234 gave an even later date, after *c*.AD 370.

The stratified sherds thus gave a terminal date in the Hadrianic–early Antonine period for the infilling of the features with some sherds such as those from pits 7732, 7788, and 7619, and stakehole 7215 as late as the mid-2nd century. A scatter of Flavian-Trajanic types such as rusticated ware, ring and dot beaker fragments, samian and reeded-rim bowls may indicate that activity began in the early 2nd or late 1st century.

Phase 1b Antonine, mid- to late 2nd century AD (c.AD 150-180)

Stratigraphically, Phase 1b features dated from the early Antonine period. Most of the pottery in Phase 1b came from structure 7951.

In structure 7951, sherds of grey ware and BB1 jars with acute lattice burnish of Hadrianic-Antonine date and KOLN roughcast ware in the foundation layer 7152 gave a *terminus post quem* in the Hadrianic period. Sherds in layer 5289 from further jars of this type, a BB1 type of Antonine form and a flagon of late 2nd to mid-3rd century indicated activity in the early Antonine period. From wall 7120 sherds from a late 1st-early 2nd century bowl form with BB1 and grey ware sherds featuring burnished decoration of Hadrianic or later date agree with the date from the foundation layer 7152 and deposit 7151. In layer 7296 pottery types included a Hadrianic-early Antonine ring necked flagon and grey ware bowl/dish with flat or rounded rim, giving a similar date range to that of pottery from the other deposits. In deposit 7951 a late 2nd century date was given by a grooved flat rim BB1 bowl with a mid-2nd to mid-3rd century flagon.

Layer 6965 included sherds making up the full profile of a GRB8 Hadrianic-early Antonine grooved rim dish (Gillam 1976, nos. 68-9) and sherds from an early 2nd century everted rim jar with shoulder groove, grey ware lid and sherds of Dressel 20 and Gallic amphora. Sherds of a hemispherical bowl in layer 7011 gave a date in the Hadrianic-early Antonine period. Sherds from a similar Hadrianic-early Antonine OAB1 hemispherical bow and BB1 flat rim bowl/dish with an early 2nd century grey ware flat rim bowl with burnished intersecting loops came from layer 7604. Further mid-2nd century samian and coarse ware types and a late 2nd century grooved flat-rim bowl rim in a BB1 type fabric (from 6943) were present in layers and contexts forming part of structure 7951, extending the date to the late 2nd century for that structure. The samian profile suggested a date range in the Antonine period with a peak in the early Antonine period but included a sherd dated AD 150-80 from cobble surface 6762.

In the fill of horse burial 7614, sherds from a grey ware jar with acute lattice burnish of Hadrianic-Antonine date and late 1st-early 2nd century everted rim jar rim agree with the dating from other features in Phase 1b; the pottery from 7404 was of similar date with some vessels, a grooved rim dish or bowl and a handled vessel, likely to be early Antonine in date (Rhaetian type handle, cf. Swan 2002, fig. 9, no. 118). In layer 7607, further sherds from a Hadrianic-early Antonine Ebor painted bowl and a grey ware everted rim jar were identified. BB1 jar sherds and basal and body sherds from a flagon were also present. Further pottery sherds of this date and type came from 6762, but here one large late 3rd-4th century sherd from a Crambeck grey ware type 4 vessel was also found, while in 6794 further Crambeck ware sherds of the late 3rd-4th century were found with others from a 2nd century Ebor3 beaker. In 6763 the pottery included a Hadrianic-early Antonine Ebor hemispherical bowl, early to mid-2nd century BB1 dish and jar, late 1st-early 2nd century rusticated ware, a Catterick mortarium dated to the early to mid-2nd century and an OAB2 Severn Valley type wide-mouthed jar of 2nd-3rd century. This sherd was more likely to be late 2nd-3rd century AD.

Features in Phase 1b dated from the mid- to late 2nd century on the basis of their stratigraphic relationship with Phase 1a and the stratified sherds indicated a date range extending into the late 2nd century, with still later sherds of late 3rd to 4th century date in 6762 and 6794, which were considered intrusive.

Phase 1c late 2nd century AD (c.AD 180-200)

Stratigraphically, the features and layers in Phase 1c belonged to the late 2nd century and after. Both structure 6949 and annexe 7952 post-dated Phase 1b structure 7951, which included samian dating after *c*.AD 150 and late 2nd–early 3rd century coarse ware forms. In addition, samian of this date was recovered from posthole fills 6709, 6844, and 7791 in structure 6949 and, in annexe 7952, posthole fill 6662 contained a samian sherd dated *c*.AD 140-200. Posthole fill 6844 also contained a tiny scrap from a calcite-gritted plain-rim dish dating to the late 3rd to 4th century and a very abraded mortarium sherd which belongs to the Crambeck copy group MCRA M1, most of which dated to the 3rd or 4th century. These are thought to be intrusive. Spread 5596, which respected the outline of building 6949, contained samian and coarse pottery of similar date range. The four gullies (5610, 6776, 6777, and 5097) contained coarse ware types dating to the mid- to late 2nd century (Gillam 1976, nos. 62-3) from 5609, samian dated AD 150-200 and a sherd from a Nene Valley Colour-coated indented beaker of the late 2nd to early 3rd century or later from 5067. Pottery dating from the mid-2nd century or later was also present in layers 6922 and 6924 giving a *terminus post quem* for pits 7674 and 7827. Features 7479, 7138, and grave 7301 were also stratigraphically later than these layers and pits but they additionally post-dated layers 5035 and 5039, which contained pottery dating to the late 4th century – a Huntcliff type jar in 5039 and a Crambeck type 14 flagon in layer 5035. Layer 5034, which overlay these features, also contained Huntcliff type jar fragments and late 4th century Crambeck ware.

Apart from these late types, the Phase 1c assemblage contained similar types to previous phases. Clearly much redeposition was taking place and more sherds from vessels found in Phase 1b were identified, such as the unusual collared bowl mentioned above. Additional types included mid- to late 2nd century flat-rim and triangular-rim dishes in BB1 and related wares, everted-rim jars in grey ware of this date range, much of a flanged OAB1 bowl from 5039 of mid-2nd century type (Gillam 1970, no. 294, dated AD 120-150) as well as Ebor6 painted hemi-spherical bowls and an example of the flanged bowl type (Monaghan 1997, nos. 3138 and 3140; Swan 2002, fig. 11, no. 141). A fine grey ware carinated bowl with combed decoration compares with the London ware types (as Marsh 1978, type 44) and a buff coloured, corrugated, channelrim jar is similar in form to 2nd century channel rim jars in oxidised wares in Northamptonshire (see above). Dishes were made up of BB1 and grey flat- and grooved-rim types as in Phase 1b. The flagon and beakers were as Phase1b except for an OAB1 disc-mouthed flagon from 5058, a type for which at Catterick Bell and Evans give a parallel dated AD 80-130 (2002, type F7.1) and Gillam (1970, no. 13).

The 4th century sherds from 5035 and 5039 were considered intrusive from later features cutting into these contexts.

The stratified pottery gave features in this phase a date range in the late 2nd century.

Phase 1d late 2nd century, extending into 3rd century AD

This phase yielded less pottery than previous phases and few new types. Fragments of a cream ware grooved beaker in building 5129, fill 5121, (also in Phase 3b, context 5031) probably Ebor ware, adds to the Hadrianic-Antonine range present. Contexts in the two building groups (5009 and 5129) both contained Antonine pottery types such as the bead-rim hemi-spherical bowls, flat-rim dishes and bowls in grey ware and BB1, everted–rim jars in grey ware and BB1 with acute lattice burnish and Hadrianic-Antonine samian with sherds dated after *c*.AD 150 in both groups. Some 4th and late 4th century sherds were present in layer 5069, a Huntcliff type jar and a calcite-gritted flanged bowl as well as Crambeck grey ware, but this was an unsealed riverine deposit. Coarse grey ware bodysherds from trench 5127 of structure 5129 are in a fabric usually dated to the late 3rd to 4th century but, without diagnostic sherds, we could not be certain that this was not earlier. Similarly calcite-gritted bodysherds from 5094, a layer pre-dating structure 5129 could not be certainly identified as the late calcite-gritted ware group.

As regards the Phase 1d ditches, ditch 5070, fill 5071, contained Hadrianic-Antonine types, a Colchester mortarium of mid-2nd to mid-3rd century date and a

Crambeck grey ware sherd suggesting it may have been in use during the later 2nd century and still open in the late 3rd or 4th century. The sherds were fragmented but not overly abraded and included BB1 and grey ware jars with acute lattice and BB1 and grey ware flat rim dishes and bowls of Antonine type, as well as oxidised bowls of types found in Phase 1- a hemi-spherical rouletted bowl and a bifid rim bowl and an unabraded Crambeck grey ware sherd. Pottery sherds from fill 6907 of ditch 6908 told a similar story with Hadrianic-Antonine types and a GRC everted rim jar was most likely to be of later 3rd or early 4th century date. Fill 5203 of ditch 5204 similarly included two Crambeck ware bodysherds and also a small number of sherds of Hadrianic-Antonine type including a BB1 flat rim bowl or dish. It was extremely difficult to accurately date the construction of these ditches. The fills are whole ditch fills and the late sherds could come have from the uppermost parts as late additions, perhaps contemporary with the Phase 3a building. Apart from ditch 5070, the sherd numbers were small and, although the ditches cut midden deposit 5042/5237, this was not a sealed deposit.

An early phase of ditch 5151 probably belonged to this phase. Ditch 5151, fill 5150, contained a 3rd example of a BB1 flat-rim dish of mid-2nd century type (Gillam 1976, no. 60) suggesting this ditch may have also belonged to Phase 1d but later cuts of ditch 5151/5547 had Crambeck and Huntcliff types in their fills. Cut 7054, which contained a late 1st-early 2nd century ring-necked flagon, could also have been of earlier date. It is suggested that an early phase of this ditch related to the Phase 1d ditches and that a later phase belonged to Phase 3b.

Layers 5073, 5630, 5867, 7081, and 7167 contained more sherds of Antonine type including some of the hemi-spherical bowl with rouletting form in layer 5073, an unabraded everted rim jar with acute lattice from layer 5630, a cup-rim flagon of mid-2nd to early 3rd century type and a small scrap from a 3rd century Nene Valley indented beaker in 5867. Layer 7081 contained a large number of Dressel 20 amphora bodysherds as well as relatively unabraded sherds from a grey ware flat-rim bowl with acute lattice burnish, sherds from a fine Cologne roughcast cornice rim breaker and sherds from a BB1 flagon, all of Hadrianic-early Antonine date. Lastly, layer 7167 had seven sherds from a BB1 jar with acute lattice burnish, an FLB flagon and an OAB1 burnished vessel. Of these assemblages only the Nene Valley indented beaker sherd from 5867 was likely to be later than the 2nd century; 4th century pottery was absent.

Ditch 5952 belonged to Phase 1 with the other Phase 1 ditches in this area. The pottery from its early fill included Antonine samian and coarse pottery of the same date, whereas the upper fill included sherds from a Crambeck jar and a pre-Huntcliff calcite–gritted jar of the early to mid-4th century. This ditch was cut by Phase 3c pit 5881 from which sherds from pre-Huntcliff type jars were recovered, as well as a 4th century coin of AD 335-46. Pit 6872 contained samian dating from *c*.AD 150-250 and also a piece of Nene Valley colour-coated ware unlikely to have been present here before the late 2nd century.

The stratified pottery, therefore, indicated a date range from the late 2nd extending into the early 3rd century. This phase overlaps chronologically with Phase 2 in Fields 61A and 62.

FIELDS 63 AND 64 HEALAM NORTH PHASE 1

Hadrianic/Antonine, early 2nd to late 2nd/early 3rd century AD

The earliest features in this area with pottery had Hadrianic-early Antonine types as well as Flavian-Trajanic types such as rusticated jars, with reeded-rim bowls uncommon. Stratigraphically, the earliest features had Hadrianic-early Antonine pottery in their fills and it may have been that settlement in this area began in the Hadrianic period. The pottery types suggested that the infilling of most of the features dates from the mid-2nd century with some later features, such as pit 7039 and ditches 7127, 7094, 7205, and 7954 (upper fill), filling up in the late 2nd or early 3rd century. Later sherds dating to the late 3rd to 4th and late 4th century were introduced by later activity. Pottery from the postholes of structures 5730 and 7252 included a mid- to late 2nd century grey ware jar and samian dating to AD 150 at the earliest respectively, while structure 6698 had types datable to the Hadrianic period.

The earliest dated feature in this area was gully 7206 and this contained sherds from a Dressel 20 amphora and one sherd from the rim and upper body of a bead rim hemi-spherical bowl in fabric GRB1, dating to the Hadrianic-early Antonine period. Ditch 7954 cut this pit and pottery from its lower fill (7226) included around a third of a flat rim BB1 bowl of mid-2nd century date (Gillam 1976, no. 36) as well as sherds from another GRB1 hemi-spherical bowl, a roughcast beaker base in colour-coated ware, probably from Cologne, an FLB1 flagon handle, and samian dated to AD 120-200. In a single fill group, 7222, from this ditch a further flat rim bowl and a dish were found, around a third of the bowl being present. Both vessels were also of mid-2nd century type (Gillam 1976, nos. 37 and 62). This fill also contained an incomplete rim from a cupped-rim FLB1 flagon of mid-2nd to early 3rd century type, a 2nd century double bead rim OAB1 bowl (Bell and Evans 2002, type B11, perhaps AD 130-70; Swan 2002, fig. 7, no. 77 suggested a Hadrianic introduction), an OAB1 and a GRB1 hemi-spherical bead rim bowl and samian dated AD 120-50, AD 120-70, and AD 120-200 respectively. A samian sherd dated to AD 120-45 was found in primary fill 6821 of this ditch while sherds from a samian bowl dated AD 150-200 were found in upper fill 6824, along with a GRB1 jar with curving everted rim typical of the later 2nd to the first half of the 3rd century. A calcite-gritted dish and bodysherds from a jar were intrusive in fill 7256 from later ditch 7954 and a Crambeck grey ware bodysherd from 7222 was probably introduced by the modern hedge line. Ditch 7954 contained a BB1 grooved rim dish dated AD 140-80 (Gillam 1970, no. 318; Gillam 1976, no. 70, mid- to late 2nd century) in fill 7007.

The recut of this ditch (7009) contained only OAB1 bodysherds but pottery from ditch 7131 included early to mid-2nd century types. These included a BB1 jar (Gillam 1976, no. 30), grey ware jars with everted rims and acute lattice burnish, a GRB1 hemi-spherical bowl, and a GRB1 flat rim bowl all pointing to a Hadrianic-Antonine date. Similarly, a stamped mortarium from fill 7134 of pit 7136 dated to *c*.AD 100-140. Further ditches recutting the line of ditch 7954 contained pottery of the early and mid-2nd century. Pottery from cut 6886 included a small GRB8 jar (Gillam 1976, no. 19, early to mid-2nd century) and a BB1 jar of mid-2nd century form (Gillam 1976, no. 2) as well as samian dated to *c*.AD 80-130 and a mortarium sherd dating after *c*.AD 130/40. The primary fill of ditch

6696 included sherds of BB1 jars with acute lattice, a GRB1 everted rim jar of late 1st-early 2nd century type and samian dating to AD 70-100. The final recut (7955) contained BB1 bodysherds from jars with acute lattice burnish and samian vessels which dated to AD 120-200, AD 150-200, and AD 150-250, suggesting this ditch and its recuts were in use throughout the Hadrianic and early Antonine period. A complete base and lower body of a Hadrianic or Antonine BB1 jar, burnt around the lower walls, was found in primary fill 7260 of this ditch.

The small amount of pottery from enclosure 6802, a feature which cut ditch 6886, included two samian sherds dated AD 120-200 and AD 120-170 and sherds from BB1 and GRB1 jars with acute lattice burnish of Hadrianic–Antonine date. Ditch 7203, which cut enclosure 6802, included an FLB1 sherd and a samian sherd dated to AD 100-120.

Within enclosure 6802, pit 7039 (Fig. 41) contained samian and mortarium sherds dated to AD 150-200 and after *c*.AD 170/80 respectively, while pit 5320 contained two bodysherds from a Dressel 20 amphora with a date range from the late 1st to 3rd century.

Structure 7252 was dated by a sherd from a Hadrianic-early Antonine OAB1 hemi-spherical bowl from fill 6781 of posthole 6780 and sherds of samian dated *c*.AD 135-150 and AD 150-200 from pit 6785. This pit also contained an earlier carinated, cordoned bowl of the late 1st to early 2nd century and a BB1 jar dating from the Hadrianic-Antonine period.

To the north-west of structure 7252, ditch 7127 contained Nene Valley colour-coated ware in the primary fill suggesting a date range in the mid- to late 2nd century AD or later, with sherds of BB1 and also the rim of a GRB1 reeded-rim bowl in the upper fill. The pottery from ditch 7094 included a BB1 flat-rim bowl but later material such as Central Gaulish black slip ware (mid-2nd to early 3rd century), a GRB10 wide-mouthed jar of late 2nd or 3rd century type, a BB1 plain rim dish of late 2nd to early 3rd century date (Gillam 1976, no. 77) and samian dating from AD 150-250 indicating activity continuing beyond the mid-2nd possibly as late as the early 3rd century.

Ditch 7094 was cut by 5678 and 7277. A sherd of samian dated AD 120-200 and a plain-rim BB1 dish, dating to the late 2nd or early 3rd century, came from 5678 but no pottery came from 7227. Pottery sherds from ditch 5010 included GRB6 rusticated ware of the late 1st to early 2nd century, grey ware jars with acute lattice burnish, BB1 sherds and a mortarium sherd dating to *c*.AD 90-120. In ditches 7582 and 7205 sherds from a grey ware jar with cavetto type rim and acute lattice burnish dated to the later 2nd or early 3rd century.

Structure 5730 yielded samian dated to AD 120-200 from postholes 7329 and 7577 and a sherd from an early to mid-2nd century BB1 flat rim bowl or dish from posthole 7270. From pit 7531, a grey ware rim sherd came from a jar with a neck and everted rim tip, probably of mid to late 2nd century date. Pit 6985 contained a piece of Hadrianic-Antonine samian and an undiagnostic grey ware sherd from a cordoned narrow-necked jar of 2nd or 3rd century date.

Ditch 6670 was not well dated having only relatively undiagnostic coarse ware sherds in its fill and sherds copying BB1 suggest a 2nd century date. No pottery was recovered from gully 6672. Enclosure 5430 cut ditch 5991 and this ditch had a BB1 jar sherd of mid or mid-late 2nd century (Gillam1976, nos. 2-3) and samian of AD 70-100 and AD 130-60 in its fill. Enclosure ditch 5430 contained a little pottery which included Dressel 20 amphora bodysherds, samian dated to AD 40-100 and AD 100-120, a complete GRB1 jar base and GRB6 bodysherds, as well as part of a Crambeck grey ware type 2 and some GRC sherds, both dating from the late 3rd to 4th century. These latter sherds were considered intrusive.

Structure 6698 included an Ebor3 sherd from posthole 5727, which was dated to the Hadrianic-Antonine period and a flat rim bowl from 5795 of early 2nd century type in grey or oxidised ware.

Structures 5728 and 5729 both post-date Phase 1 ditches stratigraphically but the pottery assemblages from them need not be later than the mid-2nd century and so their use could overlap with the later features in Phase 1. The structures cut ditch 5430 which included mid- and late 2nd century pottery, with some intrusive late 3rd to 4th century sherds. Structure 5728 overlay Phase 1 ditch 5430. Pottery of the 2nd century was recovered from the postholes of this structure, the latest of which was samian dated to AD 140-200. To the north, structure 5729 also contained pottery of 2nd century date including a small sherd from a 2nd century BB1 grooved rim dish and grey ware sherds, one with acute lattice burnish. Pit 7745 also contained a small sherd from a grooved rim BB1 dish or bowl.

The early ditch (5647) contained sherds of BB1 and samian dated to AD 120-200 while the later ditch (5589) included a GRC everted rim jar with slight lid seating jar (Bell and Evans 2002, types J11.1 or 4 and J12.5 or 7) as well as samian dated to AD 120-200 and AD 150-200. Ditch 5587 contained grey ware bodysherds, probably of the 2nd century, and samian dated to AD 100-120. The GRC jar from 5589 may belong to the late 3rd to 4th century series and was certainly related to this late group, but this specific form may belong earlier in the 3rd century.

The pottery indicated activity from the Hadrianic to Antonine period, extending into the 3rd century and overlapping with Phase 2 in Fields 61A and 62.

ROMAN ROAD PHASE 1

A total of 291 coarse ware sherds were present in the trenches cut to investigate the Roman roads. These spanned the Roman period from the Flavian-Trajanic period to the late 4th century AD.

In Trench 26 an early phase of the road ditches (ditch 9035 and recut 9049) contained the only good Flavian–Trajanic groups from the excavations in their primary fills. This comprised sherds from a late 1st-early 2nd century reeded-rim bowl, a ring and dot beaker, rusticated ware, a carinated cordoned bowl, two ring necked flagons and a mica gilt flanged bowl. Three samian vessels from here were dated to AD 70-100 confirming this date range. Body and base sherds in fill 9036 in mortarium fabric MCTR WS3, probably from Catterick, were likely to date to the 2nd century, while a MNOG WH4 mortarium from fill 9039 dated to AD 65-110.

SOUTH OF HEALAM BECK PHASE 1

In this area although earth cut features in the form of ditches and gullies were prolific, at least to the south of the high pressure gas main, the quantities of pottery

recovered suggested domestic occupation was less intense.

In Field 60 no pottery was recovered from the excavated features. In Field 61, Phase 1 in group 2270, sherds from Hadrianic-Antonine jars with acute lattice came from ditch 2266 and a Hadrianic-Antonine samian sherd was present in ditch 2114. Sherds from an early Antonine BB1 jar (Gillam 1976, no. 30) came from the secondary fill of ditch 2265, group 2270, with a 2nd century MH mortarium sherds from fill 2267. A Hadrianic-Antonine samian sherd came from gully 2134.

FIELD 62 PHASE 1 LATE 1ST/EARLY TO MID-2ND CENTURY

In Field 62 around 750 sherds were excavated from the ditched enclosures, pits and linear features. Most of the groups were small with 90% of the contexts yielding less than 20 sherds. North of the access track, very little pottery was found.

In ditch group 2890, the earlier fills in cut 2636 had a small amount of 2nd century pottery broadly datable to the Hadrianic-early Antonine period. To the north much of a carinated bowl from fill 2590 of early ditch 2468/2462 was of Flavian type and was one of the earliest vessels from this area. Samian from ditch 2374 was dated to AD 120-70 and a samian sherd from 2399 was dated to AD 100-120 suggesting these also belonged to Phase 1. In the north-east corner an amphora rim sherd from ditch 2781/2880 was dated to the late 1st to early 2nd century. One samian sherd from sump 2877 in this area dated to AD 120-200 and another samian sherd of this date came from ditch 2475.

Three very small GRC scraps from fill 2501 of ditch 2492 were difficult to date without typologically diagnostic features. Apart from these three scraps, an undiagnostic BB1 sherd from gully 2496 gave a *terminus post quem* in the early 2nd century and samian from 2492 was dated to AD 100-120. A samian flake dated to AD 100-120 came from gully 2399, possibly part of 2492.

In this area, pit 2564 contained a Dressel 20 amphora sherd, part of an FLB1 ring-necked flagon of early to mid-2nd century date, and an MOAB INDET mortarium sherd dated to c.AD 100-140. Cremation burial 2352 included a complete samian bowl form Dr.18/31 dating to AD 105-120 in the secondary fill but a second small rim from a second Dr.18/31 from a sample from the primary fill of this cremation was dated to AD 100-150.

West of group 2890 the earliest pottery from this area was a Flavian-Trajanic North Gaulish mortarium sherd (AD 65-110) which came from fill 2650 of ditch 2641. A GRB8 flat rim dish from the secondary fill of 2596, a ditch to the west of ditch group 2890, was of 2nd century date and samian dated to AD 40-100 and AD 120-200.

To the south from ditch 2182, east of ditch group 2890, an OAB1 flagon handle was more likely to be 2nd century rather than later. The fill of this ditch was cut by Phase 4 cremation pit 2220. In pit group 2316 a jar rim from the primary fill of pit 2199 was a small BB1 jar or beaker of Hadrianic-early Antonine type.

A grey ware, flat-rim dish from a layer of redeposited peat 2483 associated with Healam Beck was of 2nd century form, probably Antonine in date.

The evidence for these features suggest a phase in the early to mid-2nd century with some activity as early as the late 1st century and a cremation burial of early 2nd century date.

Field 61A Phase 1The pottery from this area numbered some 1538 sherds and these were largely of 2nd century and late 3rd to 4th century date with some late 4th century types present in the latest phases.

Phase 1i Hadrianic-early Antonine

The earliest features were in Trench B which was also the most deeply stratified trench. Structure 8541 and ditch 8455 could have pre-dated the 2nd century or at least date very early in the 2nd century. Only two sherds were recovered, from the fill of ditch 8455. They were of undiagnostic grey ware and Ebor ware which were not closely datable. In this trench several sherds of samian, mortaria and other coarse ware dated to the Flavian period and although these could be old vessels being used by the inhabitants in the 2nd century, the lack of diagnostically late pottery from structure 8541 suggests an early date, possibly in the late 1st century. Gullies 8419 and 8502 in Trench C may have also belonged to this phase since they also pre-dated layers equivalent to 8432 which post-dated structure 8541 (see below) and contain pottery of the same date as 8432.

Pottery dating to the Hadrianic-early Antonine period was found in the alluvial layers (layers 8432/8255/8328 and 8366) post-dating this building and pre-dating the other features in this trench. Types present include Hadrianic-early Antonine samian, BB1 and grey burnished vessels copying BB1 jars and bowls, Ebor red painted hemi-spherical bowls, and white slipped oxidised sherds also comparable to Ebor white-slipped ware.

The other Phase 1i features in Trench B contained pottery types current from the Hadrianic period and although these continued to be made and used in the early Antonine period, they could all date to the Hadrianic period. These included samian, BB1 bowls, and jars of the early to mid-2nd century including one with a wavy line burnish on the neck (Gillam 1976, no.2), copies of BB1 jar types in grey burnished ware with acute lattice burnish and of BB1 flat-rim bowls in burnished grey ware, neckless everted rim jars of late 1st to early 2nd century type, hemi-spherical bead-rim bowls in red painted Ebor ware, and a white-slipped flagon from 8452 with prominent top ring and upright neck suggesting an early to mid-2nd century date. Intrusive sherds from the secondary fill (8356) of ditch 8357 came from a late reeded-rim mortarium of the 3rd to mid-4th century and a calcite-gritted ware jar of 3rd century date at the earliest. Other than these, nothing from this phase requires a date later than the Hadrianic period and the presence of some types of Flavian-Trajanic date, including a late 1st to early 2nd century mortarium and samian sherds of Flavian date, would favour this early date when such vessels would still be in use.

Slightly later sherds dating from the mid-2nd century (a BB2 type triangular rim dish dating to the Antonine period) came from charcoal-rich layer 8452.

Phase 1ii mid-2nd century

Dumped deposit 8335 (group 8339) contained an incomplete flagon rim with cupped ring necked form dated to the Antonine period or later at York (Monaghan

1997, type FC) and samian dated to after AD 130. A sherd from an all-over scale beaker dated to the mid- or late 2nd century (Perrin 1999, fig. 60, nos. 122 and 141-2) also came from group 8339. A very small sherd from the rim of a grooved-rim dish from the primary fill (8388) of ditch 8382 was unlikely to be earlier than the Antonine period. The black organic layer (8027) contained samian dated to AD 130-70 while ditch fill 8067 of group 8209 contained sherds of a samian Dr.31R dated to AD 150-200. These stratified sherds gave an Antonine *terminus post quem* for infilling of some of the features of Phase 1ii in Trench B and Phase 1 in Trenches A and C.

Phase 1ii contexts in Trench B contained small numbers of sherds from jars with acute lattice burnish either in BB1 or grey burnished ware, a hemi-spherical bead-rim bowl with bossed decoration in a fine grey ware, local grey roughcast ware beakers, much of a grey ware flat rim bowl (Monaghan 1997, type BD), rusticated ware and a white-slipped ring-necked flagon. An OAB1 moulded-rim bowl came from layer 8227. At York Monaghan dated this group to the late 1st to early 2nd century (1997, type BB, no. 3838) and it was present in the Flavian–early Hadrianic range at Malton. Swan suggested a Hadrianic introduction for this type (Swan 2002, fig. 4, no. 38 and at York fig. 7, no. 77). Layer 8294 contained sherds from a neck-less small BB1 jar of early to mid-2nd century type (Gillam 1976, nos. 16 or 30).

Apart from a small sherd from a grey grooved-rim dish from ditch 8382, none of these need to be later than the Hadrianic period and again the presence of late 1st to early 2nd century forms, such as the rusticated ware and early samian, would best fit a date early in the Hadrianic-early Antonine period when these earlier types might still be in use. Structure 8538 may have dated to this period, while features and layers post-dating fill 8388 of ditch 8382 dated to the Antonine period.

Antonine pottery occurred in fill 8067 of ditch recut 8066 (samian dated to AD 150-200) in group 8209. Features stratigraphically earlier than these deposits contained pottery which could have dated as early as the Hadrianic period. This included types such as BB1 flat-rim bowls and Hadrianic-early Antonine BB1 jars (Gillam 1976, no. 2), a red-slipped cup (Swan 2002, fig. 11, no. 146 Wetterau bowl with a Hadrianic introduction), fine grey roughcast beakers and a fine grey bead-rim hemispherical bowl (from 8228).

The possible banks (8271 and 8238) could have been Hadrianic in date and contained samian dated to AD 120-70. This feature contained the remains of a samian dish, two cups and an RSB1 cup which may have been deliberate deposits marking nearby cremation burials or some other associated ritual.

Phase 2 mid-/late 2nd to 3rd century

Phase 2 was identified stratigraphically in Fields 61A and 62. Late features in Fields 63 and 64 overlapped chronologically with this phase as far as their ceramics were concerned.

Overall, evidence for 3rd century activity was somewhat scarce. Key indicators at York such as the African range, Dales and Dales type jars, later BB1 jars with right-angled or obtuse lattice, Nene Valley beakers, black-slip beakers from Central Gaul and Trier, grooved, flat-rim bowls, lugged jars, indented jars, and Knapton ware jars were all absent or only occurred in small numbers, suggesting a change in the level of occupation or the nature of activity.

FIELD 61A PHASE 2 MID-/LATE 2ND TO EARLY 3RD CENTURY

In Phase 2 BB1 was more common and types included Antonine forms of jars and bowls or dishes. The Phase 2 assemblage displayed a drop in the Phase 1 bowl types such as the oxidised and reduced hemi-spherical bowls, the earlier BB1 jar types, earlier beakers and cups, and the ring-necked flagon. Flat-rim BB1 and grey ware bowls and beaker were still common and samian bowls made up a large proportion of the bowl and dish category. Flagons were made up of the later cup-rim and pulley-mouthed types while BB1 type jars with fairly upright rims still made up over a quarter of the medium necked jars, the remaining jars comprised later more everted or splayed-rims BB1 types, a cupped rim jar dated to the late 2nd to mid-3rd century (Swan 2002, fig. 12, no. 158) and everted rim jars copying mid/late 2nd to 3rd century BB1 and BB2 types. The narrow-necked jars had simple everted or hooked rims. Cornice rim beakers were still common but the rest of the beakers were grey ware or Nene Valley indented types with curving rims and simple everted-rim small jars.

In Trench B, Antonine types in layer 8386 included a BB1 flat-rim dish and a grooved rim dish (Gillam 1976, nos. 61 and 70), a grey ware everted rim jar with acute lattice burnish and offset everted rim similar to BB2 type jars of Antonine date, and a cupped rim flagon in an Ebor ware (Monaghan 1997, type FC dated from the Antonine period at York). In layer 8297 another sherd from an Ebor6 painted hemispherical bowl was found with part of the neck of a grey ware ring-necked flagon, a GRB6 narrow-necked jar or flagon with everted rim grooved internally, a small handled grey ware jar with everted rim and an OAB1 everted rim flagon or narrow-necked jar. Of these, the handled jar was perhaps copying BB1 vessels of Antonine date (Gillam 1976, nos. 24-6) and the OAB1 everted rim vessel may have been a Monaghan type FE dated from the Antonine period (1997). The grey ware vessel with internal groove is also of this type and date (Monaghan 1997, type FE1). Layer 8297 also produced much of the rim neck and handle of a Dressel 20 amphora dated to AD 110-150 and a Mancetter-Hartsill mortarium which dated to *c*.AD 135-70. Sherds from Mancetter-Hartshill mortarium in the later fabric from this industry give a date after *c*.AD 130/40 for fill 8353 of pit 8355 and a scrap from a Nene Valley colour-coated beaker with applied scroll from 8383 dates to the later part of the 2nd century and earlier 3rd century (Perrin 1999, 93). However a sherd of calcite-gritted ware similar to that used for Huntcliff and pre-Huntcliff type jars from this last fill may have indicated the presence of intrusive material. In 8266 a rim from a mid to late 2nd century BB1 jar (Gillam 1976, no. 3) also pointed to a later date range for this phase and calcite-gritted ware sherds from this layer were not closely datable.

In Trenches A and C, Phase 2, similar Antonine types were present. Sherds from BB1 jars were found in layer 8015 and ditch fill 8178. CC2 roughcast beakers from 8015 with grooved shoulders and rims were of late 1st to early 2nd century type (Anderson 1980, fig. 12, nos. 1-3, AD 80-130/35) and a CGBS scrap from 8051 is of mid-2nd to early 3rd century date. An MH mortarium from 8178 dated to *c*.AD 160-200. Fill 8028 of ditch

8030 contained a grey ware sherd from an indented jar or beaker of later 2nd or 3rd century date. Layer 8031 contained a good assemblage of Hadrianic to Antonine pottery. The Nene Valley beaker with curved everted rim from pit 8050 (fill 8051) was of mid-/late 2nd to early 3rd century type (Perrin 1999, 94) but part of a splayed-rim BB1 jar gave a 3rd century date to this group. A mid to late 2nd century BB1 jar (Gillam 1976, no. 4) came from the primary and secondary fill of ditch 8177 along with a fine grey ware beaker with upright neck and everted rim tip similar to Nene Valley Colour-coated beakers of the early 3rd century (Perrin 1999, 94).

The mortarium sherd from layer 8085 dated to after *c*.AD 140 and an everted rim jar was of later 2nd or 3rd century date. In pit group 8233 Antonine types were present, with BB1 jar sherds in pit fill 8183 and a BB1 lugged jar in pit fill 8046. Still later material in pit fill 8051 (a splayed-rim jar of the 3rd century), with sherds decorated with obtuse lattice burnish also of 3rd century date in 8089 and a CGBS scrap from 8051 was of mid-2nd to early 3rd century date. Another sherd from a probably 3rd century BB1 jar from pit group 8233 (fill 8089) had traces of obtuse lattice burnish and an MH2 multi-reeded mortarium from fill 8053 was of the mid to late 3rd century. A splayed rim from a BB1 jar found in 8051 was also of 3rd or 4th century type. A cupped-rim jar from pit 8052 (fill 8050) dated to the mid-2nd to mid-3rd century (Swan 2002, fig. 12, no. 158, dated late 2nd to mid-3rd century but present in the Antonine kilns at Rossington Bridge, Buckland *et al*. 2001, 69). A large grey ware sherd from pit fill 8111, giving the profile of a flat-rim bowl with chamfered base, was of mid-2nd to mid-3rd century type (Monaghan 1997, type DP5).

The pottery from this phase indicated activity from the later 2nd into the 3rd century with some late 3rd to 4th century material in layer 8031.

FIELD 62 PHASE 2 MID- TO LATE 2ND/EARLY 3RD CENTURY

During this phase, ditch group 2890 continued to be recut and one vessel, from cut 2383, might point towards a date range in the late 2nd to 3rd century. This narrow-necked jar had an undercut rim typical of Severn Valley ware jars of 2nd to 3rd century date. A BB1 sherd from cut 2513 was of mid- to late 2nd century and would fit in Phase 2. In the primary fill (2253) of ditch 2254 a stamped mortarium dated to *c*.AD 135-70 and the samian gives a date after AD 150-250.

The second enclosure type represented by ditches 2504 and 2508 belonged in this phase. Shell-tempered ware sherds from the primary fill (2584) of ditch 2504 may be Dales ware and would suggest infill in the mid-3rd century, although earlier types present such as a BB1 jar of mid-2nd century type (Gillam 1976, no. 2), abraded sherds from a pulley-rim FLB1 flagon and abraded scraps of rusticated ware from the fills of this ditch indicated a longer history of cleaning out. The secondary fill (2583) of 2504 included samian dated to AD 140-80 and a Corbridge mortarium dated to the second half of the 2nd century. Only undiagnostic bodysherds came from ditch 2508 but it cut pit 2377. The secondary fill of pit 2377 included a cupped-rim flagon of mid-2nd to mid-3rd century date and a GRB1 neck-less everted-rim jar from the primary fill (2381) was more like those of the early 2nd century. An OAB handle from gully 2332 belonged to the late 1st to early 3rd century but was not closely datable. Other contexts in Phase 2 contained only undiagnostic bodysherds or no pottery at all.

Calcite-gritted ware sherds from fill 2841 of ditch 2832 suggested it should belong to Phase 3 but were considered intrusive. A small sherd of Crambeck grey ware from fill 2328 of pit 2327 gave a late 3rd to 4th century date but this feature had been disturbed by a plough furrow.

Phase 3 late 3rd to late 4th/5th century

The assemblages in this phase were characterised by the presence of Crambeck, calcite-gritted, and gritty grey wares as well as developed flanged bowls, Dales type forms, pre-Huntcliff and Huntcliff type jars, and late Nene Valley forms. Splayed-rim jars of late BB1 type were more numerous in this phase and date to the late 3rd to mid-4th century. Plain and grooved-rim dishes in grey ware, Crambeck grey ware, and calcite-gritted ware resulted in an increase in dishes overall. In most areas the assemblages included redeposited Phase 1 pottery, sometimes in good condition and large quantities.

Crambeck Parchment ware platters were represented in this phase (Corder 1928, types 9 and 10). In the bowl and dish category, straight-sided BB type bowls and dishes made up 60% of the group with coarse ware deep bowls accounting for only 12% and residual samian bowls and dishes 27%. Plain and grooved-rim dishes were more common than in previous phases and in contrast to Phase 1, were predominantly in grey ware, particularly Crambeck grey ware, and also calcite-gritted ware and Nene Valley Colour-coated ware rather than black burnished wares. In the flat or down-bent rim bowl and dish group, BB1 vessels were still common but were residual. Some grey ware down-bent rim bowls along with those with large bead rims vessels were the types made in the 3rd and earlier 4th century Yorkshire kilns (Halkon and Millett 1999, B06a-c; Hayes and Whitley 1950, type 2). The developed flanged bowl group in Crambeck and other grey wares and in Nene Valley Colour-coated ware and calcite-gritted ware was the most common straight-sided bowl and dish type. Of the Crambeck developed flanged bowls only one had an internal wavy line found on late 4th century examples.

A quantity of 2nd century deep bowls such as the hemi-spherical bead-rim form, the moulded rim bowl, and the flanged segmental form were still present in this phase, making up most of coarse ware vessels in the deep bowl group apart from a small percentage comprising Crambeck and late red ware copies of samian forms Dr.36 and Dr.38.

In the drinking vessel group, residual types – samian cups, cornice rim roughcast beakers and 2nd century everted-rim small jars in grey ware and BB1 - contributed 83%. Nene Valley Colour-coated and black slip ware vessels of late 2nd to early 3rd century type contributed a further 10%. These comprised a CGBS cup, a Trier black-slip beaker, a plain rim beaker, a curved-rim indented beaker, and an underslip scroll beaker in Nene Valley Colour-coated ware. Only the small number of funnel-mouthed beakers, long-necked globular Nene Valley beakers, the Crambeck painted beaker, and the Crambeck grey ware pentice-moulded beakers were contemporary which ceramic debris in Phase 3. The small jars included one late vessel in grey ware with obtuse lattice burnish but the remainder were residual sherds. The flagons were all residual and the numbers were level with those found

in Phase 1.

In the medium-necked jar range Huntcliff type jars were the most common form with fewer pre-Huntcliff types. A necked calcite-gritted ware jar with short everted rim tip added to this range. BB1 splayed-rim jars with obtuse lattice were more common in this phase than in Phase 2 and the gritty grey ware Dales type jars of the late 3rd to 4th century also appeared. A Nene Valley colour-coated jar was present. The Flavian-Trajanic short everted-rim jars and the 2nd century BB1 and grey ware jars were still visible at 24% and the later BB1 jars with more everted or cavetto rims and grey ware everted rim jars of the late 2nd to 3rd century accounted for 5%. The relatively small numbers of late 2nd/early to mid-3rd century jar types, including Dales ware jars (<1%), confirms the diminution of ceramic deposition during this period.

The narrow-mouthed jars were more common than in Phase 1 being made up of simple everted-rim jars (26%) and the lugged type large jars (58%) so common in the Yorkshire industries in the mid-3rd to 4th century. Some of this class were necked jars with rebated rims beaded externally. Similarly, the wide-mouthed jars were more common and these were made up of so-called Throlam jars, Crambeck wide-mouthed jars and small wide-mouthed bowl/jars, calcite-gritted wide-mouthed Huntcliff types, and grey ware shouldered jars with everted rims (Bell and Evans 2002, SJ2.4 and J2.6; Corder 1928, type 4 and 13; Corder 1930, fig. 11), all forms of Yorkshire type. One bead-rim deep bowl of the type made in the south Yorkshire kilns was present (Buckland *et al*. 1980, type Hb-d). A double lid-seated storage jar in calcite-tempered ware was similar in form to late 4th century shell-tempered jars from Swanpool kilns, Lincoln.

Activity in this phase dated from around the beginning of the 4th century. Some of the grey ware flanged bowls had quite low bead rims, the BB1 splayed-rim jars were of late 3rd or early 4th century type and the long-necked Nene Valley beakers were also of that date range. The pre-Huntcliff jars, gritty grey Dales type jars and the Crambeck types suggested activity through the first half of the 4th century and the late Crambeck types, Huntcliff type jars and late Nene Valley and Crambeck parchment ware vessels indicated continued ceramic deposition at the end of the 4th century and into the 5th century. No ware group B18/G18 was identified on the site suggesting that this phase ended before this ware became more numerous or that it was not being supplied to this area. At York this was one of the latest ware groups (Monaghan 1997, 911-12).

Bidwell and Croom charted the ratio of Crambeck to calcite-gritted ware over time in the late 3rd to 5th century (2010, 29-31, table 4.3). The ratios of Crambeck grey ware to calcite-gritted ware were examined in Field 61A. The proportion of calcite-gritted ware declines through Phases 3i and 3ii using all quantification measures (Fig. 149), while in Field 63 the calcite-gritted ware and Crambeck ware were roughly equal in Phases 3a and 3b, but calcite-gritted ware rose during Phase 3c and again in 3d. Field 61A, Phase 3ii, showed Crambeck ware in the ascendancy as it was in Field 64 Phase 3. The dominance of calcite-gritted ware in Field 61b Phase 3 was also pronounced although this group was very small.

In Field 64 Phase 3 the earlier date (in the late 3rd to earlier 4th century suggested by the Crambeck/calcite-gritted ratio using EVEs) was supported by the relatively low numbers of both Crambeck grey ware and calcite-gritted ware overall, the lack of Crambeck Parchment ware, the small numbers of gritty grey wares and the relatively large amount of grey ware, BB1 and Dales ware. The groups from Field 61A, Phases 3i and 3ii, fall into the late 4th century range and late 3rd to early 4th century and are in reverse chronological order. In Field 61A, Phase 3, the dominance of calcite-gritted ware compared with the late 4th to early 5th century group. The apparent reversal of the increase in the ratio of calcite-gritted to Crambeck ware from Field 61A Phase 3i to 3ii was due to the Phase 3ii group being rather too small for analysis. The actual percentage of calcite-gritted ware did increase. Nene Valley ware and gritty grey ware both increase from Phase 3i to 3ii but the numbers of sherds in these groups were too small for meaningful analysis.

In the deeply stratified section in Field 63 other datable types such as the Crambeck parchment ware supported a date in the late 4th century for the infilling of the features in Phase 3a and b. The group from Phase 1d included material trampled into the Phase 1d midden during Phase 3a and this profile supported a late 4th date for Phase 3a. Although Huntcliff type jars were not represented in the EVEs for Field 63 Phase 3a, bodysherds from such jars with spaced grooved shoulders gave a late 4th century date. The calcite-gritted and Crambeck grey ware ratio in Phase 3b was consistent with a late 4th century date range although the EVEs figures give more Crambeck grey ware. In this phase the enclosure ditches showed evidence for a great deal of recutting and cleaning out and earlier types were present included early to mid-4th century pre-Huntcliff type jars. It appeared that this group included redeposited material from the late 3rd/early to mid-4th century as well as the late 4th century pottery. The increase in the proportions of calcite-gritted ware to Crambeck ware in Phase 3c and d was accompanied by an increase also in Crambeck parchment ware, particularly in Phase 3d and a fall in BB1 over Phases 3a-d (Fig. 150). Gritty grey wares were slightly more common in the Phases 3a and 3b over 3c and 3d, perhaps suggesting these declined in number after the late 4th-early 5th century. Mortaria as a group became less common through this sequence and Nene Valley colour-coated wares fluctuated somewhat but were most common in Phase 3d. The amount of calcite-gritted ware compared with Crambeck ware in Field 63, Phase 3c suggested it belongs in the late 4th to early 5th group while Field 63, Phase 3d would compare with the 'latest group' falling after the late 4th-early 5th century group but lacking independent dating. The pottery assemblage from Field 63, Phase 3 (not sub-phased) compared with that from Field 63, Phase 3c in the deeply stratified area and suggested a date in the late 4th to early 5th century.

THE SETTLEMENT NORTH OF HEALAM BECK *(Field 63)*

Phase 3a late 4th century

In this phase the Phase 1d midden (5042/5237) pre-dated the structures and enclosures but was not sealed by them. This midden group included much pottery of the same type as found in the Phase 1 assemblages with the addition of Huntcliff type jars and a calcite-gritted dish, Crambeck grey ware and parchment wares, Crambeck mortarium copies dating to after *c*.AD 370, late Nene Valley vessels, and a GRC lid, all suggesting the latest accumulation belonged in the late 4th century. The 2nd century material included fresh unabraded pieces and

this admixture requires some explanation. The most likely scenario may be that structure 5695 was built on top of an area used in the 2nd century as a midden and that the late 4th century material from the midden layers represents pottery used by the inhabitants of that building. Alternatively the midden deposit could be a levelling layer for the construction of structure 5695 and incorporating earlier material.

The structure 5695 yielded a small but significant assemblage which included Crambeck grey ware and calcite-gritted ware sherds of the late 3rd or 4th century from posthole fill 5581 and a sherd from a Huntcliff type jar dating from *c*.AD 360 in posthole fill 5436 with residual 2nd century material. Although these sherds could have got into the posthole fills after the posts were removed or decayed, they do imply the building was in use not much earlier than the 4th century.

Layer 5038 belonged to Phase 3a and contained abraded 2nd century sherds and moderately abraded Crambeck grey ware bodysherds, calcite-gritted ware, and GRC sherds.

Phase 3b late 4th century

The Phase 3b enclosure ditch sequence was complex with vestiges of earlier cuts evident. This would naturally result in redeposition of pottery sherds and its position above midden 5042 could explain some of the anomalously unabraded and large sherds of Antonine pottery from some of the ditch infills. Nonetheless, its stratigraphic position later than structure 5695 gives a late 4th century date to enclosure 5007.

The earliest ditch 5149 contained 15 coarse ware sherds of 2nd century date and three samian sherds dated *c*.AD 100-120, AD 120-200, and AD 120-70. These may suggest that this early phase belonged with the Phase 1 ditches. Ditch 5151 (fill 5150) contained a third of a BB1 flat-rim dish of mid-2nd century type (Gillam 1976, no. 60) suggesting this ditch may also have belonged to Phase 1d but ditch 5151/5547 had Crambeck and Huntcliff types in its fills. Cut 7054, which contained a late 1st-early 2nd century ring-necked flagon, could also be of earlier date. The enclosure cut Phase 1 ditches, such as 5204, 6908, and 5070, all of which had late 3rd to 4th century wares, such as Crambeck grey ware and the gritty grey ware GRC, in their fills. Ditch 5952 may belong to Phase 1 with the other Phase 1 ditches in this area. The pottery from its early fill included Antonine samian and coarse pottery of the same date, whereas the upper fill included sherds from a Crambeck jar and a pre-Huntcliff calcite-gritted jar of the early to mid4th century. This ditch was cut by pit 5881 from which sherds from pre-Huntcliff type jars were recovered as well as a 4th century coin of AD 335-46. Enclosure 1 also cut Phase 1d pit 6872 which contained samian dating from *c*.AD 150-250 and also a scrap of Nene Valley colour-coated ware unlikely to have been present here before the late 2nd century. The enclosure ditch itself had been recut many times but the earliest of these (7962) contained a good group of 4th century pottery in the primary and upper fill, including Crambeck grey ware, Huntcliff type jars and late Nene Valley colour-coated vessels. Ditch 7958 similarly contained Crambeck grey wares and Huntcliff type jars but also had a great deal of quite fresh Antonine types including part of a rilled beaker also found in Phase 1d building 5129, layer 5121 suggesting extensive redeposition of earlier pottery. The other enclosure ditch cuts all contained assemblages dominated by Crambeck grey wares, calcite-gritted ware jars of pre-Huntcliff and Huntcliff types and also dishes, gritty grey ware lid-seated jars, Nene Valley late Colour-coated ware types, other late grey wares and some late splayed-rim BB1 jars with obtuse lattice. One Dales ware rim was recovered. The forms suggest some activity in the early to mid-4th century was included in this phase, perhaps redeposited in later cuts.

Phase 3c late 4th century-early 5th century

Oven 5330 incorporated 2nd century sherds, some of which were burnt black, but sherds of calcite-gritted ware jars and Crambeck ware were present in the stone floor 5096, and the demolition layer 5632, both associated with the oven. The pit to the east of the oven (5839) also contained calcite-gritted ware, Crambeck grey ware types and a Crambeck Parchment ware mortarium dating after *c*.AD 370 as well as redeposited Antonine pottery. The pot from pit 5590 was difficult to date but Bell and

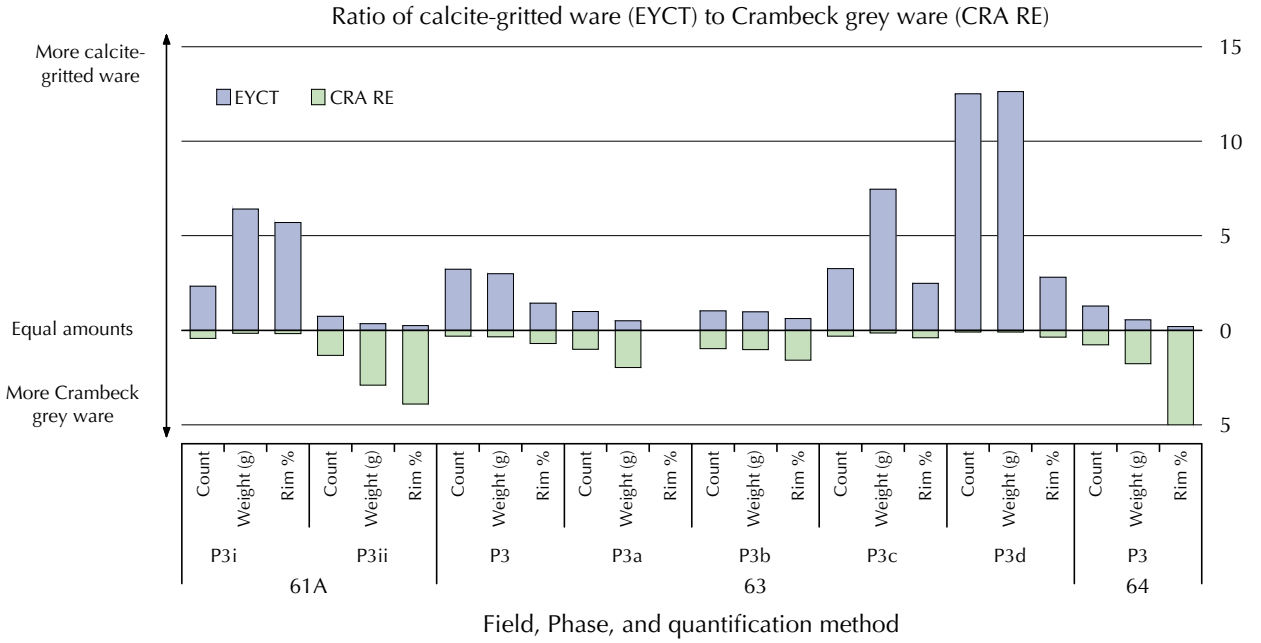


Figure 150: Relative proportion of calcite-gritted ware and Crambeck grey ware by count

Evans (2002) note that narrow necked jars like this were most common in the 2nd and 3rd century. A fragment of a BB1 plain rim dish from this pit was of early 3rd century type (Gillam 1976, no. 79) but a later date is not impossible. A Nene Valley colour-coated mortarium of the late 3rd to 4th century was also present.

Pit 5029 contained sherds from an early to mid-3rd century Nene Valley beaker with curved rim, late 3rd to 4th century Crambeck grey ware sherds, late 4th century Crambeck painted parchment ware sherds and late 3rd to 4th century BB1 splayed-rim jars and calcite-gritted ware as well as residual 2nd century types.

Ditch 7966 contained sherds of late BB1 jars with obtuse lattice and shoulder grooves dating after the mid-3rd century at the earliest, a pre-Huntcliff jar of the late 3rd or first half of the 4th century as well as 2nd century sherds. Calcite-gritted sherds were also present in the fill of 5554/7897 and one undiagnostic grey ware sherd came from the recut 7901. Calcite-gritted ware was also present in ditch 5182 with a Crambeck parchment ware mortarium dating after *c*.AD 370 from the middle fill. Its recut (5054) contained a BB1 jar sherd with obtuse lattice of the 3rd century at the earliest. In posthole 5131 of the fence line 5133, sherds from a GRC everted-rim jar with faint lid seating, a Crambeck type 4 wide-mouthed jar, and a bifid rim OAB jar gives a late 3rd or 4th century date.

Phase 3d late 4th-early 5th century

Romano-British sherds from stone deposit 5066 included the rim of a Huntcliff type jar and a flanged calcite-gritted bowl as well as the base of a Crambeck Parchment ware vessel with faint traces of red paint, perhaps Corder type 10 giving a date after *c*.AD 370. Grave 5015 only yielded scraps of Roman pottery and these include calcite-gritted ware and Crambeck white ware but were not diagnostic. More abraded scraps of calcite-gritted and Crambeck grey ware came from gully 5033 while two undiagnostic grey ware sherds and samian dated to *c*.AD 120-200 came from the stone lining of pit 5296. The fill of this pit included sherds from a Huntcliff type jar with multiple shoulder grooves.

FIELDS 63 AND 64 HEALAM NORTH PHASE 3 3RD TO LATE 4TH CENTURY

This phase may well have included features dating as early as the mid- to late 2nd century and as late as the late 4th century. Several of the pits in enclosure 5696 included late 2nd and 3rd century sherds. Enclosure 5696 and ditches 5559 and 7499 were dated to the 4th century by the Crambeck sherds from their fills and other late 4th century pottery from its various cuts and recuts. The pottery from 7519 and 6861 was late and included late 4th century types, much later than the Phase 1 structure 5729. Pottery from the cuts of ditch 7361 suggested the earliest fills date to late 2nd or early 3rd century while the later cuts span the 3rd century to as late as the late 3rd to early 4th century. Ditch 5368 was open in the late 4th century. The lack of pottery from 7074 and 9071 left them undated but the cobbled area 7967 belonged to the late 2nd to early 3rd century, possibly being in use earlier in the 2nd century.

ENCLOSURE 5696

The lower fill (5702) of 5696 included undiagnostic bodysherds and a sherd from a Crambeck mortarium dating to the 4th century. The upper fill of ditch 5696 had residual sherds from 2nd century hemi-spherical and carinated bowls and some calcite-gritted sherds likely to have belonged to the late 3rd or 4th century. Fill 5640 of ditch 5639, which partially recut 5696, included a bodysherd from a Huntcliff type jar with spaced shoulder grooves dating after *c*.AD 360 as well as Crambeck ware and 3rd century types such as a bodysherd of a Nene Valley indented beaker. Fill 5830 of 5639 also included Crambeck grey ware and a Huntcliff type jar rim dating after AD 360.

Ditch 5151/5547 contained Crambeck grey ware type 12 beaker base and a Huntcliff type jar rim dating to the late 3rd to 4th century and after *c*.AD 360 respectively. Ditch 5151 in the area to the south contained earlier pottery of the mid-2nd century and it was likely that this earlier section dated to Phase 1 (see above). Ditch 5559, subdividing enclosure 5696, contained only undiagnostic Roman sherds but its recut (5323) contained a very abraded group of late 3rd to 4th century sherds which included the tip of a pre-Huntcliff or Huntcliff type jar, a Nene Valley dish base, Crambeck grey ware, and OAB1 sherds from the hair on a face pot. Fill 5631 contained similar sherds including calcite-gritted ware, Crambeck ware, and gritty grey ware all pointing to a late 3rd or 4th century date while the calcite-gritted sherd from fill 5648 was probably from a dish of later 3rd to 4th century date. Layer 5321, overlying this ditch, included the classic Huntcliff jars, gritty grey ware Dales type jars, Crambeck grey ware types, late BB1 splayed-rim jars, a Nene Valley pentice-moulded beaker as well as Crambeck Parchment ware mortaria giving a date after *c*.AD 370. Residual 2nd century material was also present in this layer.

Of the pits in the south of enclosure 5696, pit 5572 contained a grey ware sherd from a closed vessel with linear burnished decoration in a very hard fired grey ware which could belong to the later East Yorkshire group from Holme-on-Spalding or Norton, perhaps dating to the 3rd century AD. The pottery in pits 5994 and 5997 were of 2nd century date. The pottery from pit 5861 included a grey ware jar with curving everted rim of later 2nd or early 3rd century type in fill 5862 and a similar vessel in 5863 with a BB1 jar bodysherd with obtuse lattice burnish and a grey ware rolled rim dish. The BB1 sherd gave a *terminus post quem* in the 3rd century. Similarly, in pit 5885 (fill 5886) an incomplete rim sherd from a BB1 jar with splayed rim was of similar date in the 3rd or 4th century as well as a sherd from a grey ware jar bodysherd with acute lattice burnish common in the 2nd century. In the north-western corner, pit 5807 contained scraps of calcite-gritted ware suggesting a date range in the later period, perhaps late 3rd to 4th century. Pit 5908 contained Crambeck type grey ware.

Pit 6880 had both grey ware and BB1 sherds with obtuse lattice burnish dating to the 3rd or early 4th century and sherds from a folded slit beaker from the Nene Valley of late 3rd to early 4th century type. Pit 7082 also yielded sherds from a splayed-rim BB1 jar with shoulder groove and obtuse lattice burnish dating from the late 3rd century to the early 4th century.

The pottery from ditch 7499 (fill 7500) included sherds of a Crambeck grey ware lugged jar and some calcite-gritted ware sherds, as well as a residual 2nd century sherd and a large number of Dressel 20 bodysherds. The recut (7501) contained two sherds of 2nd century samian only. The corn dryer (7405) contained only tiny scraps of pottery including a GRB6 everted rim, probably of 2nd century date.

Pottery from 7519, a ditch west of structure 5729, included a Huntcliff type jar rim and a GRB1 everted

rim probably from a lugged jar of mid-3rd century date or later, giving a date after AD 360 for its final infill. Sherds of calcite-gritted ware and Crambeck grey ware were found in the fill of ditch 6861 and Crambeck grey ware was also present in its earlier cut (6817), with a Crambeck grey ware type 3 jar fragment in fill 6837 of ditch 6836.

To the north of these features, recut 7361 and earlier ditches suggested a sequence from the 3rd to 4th century. Ditch 6897 included one small sherd from a Trier black slip beaker of late 2nd to mid-3rd century date and ditch 7359 contained a small group of 3rd century types including a flanged bowl dating after *c*.AD 270, a grey ware everted rim jar with obtuse lattice and a bodysherd from a 3rd century BB1 jar with obtuse lattice. Fill 6811 of ditch 7361 also contained 3rd century pottery including a sherd with obtuse lattice and shoulder groove dating to after the mid-3rd century and a painted parchment ware, probably a 3rd century Nene Valley flask. Pit 5429 cut this ditch and contained sherds of calcite-gritted ware as well as residual 2nd century sherds. Ditch 6813 contained further 3rd and late 3rd to 4th century sherds including a BB1 jar (Gillam 1976, no. 11, late 3rd to early 4th century), a developed flanged bowl of the late 3rd to 4th century, a Dales ware jar of mid-3rd to early 4th century date, a Dales type gritty grey ware jar of the late 3rd to 4th century, Nene Valley scale indented beaker sherds and multi-reeded mortaria of the mid-3rd to mid-4th century.

Two vessels came from cremation 6838, a small BB1 jar with acute lattice burnish of early to mid-2nd century type and the bottom of a grey ware jar of unknown date.

At the far northern end of the area, a calcite-gritted jar rim from a wide mouthed jar or storage jar from ditch 5368 gave a date in the late 3rd to 4th century at the earliest. The facetted inside surface of the rim and the worn ring suggest that this was a lid-seated vessel and probably dated to the mid-4th century.

No pottery was found in ditch 7074 or in 9071. The cobble layer (7967) included 2nd century and later 2nd to early 3rd century pottery, a rim of an FLB1 cup-rim flagon, an early to mid-2nd century BB1 jar sherd with burnished wavy line on the neck (Gillam 1976, no. 2), a GRB11 circle and dot beaker, and sherds of Dressel 20 amphora.

HEALAM BECK ROMAN ROAD PHASE 3

In structure 9189 sherds of samian ware, dated to AD 120-200, came from fill 9174 of posthole 9173, as well as from fill 9183 of post-pit 9163. A small calcite-gritted sherd from 9185 may be Huntcliff type ware dating to the later 3rd to 4th century.

In Trench 27 pottery from the ditches pre-dating the earliest phase of the road contained sherds from 4th and late 4th century pottery including Crambeck grey ware from the fills of ditches 9113, 9123 (a Corder type 12 pentice-moulded beaker), 9122 (a calcite-gritted, Huntcliff type jar and Crambeck painted mortarium), and 9117 (a pre-Huntcliff type jar of early to mid-4th century date). The road ditch (9050) also had Crambeck grey ware and late red ware from the secondary fill (9051) and sherds of a Huntcliff type jar from the primary fill (9056) giving a *terminus post quem* for its initial infilling as *c*.AD 360. A gully between ditch 9050 and road 9038 contained Crambeck grey ware and calcite-gritted pottery sherds which although not closely datable were likely to date within the 4th century.

The later road surface (9099) contained sherds from vessels of the same date range including sherds from a Crambeck mortarium, a calcite-gritted ware jar, a Crambeck grey ware wide-mouthed jar and flanged bowl (Corder 1937, types 1 and 4).

By contrast, in Trench 28 an earlier road phase was identified and pottery associated with this phase included Antonine samian and a GRB11 bowl or dish with lipped rim, dating from the mid-2nd century and continuing to be made in the earlier 3rd century from fill 9131 of ditch 9116. Antonine samian was also recovered from layer 9072, a layer between the earliest road surface and later road surface 9045. Within this later surface sherds from a GRC jar and a NV1 beaker were found. The GRC jars were predominantly Dales and sub-Dales type dating to the late 3rd to 4th century but these sherds did not include typologically diagnostic features. Later ditch 9057 also contained sherds and these included more GRC sherds as well as sherds from a Dales ware jar, a grey ware smith god pot (Braithwaite 2007, type 21) from the primary fill (9059) and a late BB1 splayed-rim jar from the secondary fill (9058). The absence of Crambeck and calcite-gritted ware suggests a slightly earlier date range than that found in Trench 27, perhaps in the late 3rd century.

The amount of pottery from this area was relatively small and had little potential in respect to analyses relating to function or status of adjacent occupation. The Flavian group from Trench 26 was relatively fresh suggesting domestic occupation in the vicinity. Pottery from structure 9189 was restricted to three or four very small sherds and very little ceramic material came from this part of the trench. Although the pre-road ditches in Trench 27 contained well dated sherds, the number of pieces overall was very small, with only one or two sherds per context, apart from the post-Roman layers 9060 and 9145. The same picture of limited ceramic deposition emerged in Trench 28 where the ditches and layers contained only a handful of sherds except the colluvium layer (9068).

SOUTH OF HEALAM BECK

Field 61 Phase 3 late 3rd to 4th century

In Field 61 a group of 65 sherds came from ditch group 2270 and these included a range of types, the latest being a calcite-gritted ware plain rim dish of the 4th century. GRC Dales type jars and a CTA2 Dales ware jar were also present and dated to the late 3rd to 4th and 3rd to mid-4th century respectively. Earlier 2nd century types such as the BB1 jars with acute lattice burnish and a BB1 flat-rim bowl and 2nd century flanged mortaria, as well as Hadrianic-Antonine samian from the fills, suggested a long life spanning Phases 1 to 3. Ditch 2292 contained more lid-seated jars in gritty grey ware of the late 3rd to 4th century and the 4th century coin from this fill indicated a place in Phase 3. In the western extension, ditch 2738 contained sherds from a calcite-gritted jar of Huntcliff type dating after *c*.AD 360 as well as Crambeck

grey ware and 4th century coins and belonged in Phase 3.

Field 62 Phase 3 late 3rd to late 4th century

In this phase, pottery from the fill of ditches 2140, 2444, 2463, as well as 2513, 2651, and 2870 (group 2890) suggested a late date at least in the late 3rd or 4th century and included bodysherds of calcite-gritted ware, gritty grey ware and Crambeck ware. A Crambeck grey ware type 1 dish came from the primary fill of ditch 2156 and a type 3 of late 3rd to 4th century date came from the secondary fill. A Crambeck mortarium sherd of 4th century came from cut 2570 as well as a calcite-gritted sherd with grooved decoration dating from *c*.AD 360 or later and a gritty grey ware lid-seated jar of the late 3rd to 4th century. A Nene Valley colour-coated dish fragment from ditch 2444 is even later, *c*.AD 360 or later. By contrast, ditch 2541 (fill 2539) in this group contained only sherds of early 2nd century type, a GRB1 everted rim jar with acute lattice burnish but post-dates ditch 2444. Similarly three samian sherds from ditch 2140 fill 2280 are dated to AD 40-100 and one was dated to AD 120-200, but this cut post-dated primary fill 2314 of ditch 2238 in ditch group 2890 which contained sherds of gritty grey ware dated late 3rd to 4th century. A pre-Huntcliff type jar from gully 2811 gave a date in the 4th century, probably early to mid-4th century. Spread 2466, which overlay earlier ditch 2462, contained the rim of a Huntcliff jar suggesting this was still accumulating in the late 4th century. Earlier grey ware everted rim sherds of the 2nd or 3rd century were also present in this context.

East of group 2890, ditch 2641 may have still been open in Phase 3 since Crambeck grey ware and gritty grey wares were present in fill 2673 of this ditch.

The primary fill (2850) of pit 2693 contained a sherd from a rouletted Nene Valley 1 beaker of late 2nd to early 3rd century type as well as an MVER mortarium flange of late 1st or early 2nd century date and coarse wares broadly datable to the 2nd century. The secondary fill (2851) contained a sherd from a Crambeck type 1 dish. Fill 2714 included sherds of Crambeck grey ware type 1a, a mid- to late 3rd century Oxfordshire cream mortarium, a multi-reeded MH mortarium of mid to late 3rd to mid-4th century type and a pre-Huntcliff jar rim of the early to mid-4th century.

Pit group 2889 contained a range of pottery with sherds of a Crambeck grey ware dish from the secondary fill (2588) of pit 2586 and mid-2nd century pottery from fill 2675 of pit 2674. An incomplete rim from a Dales type jar in gritty grey ware from gully 2696 also dates to the late 3rd to 4th century. In this group gritty grey ware sherds from gully 2762 suggested a date in the late 3rd to 4th century and sherds from a calcite-gritted jar with neck and everted rim came from fill 2794 of pit 2760, giving a 4th century date. A midden deposit (2589) over this area contained small amounts of pottery including calcite-gritted ware and an oxidised rim sherd from a bowl copying samian form Dr.31 and probably of late 3rd to 4th century date.

Crambeck grey ware, calcite-gritted ware and late BB1 splay rimmed jar sherds from the large pit 2853, south of this group, indicated a late 3rd or 4th century date for its infilling.

At the south of this area, fill 2362 of ditch 2217 contained calcite-gritted sherds with a GRA3 sherd from a wide-mouthed jar, suggesting a date later in the 3rd century at the earliest. A PNK GT bodysherd from fill 2359 of 2217 was a late 3rd to 4th century type. A scrap of Crambeck grey ware from ditch 2174 gave a late 3rd to 4th century date. Spread 2162, cut by ditch group 2890, included sherds of a Crambeck grey ware flanged bowl and a calcite-gritted ware jar both dating from the late 3rd to 4th century.

In the western annexe, calcite-gritted ware sherds from a Huntcliff type jar and a type 6 mortarium came from the primary fill (2741) of cut 2737 in ditch group 2270 and date to the late 4th century.

The Phase 3 features demonstrate continued use of the linear feature represented by group 2890 with associated pits and ditch 2217/2248. Huntcliff type jars, late Crambeck grey ware types, and parchment wares were scarce or absent in this area suggesting most ceramic producing activity had ceased by the mid to late 4th century. The ratio of Crambeck to calcite-gritted ware was equal by EVEs with more Crambeck ware by weight and more calcite-gritted ware by sherd numbers. The results probably reflect the redeposition and subsequent break-up of the vesiculated calcite-gritted ware and the equal numbers or higher weight probably reflect the truer picture dating to the late 3rd to late 4th century. However, the amount of ceramic debris being deposited throughout the use of this area was, in any case, low.

Field 61A Phase 3 late 3rd to 4th century

In Phase 3 a great deal of residual material from previous phases of activity dating to the 2nd century was found in layers 8017 and 8018. The latest pottery was battered sherds of early Crambeck type, calcite-gritted sherds and a splayed BB1 rim of jars of 3rd or early 4th century date. Ditch 8019 (fill 8020) contained residual 2nd century sherds along with 3rd century types including a grey ware jar with obtuse lattice burnish, Nene Valley colour-coated ware, a MCTR WS4 mortarium sherd of the late 3rd to 4th century, a GRB3 sub-Dales type jar, and Crambeck ware with a Huntcliff type jar rim dating after AD 360. A grey ware rim from a wide-mouthed jar similar to those made at Norton and Throlam came from the tertiary fill (8309) of ditch 8310 and sherds from a Huntcliff type jar came from fill 8013 of ditch 8012.

In Phase 3ii, a pre-Huntcliff type jar and a Crambeck ware flanged bowl came from the tertiary fill of ditch 8036, giving an early to mid-4th century date range. A large sherd from a Nene Valley beaker with a frieze of upside down tear drop shapes came from this fill and was also present in later fill 8165 of ditch 8167. Both Huntcliff and pre-Huntcliff types were present in fill 8096 of ditch 8097. Sherds of Crambeck ware, dating after *c*.AD 270, were present in Phase 3i in layer 8017 and fills 8035 and 8132 of ditch 8036. An MH multi-reeded mortarium dating to *c*.AD 230-330 was also present in fill 8132. A sherd worked into a roundel with a small perforation, possibly not fully worked, came from fill 8132 of ditch 8036 and was made from a base of a grey ware with pale core. It was not possible to make a fresh break but this ware resembled Crambeck ware or another similar East Yorkshire grey ware. A complete Crambeck grey ware flanged bowl from fill 8094 of pit 8093 had broken in two and was badly stained from burial conditions. Huntcliff and related types of jars dating to the 4th century (after AD 360) were present in Phase 3i in fill 8013 of ditch

8012, layer 8017, and fill 8020 of ditch 8019, and Phase 3ii in layer 8009, fill 8035 of ditch 8036, and fill 8096 of ditch 8097.

Layers 8002 and 8009 contained large quantities of pottery including a high proportion of Huntcliff type jars and Crambeck grey wares including a flanged bowl with internal burnished wavy line and Crambeck parchment ware mortaria, both dating after *c*.AD 370. Earlier material derived from the 2nd century activity was also present.

In Trenches A and C in Phase 3 gritty grey ware suggested a later 3rd to 4th century date for ditch 8077 (fill 8078), while a scrap of Crambeck grey ware from primary fill 8275 of ditch 8040 gave the same date. A thin-walled BB1 jar sherd from fill 8248 of grave 8246 was probably of 3rd century date. In Trenches A and C the pottery was mostly residual in Phase 4 features. The only calcite-gritted ware came from Phase 3 context 8009 and one scrap of Crambeck grey ware came from the primary fill (8275) of ditch 8040 with the complete Crambeck grey ware bowl from pit 8093. In these trenches most activity seems to have declined in the 3rd century AD.

The main period of occupation in this field was in the Hadrianic to early Antonine period with activity continuing into the 3rd century. In Trench B there was strong evidence for activity in the 4th century but in Trenches A and C this was limited to the complete bowl from pit 8093. There were some indications that the burial activity in Trench B dated to the late 2nd or 3rd century. The evidence for the later date is somewhat ambiguous with sherds that were not closely datable or are very small with a high likelihood of being intrusive. Certainly layer 8266 contained calcite-gritted bodysherds of this type and late 3rd to 4th century calcite-gritted and gritty grey ware sherds were found in the subsequent alluvial layer 8017 as well as Crambeck ware of late 3rd to 4th century date. Splayed BB1 rim sherds from jars of the 3rd century or later were present in layer 8018 with an MH mortarium dating to *c*.AD 230-300. In Trench A, burial 8241 was stratigraphically later than contexts with late 3rd to 4th century pottery (thin-walled BB1 sherd and gritty grey ware from 8048 and Crambeck grey ware from 8275) and the fill of burial 8246 contained a small scrap of from a thin walled BB1 jar most likely to be of 3rd century or later date. After the burial phase in Trench B the pottery suggested activity in the 4th century in the form of ditches.

Phase 4

Of the graves only 5305 (within cut 5348) had any pottery from its fill. This very small calcite-gritted scrap may be of late 3rd to 4th century date but lacked diagnostic characteristics. Grave 5024 contained abraded sherds of 2nd century date. In Field 62 cremation 2220 also contained burnt sherds from a small grey ware jar which had been thoroughly burnt probably on the pyre then gathered up with the cremated bones. The burnt sherds came from a small beaker with a short everted rim. Although in poor condition and fragmentary, this form best compares with late 1st to early 2nd century jar types.

Healam catalogue of illustrated sherds

Unless otherwise stated, references to Catterick types (Cat) are to Evans 2002, and York types are in Monaghan 1997.

FIELD 61A

Field 61A Phase 1i (Fig. 151)

1. GRB16 everted-rim jar with acute lattice burnish outside body. Catterick type J13 (Bell and Evans 2002) and York type JC2, Hadrianic-early Antonine. A1DB10 8366 and 8364.

2. GRB1 neckless jar with short everted rim, burnished rim and body. Catterick type J7.3 Trajanic-Hadrianic. A1DB10 8452.

3. GRB1 flat-rim bowl, burnished rim and body. York type BD, Monaghan 1997 and Swan 2002, fig. 7, no. 77 suggest Hadrianic introduction. A1DB10 8452.

4. GRB triangular-rim dish with acute lattice burnish. Monaghan 1997 type DP7, and Colchester, Bidwell and Croom 1999, 469, type 37a dated Hadrianic-late 2nd/early 3rd century but Antonine to early 3rd century in the North (Gillam 1970, no. 310). A1DB09 8452 AA.

5. FLB1 ring-necked flagon with prominent top ring. Burnt. Monaghan 1997 types FR3 and Bell and Evans 2002, F1.3 and Gillam 1970, no. 5 dated AD 110-50. A1DB10 8452.

6. Ebor 6 red painted bead-rim hemi-spherical bowl. Monaghan 1997 type BH1. Bell and Evans 2002, type B10 and Swan 2002, fig. 11, no. 145. Hadrianic-early Antonine. A1DB10 8433.

Field 61A Phase 1ii (Fig. 151)

7. GRA1 fine grey ware bead-rim hemi-spherical bowl decorated with pushed out bosses. Bell and Evans 2002 type B10.3 and B10.8 widely dated to the late Trajanic/Hadrianic-Antonine period. A1DB10 8281.

8. BB1 neckless jar with bead rim. Gillam 1976, nos. 16 or 30, early to mid-2nd century. A1DB10 8294.

9. GRB flat-rim bowl, burnished rim. York type BD, Monaghan 1997 and Swan 2002, fig. 7, no. 77 suggest Hadrianic introduction. A1DB10 8227.

10. OAB1 bowl with moulded rim with internal rebate. This form compares with Monaghan type BB (1997), a heterogeneous group found in early to mid-2nd century groups at York for which Swan suggested a Hadrianic introduction at York (2002, fig. 7, no. 77). Some of the examples may be related to a campanulate form of similar date range (Swan 2002, fig. 2, no. 14) from Trajanic-Hadrianic groups at Aldborough. This example with internal rebate may be related to an Ebor 6 type (Swan 2002, fig. 11, no. 137 Hadrianic-early Antonine). At Catterick this form belongs in type B11 (Bell and Evans 2002, dated AD 130-70 and AD 160-200). A1DB10 8227.

11. GRA4 bead-rim hemi-spherical bowl with fairly short zone below rim. As nos. 6-7. A1DB10 8228.

12. BB1 necked everted-rim jar. Sooted on rim neck and

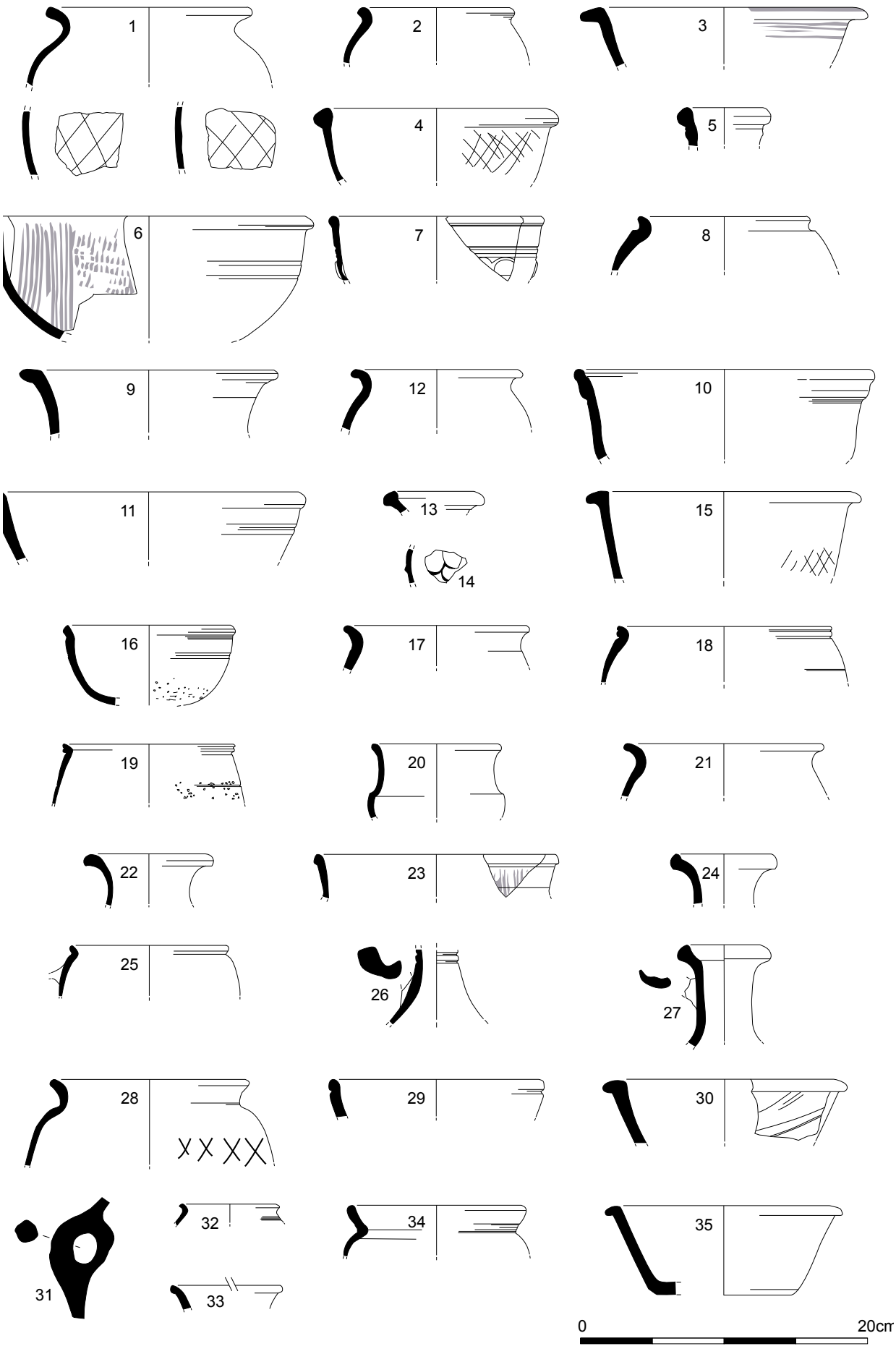


Figure 151: Roman pottery

shoulder. Gillam 1976, no. 2 early to mid-2nd century. A1DB10 8333.

13. FLB1 rim of cup-rim flagon, Monaghan 1997, type FC dated early Antonine to early 3rd century and at Catterick, Bell and Evans 2002, type F3 mid-2nd to mid-3rd century. A1DB10 8335.

14. NV1 all over scale beaker of the mid- or late 2nd century (Perrin 1999, fig. 60, nos. 122, 141 -2). A1DB10 8339.

15. BB1 flat-rim bowl with acute lattice burnish. Gillam 1976, no. 34, early to mid-2nd century. A1DB10 8255.

16. RSB1 cup. cf. Swan 2002, fig. 11, no. 146 Wetterau bowl, Hadrianic-early Antonine. A1DB10 8271.

Field 61A Phase 2 *(Fig. 151)*

17. BB1 jar with upright rim, Gillam 1976, no. 2, mid-2nd century. A1DB10 8015.

18. CC2 very fine roughcast beaker with grooved developed cornice rim. York KC5, late 1st to early 2nd century. Anderson 1980, fig. 12, nos. 1-3, AD 80-130/35. A1DB10 8015.

19. CC2 very fine roughcast beaker with deep grooved developed cornice rim as no. 18. A1DB10 8015.

20. GRA1 necked beaker with everted tip. Possibly a folded beaker or jar of the late 2nd or early 3rd century, Perrin 1999, 94. A1DB10 8178.

21. BB1 jar with curving everted rim. Gillam 1976, no. 4, mid- to late 2nd century. A1DB10 8179.

22. OAB1 everted-rim narrow-necked jar or flask. York type FE2, Antonine-early 3rd century. A1DB10 8297.

23. Ebor 6 bead-rim bowl. A1DB10 8297.

24. GRB6 everted-rim jar/flask with internal rebate. York type FE1, Antonine-early 3rd century. A1DB10 8297.

25. GRB1/6 handled jar/beaker with short everted rim. Compare Gillam 1976, nos. 24-6. Antonine date range. A1DB10 8297.

26. GRA1/FLB1 neck of ring-necked flagon, perhaps burnt or misfired resulting in reduced condition. A1DB10 8297.

27. OAB1 cup-rim flagon. York FC, dated from the Antonine period. A1DB10 8386.

28. GRB6 everted-rim jar, copying BB2 type jars of Antonine type. A1DB10 8386.

29. BB1 grooved-rim dish. Gillam 1976, no. 70, mid- to late 2nd century. A1DB10 8386.

30. GRB8 flat-rim dish. Gillam 1976, no. 61, mid-2nd century. A1DB10 8386.

31. BB1 lug of lugged jar. Gillam 1976, no. 16, dated early to mid-2nd century. A1DB10 8046.

32. NV1 everted rim of beaker of mid/late 2nd to early 3rd century type (Perrin 1999, 94). A1DB10 8051.

33. BB1 splayed rim of jar. 3rd century type or later. A1DB10 8051.

34. GRB6 cupped-rim jar of the mid-2nd to mid-3rd century (Swan 2002, fig. 12, no. 158) dated late 2nd to mid-3rd century but present in the Antonine kilns at Rossington Bridge, Buckland *et al.* 2001, 69. A1DB10 8053.

35. GRB6 flat-rim bowl with chamfered base. Complete profile. York DP5, mid-2nd to mid-3rd century type. A1DB10 8111.

Phase 3i *(Fig. 152)*

36. NV1 everted-rim scale folded beaker. Perrin 1999, 94, mid/late 2nd to early 3rd century. A1DB10 8018.

37. BB1 splayed rim from 3rd-4th century jar. A1DB10 8018.

38. BB1 plain-rim dish with burnished intersecting arcs. Gillam 1976, no. 77, early 3rd century. A1DB10 8018.

39. CRA RE bodysherd from large jar with vertical burnish lines. Corder 1937 type 3, late 3rd to 4th century. A1DB10 8020.

40. EYCT Huntcliff type rim jar. AD 360+. A1DB10 8020.

41. OAB1 everted-rim folded, roughcast beaker with faint traces of rough casting. A1DB10 8020.

42. GRB3 bowl with downbent flat rim. A1DB10 8020.

43. GRB3 rebated-rim narrow-necked jar. A1DB10 8020.

44. GRB3 blunt ended, tall everted-rim jar in sub Dale type series, Cat J12.11, late 3rd to 4th century. A1DB10 8020.

45. BB1 jar with fairly upright rim. Gillam 1976, no. 2, mid-2nd century. A1DB10 8020.

46. BB1 jar with everted rim. Gillam 1976, no. 3, mid-late 2nd century. A1DB10 8020.

47. GRB20 jar with shoulder cordon and upright rim. A1DB10 8020.

48. OAB/GRB face. This was abraded and discoloured, possibly burnt. The small fragment was of a moulded nose with pierced nostrils and down turning mouth. The down turned mouth was unusual. A fragment with down turned mouth from York was classified as one of the African headpot range by Monaghan (1997, 918, no. 3251, residual within the context) and the type was dated to the early 3rd century. A1DB10 8020.

49. GRB3 rim of Throlam type jar. A1DB10 8309.

Phase 3ii *(Fig. 152)*

50. NV1 beaker with teardrop decoration en barbotine in zones defined by barbotine dots. A1DB10 8035.

51. Coarse CRA RE or local copy incomplete rim and body of developed flanged bowl, late 3rd to 4th century. A1DB10 8035.

52. EYCT proto-Huntcliff type rim jar, early to mid-4th century. Cat J9. A1DB10 8035.

53. EYCT necked jar with grooved rim. c.AD 360+. A1DB10 8096.

54. GRC out curved rim, in proto-Huntcliff form. A1DB10 8096.

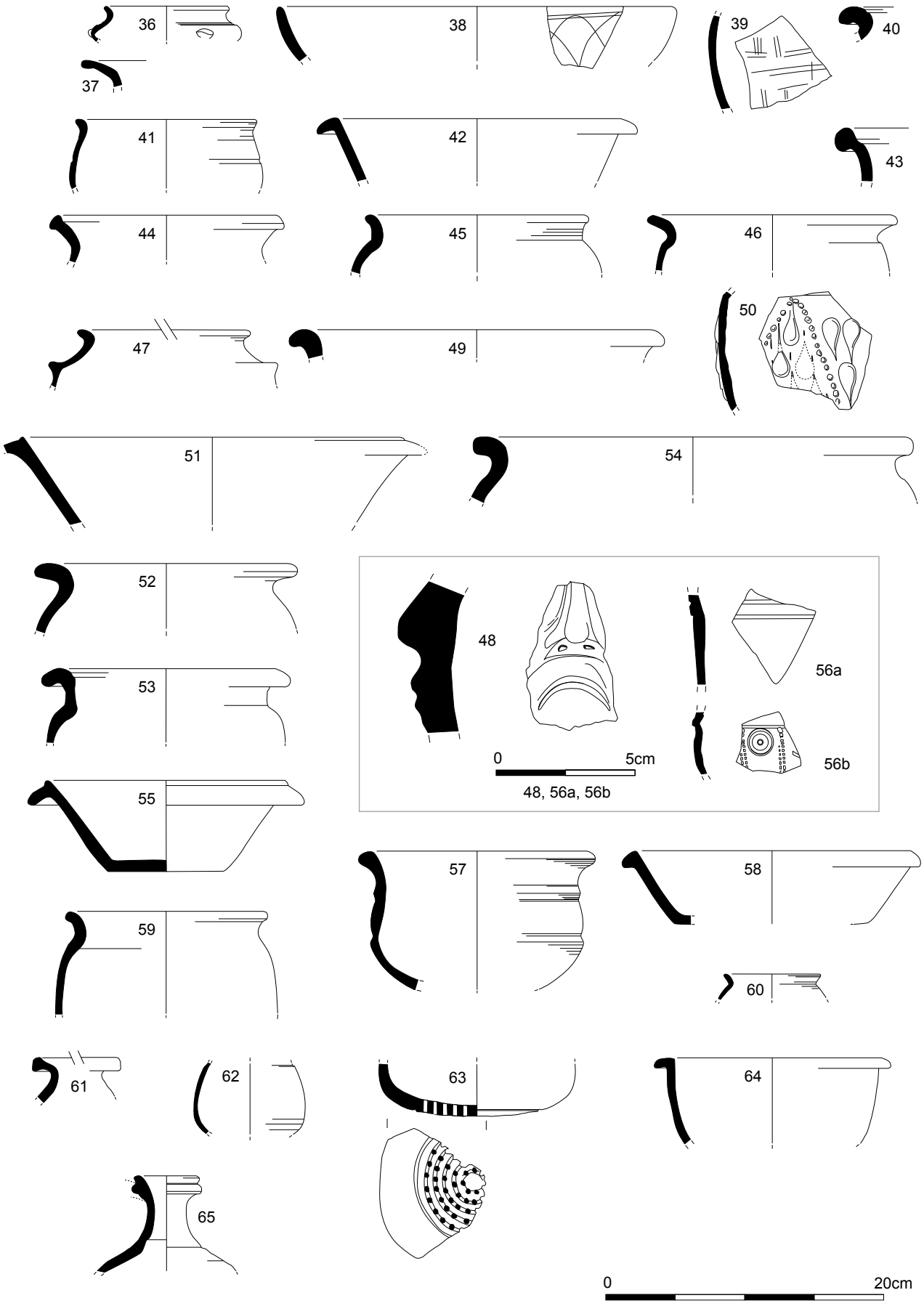


Figure 152: Roman pottery

55. CRA RE developed flanged bowl. Corder 1937, type 1. A1DB10 8094.

Phase 5 *(Fig. 152)*

56. Parisian grey ware sherds from bowl with triple concentric stamped decoration and comb tip stamping. A1DN10 8002.

FIELD 62

Phase 1 *(Fig. 152)*

57. OAB7 carinated, cordoned bowl with everted rim. A mid to late 1st century type. Not a Yorkshire form. A1DB09 2590.

58. GRB16 flat-rim dish. A1DB09 2483.

59. BB1 jar with fairly upright rim. Gillam 1976, no. 2, mid-2nd century AD. A1DB09 2584.

60. GRB1 everted-rim beaker, probably of Phase 1 date. Very fragmentary and burnt. This simple form was difficult to date but was similar to late 1st to early 2nd century AD jars. A1DB09 2221 Phase 4.

Phase 3 *(Fig. 152)*

61. GRC4 sub-Dales type jar. Late 3rd to 4th century AD. A1DB 2704.

FIELD 63 SOUTH

Phase 1a *(Figs. 152, 153, and 154)*

62. Ebor3 beaker body. A1DB09 5084.

63. OAB1 colander base. A1DB09 5084 RF545.

64. GRB6 flat-rim bowl, downbent rim. A1DB09 5084.

65. FLB1 pulley-mouthed flagon. York FP, mid-2nd to early 3rd century. A1DB09 5084.

66. GRB6 triangular rim dish with wavy line burnish. A1DB09 5084.

67. BB1 jar with upright rim. Gillam 1976, 6, no. 2, mid-2nd century. A1DB09 5084.

68. BB1 everted-rim jar, Gillam 1976, nos. 2-3, mid-late 2nd century. A1DB09 5084.

69. BB1 SOW everted-rim jar with shoulder groove and internal rim rebate. Vertical burnished lines. Holbrook and Bidwell 1991, in south-western BB1, fig. 36, type 10, dated 1st century to early Antonine or fig. 36, type 10 in south-east Dorset BB1. A1DB09 5084.

70. EYCT flanged bowl. Late 3rd to 4th century. A1DB09 5084 and in context 5069 Phase 1d.

71. GRB6 everted-rim necked jar. A1DB09 5084.

72. Ebor3 carinated vessel, bowl? A1DB09 5084.

73. OAB1 flanged bowl. Gillam 1970, no. 294, AD 120-50 and Catterick B3.1. A1DB09 5084.

74. OAB1bead-rim hemi-spherical bowl. A1DB09 5084.

75. BB1 everted-rim jar, Gillam 1976, no. 3, mid-late 2nd century. A1DB09 5142.

76. FLB1 cup-rim flagon. A1DB09 5142.

77. BB1 jar with fairly upright neck. Gillam 1976, no. 2, mid-2nd century. Sooted. A1DB09 5201.

78. GRC jar with offset rim, tall everted rim with rebate inside rim tip. Similar to a form made at Roxby in the Antonine period (Stead and Rigby 1976, type A). A1DB09 5201.

79. GRB6 sherds from a large jar, probably a narrow-necked vessel, with a chevron pattern made using impressed comb lines. Sherds from this vessel, or one like it were also present in Field 63, Phase 1d, group 5009, contexts 5121; Field 63 Phase 1d structure 7951; contexts 6763, 7022, and 7607. A1DB09 5230.

80. OAB5 hemi-spherical bowl with double grooved, flat rim. This form is also present in the north-west and dated to the Trajanic-Hadrianic period (Jones 1972, fig. 11, no. 16 from Northwich Trajanic-Hadrianic kiln group; cf. Middlewich, Leary 2008a, nos. 99-100). It was similar to a vessel from York which Swan parallels in the Wetterau group (2002, fig. 9, nos. 105 and 106). A1DB09 6927.

81. GRB grooved-rim dish. York DG4 late 2nd to early 3rd century. A1DB09 7065.

82. OAB1 splayed, ring-necked flagon. (Monaghan 1997, type FR2, dated Trajanic-Antonine and Gillam 1970, no. 9, AD 140-80). A1DB09 7641.

83. GRB6 trefoil mouth flagon. York FT 1st to early 3rd century. A1DB09 7641.

84. BB1 grooved-rim bowl with acute lattice burnish. Gillam 1976, no. 51-2, mid-late 2nd century. A1DB09 7641.

85. GRB1 flat-rim carinated bowl with acute lattice burnish. York BD, 2nd century. Gillam 1970, no. 217, AD 110-130. A1DB09 6926.

86. OAB1 hemispherical bowl with rather flattened rim, grooved on top and with rouletted body. At York such bowls were dated after *c.*AD 120 (Monaghan 1997, type BH, unclassified note). A1DB09 6926 and Phase 1d 5071.

87. GRB6 rusticated jar. York JR, late 1st to early 2nd century. A1DB09 6926.

88. GRB6 undecorated neckless jar with shoulder grooves and small everted rim. Late 1st to 2nd century. A1DB09 6926.

89. GRB1/11 reeded-rim bowl. York BC1 late 1st to early 2nd century. A1DB09 7731.

90. GRA2 small beaker with fine, short everted rim. Probably a small version of the common late 1st to early 2nd century jar type. A1DB09 7863.

91. GRB12 neckless everted-rim jar/beaker with shoulder groove and circular arrangement of barbotine dots with central dot. Variant of ring and dot beaker of late 1st to early 2nd century. York KP1, no 3951 has the same motif. A1DB09 7903.

92. BB1 small nearly complete but fragmented jar with acute lattice burnish, Gillam 1970, no. 16, mid-2nd century, covered with post-deposition accretions. A1DB 09 5234 RF 447.

93. GRB6 narrow-necked jar with everted rim, covered with post-deposition accretions and white deposits outside upper neck and inner lower neck. Rim, neck and upper body. Similar to a Trajanic-early Hadrianic two-handled jug type from Apple Tree Farm kiln, Heworth, Swan 2002, fig. 7, no. 69. A1DB09 5234.

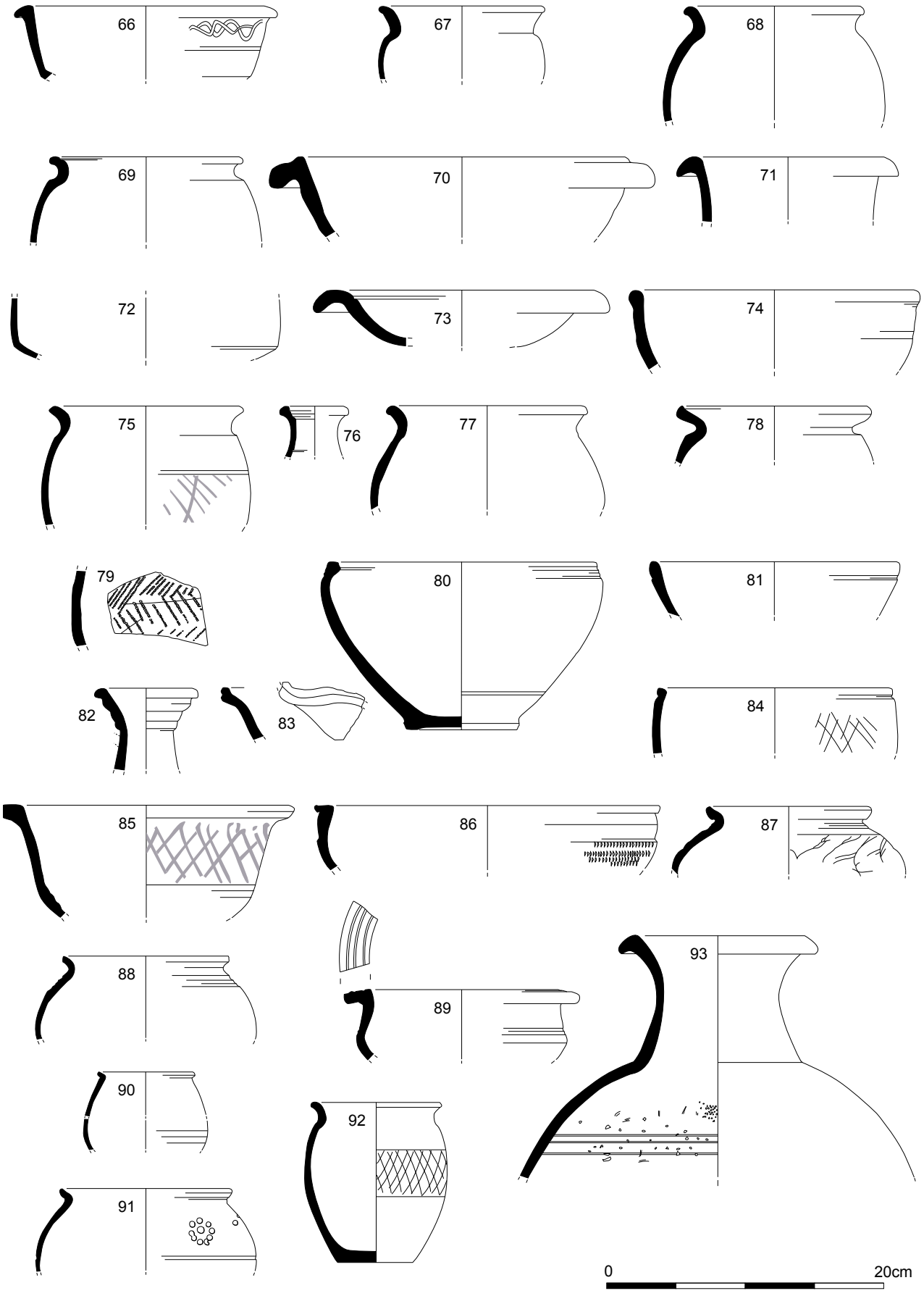


Figure 153: Roman pottery

94. GRB6 two handled flagon, Swan 2002, fig. 7, no. 69, dated Trajanic-early Hadrianic. Rim, neck and upper body present. A1DB09 5232 RF 452.

Phase 1b *(Fig. 154)*

95. BB1 grooved-rim dish with acute lattice burnish. Burnt. Gillam 1976, no. 77, mid-late 2nd century. A1DB09 5289.

96. FLB1 pulley-mouthed flagon, as no. 66. A1DB09 5289.

97. CRA RE rim and upper body of Crambeck jar. Corder 1937, type 3. Late 3rd to 4th century. A1DB09 6762.

98. GRB1 everted-rim jar, local copy of BB2 types, 2nd century, perhaps into 3rd century. A1DB09 6762.

99. OAB segmental bowl with flange and low bead rim. This type compares well with a dish found at Manchester (Leary 2007b, fig. 3.59, no. 113) from a mid-late 2nd century context. A1DB09 6763.

100. OAB5 flange from bowl, grooved at tip. See York flanged bowl range in Ebor 6 (Monaghan 1997, 879, nos. 3138-40), Hadrianic-Antonine. A1DB09 6763.

101. BB1 grooved-rim dish with acute lattice burnish. Burnt. This is a mid-2nd century type (Gillam 1976, no 69, and although BB1 grooved-rim dishes are known in the Hadrianic period (Holbrook and Bidwell 1991, 99), they are more common from the early Antonine period and were made in the early Antonine kilns at Rossington Bridge. A1DB09 6763.

102. GRB1 wide-mouthed everted-rim jar with zone of burnished lattice on shoulder defined by grooves. This form did not fit happily into the 3rd to 4th century Throlam type jar range and was likely to belong to the late 2nd or early 3rd century. A1DB09 6763.

103. OAB1 everted-rim beaker. A1DB09 6763.

104. GRB6 everted-rim beaker. A1DB09 6763.

105. OAB2 wedge-shaped rim of wide-mouthed jar in Severn Valley ware tradition. (Webster 1976). A1DB09 6763.

106. GRB8 grooved flat-rim bowl rim sherd. Late 2nd to mid-3rd century. A1DB09 6943.

107. FLB1 pulley-rim flagon, as no. 66. A1DB09 6943.

108. GRB flat-rim bowl in atypical grey ware with light core and with groove inside rim. A1DB09 7296.

109. FLB1 fairly upright necked flagon with faint rings and prominent top ring. As no. 5, early to mid-2nd century. A1DB09 7296.

110. RSA1 everted-rim beaker. A1DB09 7404.

111. Flat-rim bowl or dish with handle. This compares with Wetterau type handled bowls (cf. Swan 2002, fig. 9, no. 118). Hadrianic-early Antonine. A1DB09 7404.

112. BB1 lugged jar with acute lattice burnish. As Gillam 1976, no. 16, dated early to mid-2nd century. A1DB09 7473.

113. BB1 jar with fairly upright neck with wavy line burnish and acute lattice burnish, Gillam 1976, no. 2, early to mid-2nd century. A1DB09 7473.

114. BB1 grooved-rim dish with lattice burnish. Gillam 1976, nos. 68-9, early to mid-2nd century. A1DB09 7473.

115. Ebor 6 painted hemi-spherical bowl, A1DB09 7473.

116. Ebor 3 rebated rim bowl. York BM2, Hadrianic-early Antonine. A1DB09 7473.

117. OAB1 small cup, possibly a small bowl. A1DB09 7473.

118. OAB1? Collared bowl, burnt. Unknown type. A1DB09 7473.

119. BB1 profile of flat-rim dish with acute lattice burnish, Gillam 1976, no 59, mid-2nd century. A1DB09 7548.

120. BB1 neckless jar, Gillam 1976, no. 30, mid-2nd century. A1DB09 7548.

121. GRB6 everted-rim jar copying BB2 types, mid-2nd century and later. A1DB09 7548.

Phase 1c *(Figs. 154 and 155)*

122. GRB shouldered jar with everted rim, wide-mouthed. Probably 3rd or 4th century. A1DB09 5034.

123. EYCT Huntcliff type jar. *c.*AD 360 and after. A1DB09 5034.

124. Ebor6 flange from bowl, see no.100. A1DB09 5034.

125. Ebor3 knob of lid or base of very small vessel. A1DB09 5035.

126. BB1 flat-rim bowl with acute lattice burnish. Early to mid-2nd century. A1DB09 5035.

127. GRB1 everted-rim jar copying BB2 types. Mid-late 2nd century. A1DB09 5035.

128. CRA RE flagon. Corder 1937, type 14. Late 3rd to 4th century. A1DB09 5035.

129. OAB1 flanged bowl with bead rim below level of flange. Nearly half of vessel of Monaghan 1997 type BF2, Gillam 1970, no. 294 and Catterick B3.1, early 2nd century. A1DB09 5039.

130. GRB1 everted-rim jar. York JE2, first half 2nd century. A1DB09 5058.

131. BB1 flat-rim bowl, Gillam 1976, nos. 60-61, mid-2nd century. A1DB09 5058.

132. BB1 flat-rim dish, Gillam 1976, no. 61, mid-2nd century. A1DB09 5058.

133. FLB1 disc rim flagon, Gillam 1970, no. 13, late 1st to early 2nd century. A1DB09 5058.

134. GRA4 footring base and lower body of carinated bowl decorated with combed decoration in London ware style, as Marsh 1978, type 44. Early 2nd century. A1DB09 5067.

135. OAB rebated rim of bowl. A1DB09 5596.

136. GRB1 bodysherd from neck and body of narrow-necked jar with single circle stamps around shoulder. A1DB09 5596.

137. GRB11 collared bowl, burnt. Same vessel as in Phase 1c spread 5596, Phase 3c ditch group 7966, and Phase 3 context 5321 a group overlying ditch 5323. A1DB09 5596.

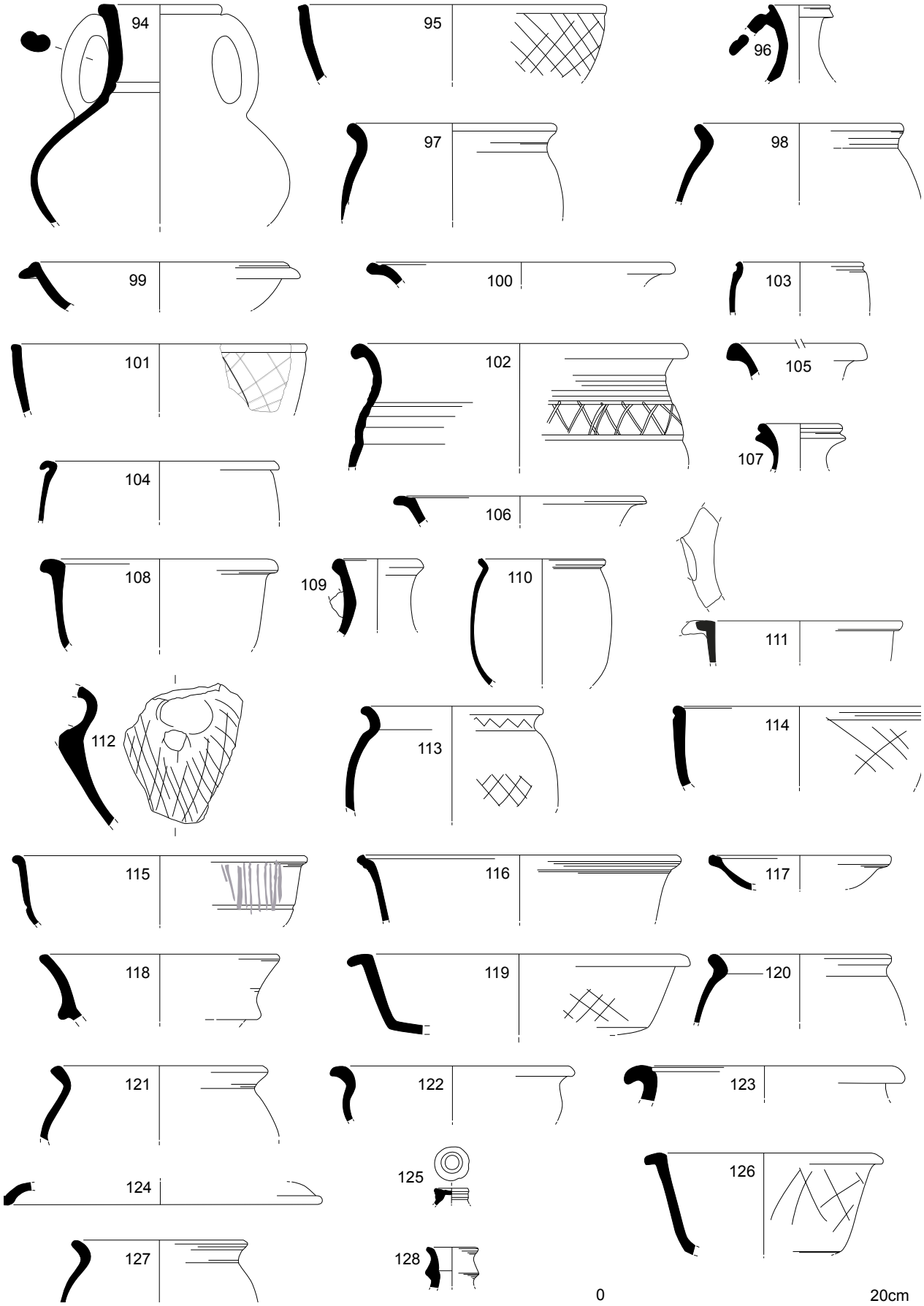


Figure 154: Roman pottery

138. GRB6 everted-rim jar with grouped acute lattice burnish. A1DB09 6710.

139. BB1 bead-rim jar. Gillam 1976, no. 32, mid-late 2nd century. A1DB09 6924.

140. OBB double channel-rim jar with slashed rim. A 2nd century Northamptonshire type (Brown and Woodfield 1983, 80, fabrics 26, 33, 34, 36, 38, and 41, fig. 19, no. 4 and fig. 23, nos. 80-86). A1DB09 6924.

141. GRB8 triangular-rim dish. A1DB09 6924.

142. GRB6 narrow-necked jar with everted rim. The rim is worn and abraded internally. A1DB09 6924.

143. BB1 everted rim jar, Gillam 1976 no. 3 mid-late 2nd century. A1DB09 6924.

144. GRB6 everted-rim jar with linear burnish. A1DB09 6924.

145. OAB1 very abraded wide-necked jar with everted rim. Probably 2nd century. A1DB09 6924.

146. GRB bead-rim dish or bowl with grouped acute lattice burnish, late 2nd to early 3rd century. Gillam 1970, no. 312, AD 190-240. A1DB09 7158 AA.

Phase 1d *(Figs. 155 and 156)*

147. GRA2 roughcast beaker with everted rim. A1DB09 5069

148. EYCT Huntcliff type jar, *c.*AD 360 and later. A1DB09 5069

149. FLA1 ribbed beaker. A1DB09 Phase 3b 5031 and 5121.

150. BB1 jar with fairly upright rim, Gillam 1976, no. 2, early to mid-2nd century. A1DB09 5071.

151. GRB1 everted-rim jar. A1DB09 5071.

152. GRB1 lipped-rim bowl. A1DB09 5071.

153. BB1 flat-rim bowl with acute lattice burnish. A1DB09 5203.

154. EYCT proto-Huntcliff type jar, early to mid-4th century. Cat J9. A1DB09 5950.

155. FLB1 cup-rim flagon, as no. 13. A1DB09 5867.

156. BB1 everted-rim jar, Gillam 1976, no. 3, mid-late 2nd century, grey, perhaps burnt. A1DB09 5042.

157. BB1 grooved-rim dish. A1DB09 5042.

158. GRB11 bead-rim dish or bowl. A1DB09 5042.

159. GRB11 flanged bowl, late 3rd to 4th century. A1DB09 5042.

160. GRB1 jar with tall everted jar with sloping flat rim tip. Similar to Dales type group. A1DB09 5042.

161. CRA RE grooved rim dish. Corder 1937, type 2A, late 3rd to 4th century. A1DB09 5042.

162. CRA RE developed flange bowl with internal burnished wavy line. Corder 1937, type 1B.

163. GRB6 cheese press base. A1DB09 5042.

164. OAB1 pulley-mouth flagon. A1DB09 5042.

165. OAB1 pulley-mouth flagon. A1DB09 5042.

166. FLB1 splayed ring-necked flagon. A1DB09 5042.

167. GRB1 flanged bowl. A1DB09 5042.

168. EYCT Huntcliff type jar, *c.*AD 360+. A1DB09 5042.

169. OAA1 bowl with grooved rim. A1DB09 5042.

170. BB1 everted rim jar with burnished wavy line on neck. Gillam 1976, no. 2, early to mid-2nd century. A1DB09 5237.

171. BB1 developed flanged bowl with low bead rim, late 3rd to 4th century, burnt. A1DB09 5237.

172. GTA rim of deep bowl with bead rim, grooved on outer face. This form was made in Lincolnshire in the 1st and 2nd century (Rigby and Stead 1976, fig. 74, nos. 8-12) and in Nottinghamshire in the early to mid-2nd century grey vessels (with sparse shell and grog, Darling 2004b, fig. 10b) as well as in the South Yorkshire kilns in grey ware in the 2nd century (Buckland *et al.* 1980, type Hc-d). A1DB09 5237.

173. CRA RE platter, Corder 1937, type 10a, late 3rd to 4th century. A1DB09 5237.

174. NV1 grooved flat-rim bowl or dish. 4th century. A1DB09 5237.

175. EYCT Huntcliff type jar, *c.*AD 360+. A1DB09 5237.

176. EYCT plain-rim dish. Late 3rd to 4th century. A1DB09 5237.

177. GRB11 everted-rim jar with acute lattice burnish, Antonine type. A1DB09 5630.

178. GRC everted-rim jar. The gritty grey wares are predominantly sub Dales type jars but plain everted-rim jars are also known and probably are broadly contemporary in the 3rd and 4th century. A1DB09 6907.

Phase 3b *(Figs. 156 and 157)*

179. BB1 around a 3rd of a flat-rim bowl with lattice burnish and chamfer, Gillam 1976, nos 37-8 and 60, mid-2nd century AD. A1DB09 5150.

180. GRB11 turned out rim wide-mouthed jar of 3rd to 4th century AD. A1DB09 5561.

181. COL CC cornice rim beaker with deer. Mid-late 2nd century AD. A1DB09 5031.

182. EYCT plain-rim dish. A1DB09 5031.

183. EYCT lipped- rim dish. A1DB09 5031.

184. CRA RE developed flanged bowl with very faint traces of an internal burnished wavy line, Corder 1937 type 1b, *c.*AD 370+. A1DB09 5065.

185. CRA RE developed flanged bowl, Corder 1937, type 1, late 3rd to 4th century AD. A1DB09 5065.

186. CRA RE everted rim of wide-mouthed jar/bowl, Corder 1937, type 13, late 3rd to 4th century. A1DB09 5065.

187. EYCT sparse bodysherd of jar with burnished loops. A1DB09 5065.

188. EYCT Huntcliff type jar. *c.*AD 360+. A1DB09 5065.

189. GRC sub-Dales type jar rim, lid seated. Late 3rd to 4th century AD. A1DB09 5065.

190. GRA3 developed flanged bowl. Late 3rd to 4th century. A1DB09 5065.

191. EYCT proto-Huntcliff type jar, early to mid-4th century. A1DB09 5065.

192. NV1 plain rim dish, 4th century. A1DB09 5065.

193. NV2 pentice moulded beaker, late 3rd to 4th century AD. A1DB09 5065.

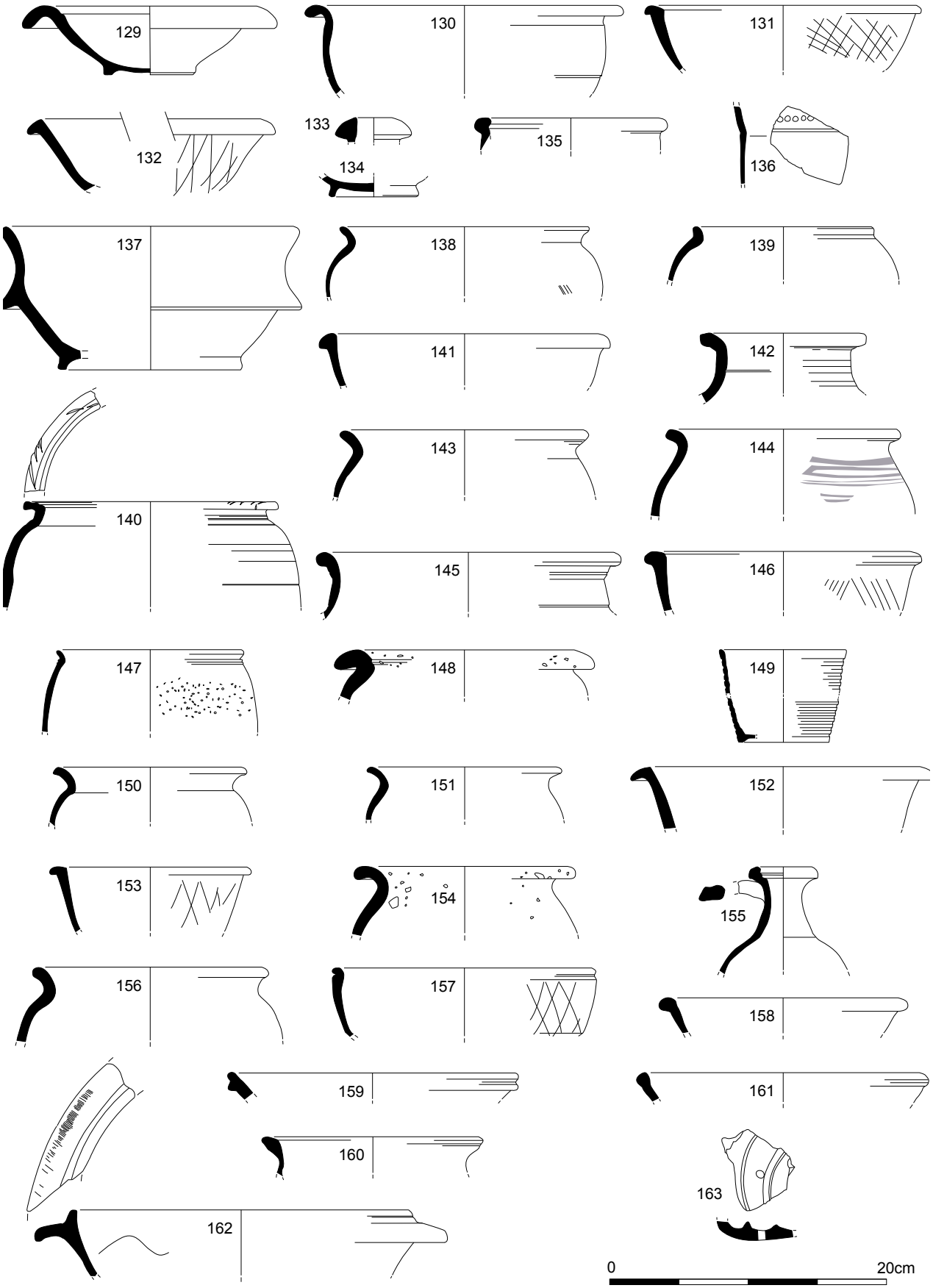


Figure 155: Roman pottery

194. NV2 long necked beaker, late 3rd to 4th century AD. A1DB09 5065.

195. FLA2 flanged bowl with orange painted decoration on the flange. York type BF2 no 3944 in Ebor and also white ware – probably from Mancetter-Hartshill kilns. A1DB09 5336.

196. KOLN cornice-rim beaker with barbotine decoration – horns of deer, at York Cologne colour-coated wares were only common in the Hadrianic-Antonine period (Monaghan 1997, 890). A1DB09 5336.

197. CRA RE grooved-rim dish, Corder 1937, type 2a, late 3rd to 4th century AD. A1DB09 5396.

198. CRA RE lugged jar, Corder type 3, late 3rd to 4th century AD. A1DB09 5396.

199. CRA RE everted rim of small bowl, Corder 1937, type 4, late 3rd to 4th century AD. A1DB09 5396.

200. CRA RE developed flanged bowl, Corder 1937, type 1, late 3rd to 4th century AD. A1DB09 5396.

201. CRA RE grooved-rim dish, Corder 1937, type 2a, late 3rd to 4th century AD. A1DB09 5396.

202. CRA RE developed flanged bowl, Corder 1937, type 1, late 3rd to 4th century AD. A1DB09 5396. Not illustrated.

203. GRC lid-seated jar. A1DB09 5396.

204. CRA RE everted rim from lugged jar, Corder, type 3, late 3rd to 4th century AD. A1DB09 5434.

205. BB1 bowl with flat, grooved rim/low bead and flange form. Mid- to late 3rd century AD. A1DB09 5434.

206. OAB1 everted-rim flask with cordoned neck. A1DB09 5434.

207. GRC sub-Dales type jar, late 3rd to 4th century AD. A1DB09 5434.

208. CTA2 Dales ware jar. Mid-3rd to mid-4th century AD. A1DB09 5434.

209. OAB1 flanged bowl, grooved at distal end. A1DB09 5434.

210. EYCT double lid-seated jar. Late 4th century AD. A1DB09 5167.

211. CRA RE grooved-rim dish, Corder 1937, type 2a. Late 3rd to 4th century AD. A1DB09 5277.

212. CRA RE? everted rim of wide-mouthed jar/bowl, Corder 1937, type 13, late 3rd to 4th century AD. A1DB09 5300.

213. GRB basal sherd of bowl or dish with scratch marks inside base, possibly graffiti. A1DB09 5359, Field 63, Phase 3b.

214. CRA OX flanged bowl copying samian form Dr.38, Corder 1937, type 5, late 3rd to 4th century AD. A1DB09 5064.

215. CRA PA painted beaker, Corder 1928, no. 94, *c*.AD 370+. A1DB09 5064.

216. EYCT Huntcliff type jar, *c*.AD 360+. A1DB09 5272.

217. NV1 everted-rim jar. A1DB09 6722.

218. CRA RE lugged jar. Corder 1937, type 3, late 3rd to 4th century AD. A1DB09 6722.

Phase 3c *(Fig. 157)*

219. CRA RE everted rim of wide-mouthed jar, Corder 1937, type 4, late 3rd to 4th century AD. A1DB09 5130.

220. GRC everted-rim jar with slight internal lid seating. Sub-Dales type group, late 3rd to 4th century. A1DB09 5130.

221. OBB bifid-rim narrow-necked jar. A1DB09 5130.

222. BB1 plain-rim dish, early 3rd century AD. Gillam 1976, no 79. A1DB09 5591.

223. GRB narrow-necked jar with bead rim. RF 309 A1DB09 5591.

224. EYCT proto-Huntcliff type jar, early to mid-4th century AD, Cat J9. A1DB09 5880.

225. BB1 jar sherd with obtuse lattice and shoulder groove, *c*.AD 240-mid-4th century AD. A1DB09 5060.

Phase 3d (Fig. 158)

226. EYCT Huntcliff type jar, AD 360+. A1DB09 5066.

227. EYCT flanged bowl, late 3rd to 4th century AD. A1DB09 5066.

228. CRA RE narrow-necked jar with upright rim, Corder 1937, type 3a, Bidwell and Croom 2010, table 4.1, AD 320-400. A1DB09 5066.

229. EYCT necked jar with everted rim tip. A1DB09 5037.

230. EYCT sparse Huntcliff type jar. *c*.AD 360+. A1DB09 5037.

231. NV1 plain-rim dish, 4th century AD. A1DB09 5037.

FIELDS 63-64

Field 63 Phase 1 *(Fig. 158)*

232. GRC everted-rim jar with slight internal rebate, part of grey gritty lid-seated jar group of late 3rd to 4th century AD. A1DB09 5998.

233. OAB MG flanged bowl with flange level with bead rim. The form was very much like a mortarium but has mica slip and no grits. A1DB09 9036.

234. GRB1 rusticated jar. Late 1st to early 2nd century AD. A1DB09 9036.

235. OAC1 ring-necked flagon with slightly splayed rim and angular cut rings, late 1st to early 2nd century AD. Gillam 1970, no. 2. A1DB09 9036.

236. OAB1 incomplete rim of ring-necked flagon with slightly splayed rim, late 1st to early 2nd century AD. Gillam 1970, nos. 2-4. A1DB09 9036.

237. GRB1 ring and dot beaker bodysherds, late 1st to early 2nd century AD. A1DB09 9036.

238. GRB1 lid with squared rim, undercut. A1DB09 9036.

239. GRB1 bowl with rounded rim and cordon outside the middle of the upper body. A1DB09 9036.

240. GRB6 carinated bowl with flat reeded-rim. Late 1st to early 2nd century AD. A1DB09 9036.

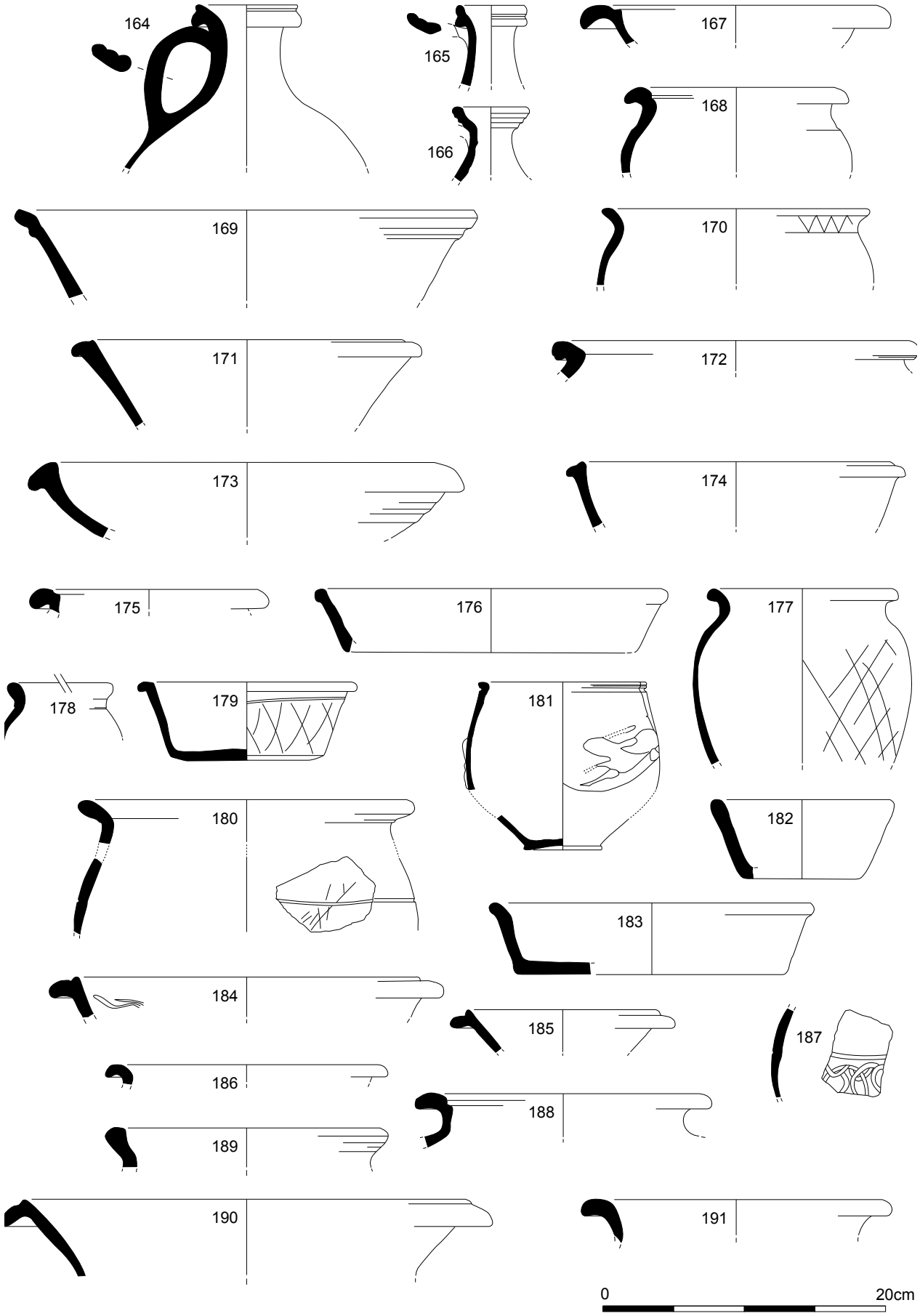


Figure 156: Roman pottery

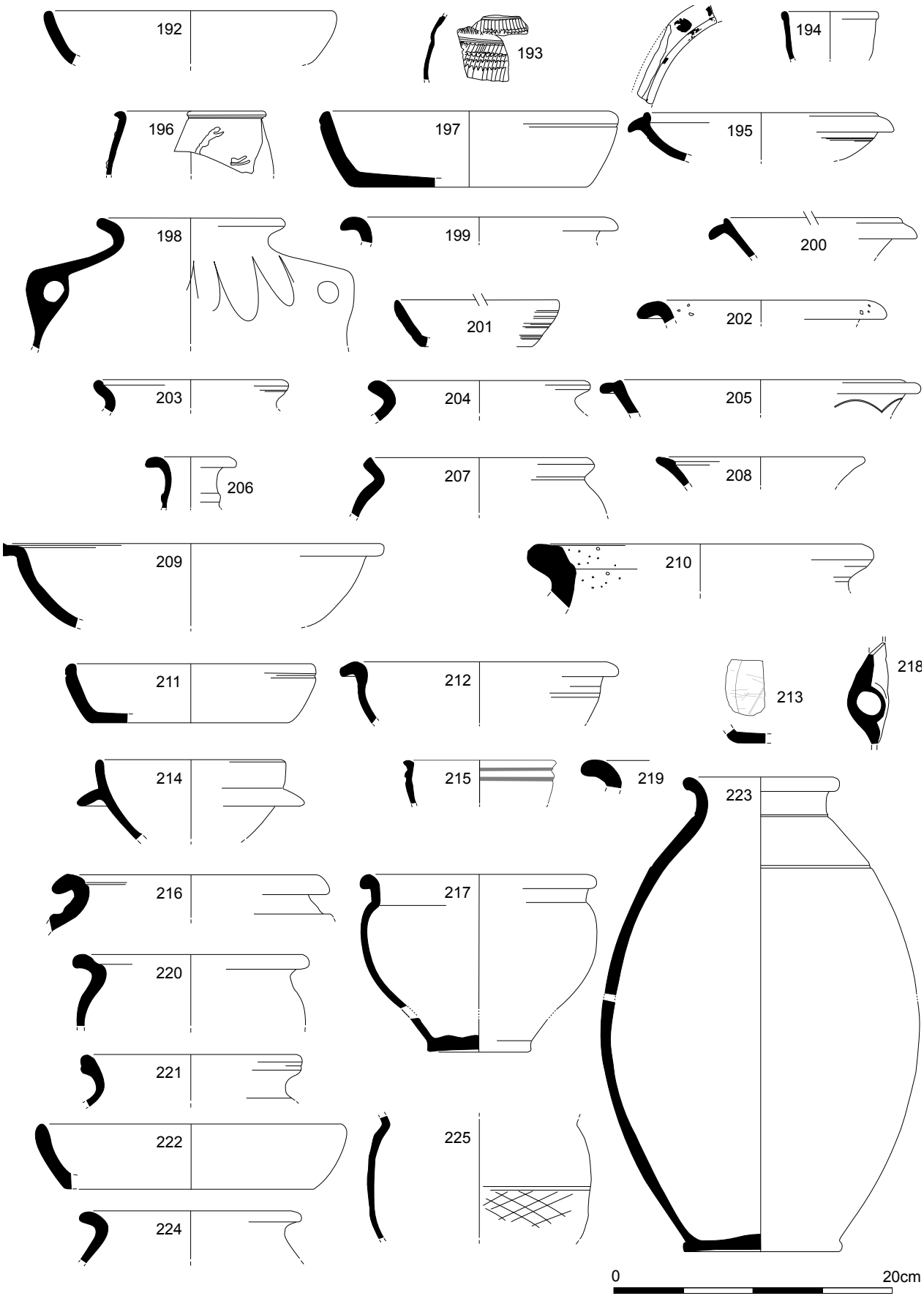


Figure 157: Roman pottery

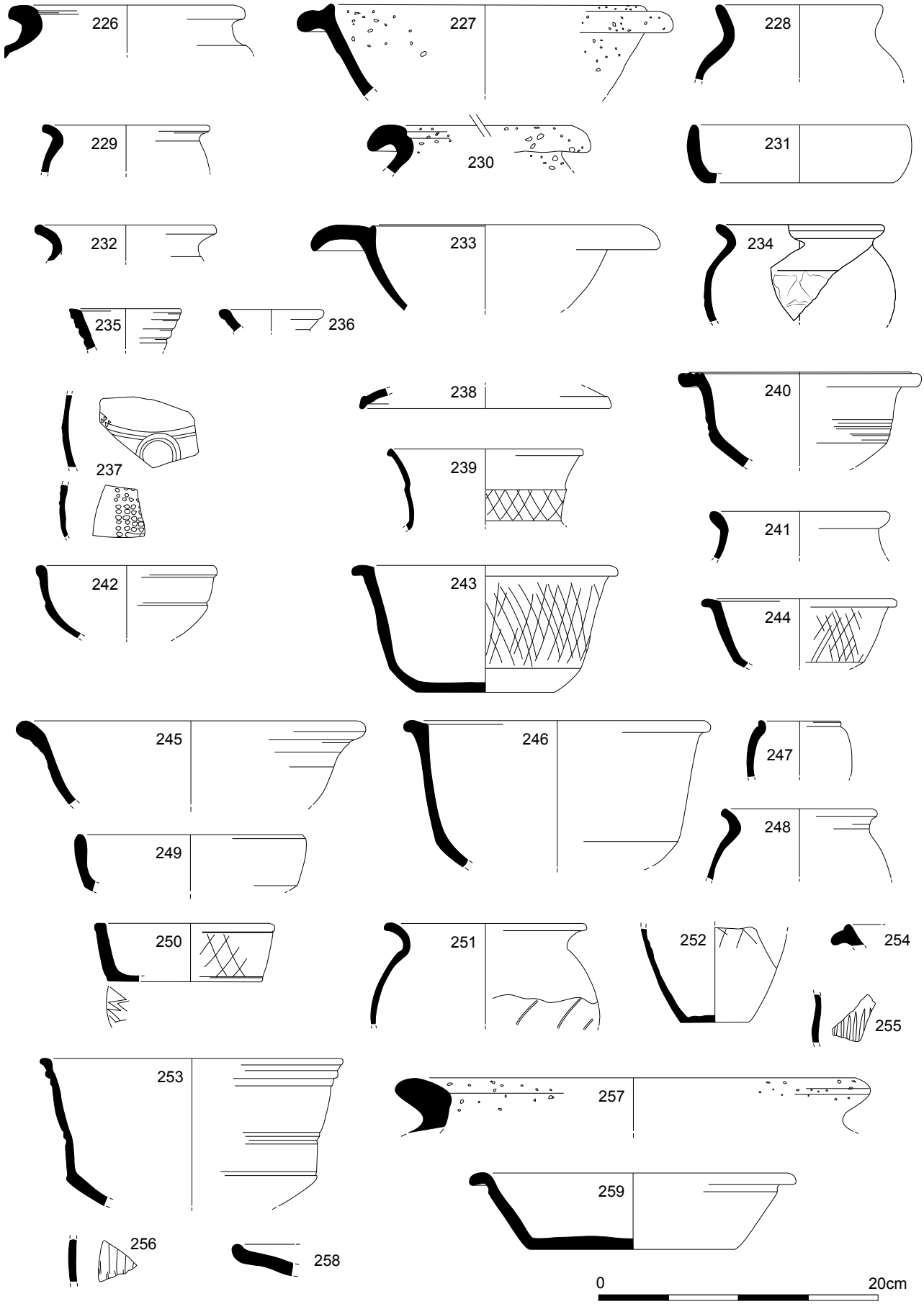


Figure 158: Roman pottery

241. GRB1 neckless everted-rim jar. A1DB09 9036.

242. OAB1 bead-rim hemi-spherical bowl, Hadrianic-Antonine. A1DB09 7222.

243. BB1 flat-rim bowl. Gillam 1976, no. 37, mid-2nd century AD. A1DB09 7222.

244. BB1 flat-rim dish. Gillam 1976, no. 62, mid-2nd century AD. A1DB09 7222.

245. OAB1 moulded rim bowl, as no. 10. A1DB09 7222.

246. BB1 flat-rim bowl. Gillam 1976, no. 36, mid-2nd century AD. A1DB09 7226.

Field 64 Phase 1 *(Fig. 158)*

247. BB1 small bead-rim jar/beaker Gillam 1976, 19, early to mid-2nd century AD. A1DB09 6849.

248. BB1 jar with fairly upright neck, Gillam 1976, no. 2 mid-2nd century AD. A1DB09 6884.

249. BB1 plain-rim dish, Gillam 1970, no. 318, *c.*AD 140-80. A1DB09 7279.

250. BB1 grooved-rim dish, Gillam 1976, no. 77, late 2nd to early 3rd century AD. A1DB09 7007.

251. GRB8 medium-necked jar with cavetto rim and linear burnish outside upper body, probably acute lattice, late 2nd to 3rd century AD. A1DB09 7413 and 7431.

252. GRB6 small jar with acute lattice burnish. Hadrianic-Antonine. A1DB09 7413 RF481.

253. GRB1 bead-rim carinated, cordoned bowl, late 1st to early 2nd century AD. A1DB09 6786.

Field 63 Phase 3 *(Figs. 158 and 159)*

254. BB1 rim of developed flanged bowl, very abraded. A1DB09 5324.

255. OAB5 sherd with grooves and slight indentation with no grooving. Hair area of face pot. A1DB09 5324.

256. OAB1 sherd with grooves. Hair area of face pot. A1DB09 5324.

257. EYCT large heavy rim from wide-mouthed jar with internal wear where lid has been. Huntcliff type jar group, late 3rd to 4th century AD. A1DB09 5369.

258. EYCT plain-rim dish, late 3rd to 4th century AD. A1DB09 5648.

259. GRB6 profile of lipped dish. A1DB09 5863.

260. GRB6 everted-rim jar. A1DB09 5863.

261. CRA RE lugged jar Corder 1937, type 3, late 3rd to 4th century AD. A1DB09 7500.

Field 64 Phase 3 *(Fig. 159)*

262. GRB3 rim of developed flanged bowl, late 3rd to 4th century AD. A1DB09 6812.

263. CTA2 Dales ware jar rim. Mid-3rd to mid-4th century AD. A1DB09 6812. Not illustrated.

264. NV2 indented beaker, mid- to late 3rd century AD. A1DB09 6812. Not illustrated.

265. BB1 splayed-rim jar, late 3rd to early 4th century AD. A1DB09 6812.

266. CTA2 Dales ware jar rim. Mid-3rd to mid-4th century AD. A1DB09 6812.

267. GRC Dales-type jar, late 3rd to 4th century AD. A1DB09 6812. Not illustrated.

268. GRB1 body and base of narrow-necked jar. A1DB09 6839 RF402.

269. GRB6 everted-rim jar. A1DB09 6812.

270. BB1 developed flanged bowl, late 3rd to 4th century AD. A1DB09 7360

271. GRB1 cavetto-rim jar with obtuse lattice burnish. A1DB09 7360.

272. GRB5 jar with applied hammer. Smith pot as Braithwaite 2007, 284-5, known to have been made at Malton. A1DB09 9059.

273. GRB11 bodysherd from collared bowl, form as nos. 119 and 138. A1DB09 5069 Phase 1d.

274. OAB6 headpot. The vessel's wall has been pressed out into a stamp or mould forming what looks like locks of hair. A1BD09 5028.

SHERDS OF INTRINSIC INTEREST *(FIG. 159)*

275. CRA PA Corder 1937 type 9 wall–sided platter, AD 370+. A1DB09 5028.

276. CRA PA Corder 1937 type 5b bowl, AD 370+. A1DB09 5028.

277. GTA1 bead-rim deep bowl with shoulder groove. This was a type found in Lincolnshire and the Trent Valley in the mid-1st to mid-2nd century. 1st century types in shell-tempered ware, Rigby and Stead 1976, fig. 74, nos. 8-12 and early to mid-2nd century grey vessels with sparse shell and grog, Darling 2004b, fig. 10b. A1DB09 5028.

278. EYCT necked jar with undercut rim as Croom *et al.* 2008, fig. 9.29, no. 8, and fig. 9.33, nos. 109 and 115, 4th century, probably mid- to late 4th century AD. A1DB09 2794.

279. CGBS cup, Richardson 1986 1.98, *c.*AD 160-220. A1DB09 9147.

280. GRB6 face pot fragment with lentoid eyes with irises defined, raised eyebrow, not frilled and arches rising from above pointed nose, slight nostril dents. The arches may be goat horns (Braithwaite 2007, 277 on beakers in Britain and horned face pots in the upper Danube, Braithwaite 2007, 186, type 4, 2nd century AD). Braithwaite notes that these horned types are limited to upper Danubia and British horned face pots have short upright horns not horizontal or curved ones. Rather chubby cheek and signs of beginning of beard impressions - circle impression/stamp and grooves. Braithwaite 2007. RF 169 A1DB09 5028 RF169.

Site formation processes

Specific issues relating to the interpretation of the pottery assemblages arose due to the nature of deposition and the stratigraphic sequence. These differed in the areas excavated and this sometimes made detailed phasing impossible. In the southern part of Field 63 a deeply stratified area was encountered near Healam Beck. It was possible to divide this into two broad Roman phases and then subdivide each phase into four sub-phases. This area was easily the richest as regards ceramic debris and therefore valuable ceramic sequences were anticipated. It became clear from the detailed study of the cross-joins within the samian and mortarium assemblage and to some extent from the coarse pottery that disturbance and redeposition of material was very common through this stratigraphic sequence and also that some layer groups, particularly those associated with the Beck and also

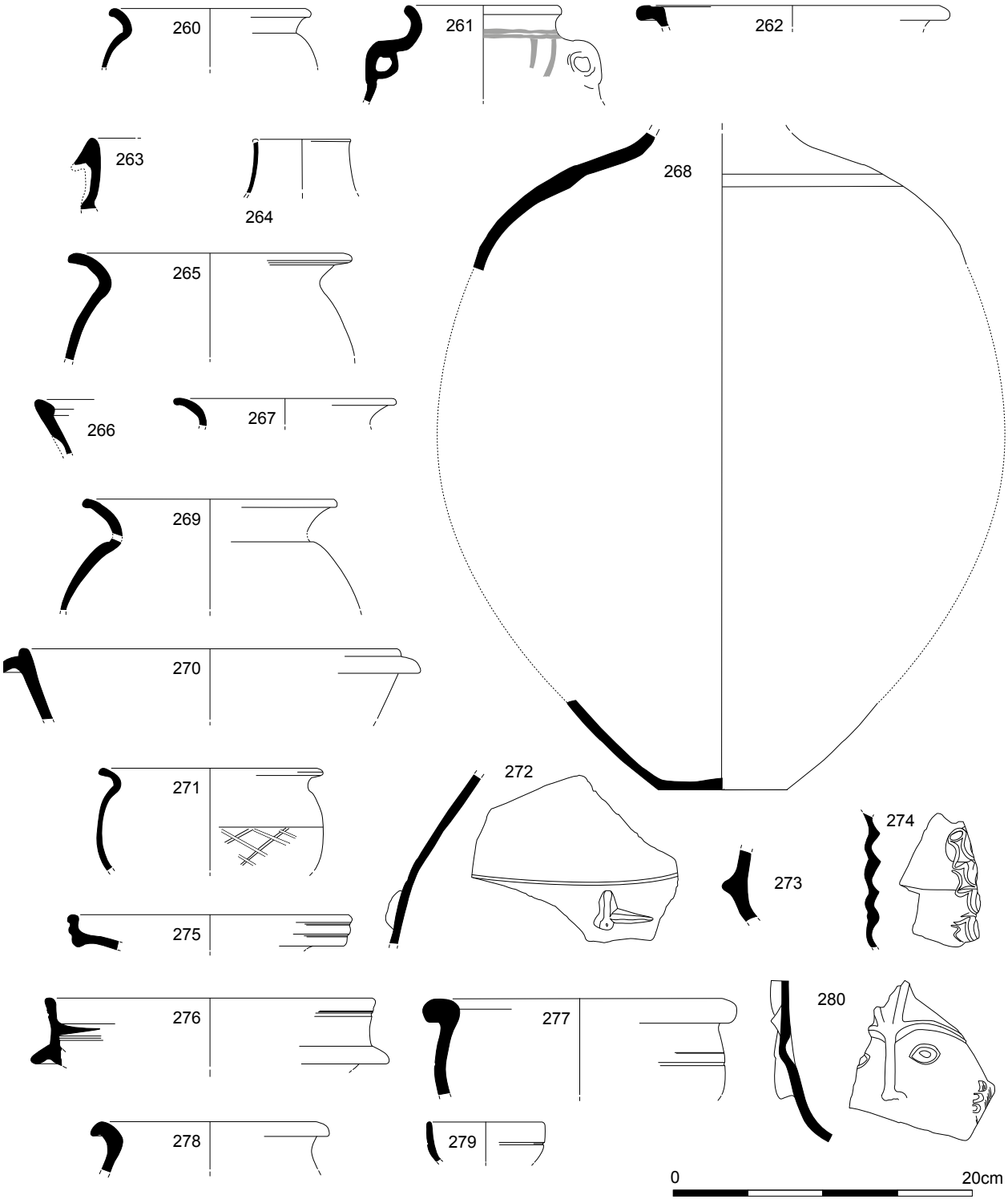


Figure 159: Roman pottery

extensive midden deposits, were in fact left open from as early as Phase 1a to as late as Phase 3c or d. Although the sequences of fabrics and forms were studied in detail during the analysis, the effect of redeposited material so distorted the results that these detailed tables and charts are not reproduced here in full although, where trends were visible, details are given.

The pattern of redeposition clearly related to the creation of dug features such as ditched enclosures and, as might be expected, the earliest phase, Field 63 Phase 1a, had low brokenness and high sherd weights and these got progressively more fragmented and smaller as time went on with a peak in brokenness in Phase 1d. In Field 63 a reduction in sherd weight and increase in brokenness (Fig. 160) can be seen from Phase 3c to 3d marking a new phase of renewed redeposition from earlier deposits. The group in 3a was too small for comparison. In the less deeply stratified area in Healam north Fields 63-4, the average sherd weight and brokenness measures show a similar pattern indicating redeposition and breakage of sherds in Phase 3. In Field 61A by contrast although Phases 1ii and 3i proceed normally being progressively more broken and smaller in size, in Phase 3ii this pattern was arrested and fresher material entered the archaeological contexts.

Conditions

Clustered burnt sherds were identified in several phases and groups (Fig. 161). In Field 63, Phase 1b, structure 7951 a group of pottery was identified with signs of scorching and flaking. These included a range of types of both fine and coarse wares. The samian vessels included moulded bowls, plain bowls, dishes (Dr.18/31 and Dr.31R) and a Dr.33 cup and include forms dating after AD 140 and 150. The coarse wares included OAB1 hemi-spherical bowls, sherds from FLB1 flagons, early and mid-2nd century BB1 jars and Dressel 20 amphora sherds. The latest burnt sherd was from a grooved flat rim BB1 type bowl of late 2nd to 3rd century date but this may not have formed part of the same group. The other cluster of burnt sherds came from all levels of structure 7951 from the horse burial to the late cobbling 6762. Burnt layers within this group were an obvious possible explanation for this cluster of burnt sherds.

Similar groups of burnt ceramics were also noted in Field 63, Phase 1c, structures 6949 and 7952, charcoal-rich layer 5596 within structure 6949, Phase 1d layer 5042/5237, and group 5009. The pottery in these groups belonged predominantly to the early to mid-2nd century and included samian dating after AD 150. The coarse wares were less diagnostic sherds but included fragments from FLB1 flagons, a BB1 flat-rim bowl of the mid-2nd century, a grooved-rim dish, and other indeterminate types as well as fragments from the collared bowl also present in Phase 1c spread 5596, Phase 3c ditch group 7966, and Phase 3, context 5321; a group overlying ditch 5323. The activity in structure 6949 may have resulted in sherds in make-up layers being scorched and burnt and those in Phase 1d may be derived from this group having been later redistributed in levelling layers and dug features in Phase 1d. The peak in brokenness in Phase 1d (see above) may reflect the redeposition of this material in the layers making up structure 5009. Another small group of burnt samian sherds were present in Field 63, Phase 1, structure 5729. When considered as a proportion of the whole assemblage for each phase the burnt sherds peak in Field 63 Phases 1b and c perhaps suggesting two incidents which resulted in burnt sherds of all types. It should be noted that some of the coarse ware sherds in these groups indicated intense heat resulting in distortion, blistering and bubbling through a section of sherds of pottery particularly in 5596 and group 6949 and that these included imported wares such as Cologne colour-coated wares. Similar sherds were also found in the Phase 1d group in 5009 suggesting redeposition of

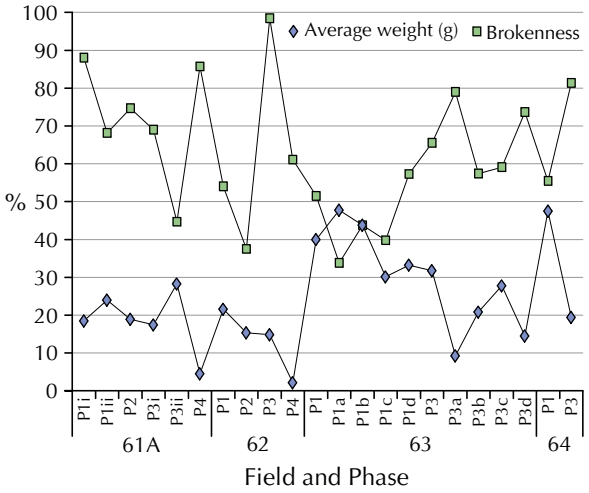


Figure 160: Comparison of average weight and brokenness (sherd nos/EVEs) values

burnt sherds derived from the activity in Phase 1c.

There were also above average levels of burnt sherds in Field 61A Phase 2, perhaps related to burial rites, and in Field 62, Phase 2 which was largely due to a single scorched vessel as this group only amounted to just 105 sherds. The vessels from Field 61A Phase 2 were represented by sherds and included two samian Dr.37 bowls and a Dr.18/31 dish, an Ebor 6 hemi-spherical bowl, a very burnt ring-necked flagon probably dating to the early 2nd century, a handled grey ware beaker with simple everted rim, sherds from a BB1 jar with acute lattice burnish, a rim sherd from a BB1 jar of the late 2nd century, and a BB grooved-rim dish and lugged jar of Hadrianic-Antonine date. These may be connected with the burial and memorial rites.

The Phase 1b and 1c groups mentioned above from Field 63 appear to be largely burnt either in situ or during processes going on in the vicinity. Their scorching may be the result of burning which had taken place on the layer in which they were incorporated after being discarded rather than while in active service. Other vessels show signs of being burnt while in use and this was associated with sooting or with localised burning. A total of 21 groups of Dressel 20 amphora sherds seemed to be burnt or discoloured and two of these had handles broken or sawn off suggesting reuse perhaps in cooking.

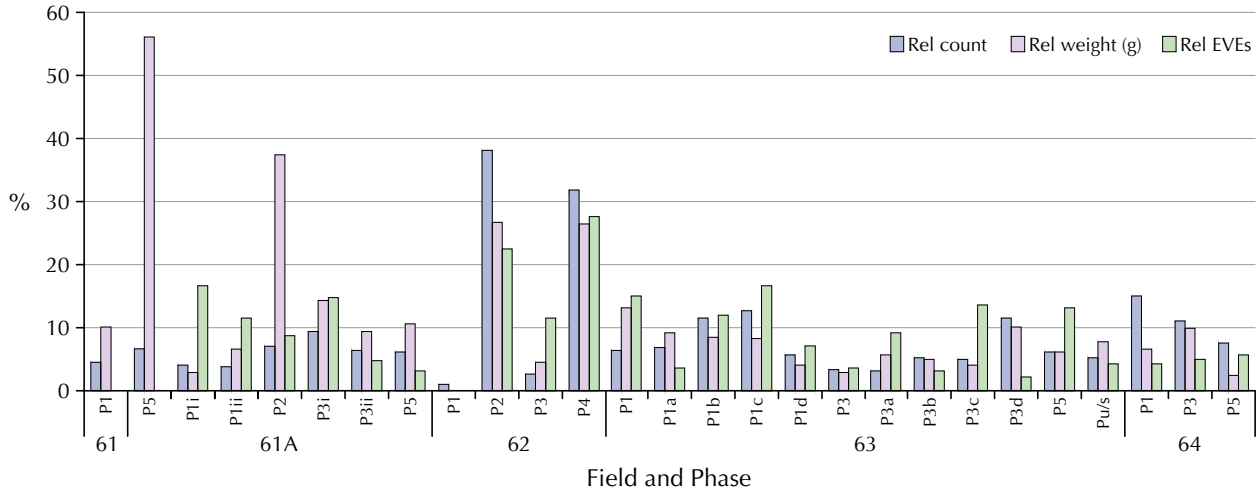


Figure 161: Proportion of burnt sherds by field, phase, and sub-phase

A further seven Dressel 20 amphora handles had signs of being sawn off for secondary usage and two bodysherds and one rim (Martin-Kilcher 1987, Beilage1, no. 81, AD 110-150) had graffiti which may relate to this practice (Field 63, Phase 1b, 7951; Phase 1d, 5071; and Phase 1a, 5228). A total of 110 groups of BB1 vessels, jars and bowls and dishes, were burnt or scorched and this included localised scorching on the base and lower body in six instances and on the shoulder or rim in one case. Ten calcite-gritted ware jars were burnt on the base and one on the rim. A further 24 groups of flagon ware sherds (two FLA and the remainder FLB1) were burnt. Around 50 groups of grey ware sherds were burnt and these included a range of vessels. Some lids were burnt around the rim perhaps suggesting use during cooking. Mortaria with scorching around the flange may have been so marked during manufacture. Roughcast beakers in coarse ware and in Koln colour-coated ware were burnt as were four OAB1 hemi-spherical bowls. An OAB1 flanged segmental bowl was worn inside and burnt around the flange.

Evidence for use in the form of sooting was most common on BB1 and grey ware jars and also on calcite-gritted jars. Four BB1 bowls and one grey ware bowl were also sooted. Where known the sooting tended to be on the upper body, shoulder, neck, and rim with only one on the base. White encrustations on the inside of BB1, grey ware, and calcite-gritted vessels are commonly thought to represent lime-scaling and this was present on 14 BB jars, four grey ware jars, and two calcite-gritted jars. Signs of use in the form of wear around the rim of Huntcliff and pre-Huntcliff type jar rims and also on the base of calcite-gritted ware jar. A grey ware narrow-mouthed jar from Field 63, Phase 1c, layer 6924 had signs of wear inside the rim and two OAB1 flanged segmental bowls from Field 63, Phase 1c, layer 5039 and Phase 1d group 5009 were worn inside the base having been perhaps used like a mortarium. A sherd from an open vessel, probably a Crambeck parchment ware bowl or platter, from Field 63 Phase 3c was also worn internally and a Nene Valley jar from Field 63 Phase 3b was also worm inside the body.

As well as the repairs recorded for samian, some coarse ware vessels also had repair holes. These included a BB1 bowl and a grooved-rim dish, and a GRB3 plain-rim dish. A further GRB6 jar base had a central hole worked in the base. Some vessels had been reworked to prolong their useful lives. In addition to the amphorae mentioned above a GRB beaker base sherd from Field 63 Phase 3c had been trimmed and smoothed to form a lid while the top ring of broken FLB1 ring-necked flagon from Field 63, Phase 3b, group 7960 had been cut off horizontally and smoothed flat to prolong its life.

As well as the graffiti on the Dressel 20 amphora handles, an X graffito was also present on the base of a Crambeck pentice-moulded beaker from Field 63, Phase 3c, midden 5045. Three cuts had been made across the rim of a mid- to late 2nd century BB1 type jar found in a Field 61A unstratified layer. As observed in the samian assemblage, graffiti levels were low and illiterate.

Status and function

The functional and ware profiles of the assemblages were examined both spatially and chronologically to assess evidence for aspects of function and status across the site (Tables 109-110 and 112-113). The analysis looked at the broad brush patterns at phase and field level and then progressed to differences between sub-phases and areas such as enclosures and buildings.

Evans (1993) has done much work on the character of ceramic assemblages from different types of sites in the north and elsewhere in Roman Britain. Results based on his northern data suggest the ceramic assemblages from forts and military *vici* are similar to those from towns in the 2nd century but rural sites can be isolated by their low bowl/dish numbers and large number of jars (1993, figs. 6 and 7). These patterns reflect the way in which the inhabitants prepared and ate their food (Cool 2006, 37-55). Evans noted that beakers and flagons were also less common on rural sites. In the 4th century Evans found jars increased in number overall but the rural versus urban/fort sites in regard to the bowl/dish to jar ratio was still observable (1993, figs. 12 and 13). Mortaria levels were found to be relatively consistent on all site types.

Other key site status indicators were identified. A higher incidence of graffiti was found on military sites (Evans 1987). Higher levels of fine wares (samian, colour-coated, and parchment wares) were present on fort sites with slightly less on urban sites (less than 20%) and low quantities from rural sites (Evans 1993, 111-2). Using slightly different groupings, profitable study of the proportion of coarse wares to specialist wares (defined as samian, amphora, white and white-slipped wares, colour-coated wares, and mortaria) have enabled sites in the west Midlands to be characterised (Booth 1991; Leary 2008b, figs. 206-7) with high specialist wares (*c*.25-55%) from military sites, 15-25% from small towns and less than 15% from rural and villa sites. Amphora numbers were also found to be a reliable indicator of military character (Evans 2001, fig. 11), with these having over 2% of the assemblage by sherd count being made up of amphora sherds.

In addition to this work on whole assemblage characteristics, Willis (2005) has identified key indicators of different site types signalled by the samian assemblage. Relevant to Healam is the observation that *vici* tend to have more decorated samian bowls that other types of sites (Willis 2005, chart 13 compared with chart 14. See Monteil, Section 10.3, below).

Taking these results into account, the ceramic assemblage was examined to determine if anything could be deduced about the nature of the settlement at Healam and the results were compared with other sites in Yorkshire and in the north.

Phase patterns

Some differences in the fabric and vessel make-up of each phase could be detected despite the problems of redeposition but the residual material did cause a degree of distortion, inflating some categories in the late phases which would otherwise be quite low (such as the samian, Table 110). In Phase 1 there was preponderance of tableware such as bowls and dishes and beakers and cups were at a peak with low levels of jars and no narrow-necked jars represented by EVEs (Table 109). It was also noticeable that lids were most common in Phase 1, an item perhaps associated with the point of delivery of foodstuff and rarely present on rural native sites (Table 111). These included a Gallic wine amphora lid, with another from Phase 3, which presumably was only removed and lost when the amphorae arrived intact at their delivery point. In Phase 2 there was a peak in

the flagon group and narrow-mouthed jars increase. The bowl/dish group fell significantly. In Phase 3 the amphora contribution fell, the bowls and dishes rose again but nearly half of these were residual in this phase. The flagons, nearly all of which were redeposited from Phases 1 and 2, fell to the level of Phase 2 as one might expect since most of the Phase 3 features cut earlier deposits. Overall jars rose in Phase 3 with the addition of wide-mouthed jars.

PHASE 1

The types in Phase 1 indicated a higher degree of Roman type behaviour with regard to dining and levels of amphorae and samian, including decorated bowls, which fall into the military group identified by Evans (2001a, fig. 11) and in particular the *vici* group with regard to decorated bowls. However, work in other regions disclosed that high levels of amphorae occurred at towns also (Evans 2005a, 155, fig. 9.8). In the north-west a group of towns along King St (Walton-le-Dale, Wigan, Wilderspool, and Middlewich, Evans 2005a, 162 and see below) had very high levels of both samian and amphorae, again including high numbers of decorated samian bowls, and it has been suggested that these were associated with the military and were producing supplies (pottery at Wilderspool and Walton-le-Dale and salt at Middlewich) for the army. The inhabitants may have been partly servile as suggested by Evans (*loc. cit.*) but at Middlewich the presence of a veteran, as perhaps at Healam (Section 11.3), was also indicated by a diploma (Williams and Reid 2008, 1).

Six sherds with graffiti were found, two each from Phases 1, 3, and 5. Two of these were on amphora sherds and none of them were literate. The low numbers would be consistent with a non-military population and perhaps fits in with the presence of low literacy amongst a servile element in the populations or amongst the veteran families and their descendants.

In studies of specialist and coarse ware ratios on sites in the west Midlands, military sites were found to have high specialist and fine wares (*c*.25-55%), small towns had somewhat lower numbers, 15-25%, and rural and villa sites had less than 15% (Booth 1991; Leary 2008b, 485, figs. 206-7). The fine and specialist ware group used by Booth (samian, amphora, white and white-slipped wares, colour-coated wares, and mortaria) was examined at Healam (Fig. 163) through time and space and, although the redeposited Phase 1 material distorted the pattern particularly for the Phase 3 groups, some patterns were clear. In Phase 1 at 43% by count and 36% by EVEs, the assemblage falls into the military group.

Fine wares as defined by Evans (samian, colour-coated, and parchment wares) are also useful status indicators with forts and towns having a higher proportion than rural sites. Using sherd numbers Phases 1 and 2 fine wares were high at 18% and 12% with over 20% in Field 63 Phases 1b and c. There was a very high percentage at 40% in Field 64 Phase 2 but this was not reproduced when EVEs were used. Similarly there was a peak in Field 61A Phase 1ii using EVEs but this was not found using sherd counts.

With regard to amphorae, this made up over 2% of the assemblage by EVEs and 12% by sherd numbers in Phases 1 and 2 and dropped to 1% and 8% respectively in Phase 3 where it was residual. In Field 63 it was particularly common in Phase 1a and also in Field 62, Phase 1.

Data for the level of samian and amphora supplies was compiled for a range of site types in the region (Fig. 162) including York (Micklegate), Catterick Racecourse, Bainesse, Doncaster High St, Field 23 and 25, the small town at Shiptonthorpe and rural sites at Hawling Road. The groups from the supply towns in the north-west were included for comparison. The groups from Phases 1 and 2 at Healam (HP1 and HP2) are amongst the highest for amphora and samian contrasting sharply with the rural groups and with the small town of Shiptonthorpe. The groups were larger than at Bainesse and demonstrated the essentially rural character of the settlement at Fields 23/25. Phase 1 compares very well with the groups from Middlewich, Manchester Barton Street *vicus,* and Wigan.

In addition to the fine and specialist wares obtained, the relative quantities of table ware such as bowls, dishes

Vessel	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Total
Amphora	2.15%	2.33%	1.01%			1.49%
Beaker/small jar/cup	10.81%	8.67%	8.01%	86.00%	6.25%	9.33%
Bowl/dish	36.43%	12.22%	32.61%		32.97%	33.49%
Box					0.27%	0.03%
Flagon	11.89%	30.67%	10.67%		2.51%	11.21%
Indeterminate	0.25%		0.22%		0.18%	0.65%
Lid	3.99%	0.22%	2.03%		0.32%	2.68%
Medium-necked jar	21.92%	26.78%	29.83%	14.00%	35.80%	26.61%
Mortarium	5.99%	8.11%	5.11%		8.48%	5.97%
Narrow-necked jar	4.56%	11.00%	6.96%		10.62%	6.38%
Storage jar			0.18%			0.07%
Wide-mouthed deep bowl			0.02%			0.01%
Wide-mouthed jar	2.01%		3.35%		2.60%	2.51%
Absolute EVES	**100.34**	**9.00**	**85.29**	**0.50**	**21.93**	**217.06**

Table 109: Relative quantities of vessel types from Healam stratified groups (using EVES)

Table 110: Relative quantities of stratified wares and fabric from Healam by phase

Ware	Fabric type	Phase 1			Phase 2			Phase 3			Phase 4			Phase 5			All		
		No %	Weight % (g)	EVEs %	No %	Weight % (g)	EVEs %	No %	Weight % (g)	EVEs %	No %	Weight % (g)	EVEs %	No %	Weight % (g)	EVEs %	No %	Weight % (g)	EVEs %
A	A DOLIUM							0.02	0.12	0.11							0.01	0.05	0.04
	A DR.20	11.37	54.43	1.78	15.16	42.00	2.33	7.16	33.55	0.73				9.42	30.14		9.41	44.07	1.21
	A DR.2-4							0.02	0.07								0.01	0.03	
	A GAL AM	0.32	0.63	0.20				0.46	0.45	0.19				0.09	0.26		0.34	0.51	0.17
	AMP	0.11	0.06	0.03				0.02	0.00								0.05	0.03	0.01
A Total		**11.79**	**55.12**	**2.01**	**15.16**	**42.00**	**2.33**	**7.68**	**34.21**	**1.02**				**9.51**	**30.40**		**9.82**	**44.69**	**1.43**
BB	BB/GRB	0.02	0.00														0.01	0.00	
	BB1T	0.51	0.18	0.86	2.44	2.46	0.78	0.39	0.15	0.48				0.26	0.18	0.73	0.52	0.24	0.69
	BB2T	0.06	0.05	0.33										0.09	0.09	0.27	0.03	0.03	0.18
BB Total		**0.59**	**0.23**	**1.19**	**2.44**	**2.46**	**0.78**	**0.39**	**0.15**	**0.48**				**0.35**	**0.27**	**1.00**	**0.56**	**0.27**	**0.87**
BB1		9.80	4.87	9.88	10.45	6.25	12.33	8.84	6.36	9.93	9.09	39.46		8.29	4.11	7.57	9.25	5.43	9.74
BB2								0.02	0.01								0.01	0.00	
BSB		0.08	0.03					0.02	0.01								0.04	0.02	
CC	CC	0.02	0.00											0.09	0.01		0.02	0.00	
	CC1	0.08	0.01					0.02	0.00	0.11							0.04	0.01	0.04
	CC2	0.08	0.02		0.35	0.39	3.33	0.04	0.00					0.09	0.02		0.08	0.02	0.14
	CC3							0.02	0.00								0.01	0.00	
	CC4													0.17	0.04		0.02	0.00	
	NV2							0.02	0.00								0.01	0.00	
	RED CC							0.02	0.04								0.01	0.01	
CC Total		**0.19**	**0.03**		**0.35**	**0.39**	**3.33**	**0.11**	**0.05**	**0.11**				**0.35**	**0.07**		**0.18**	**0.05**	**0.18**
CGBS		0.13	0.01		0.17	0.03		0.13	0.01	0.21							0.12	0.01	0.08
CNG CC	CNG CC1	0.04	0.01														0.02	0.01	
	CNG CC2	0.02	0.00														0.01	0.00	
CNG CC Total		**0.06**	**0.01**														**0.03**	**0.01**	
CNG GL					0.17	0.01											0.01	0.00	
COL CC								0.20	0.08	0.27							0.09	0.03	0.11
CRA BUFF	CRA RE							0.02	0.01	0.11							0.01	0.00	0.04
CRA BUF Total								**0.02**	**0.01**	**0.11**							**0.01**	**0.00**	**0.04**
CRA OX								0.04	0.08	0.12							0.02	0.03	0.05
CRA PA	CRA PA							0.41	0.30	0.69				0.17	0.33	0.68	0.20	0.14	0.34
CRA PA Total								**0.41**	**0.30**	**0.69**				**0.17**	**0.33**	**0.68**	**0.20**	**0.14**	**0.34**
CRA RE		0.47	0.35	0.98				4.40	4.26	8.20	3.03	3.69	14.00	4.19	2.80	5.24	2.60	2.04	4.23
CRA RE?		0.04	0.05	0.20				0.22	0.68	2.08				0.17	0.03	0.27	0.13	0.29	0.94
CRA WH	CRA WH							0.04	0.02								0.02	0.01	
CRA WH Total								0.04	0.02								0.02	0.01	
CT		0.04	0.01					0.13	0.03								0.08	0.02	
CTA1								0.02	0.01	0.12							0.01	0.00	0.05

Table 110 continued: Relative quantities of stratified wares and fabric from Healam by phase

Ware	Fabric type	Phase 1			Phase 2			Phase 3			Phase 4			Phase 5			All		
		No %	Weight % (g)	EVEs %	No %	Weight % (g)	EVEs %	No %	Weight % (g)	EVEs %	No %	Weight % (g)	EVEs %	No %	Weight % (g)	EVEs %	No %	Weight % (g)	EVEs %
CTA2		0.02	0.01		0.52	0.21		0.42	0.35	0.42				0.17	0.11	0.68	0.24	0.15	0.23
DBY								0.06	0.00					0.09	0.02		0.03	0.00	
EBOR	EBOR	0.04	0.02	0.05													0.02	0.01	0.02
	EBOR2	0.02	0.00														0.01	0.00	
	EBOR3	0.38	0.07	0.36				0.04	0.00								0.17	0.04	0.17
	EBOR6	0.30	0.24	0.54	1.39	0.56	1.00	0.24	0.13	0.30							0.29	0.19	0.41
EBOR Total		**0.74**	**0.34**	**0.95**	**1.39**	**0.56**	**1.00**	**0.28**	**0.14**	**0.30**							**0.49**	**0.24**	**0.60**
EYCT		1.25	1.01	1.45	0.52	0.31		10.85	13.05	12.90	3.03	1.34		13.35	20.00	13.27	6.76	7.14	7.08
FLA	FL	0.02	0.00														0.01	0.00	
	FLA	0.30	0.10	0.07				0.20	0.09	0.06				0.17	0.08		0.23	0.09	0.06
	FLA IMPORT							0.02	0.00								0.01	0.00	
	FLA / IMPORT							0.02	0.00	0.06							0.01	0.00	0.02
	FLA1	0.30	0.04	0.12	0.17	0.01		0.17	0.10	0.14							0.20	0.06	0.11
	FLA2	0.30	0.19	0.36	2.26	0.88		0.18	0.08	0.18				0.26	0.04		0.34	0.16	0.23
	FLA3	0.15	0.14		0.17	0.12		0.11	0.06					0.09	0.05		0.13	0.10	
	FLA4	0.06	0.06					0.13	0.07								0.08	0.05	
	FLA5				0.17	0.07		0.02	0.01	0.23							0.02	0.00	0.09
	FLA6	0.08	0.01					0.02	0.02								0.04	0.01	
FLA Total		**1.21**	**0.54**	**0.55**	**2.79**	**1.07**		**0.87**	**0.43**	**0.67**				**0.52**	**0.17**		**1.06**	**0.49**	**0.52**
FLB	FLB	0.23	0.03					0.31	0.13					0.87	0.63		0.32	0.12	
	FLB1	8.25	3.65	7.93	7.14	3.44	1.67	4.53	3.49	6.18				3.05	1.74	0.68	5.98	3.43	6.23
	FLB2	0.13	0.04					0.39	0.41	1.00							0.23	0.18	0.39
	FLB3	0.66	0.17					0.15	0.07								0.33	0.11	
FLB Total		**9.27**	**3.89**	**7.93**	**7.14**	**3.44**	**1.67**	**5.38**	**4.11**	**7.18**				**3.93**	**2.37**	**0.68**	**6.85**	**3.84**	**6.62**
GRA	GRA	0.06	0.01					0.13	0.03	0.06							0.08	0.01	0.02
	GRA1	0.51	0.19	0.74	0.52	0.39	1.11	1.84	0.76	1.78				0.87	0.88	1.28	1.15	0.47	1.22
	GRA2	0.32	0.09	0.42				0.17	0.04	0.13	3.03	0.76	14.00	0.35	0.37	1.41	0.24	0.09	0.42
	GRA3	0.08	0.08					0.22	0.14	0.27							0.13	0.10	0.11
	GRA4	0.21	0.10	0.27				0.18	0.07	0.19				0.17	0.09		0.18	0.08	0.20
	GRA5							0.04	0.03								0.02	0.01	
GRA Total		**1.19**	**0.47**	**1.43**	**0.52**	**0.39**	**1.11**	**2.58**	**1.07**	**2.43**	**3.03**	**0.76**	**14.00**	**1.40**	**1.33**	**2.69**	**1.81**	**0.76**	**1.96**
GRB	GR	0.04	0.00														0.02	0.00	
	GRB	1.54	0.41	1.72	3.83	1.18	2.22	2.85	1.54	1.40	48.48	35.94	52.00	2.09	0.95	2.23	2.44	0.93	1.78
	GRB1	8.63	4.52	13.46	4.88	3.17	10.22	6.50	4.37	4.54	24.24	11.84	20.00	6.11	3.94	11.86	7.28	4.38	9.67
	GRB10	0.23	0.21		0.35	2.59		0.33	0.43								0.26	0.35	
	GRB11	1.59	0.76	2.03	0.52	0.08		0.98	0.82	1.02				1.05	0.82	0.78	1.20	0.76	1.42
	GRB12	0.25	0.16	0.20	0.87	1.65		0.04	0.02					0.09	0.04		0.17	0.14	0.09
	GRB13	0.25	0.12	0.54				0.29	0.28								0.24	0.17	0.25

Table 110 continued: Relative quantities of stratified wares and fabric from Healam by phase

Ware	Fabric type	Phase 1			Phase 2			Phase 3			Phase 4			Phase 5			All		
		No %	Weight % (g)	EVEs %	No %	Weight % (g)	EVEs %	No %	Weight % (g)	EVEs %	No %	Weight % (g)	EVEs %	No %	Weight % (g)	EVEs %	No %	Weight % (g)	EVEs %
	GRB14				0.35	0.10	0.56	0.02	0.00								0.03	0.00	0.02
	GRB15	0.17	0.05		1.57	0.75		0.06	0.03	0.18							0.17	0.06	0.07
	GRB16	0.76	0.20	0.48				0.09	0.08	0.12				0.09	0.36	1.64	0.35	0.16	0.43
	GRB17	0.02	0.02	0.03				0.13	0.07	0.23							0.07	0.03	0.11
	GRB18							0.13	0.16								0.06	0.06	
	GRB19	0.06	0.01		0.17	0.05											0.03	0.01	
	GRB2	0.02	0.00	0.07													0.01	0.00	0.03
	GRB20	0.08	0.05	0.26				0.06	0.08	0.30				0.09	0.09	0.23	0.07	0.06	0.26
	GRB21	0.02	0.02														0.01	0.01	
	GRB22	0.08	0.06	0.10				0.04	0.01								0.05	0.04	0.05
	GRB23	0.02	0.01					0.15	0.13								0.08	0.05	
	GRB3	0.47	0.24	0.82	2.44	0.93	0.78	2.39	1.42	2.27	3.03	2.60		1.31	0.60	1.19	1.53	0.74	1.42
	GRB3?	0.04	0.01		0.17	0.21		0.15	0.07	0.35				0.09	0.46		0.10	0.08	0.14
	GRB4							0.06	0.05								0.03	0.02	
	GRB5	0.08	0.07	0.16	0.87	0.14		0.50	0.28	0.20				1.31	0.70	0.68	0.43	0.20	0.22
	GRB6	13.52	6.41	13.04	12.72	8.17	16.56	11.91	6.82	13.44	3.03	3.53		12.48	6.13	9.26	12.62	6.60	12.93
	GRB7							0.26	0.12	0.27							0.12	0.05	0.11
	GRB8	2.10	1.28	2.38	2.09	0.92	1.11	1.88	0.89	1.86				2.27	1.56	5.93	2.01	1.14	2.48
	GRB9	0.02	0.04					0.02	0.02	0.06							0.02	0.03	0.02
GRB Total		**30.03**	**14.66**	**35.29**	**30.84**	**19.94**	**31.44**	**28.82**	**17.70**	**26.24**	**78.79**	**53.90**	**72.00**	**26.96**	**15.63**	**33.79**	**29.36**	**16.08**	**31.51**
GRC	GRC	0.36	0.10	0.35	0.17	0.13		1.01	0.47	1.04				1.22	0.52	0.18	0.73	0.28	0.59
	GRC H							0.13									0.06		
	GRC?							0.02	0.01								0.01	0.00	
	GRC1							0.06	0.08	0.07							0.03	0.03	0.03
	GRC2	0.02	0.01					0.09	0.11	0.16							0.05	0.05	0.06
	GRC3	0.02	0.00					0.09	0.10	0.06							0.05	0.04	0.02
	GRC4							0.02	0.04								0.01	0.01	
GRC Total		**0.40**	**0.11**	**0.35**	**0.17**	**0.13**		**1.42**	**0.81**	**1.34**				**1.22**	**0.52**	**0.18**	**0.93**	**0.41**	**0.70**
GTA	GTA	0.08	0.04	0.20	0.52	1.60		0.07	0.06								0.09	0.09	0.09
	GTA1	0.06	0.06					0.06	0.10	0.23				0.09	0.17	0.46	0.06	0.08	0.14
	GTA2	0.04	0.05														0.02	0.02	
GTA Total		**0.19**	**0.15**	**0.20**	**0.52**	**1.60**		**0.13**	**0.16**	**0.23**				**0.09**	**0.17**	**0.46**	**0.17**	**0.20**	**0.23**
KOLN		0.32	0.11	0.10				0.37	0.11	0.26				0.09	0.03		0.30	0.10	0.15
LOOL								0.02	0.00								0.01	0.00	
M	M	0.02															0.01		
	MCTR WS4							0.06	0.09					0.09	0.08	0.18	0.03	0.04	0.02
	MCRA WH							0.18	0.15	0.11							0.08	0.06	0.04
	MH	0.51	1.43	1.05	1.39	5.27	5.33	1.25	2.99	2.11				1.31	2.14	2.33	0.97	2.20	1.77
	MOAB INDET	0.15	0.08	0.27	0.17	0.73		0.09	0.02	0.05				0.09	0.05	0.09	0.12	0.08	0.15

Table 110 continued: Relative quantities of stratified wares and fabric from Healam by phase

Ware	Fabric type	Phase 1			Phase 2			Phase 3			Phase 4			Phase 5			All		
		No %	Weight % (g)	EVEs %	No %	Weight % (g)	EVEs %	No %	Weight % (g)	EVEs %	No %	Weight % (g)	EVEs %	No %	Weight % (g)	EVEs %	No %	Weight % (g)	EVEs %
	MCTR WS1	0.19	0.26	0.28				0.15	0.43	0.53				0.17	0.63	0.36	0.16	0.34	0.37
	MCRA M1	0.08	0.07	0.28				0.55	0.71	0.81				0.61	1.33	2.83	0.34	0.42	0.73
	MCOR WH				0.70	3.12	1.89										0.03	0.10	0.08
	MALD WS1	0.06	0.21	0.23										0.35	1.34	1.23	0.06	0.22	0.23
	MCTR WS3	0.38	0.94	0.49				0.17	0.12								0.23	0.52	0.23
	MNOG WH4	0.19	0.87	1.15				0.04	0.04								0.09	0.45	0.53
	MOAB NE1				0.52	0.63	0.89	0.02	0.03	0.08							0.03	0.03	0.07
	MALD WS2	0.02	0.03					0.07	0.10	0.09							0.04	0.05	0.04
	MLTC WH	0.06	0.14	0.10				0.02	0.04					0.09	0.21		0.04	0.10	0.05
	M VER	0.04	0.25	0.24				0.02	0.03								0.03	0.14	0.11
	MALD WH	0.02	0.34	0.20										0.09	0.04		0.02	0.17	0.09
	MOXCM							0.07	0.09	0.22							0.03	0.04	0.09
	MCRA PA	0.04	0.05	0.14				0.11	0.13	0.29				0.96	1.69	0.36	0.16	0.21	0.22
	MW							0.04	0.14	0.07				0.35	0.43		0.05	0.09	0.03
	MCTR WS2	0.19	0.53	0.76				0.02	0.03	0.12				0.09	0.18		0.09	0.29	0.40
	MSOC WH							0.02	0.11	0.13							0.01	0.04	0.05
	M E Anglia	0.02	0.01					0.02	0.03								0.02	0.02	
	MOAB NE4	0.19	0.24	0.25													0.08	0.12	0.12
	MLNV CC	0.02	0.00					0.06	0.05	0.06							0.03	0.02	0.02
	MALD WS4	0.08	0.21	0.43										0.09	0.28		0.04	0.13	0.20
	MCOL WH	0.02	0.04											0.09	0.47	0.68	0.02	0.06	0.07
	MW IN-DET	0.06	0.03					0.04	0.02								0.04	0.02	
	MOAB NE3	0.02	0.12	0.14													0.01	0.06	0.06
	MALD WS3	0.04	0.04					0.06	0.14	0.15							0.04	0.07	0.06
	MW NE	0.06	0.14					0.02	0.03								0.03	0.08	
	MCRA M3							0.02	0.02	0.05							0.01	0.01	0.02
	MOAB NE2	0.02	0.07											0.09	0.28	0.41	0.02	0.06	0.04
	MOAB EBOR	0.02	0.07														0.01	0.03	
	M indeter-minate	0.02	0.00														0.01	0.00	
	M CNG OX	0.02	0.00														0.01	0.00	

Table 110 continued: Relative quantities of stratified wares and fabric from Healam by phase

Ware	Fabric type	Phase 1			Phase 2			Phase 3			Phase 4			Phase 5			All		
		No %	Weight % (g)	EVEs %	No %	Weight % (g)	EVEs %	No %	Weight % (g)	EVEs %	No %	Weight % (g)	EVEs %	No %	Weight % (g)	EVEs %	No %	Weight % (g)	EVEs %
	MOWS UNK							0.02	0.03	0.06							0.01	0.01	0.02
	MRAE-TIAN RS	0.02	0.12														0.01	0.06	
M Total		**2.60**	**6.28**	**5.99**	**2.79**	**9.75**	**8.11**	**3.09**	**5.57**	**4.92**				**4.45**	**9.13**	**8.48**	**3.01**	**6.34**	**5.90**
NV		0.28	0.05	0.10	0.87	0.50	1.11	2.78	1.09	2.06				3.05	2.17	6.06	1.71	0.63	1.52
NVPMT														0.09	0.21		0.01	0.02	
OAA	O							0.09	0.00								0.04	0.00	
	OAA1	0.11	0.01	0.06				0.13	0.03	0.05				0.09	0.01		0.11	0.01	0.05
	OAA2	0.04	0.02					0.07	0.10	0.12							0.05	0.05	0.05
	OAA3	0.51	0.24	0.76	0.35	0.08		0.31	0.12	0.72				0.26	0.20		0.39	0.18	0.63
OAA Total		**0.66**	**0.26**	**0.82**	**0.35**	**0.08**		**0.61**	**0.25**	**0.88**				**0.35**	**0.21**		**0.59**	**0.25**	**0.72**
OAB	OAB	1.12	0.21	0.27	1.92	0.85	11.11	1.05	0.45	0.21				0.70	0.45	0.55	1.08	0.34	0.72
	OAB1	8.55	3.53	8.08	6.62	3.25	13.33	6.33	2.35	4.39				5.24	1.99	3.33	7.10	2.94	6.35
	OAB2	0.04	0.02	0.20	0.17	0.14	1.00	0.06	0.01	0.02							0.05	0.02	0.14
	OAB3							0.06	0.07	0.19				0.52	0.25	1.00	0.08	0.05	0.18
	OAB4							0.09	0.06	0.04							0.04	0.02	0.01
	OAB5	0.32	0.23	0.39				0.33	0.21	0.81				0.09	0.04		0.29	0.20	0.50
	OAB6							0.04	0.03								0.02	0.01	
	OAB7	0.38	0.27	0.95													0.15	0.14	0.44
OAB Total		**10.41**	**4.26**	**9.89**	**8.71**	**4.23**	**25.44**	**7.95**	**3.17**	**5.65**				**6.54**	**2.73**	**4.88**	**8.81**	**3.72**	**8.34**
OAC	OAC	0.04	0.01	0.21				0.09	0.02	0.06				0.09	0.03	0.18	0.07	0.02	0.14
	OAC1							0.06	0.07								0.03	0.03	
OAC Total		**0.04**	**0.01**	**0.21**				**0.15**	**0.10**	**0.06**				**0.09**	**0.03**	**0.18**	**0.09**	**0.04**	**0.14**
OBA		0.04	0.02		0.52	0.08	3.89	0.15	0.05	0.11							0.11	0.03	0.20
OBB		0.78	0.30	0.63	2.96	1.18	2.89	0.48	0.24	0.46				0.26	0.21	0.46	0.70	0.30	0.64
PARISIAN														0.17	0.02		0.02	0.00	
PNK GT	PNK GT							0.02	0.02								0.01	0.01	
PNK GT Total								**0.02**	**0.02**								**0.01**	**0.01**	
RS	RSA1	0.32	0.05	0.70				0.04	0.03								0.14	0.04	0.32
	RSB1	0.13	0.02	0.24				0.04	0.01								0.07	0.02	0.11
RS Total		**0.44**	**0.08**	**0.94**				**0.07**	**0.04**								**0.21**	**0.05**	**0.43**
SV		0.13	0.04					0.02	0.00	0.05							0.06	0.02	0.02
TRIER								0.02	0.01								0.01	0.00	
TS	MLEZ	0.02	0.00					0.04	0.02	0.21							0.03	0.01	0.08
	NV PMT							0.02	0.00								0.01	0.00	
	SAMCG	13.46	5.21	14.51	8.71	3.87	3.78	8.41	4.18	7.71	3.03	0.84		11.08	5.49	11.17	10.67	4.80	11.02
	SAMEG	0.38	0.22	1.32	0.35	0.18		0.50	0.26	0.82				0.87	0.28	0.91	0.48	0.24	1.02

Ware	Fabric type	Phase 1			Phase 2			Phase 3			Phase 4			Phase 5			All		
		No %	Weight % (g)	EVEs %	No %	Weight % (g)	EVEs %	No %	Weight % (g)	EVEs %	No %	Weight % (g)	EVEs %	No %	Weight % (g)	EVEs %	No %	Weight % (g)	EVEs %
	SAMLG	1.21	0.44	0.67	1.39	0.57	0.78	1.01	0.34	0.60				1.22	0.59	0.91	1.13	0.42	0.67
	SAMLM	0.06	0.12	0.31													0.03	0.06	0.14
	SAMMT							0.04	0.00	0.06				0.09	0.06		0.03	0.01	0.02
	SAMMV	1.61	0.66	1.94	0.17	0.76		0.68	0.31	0.87				0.44	0.36	0.14	1.00	0.51	1.25
	SAMRZ	0.04	0.02					0.11	0.14	0.26				0.44	0.14	0.27	0.11	0.07	0.13
	SAMTR							0.04	0.01								0.02	0.00	
	TS Total	**16.78**	**6.67**	**18.75**	**10.63**	**5.38**	**4.56**	**10.85**	**5.27**	**10.53**	**3.03**	**0.84**		**14.14**	**6.92**	**13.41**	**13.49**	**6.11**	**14.35**
	VER AM	0.02	0.03	0.20													0.01	0.01	0.09
Absolute quantities		**4,725**	**171,204.6**	**100.34**	**574**	**10,393.8**	**9**	**5,431**	**129,978.68**	**85.29**	**33**	**119.1**	**0**	**1,146**	**27,342.6**	**21.93**	**11,909**	**339,038.8**	**217.06**

Table 110 continued: Relative quantities of stratified wares and fabric from Healam by phase

and platters and drinking vessels such as beakers and flagons to cooking wares such as jars were compared (Fig. 164). Plotting the bowl/dish to jar proportion, Healam Phase 1 was closest to the York groups, Doncaster High Street and Catterick Racecourse, falling within the northern urban/*vici* group (Fig. 165) and the north-west "supply" town group, with Bainesse rather nearer to the rural sites characterised by high numbers of jars but still in the urban/*vici* grouping. Shiptonthorpe was more like a rural site.

PHASE 2

The assemblage from Phase 2 was somewhat small but marks a change in activity with liquid containers figuring large. There was a relative peak in mortarium use in this phase. The percentages of both specialist wares and amphorae remained high in Phase 2 at 40% by count and 22% by EVEs for specialist wares and 15% by count, 2% by EVEs for amphorae, suggesting that the site status was still in the urban/military group despite the overall fall in absolute quantities of ceramic disposal. Alternatively the redeposition of material from Phase 1 may have accounted for this pattern. Amphora levels remained high in Phase 2.

Study of the vessel types in Phase 2 disclosed that the Phase 2 group was quite different to Phase 1 and this was due the higher numbers of beakers and flagons.

PHASE 3

Phase 3 marked a decline in tableware and rise in jars as was normal at this date in the north but detailed study of key wares by sub-phase suggested a change in site status during this period (see below). With regard to the specialist wares, even in Phase 3, there was still a group of 31% and 27%. Unfortunately the Phase 3 group included a great deal of residual samian and indeed the Phase 2 group was also mostly residual samian.

The fine wares (samian, colour-coated, and parchment wares) in Phase 3 were reduced to 3% overall if the residual samian material was excluded. Compared with other late 4th to 5th century groups cited by Evans, this was low (1993, table 4) but did compare with the percentage of Nene Valley ware noted by Evans in the BUFAU evaluation at Healam (1994, 14).

In Phase 3 the levels of redeposited pottery made the analysis of the vessel types impossible but attempts were made to examine particular aspects of the assemblages of this phase in each area and well-dated types were used it assess its character (see below).

Differences in the sub-phases and spatial variation (tables 110 and 111)

FIELD 61A

In Field 61A a marked difference between Phase 1i and 1ii could be seen in the flagon numbers which accounted for 25% of the Phase 1i group from here but dropped to 10% in Phase 1ii. Phase 1i lacks cups and beakers, whereas Phase 1ii had a reasonable number and nearly 50% of the latter assemblage was made up of bowls and dishes with a drop in mortarium vessels. In Phase 1 in Field 61A bowls and dishes were more common than in the later phases with jars being correspondingly less numerous. The Phase 1 groups indicated an emphasis on Roman type dining, with a difference between Trenches B and C having flagons whereas Trench A had cups. In Trench A sherds from two samian cups, an RSB1 cup

and a samian bowl form Dr.18/31, were found in bank material 8271. Much of the RSB1 cup was present and it is possible that it was deliberately deposited perhaps indicating this area had a special function even before it was used for burial. Alternatively this bank may be the earliest demarcation of a burial area and these ceramics may be associated with rites marking its consecration.

In Phase 2 the bowl and dish component decreased and Trench B features contained a very large proportion of flagons with beakers in Trench A. In Trench B amphorae were present and flagons were unusually high at 53%. In Trench A flagons were absent but mortaria and beakers were more numerous. These patterns may have been linked to the burial in Trench B Phase 2 and linked with ritual activities such as libations.

In Phase 3i the cups and beaker group remained at the higher levels and bowls and dishes rise again as do medium-necked jars although the narrow-necked jars were less common. In Phase 3ii jars rise and the range was restricted to the bowls and dishes and the jar group. In Trench A Phase 3ii a complete Crambeck grey ware developed flanged bowl came from pit 8093.

The specialist/fine ware group fluctuated with a fairly low quantity in Phase 1i, rising in Phase 1ii and 2 and declining in Phase 3i with low levels in Phase 3ii. The differences in the functional make-up of this group seemed to be linked with rites being carried out here in Phase 2.

FIELD 63

In Field 63, the four sub-phases for Phase 1 and 3 allowed changes to be studied in more detail. In Phase 1a peaks were evident in the numbers of amphorae, flagons, mortaria, and narrow-necked jars compared with the other Phase 1 sub-phases. Significantly, the narrow-necked jars were found in deposits associated with the Beck and may indicate water bearing vessels. The higher number of lids came from this phase, and Phase 1b, and may indicate that the contents of vessels were being protected or stored. A Gallic amphora lid was present in Phase 1 and also, redeposited, in Phase 3. These were delicate and easily broken, particularly when opening the amphora. In Phase 1 stratified Gallic wine amphora sherds occurred only in Field 63 although residual sherds were present in later phases in Fields 61 and 61A. The lids were likely to occur where the amphorae were first delivered and opened. Amphorae generally were most common in Phase 1a and this could also be linked with their storage or secondary use as storage vessels since several Dressel 20 vessels had been modified by removing handles. A small concentration of Dressel 20 sherds was noted in structure 7968. Most of the structures in Phase 1a had very little pottery associated with them but structure 7968 included a small group which had more bowls, beakers, and small jars than the average for Phase 1a and a concentration of lids but no cups, flagons, dishes, or mortaria by EVEs. This restricted range may suggest the activity here did not fall within the range for normal domestic activity. The small jars included BB1 vessels which relate to the handled jar/beaker group (Gillam 1976, 66). These and the other small jars were all likely to be drinking vessels, perhaps for beer (Cool 2006; Leary 2008b, 166-7) or watered down wine. In capacity, they would compare to a modern pint glass (measuring around 70-120mm in diameter and around 125mm high, Cool 2006, 149, fig. 15.5). Amongst the beakers from the excavations, around half had a diameter between 60-100m and the rest were around 120mm. Using Gillam (1970) and Perrin (1999) to suggest the heights of the beakers as between 100-120mm, this would suggest around half the beaker group would be between half to full pint size and the rest would be pint sized vessels or slightly larger.

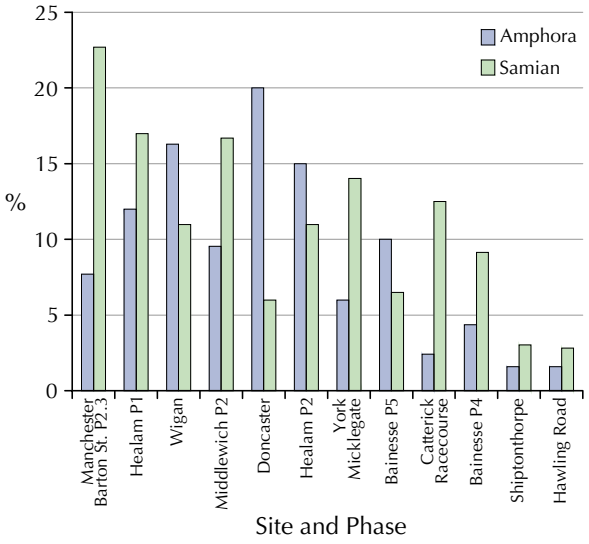


Figure 162: Percentage of samian and amphora at Hadrianic-Antonine sites in the region and at NW vicus/urban/industrial sites of Middlewich, Wigan, and Manchester Barton St. vicus

Much of the pottery from this phase came from the riverine deposits and this area was clearly being used for the disposal of ceramic debris. The larger number of mortaria fragments may simply be a function of the ease with which such bulky sherds could be disposed of here. The lower numbers of bowls and dishes in this sub-phase accords with the higher level of repair of samian vessels noted by Monteil in Phase 1b (Section 10.3, below). Presumably the lower disposal rate reflected the care accorded to the samian vessels in this group and the efforts made to prolong their life by repairing them.

In Phase 1b no amphorae rims were present. Cups and beakers were at their highest but flagons were slightly less common. There was, however, a concentration of glass bottle fragments in this structure, perhaps taking the place of the flagons. Certainly evidence elsewhere suggests that glass bottles may have been used for preparation of drinks, such as wine mixed with water (Cool 2006, 182). In the beaker/cup group there were no small BB1 jars but samian cup levels increased and the rest was made up by grey and oxidised ware beakers. This latter group was inflated by a near complete RSA1 everted rim beaker from group 7951 foundation deposit 7404. This beaker could have been linked to the construction of this structure, perhaps as a dedicatory libation. The levels of lids and jars were about equal to Phase 1a but narrow-necked jars declined as did mortaria. This may be because most of the groups in this sub-phase came from structural groups and ditch groups with few from riverine deposits where mortaria sherds may have been disposed of and water jars might be broken. The number of bowls and dishes doubled. These differences suggest more dining wares were being thrown away here and these trends may reflect the use of structure 7951. Much of the pottery in this phase came

from structure 7951 and the amount of pottery associated with this structure contrasts with all the other structures excavated. Compared with Phase 1a structure 7968, this structure had more vessels relating to dining such as decorated samian bowls, and more beakers, cups and flagons but mortaria and narrow-necked jars were also present. Many of the samian bowls were repaired and this structure contained one of the burnt assemblages with examples of extremes of temperature resulting in sherds being distorted and vitrified.

In Phase 1c the functional profile was similar to Phase 1b but with most groups going down slightly and medium-necked jars increasing. Narrow-necked and wide-mouthed jars also increased in number mirroring a chronological trend in Yorkshire. Most of the, pottery came from the levelling layers and the structure 6949. Burnt material was very common (see above) and much of a severely burnt narrow-necked jar came from charcoal rich layer 5596 inside structure 6949. Half an OAB1 segmental bowl came from layer 5039. Although lids were less common overall, there was a high percentage in structure 6949. There was also a peak in the number of small jars in this structure but a shortage of flagons.

A rise of medium-necked jars and flagons could be detected in Phase 1d with lids and narrow-necked jars less numerous. Other vessel groups remained comparable to Phase 1c. The rise in flagons was probably due to the presence of three complete rims, two from the midden layer 5042. This latter group continued into Phase 3a but was grouped in Phase 1d because most of its pottery dated to this phase. In structure 5009 mortaria were common compared to the rest of the Phase 1d assemblage.

Some areas of the settlement had more specialist wares than others, perhaps indicating that different activities were carried out in different areas. Specialist wares were common in the deeply stratified area in Field 63 in Phase 1 and were initially still high in Phase 3a but declined over Phases 3b-c.

In Phase 3, although the relative quantities of jars rise and the bowls and dishes fall overall, the presence of large amounts of 2nd century material distorted the results so profoundly that raw figures were of little value other

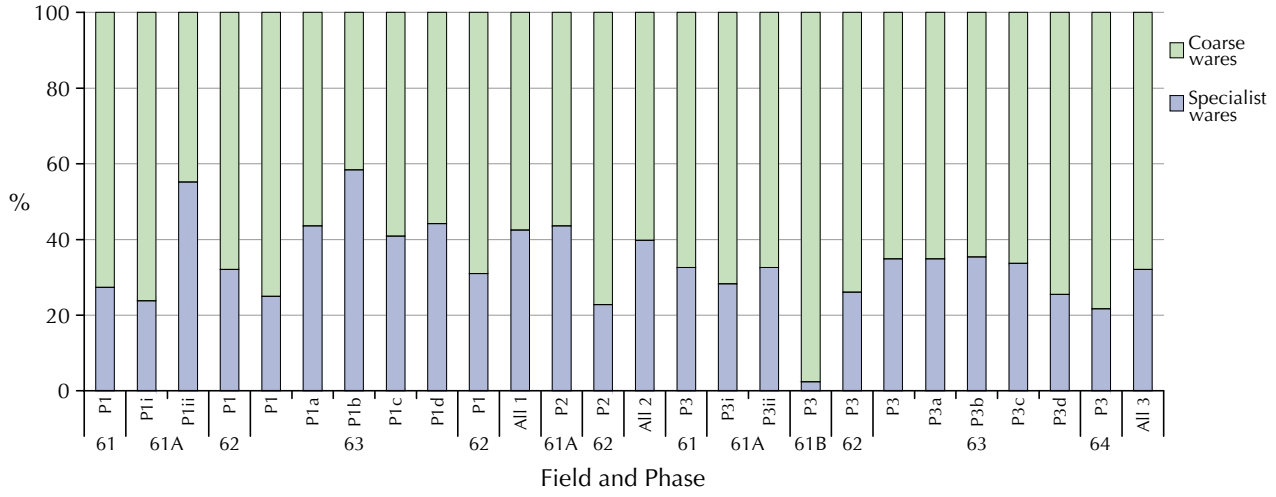


Figure 163: Ratio of specialist to coarse wares from excavated areas, phases and sub-phases (using sherd count)

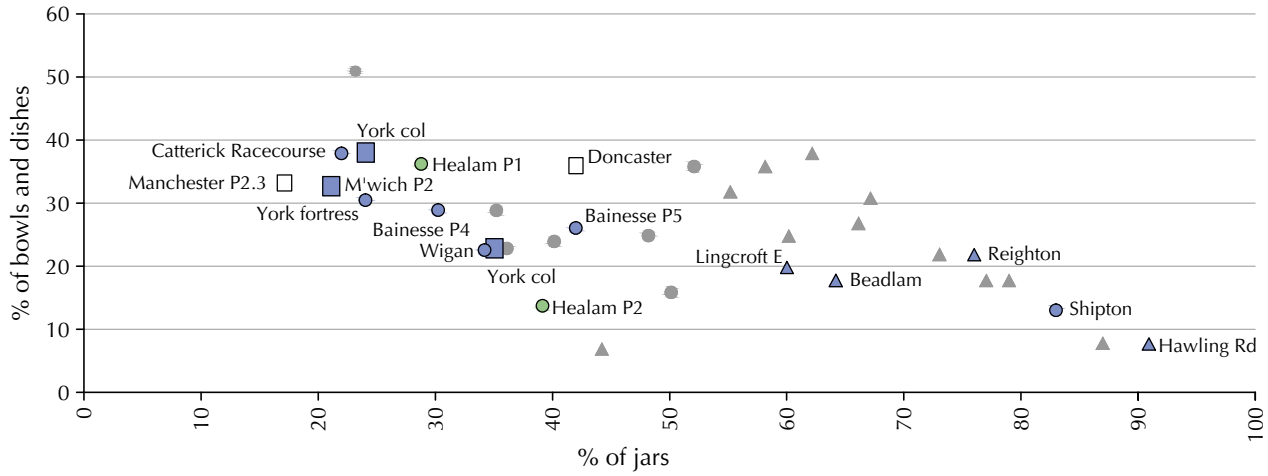


*Figure 164: Proportions of bowl/dishes to jars at specific sites in the region with values from range of rural (grey triangles) and urban/*vicus *(grey circles) sites in north shown for comparative purposes (see table 111 for details of all sites). Data sources: Manchester Barton St, Leary 2007b, table 3.5; Wigan, Leary and Williams 2008; Middlewich (M'wich), Leary 2008a, table 7; Hawling Rd, Beadlam, Lingcroft Farm, and York Rougier St., all Evans 1993, appendix 1; Shiptonthorpe (Shipton), Evans 2006, table 7.7; Doncaster, Leary 2004; Reighton, Leary unpublished d; York Micklegate (York col) and Swinegate, Monaghan 1997, tables 134-5; and Bainesse and Catterick Racecourse, Evans 2002, tables 22 and 49. Comparative urban data = Doncaster Church Walk, Leary 2008c; Chester, Segontium, and Carlisle, Evans 1993, appendix 1; Leicester, period 2, Clarke 1999, table 12; and rural sites = Armthorpe sites, Leary 2007a and 2008d; Byram Park, Leary unpublished a; Normanton, Leary unpublished b; Holme Hall Farm, Stainton, Leary 2005; Don Gorge, Leary unpublished c; Thurnscoe, Didsbury 2004b*

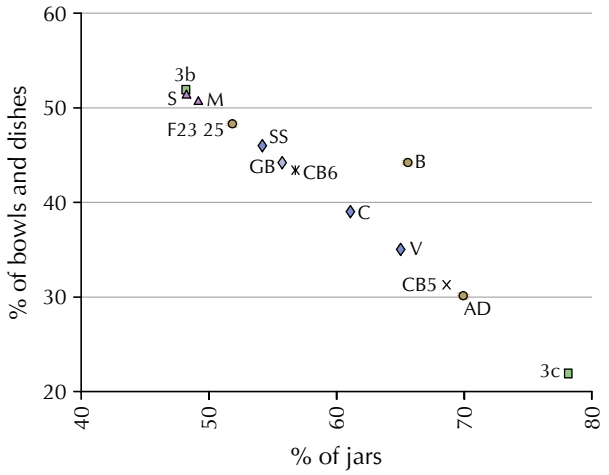


Figure 165: Ratios of jars to bowls/dishes on 4th century AD sites. The values for Field 63 Phases 3b and 3c exclude redeposited material from Phases 2 and 3. S = Skeldergate, urban; M = Malton, urban; SS = South Shields fort; GB = Greta Bridge fort; CB6 = Catterick Bridge phase 6 urban periphery; B = Beadlam villa; C = Castleford urban?; V = $Vindolanda fort; AD = Apperley Dene rural settlement; CB5 = Catterick Bridge phase 5 urban periphery; 3b and 3c = Healam Field 63 phases; F23 25 = Fields 23 and 25

than to note the rise in the wide-mouthed and narrow-mouthed jars so typical of the 3rd and 4th centuries. If examined in detail, it was clear that fluctuations in numbers of beakers and cups, flagons, and bowls and dishes were largely due to the disturbance of earlier deposits containing such material (Tables 109 and 114 (see ADS)).

The group from Phase 3a was very small and overwhelmingly made up of residual pottery. An attempt was made to characterise the other sub-phases by selecting well-dated contemporary forms and plotting changes in ratio (Tables 112 and 113). This showed that in Phase 3b the well-dated 4th century jars were less common than the bowls and dishes but that they became more common in Phases 3c and d. The high level of bowls and dishes in Phase 3b compared with Phases 3c-d may relate to a change in status during this period or in the availability of table wares. It has already been suggested that, although dating to the late 4th century, the features in Phase 3b contained pottery redeposited from the earlier 4th century and this may have accounted for the higher level of tableware. Certainly compared with other 4th century groups, the Phase 3b bowl/dish to jar ratio was at the high end with groups from forts and urban sites, as was the group from Fields 23 and 25, whereas the Phase 3c group fell firmly at the bottom end (Fig. 165). By Phase 3c in the late 4th to early 5th century,

Vessel type	Hawling Rd.	Shiptonthorpe Tr1 Phase 2	Beadlam Late 2nd AD	Lingcroft Farm	Reighton	Healam P2	York Micklegate colonia	Bainesse P5	Bainesse P4	Doncaster High St	Healam P1	Catterick Race-course P2	York Rougier St. colonia	York Swinegate Fort	Fields 23/25
Amphora	-	-	-	-	-	2	-	2	-	1	2	1	-	-	-
Beaker/small jar/cup	-	-	-	-	0.5	9	11	13	12	9	11	7	10	1	9.1
Bowl/dish	8	13	18	20	22	14	23	26	29	36	36	38	38	32.8	45.7
Flagon	-	5	9	13	-	27	29	8	24	2.4	12	11	15	26	-
Indeterminate	-	-	-	-	-	-	-	2	-	5	0	8	2	14	-
Lid	1	-	-	-	-	-	-	3	3	2	4	8	5	2.7	-
Medium-necked jar	91	83	64	60	57	28	35	41	24	42	22	22	24	21	35.6
Mortarium	-	-	9	7	1	8	-	7	-	4	6	5	6	1	2.3
Narrow-necked jar	-	-	-	-	17	11	-	1	6	-	5	-	-	-	-
Wide-mouthed jar	-	-	-	-	2	-	-	-	-	-	2	-	-	-	7.3
All jars	91	83	64	60	76	39	35	42	30	42	29	22	24	21	41
All bowl/dishes	8	13	18	20	22	14	23	26	29	36	36	38	38	32.8	44

Table 111: Relative percentages of vessel types from sites in region. Data from following sources: Hawling Rd, Beadlam, Lingcroft Farm, and York Rougier St, all Evans 1993, appendix 1; Shiptonthorpe, Evans 2006, table 7.7; Doncaster, Leary 2004; Reighton, Leary unpublished d; York Micklegate and Swinegate, Monaghan 1997, tables 134-5; Bainesse and Catterick Race-course, Bell and Evans 2002, tables 22 and 49

Vessel type						
Jar	88	-	52	81	67	83
Bowl/dish	12	-	48	19	33	17
Field	63	63	63	63	63	64
Phase	3	3a	3b	3c	3d	3

Table 112: Ratio (%) of jars to bowls and dishes in Phase 3 using types dated to the 4th century AD

Vessel type						
Jar	95	-	96	99	100	100
Beaker	5	-	4	1	0	0
Field	63	63	63	63	63	64
Phase	3	3a	3b	3c	3d	3

Table 113: Ratio (%) of jars to beakers in Phase 3 using types dated to the 4th century AD

the supplies of tableware from Crambeck would have been low if present at all and these changes may have been partly due to a shortage of bowl and dish suppliers. However compared with late 4th century sites in the north the group from Phase 3c fits in the rural group and the level of bowls and dishes was only slightly lower than previous results from Healam when the obvious residual material is excluded in this way (Evans 1993, fig. 13). Only a very small number of sherds from beakers were present and these had disappeared by Phase 3d. The group from Phase 3d was rather small for reliability.

OTHER FIELDS

Some degree of variation could be detected even where sub-phasing was not possible. In Field 61 little pottery was present and only jars were represented by EVEs. This was in keeping with its apparent position peripheral to the focus of settlement. By contrast Field 62 Phase 1 had a high bowl and dish composition and amphorae were also relatively numerous. Jars were uncommon compared with other areas. A cremation burial from Field 62 contained a complete samian dish in the upper fill and this will have disproportionately increased the bowl/dish counts and also the specialist ware. A fragmented but near-whole cordoned bowl from the primary fill of ditch 2468 further compounds this distortion. This may have been a structured deposit. A burnt fragmented beaker from cremation 2220 represents pyre goods.

The southern sections of Fields 63 and 64 differed from the deeply stratified areas in having no wide-mouthed jars represented by EVEs. No narrow-necked jar rims came from Field 63 and, in Field 64, no amphora or flagon rims. Significantly more bowls and dishes were recovered from the area in Field 63 while in Field 64 the level was slightly below average for Phase 1. The number of medium-mouthed jars from Field 64 was double the normal for Phase 1 and mortarium numbers were low. These profiles suggest fully domestic settlement around Field 63 with a more restricted range of activity to the north in Field 64. Most of the sherds came from the ditch fills with small groups also from some pits and from structures 5728, 5729, and 6698 suggesting the assemblages did reflect the activity being carried on in the vicinity. Two near complete grey ware jars with everted rims and acute lattice burnish of the mid-2nd century were found in ditches 6848 and 7131, both cuts and recuts of the north-south ditch 7954, and a complete base and lower body of a BB1 jar was found in the primary fill of the recut 7955 of ditch group 7954. Three BB1 bowls and dishes from this ditch in Field 63 were complete profiles suggesting that ceramic debris was being thrown or deliberately placed into the ditch from the enclosed areas. Either no pottery or very small numbers of sherds were found in association with the structures in Fields 63 south and Field 64.

In Phase 3 in Field 62 no amphora sherds were found and the bowl and dish numbers went down with a concomitant rise in jars. In the southern part of Fields 63 and 64 some differences were observed which continue those seen in the Phase 1 groups. In Field 63 bowls and dishes were again more common, the residual flagons have all but disappeared but mortarium levels were high, higher than in Phase 1. The narrow-mouthed group was also relatively high. By contrast in Field 64 bowl/dish types were less common and the main components were redeposited flagons and beakers. Indeed the flagon rims were all redeposited from Phase 1 to Phase 3, none being present in the former group. However, when only securely dated types were used both areas were very low in bowls and dishes, suggesting the higher bowl/dish overall reflected the Phase 1 material being redeposited. This area may have been periphery to the main occupation site in Phase 3 and both would fall into the rural group when compared with other sites of late 4th century date in the north.

Specialist wares were low in the southern part of Field 63 and in Field 64 in Phases 1 and in Field 63 in Phase 3. In Field 64 Phase 3 the level was moderately high.

Evidence for the ethnicity and origin of the inhabitants

Swan has explored ceramic traits which might indicate the ethnicity of the inhabitants of various Romano-British sites arguing for Africans at York and elsewhere in the North, Gaulish soldiers using distinctive tripod vessels and perhaps North Gaulish mariners in the *classis Britannica* (1992; 2002; 2009; Swan and Monaghan 1993). In addition, Swan has suggested various continental origins for soldiers and potters based at York (Swan and MacBride 2002; Swan 2002; 2004). Braithwaite has linked the distribution of face pot and headpots with the military and suggested their later distribution away from forts may be linked to veteran settlement (2007, 344-50) and perhaps these can be used as another key ceramic indicator of the character of the inhabitants.

Although the introduction of innovative cooking techniques may have initially be linked with particular people groups, it is easy to imagine their adoption and spread over time and the consequent loss of significance in terms of ethnic markers in the archaeological record. After an initial movement of units or potters, continental pottery styles might also spread through the movement of small numbers of craftsmen or local adoption of techniques and styles. In Phase 1 there was a significant number and variety of vessels at Healam paralleled in Swan's (2009) Wetterau group at York which she linked to movements of units and potters from Lower Germany. However at York itself the red-painted Ebor ware was more common in the civilian areas than in the fortress (Monaghan 1997, 878) and Swan also noted that outside of York the small numbers found occurred on military sites or sites with a military connection (2002, 52-3). She suggested that these were being carried as personal possessions of soldiers or veterans. In contrast, the quantity at Aldborough was interpreted by Snape *et al*. as trade from York in the 2nd century (2002, 104). At Healam, GRB6 compared well with Ebor grey ware in fabric and in forms made and some of fabric group OAB1 may be Ebor1 ware. If these are added to the more distinctive Ebor3 fine ware and painted ware, the quantities coming from York looked more like trade than private possessions. Nevertheless, the continental types present indicated a population with a penchant for distinctive types paralleled in Lower Germany. Whether these were military personnel or veterans and their families or some other officials is a debatable point. Taken together with the generally high status ceramic assemblage, particularly the amphora group and the quantities of decorated samian, the characteristics of the Hadrianic-early Antonine assemblage at Healam suggests the inhabitants at that time were acquiring the type of pottery repertoire that was also obtained by the civilians at York itself and by *vicani* elsewhere in the

region, populations which included a high proportion of foreigners and their descendants.

As far as distinctive culinary equipment was concerned, one 3rd century "African" casserole was identified (Monaghan 1997, type BA3) from a small sherd recovered from subsoil. However McBride and Bidwell (2009, 154), commenting on an "African" casserole from Bowes, prefer to take the widespread but thin distribution of such casseroles in the North-East as evidence for the widespread adoption of brazier cooking rather than the presence of North Africans in all these forts. The single vessel from Healam belonged to this pattern.

The number of headpots and smith pots picks up the theme of veterans again if Braithwaite's interpretation is accepted. These were predominantly of 3rd century type and fit in with other vessels from the region, particularly the smith pots and face pots at Malton. These perhaps indicated the continued presence of people whose ancestors came from the Continent, perhaps with the army or other official bodies.

POT PLACEMENT

In addition to vessels associated with burials and cremations, remains of two samian cups, an RSB1 cup, and a samian dish were found in bank deposit (8271 and 8238) in Field 61A. These may have been deliberate deposits marking a burial rite or some other associated ritual. Several vessels surviving as complete profiles in the primary fills of ditches – in ditches 6848 and 7131, both cuts and recuts of the north-south ditch 7954, and a jar and three bowls from ditch group 7954 - may have been used during rituals marking the construction of these features. A complete Crambeck bowl, broken in two, from fill 8094 of ditch 8093, and another complete Crambeck bowl from pit 8093 belonged with this group of deposits. A small jar/beaker in BB1 was recovered complete from riverine deposit 5234 could have been a libation to deities associated with the beck rather than just a discarded vessel.

A fragment of headpot was found in fill 8020 of ditch 8019. This was abraded, discoloured, and possibly burnt. The small fragment was of a moulded nose with pierced nostrils and down turning mouth. The down turned mouth is unusual and can be compared to Braithwaite's face beaker and jar types with downbent lips from the Danubian provinces (2007, 209, Danubian type DAN5 with down turned mouth and DAN22 p. 219-20, pl. H14 from Carnuntum dated 2nd to 3rd century, British type 37, pl. J35) dated to the 2nd to 3rd century. The Danubian vessels have somewhat broader mouths however. A fragment with down turned mouth from York was classified as one of the African headpot range by Monaghan (1997, 918, no. 3251, residual within the context) and the type is dated to the early 3rd century. At York head and face pots found mostly in civilian areas with some burial associations. He suggests that they came from disturbed graves or remnants of ritual activity or rubbish deposition (Monaghan 1997, 914) but in noting their absence from the cemeteries around the railway station favours a ritual function. Braithwaite also suggested that Ebor and northern headpots may have been linked to Bacchic or other mystery rites (2007, 450). Swan considered all the complete ones to be derived from burials but takes the distribution of headpot fragments in areas with no 3rd century burials as evidence of an additional ritual function, perhaps in household shrines and for libations (Swan and Monaghan 1993, 25 and 28). In Trench B this fragment may have derived from the preceding burial activity and, like the flagons, be linked to memorial rituals.

Pottery supply

(see Tables 109 and 114; Tables 114 and 115 available electronically via ADS)

PHASE 1 TRAJANIC/HADRIANIC TO ANTONINE WITH SMALL AMOUNTS OF FLAVIAN-TRAJANIC TYPE

Apart from samian, the earliest pottery of Flavian-Trajanic date comprised reeded-rim bowls, rusticated jars, upright ring-neck flagons, plain neckless everted-rim jars, several ring and dot beakers, some carinated and cordoned bowls and wide-mouthed jars, some Central Gaulish roughcast ware, and one sherd of Central Gaulish glazed ware. The wares were predominantly fine and medium grey wares with some white and white-slipped wares. Most of the grey ware fabrics used did not differ significantly from the later wares of the 2nd century. However, some of the forms would still have been made in the Trajanic period and even the Hadrianic period so although there was clearly a measure of Flavian activity it proved difficult to isolate and source the coarse wares. Fine grey ware GRA2 was used to make a carinated beaker of Terra Nigra type, a very globular roughcast ware beaker and a form similar to a girth beaker and these suggested this was likely to be a late 1st century fabric. GRA4, a ware used to make London ware type hemi-spherical bowls with a short plain zone below the rim may also have belonged in this phase. The light brown-grey fabric GRB2 used to make rusticated ware may also have dated to this period while a cordoned, carinated bowl and lid in GRB22 may have been traded wares from North Lincolnshire during the late 1st or early 2nd century. The forms made in GRB12, ring-and-dot beakers and Flavian-Trajanic neckless, everted-rim jar, indicated an early date in the late 1st or early 2nd century and this was supported by a peak in Phase 1. A rather brown ware, OAB7, used to make a carinated cordoned bowl belonged in the Flavian-Trajanic period. Most of the kiln sources for these ceramics are uncertain.

In Phase 1 common grey ware was the most numerous ware group supplying about a third of the assemblage throughout the occupation. In addition to the grey wares, BB1 contributed about a tenth of the pottery and the oxidised wares a further tenth. Amphorae, made up of Spanish oil amphora, wine amphora from Gaul and Italy, and a single amphora from St Albans, were common at 10-15% and samian ware was very high at 17% in Phase 1 falling to *c*.11% in Phases 2 and 3. White wares other than mortaria were uncommon throughout but were most common in Phases 1 and 2 and white-slipped oxidised wares were most prolific in Phase 1, at 10%, falling gradually though the later phases. Levels of mortaria remained approximately the same throughout the sequence and these are discussed in detail in the mortarium report. Other than samian ware, fine wares were coming from Cologne and north Gaul, Central Gaul, and York, with some Nene Valley colour-coated ware late in the sequence.

Detailed study of the fabrics as well as the forms made in the fabrics disclosed some other exchange patterns although the intensity of redeposition masked some changes. In the grey ware group, five fine grey ware fabrics were identified. Despite being used for Phase 1 forms such

as a hemi-spherical bowl, rusticated jars and a late 1st to mid-2nd century ring-necked flagon, fabric GRA1 was actually more common in Phases 3 and 4 where it was residual. Fabrics GRA2 and GRA4 were probably also residual after Phase 1. At Catterick fabric R2 and Evans F30 correlate with the GRA group and the Parisian ware and were thought to be 'local'. A bossed hemi-spherical bowl was perhaps related to bowls of similar form from Catterick with stamped decoration and applied dots and circles (Bell and Evans 2002, types B10.3 and B10.8).

In the medium grey ware group, only GRB1 and GRB6 were present in significant quantities. GRB6 was closely comparable to Ebor grey ware but could have also come from kilns at Aldborough or Catterick. Both GRB1 and GRB6 compared with Catterick fabrics R1 and R1D and these were considered local products. Given the pattern in the mortaria supply, Aldborough would be another potential source of pottery from Healam. GRB1 seemed to be a Phase 1 fabric whereas GRB6 was high in Phase 1 and 2 suggesting a 2nd to 3rd century date range. In the deeply stratified area fabric GRB1 rose through Phases 1a to 1c but fell significantly in Phase 1d. Similarly in Field 61A it was high in Phase 1a, 19%, but numbers dropped to a mere 4% in Phase 1b. The strength of GRB6 in Phase 1 was echoed by the Ebor ware contributions in this phase and Phase 2 suggesting that links with York may have been strong during Phase 1 and into Phase 2.

The other fabrics in the GRB group made minor contributions to the overall group. Apart from GRB8 and GRB11, both black-burnished type fabrics, all the other GRB fabrics contributed less than 1%. Both GRB8 and GRB11 were more common in the later phase sub-phases – Phases 1c and 1d - with GRB8 also being present at a level of *c*.3% in Phase 2. The forms being made confirm this dating being Antonine everted-rim jars, flat-rim bowls, and a grooved, flat-rim bowl. The GRB11 group also included an earlier cordoned, carinated bowl which may better belong in a different fabric group, and some wide-mouthed jars of 3rd century type. GRB8 comprised a similar range but included developed flanged bowls of the late 3rd to 4th century, a late splayed-rim jar of 3rd century type, the later curved everted-rim jar form of late 2nd to 3rd century date and grooved-rim dishes.

These small groups of grey ware fabrics reflected the diversity of grey ware production in Yorkshire. Previous work on Yorkshire grey wares have found reliable detailed fabric series difficult to attain. Some wares appear to be distinctive but even the Ebor grey wares may, like the Ebor oxidised mortaria, be best attributed to a region around York rather than York itself and not easily distinguished from the products of Malton or even Catterick. Some of the fabric/form associations can be used to indicate trade from specific areas or phases. Fabric GRB16 was similar to South Yorkshire grey ware and the everted-rim jars and flat-rim jars may indicate some exchange of products.

The other major contributor of kitchen wares was the BB1 suppliers. This group may include more than one supplier. Most were from Dorset despite production at Rossington Bridge during the Antonine period, but it seemed likely that some of the late forms may have come from the 3rd century kiln making BB1 types at Catterick. The level of supply of BB1 seems to have remained more or less the same throughout the settlement history, with a slight rise in Phase 2, and was comparable to that found at Catterick in the 2nd century (10%, Evans 2002, 404) where it also increased in the late 2nd to early 3rd century.

Unusual coarse wares included a shell-tempered rebated-rim jar from Northamptonshire, an oxidised slashed channelled rim jar also from Northamptonshire and several reduced grog-tempered jars of a type made in the Trent Valley in the late 1st to mid-2nd century. These were deep wide-mouthed jars or bowls with club rims, one with grooved outer face, and date to the late 1st to mid-2nd century. In addition to these, some of the white ware flagons compared well with those produced by the Mancetter-Hartshill industry near Coventry. Although small in number, collectively these add weight to Evans' (2002, 249) suggestion that Catterick and York had trade links with the East Midlands and East Anglia via the Humber and indicate that Healam benefited from this trade.

The oxidised wares, OAB1 and perhaps OAB7, contributed about 10% by sherd count in Phase 1 and 2. The most common form was the bead-rim hemi-spherical bowl followed by the carinated upright rim bowl, both types found in the Ebor range. Other forms were also paralleled in the Ebor range which Swan considered related to the Wetterau industries. On balance these seemed likely to be local products. Included in the types present were fine cups, the rilled handled beaker, the pear shape handled jug, roughcast beakers, a lid seated cup or bowl, a lugged vessel, a small bowl or cup, and a lid. It was not certain whether these were being made at Catterick, possibly Aldborough or were being obtained from York itself, but certainly the fine and painted wares were Ebor products. As the 2nd century kilns at Catterick were making bead-rim hemi-spherical bowls in grey wares and examples of these are present at Healam, it perhaps was more likely that the oxidised ware hemi-spherical bowls were all from the York area industries. On the other hand many of the OAB1 sherds had grey cores closely similar to mortarium fabric MCTR WS1 which Hartley considered a Catterick product. To these oxidised wares may be added certain examples of Ebor fabrics 1, 2, 3, 6, and 9. These occurred in Phase 1a but were most common in Phase 1b.

The white wares at Catterick were thought to come from Mancetter-Hartshill and this was a likely source for most of the white wares at Healam. However, as white ware mortaria were produced at Aldborough this is another possible source. These white ware vessels comprised ring-necked flagons with the upright neck and rim of the late 1st to early 2nd century as well as one flanged segmental bowl with painted flange of a type known from Mancetter-Hartshill. This latter type was also present at York (Monaghan 1997, 885, and type BF2, no. 3944; Perrin 1990, fig. 126, no. 1417). The white-slipped wares used for flagon manufacture were undoubtedly local, flagon production which was strongly associated with mortaria manufacture. Again a source at Catterick was likely and Aldborough would also be possible. Other wares being traded in this period included very small amounts of Severn Valley type ware. These wares, SV and OAB2, used to make narrow-necked jars and wide-mouthed jars, may have come from kilns in the north-west such as Walton-le-Dale which made Severn Valley type vessels.

Fine wares other than samian were made up of roughcast ware beakers in local oxidised and grey ware,

Cologne Colour-coated ware, Argonne Colour-coated ware, and a Colchester Colour-coated ware hunt beaker.

PHASE 2 LATE 2ND TO 3RD CENTURY

In Phase 2, Dressel 20 oil amphorae were still common and indeed rose numerically, but Gallic amphorae were no longer present. Gallic amphorae made up only a small proportion of the overall amphora assemblage and it is unlikely that this lack was anything more than coincidental since this type was present in Phase 1d, which overlapped chronologically with Phase 2, and also was more numerous in Phase 3 than in Phase 1, suggesting redeposition of Phase 2 vessels. The level of samian ware also dropped but mortaria levels rose.

Amongst the grey wares several minor fabrics disappeared or decline significantly (GRA2, GRA4, GRB2, GRB7, GRB11, GRB13, GRB16, GRB17, and GRB20-23). As mentioned above GRB1 declines in the later sub-phases of Phase 1 and GRB6 rose in Phase 2. GRB8 rose in Phase 2 and the types made indicated a late 2nd to early 3rd century date range. GRB3 was a late group, used for late 3rd to 4th century forms such as the developed flanged bowl and late wide-mouthed jars. It was similar in texture and hardness to Norton wares. GRB3 occurred in greater numbers in this phase and Phase 3. Fabric GRB4 was only present in Phase 3 but the types, rilled jars, may date to the mid-2nd to mid-3rd century (Buckland and Dolby 1980, type Ec). GRB5 may be related to this group with its Smith god pot but this seemed to be a mixed group. GRB8 increased slightly and the forms suggested a late 2nd to early 3rd century date range. Despite being made into Trajanic-Hadrianic forms, GRB12 rose slightly in Phase 2 but should be considered residual. GRB14 appears in Phase 2 and GRB15 peaks then but these groups are very small and undiagnostic as is fabric GRB19. The overall quantities of grey wares were the same as in Phase1.

The level of BB1 seemed to increase slightly and this mirrors a more pronounced increase at Catterick. Dales ware appeared for the first time during this phase.

The oxidised wares also remained at a similar level although the finer fabrics and the Ebor ware disappeared or dropped in number apart from Ebor6, the red painted ware, which increased numerically. The white-slipped flagons also seem to be less common as would be expected at this date.

Amongst the fine wares the imported roughcast wares from Cologne, Central Gaul, and Argonne all disappeared, but the black slip wares from Central Gaul and Nene Valley Colour-coated wares arrive in Phase 2 and are also present in Phase 1d, with the exception of Nene Valley sherds in the Phase 1a riverine deposits (unsealed) and a sherd from in layer 5067 Phase 1c.

PHASE 3 LATE 3RD TO 4TH CENTURY

The amphorae vessels dropped significantly during this phase and were residual. A curious rim sherd from a rather bulbous vessel with flat rim came from this phase and appeared similar to a *dolium*. David Williams was unable to suggest an identification.

Predictably, Crambeck grey wares, grey gritty wares, and calcite-gritted wares were the key coarse wares of Phases 3 and 4. Dales ware was also most common in Phases 2 and 3. Overall grey ware numbers were down but the quantities being redeposited result in distorted figures for Phase 3. In terms of forms being made, fabric GRB3, perhaps from Malton, included late 3rd to 4th century types such as the developed flanged bowl and a sub Dales type jar. GRB7 occurred for the first time in Phase 3 but the forms being made were 2nd century types so these must have been residual. GRB8 included late types such as the developed flanged bowl but most vessel types were earlier. GRB9 came predominantly from Phase 3 and included a type of 3rd or 4th century date so may be assumed to be a contemporary group. The types in GRB10, 11 and perhaps 23 were of generally late type – wide-mouthed and narrow-necked jars - and may be contemporary or residual from Phase 2.

Grey gritty wares made up only 1.5% of the group and this was in keeping with the generally late date of the stratified groups and the evidence for a hiatus or diminution of activity in the 3rd century. Crambeck grey and parchment wares amount to a further 5% with calcite-gritted wares at between 11-13%. Late red wares included OAB3-6 but OAB3 and 5 were mixed fabric groups including earlier types. These were likely to be local wares copying Crambeck oxidised ware and are part of the late Roman red ware group (Monaghan 1997, fabrics O2 and O3). OAB5 and OAB6 included headpot fragments. Derbyshire ware and a gritty oxidised ware used to make a cupped-rim jar similar to the Derbyshire ware type were restricted to Phase 3 and 4 and were part of the late 3rd to 4th century assemblage of lid-seated jar types present on the site. This appeared to be a trend in the region and clearly the need for these jar types or their contents was fulfilled by a variety of small and medium-sized pottery industries working in the East Midlands and Yorkshire. Another storage vessel was identified that came from Northamptonshire, a pink grogged ware jar (PNK GT) which is known to have been distributed in the North in the late 3rd and 4th century (Booth and Green 1989, 82; Taylor 2004, 60). A single vessel, this fabric was most likely to have come with an individual to the site or on the back of contact with the Nene Valley which, in turn, had trade links with the source area for this ware. Some of the BB1 ware was of late type and some of the detailed fabric examination suggested this might include examples from the BB1 kiln at Catterick. BB2 was extremely rare and such sherds as there were came from Phase 3 contexts, although the vessels may derive from Phase 2 activity. One sherd tempered with oolitic limestone may derive from an industry identified north of Lincoln operating in the 4th century.

Fine wares primarily comprised Nene Valley colour-coated wares. Nearly a third of these were late types such as the flanged bowls, plain-rim dishes, jars, flagons, and lids while the rest were beakers. 5% by count and 2% by weight were pentice-moulded or late long-necked globular beakers while the rest were earlier types, predominantly indented beakers with some Hunt cups, scroll beakers and plain-rim beakers. Two parchment ware flasks with painted horizontal bands are in a fabric which compared best with Nene Valley parchment ware and was dated to the 3rd century. Oxfordshire red colour-coated ware was represented in the unstratified group and was best placed in Phase 3 and Trier black-slip ware was identified in Phase 3 and dated to the early to mid-3rd century.

Ceramic supplies in the late 3rd to 4th century appeared predominantly Yorkshire based with continuing trade with the Nene Valley. The other small amounts of traded wares suggest movement of people, piggy-back trade on the Nene Valley route or small scale exchange accessing trade to York or Catterick.

THE SAMIAN

Gwladys Monteil

Introduction

In total the excavation of Fields 61, 61A, 62, 63, and 64 produced 1,627 sherds of samian ware, weighing *c*.21kg, and with a rim EVEs (Estimated Vessel Equivalents) figure of 31.5 (Table 116); 1604 of the sherds were recovered from phased Roman contexts. Most of the samian material reported on came from Field 63, which produced 1,282 sherds with a particular concentration in the deeply stratified southern portion of Field 63 (1,070 sherds).

Methodology

The analysis of the samian was undertaken in two phases. The whole assemblage was catalogued and quantified, following the methodology and codes used at Museum of London Archaeology (Symonds 1999). The fabric of each sherd was examined, after taking a small fresh break, under a x20 binocular microscope. Each archive entry consists of a context number, fabric, form, and decoration identification, condition, sherd count, rim EVEs, rim diameter, weight, notes, and a date range. The presence of wear, repair, and graffiti was also systematically recorded.

The decorated and stamped samian was subjected to further analysis. Some 804 sherds, (*c*.13 EVEs) of decorated samian and 34 vessels with stamps and signatures were identified, where possible, to individual potters or groups of potters. Catalogues of the decorated ware (nos. 1-230), potters' stamps (nos. 231-255) and signatures (nos. 256-263) were then compiled. Full size rubbings of the samian are available via the ADS project archive (forthcoming at the time of printing). Maximum number of vessels (MNV) were calculated to provide comparative evidence with other assemblages.

The analysis of the decorated material proved without a doubt that several vessels were clearly dispersed across the site as several cross-context joins were identified. The calculation of the MNV took these joins into account although it was not always possible to positively assign fragments in a similar style to one bowl. The MNV entries with cross-phase joins were assigned to the earliest phase in which that vessel occured.

A number of samian assemblages from the surrounding area and from sites located on Dere Street were sought out for comparative analysis, although because of different chronologies their respective relevance was limited. The samian ware from the fort of Roecliffe was quantified (Dore 2005, fig. 21) but not immediately relevant because of its early date (Dickinson 2005a, 164-6). The samian data for Bainesse, Aldborough, Castleford, and Piercebridge was available and was therefore tabulated to provide comparative material when appropriate; the information was taken from the published reports (Bell and Evans 2002, tables 16-19; Dickinson and Hartley 2000, tables 2-5 and 8-11; Ward 2008a; Willis 2002, 69-80). Detailed quantified samian data from York covering both forms and fabric was unfortunately lacking.

Chronology

Establishing a start date for the samian group relied on relatively little material. South Gaulish fabrics only made up 5% of the total EVE figure and there were no

Fabric	Field 61		Field 61A			Field 62			Field 63			Field 64			Total		
	No	Wt (g)	No	Wt (g)	EVE	No	Wt (g)	EVE	No	Wt (g)	EVE	No	Wt (g)	EVE	No	Wt (g)	EVE
La Graufesenque	-	-	22	150	0.19	9	20	-	102	1,028	1.255	5	235	0.1	138	1,433	1.595
Montans	-	-	3	23	0.05	-	-	-	-	-	-	-	-	-	3	23	0.05
Les Martres-de-Veyre	-	-	5	91	0.03	12	287	0.8	99	1,331	2.015	2	16	0	118	1,725	2.87
Pre-import Lezoux	-	-	-	-	-	-	-	-	3	27	0.175	-	-	-	3	27	0.175
Lezoux	16	36	135	1,468	2.72	65	429	0.3	1026	13,851	20.33	45	710	0.6	1287	16,494	24
La Madeleine	-	-	-	-	-	-	-	-	-	-	-	3	211	0.3	3	211	0.31
East Gaulish	1	1	8	95	0.23	4	91	0.1	37	450	1.545	5	124	0.2	55	761	2.095
Rheinzabern	-	-	-	-	-	-	-	-	15	223	0.185	3	89	0.2	18	312	0.41
Trier	-	-	2	7	-	-	-	-	-	-	-	-	-	-	2	7	-
Total	**17**	**37**	**175**	**1,834**	**3.22**	**90**	**827**	**1.2**	**1282**	**16,910**	**25.51**	**63**	**1385**	**1.5**	**1627**	**20,993**	**31.5**

Table 116: Samian fabrics in each field

potters' stamps on South Gaulish plain ware and the dating relied on the decorated vessels. This in itself and the near complete absence of Dr.29 bowls suggested that activity did not start before AD 90, or even later in the 1st century or perhaps even in the early 2nd. The rest of the South Gaulish material was Flavian or Flavian-Trajanic and the overall quantities were small. There were modest quantities of Trajanic material both from La Graufesenque and Les Martres-de-Veyre though again quantities were small. There was a single stamp from Les Martres-de-Veyre with a purely Trajanic date range (no. 233, by *Balbinus*) from Field 62 and a small number of decorated bowls (nos. 28-33). The relatively low quantities of Trajanic material were more difficult to interpret than the small quantities of South Gaulish vessels because of the well-documented Trajanic "gap" which was likely to influence the overall quantities of Trajanic material available.

The modest quantities of late 1st and early 2nd century material from both La Graufesenque and Les Martres-de-Veyre from the southern section of Field 63, compared with Lezoux ware recovered from the area, suggested a marked upsurge of activity in the Hadrianic period when Lezoux samian first began to arrive in Britain in significant quantities. There was a clear peak in the frequency of discarded samian, especially apparent in the number of decorated vessels in the later Hadrianic to early Antonine periods which then fall more or less steadily to the end of the 2nd century AD. Very few typically late Antonine forms were present in this area or in the other fields, a single platter form Wa.79 and a single mortarium form Dr.45 (from the fill of pit 5178). Therewere, overall, very few late stamps and decorated bowls, with none of the samian types identified by Bird (1993) as typically late 2nd or 3rd century samian forms identified in this group.

When looking at the region the samian chronological histogram based on the decorated and stamped material for the southern section of Field 63 (Fig. 166) contrasts greatly with the one produced for Catterick bypass (Hartley and Dickinson 2002, 281, fig. 151) and to a lesser extent with the one from Bainesse (*op. cit.,* 417, fig. 197). There both Flavian and Antonine material were better represented. Here the material was dominated by Hadrianic and early Antonine vessels. The chronological profile of the samian assemblage fit at least partly with the category of "industrial sites" defined by M. Ward for northern sites in (2011, 84 and 86). These sites differ from forts and *vici* by a high representation of Hadrianic material and a fall off in activity from AD 140 (*op. cit.,* 86).

There were slight differences between the fields examined. Fields 61A and 64 and the northern section of Field 63 seemed to have a slightly higher relative proportion of South Gaulish material than the deeply stratified southern portion of Field 63 though again numbers are small (Figs. 167 and 168). The chronological profile of the samian assemblage from the northern section of Field 63 and Field 64 differed from the southern section and Field 61A by its relatively higher percentage of 1st century material but also by a peak in discarded samian situated later in the 2nd century AD from AD 150 (Fig. 167). This difference was difficult to interpret, since much of the samian material for this area came from the subsoil in Field 63 (5001, 5013, and 5019), and the quantities were small. The East Gaulish Antonine material was only represented by three vessels, a dish stamped by *Ruccatus* (no. 244) and two decorated bowls from Rheinzabern (nos. 222 and 225).

Condition

With the exception of the material from Field 62, where surfaces appeared more worn than the rest, the samian assemblage was in good condition and consistsed of fairly large and fresh sherds with an average sherd weight of *c*.17g across the whole assemblage. This figure varied in each field, with the lowest in Field 61 (*c*.2g) and the highest in Field 64 (*c*.27g). Both of these extremes were highly influenced by the small size of the samples and the presence of one near complete vessel in each. For the largest sub-group, Field 63, the variations in average weights and brokenness index (sherds/EVE) across fabrics and sub-phases were perhaps the most informative (Figs. 169 and 170) as they illustrate the high quantities of samian material recovered from midden 5042 in Phase 1d, in particular the best part of a Dr.37 from Les Martres-de-Veyre (no. 41), and the high level of redeposition in Phases 3b and 3c. The average weight of Central Gaulish decreased as expected throughout Phase 1, to rise unexpectedly in Phases 3b and 3c. With the exception of South Gaulish sherds, whose brokenness index rises sharply in Phases 1d and 3a, the index remains constant throughout the sequence for most fabrics.

As mentioned in the introduction the decorated material in particular suggested that the samian survived in large pieces, although several vessels were clearly fragmentary and dispersed across the site and the sequence as several decorated vessels occured in more than one context. This was particularly relevant to the material from the southern portion of Field 63 from which there are a significant number of cross context and cross phase joins (Table 117). The number of decorated vessels with sherds scattered throughout the sequence suggested a considerable level of mixing and redeposition, particularly in Phases 3b and 3c on the southern section of Field 63. It was therefore difficult to define reliable functional profiles at the sub-phase level. Enclosure 5007 in Phase 3b yielded several vessels with joins to fragments in structure 7951, Phase1b. Large quantities of material recovered from middens assigned to Phase 3c (5002, 5018, 5027, 5028, 5045, 5048, and 5068) had joins with vessels recovered from structure 5009 in Phase 1d and from features in Phase 3b.

Twenty out of the 31 burnt sherds that made up the 14% of the samian in Field 64 and the northern section of Field 63 mostly came from Phase 4 when the samian was residual. In Field 61A, the burnt samian material came from a range of contexts. The burnt material from the southern section of Field 63 was more interesting as a relatively high proportion of it was deposited during Phase 1.

In total, 1319 (MNV) of burnt samian was recovered from the main excavated fields (Table 118). The percentage of burnt samian material increased steadily from Phase 1a to Phase 1b (Fig. 171) when a high number of the burnt sherds were found in contexts associated with structure 7951. Some of these sherds were then redeposited later in structures 6949 and 5009 in particular, as a couple of vessels with joining sherds attested (nos. 118, 140), which partly explained the sharp rise in burnt samian material in Phase 1c. The quantities of burnt samian material in Phase 1c were nonetheless significantly higher than in

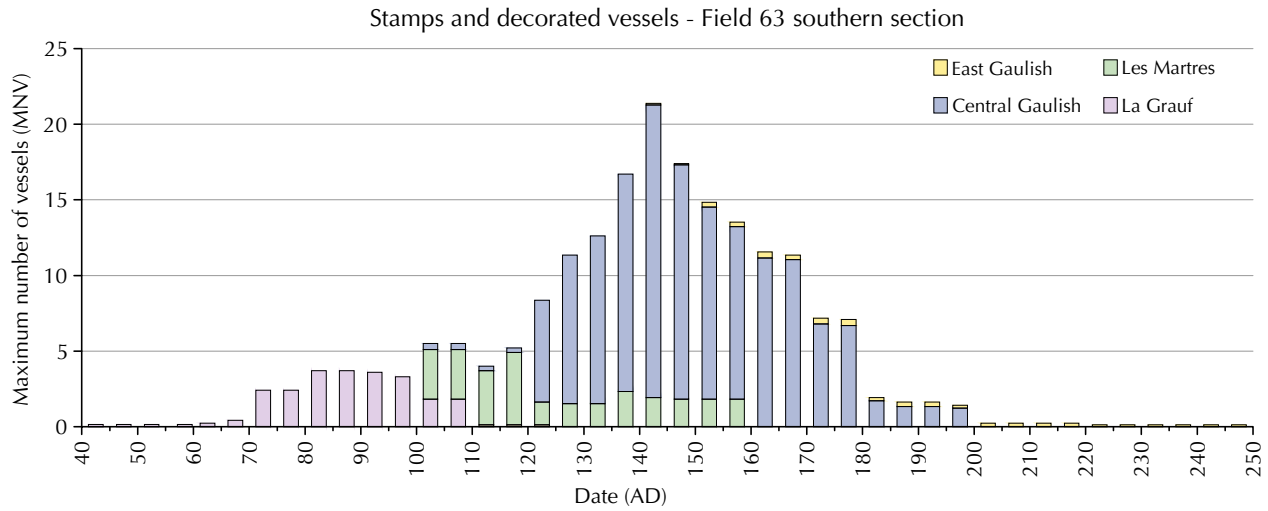


Figure 166: Chronological distribution of the decorated and stamped samian ware from the southern section of Field 63

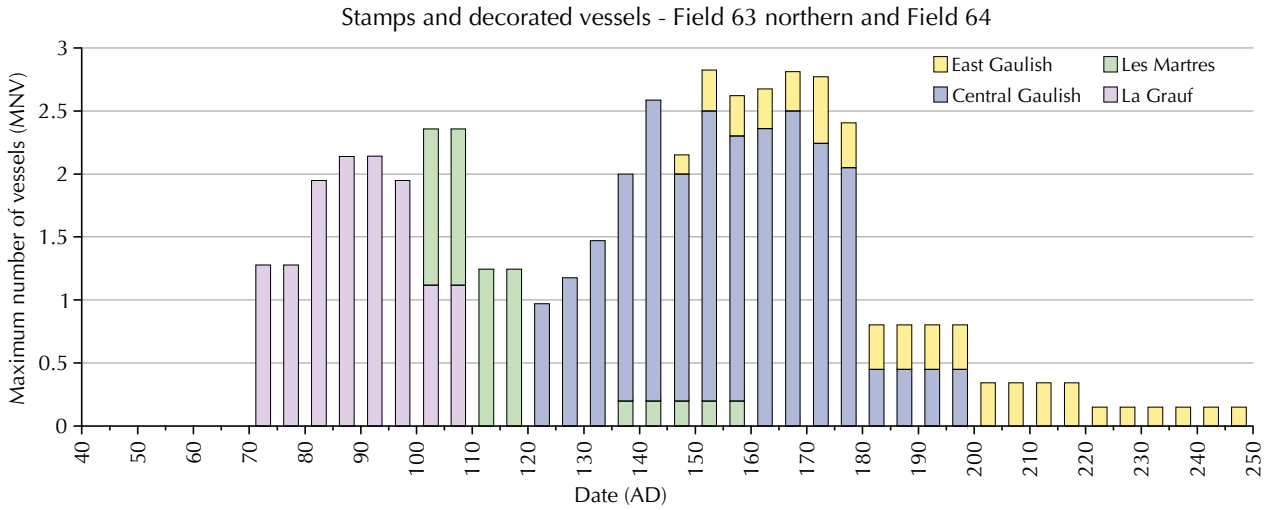


Figure 167: Chronological distribution of the decorated and stamped samian ware from the northern section of Field 63 and Field 64 (MNV)

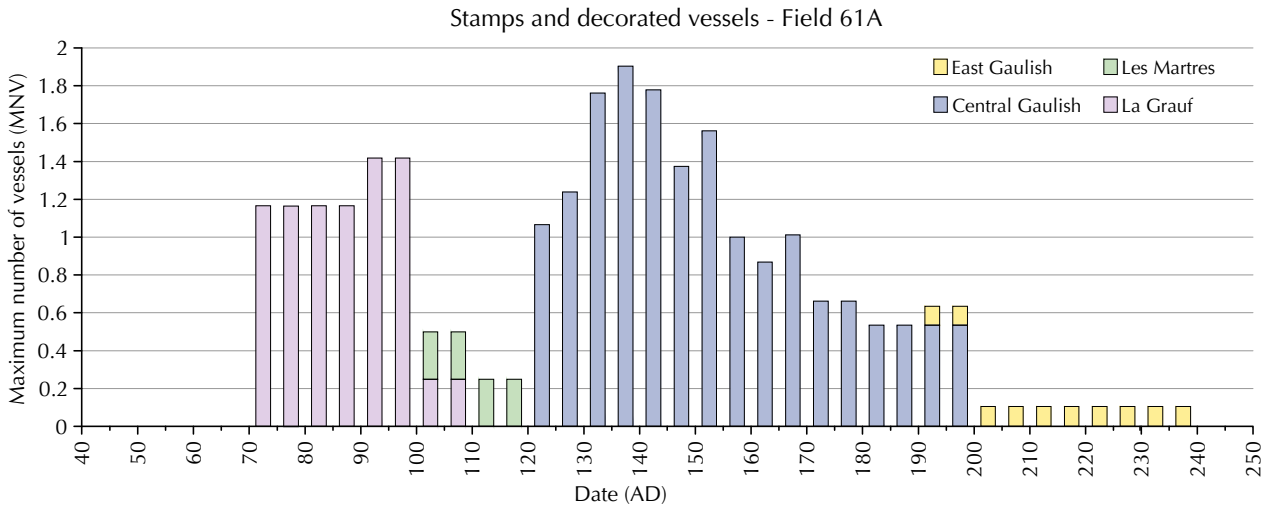


Figure 168: Chronological distribution of the decorated and stamped samian ware from Field 61A (MNV)

Cat. No.	Date range (AD)	Field	Phase													Total
			1	1a	1b	1c	1d	2	3	3a	3b	3c	3d	4	-	
CG Dr.31R	150-200	63				6					2					8
CG Dr.37	120-200	63			2							1				3
CAT NO.1	80-110	63				2	1		1		1			2	1	8
CAT NO.40	135-160	63			1	1	7				2	1				12
CAT NO.42	135-160	63		1		1			1		1					4
CAT NO.50	120-145	63			2		1					1		1		5
CAT NO.51	120-145	63				1					1	1				3
CAT NO.52	120-145	63					1							1		2
CAT NO.77	125-145	63		1	7		2									10
CAT NO.85	125-150	63			2	2										4
CAT NO.87	125-150	63		1		1										2
CAT NO.90	125-150	63					12					12		7		31
CAT NO.106	130-150	63									1	1				2
CAT NO.117	135-160	63			2	5	6					2	1			16
CAT NO.118	135-170	63					1				2	8				11
CAT NO.119	135-170	63				1						9				10
CAT NO.126	135-165	63									1	3				4
CAT NO.137	140-180	63			1							2				3
CAT NO.138	140-180	63										1		3		4
CAT NO.139	140-180	63			2	2	4							1		9
CAT NO.184	140-170	63								1		1				2
CAT NO.259	150-180	63			1							1				2
CAT NO.110	130-155	61A						1						1		2
CAT NO.21	90-110	61A						1						1		2
CAT NO.53	120-150	61A	6		1											7
CAT NO.124	135-170	63, 64	1		1											2
Total			**7**	**3**	**22**	**22**	**35**	**2**	**2**	**1**	**11**	**44**	**1**	**17**	**1**	**168**

Table 117: Occurrence of samian vessels with cross-joins or sherds recorded in different phases (sherd count)

	Field 61		Field 61A		Field 62		Field 63 southern		Field 63 northern and Field 64		Total	
Non-burnt	16	100%	139	91.45%	62	92.54%	733	86.12%	187	85.78%	1151	87.25%
Burnt	-	-	13	8.55%	5	7.46%	118	13.88%	31	14.22%	168	12.75%
Total	**16**	**100%**	**152**	**100%**	**67**	**100%**	**851**	**100%**	**218**	**100%**	**1319**	**100%**

Table 118: Occurrence of burnt samian (MNV) in each main field

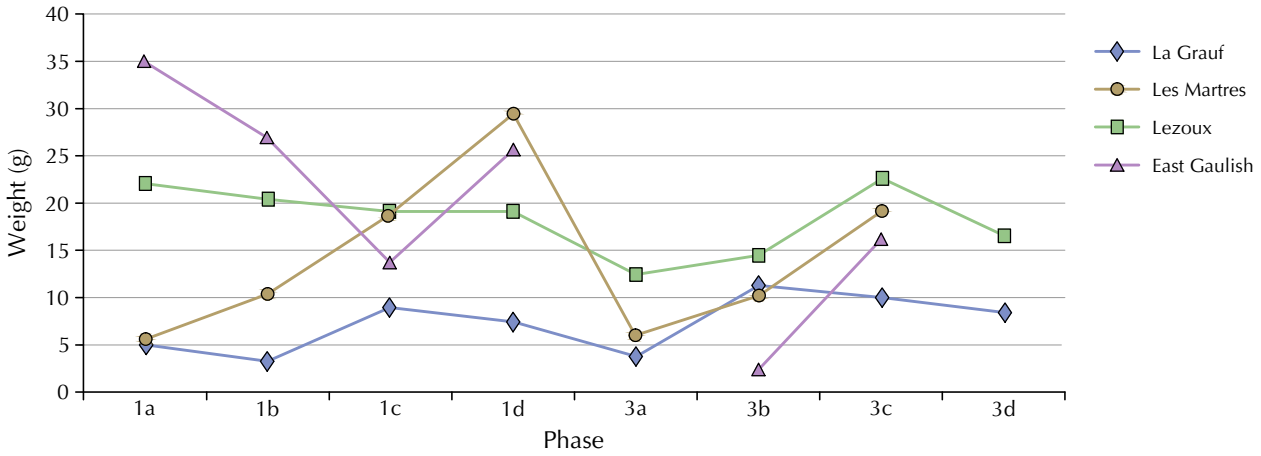


Figure 169: Average weight for the samian fabric groups in each sub-phase of Field 63

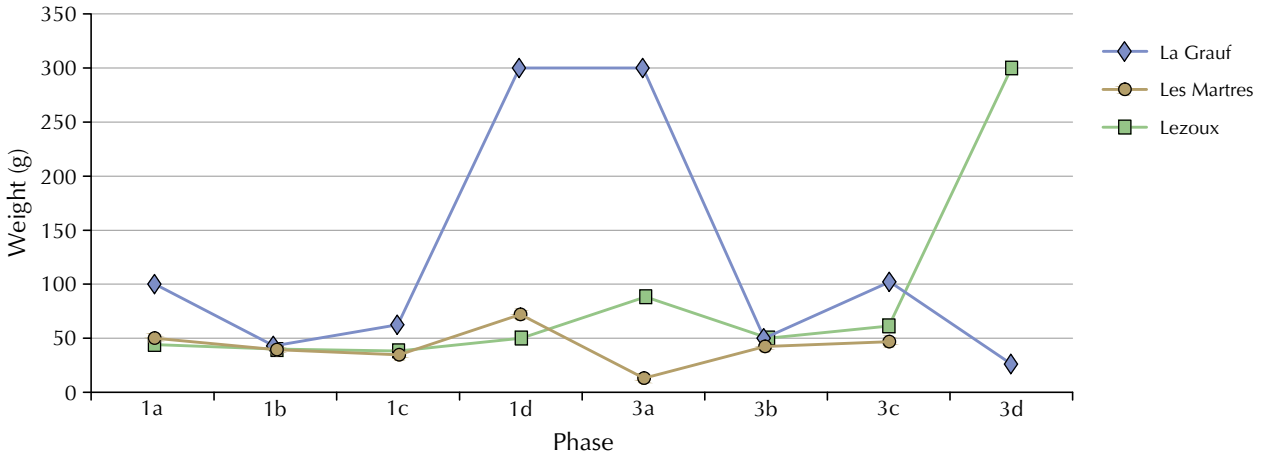


Figure 170: Samian fabrics brokenness index for each phase (sherd count/EVE)

Phase 1b and all of it cannot just be redeposited old burnt fragments from structure 7951. It seems likely that a second fire occurred in Phase 1c, the results of which ended up in spread 5596 and structure 6949 where quantities of burnt material seem to increase (see also the percentage of burnt material in Phase 3c, part of which was redeposited Phase 1c). The burnt samian in Phase 1c included South Gaulish material which is residual but also Central Gaulish vessels, and some of the material from spread 5596 was Antonine (Dr.31). The fire(s) must have been fierce and the pots were complete when it happened.

The assemblage composition

South Gaulish

All areas, except Field 61, yielded some South Gaulish material if in different proportions (see chronology, above). In total, they represented 140 sherds for an EVE figure of 1.595, the vast majority of which came from La Graufesenque. With the exception of ditch fill 9036 (Field 63, Phase 1), most of the South Gaulish material was found mixed with 2nd century samian material and there was little indication for secure Flavian groups (see Leary, Section 10.2, above).

The range of forms was poor and contained no typically pre or early Flavian forms (Table 119). The only possible early Flavian plain form, a much abraded Dr.27g, came from Field 61A (alluvial deposit 8432). There were no stamps on plain ware and a single signature on a decorated bowl (no. 258).

The vast majority of the South Gaulish decorated vessels were Dr.37s and very little early Flavian decorated material was recovered from the excavations at Healam

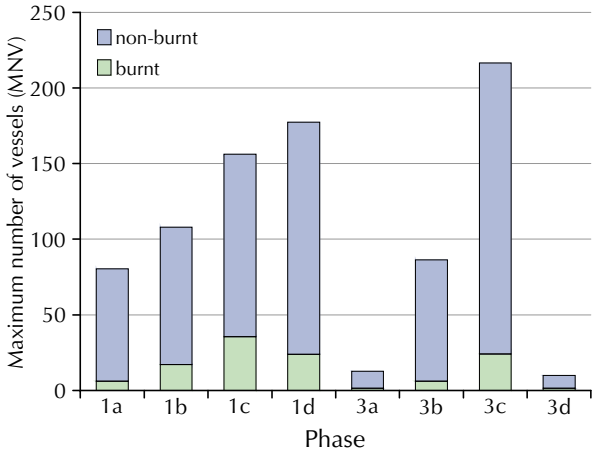


Figure 171: Occurrence of burnt samian in each sub-phase of Field 63 southern section

Bridge (nos. 12 and 263). The material was mostly Flavian and late Flavian/early Trajanic as the presence of a partial intra decorative signature from fill 5031 of ditch 5044 by *L. Cosius* (no. 258) and a number of decorated bowls attested (nos. 1, 3, 5, 7, 10, 15, 18, 19, and 27-8).

Central Gaulish-Les Martres-de-Veyre

Some 118 sherds were identified as originating from the Central Gaulish industry of Les Martres-de-Veyre which represented 89 vessels and 2.87 EVE (Table 120). Both Trajanic and Hadrianic-early Antonine products were identified with a significant proportion of the latter. The overall range of forms identified was quite poor with decorated bowls dominating at 67% of the sherd count for Les Martres-de-Veyre.

A little decorated material dated to the Trajanic period but the fragments were relatively small (nos. 29-35: Fills 5071 and 5598 of ditch 5070, fill 7516 of ditch 7477). A dish form Dr.18/31 with an abraded stamp by the Trajanic potter *Balbinus* (RF 129) was found associated with cremation 2353 within pit 2352 in Field 62 (no. 233). The vessel was used before being deposited on top of the burnt bone and charcoal.

The slightly later style of Potter X-9 was represented in the group with vessels here associated with a fabric from Les Martres-de-Veyre (nos. 36-40). Potter X-9 is thought to have moved from Les Martres to Lezoux and his output was dated AD 110-130. There were two stamps associated with a fabric from Les Martres-de-Veyre contemporary to potter X-9, *Decuminus i* on a slightly rarer Dr.15/17 (no. 238, layer 7417) and *Natonus* on cup Dr.27 (no. 241, midden deposit 5002).

A number of decorated bowls fragments could be attributed to the later Martres potter *Cettus* whose output is dated to AD 135-160, several of which have cross-contexts joins (nos. 41-48). Examples were found in midden deposits 5002 and 5028, fill 5017 of gully 5029, fill 5031 of ditch 5044, two contexts of structure 7951 (6763 and 7152), and various other layers (5034, 5035, 5042, 6942, and 7004).

The quantitative role played by products from Les Martres-de-Veyre (c.7% of the total sherd count, 9% of the total EVEs and 6.75% of the total MNV) at Healam Bridge was unusual for the region. At Bainesse, Les Martres-de-Veyre vessels accounted for 4.3% of the total MNV, a meagre 3% of the total sherd count and EVEs at York (Monaghan 1997, 948, table 170) and 39 out of 5443 vessels at Piercebridge (Ward 2008a, 171). This was partly a question of chronology since the samian from Piercebridge and York was later and perhaps not suited to direct comparison; Trajanic and Hadrianic-early Antonine products from Les Martres were unlikely to be highly represented at either site. Hadrianic material was nonetheless present at Bainesse but from Lezoux and not Les Martres (Hartley and Dickinson 2002, 417). The only comparable percentage was from the Castleford *vicus* where vessels from Les Martres-de-Veyre made up 7% of the total MNV and there *Cettus* was also identified as having made a "substantial contribution" (Dickinson and Hartley 2000, 84).

Central Gaulish-Lezoux

By far the largest group with 1,280 sherds, Central Gaulish samian vessels dominated the samian assemblage from Healam Bridge. The range of forms identified was quite limited compared to other groups with large Central Gaulish assemblages with 49% of the sherd count consisting of decorated bowls and the other half of the assemblage made up by dishes and cups (Table 121).

Form	EVE	MNV
Bowl	0.08	3
Cu.11	0.05	4
Dish	-	12
Dr.18	0.07	1
Dr.18/31	0.23	14
Dr.18/31R	0.025	2
Dr.27	0.445	6
Dr.27g	-	1
Dr.30	-	1
Dr.36	-	1
Dr.37	0.695	52
Decorated bowl	-	1
Unidentified	-	21
Total	**1.595**	**119**

Table 119: South Gaulish samian forms by EVE and MNV

Form	EVE	MNV
Bowl	0.08	2
Cup	-	2
Dish	-	4
Dr.15/17	0.03	2
Dr.18	0.13	1
Dr.18/31	1.18	15
Dr.27	-	1
Dr.36	-	2
Dr.37	1.45	54
Unidentified	-	6
Total	**2.87**	**89**

Table 120: Les Martres-de-Veyre samian forms

A sherd of pre-exportation Lezoux plain ware was identified in the group from midden deposit 5028, unstamped and abraded, it was difficult to date this piece more precisely than AD 70-130. There were also two fragments of an early 2nd century decorated cup Dé.64 (Fill 5031 of ditch 5044 and layer 5042). Not much of the decoration survived but the fabric was typical of early 2nd century Lezoux samian ware, slightly under-fired with high mica content and a thin orange slip.

The period between AD 120 and 150 was the better represented on the site with a large number of dishes of form Dr.18/31, some examples of the cup form Dr.27 and flanged bowls Cu.11 whose production stops

around AD 160, and a number of stamps, signatures and decorated bowls dating to the Hadrianic and early Antonine period (*Acaunissa, Attianus, Austrus, Butrio,* X-6, *Cerialis-Cinnamus ii, Geminus, Paternus iv, Pugnus ii, Quintilianus* group, and *Drusus ii*). One of the most striking features of the decorated Central Gaulish group was the high number of potters in common with the Castleford *vicus* shop group (*Acaunissa, Austrus, Butrio,* X-6, *Cerialis-Cinnamus, Geminus, Paternus iv, Pugnus ii, Quintilianus, Sacer-Attianus, Drusus ii,* and *Criciro*). This is not to suggest that we were dealing with a shop group at Healam Bridge; clearly the bowls had been used and sometimes repaired before being deposited. It does however raise questions about supply routes, and explains the peak on the chronological graph (Fig. 166) at AD 140-145.

Cinnamus ii was represented by a high number of bowls with a significant proportion of his early vessels in the style known as the *Cinnamus-Cerialis* group. Several of the bowls presented typical characteristics, many of which were commonly found on a number of *Cinnamus-Cerialis* bowls in the Castleford *vicus* shop group (Dickinson and Hartley 2000, nos. 339, 340, and 389): ovolo B144, leaf tips J178 and the edge of large leaves used as space filler.

Typically Antonine material was also present with several examples of the form Dr.31, a plain bowl form Dr.44 with a stamp on the upper band by potter *Vest-* (no. 248, SF155 from midden deposit 5068), a few examples of the flanged bowls type Dr.38 most of which were concentrated in structure 7951 in Phase 1b, and a decorated repertoire that included the standard and later products of *Cinnamus ii* (Dr.37s with *Cinnamus* middle period ovolos Rogers (1974) B145, no. 179 and B231, nos. 176-8, a few bowls with his later ovolos were present, B223- nos. 181-3 and B5- no. 180) and bowls by *Criciro* and *Albucius ii*. A number of beaker form Dé.72 are present but most of them are plain or with cut-glass decoration of the earlier type without elaborate cut-glass or applied decoration which is often a later characteristic (Delage 2003). The ratio of Dr.33 to Dr.27 is 3.2: 1 (by EVE and MNV) which favours an early Antonine main phase.

The later Antonine potters were poorly represented in comparison to the earlier material, with a small number of vessels by *Paternus ii* and *Doeccus* and a single bowl by *Censorinus*. There was little later 2nd century plain samian material considering the size of the group, with only two gritted mortaria (fill of pit 5178 and ditch 6813), normally dated to post- AD 170, some examples of the form Dr.31R normally dated from *c*.AD 160, and three Wa.79s. There were stamps dating to the Antonine period however (no. 231, no. 239, and nos. 245-247), although out of the three entirely dated to post- AD 160, only one is from Field 63 (no. 231). There was therefore nothing that was necessarily later than AD 170 or 180 in Field 63.

As is perhaps to be expected from a Central Gaulish group of that size, previously unrecorded potters' stamps and signatures were recorded. A new but partial infra-decorative signature on a Dr.37 was recovered from context 5019 (no. 262) in Field 63 and a new stamp, applied to the bowl below the decoration before firing also came from context 5019 (no. 249).

Form	EVE	MNV
Beaker	-	10
Bowl	1.395	51
Cu.11	0.37	6
Cup	-	4
Dé.64	0.175	2
Dé.72	0.3	5
Dish	-	90
Dr.18/31	2.515	67
Dr.18/31 or 31	-	3
Dr.18/31R	0.455	18
Dr.27	1.26	20
Dr.30	0.07	5
Dr.31	1.62	60
Dr.31R	1.75	38
Dr.33	3.075	63
Dr.35	0.11	1
Dr.36	0.25	4
Dr.37	10.28	460
Dr.38	0.23	8
Dr.42	0.05	1
Dr.44	0.165	6
Dr.45	-	1
Mortarium	-	1
Platter	-	2
Wa.79	0.1	1
Unidentified	-	115
Total	**24.17**	**1042**

Table 121: Lezoux samian forms

East Gaulish

East Gaulish samian was represented in this group, but with only 79 sherds for a rim EVE figure of 2.815 (Table 122); East Gaulish industries played a minimal role in the samian supply to Healam. This was partly a chronological phenomenon since the main phase of occupation on the site pre-dates the main importation from the largest factories of Rheinzabern and Trier. There were only two stamps recorded but they each represent a different East Gaulish industry. One is on a plain dish Dr.18/31 (no. 244 from 9131, primary fill of ditch 9116) and is by potter *Ruccatus* from the small factory of La Madeleine that was operating in the Hadrianic and early Antonine periods. The other was an intra-decorative stamp on a Dr.37 found in context 5001 (no. 236). The stamp was by *Comitialis*, a potter based at the larger factory of Rheinzabern (Hartley and Dickinson 2008c, vol. 3, 100-1), and was one of the latest samian pieces

from this group (AD 170-220). Two fragments of Trier ware were represented and came from Field 61A (context 8009, no. 229).

Functional analysis

Various phases of functional analysis of the samian assemblages were attempted to determine the status of the site and how it compared with other site types. The high number of joins between sub-phases and phases however restricted the relevance and reliability of functional profiles at the sub-phase level. Forty-nine percent of the samian assemblage came from contexts assigned to Phase 1 when the samian is likely to have been contemporary, the rest was found residual in all other phases, with a particularly high concentration in Phase 3 (35% of the total sherd count).

Field 63

The forms represented in each sub-phase illustrated again clearly the high level of redeposition on the deeply stratified southern part of Field 63. With the exception of

Form	EVE	MNV
Bowl	0.05	2
Dish	0.01	13
Dr.18/31	0.37	2
Dr.18/31R	0.06	1
Dr.31	0.465	6
Dr.31/Luds.a	0.04	1
Dr.31R	0.32	4
Dr.33	1.005	4
Dr.37	0.265	18
Dr.38	0.18	1
Dr.44	0.05	1
Dr.45	-	1
Luds.b	-	1
Unidentified	-	12
Total	**2.815**	**67**

Table 122: East Gaulish samian forms

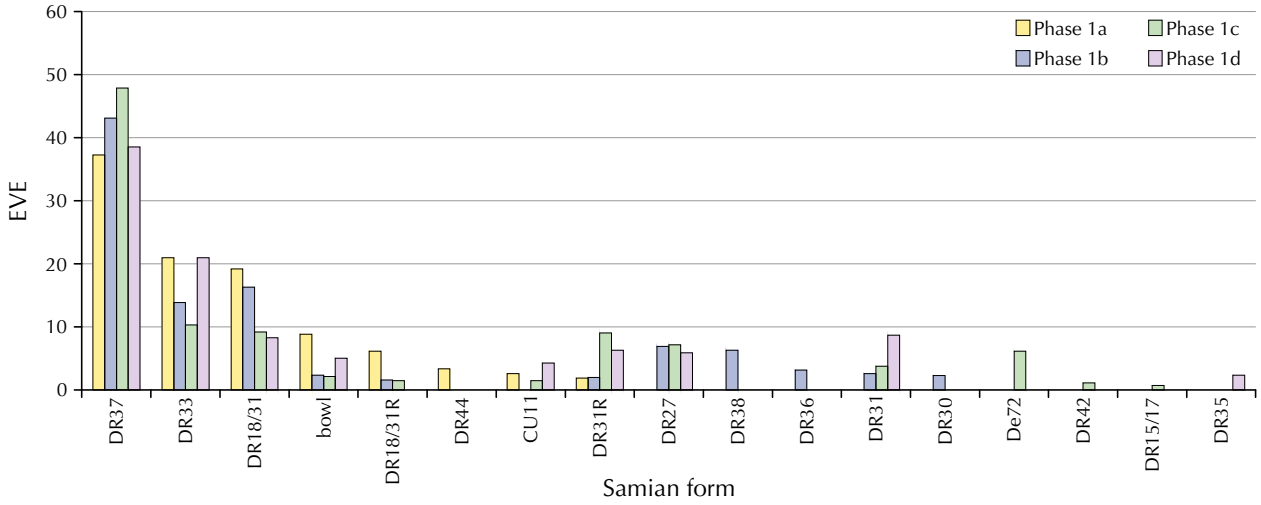


Figure 172: samian forms represented in Phases 1a to 1d (EVE)

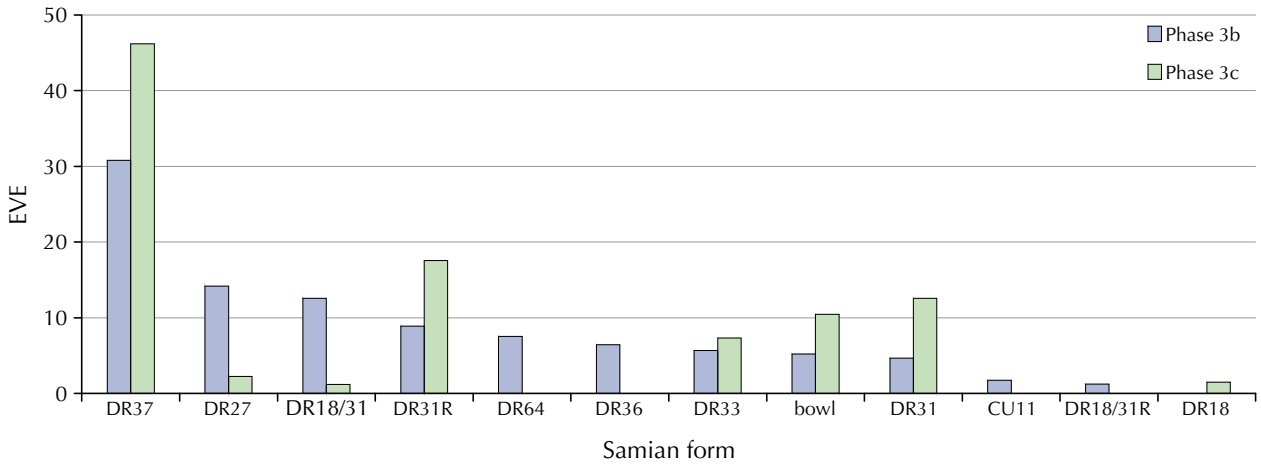


Figure 173: Samian forms represented in Phases 3b and c (EVE)

a few later forms (Dr.31R), the Phase 3b profile looked very similar to the one from Phases 1b and 1c with a high percentage of Dr.18/31 and Dr.27, Dé.64, and Cu.11, all redeposited material from earlier phases, particularly Phases 1b and c (Figs. 172 and 173).

Some chronological evolution was nonetheless discernable: the increasing percentage of Dr.31 and Dr.31R throughout Phase 1, the decreasing role played by Dr.18/31 and the appearance of beakers Dé.72 in Phase 1c. Though not represented by EVE data, mortaria, although in very small numbers, made their appearance in Phase 3.

At a more general level, decorated bowls dominated in Phases 1 to 3 in Field 63 (though there was little or no samian in Phase 2) with dishes in second place then cups. The high proportion taken up by decorated bowls fits with published profiles for extra-mural occupation at military sites/*vici* (Willis 2005, table 35 and chart 14) and the extra-mural settlements of Bainesse and the Castleford *vicus* (Table 123). The percentage was nonetheless higher at Healam Bridge with figures well above 40% (by MNV and EVE) and more akin to profiles recovered from "industrial sites" such as Middlewich (Ward 2008b, fig. 80, 146) and Walton-le-Dale (Wild *forthcoming*). The quantitative role played by dishes, both standard and rouletted types, was broadly in keeping with other extra-mural settlements (Willis 2005, table 35 and chart 14) but the percentage of samian cups was considerably lower at Healam Bridge than at Bainesse or Castleford *vicus* (Table 123) and other groups (Ward 2008b, fig. 80, 146; Willis 2005, chart 14).

Field 61A

The forms represented in Field 61A were closely similar to the ones found in the southern section of Field 63 (Fig. 174) with an even clearer dominance of decorated bowls Dr.37, a strong representation of dish forms Dr.18/31 and cups Dr.27 and Dr.33. The sample was relatively small however (3.22 EVE) and was not necessarily statistically meaningful.

With the exception of Phase 1, which was in keeping with the other functional profiles on site, the samian forms represented in the northern section of Healam Bridge depart from the overall trend by a steep drop in decorated bowls and a parallel rise in plain forms, particularly dishes, in Phase 3 (Fig. 175).

Literacy

Only two graffiti on samian were recorded; one from Field 61A and one from Field 63, both illiterate: one large X type on a Dr.31R from Phase 3b (fill 5821) which was burnt and repaired and joined with a sherd from Phase 1c (spread 5596), and one large X type on a Dr.33 wall from machining in Field 61A (8010). This low number fit with the rest of the Roman pottery assemblage where no literate graffiti was uncovered (Leary, above), but contrasted sharply with the relatively high number of graffiti on samian ware recovered from the sites of Catterick (Tomlin 2002, 505-10) and Carlisle Southern Lanes (Tomlin 2010, 79-80), the majority of which

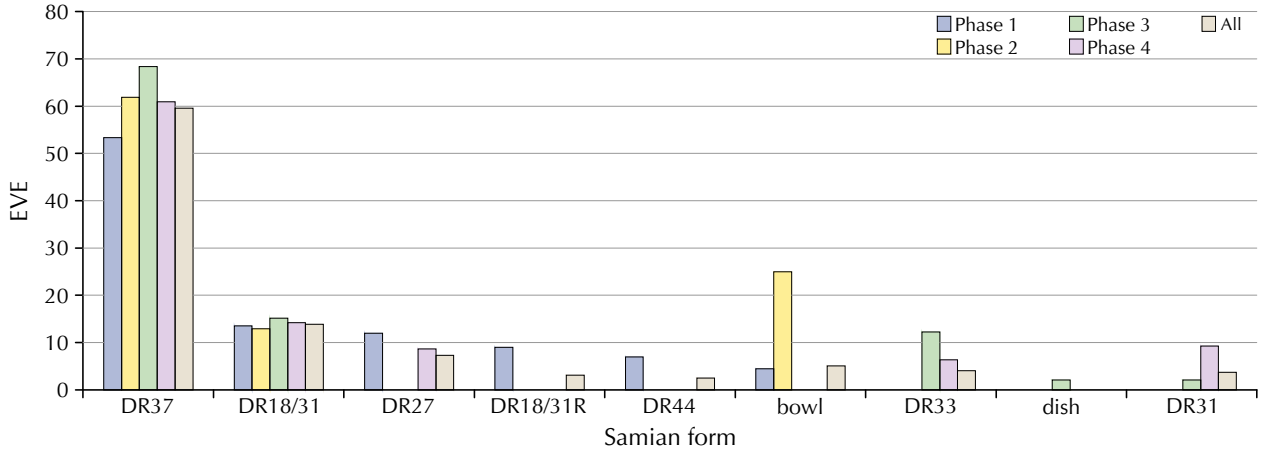


Fig. 174: samian forms represented in each phase on Field 61A (EVE)

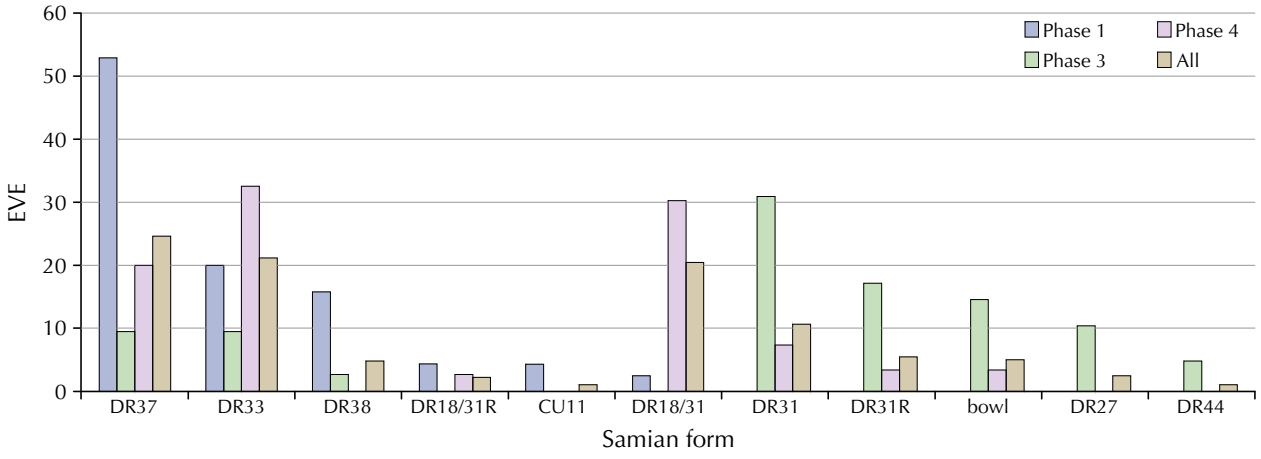


Figure 175: Samian forms represented in each phase on Field 64 and Field 63 northern section (EVEs)

were literate, or Piercebridge where, though lacking in detailed analysis, there were relatively high numbers of graffiti (Ward 2008a, 190-1).

Samian inkwells are by far the most common type of inkwells recovered on Roman sites (Willis 2006) and they form a good body of indirect evidence for ink writing because they were less dependent on conditions of preservation than wood and metal. The dearth of graffiti is strangely supported by a complete absence of samian inkwells. This could relate to the date and nature of the group since samian inkwells were supposedly less common in the 2nd century AD and more common at fort sites than extra-mural settlements (*op. cit.*, 108). The lack of inkwells from Healam Bridge was nonetheless puzzling. Central Gaulish inkwells existed and occur on sites with military links in Yorkshire (Bainesse, Bell and Evans 2002, table 18, residual in phase 7, 410; Castleford, Dickinson and Hartley 2000, table 10, 87; Adel, Monteil *forthcoming*; Alborough, Willis 2002, 72; Piercebridge, Ward 2008a, table 9.3, 177). The lack of evidence for literate individuals on the site perhaps related to its function as an "industrial" site as opposed to a purely military site with military personnel. Similarly low levels of literate graffiti on samian was noticed on the site of Middlewich (Ward 2008b, 147), an industrial site where military involvement was suspected, although there two samian inkwells were also recorded (*op. cit.,* table 29, 141).

Use wear

Some 18 vessels displayed signs of internal wear, often very idiosyncratic, particularly on 'cups', most of them in Field 63. Biddulph (2008) has studied the existence of form-specific wear and the evidence from this group fit with his findings. Seven cups of form Dr.33 displayed similar wear that seemed to concentrate on a thin band at the internal junction of the base and wall, all recovered from Field 63. Two were recovered as residual finds in midden deposit (5002) but five of them belonged to contexts assigned to Phase 1: fill of ditch 7582; fill of stream channel 5239; layer 7473 in structure 7951; fill of posthole 5925 in structure 6949; and layer 7167.

Four examples of the more open cups such as Dr.27 and Dr.35 displayed a different type of internal wear concentrating on an inner patch - a Dr.27g from alluvial deposit 8432 in Field 61A; a cup in midden 5028; another in subsoil 5009 and another in layer 5058 in Field 63. Three decorated bowls, all Dr.37, were used for mixing or grinding, from linear deposit 7657, midden 5028 (no. 139) and deposit 5321. More unusually, three dishes displayed signs of internal wear (from fills 5028, 7093, and deposit 5031); one of them seemed to have been tipped to one side for this operation (5031), the wear on the walls rather than the bases being evidence for this.

Two vessels displayed signs of wear on the underside of the base which pointed towards secondary use, possibly for spinning: a bowl base where the wall section had been trimmed off roughly and with a band of wear on its underside (RF 336, spread 5867, Phase 1d) and a dish base with a band of wear on its underside from context 5271 in structure 5009 (Phase 1d). A third vessel from structure 7951 presents a slightly different type of external wear: a cup Dr.33 had three notches on its footring with patterned wear on the underside of the base.

Functional category	Castleford *vicus*						Bainesse		Healam, Field 63 southern			
	Phase						Phases		Phase			
	2	2	3	3	4	4	3 to 5	6 to 7	1	1	3	3
Beaker	9	2.53%	10	0.73%	2	0.44%	1	15	1.01%	2.57%	11	2.10%	4	1.22%
Bowl	12	3.37%	52	3.80%	5	1.10%	2	24	2.02%	4.11%	38	7.27%	21	6.42%
Cup	74	20.79%	433	31.68%	153	33.55%	16	89	16.16%	15.24%	44	8.41%	28	8.56%
Decorated bowl	136	38.20%	431	31.53%	109	23.90%	37	203	37.37%	34.76%	253	48.37%	142	43.43%
Dish	115	32.30%	336	24.58%	129	28.29%	28	160	28.28%	27.40%	114	21.80%	79	24.16%
Dish rod	6	1.69%	84	6.14%	54	-	8	63	8.08%	10.79%	27	5.16%	18	5.50%
Dish/bowl	2	0.56%	8	0.59%	1	0.22%	4	17	4.04%	2.91%	-	-	-	-
Inkwell	1	0.28%	5	0.37%	-	-	-	1	-	0.17%	-	-	-	-
Jar	1	0.28%	4	0.29%	-	-	1	6	1.01%	1.03%	-	-	-	-
Mortarium			4	0.29%	3	0.66%	2	6	2.02%	1.03%	-	-	1	0.31%
Total	**356**	**100%**	**1367**	**100%**	**456**	**100%**	**99**	**584**	**100%**	**100%**	**523**	**100%**	**327**	**100%**

Table 123: Comparison of samian functional categories present at Castleford vicus*, Bainesse, and Healam Bridge (MNV)*

Four examples of the flanged bowl form Cu.11, all recovered in Phase 1, had their flange missing and the flange attachment smoothed down (5067, 5071, 6942, and 9036).

Repair

Some 62 vessels displayed evidence of mending or preparation for repair which represents about 4.7% of the total MNV (Table 124). Most of them were recovered from the southern section of Field 63 where they represented just under 5% of the total number of vessels.

The majority of the repaired material was 2nd century in date with 54 Lezoux pieces, 37 of which are decorated vessels, three from Les Martres, two East Gaulish dishes and three South Gaulish vessels. This reflected the chronology of the samian group with a high percentage of 2nd century material.

The overall percentage of repaired vessels of 4.74% (Table 124) appeared high when compared to other available evidence from a range of sites in Britain (Willis 2005, table 73). The proportion was higher than the military average of 2% and higher than the general figure for the site of Bainesse (1.4%: Bell and Evans 2002, 415, table 26) and Piercebridge (1.3%, Willis 2005, table 73). Some groups presented higher percentages of repaired samian but still below the 4.74%: Bainesse phase 6-7 (AD 170-275) yielded 3.7% of repaired vessels (Bell and Evans 2002, table 26, 415). Another close proportion was to be found at Birdoswald, western *vicus* evaluation in 1999 (Wilmott and Hirst 2009), which had 3.4% of repaired vessels (Willis 2005, table 73 though there were only 38 samian vessels in total). Middlewhich at 3% is also a good parallel (Ward 2008b, 144-5).

The range of forms selected for repair was in keeping with the functional profile (i.e. high proportion of decorated bowls and dishes) and the evidence from other military sites (Willis 2005, table 75). Most of the repairs were of the drilled circular holes type with only two filed/dove-tail slots.

When looking at the occurrence of repaired vessels in each sub-phase for Field 63 (Fig. 176), there were some interesting evolutions since there were only two vessels with evidence of repair occurring in Phase 1a (one from fill of pit 7732 and one from layer 5084) then the quantities increased in Phases 1b and 1c. Interestingly for Phase 1b, all of the repaired vessels were in contexts related to structure 7951, as follows: from context 6762 (cobble surface) a decorated bowl (no. 51, AD 120-145), repaired and burnt (with joining sherd from 7114, make-up layer within building) and a decorated bowl (no. 140, AD 140-180), repaired and burnt; Central Gaulish Dr.37 (no. 86, AD 125-150), repaired, and a Central Gaulish Dr.37 rim with a lead rivet in situ from context 6965 (layer over cobbled surface); Central Gaulish Dr.37 (no. 118, AD 135-160), repaired and burnt (with an additional sherd in 7613) from context 7151 (rectangular shaped deposit/foundation); one repaired Central Gaulish

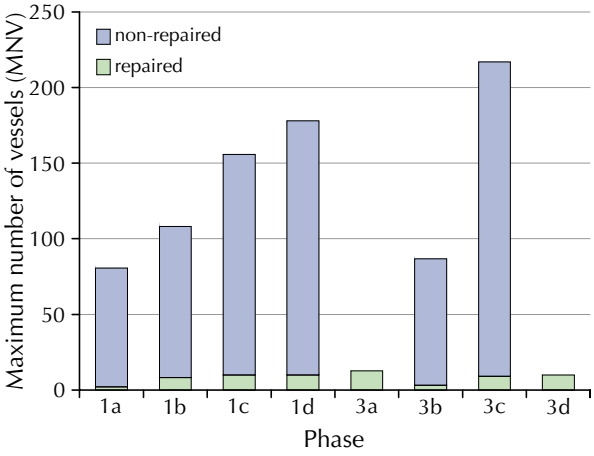


Figure 176: Occurrence of repaired vessels in each sub-phase of Field 63

Dr.37 rim, one bodysherd Les Martres-de-Veyre Dr.37, repaired, and one rim Central Gaulish Dr.18/31, dove-tail repair and rivet from context 7473 (orange sandy layer) and finally, one sherd joining with the one from 7151, Central Gaulish Dr.37 (no. 117, AD 135-160) from context 7613, fill of horse burial 7614.

The range of repaired forms from structure 7951 was limited with mostly Dr.37s and a dish Dr.18/31, but in keeping with the functional profile of the site and the evidence from other sites in Roman Britain (Willis 2005, table 72). Decorated bowls tend to be more often repaired than plain forms. There was no evidence for smithing in structure 7951 or any concentration of lead scraps. The ceramic profile was dominated by tableware (Leary, above) and the building seems entirely domestic in nature. The repaired vessels in Phase 1c were not so neatly clustered as in Phase 1b, several of them occured in contexts associated with structure 6949 (two in spread 5596; one in the fill of possible posthole 7159) but also in various layers (5035, 5040, 6922, 6924, and 7417) and the fill of pit 7736. For Phase 1d, several of the repaired vessels came from midden deposit 5042/5237 and from structure 5009, three of which have joins with fragments recovered in earlier structure 7951 (nos. 118 and 140). The third decorated bowl with repairs recovered from structure 5009 (no. 91) was burnt black, Hadrianic, and could have been deposited during the life of the structure, the joins are with later phases.

High quantities of repairs are often interpreted as symptomatic of difficulties in obtaining replacements, either because supply was difficult to access or dwindling, or because of a lack of wealth. This was unlikely to be the case here since the quantities of samian ware were high and they dated to a period when samian supply was plentiful. The high proportion of repaired material could also suggest the presence of a repair workshop though there was no other evidence to suggest this was the case.

	Field 61A	Field 62	Field 63 southern	Field 63 northern and Field 64	All
Non-repaired	96.05%	92.54%	95.06%	96.33%	95.26%
Repaired	3.95%	7.46%	4.94%	3.67%	4.74%

Table 124: Occurrence of repaired samian (MNV) in each main field and their quantitative role

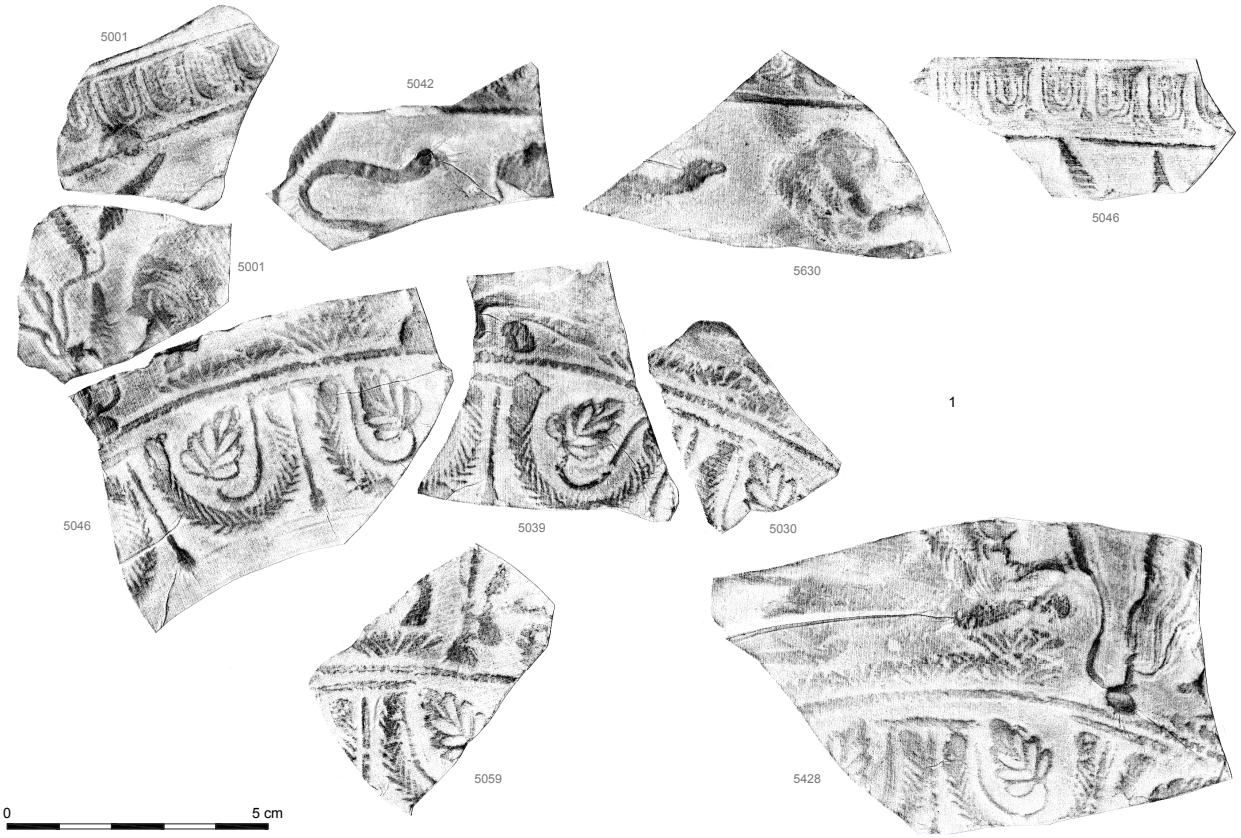


Figure 177: South Gaulish samian rubbings (Cat. no. 1)

Concluding remarks

The chronological profile of the samian assemblage was at odds with the other published sites on Dere Street, since it lacked a strong Flavian component and declined rather quickly in the Antonine period. The chronology fits at least partly with the category of "industrial sites" defined by M. Ward for northern sites in Britain (2011, 84 and 86). These sites differ from forts and *vici* by a high representation of Hadrianic material and a fall off in activity from AD 140 (*op. cit.*, 86). This perhaps suggests that the site was related to the construction of Hadrian's Wall and provided either a stopping station on Dere Street and/or various industrial products. The percentage of decorated bowls was higher at Healam Bridge than fort sites and extra-mural/*vici* sites with figures well above 40% (by MNV and EVE) and more akin to profiles recovered from "industrial sites" such as Middlewich (Ward 2008b, fig. 80, 146) and Walton-le-Dale (Wild *forthcoming*).

The functional profile of the samian assemblage was dominated by decorated bowls, a not insignificant proportion of which were repaired. Despite their abundance and presumably a fairly easy access to fresh supply, these vessels were clearly valued and kept in use after breakage. Outside of decorated bowls, the range of forms was poor and lacked the diversity common to urban assemblages or other military sites. There were relatively few cups especially when compared to other extra-mural sites and this could perhaps suggest different eating habits with fewer sauces. Some of the decorated bowls could have perhaps fulfilled the same function as samian cups but there were only three examples presenting internal wear and no particular concentration of small diameters within the decorated group. More data is needed from "industrial" sites.

Finally the absence of samian inkwells and the presence of only two graffiti, both illiterate, strongly suggest an illiterate population. The figure is at odd with evidence from other sites on Dere Street and extra-mural settlements where inkwells are represented albeit in small quantities (Willis 2006, table 1, 108) and even the evidence for "industrial sites" (Ward 2008b, table 29, 141).

Decorated samian catalogue

(Cat. Nos. 1-229)

The following catalogue lists and identifies the decorated pieces recovered from the site that could be attributed to individual potters or groups of potters. Each entry gives the catalogue number, the excavation context number and phase with details of the decoration. Unless stated otherwise, the context numbers are from Field 63.

The Inventory Numbers (Inv. No.) quoted for the South Gaulish vessels are taken from: *European intake of Roman samian ceramics*; http://www.rgzm.de/samian/home/frames.htm

The letter and number codes used for the non-figured types on the Central Gaulish material –such as B223, C281, are the ones created by Rogers (1974). The figured-types referred to as Os.*** are those illustrated by Oswald in his: *Index of figure-types on terra sigillata* (1936).

South Gaulish, La Graufesenque

1. Joining sherds from 5001 (2, Phase 5), 5030? (1, Phase 3c), 5039 (1, Phase 1c), and 5046 (1, Phase 3b).

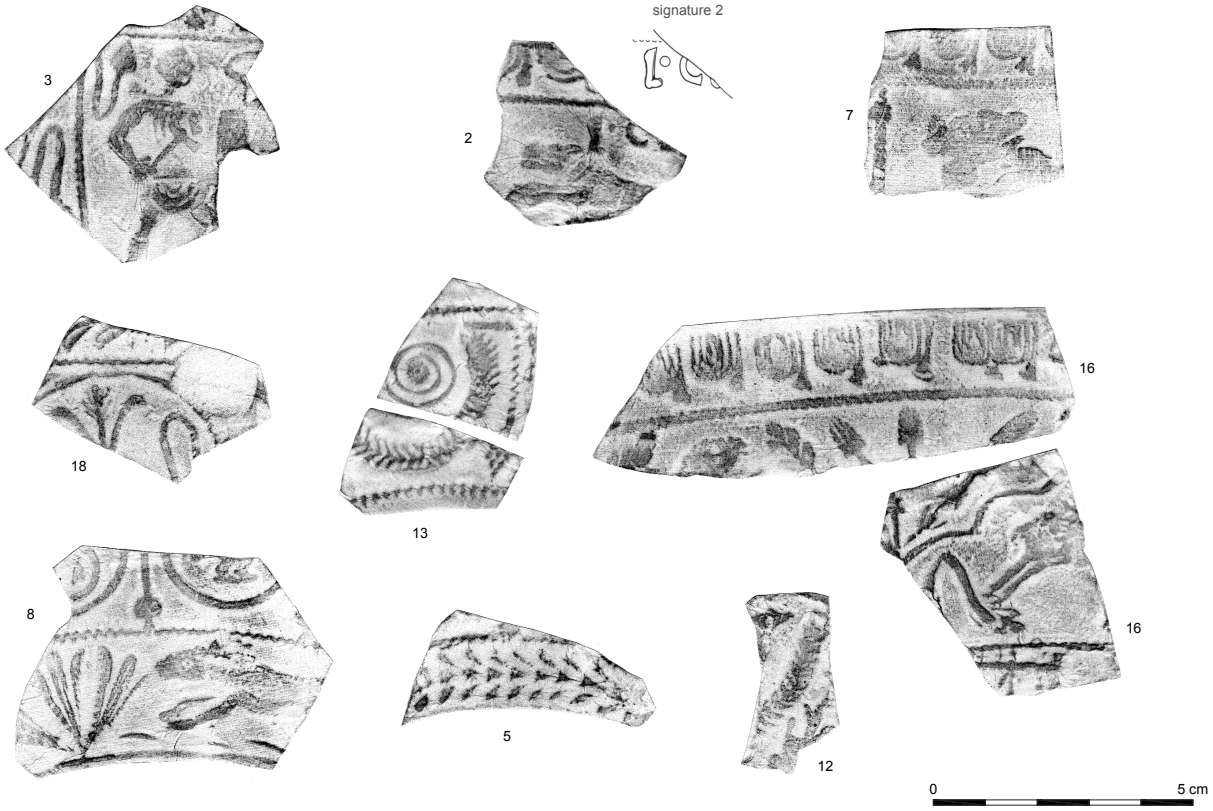


Figure 178: South Gaulish samian rubbings (Cat. nos. 2, 3, 5, 7, 8, 12, 13, 16, 18)

Additional sherds from 5042 (1, Phase 1d), 5046 (1, Phase 3b), 5059 (1, Phase 1c), 5428 (1, Phase 3), and 5630 (1, Phase 1d). Dr.37 in the style of *L. Cosius Virilis*. The decoration is divided into two horizontal friezes. In the upper one, below a line of ovolo is a running lion on top of grass tufts and a composite tree made out of striated leaves. In the lower frieze, the chevron festoons are filled by a leaf and separated by tassels. A Dr.37 stamped by *L. Cosius Virilis* from Martigny (Inv. No. 0005523) has the chevron festoon, the same leaf, the grass tufts, part of a set of back legs that could come from a similar lion and possibly the same tree motif. The ovolo is as yet unrecorded on a stamped vessel by *L. Cosius Virilis* but appears on bowls with the striated leaf (Inv. No. 2000037) and the lion (Inv. No. 2005386) and a worn version of this ovolo is on a stamped bowl with the festoon by this potter (Inv. No. 2005398). AD 80-110. Fig. 177

2. 5031 (Phase 3b) with a partial intra-decorative signature (see Cat. No. 257) by *L. Cosius*. Dr.37, the ovolo is the one found with this signature (Inv. Nos. 0004469 and 2004962), the dog appears in his work too (Inv. No. 2004612). AD 90-125. Fig. 178

3. 5019 (Phase 5). Dr.37. A *venator* and bottom of an ovolo with a large rosette tongue. For the little leaf in the corner see Inv. No. 0005112 from Southwark, for the *venator* and possibly the same ovolo see Inv. No. 0005140. *Mercator i*. AD 80-110. Fig. 178

4. 5028 (Phase 3c). Dr.37. Very partial decoration with the body of a bear or lion. Flavian.

5. 5028 (Phase 3c). Dr.37, a similar wreath of trifid motifs is on a stamped bowl by *L. Cosius Virilis* from La Graufesenque (Inv. No. 2005372), on a stamped Dr.37 by *Biragillus i* (Inv. No. 2003652) and on a stamped bowl by *Amandus iii* (Inv. No. 2003236). AD 80-110. Fig. 178

6. 5028 (Phase 3c). Dr.37, two joining sherds with festoons separated by a wavy line. Similar festoons and line appear on bowls with an ovolo found a number of vessels (Inv. Nos. 2001735, 2005910) though not with a swirl and rosette ending. A bowl from Colchester attributed to *Memor* (Dannell 1999, no. 421) shows a similar festoon, spiral and wavy line. AD 70-90.

7. 5031 (Phase 3b). Dr.37, the ovolo with a trident ending tongue leaning to the left appears on a number of bowls including examples by *Amandus iii* (Mees 1995, taf. 6, no. 2) and one with a signature by *Bas-* (Mees 1995, Taf 10, no. 8, Inv. No. 0004367). The rather blurred and indistinct figured type below could be from erotic group Os. H used by both potters. AD 85-110. Fig. 178

8. 5035 (Phase 1c). Dr.37, burnt. The upper frieze contains festoons separated by a round ending tassel close to the one found on a Dr.37 from Wroxeter with a signature of *Frontinus i* (Inv. No. 0004638) and on a Dr.29 from London (Inv. No. 0003096), the lower frieze contains composite grass and a stag. The little tree/grass tuft is made out of three trifid motifs with outer leaves with serrated edges similar to the one on a Dr.29 with a stamp of *Frontinus i* (Inv. No. 0000522). AD 70-95. Fig. 178

9. 5042 (Phase 1d). Dr.37, the bowl is not attributable to a specific potter but the ovolo could be the one found on some of the Cala Culip vessels (see Cala Cuip 618/ Inv. No. 2007228). The swirl with a rosette at one end and a leaf at the other also appears on bowls with this ovolo (Inv. No. 2002775). For the ovolo, lion see Cala Culip 623. AD 70-95.

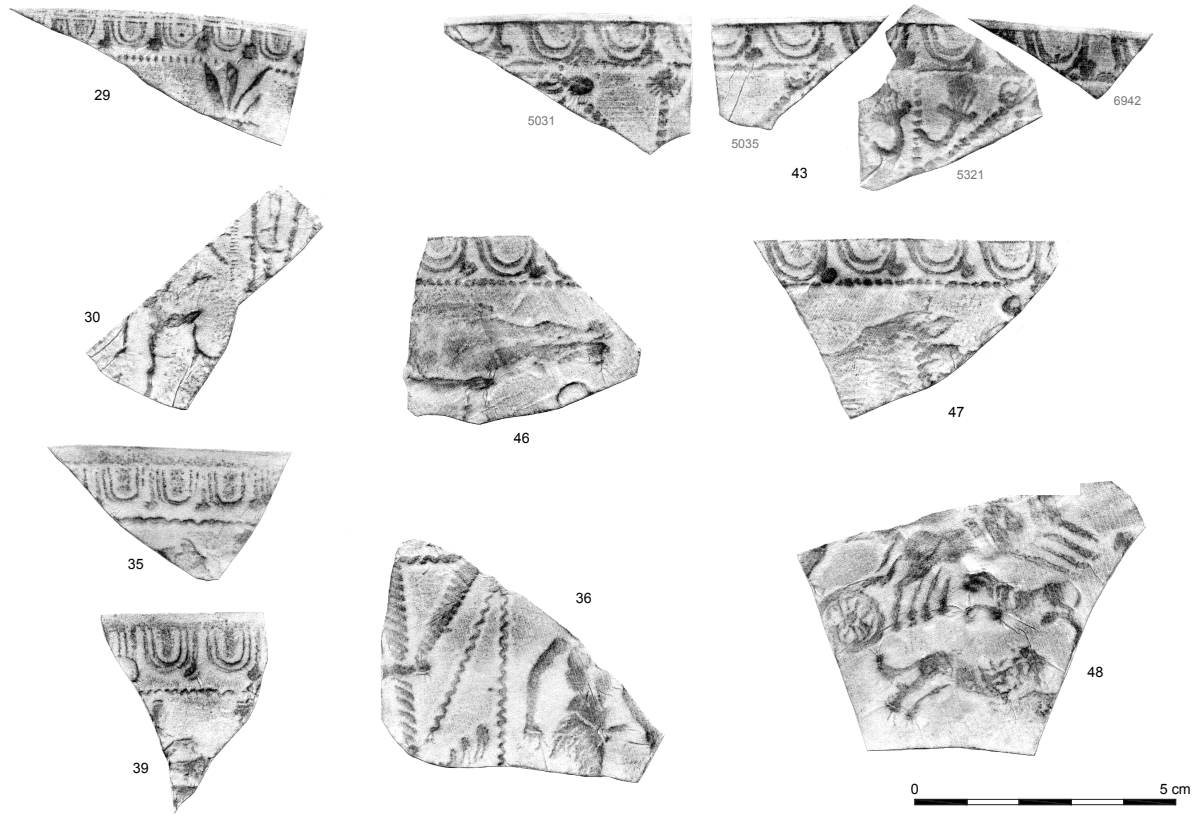


Figure 179: South Gaulish samian rubbings, Les Martres-de-Veyre (Cat. nos. 29, 30, 35, 36, 39, 43, 46, 47, 48)

10. 5042 (Phase 1d). Dr.37, the ovolo with the four-pronged ending tongue is the one used by *Crucuro i* (Inv. No. 2000893) and *M. Crestio* (Inv. No. 0004555). AD 80-110.

11. 5058 (Phase 1c). Dr.37, the ovolo with a trident ending tongue is possibly the *Mercator i* one (see Inv. No. 0005123). AD 80-110.

12. 5067 (Phase 1c). Dr.37, little decoration remains but part of a festoon, which is possibly the one used on bowls stamped by *Germanus i* (Inv. No. 0004819). AD 65-90. Fig. 178

13. 7170, sample AA (Phase 1a). Two joining sherds from a decorated bowl, possibly a Dr.29. South Gaulish. The festoon made out of chevron motifs is used by a number of potters, late ones such as *L. Cosius Virilis*, *Masclus ii* and *Gaius i - Iul-* but also earlier potters such as *Germanus* i who uses it filled with a similar swirl (Inv. No. 0004791) and with a similar wavy line and grape tassel (Inv. No. 0003585 and Mees 1995, taf. 90, no. 1). The finely defined rosette at the end of the swirl is close to one known on a Dr.29 stamped by *Germanus* i (Inv. No. 0003585 which also has the festoon and 0001388). AD 65-90. Fig. 178

14. 5960 (Phase 1c). Dr.37, reworked as a small counter. Little of the decoration remains, a basal wreath of S-shaped gadroons and the feet of a putto. AD 75-100.

15. 6883 (Field 64, Phase 1) and 6884 (Field 64, Phase 1). Dr.37, the ovolo and most of the decoration are indistinct and it seems that the bowl was removed from the mould while still wet. All that is left is a basal wreath made out of S-shaped gadroons. Similar gadroons facing left appear on a stamped bowl by *Frontinus i* (Inv. No.0004686), a bowl signed by *Pas-* (Inv. No. 0005307). A bowl with an infra-decorative signature from *Banassac* displays similar gadroons and spacing (Inv. No. 0006093). AD 80-110.

16. 6969 (Phase 1). Two non-joining sherds. Dr.37. The ovolo looks like the one used on a number of bowls from La Graufesenque (Inv. Nos. 2002314, 2002292), the decoration consists of a tree made out of three examples of a triangular leaf and a five-lobed one next to a running stag. The triangular leaf is on a Dr.37 from La Graufesenque with this ovolo (Inv. No. 2002314). The five-lobed leaf is close to one on a Dr.37 with the same ovolo from La Graufesenque (Inv. no. 2002279) and the stag is also associated with this ovolo (Inv. No. 2002292). The ovolo and a similar festoon ending are on a bowl from *Vindolanda* (Inv. No. 2005240). AD 75-110. Fig. 178.

17. 6969 (Phase 1). Dr.37, the ovolo is blurred and difficult to identify precisely. Flavian.

18. 5001 (Phase 5), Dr.37. A similar trifid motif is on a Dr.37 from Pompeii with ovolo 000016 (Atkinson 50), on a Dr.37 with the same ovolo and a signature by *Frontinus i* (Inv. No. 2001202) and on another Dr.37 from Pompeii with another ovolo (Atkinson 80). A similar looking trifid motif though with a less well defined central leaf is the one used by *Mercator i* (Inv. No. 0005172 and Dickinson 2002, no. 124, 428) and *T. Flavius Secundus* (Inv. No. 0005443). AD 80-110. Fig. 178

19. 5001 (Phase 5), Dr.37. The ovolo is the same as the one on the *L. Cosius Virilis* bowl (Cat. no. 1). AD 80-110.

20. 5042 (Phase 1d). Dr.37, abraded. Partial scroll. Flavian.

21. 7404 (Phase 1b). Dr.37. Very little decoration remains, a partial leaf with serrated edges which was used by a number of potters (Inv. Nos. 0005125, 0005171, 0005468, 0005514, 0003783). Flavian.

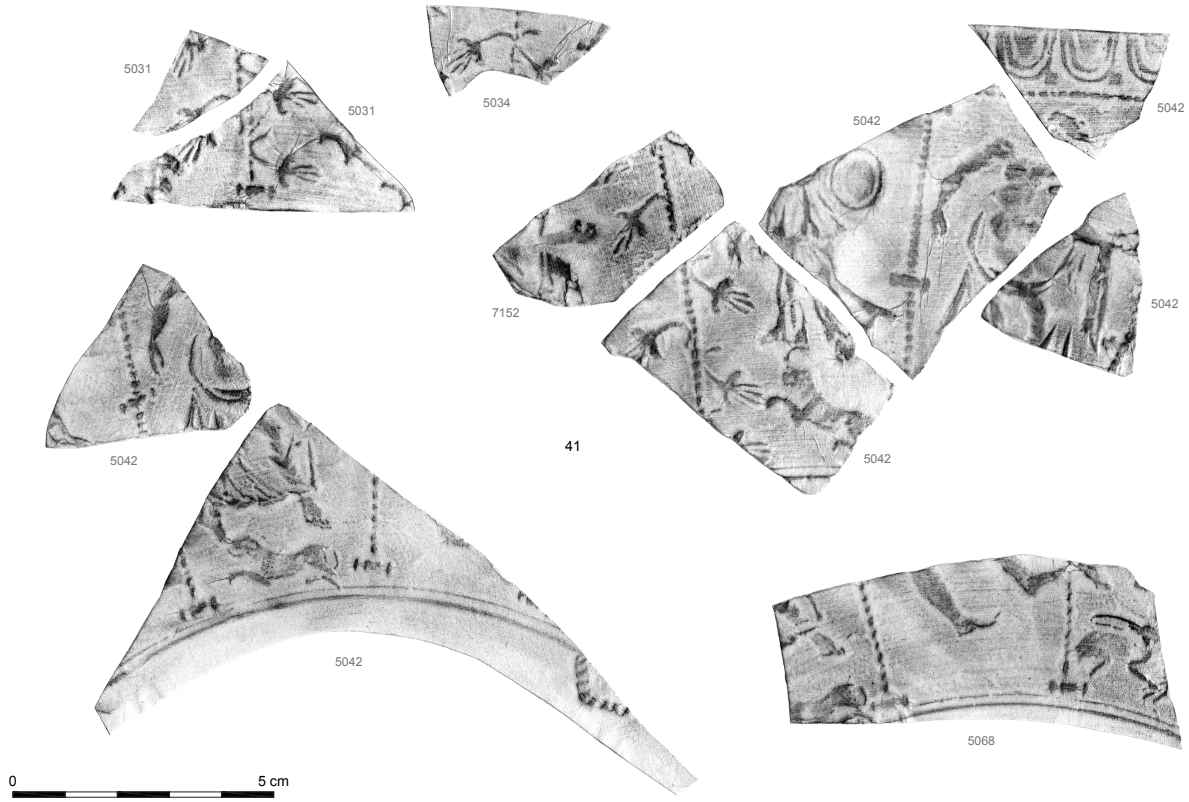


Figure 180: South Gaulish samian rubbings, Les Martres-de-Veyre (Cat. no. 41)

22. Joining sherds from 8014 (Field 61A, Phase 5) and 8015 (Field 61A, Phase 2). Dr.37, ovolo with a long tongue which could be the one used by *Sabinus iv* (Inv. No. 0005420). AD 90-110.

23. 8217 (Field 61A, Phase 3i), Field 61A. Dr.37, the ovolo is similar to the one found on a number of Dr.37s (Inv. Nos. 2000366, 2002763) including some from the Cala Culip wreck (Inv. Nos. 2007032, 2007264) and is here associated with a wreath of trifid motifs. Flavian.

24. 8281 (Field 61A, Phase 1ii). Dr.37, very partial decoration with a small panel partly infilled with diagonal wavy lines. Flavian.

25. 8297 (Field 61A, Phase 2). Dr.37, basal wreath of little twisted motifs for which no exact parallels can be found in published literature. Flavian.

26. 9036 (Phase 1). Dr.37, little of the decoration remains, a basal wreath of trifid motifs. Flavian.

27. 9036 (Phase 1). Dr.37, the tongue on the ovolo is not clear enough to be identified. The leaf below is clearer though equally difficult to match to published examples. It is similar to one found on two Dr.37s from *Vindolanda* with an ovolo usually associated with *Crucuro* and *M. Crestio* (Inv. Nos. 2007913, 2003799). AD 80-110.

28. 7226 (Phase 1). Dr.37, the double arched festoons with serrated edges could be similar to the ones on a stamped bowl by *Censor i* (Inv. No. 0004420), *Albanus iii* (Dannell 1999, no. 187 and Inv. No. 0004307). Similar festoons with what could be the same bird are on a stamped bowl by *Sulpicius* (Mees 1995, taf. 194, no. 1). AD 85-110.

Central Gaulish, Les Martres-de-Veyre

29. 6924 (Phase 1c). Dr.37 in the style of X-13 with ovolo with rosette ending tongue (B14?), beaded line and detail L19. Both of these motifs are used by anonymous potter X-13 (Stanfield and Simpson 1990). AD 100-120. Fig. 179

30. 5598 (Phase 1d). Dr.37. Little naked man Os.688 and part of detail Q21. Both were used by anonymous potter X-11 (Stanfield and Simpson 1990, pl. 38, nos. 448 and 453). AD 100-120. Fig. 179

31. 5071 (Phase 1d). Dr.37. Part of a column next to a beaded line with an astragalus across are visible, the column is probably P87 used by the Rosette potter and X-8. AD 100-120.

32. 5002 (Phase 3c). Dr.37. A vertical wavy line intersecting with a beaded line border and rosette at junction. The rosette has ten petals and a central dot and is possibly the one used by the Rosette potter (Stanfield and Simpson 1990, fig. 7, no. 20) who used such rosette at the intersection of beaded lines (*op. cit.*, pl. 23). The back legs could be from a running hare also used by this potter (*op. cit.*, pl. 23, no. 282). AD 100-120.

33. 5906 (Phase 1). Dr.37. A wavy line, a rosette (perhaps C280) and part of a small vine motif (M18?). AD 100-120.

34. 8397 (Field 61A, Phase 1ii). Dr.37. Little of the decoration remains, a lion head and mane with a wavy line. The lion could be R4006 though here there is a second paw. The wavy line and lion are consistent with the work of X-2 (Stanfield and Simpson 1990, pl. 9, nos. 110 and 112). AD 100-120.

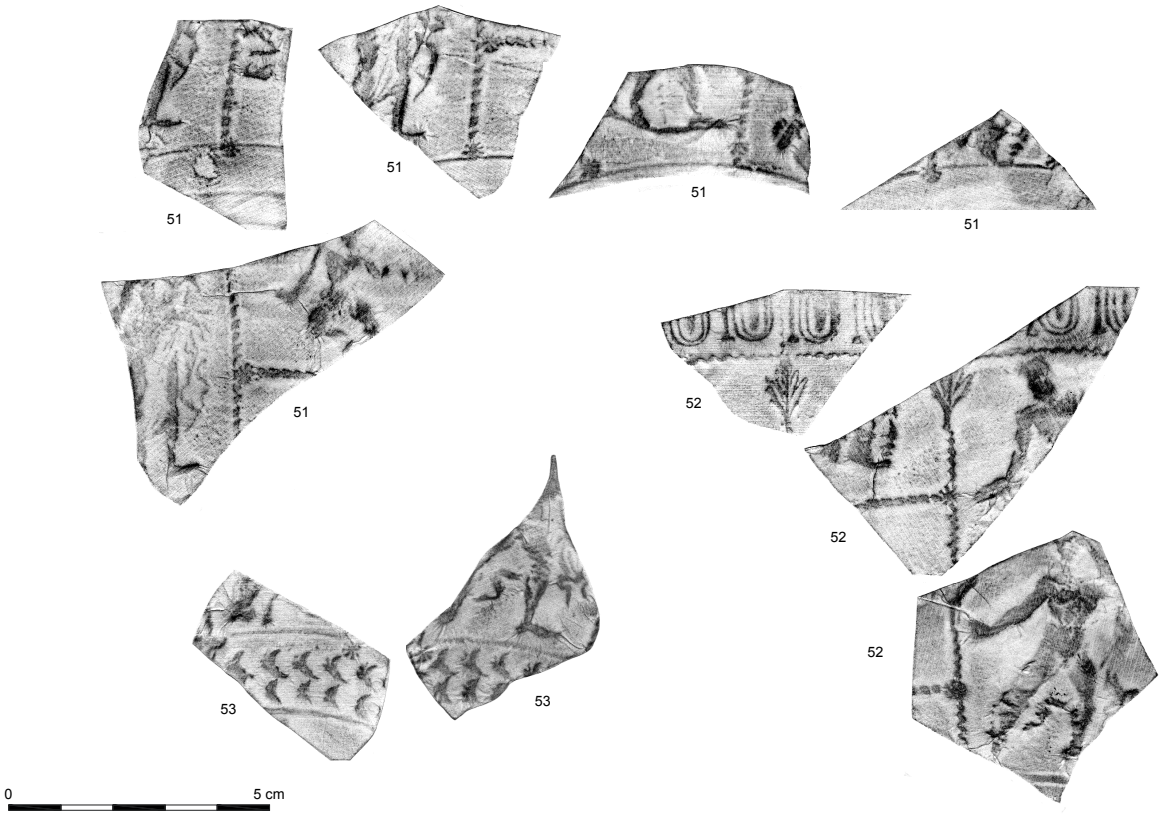


Figure 181: South Gaulish samian rubbings, Lezoux (Cat. nos. 51, 52, 53)

35. 5028 (Phase 3c). Dr.37. Ovolo with two borders and a tongue terminated by a rosette (B38?) and a wavy line border. B38 was used by X-8, X-9 and X-10. AD 115-135. Fig. 179

36. 7895 (Phase 1a). Dr.37 in the style of X-9. Panelled decoration with a saltire made out of wavy lines, striated motif (Stanfield and Simpson 1990, fig. 9, no. 21) and bifid motif K22. A similar saltire is illustrated in Stanfield and Simpson 1990 (pl. 30, no. 365) and is on a bowl found in Wroxeter (WB (83) 526, unpublished). The second panel contains Pan Os.717. AD 115-135. Fig. 179

37. 5001 (Phase 5). Dr.37 in the style of X-9, the same striated motif as on D39 (Stanfield and Simpson 1990, fig. 9, no. 21) with ovolo B38 and a wavy line. X-9. AD 115-135.

38. 5596 (Phase 1c). Dr.37. Ovolo is probably B39, one of X-9's ovolos. AD 115-135.

39. 5964 (Phase 1c). Dr.37. Ovolo is probably B39, one of X-9's ovolos. AD 115-135. Fig. 179

40. 6763 (Phase 1b). Dr.37. Ovolo is probably B39, one of X-9's ovolos. AD 115-135.

41. Joining sherds from 5042 (4, Phase 1d) and 7152 (1, Phase 1b). Additional sherds from 5031 (2, burnt, Phase 3b), 5034 (1, Phase 1c), 5042 (2 joining, Phase 1d) and 5058 (1, Phase 1c). Dr.37 in the style of *Cettus*. This bowl is particularly well manufactured with a crisp decoration and good quality finish. The ovolo is B263 and the decoration organised in panels. The panels are separated by a beaded line with either several examples of leaf J144 placed on either side or two small astragali as terminals with a third one placed diagonally across it. The figured types are Minerva Os.126A on top of panther Os.1570 in one panel and draped Venus Os.349 in the other. A third panel with the feet of a figured type (a dancer?) on top of hare Os.2061 is visible on the sherd from context 5068. The figured type is unknown in Oswald 1936 but is present on a mould from Les Martres-de-Veyre (Terrisse 1968, pl. XXII, no. 521) and on a bowl found there (Romeuf 2001, pl. 83, no. 38). The chevron motif G392, typical of *Cettus*, is here located just below the decoration and seems to act as a signature. All of these motifs and the arrangement are identical to a bowl found in Les Martres-de-Veyre itself (Romeuf 2001, pl. 83, no. 38) and could possibly come from the same mould. AD 135-160. Fig. 180

42. 5028 (Phase 3c). Dr.37 in the style of *Cettus*. Burnt, blurred example of leaf J144. AD 135-160.

43. Joining sherds from 5031 (1, Phase 2b), 5035 (1, Phase 1c), 5321 (1, Phase 3) and 6942 (1, Phase 1a). Dr.37 in the style of *Cettus*. Only the top of the decoration remains with ovolo B263, a vertical beaded line terminated by a small rosette and what appears to be the top of a saltire with leaf J144. The rosette is not the one usually associated with *Cettus* but appears in his work (Romeuf 2001, pl. 80, no. 80, M25). AD 135-160. Fig. 179

44. 6763 (Phase 1b), possibly part of the same vessel as no. 43. Dr.37 in the style of *Cettus*. Ovolo B263, vertical beaded line with a rosette terminal. AD 135-160.

45. 5300 (Phase 3b). Dr.37 in the style of *Cettus*. Part of tree Q5 is visible, a motif used by *Cettus* (Stanfield and Simpson 1990, pl. 143, no. 35). AD 135-160.

46. 7004 (Phase 1c). Dr.37 in the style of *Cettus*. Ovolo B263 and man Os.637 (Stanfield and Simpson 1990, pl. 142, no. 33). AD 135-160. Fig. 179

47. 5002 (Phase 3c), Dr.37 in the style of *Cettus*. Ovolo B263 and what is probably the top of boar Os.1641. AD 135-160. Fig. 179

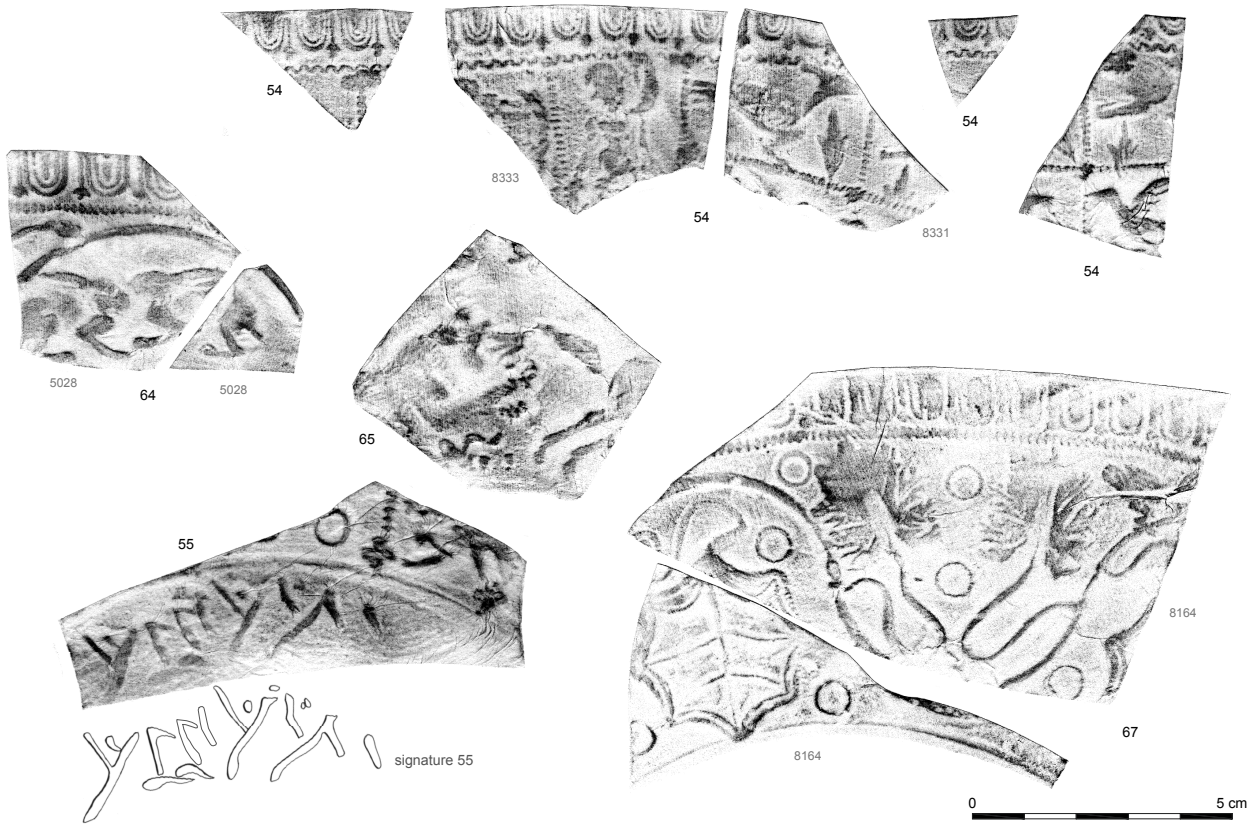


Figure 182: South Gaulish samian rubbings, Lezoux (Cat. nos. 54, 55, 64, 65, 67)

48. 7516 (Phase 1). Dr.37 probably in the style of *Cettus*. The three figured types chariot Os.98, panther Os.1570 and lion Os.1404 are not exclusive to *Cettus* but the fabric is typical of Les Martres-de-Veyre and the chariot and lion are found in a similar arrangement on a fragment from the production site (Romeuf 2001, pl. 93, no. 222). AD 135-160. Fig. 179

Central Gaulish, Lezoux

49. 5042 (Phase 1d). Dé.64 with a micaceous orange fabric and a thin slip. Little of the decoration remains, a wreath of lozenges on top of small double circle medallions. The medallion bears some similarities to the one used by *Docilis* (Stanfield and Simpson 1990, fig. 24, no. 20) though this potter is not known to have made such beakers. The lozenges cannot be matched to published references on this type of beaker (Bémont 1977) or other Central Gaulish material (Rogers 1974). The fabric and finish suggest a Trajanic-early Hadrianic date.

50. 5027 (Phase 3c). Dr.37, two wavy lines at right angles each terminated by a trifid motif. The panel on the right shows a small circle under the feet of a partial figured type. The trifid motif could be G172 used by X-9 who also used the wavy line. AD 120-135.

51. Sherds from 5042 (1, burnt and repaired, Phase 1d), 5013 (1, burnt and repaired, Phase 5), 5028 (1, Phase 3c), 6762 (1, burnt and repaired, Phase 1b) and 7114 (1, Phase 1b). With an intra-decorative stamp by *Butrio* (see no. 234). Dr.37, the stamped fragment has the feet of scholar Os.907A with a roped line with a rosette as terminal. The fragment from 6762 also has the scholar, the roped border and the rosette and putto Os.440 apparently unknown for this potter (Rogers 1999). Sherd from 7114 has the scholar, roped border and rosette while the fragments from 5013 and 5028) have the border and rosette, and also mask Os.1330. AD 120-145. Fig. 181

52. Sherds from 5028 (1, Phase 3c), 5031 (1, Phase 3b), and 6922 (1, Phase 1c). Dr.37. The fragments from 6922 and 5031 have ovolo B109 and little leaf H151. Mask Os.1330 is visible on the fragment from 6922 and Os.673 on the ones from 5028 and 6922. All the types are known for *Butrio*. AD 120-145. Fig. 181

53. Sherds from 5019 (1, Phase 5) and 5042 (1, Phase 1d). Dr.37. Though not joining both fragments are in a similar fabric and present the same basal wreath of bifid motifs K35. The sherd from (5042) also shows part of Os.673. *Butrio*. AD 120-145. Fig. 181

54. Joining sherds from 8333 and 8331 (2, Field 61A, Phase 1). Additional sherds from 8333 (1, Field 61A, Phase 1), 8339 (1, Field 61A, Phase 1), and 8294 (1, Field 61A, Phase 1ii). Dr.37, ovolo B203, wavy line border and panelled decoration divided by beaded lines. The standing figured-type is probably Minerva (close to Os.130), the crane is Os.2195A, the bird is close to Os.2325A and the panther is either Os.1553 or 1568. The little leaf has no exact match in Rogers 1974. The ovolo, wavy line border, beaded line and crane are on a bowl attributed to an anonymous Hadrianic potter found in Colchester (Bird 1999, no. 685, 100) and this bowl is probably by the same potter. AD 120-150. Fig. 182

55. 5002 (Phase 3c). Dr.37 with an infra-decorative signature by *Attianus ii*, (see no. 257). Unfortunately little of the decoration remains, a rosette (C23) at the end of a beaded line and a hare, possibly Os.2116. AD

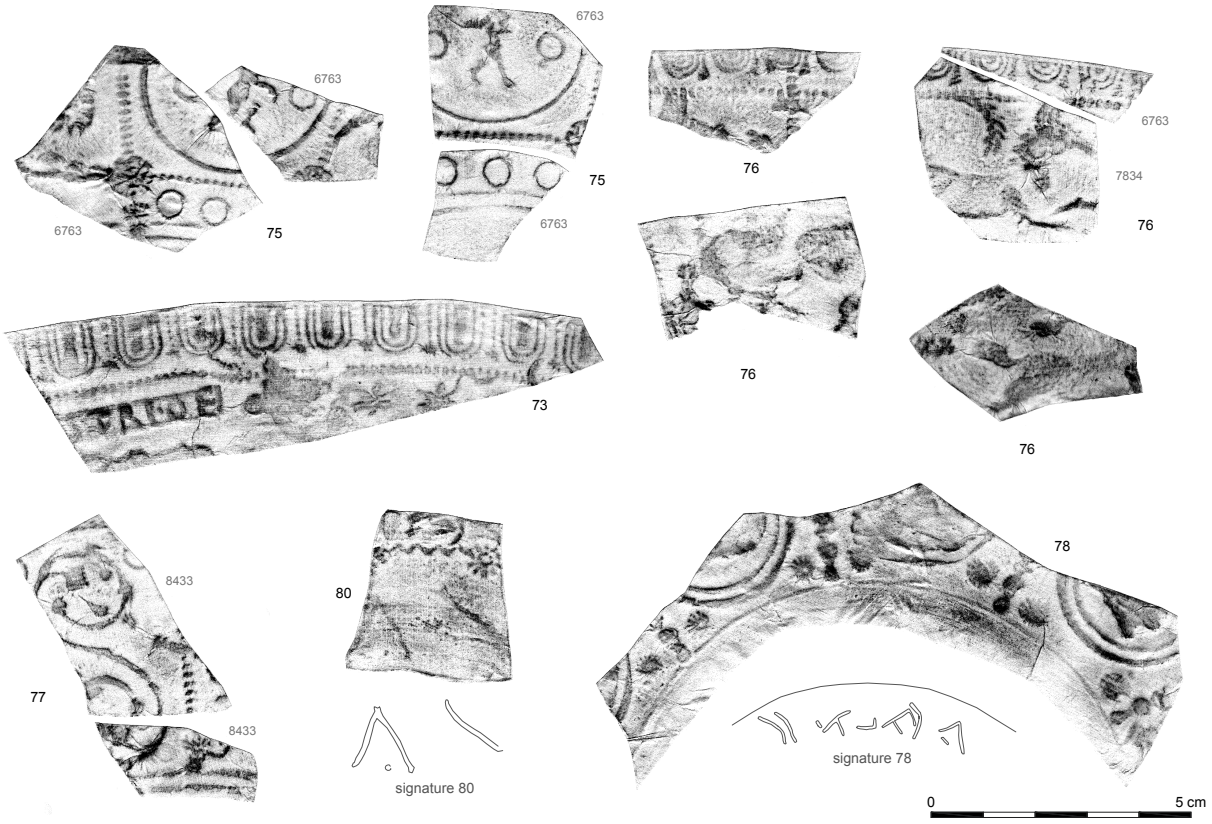


Figure 183: South Gaulish samian rubbings, Lezoux (Cat. nos. 73, 75, 76, 77, 78, 80)

120-145. Fig. 182

56. 5035 (Phase 1c). Dr.37. A rosette (C23) at the end of a beaded line. Probably *Attianus ii*. AD 120-145.

57. 5840 (Phase 3c). Dr.37. Not much of the decoration remains, an ovolo with a large rosette-ending tongue, possibly B7 used by *Attianus* and *Condollus*. The top of a double circle medallion and a small circle are also visible but not distinctive enough to provide a definite identification. Hadrianic.

58. 6821 (Field 64, Phase 1). Dr.37. Not much of the decoration remains, an ovolo with a large rosette-ending tongue, possibly B7 and a beaded line. Probably Hadrianic.

59. 5002 (Phase 3c). Dr.37. The beaded lines with rosette at intersection (C23) and the astragali placed diagonally across the lines suggest the work of *Attianus ii*. The festoon however is not the one usually present in his work or in the work of his close associate *Sacer*. Unless it is a very poor impression of F8, it seems closer to F7, the festoon later used by *Criciro* who had links with both *Attianus* and *Sacer* (Hartley and Dickinson 2008c, 195). AD 120-150.

60. 5031 (Phase 3b). Dr.37. A tall ovolo with rosette-ending tongue probably B18, a wavy border and leaf K2. Probably *Attianus ii*. AD 120-145.

61. 5028 (Phase 3c). Dr.37. A tall ovolo with rosette-ending tongue probably B18 and beaded border. Hadrianic.

62. 7060 (Phase 1a). Dr.37. A tall ovolo with rosette-ending tongue probably B18, beaded border and a running panther. Hadrianic.

63. 7473 (Phase 1b). Dr.37. A little of an ovolo remains, perhaps B14. Hadrianic.

64. Two joining sherds from 5028 (Phase 3c). Dr.37. The largest sherd is burnt black, the other is not. Ovolo is B17, beaded line and two hares facing each other (Os.2061 and 2116 probably) inside a scroll. Probably by *Attianus ii*. AD 120-145. Fig. 182

65. 7330 (Field 64, Phase 1). Dr.37, probably by *Attianus ii*. The decoration shows bear Os.1588 chasing a horse. The back legs and the straight tail of the horse look like the ones on horseman Os.245 or horse Os.1894. Part of snake and rock Os.2155 is visible below the bear. Snake and rock Os.2155 and horse Os.1894 were used by *Attianus ii* (Rogers 1999), the bear was used by *Sacer* and is on a bowl assigned to *Attianus ii* from Carlisle (Dickinson 2010, no. 90). AD 120-145. Fig. 182

66. 5035 (Phase 1c). Dr.37, abraded. Probably in the style of *Attianus ii*. The ovolo could be B204, the top of tree N7 is visible next to a beaded line terminated by a four petal rosette (C23?). The next panel contains the top of a caryatid, possibly Os.1202. AD 120-145.

67. Two joining sheds from 8164 (Field 61A, Phase 3ii). Dr.37. Scroll decoration with two examples of leaf H72, several small circles and bird Os.2239D in the upper loop and large leaf J1 surrounded by small circles in the lower loop. Both leaves were used by *Attianus ii* and *Cinnamus*. The ovolo is single bordered with a beaded tongue terminated by a rosette, possibly B12. B12 is known for *Cinnamus* but not *Attianus* ii (Rogers 1974) though it was used by *Sacer* who had strong links with *Attianus ii*. The small circles scattered throughout and the tendrils attached to the small leaves are more typical of *Attianus ii* (Stanfield and Simpson 1990, pl. 87, no. 21). Hadrianic-early Antonine. Fig. 182

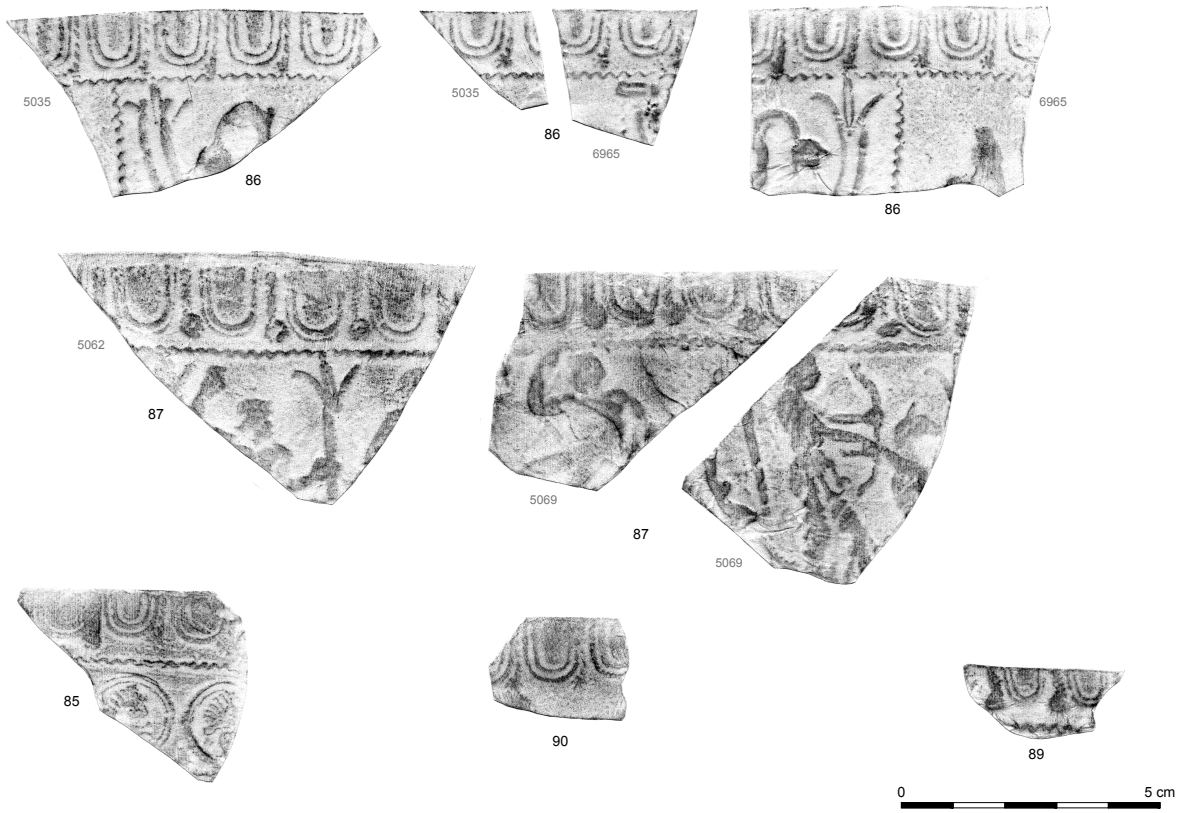


Figure 184: South Gaulish samian rubbings, Lezoux (Cat. nos. 85, 86, 87, 89, 90)

68. 8010 (Field 61A, Phase 5). Dr.37, the ovolo looks like B17 used by *Attianus* ii, *Paternus* iv (Roger's *Paternus* iii). Hadrianic-early Antonine.

69. 7007 (Field 64, Phase 1). Dr.37, burnt. The ovolo is probably B18 and is here associated with a beaded line border and Diana and deer Os.106.

70. 5142 (Phase 1a), Dr.37. The ovolo is possibly B18, the leaf probably K22. Probably by *Attianus ii*. AD 120-145.

71. 5027 (Phase 3c) and 7004 (Phase 1c). Dr.37, the ovolo could be B114 and it is accompanied by a wavy line on both sherds. The rosette on the fragment from 5027 is possibly C168 which is used, amongst others, by *Avitus* (Rogers 1999, 58). Hadrianic.

72. 5042 (Phase 1d). Dr.37, from lower part of the decoration, the motif on the left is probably part of Q40 then a vertical wavy line terminated by a rosette then part of a vine leaf. Though partial, the decoration is similar to a bowl from Alcester (Hartley *et al.* 1994, fig. 53, no. 292) attributed to *Arcanus*. The large vine leaf is not in the repertoire listed in Rogers (1999). AD 120-140.

73. 6922 (Phase 1c). Dr.37 with a partial intra-decorative stamp by *Austrus* (see no. 232). Ovolo B18, head of panther Os.1537 and leaf J143. What remains of the decoration and the position of the stamp are similar to another stamped bowl from Exeter (Stanfield and Simpson 1990, pl. 95, no. 11). AD 120-145. Fig. 183

74. 5084 (Phase 1a). Dr.37, blurred ovolo, leaping lion, little leaf J143 like-possibly by *Austrus*. Hadrianic.

75. Joining sherds from 6763 (Phase 1b). Dr.37 in the style of *Austrus*. The fabric is pale and the slip quite matt and brown. Two festoons each containing a different putto (Os.403 and 405) with little circles on either side and rosette C54 and detail T37 at intersection of beaded line. To the left of the festoon is what seems to be a lion though the one used by *Austrus* is different. Possibly part of the same bowl as Cat. no. 76. AD 120-145. Fig. 183

76. Joining sherds from 6763 (1, Phase 1b) and 7834 (1, Phase 1a). Additional sherds from 6763 (2, Phase 1b) and 5121 (1, Phase 1d). Dr.37 with ovolo B114, beaded line border, leaf J167 and the head of what looks like a horse (or deer) running right on the joining sherds, one additional sherd from 6763 have the same ovolo and the same animal head, the other fragment from 6763 has the back legs, tail and two examples of J167. Finally the sherd from 5121 has another type of animal, possibly the same lion as the one on no. 75 and rosette C54. Neither of the animals can be confidently matched with the ones in the known corpora (Oswald, Rogers, or Déchelette). The fabric is similar to no. 75, pale and with a brown slip. AD 120-145. Fig. 183

77. Two joining sheds from 8433 (Field 61A, Phase 1i). Dr.37. The panel contains two examples of vine scroll M23, the beaded line is terminated by detail T37 and has an astragalus placed diagonally across it, both typical of *Austrus* (Rogers 1999, pl. 95, no. 14). AD 120-145. Fig. 183

78. 5002 (Phase 3c). Dr.37 with an infra-decorative signature by *Acaunissa* (see no. 256). Double circle medallions separated by motif Q36 with rosettes on either side (C249?). The figures inside the medallions are unclear. AD 125-150. Fig. 183

79. 6922 (Phase 1c), Dr.37 in the style of *Acaunissa*. The ovolo is B22. Little of the decoration remains but the two small rosettes were used by *Acaunissa* (C249?) and similar to the ones on the signed example (see no. 77). A bowl from Colchester (Bird 1999, no. 771) has the ovolo and rosettes. AD 125-150.

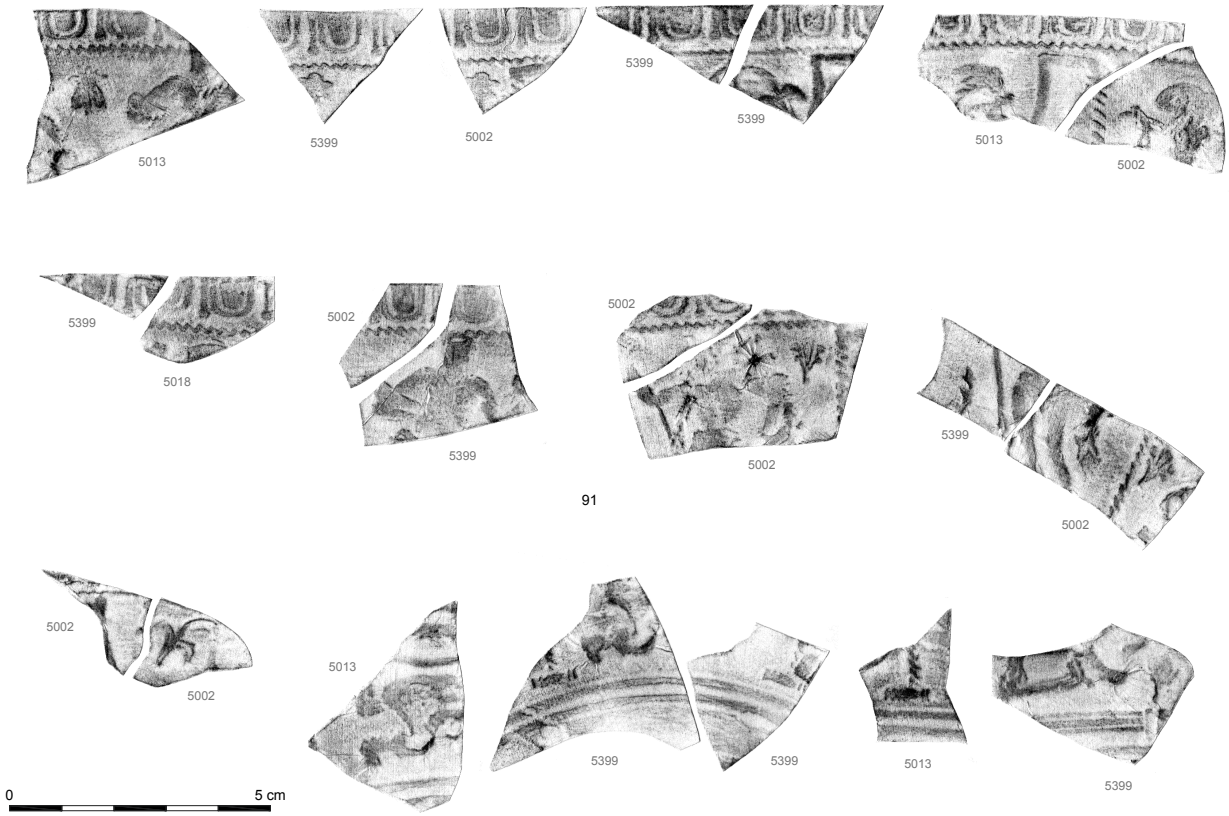


Figure 185: South Gaulish samian rubbings, Lezoux (Cat. no. 91)

80. 5071 (Phase 1d). Dr.37 with partial infra-decorative signature by *Geminus iv* (see no. 259). Not much of the decoration survives; a wavy line and a rosette (C297) both used by *Geminus* in that manner (Stanfield and Simpson 1990, pl. 65, nos. 4 and 14). AD 120-145. Fig. 183

81. 5031 (Phase 3b). Dr.37, burnt. The vine leaf and bird design is M10, the rosette (C28?) at the end of the beaded lines looks like the one used by *Geminus iv* (Rogers 1999, pl. 44). AD 120-145.

82. 7222 (Phase 1). Dr.37, dancer Os.353 between two wavy lines one of which is terminated by a rosette, C297. *Geminus iv*. AD 120-145.

83. 6835 (Field 64, Phase 3). Dr.37, column P85, detail Q4 probably, beaded line and rosette (C28?)-*Geminus iv*. AD 120-145.

84. 5628 (Phase 3b). Dr.37. Little of the decoration remains, the feet of a scholar possibly, a wavy line terminated by a small rosette. Hadrianic.

85. 8005 (Field 61A, Phase 5). Dr.37, ovolo B32, wavy line border and a row of little heads in small medallion as on Rogers 1999, pl. 135, no. 11. The head is probably the one drawn by Rogers as R.3096 (1999, 491) though the hair-style is clear and more akin to Os.1339. B32 and R.3096 are recorded for anonymous potter X-6B (Rogers 1999, 317). AD 125-150. Fig. 184

86. Joining sherds from 5035 (1, Period 1c) and 6965 (1, repaired, Period 1b). Additional sherds from 5035 (1, Period 1c) and 6965 (1, Period 1b). Dr.37, ovolo B32, wavy line border and a panelled decoration with two festoons remaining. Each festoon is topped by a trifid motif (G32) on one side and contains a dolphin, one facing right R.4014 and one facing left R.4015. All of these are known for anonymous potter X-6B (Rogers 1999, 317). AD 125-150. Fig. 184

87. Two joining sherds from 5069 (Phase 1d). Additional sherd from 5062? (Phase 1c). Dr.37, ovolo B2, wavy line border and a panelled decoration separated by a beaded line topped with trifid motif G32. The figures in the panel are R.3081 a variant of Os.13, seated Bacchus Os.571 and Diana and deer Os.106. B2 and G32 are recorded for anonymous potters X-6A and X-6C/*Catullus* (Rogers 1999, 316-9), Os.571 and R.3081 for X-6B, Os.106 for X-6A and Os.571 recorded for X-6C/*Catullus*. AD 125-150. Fig. 184

88. Joining sherds from 5035 (1, repaired, Phase 1c) and 5084 (1, Phase 1a). Dr.37, basal wreath of trifid motif G32 and free style decoration with running hare (Os.2129A?). A bowl attributed to X-6C has both the wreath and the hare (Rogers 1999, pl. 135, no. 10). Possibly part of the same vessel as no.90. AD 125-150.

89. 5238 (Phase 1a), Dr.37, ovolo B35 recorded for X-6C/*Catullus* (Rogers 1999, 318). AD 125-150. Fig. 184

90. 5998 (Phase 1). Dr.37, only the ovolo remains, B32. Possibly part of the same vessel as no. 88. AD 125-150. Fig. 184

91. Joining sherds from 5018 (1, Phase 3c) and 5399 (1, Phase 1d), joining sherds from 5002 (4, Phase 3c) and 5399 (5, Phase 1d), joining sherds from 5002 (1, Phase 3c) and 5013 (1, Phase 5). Additional sherds from 5002 (3, Phase 3c), 5013 (2, Phase 5) and 5399 (2, Phase 1d). Dr.37, all burnt, repaired. *Quintilianus* group. The ovolo is B74, the border a wavy line. Two fragmentary festoons are visible each with a dolphin (tail of Os.2392 and head and tail of Os.2385). The decoration towards the base of the vessel shows erotic group Os. K and seated lyre player Os.84 (as on Rogers 1999, pl. 92,

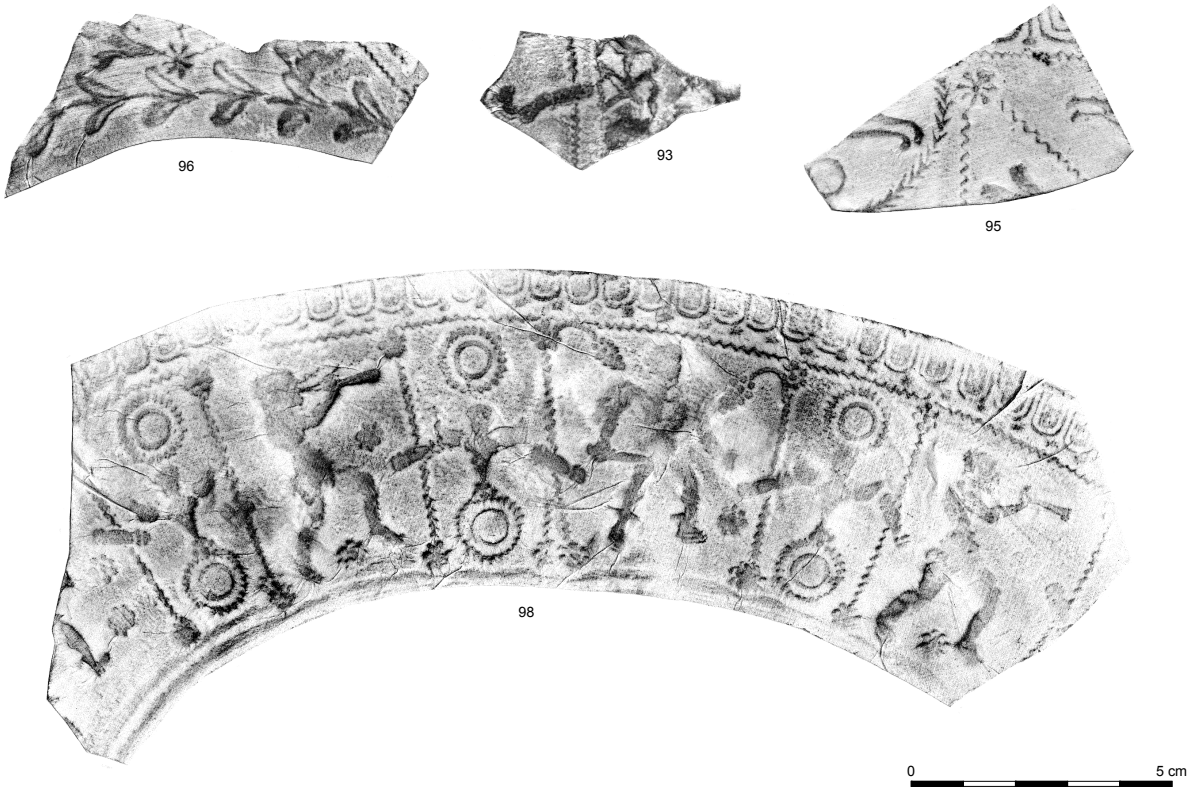


Figure 186: South Gaulish samian rubbings, Lezoux (Cat. nos. 93, 95, 96, 98)

no. 14) on top of column P43 (as on a stamped bowl on Rogers 1999, pl. 92, no. 7). The standing figure with a staff in his right hand seems to have straight legs and not crossed ones as on Os.581. It could be Dé.88 or a new type. Several examples of a small version of leaf G259 are used throughout the decoration. AD 125-155. Fig. 185

92. 5596 (Phase 1c). Dr.37, Burnt and with a rivet in situ just below rim. *Quintilianus* group. The ovolo is B28 and it is here associated with a wavy line border. The bifid motif is G359 and the fragmentary festoon is probably F42. AD 125-155.

93. 5121 (Phase 1d). Dr.37, pale fabric. Part of Q39, wavy line with an astragalus set across it and a leaf (K37?) close to the astragalus. *Quintilianus* group. AD 125-155. Fig. 186

94. 5027 (Phase 3c). Dr.37. The rosette with seven large well-spaced dots is C282 used by the *Quintilianus* group *Ianvaris i* in particular (Stanfield and Simpson 1990, pl. 69, no. 16). AD 125-155.

95. 5046 (Phase 3b). Dr.37, ovolo B206 and wavy line border. *Quintilianus* group. Two panels are extant, one contains festoon F15 with the back legs of a dog with a small circle; the next panel is divided diagonally by wavy lines with eight petal rosette (C172) at junction. Trifid motif G164 is visible in one of the sub-panels. Possibly the same bowl as Cat. no. 96. AD 125-155. Fig. 186

96. Sherds from 6922 (1, Phase 1c) and 7004 (1, Phase 1c). Dr.37. *Quintilianus* group. Both fragments display the same basal wreath of bifid motif G289. Little of the decoration survives, an eight petal rosette (C172) at the junction of a wavy line and a trifid motif possibly G164. Possibly the same bowl as Cat. no. 95. AD 125-155. Fig. 186

97. 7657 (Phase 1a). Dr.37 with a panelled decoration with festoon F15 with a small circle in the corner of the panel on top of another small panel with the tail of what seems to be a cockerel. The next panel contains standing naked man Os.651 on top of leaf K11. With the exception of the cockerel these motifs point to the *Quintilianus* group though the astragalus at the junction of the beaded lines is more typical of *Laxtucissa* (Rogers 1999, pl. 62, no. 27). AD 125-160.

98. 7740 (Phase 1a). Dr.37, a large part of the decoration survives and shows ovolo B28, a wavy line border on top of panelled decoration separated by a wavy line terminated at each end by a rosette (C281) and with an astragalus placed diagonally across it. The panels alternate a little sphinx (Os.863) framed by two rosettes (C290) with two figured types, flute player Os.610 and warrior Os.188 (here the second sword in his left hand does not show) with grape motifs M36 and 37. The style is very close to the *Quintilianus* group, particularly *Ianvaris i* (Stanfield and Simpson 1990, pl. 69, no. 9). AD 125-155. Fig. 186

99. 5596 (Phase 1c). Dr.37, basal wreath of small bifid motif and vine leaf M27. Probably by the *Quintilianus* group. AD 125-155.

100. 5224 (Phase 1d). Dr.37, ovolo with rosette and a very fine beaded line border, serpentine motif (U251??), a lion and gladiator, probably Os.1024. The gladiator was used by *Avitus*, *Geminus,* and *Secundinus ii* (Rogers 1999, pl. 105, no. 13). The ovolo is more like B18, the *Austrus* ovolo. Hadrianic.

101. 5230 (Phase 1a). Dr.37, burnt. From lower part of the decoration with leaf H96 used by X-5 and X-9. The fabric is burnt black but more typical of Lezoux than Les Martres-de-Veyre, the absence of rosette at the

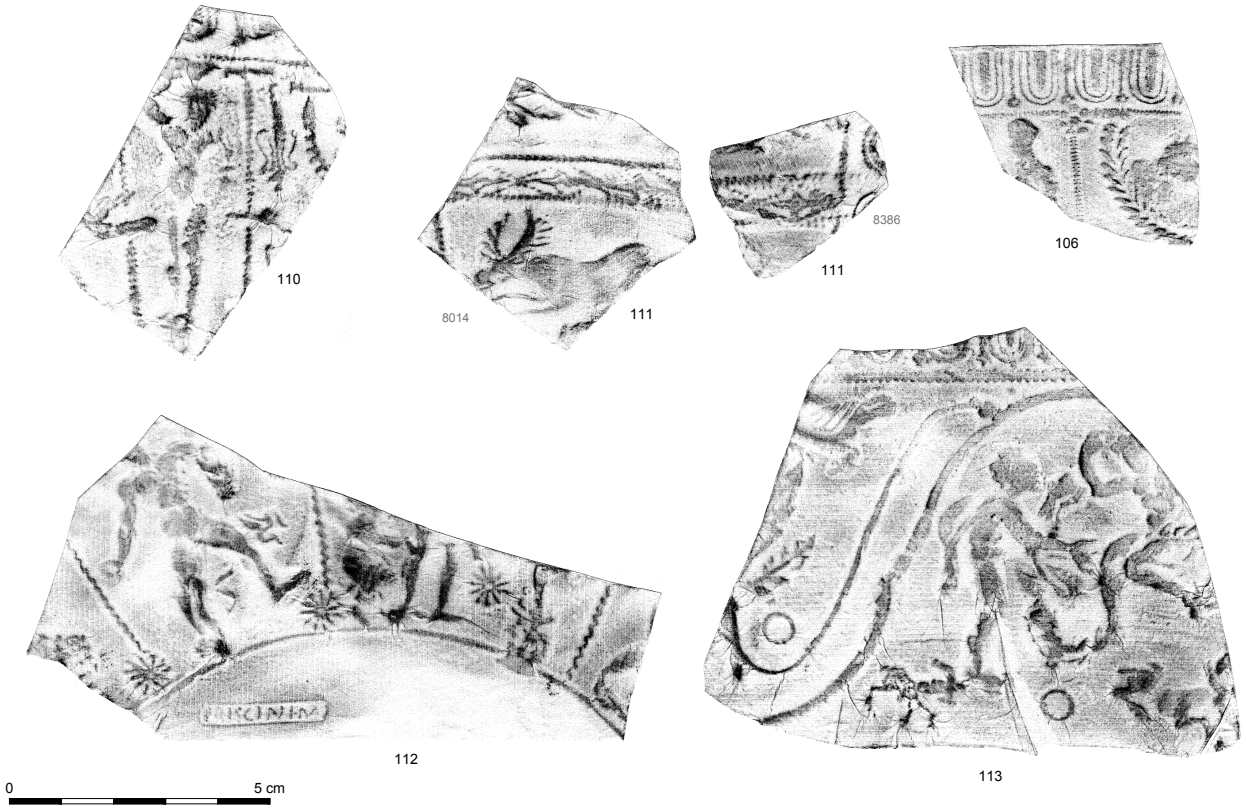


Figure 187: South Gaulish samian rubbings, Lezoux (Cat. nos. 106, 110, 111, 112, 113)

termination of the wavy line would suggest X-5 rather than X-9. The tail and back leg of what seems to be a dog, possibly Os.1979 or 1980 (the tail is curved, more so than on lion Os.1457 used by X-9) does not help deciding between the two since it is registered for neither. Hadrianic.

102. 7152 (Phase 1b). Dr.37, two small festoons, probably F70, are visible with a wavy line beneath. This festoon is used by a number of potters (Rogers 1974, 80) but the wavy line is perhaps more typical of X-5. Hadrianic.

103. 8014 (Field 61A, Phase 5). Dr.37. The gladiators are Os.1001 and 1002 both used by the large S potter (Stanfield and Simpson 1990 pl. 76, nos. 31 and 32) who also uses the small circle. A bowl by this potter from Castleford *vicus* has a similar panel (Dickinson and Hartley 2000, fig. 35, no. 1015). AD 125-140.

104. 8335 (Field 61A, Phase 1ii). Dr.37. Not much of the decoration survived, a beaded line terminated by a rosette possibly C278 a motif used by a number of potters particularly *Avitus*, *Drusus ii* and *Vegetus*. Circles are visible on either sides of the beaded line. Hadrianic.

105. 8335 (Field 61A, Phase 1ii). Dr.37. Too little of the decoration remains to identify this piece fully. Probably Hadrianic.

106. 5300 (Phase 3b). Dr.37 in the style of *Birrantus ii*. The festoon is probably F42, the ovolo B108 with a very finely beaded border and a rosette at intersection, see Stanfield and Simpson 1990, pl. 90 for the beaded line, rosette, festoon and ovolo. AD 130-150. Fig. 187

107. Sherds from 5045 (1, Phase 3c) and 5629 (1, Phase 3b). Dr.37, with the same finely beaded line, hare and ovolo. The very finely beaded line is typical of *Birrantus ii*, the ovolo however is not and more akin to the one used by *Drusus ii* who also uses the beaded line and the medallion (Rogers 1999, pl. 42, no. 1). The hare is probably Os.2057A. AD 130-150.

108. 5321 (Phase 3). Dr.37 with half of a circular repair hole. Not much of the decoration survives but a little cupid (possibly Os.403A) with two vertical beaded lines to his left with an astragalus placed across them. *Docilis* uses such double beaded lines (Stanfield and Simpson 1990, pl. 91, no. 3) and the cupid is known for him (Rogers 1999, 116). AD 130-155.

109. 5035 (Phase 1c). Dr.37. Leaf J161 and a cockerel similar to Os.2361 though here two legs are visible and leaf G145. *Docilis* probably. AD 130-155.

110. 8002 (Field 61A, Phase 5). Dr.37, *Docilis*. The fabric is extremely pale and the slip dull brown. The decoration is panelled with Os.599 between two beaded lines each with what appears to be a little bird placed diagonally across them (as on Rogers 1999, pl. 39, no. 4). The next panel is partial but shows leaf G142 used as a tassel near a small festoon, possibly F71. AD 130-155. Fig. 187

111. Sherds from 8014 (Field 61A, Phase 5) and 8386 (field 61A, Phase 2). Dr.37, *Docilis*. Stag Os.1777 and line of diamonds U28 between two beaded lines, fragmentary double circle medallions are visible on the fragment from (8386) (Stanfield and Simpson 1990, pl. 93, no. 17 and fig. 24, no. 7). AD 130-155. Fig. 187

112. 5234 (Phase 1a), Dr.37, with an infra-decorative stamp by *Priscinus i* (see no. 243) applied to the bowl before firing. *Priscinus i* was a bowl-maker and used moulds made by other potters. This example has however none of the usual figured types for either of the mould-makers usually associated with *Priscinus i*, *Quintilianus,* and *Austrus*. The first panel shows satyr Os.673 but slightly larger and without the wreath which could be a motif added to the figure by the mould-maker, the second panel is larger and shows

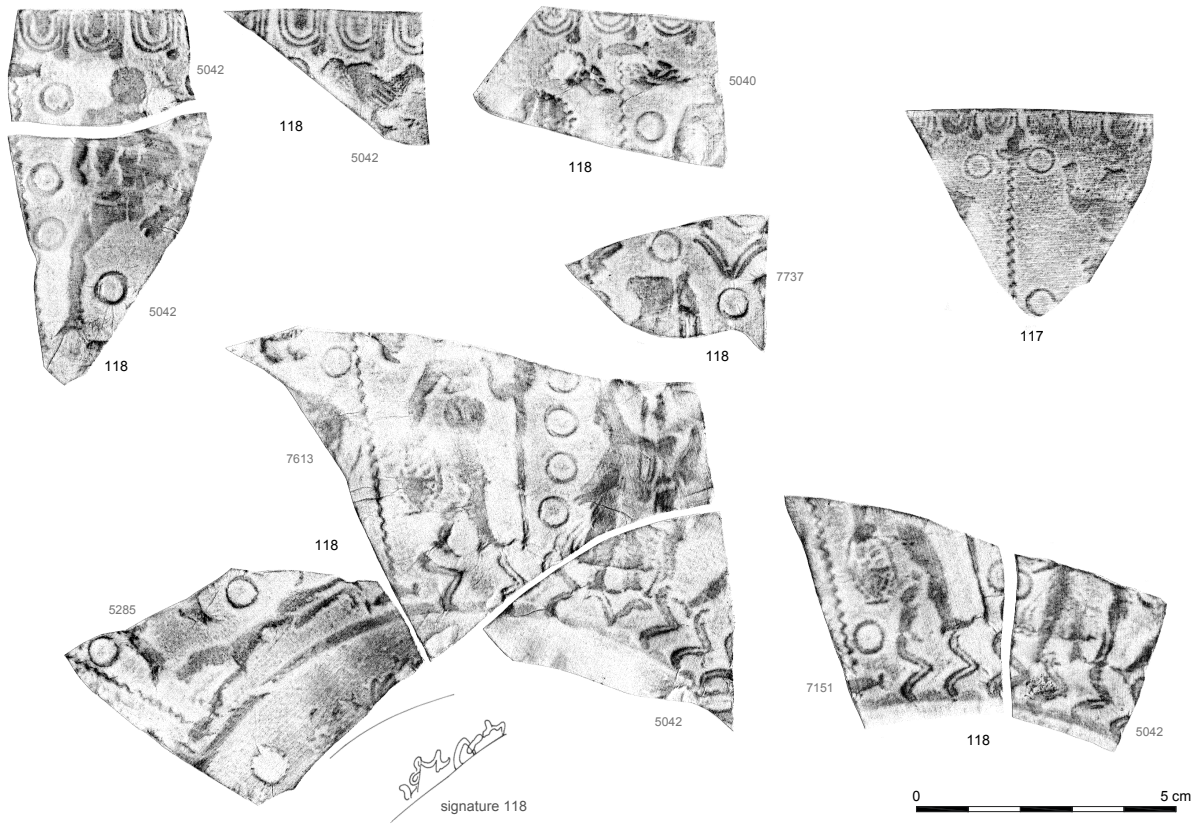


Figure 188: South Gaulish samian rubbings, Lezoux (Cat. nos. 117, 118)

warrior and suppliant Os.238 and the base of a caryatid. The rosette used as a terminal at the end of the wavy line and between the two figured types on the second panel looks like C227 used by a number of potters but *Carantinus*, *Quintilianus,* and *Avitus* in particular. The rosette, Os.238 and a caryatid were used by *Carantinus ii* (Rogers 1999, pl. 23, nos. 1 and 7) but not the satyr. Early Antonine. Fig. 187

113. 5031 (Phase 3b). Dr.37, ovolo B17 and beaded line border with a scroll decoration. The scroll is more characteristic of *Attianus* and *Sacer*'s styles but two of the figured types, Os.3 and Os.689 are more characteristic of *Paternus iv* (Rogers 1999) who also uses this ovolo. Goat Os.1836 and bird Os.2297 are used by the three potters, the deer, Os.1704, by *Attianus* and *Paternus iv*. The leaf is partial but could be H23 used by *Sacer* and *Attianus*. Hadrianic-early Antonine. Fig. 187

114. 5068 (Phase 3c). Dr.37, two sherds with ovolo B17, a beaded border and a bird's tail. This ovolo and a similar bird facing right is on a bowl attributed to *Paternus iv* (Rogers 1999, pl. 80, no. 81). This bowl could be part of the same vessel as no.113, the fabrics are very similar. Hadrianic-early Antonine.

115. 6667 (Phase 1d). Dr.37. Basal wreath of bifid motif with two figured types, draped woman with cup and eonochoe Os.909 (Dé.545a) and Os.595 separated by a column (P39). The bifid motif could be G328 used by anonymous potter X-6A, the column and the draped woman are however unknown for him. P39 points towards the *Quintilianus* group but neither of the figured-types is known for him or his associates. The draped woman with cup and eonochoe Os.909 is on an unpublished bowl from Carlisle (CAR80, KLA, C1188-695). Hadrianic.

116. 5577 (Phase 3a). Dr.37. Not much of the decoration remains, a serpentine motif possibly U282 more characteristic of Les Martres-de-Veyre. The fabric is however from Lezoux. AD 120-140.

117. 5027 (Phase 3c). Dr.37, with a lead rivet in situ. Probably by *Pugnus ii*. The ovolo is B41 and there is no line below the ovolo, a characteristic trait of *Pugnus'* first style (Rogers 1999, 203). For the trifid motif used as a terminal of wavy line see Rogers 1999, pl. 91, no. 4 (G109?). The figure could perhaps be a small version of Os.147A. AD 130-150. Fig. 188

118. Joining sherds from 5040 (1, Phase 1c) and 5295 (1, Phase 3d), joining sherds from 5028 (1, Phase 3c) and 5040 (1, Phase 1c), joining sherds from 5042 (1, Phase 1d), 5285 (1, Phase 1d) and 7613 (1, Phase 1b), joining sherds from 5042 (1, Phase 1d) and 7151 (1, Phase 1b). Additional sherds from 5042 (3, Phase 1d) and 7737 (1, Phase 1c). Dr.37, burnt and repaired in several places. *Pugnus ii*, with partial infra-decorative signature upside-down below the decoration (see no. 260). This vessel presents several of the traits identified by B. Dickinson as characteristic one of the two styles associated with the *Pugnus ii* signature, the one associated with ovolo B233 (2005b, pl. 103). A large part of the decoration is extant with a panelled decoration divided by a wavy line terminated at each end by an example of astragalus R63. The first panel on the left contains Hercules with lion Os.796, dog Os.1980 and possibly bird Os.2239 which is as yet unrecorded with this ovolo (*op. cit.*, table 2b), the next panel contains slave with basket Os.595, a vertical row of small circles and Diana Os.103A. The basal wreath of bifid motifs (G280?) only partially surrounds

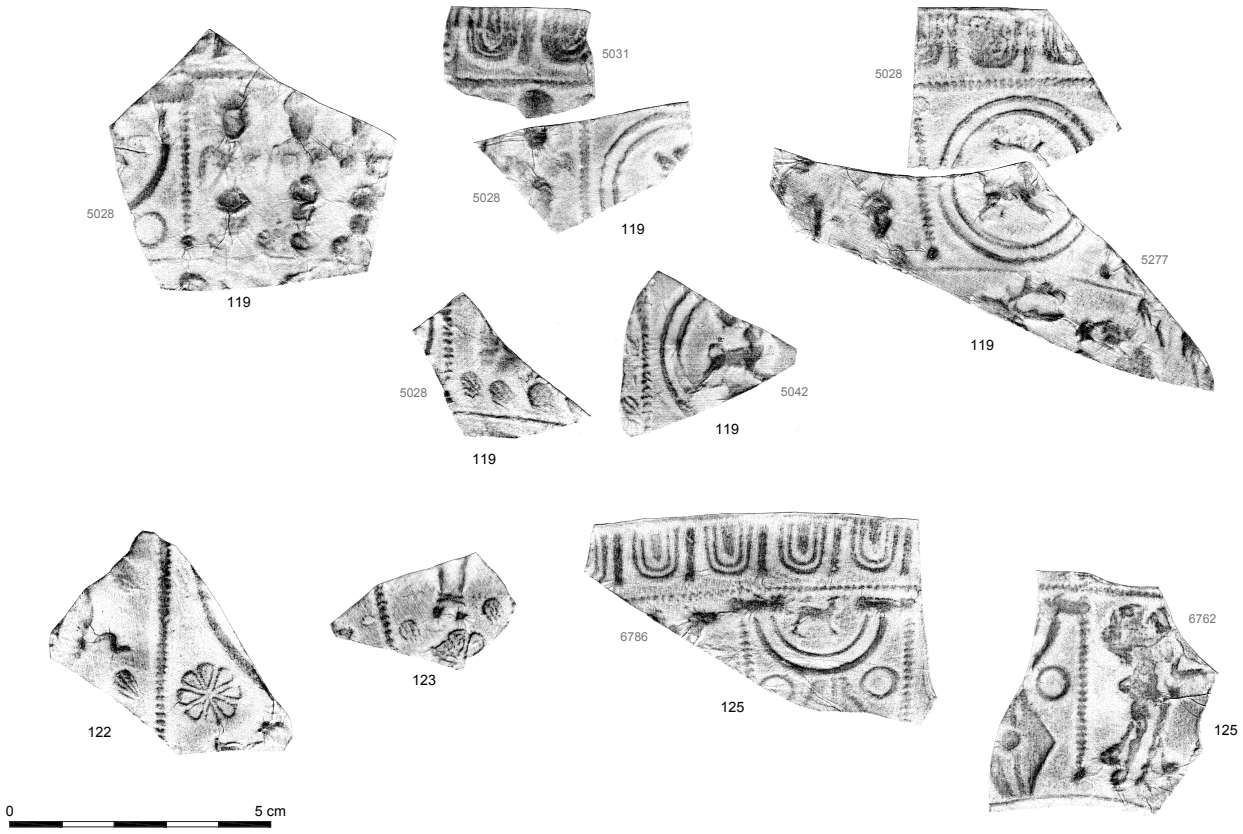


Figure 189: South Gaulish samian rubbings, Lezoux (Cat. nos. 119, 122, 123, 125)

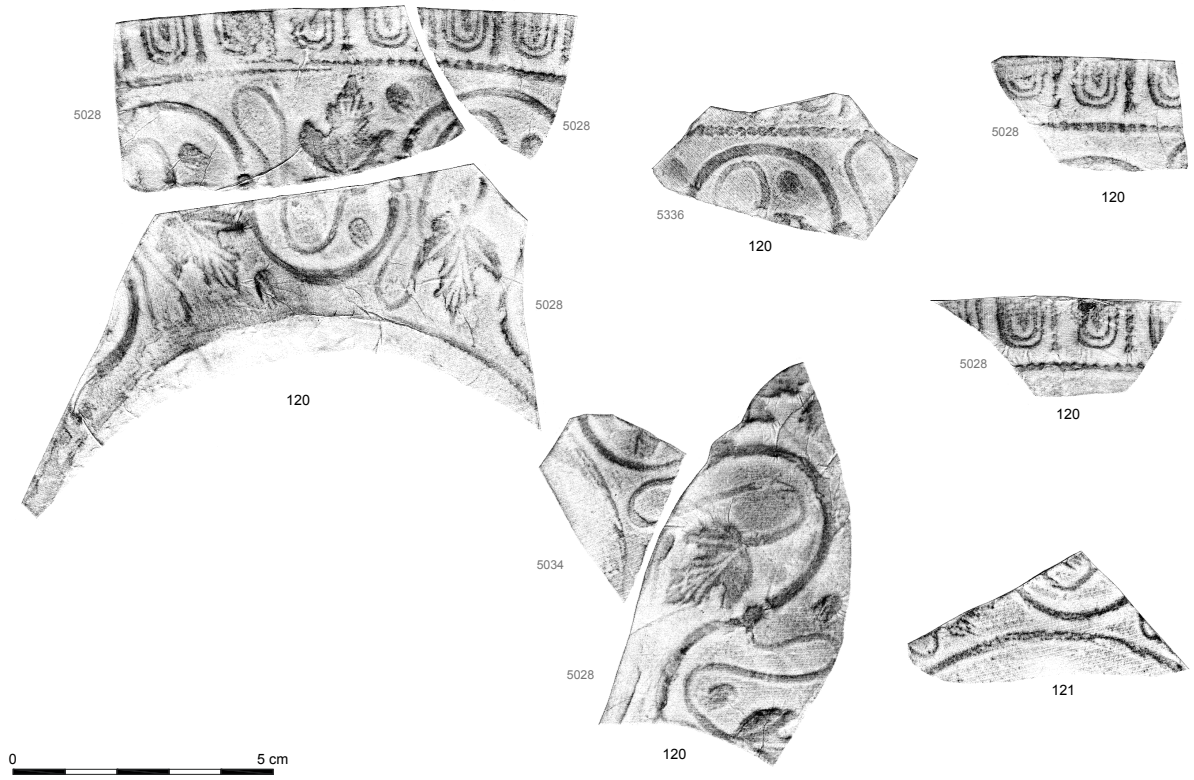


Figure 190: South Gaulish samian rubbings, Lezoux (Cat. nos. 120, 121)

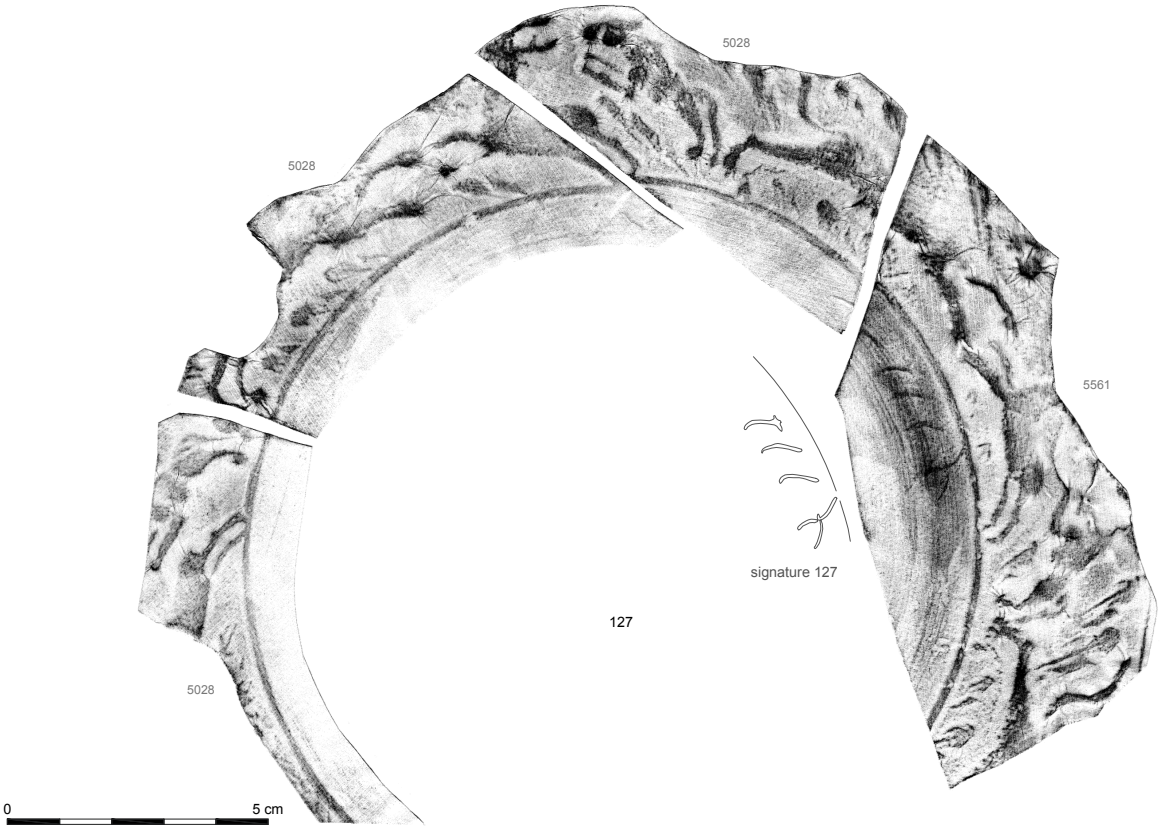


Figure 191: South Gaulish samian rubbings, Lezoux (Cat. no. 127)

the bowl. AD 135-160. Fig. 188

119. Joining sherds from 5028 (1, Phase 3c) and 5277 (1, Phase 3b), joining sherds from 5028 (1, Phase 3c) and 5031 (1, Phase 3b). Additional sherds from 5028 (2, Phase 3c) and 5042 (1, Phase 1d). *Cinnamus-Cerialis*. Dr.37, the ovolo is probably B144 but blurred. Panelled decoration with small double medallion with winged centaur Os.735A on top of small stag Os.1781 and a panel filled with several examples of the same head and torso figure type. A line of leaf tips J178 is visible below the torsos. The medallion, winged centaur, ovolo and leaf tip are on similar bowls from the Castleford *vicus* shop group (Dickinson and Hartley 2000, no. 289, 292). AD 135-170. Fig. 189

120. Joining sherds from 5028 (4, Phase 3c) and 5034 (1, Phase 1c). Additional sherds from 5028 (2, Phase 3c) and possibly 5336 (1, Phase 3b). Dr.37, ovolo B144 and a scroll with leaf H99 and leaf tip from J178. *Cerialis-Cinnamus*, AD 135-170. Fig. 190

121. 7365 (Phase 1a). Dr.37. Not much of the decoration survives but it is apparently the same scroll as the one on D120 with little leaf tip J178. There are no joins between D120 and 121; they probably constitute two different vessels made from the same mould. *Cerialis-Cinnamus*, AD 135-170. Fig. 190

122. 7167 (Phase 1d). Dr.37. Rosette C53, leaf tips from J178 and the tail of a boar? *Cerialis-Cinnamus*, AD 135-170. Fig. 189

123. 8452 (Field 61A, Phase 1i). Dr.37, rosette C53, leaf tips from J178, base of Os.711. *Cerialis-Cinnamus*, AD 135-170. Fig. 189

124. 5042 (Phase 1d). Dr.30 with tail of sea-horse Os. 42, leaf tips possibly from J178 and beaded line. *Cerialis-Cinnamus*, AD 135-170.

125. Sherds from 6762 (1, Phase 1b) and 6786 (1, Phase 1, Field 64). Dr.37, ovolo B144 probably, panelled decoration with a festoon with a little animal on top of shield motif U210 flanked by two small circles in a first panel and woman Os.819A in the other. *Cerialis-Cinnamus*, AD 135-170. Fig. 189

126. Sherds from 5017 (1, Phase 3c) and 5068 (1, Phase 3c). Dr.30, ovolo B144, little medallion E17 with bird Os.2115 and little naked man Os.688 in the first panel then a large festoon on top of eagle Os.2167. *Cerialis-Cinnamus*. AD 135-170.

127. Joining sherds from 5028 (3, Phase 3c) and 5561 (1, Phase 3b). Dr.37 with infra-decorative signature by *Ves-* (see no. 261). The signature is associated with a freestyle decoration with three animals repeated around the bowl: bear Os.1627, stag Os.1781 and what appears to be a leaping leopardess (probably R4034 as on a bowl by *Cinnamus* on Rogers 1999, pl. 34, no. 71). The tip of a large leaf seems to have been used as space filler, possibly H22 as on nos. 133 and 134, apparently a characteristic of this potter (Hartley and Dickinson 2012, 218). AD 135-155. Fig. 191

128. 5121 (Phase 1d), Dr.37, two joining sherds with draped woman Os.126A and leaf tip from J178. *Cinnamus-Cerialis*. AD 135-170.

129. 5001 (Phase 5), Dr.37, ovolo B144, the tail and mane of lion attacking boar Os.1491, here again the tip of leaf H22 is used as a space filler. All of these motifs appear on several bowls from the Castleford *vicus* shop group in the *Cinnamus-Cerialis* style (Dickinson and Hartley 2000, nos. 340 and 389). AD 135-170.

130. 5031 (Phase 3b), Dr.37, ovolo B144 and probably the mane of lion attacking boar Os.1491. *Cinnamus-Cerialis* style. AD 135-170.

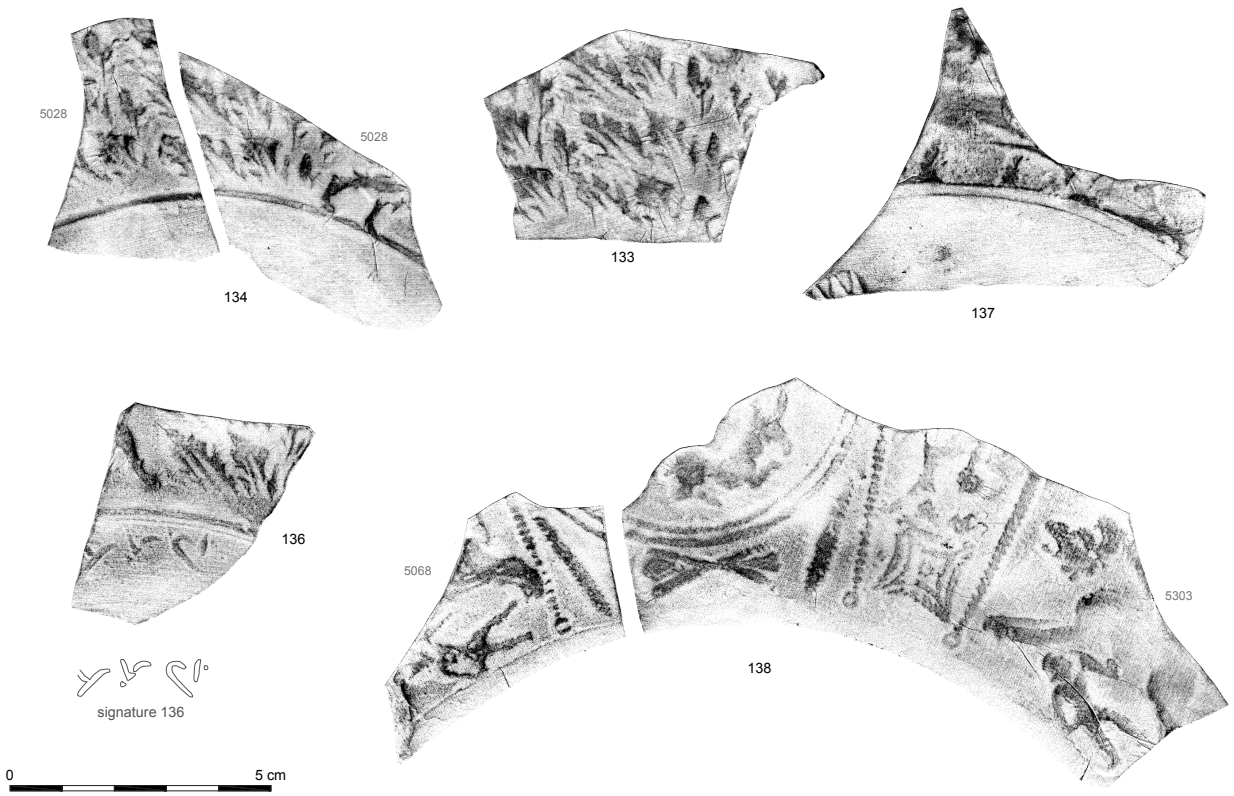


Figure 192: South Gaulish samian rubbings, Lezoux (Cat. nos. 133, 134, 136, 137, 138)

131. 5035 (Phase 1c). Dr.37, the ovolo is probably B144. Panelled decoration with hare Os.2061 (not listed for *Cinnamus*) in a simple medallion, seated figure with lyre Os.83 flanked by two small circles and possibly eagle Os.2167 in the third panel on the right. A similar decoration of the lyre player and circles is in the Castleford *vicus* shop group (Hartley nd, GSV0 74). *Cinnamus-Cerialis*. AD 135-170.

132. 7729 (Phase 1a). Dr.37, The ovolo is B144, scroll decoration with partial remains of leaf H21(?) and bird Os.2252. The fabric and the slip are more orange than red. *Cinnamus-Cerialis*. AD 135-170.

133. 5042 (Phase 1d), Dr.37, burnt, not much of the decoration remains but several examples of the tip of a large leaf, probably H22, used as space filler. This type of decoration is found on a number of *Cinnamus-Cerialis* bowls in the Castleford *vicus* shop group (Dickinson and Hartley 2000, nos. 339, 340, and 389). AD 135-170. Fig. 192

134. Two joining sherds from 5028 (Phase 3c). Dr.37, as on the last bowl, a large leaf is partially impressed several times to fill the space. AD 135-170. Fig. 192

135. 5084 (Phase 1a). Dr.30, the beaded tongue of B144 is just visible. The rest of the decoration, a vertical row of small circles between two beaded lines, though not distinctive, is consistent with the work of *Cinnamus-Cerialis*. AD 135-170.

136. 5019 (Phase 5). Dr.37 with a partial infra-decorative signature from an unknown potter (see no. 262). Not much of the decoration survives, the leg of a figured type and possibly the top of leaf H24 used as a space filler. Probably *Cinnamus*. AD 135-180. Fig. 192

137. 5019 (Phase 5). Dr.37 with a stamp applied on the bowl below the decoration before firing by an unknown potter (see no. 249). Little of the decoration remains, what appears to be examples of leaf J178 used by *Cerialis* and *Cinnamus*. AD 135-170. Fig. 192

138. Joining sherds from 5068 (1, Phase 3c) and 5303 (1, Phase 1b). Dr.37. Four panels are visible though the first and fourth ones are similar. The first and fourth panel show boar Os.1666 on top of little gladiator Os.1059, the second panel has a large medallion with stag Os.1704 on top of two trifid motifs (G29?) and a corded motif which is on Stanfield and Simpson 1990, fig. 47, no. 4. The next panel shows the feet of a scholar (?) on top of a diamond motif. The diamond motif is not illustrated in Rogers 1974 but a stamped bowl by *Cinnamus* from Alcester has a similar diamond (Hartley *et al*. 1994, fig. 53, no. 291). AD 140-180. Fig. 192

139. Sherds from 5001 (3 including 2 joining, Phase 5) and 5028 (1, Phase 3c). Dr.37 with internal wear. Panelled decoration with hare Os.2115 in a medallion and two trifid motifs below. The trifid motif is possibly new or the one on a bowl from Castleford *vicus* (Dickinson and Hartley 2000, fig. 35, 1013) in which case it is H109. Cornucopia U245 is visible in the panel to the left. AD 140-180.

140. Joining sherds from 5399 (1, RF283, Phase 1d), 5399 (1, Phase 1d) and 6762 (1, Phase 1b). Joining sherds from 6762 (1, Phase 1b) and 7566 (2, Phase 1c). Additional sherds from 5399 (1, RF 283, Phase 1d) and 5013 (1, Phase 5). Dr.37, burnt, abraded and repaired. *Cinnamus*. Ovolo B143 or 144, in-filled scroll alternating animals with a large leaf. Griffin Os.864 inhabits the first loop of the scroll then leaf H22 flanked by birds Os.2251 and 2298. The tail of

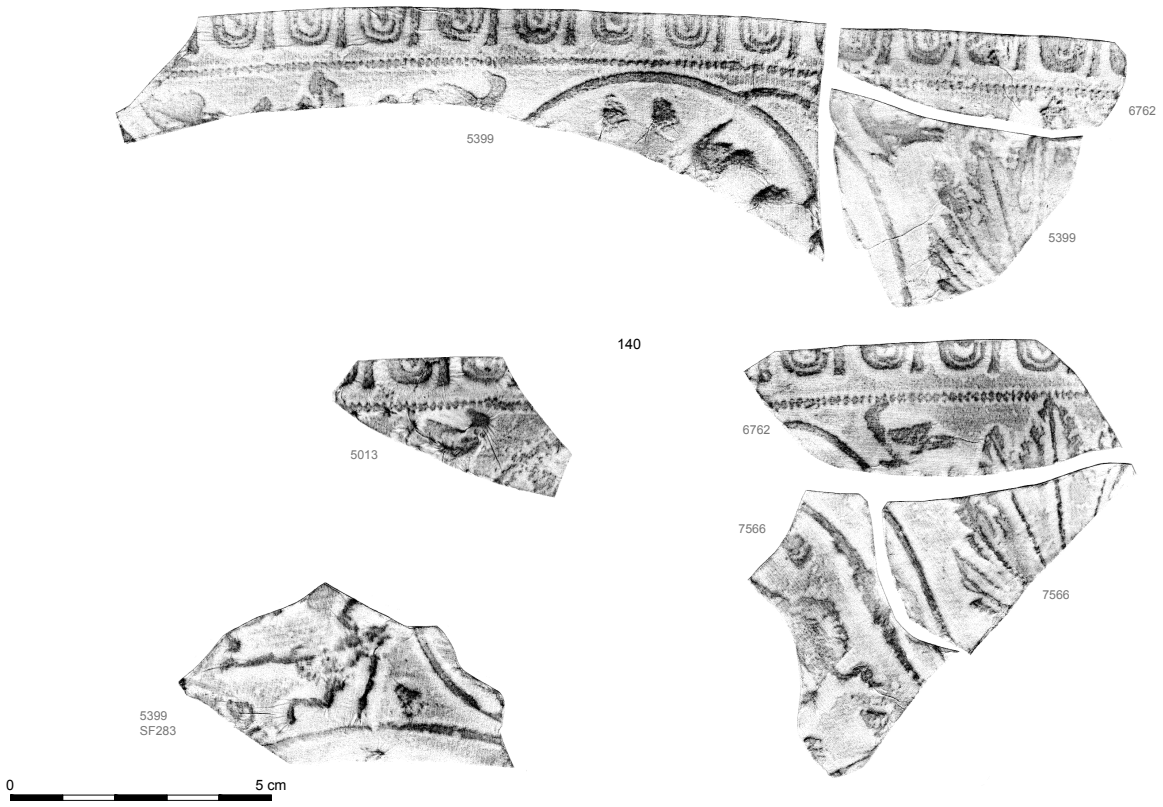


Figure 193: South Gaulish samian rubbings, Lezoux (Cat. no. 140)

a boar, possibly Os.1666, is visible in the other loop, again with the leaf and the birds. Little warrior Os.177 only appears on one sherd but seems located under the leaf. AD 140-180. Fig. 193

141. 5031 (Phase 3b). Dr.37, burnt. Ovolo B144 and beaded line border. Little leaf tip from J178 and the top of a larger leaf which is difficult to match to Roger's types. Probably part of a bowl by *Cinnamus-Cerialis*. AD 135-170.

142. 5035 (Phase 1c). Dr.37. Two fragments with ovolo B144 and beaded line border. Probably part of a bowl by *Cinnamus-Cerialis*. AD 135-170.

143. Four sherds from 5071 (Phase 1d). Dr.37 sherds all with ovolo B144 or 143. One fragment shows a partial little medallion E17. Another shows the top of a figured type perhaps Os.382. *Cinnamus*. AD 140-180.

144. 7227 (Phase 1a). Dr.37, burnt. The ovolo is B144 and the top of a scroll decoration is visible though without any distinctive motif. *Cinnamus-Cerialis*. AD 135-170.

145. 5062 (Phase 1c), Dr.37. Fragmentary scroll with no distinctive detail. Antonine.

146. 6763 (Phase 1b), Dr.37. Partial ovolo, possibly B143 or 144 and scroll. Antonine.

147. 7081 (Phase 1d), Dr.37. Ovolo B143 or 144 and top of a scroll. *Cinnamus*. AD 140-180.

148. 5046 (Phase 3b). Dr.37, scroll with large leaf H51. Probably by *Cinnamus*. AD 140-180.

149. 8002 (Field 61A, Phase 5) and 8031 (Field 61A, Phase 2). Dr.37, two fragments with large leaf H51. Probably by *Cinnamus*. AD 140-180.

150. 5042 (Phase 1d). Dr.37, abraded. Ovolo B143 or 144. *Cinnamus*. AD 140-180.

151. 6762 (Phase 1b), Dr.37, two fragments with ovolo B143 or 144 *Cinnamus*. AD 140-180.

152. 7729 (Phase 1a). Dr.37 with ovolo B144. *Cinnamus-Cerialis*. AD 135-170.

153. 5028 (Phase 3c), Dr.37, abraded. Ovolo B143 or 144. *Cinnamus*. AD 140-180.

154. 6763 (Phase 1b). Dr.37, two joining fragments with ovolo B144. *Cinnamus-Cerialis*. AD 135-170.

155. 6922 (Phase 1c), Dr.37, abraded. Ovolo B143 or 144. *Cinnamus*. AD 140-180.

156. 5002 (Phase 3c). Dr.37 with ovolo B143 or 144 and bear Os.1588. *Cinnamus*. AD 140-180.

157. 6763 (Phase 1b). Dr.30, burnt. Fragmentary ovolo, B143 or 144. *Cinnamus*. AD 140-180.

158. 6922 (Phase 1c). Dr.37, partial scroll with bird Os.2239B, little circle and top of leaf H21. *Cinnamus*. AD 140-180.

159. 7227 (Phase 1a). Dr.30, burnt. Part of festoon, F40, a beaded line, two small circles and an unclear figured-type. *Cinnamus*. AD 140-180.

160. 5002 (Phase 3c). Dr.37, small diamond probably U33. *Cinnamus*. AD 140-180.

161. 5027 (Phase 3c), SF79. Dr.37. Repaired. Leaf K12-like with two small circles under the pedestal base of a caryatid. Probably *Cinnamus*. Antonine.

162. 5028 (Phase 3c). Dr.37, two joining sherds with Pan Os.718 facing a standing goat (Os.1852 but with a more detailed coat). Pan is unknown for *Cinnamus* but the goat is present in his work (Rogers 1999, pl. 30, no. 26). AD 140-180.

163. 5068 (Phase 3c). Dr.37, back legs of standing goat Os. 1852 and small circle as on Cat no. 161, possibly the same vessel. Antonine.

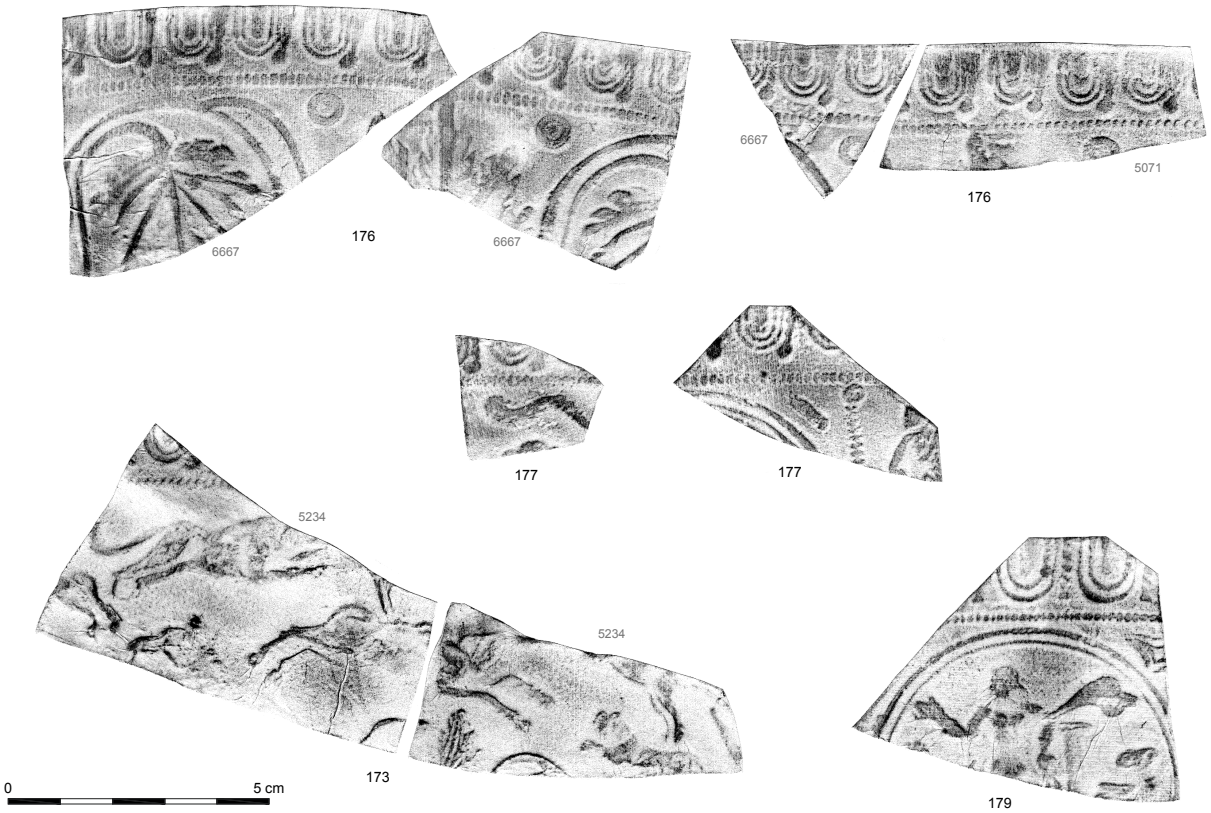


Figure 194: South Gaulish samian rubbings, Lezoux (Cat. nos. 173, 176, 177, 179)

164. 5289 (Phase 1b). Dr.37, panel with part of a large medallion with crouched stag Os.1704 and another panel with leaf K12. Probably *Cinnamus*. Antonine.

165. 5950 (Phase 1d). Dr.37, partial medallion with leaf K12, two trifid motifs below the medallions, probably G66. Probably *Cinnamus*. Antonine.

166. 5691 (Phase 3b). Dr.37 with a small scroll with heart-shaped leaf, probably J15, the fabric is extremely hard. J15 is found in the work of *Cinnamus* (Rogers 1999, pl.33, no. 55, 60). AD 140-180.

167. 5013 (Phase 5). Dr.37. Festoon with sea-horse Os. 42. The sea-horse was used by a number of potters, *Paullus* (Rogers 1999, pl. 81, nos. 1 and 2) and *Cinnamus* in particular (Rogers 1999, pl. 31, nos. 33 and 34; pl. 32, no. 43). Antonine.

168. 5001 (Phase 5). Dr.37. Similar festoon with sea-horse as no. 167, see comments for no. 167. Antonine.

169. 5396 (Phase 3b). Dr.37 with a large double circle medallion with Apollo with lyre Os.83 or 84 (L) since the bar at the bottom of the chair is clearly visible (Dé12?) and a tiny dolphin perhaps Os.2401. Os.83 in a similar medallion and beaded line are on a stamped bowl by *Cinnamus* from York (Dickinson 1997, no. 3458). AD 140-180.

170. 5034 (Phase 1c). Dr.37. Ovolo B144, beaded line border and the heads and shoulders of two similar figured types. The figured type is perhaps the same as on D119 though it appears slightly larger. Probably *Cinnamus-Cerialis*. AD 135-170.

171. 5027 (Phase 3c). Dr.37. The ovolo is probably B144. *Cinnamus-Cerialis*. AD 135-170.

172. 7081 (Phase 1d). Dr.37 with partial medallion and beaded line border. The medallion has a doubled beaded border and is perhaps E21 used by *Cinnamus* and *Criciro*. Antonine.

173. 5234 (Phase 1a). Dr.37, two joining sherds with a free style decoration with leopard Os.1507, stag Os.1720 and panther Os.1570. The ovolo is possibly B231 and for the leaf see Bird 1999, no. 834 and Rogers 1999, pl. 32, no. 45. *Cinnamus*. AD 140-170. Fig. 194

174. 5027 (Phase 3c). Dr.37, same leaf and stag as on no. 173, possibly the same bowl. *Cinnamus*. AD 140-170.

175. 9174 (unphased). Dr.37, burnt. Partial freestyle decoration with same stag and panther as on no. 173. AD 140-170.

176. Joining sherds from 5071 (1, Phase 1d) and 6667 (3, Phase 1d). Dr.37, ovolo B231 with a scroll decoration with leaf H13. *Cinnamus,* AD 140-170. Fig. 194

177. 5071 (2, Phase 1d). Dr.37 with ovolo B231 and Cornucopia U247. *Cinnamus*, AD 140-170. Fig. 194

178. 5001 (Phase 5), Dr.37, abraded, ovolo B231. *Cinnamus*, AD 140-170.

179. 5069 (Phase 1d). Dr.37. The ovolo with two borders and a thick dotted tongue is B145, the *Cinnamus* middle style ovolo. Large medallion with Venus Os.322, diamond U33 is visible in the corner. Os.322 is on a stamped bowl from *Mardigunum* (M.33.523-A). *Cinnamus*. AD 140-170. Fig. 194

180. 6922 (Phase 1c). Dr.37. Ovolo B5 probably, one of the ovolos associated with *Cinnamus* late style. AD 150-180. Fig. 195

181. 5028 (Phase 3c). Dr.37. Ovolo B223 with a beaded line border. Probably by *Cinnamus*. AD 150-180. Fig. 195

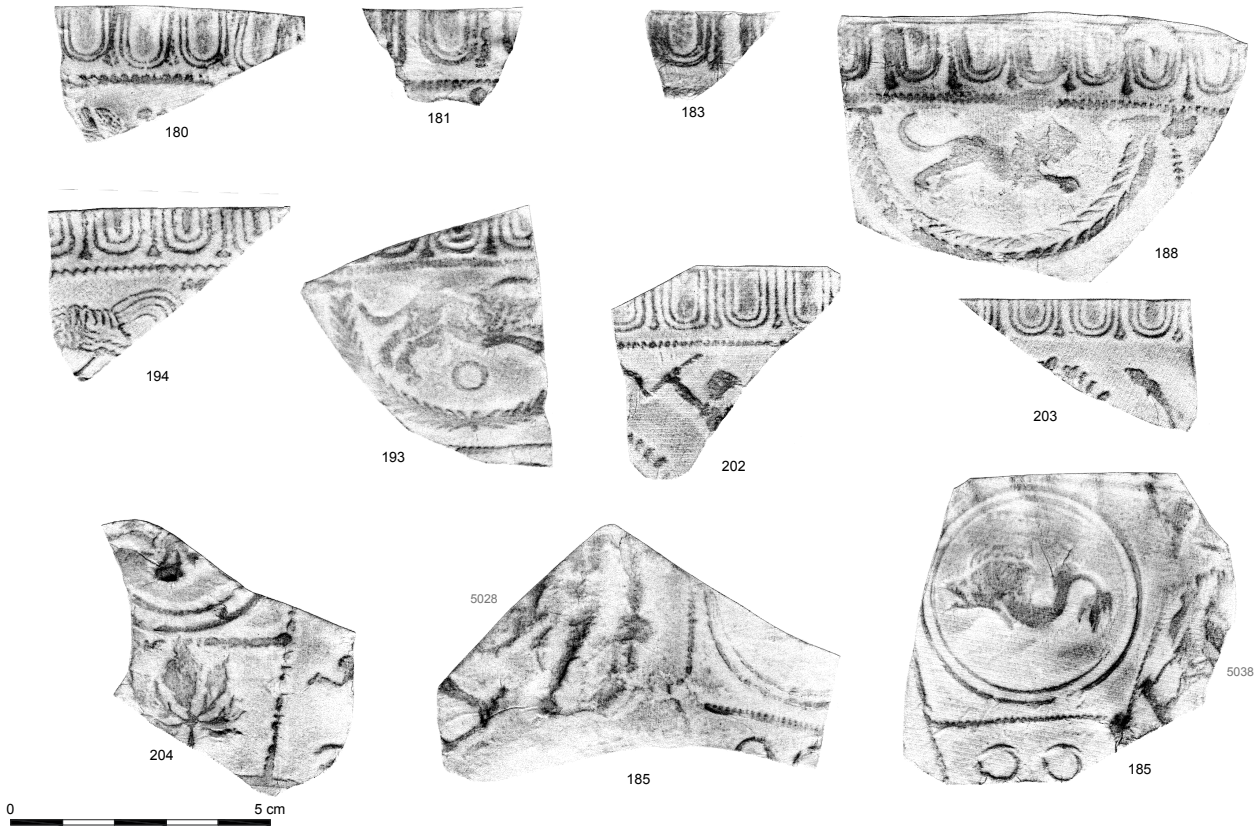


Figure 195: South Gaulish samian rubbings, Lezoux (Cat. nos. 180, 181, 183, 185, 193, 194, 202, 203, 204)

182. 5285 (Phase 1d). Dr.37. Ovolo B223 with a beaded line border. Probably by *Cinnamus*. AD 150-180.

183. 5938 (Phase 3). Dr.37. Ovolo B223 with a beaded line border. Probably by *Cinnamus*. AD 150-180. Fig. 195

184. 5019 (Phase 5), Dr.37, burnt black. Panelled decoration with a medallion on top of a running animal separated by a beaded line, Bacchus with cup (Os. 563 or 566- no cloth visible), then erotic group Os.B. Probably *Criciro*. AD 140-170.

185. Dr.37, sherds from 5028 (Phase 3c) and 5038 (Phase 3a). A panel with dolphin Os.2392 in double circle medallion, two little rings between beaded lines and a rosette at junction, the next panel has a seated figure, possibly Os.970. The fragment from 5028 has the same little rings between beaded lines but partly missing and a seated figure that looks like Os.643 though the arm is at a slightly different angle. All the motifs point to potters *Criciro* and *Divixtus*. AD 140-170. Fig. 195

186. 5028 (Phase 3c). Dr.37. Possibly the same ovolo as the one on D188. Antonine.

187. 5028 (Phase 3c). Dr.37. Possibly the same ovolo as the one on D188. Antonine.

188. 5028 (Phase 3c). Dr.37, panelled decoration with running lion Os.1404 in festoon F7 used by *Criciro*. The ovolo with a long tongue on the left is difficult to match precisely to the known *Criciro*'s ovolos, it could possibly be a very poor impression of B204. AD 140-170. Fig. 195

189. 5028 (Phase 3c). Dr.37, panel decoration separated by a beaded line terminated by a rosette with erotic group Os.B and Diana Os.106. The beaded line and rosette are similar to the ones used by *Criciro* (Stanfield and Simpson 1990, pl. 117, no. 11). AD 140-170.

190. 7417 (Phase 1c). Dr.37, possibly the same ovolo as the one on nos. 187 to 188. Antonine.

191. 6789 (Phase 3b). Dr.37, panelled decoration beneath ovolo (B52?) and beaded line border with a seated Bacchus (Os.571). *Criciro* or *Divixtus*. Antonine.

192. 8336 (Field 61A, Phase 1ii). Dr.37, half of a repair hole below the beaded line. The ovolo looks like B43 used by *Criciro*. AD 140-170.

193. 5321 (Phase 3). Dr.37, this vessel has links with *Quintilianus* and *Laxtucissa*, the ovolo (B206) and the festoon (F15) were used by both. The lion, Os1497Z and the small circle are known for *Quintilianus*. AD 130-180. Fig. 195

194. 6924 (Phase 1c). Dr.37, with half of a circular repair hole below rim. The ovolo is B206, wavy line border and part of cockerel Os.2360 or 2361. A number of potters used B206 but *Mercator i* seems to be the only one who uses this ovolo, the wavy line border and the cockerel (Rogers 1999). AD 140-170. Fig. 195

195. 5336 (Phase 3b). Dr.37, with half of a circular repair hole. The ovolo is B206, wavy line border and part of dog. Both the ovolo and the line were used by a number of potters - *Mercator* i, *Quintilianus,* and *Laxtucissa*. Late Hadrianic-early Antonine.

196. 6762 (Phase 1b). Dr.37. Ovolo B206 and wavy line border. Both were used by a number of potters - *Mercator* i, *Quintilianus* and *Laxtucissa*. Late Hadrianic-early Antonine.

197. 6762 (Phase 1b). Dr.37, ovolo B206 and wavy line border. Both were used by a number of potters - *Mercator i, Quintilianus,* and *Laxtucissa*. Late Hadrianic-early Antonine.

198. 5028 (Phase 3c). Dr.37, two fragments with ovolo B206 and wavy line border. Both were used by a number of potters - *Mercator* i, *Quintilianus,* and *Laxtucissa*. Late

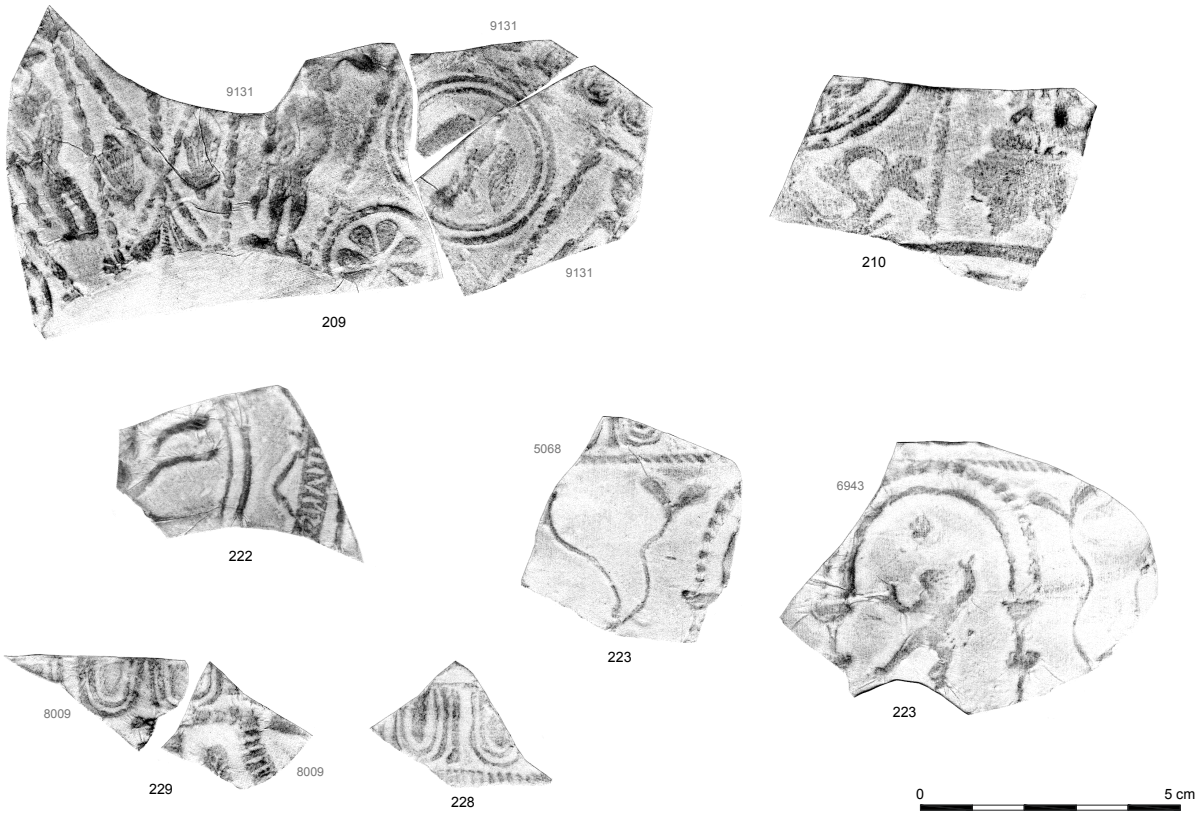


Figure 196: South Gaulish samian rubbings, Lezoux (Cat. nos. 222, 223, 228, 229)

Hadrianic-early Antonine

199. 5840 (Phase 3c). Dr.37, ovolo B206 and wavy line border. Both were used by a number of potters - *Mercator* i, *Quintilianus,* and *Laxtucissa*. Late Hadrianic-early Antonine.

200. 7167 (Phase 1d). Dr.37, ovolo B206. Hadrianic-Antonine.

201. 7081 (Phase 1d). Dr.37, ovolo B206 and beaded line border. Both were used by *Quintilianus* and *Laxtucissa*. Late Hadrianic-early Antonine.

202. 5027 (Phase 3c). Dr.37, the ovolo is B105, beaded line border and the top of gladiators Os. 1114 and 1115. *Laxtucissa*, *Paternus ii*, and *Censorinus* who use this ovolo are not known to use the gladiators, *Albucius ii* is however known to use Os.1115 and the ovolo. AD 145-175. Fig. 195

203. 7500 (Phase 3). Dr.37, ovolo B105 but no beaded line beneath. Small fragment of a large leaf is visible, probably partly impressed J146. Probably by *Albucius ii*. AD 145-175. Fig. 195

204. 5321 (Phase 3). Dr.37, Panel decoration divided by an astragalus border, double circle medallion and little leaf H71. Probably by *Paternus v*. AD 160-195. Fig. 195

205. 5142 (Phase 1a). Dr.37, Ovolo B105 and trifid motif G56 in festoon both used by *Paternus v*. AD 160-195.

206. 5017 (Phase 3c). Dr.37, ovolo B105 and beaded line border. Antonine.

207. 5013 (Phase 5). Dr.37, ovolo B105 and beaded line border. Antonine.

208. 5596 (Phase 1c). Dr.37, panelled decoration with a small saltire made out of trifid motifs and beaded lines. The trifid motif is close to G73 used by *Advocisus*. The beaded line and the blurred little rosette at the intersection are consistent with his work. AD 160-180.

209. 9131 (Field 64, Phase 2). Dr.37, *Censorinus*. Panelled decoration separated by an astragalus border. A panel with naked Venus Os.305 (but without the pedestal head) alternates with a panel with a saltire made out of astragalus border, trifid motifs G159 and G208 and a panel with a medallion with eagle Os.2183 on top of large rosette C6. The ovolo could be B28. AD 160-180. Fig. 196

210. 8014 (Field 61A, Phase 5). Dr.37, panelled decoration with a double circle medallion on top of dolphin Os.2394 in one panel and leaf H110 beneath the feet of possibly Os.368 in the other. The large beaded line is characteristic of Doeccus who also uses the dolphin (Stanfield and Simpson 1990, pl. 147, no.1) and the leaf (Ward 2008a, fig. 9.14, no. 1). AD 165-200. Fig. 196

211. 8005 (Field 61A, Phase 5). Dr.37, the ovolo is probably B161, thick beaded line and the top of a medallion with an astragalus in the corner. Probably Doeccus. See Stanfield and Simpson 1990, pl. 151, no. 62. AD 165-200.

212. 8046 (Field 61A, Phase 2). Dr.37, medallion with a leaf (H110?), thick beaded line and astragalus. Possibly Doeccus. AD 165-200.

213. 8300 (Field 61A, Phase 2). Dr.37. The ovolo is abraded but is perhaps B144. Antonine.

214. 8011 (Field 61A, Phase 5). Dr.37. Little of the decoration is extant, little warrior Os.177. Hadrianic-Antonine.

215. 8010 (Field 61A, Phase 5). Dr.37. The ovolo is possibly B106 used by Albucius and Paternus ii. Antonine.

216. 8014 (Field 61A, Phase 5), Dr.37, burnt. From the lower part of the bowl, partial scroll. Hadrianic-Antonine.

217. 8014 (Field 61A, Phase 5), Dr.37. Not enough decoration survives to fully identify. Hadrianic-Antonine.

218. 8010 (Field 61A, Phase 5), Dr.37. Though partial, the ovolo looks like B7, the Attianus ovolo. AD 120-145.

219. 8386 (Field 61A, Phase 2), Dr.37. From the lower part of the bowl, vertical beaded line and the legs and possibly the cloth of a figured type that cannot be precisely matched to the known corpora. Hadrianic-Antonine.

220. 5335 (Phase 3c). Dr.37, burnt. Panel with Diana and deer Os.106. Hadrianic-Antonine.

221. 5035 (Phase 1c). Dr.37. No ovolo survives, Os.913 and Venus Os.281. Hadrianic-Antonine.

East Gaulish

222. 5001 (Phase 5). Dr.37, Rheinzabern. With an intra-decorative stamp by *Comitialis* (see no. 235). The stamp is probably 3a tab, the stamp associated with styles II and V (Hartley and Dickinson 2008c, note 4, 101). Little of the decoration survives, a large medallion probably K19 used by *Comitialis v* (Ricken and Fischer 1963, 265) with a stag (T98) the front legs of which are within the medallion and the back legs are probably out of the medallion as on a bowl stamped by *Comitialis* (Ricken and Fisher 1963, taf. 97, no. 10). AD 170-220. Fig. 196

223. Sherds from 5068 (Phase 3c) and 6943 (Phase 1b). Dr.37, Rheinzabern. *Janu i*: all the motifs but the arcade are recorded for him, the arcades listed in Ricken and Fischer (1963, KB143 and 144) are similar but not exactly the same. He used the bifid leaf on a tendril like this, and the rosette in the background in medallions (Ricken and Thomas 2005, taf. 1, no. 10). A bowl stamped by *Janu* i (Ricken and Thomas 2005, taf. 6, no. 1) has the putto (M141) and the motif used to support the arcade (O.10). AD 150-180. Fig. 196

224. 5399 (Phase 1d), Dr.37, Rheinzabern. Ovolo E26 and crane T212a. Both of those are listed for a number of potters but "Ware mit Eierstab E25.26" and *Pupus* who used both. Two bowls by *Pupus* (Ricken and Thomas 2005, taf. 131, no. 9 and taf. 133, no. 18F) have the crane in a similar stance and an ovolo which looks like E26. Bowls attributed to the "Ware mit Eierstab E25.26" workshop have also the cranes but they are placed at a slightly different angle with their neck vertical and a (broken) beak pointing downwards (*op. cit*., taf. 118, nos. 6 and 7). Late 2nd-early 3rd century.

225. 5321 (Phase 3). Dr.37. Rheinzabern ovolo E17 and medallion (K19?). Possibly same bowl as no. 227. Probably *Comitialis v*. AD 170-220.

226. 5030 (Phase 3c). Dr.37. Rheinzabern. Little of the decoration remains, a thick corded border similar to the one on D227 and a leaf, probably P47 used by a number of potters (Ricken and Fisher 1963, 193). The leaf and border are on two bowls from Catterick attributed to *Ianus ii* (Hartley and Dickinson 2002, fig. 154, no. 17 and fig. 202, no. 218). Antonine.

227. 5028 (Phase 3c). Dr.37, very abraded. Rheinzabern ovolo E17 and leaf P96a. Possibly same bowl as no. 225. *Comitialis v*. AD 170-220.

228. 5002 (Phase 3c). Little of the decoration remains, a thick corded border and a distinctive ovolo with a tongue ending bent to the left. The corded border is similar to the one on no. 226 but the ovolo cannot be matched to the known types from Rheinzabern (Ricken and Fisher 1963). Fig. 196

229. 8009 (Field 61A, Phase 3), Dr.37, two joining sherds, Trier. The ovolo is similar to the one on a stamped bowl by *Paternianus* from Colchester (Bird 1999, no. 1188) and is Gard 1937, R19 used by *Afer*, *Paternianus,* and *Dubitatus*. For the festoon, see Gard 1937, K68 used by *Afer* (Gard 1937, taf. 15, no. 18). AD 190-240. Fig. 196

230. 5017 (Phase 3c). Dr.37, very fragmentary ovolo. Possibly Trier. Late 2nd-early 3rd century.

Catalogue of samian potters' stamps and signatures (Cat. nos. 231-263)

The following catalogue lists the potters identified in alphabetical order. Each entry gives the catalogue number, the excavation context number; phase, potter's name (*i, ii,* etc., where homonyms are involved); die form; form type, reading, pottery of origin, a reference to published drawing (where available) and date. Ligatured letters are underlined.

Unless stated otherwise, the context numbers are from Field 63.

Potters' stamps *(Cat. nos. 231-255)*

231. S1, 5037 (Phase 3d), *Albusa*, die 1a, Dr.31R, **ΛⱢBV[**, Lezoux (Hartley and Dickinson 2008a, 87). AD 170-200.

232. S2, 6922 (Phase 1c), *Austrus*, die 1a, intra-decorative stamp, Dr.37, **]STRI·OF**, Lezoux (Hartley and Dickinson 2008a, 354). AD 120-145, see no. 73 for comments on the decoration.

233. S3, 2353, (Field 62, Phase 1), *Balbinus*, die 2a late, Dr.18/31, **BΛLBINI·M (IIИIIIINI·M)**, Les Martres-de-Veyre (Hartley and Dickinson 2008b, 5). AD 105-120.

234. S4, 5042 (Phase 1d), *Butrio*, die 1a, intra-decorative stamp, Dr.37, **BV[** , Lezoux (Hartley and Dickinson 2008b, 131). AD 115-145, see cat no. 51 for comments on the decoration.

235. S5, 8027 (Field 61A, Phase 1ii), *Calendio*, die 2a, Dr.18/31, **CA[**, Lezoux (Hartley and Dickinson 2008b, 165). AD 130-170.

236. S6, 5001 (Phase 5), *Comitialis*, 3a tab, intra-decorative stamp, Dr.37, **]ƧIЛΛITI[** (retrograde), Rheinzabern (Hartley and Dickinson 2008c, 95). AD 170-220, see no. 222 for comments on the decoration.

237. S7, 5924 (Phase 1c), *Cucalus*, die 2a, Dr.33, **CVCΛ[,** Lezoux (Hartley and Dickinson 2008c, 213). AD 140-170.

238. S8, 7417 (Phase 1c), *Decuminus i*, die 3a, Dr.15/17, **]MINI·M**, Les Martres-de-Veyre, overfired fabric (Hartley and Dickinson 2008c, 265). AD 110-145.

239. S9, 8005 (Field 61A, Phase 5), *Eusius*, die 1a, Dr.31R,]·MA, Lezoux (Hartley and Dickinson 2008c, 369). AD 150-200. Patch of internal wear above rouletted band.

240. S10, 7473 (Phase 1b), *Luppa*, die 1a, Dr.33, LVPPAF, Lezoux (Hartley and Dickinson 2009b, 137). AD 130-155.

241. S11, 5002 (Phase 3c), *Natonus*, die 1a, Dr.27, *N*ATO*N*VSF, Les Martres-de-Veyre (Hartley and Dickinson 2010, 223). AD 115-140.

242. S12, 5028 (Phase 3c), *Patricius ii*, die 9a, Dr.18/31, PATRI[, Lezoux (Hartley and Dickinson 2011a, 85). AD 140-175.

243. S13, 5234 (Phase 1a), *Priscinus i*, die 1a, infra-decorative stamp, Dr.37, PRIꟻCINI·M, Lezoux (Hartley and Dickinson 2011a, 258). AD 130-160, see no. 112 for comments on the decoration.

244. S14, 9131 (Field 64, Phase 2), *Ruccatus*, die 1a, Dr.18/31, R·VCC(A·V), La Madeleine (Hartley and Dickinson 2011a, 410). AD 145-175.

245. S15, 6812 (Field 64, Phase 3), *Sabinus viii*, die 7b, Dr.31R, SABINI·M, Lezoux (Hartley and Dickinson 2011b, 32). AD 160-200.

246. S16, 5035 (Phase 1c), *Saxamus*, die 1b, Dr.31,]MI·M, Lezoux (Hartley and Dickinson 2011b, 117). AD 155-185.

247. S17, 6942 (Phase 1a), *Saxamus*, die 1b, Dr.31R,]MI·M, Lezoux (Hartley and Dickinson 2011b, 117). AD 155-185.

248. S18, 5068 (Phase 3c), SF155, *Vest-*, die 1a, Dr.44 on upper band, VESTM, Lezoux (Hartley and Dickinson 2012, 219) and see University of Nottingham Museum accession number U.33.87-P for a similar stamp by *Vest-*, AD 140-170.

Unidentified stamps *(Cat. nos. 249-261)*

249. S19, 5019 (Phase 5), ΛΛ, Dr.37, applied on the bowl below the decoration before firing, Lezoux, see no. 137 for comments on the decoration.

250. S20, 5001 (Phase 5),]IVSF, Dr.18/31, Central Gaulish.

251. S21, 5251 (Phase 1d), M[, Dr.31R, Central Gaulish.

252. S22, 7417 (Phase 1c),]RIM, Dr.18/31, Les Martres-de-Veyre.

253. S23, 6763 (Phase 1b), SII [, Dr.33, Central Gaulish.

254. S24, 5596 (Phase 1c), SE[, Dr.18/31R, Central Gaulish.

255. S26, 6786 (Field 64, Phase 1), **S[**, Dr.31, Central Gaulish.

Signatures *(Cat. nos. 255-262)*

256. Sig.1, 5002 (Phase 3c), *Acaunissa*, infra-decorative signature, Dr.37, ΛCΛVNI*SS*Λ retrograde, Lezoux, MS1? (Hartley and Dickinson 2008a, 46). AD 125-145, see no. 78 for comments on the decoration.

257. Sig.2, 5002 (Phase 3c), *Attianus ii*, infra-decorative signature, Dr.37, ΛTTIΛNI retrograde, Lezoux, MS1 but larger (Hartley and Dickinson 2008a, 300). AD 120-145, see no. 55 for comments on the decoration.

258. Sig.3, 5031 (Phase 3b), *L. Cosius*, intra-decorative signature Dr.37, L·CO[, La Graufesenque, MS1 (Hartley and Dickinson 2008c, 129). AD 90-125, see no. 3 for comments on the decoration.

259. Sig.4, 5071 (Phase 1d), *Geminus iv*, infra-decorative signature, Dr.37,]Vꟻ retrograde, Lezoux (Hartley and Dickinson 2009a, 159). AD 120-145, see no. 80 for comments on the decoration.

260. Sig.5, 5285 (Phase 1d), with joining sherds from (7313) and (5042), *Pugnus ii*, infra-decorative signature,]GNI[retrograde, Dr.37, Lezoux (Hartley and Dickinson 2011a, 283). AD 135-165, see no. 118 for comments on the decoration.

261. Sig.6, 5561 (Phase 3b), with joining sherds from (5028), *Ves-*, infra-decorative signature, Dr.37, ⅄IIᔑ retrograde, Lezoux (Hartley and Dickinson 2012, 218). AD 135-155, see no. 127 for comments on the decoration.

262. Sig.7, 5019 (Phase 5), infra-decorative signature,]MΛCI? retrograde, new, Dr.37, Lezoux, see no. 136 for comments on the decoration.

263. Sig.8, 6924 (Phase 1c), Dr.37, partial infra-decorative signature,]III[, Lezoux. No decoration present.

THE MORTARIA

Ruth Leary and Kay Hartley, with stamp report by Kay Hartley

Introduction

A total of 377 sherds of mortaria were identified (23kg and 13.7 EVEs). Of these, eight sherds came from areas outside the settlement at Healam (0.3kg and 0.2 EVEs; Fields 1, 23, 25, 58, and 70). Kay Hartley provided the dating presented in this section and in the coarse ware pottery report. Fabric description and groupings were largely done by Ruth Leary; quantification tables and reporting were also completed by her. The stamp report is by Kay Hartley.

The mortaria assemblage confirmed the date range indicated by the rest of the pottery (Table 125). There was nothing which need be dated earlier than the Flavian period and the largest number of vessels falling within a date range of late 1st to mid-2nd century AD (*c*.42% of the group). The small number of Flavian pieces was consistent with the relatively few features excavated of this date. As with the samian and coarse wares, the peak of activity in the 2nd century belonged to first half of the 2nd century with continuing activity in the second half of the 2nd century but with fewer mortaria (Fig. 197). A low was reached in the early 3rd century with a slight rise after *c*.AD 230 followed by another decline in the 4th century until the late 4th century when activity was resumed in earnest.

The mortarium dates were plotted by half decade using the EVEs values and examined by phase and field for chronological trends. The stratified mortaria from Phase 1 (Fig. 198) showed clearly that activity was concentrated in the early to mid-2nd century with intrusive late 4th century material. The Phase 2 assemblage (Fig. 199) supported the late 2nd to 3rd century date range put forward for these features and the Phase 3 material (Fig. 200) illustrated the dominance of the late 4th century

Fabric type	EYCT	M VER	MALD WH	MALD WS1	MALD WS2	MALD WS3	MALD WS4	MCOL WH	MCOR WH	MCRA M1	MCRA M3	MCRA PA	MCRA WH	MCTR WS1	MCTR WS2	MCTR WS3	MCTR WS4	MH	MLNV CC	MLTC WH	MNOG WH4	MOAB INDET	MOAB NE1	MOAB NE2	MOAB NE3	MOAB NE4	MOWS UNK	MOXCM	MSOC WH	Grand Total
AD 65-110																					30									30
AD 70-110		24																			45									24
AD 80-150																					45									45
AD 90-120																				10										10
E 2nd AD																10														10
E-M 2nd AD					8	5	43							81	56	39		10					7			25					274
L 1st-E 2nd AD			26																											26
AD 100-140				36		8									30	9														83
AD 135-150																		52												52
M 2nd AD																		8												8
M 2nd AD+																											5			5
AD 135-170																		6					8		9					23
AD 130-170								15																						15
AD 140-200																					25									25
AD 145-175																		18												18
AD 140-180																		12			15									27
AD 150-200																		16												16
AD 150-180																		20												20
AD 160-200																		30												30
M-L 2nd AD									17									6											11	34
2nd AD				14																		27			14					55
L 2nd AD+																		8												8
L 2nd-E 3rd AD																		42												42
L 2nd-M 3rd AD																		10												10
2nd-3rd AD																						4								4
AD 230+																	4													4
AD 230-300																		66												66
AD 230-330																		49												49
AD 240-300																												19		19
3rd AD																		10				2								12
M 3rd-M 4th AD																		31												31
4th AD	3																		5											17
AD 370+										159	4	58	25																	246
Total	3	24	26	50	8	13	43	15	17	159	4	58	34	81	86	58	4	394	5	10	115	33	15	9	14	25	5	19	11	1338

Table 125: Mortarium by fabric and date range using rim % values (E - early; M - mid; L - late)

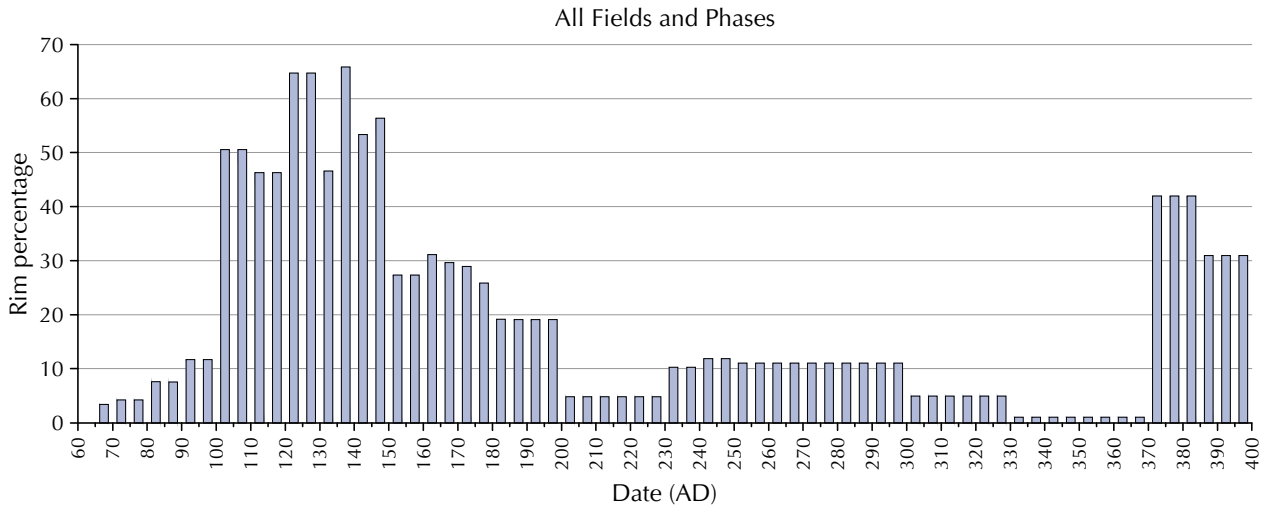


Figure 197: Healam mortaria by half decade using rim percentage values

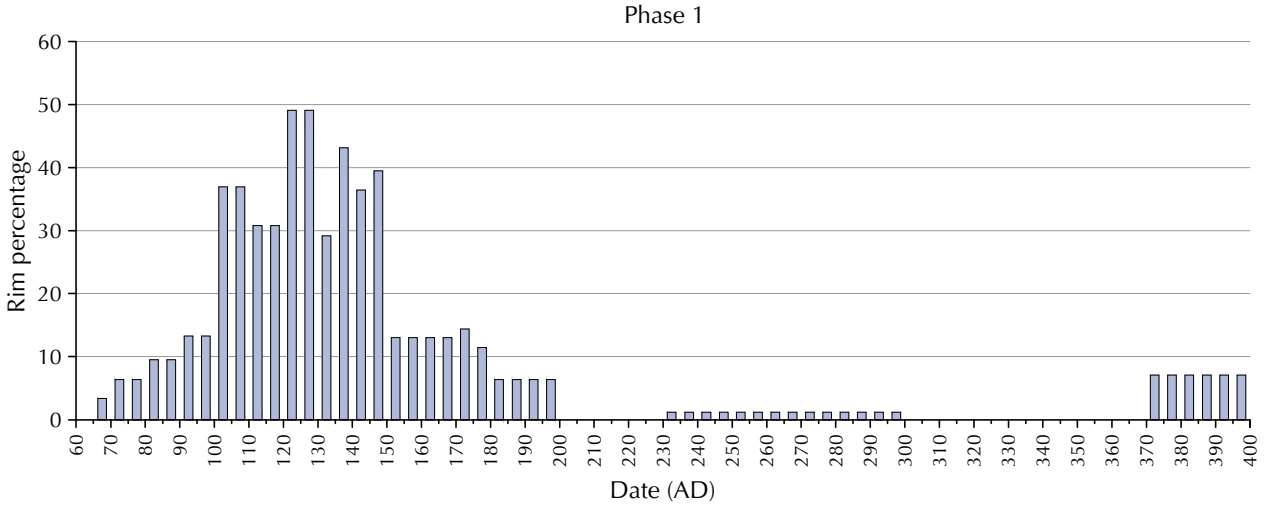


Figure 198: Healam Phase 1 mortaria by half decade using rim percentage values

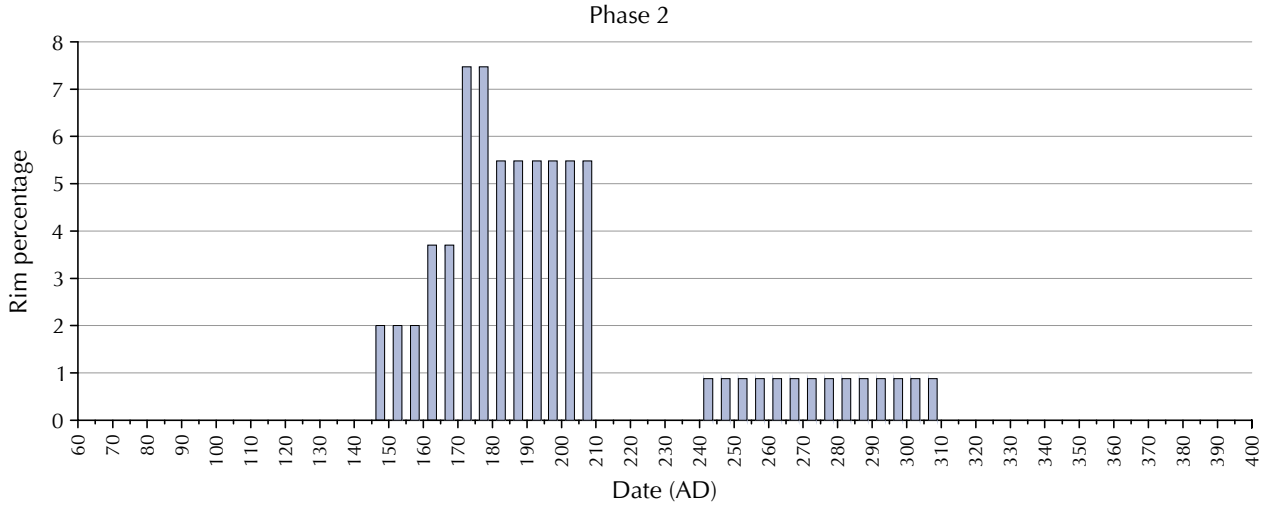


Figure 199: Healam Phase 2 mortaria by half decade using rim percentage values

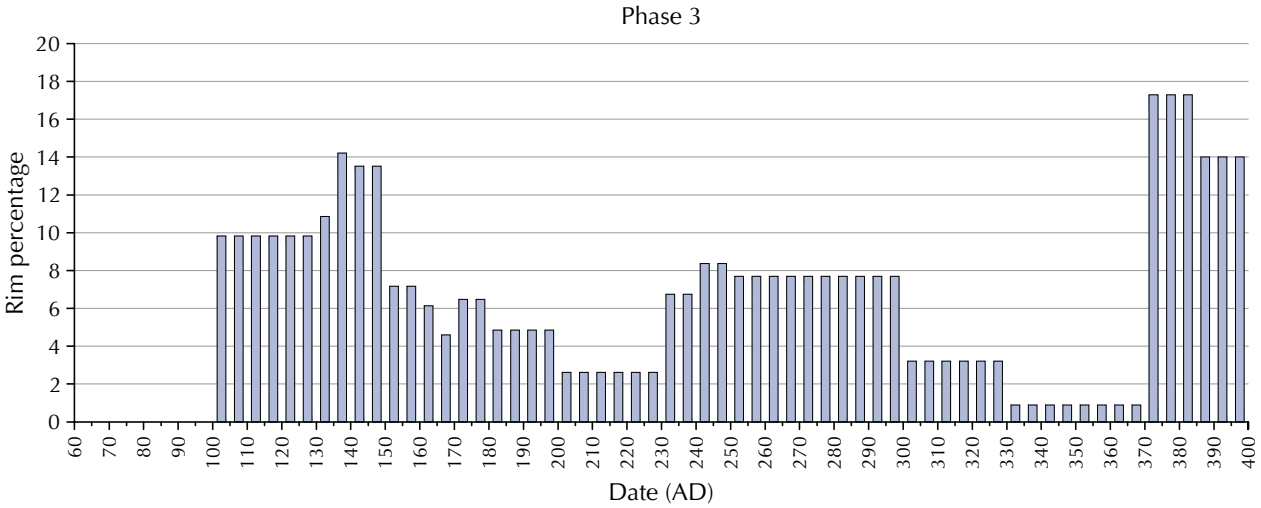


Figure 200: Healam Phase 3 mortaria by half decade using rim percentage values

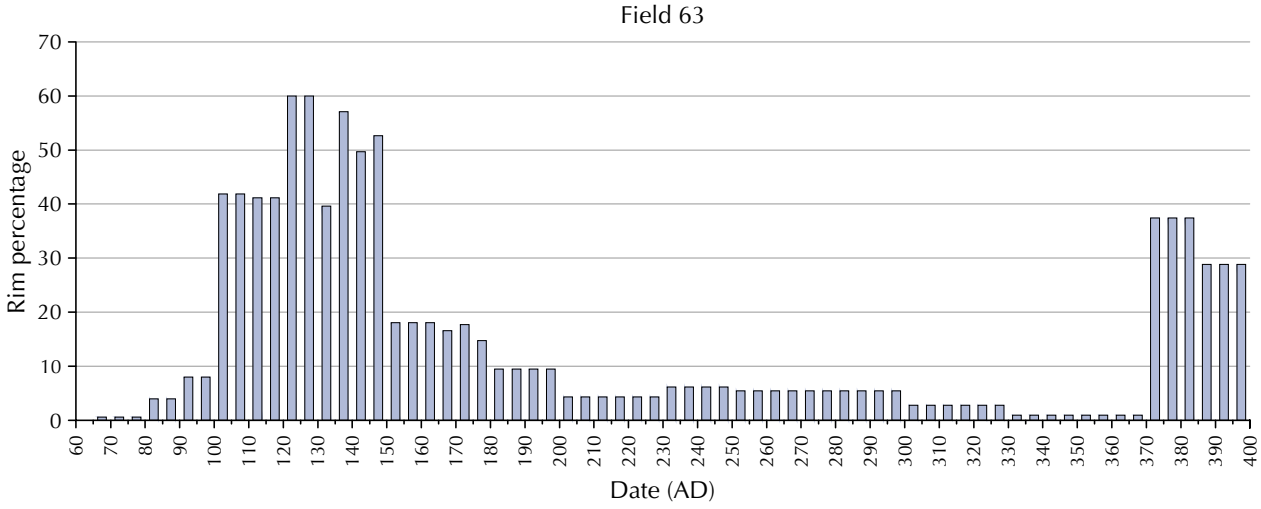


Figure 201: Healam Field 63 mortaria by half decade using rim percentage values

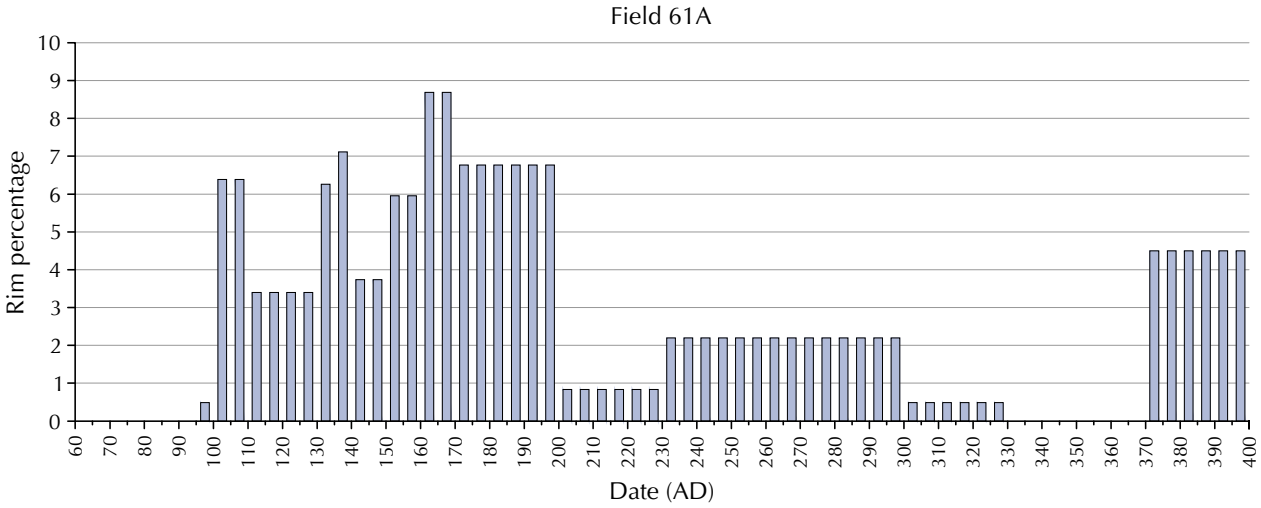


Figure 202: Healam Field 61A mortaria by half decade using rim percentage values

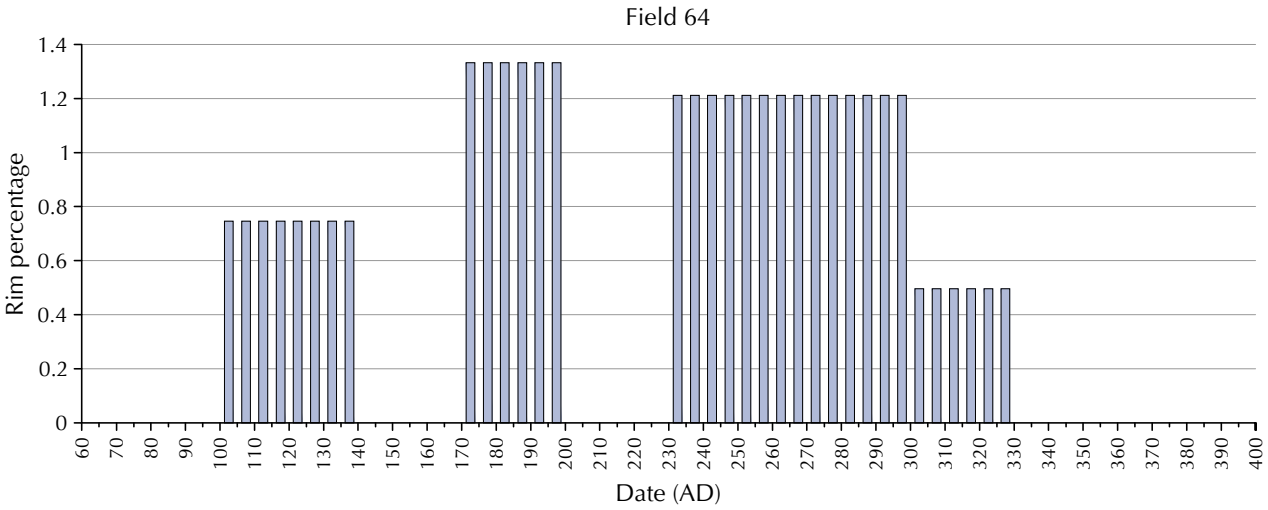


Figure 203: Healam Field 64 mortaria by half decade using rim percentage values

mortaria. The mid- to late 3rd century element in Phase 3 was evident and the redeposited Phase 1 material clear.

The assemblages from Fields 63, 64, and 61A were also studied for chronological trends. Field 63 (Fig. 201) had peaks of mortarium deposition in the early to mid-2nd century and the late 4th century. Field 61A (Fig. 202) had rather fewer early to mid-2nd century vessels and peaked in the late 2nd as was noted in the samian analysis (Monteil, above). Field 64 (Fig. 203) lacked the mid-2nd century types and had relatively more late 2nd and 3rd century vessels than the other fields with no mortaria dating later than the early 4th century. This confirmed the dating suggested by the Crambeck to calcite-gritted ware ratios although the other coarse pottery did include late 4th century types. The samian from Field 64 also included additional late 2nd century vessels.

Mortaria from at least 18 industries and possibly as many as 24 industries were identified (Table 126). The earliest mortaria are those from the Verulamium region and from kilns in the Oise-Somme area in northern France. In addition, a mortarium from the Lincoln Technical kiln stamped Vitalis dated to this period and one oxidised base was considered by Kay Hartley to be probably of 1st century military type, perhaps from York. These could all belong to the Trajanic period.

In the total site assemblage the large numbers dating to the first half of the 2nd century were largely made up of oxidised mortaria, usually with a white slip, from the Catterick area kilns (around 64% of the early to mid-2nd century group). One of this group, MCTR WS3, included several overfired, distorted sherds (from Phase 1c, spread 6924 and Phase 1, ditch fill 9036) and this raised the possibility of local manufacture at Healam. However, evidence for an intense conflagration in Phase 1 has been noted in the coarse pottery and in the samian resulting in distorting and sintering of samian, known to be made in Gaul, so this can only be taken as a possibility and other evidence for kilns at Healam should be sought as opportunity arises. To these were added a smaller number of both white ware and white-slipped oxidised ware mortaria from kilns at Aldborough (*c*.20%) with only small numbers of Mancetter-Hartshill mortaria of this date range. To these may be added four further oxidised and white-slipped mortaria of uncertain origin and two white ware vessels all of which may have been produced at unknown kilns in the North East.

In the mid- to late 2nd century the mortaria from Catterick and Aldborough and other unknown kilns in the region were no longer being purchased and the relative numbers from Mancetter-Hartshill increased. Small numbers, one or two, were each obtained from Colchester, East Anglia, Corbridge, and the kilns at South Carlton, Lincoln. A single Raetian mortarium may be of local origin and was of Antonine date (Hartley 1997). In the 3rd century the mortaria from Mancetter-Hartshill flooded the market and, apart from singletons from an unknown north-eastern pottery and from the Oxfordshire kilns, all the mortaria of this date came from this source.

In the 4th century only three or four potteries supplied mortaria: Mancetter-Hartshill, the lower Nene Valley kilns and the Crambeck industries. Of these the Crambeck

Sources	Nos	Weight (g)	EVEs
Imports	3.18%	6.71%	8.49%
Verulamium	0.80%	2.04%	0.59%
Aldborough	6.90%	11.42%	10.34%
Catterick	17.51%	19.42%	17.73%
Mancetter-Hartshill	31.56%	33.09%	29.10%
Unsourced white ware	3.98%	2.87%	0.00%
East Anglia	0.53%	0.23%	0.00%
Lincoln Technical College	1.59%	1.56%	0.74%
Lincoln South Carlton	0.27%	0.62%	0.81%
Colchester	0.53%	0.86%	1.11%
Corbridge	1.06%	1.41%	1.26%
North-East oxidised	9.02%	5.81%	7.46%
North-East Raetian	0.27%	0.93%	0.00%
Lower Nene Valley	1.06%	0.34%	0.37%
Crambeck	8.49%	4.73%	7.16%
Crambeck, possible local copies	11.67%	7.33%	13.22%
Indeterminate	0.27%	0.02%	0.00%
Calcite-gritted, East Yorkshire	0.27%	0.08%	0.22%
Oxfordshire	1.06%	0.54%	1.40%

Table 126: Relative quantities of mortaria from different sources

types made up the overwhelming majority. Kay Hartley noted that several vessels in Crambeck type ware were in fabrics different to the normal Crambeck white and parchment wares, one of which was significantly softer than the norm. These were separated and given separate codes. Some of the Mancetter-Hartshill type sherds were also considered atypical and were coded separately but these did not include closely datable rim sherds. These variants did, however raise the possibility of local manufacture of mortaria in the late 4th century, perhaps at Catterick where Evans has identified some Crambeck Parchment ware mortaria made locally (Evans 2002, 243-4, 248; Hartley 2002, 358, MB26 local Crambeck copy). It should be noted that although the date ranges stop notionally at the end of the 4th century, this is an artificial date and the late 4th century group was likely to have continued into the early 5th century.

The mortarium supply for Healam in the 2nd century drew on the nearest suppliers at Catterick and Aldborough. The decline in the mid-2nd century marks the end of mortarium manufacture at these centres in the mid-2nd century. As at Catterick the Mancetter-Hartshill potters monopolise supply until the rise of the Crambeck kilns (Evans 2002, 243). The low numbers of early 3rd century mortaria accords with the general lack of 3rd century coarse pottery. Healam did not seem to have acquired the Cantley/Catterick types being made from the mid-3rd to mid-4th century in any number, only a small number of bodysherds being present. Had Healam been occupied extensively, one would expect these types to occur in significant numbers. The eclipsing of all other suppliers by the Crambeck industry and its look-alikes from the mid and late 4th century was a widespread phenomenon in the north.

Stamped mortaria from Healam Bridge

(Fig. 204)

Kay Hartley

Fabric descriptions in this section follow those in the following section 'Fabrics and illustrated unstamped mortaria' where they are described in full. The terms 'right facing' and 'left facing' when applied to stamps indicates the relation of the stamp to the spout looking at the mortarium from the outside.

In the term 'Mancetter/Hartshill', 'Mancetter' refers to the extensive pottery-making area immediately south-west of *Manduessedum* which lies astride Watling Street. This area outside the earthwork is in the parish of Mancetter in Warwickshire. The industry was functioning from the early 2nd century to the 4th century and its full extent is unknown, but it continues into all the fields surrounding the large one immediately outside *Manduessedum* known as 'Broadclose'. The known industry lies in Parish of Mancetter and because there is no modern name for *Manduessedum* the parish name has always been used. The area may extend to the outskirts of the village called Mancetter two fields away, but the 2nd to 4th century pottery industry referred to as 'Mancetter-Hartshill' is distinct from, as well as being later than, the mid-first century, military occupation in Mancetter village. There could well have been some minimal pottery production outside the fort/fortress there, but any such production was for local, military needs only. The furthermost ramifications of this early occupation extend into 'Broadclose' and lie beneath the later pottery production. None of this occupation was necessarily still visible when the pottery production began in the early 2nd century. The area to the north of *Manduessedum* (in the parish of Witherley, Leics.) has never been explored.

Sarrius

1. M374, AIDB10, 8297, fabric MH2.

This heavily burnt rim fragment had a broken impression of the lower right hand corner of a stamp of Sarrius from the same die as no. 5 (M412). When complete, the stamp reads SARRI with decorative motifs between the S and A, and between the A and following R. It produced the most attractive of his stamps with carefully made lettering. This was the most commonly used of his dies, used mainly in his Warwickshire pottery, but also at his subsidiary workshops at Rossington Bridge and Bearsden and at, at least, one other unlocated site in the north-east. The only satisfactory explanation for how it could be used simultaneously on most if not all the pottery making sites is that he had a matrix, perhaps made professionally, from which at least three and probably more dies were struck. This mortarium was from his Mancetter-Hartshill pottery in Warwickshire which was active within the period AD 130/135-165/170.

2. M198, AIDB09, 5084, Field 63, fabric MH1.

The right-facing stamp which was poorly impressed and obscured by accretion is a retrograde stamp of Sarrius, which reads SARRIVS retro, when fully and clearly impressed.

3. M241, AIDB09, 5321, fabric MH1.

This had a left-facing stamp from the same die which had part of the letters SARR[…], retro. The rim profile differs somewhat from M198, but there were indications that the profile changes around the rim and this may reasonably be assumed to be part of the same mortarium as M198 and to have the complementary left-facing stamp.

Joining body fragments M189, AIDB09, 5068 and M201, AIDB09, 5142 both had the same very unusual profile as M198 (No. 2); and can be assumed to be part of this mortarium. All of these sherds appear to be from the same well-worn mortarium; the underneath of the flange at the distal end had a very unusual profile which undergoes a certain amount of change. In slightly micaceous, cream fabric with self-coloured slip. The random inclusions are minute to small, moderate to fairly frequent and include pale rose quartz with a few transparent quartz, some red-brown and rare black material. Little trituration survives, but it included transparent quartz, some slightly pinkish, red-brown and rare black material (MH1).

This is only the second mortarium recorded with this precise stamp found away from the Mancetter-Hartshill pottery-making area; the first, unpublished, example was found at Blunt's Green, north of Henley-in-Arden, Warks (Hartley *pers. comm.*). Six stamps from the same die from up to five mortaria were found during excavations on the kiln-site adjoining *Manduessedum* in 1969, in Area 7 where there were traces of kilns destroyed in antiquity and several stamps of other potters dating to the pre-Antonine and early Antonine period were found (unpublished). Another mortarium of his was found in the upper filling of the stokehole of a large kiln (Kiln 5B) at Hartshill which was associated primarily with mortaria of Minomelus.

Much of the dating for Sarrius rests on the large number of his mortaria found at Antonine sites in Scotland, at least 15 of these made in his Warwickshire workshop, apart from mortaria made in his subsidiary workshop at Bearsden (Breeze 2016). It may reasonably be assumed that the whole of his activity and the production in all of the workshops he was associated with fell within the period AD 130/135. The finds on Area 7 together with the rim-profiles associated with this die-type would best fit a date within the period AD 130/135. The fabric and trituration grit associated with these mortaria also indicated that they were made before trituration grit used in this pottery became fully standardized, that is, was common to use a mixture of quartz, sandstone, and other materials (MH1).

4. M28-31, AIDB09, 2253, Field 2, fabric MOAB NE1.

Three joining sherds (the breaks are modern) making up the flange and bead of a mortarium which had been overfired to dark grey throughout except for patches of orange-brown surviving on the surface; there are tiny patches of cream which could have indicated that it was intended to have a cream slip, but this was not certain. The poorly impressed stamp is from the same die as M374 (no. 1) and M412 below. Decorative motifs were present, but they did not show clearly.

5. M412, AIDB09, 5001, fabric MOAB NE2.

The clearly, but incompletely impressed stamp was from the same die of Sarrius as M374 (no.1) and M28-31 (no. 4); when complete these stamps read SARRI with the decorative features described for M374 (no. 1).

Nos. 4 and 5 were from two different mortaria which were clearly not made in Warwickshire like nos.1 and 2/3. No. 5 (M412) was in hard orange-brown fabric with thick, well-defined, dark grey core. The inclusions were frequent and ill-sorted, tiny to small quartz. The trituration grit consists of quartz, red-brown sandstone and blackish material. The fabric was not that produced on the kiln-site at Rossington Bridge, near Doncaster and must be from another workshop whose location is unknown.

Excluding mortaria found on all of his production sites there is evidence for at least 142 mortaria of Sarrius. There is also a strong probability that two further stamps from a ninth die, attributable to the workshop at Rossington Bridge, are his, making a total of 144.

A total of 125 of these mortaria can be attributed to his Warwickshire workshop, six to his Rossington Bridge workshop, four to his Bearsden workshop (this number excludes all finds from the fort itself), and nine (including nos. 4-5, above), to at least two other workshops in the North East of England; see Breeze 2016, 139, table 7.5 for a summary of these sources. His production at Mancetter may well have continued throughout his short-lived activities elsewhere.

The optimum date of Sarrius's productions in north-east England and in Scotland is within the period AD 140-165. They were not necessarily contemporary, but the wall-sided mortaria made at Bearsden and at Rossington Bridge (stamped by his associate Secundua) would best fit a date no earlier than c.AD 140. Further details of his work can be found in Buckland et al. (2001, 45-47) and Breeze (2016).

Loccius prob... For loccius probus

6. M109, 5028, fabric MH2.

The fragmentary stamp preserved the top of]CC[from a stamp reading LOCCIUS PROB retrograde when complete; his full name was presumably Loccius Probus. Eleven of his mortaria are now recorded from Scotland and 32 from occupation sites in England while several were found on the kiln-site outside Manduessedum where he worked (Hartley *pers. comm.*). Loccius Probus was one of three potters working in the Mancetter-Hartshill (MH) potteries who were linked by having the same name, Loccius, in common; Loccius Prob(us), Loccius Vibo and Iunius Loccius. We may reasonably assume that they were related in some way. Loccius Probus worked at some time with Iunius Loccius since one unpublished mortarium, from Alcester, Warks (Hartley, *pers. comm.*) carried the stamps of both potters. Fewer mortaria of Iunius Loccius are known than for either of the other two potters, but his rim-profiles show markedly later traits than theirs and his work has not been recorded in Antonine Scotland while Loccius Probus and Loccius Vibo are well-represented there. The optimum production period for Loccius Probus is AD 140-165.

7. M234 5303 Field 63 joins M233, 235, 236, 5303 and M313, 6942, M237 may be the base, but does not join, fabric MH2.

The stamp, [C]ICVR, was from a die which was never completely impressed, but collation allows a full reading of CICVRFE, for Cicur(o/us) fecit, FE representing 'fecit' for 'made it'. Only one die-type is recorded for this potter. His work can be attributed to the Mancetter-Hartshill potteries. Twenty-two of his mortaria have previously been recorded from Brough, Notts; Castor, Cambs; Halton Chesters; Hartshill; High Cross; Leicester (2 examples; Connor and Buckley 1999, 109, M19); Lincoln (2 examples); Papcastle; Stanground South, Cambs; Stonea, Cambs (Jackson and Potter 1996, 429, no. 1 and fig. 145); Twenty Foot, nr. March; Tiddington; Upton St Leonards, Gloucester; Saxondale, Notts; Wall, Staffs; Wallsend (3 examples); Wappenbury and Worcester. This distribution suggested that the bulk of his mortaria went to sites in the Midlands, only five have been found in the north, four from sites on Hadrian's Wall including three from Wallsend, which had the largest number from any single site. The absence of mortaria from Antonine Scotland is significant considering the large flush of Mancetter-Hartshill mortaria there in the early to mid-Antonine period; his four mortaria at sites on Hadrian's Wall probably post-date the abandonment of the Antonine Wall *c.*AD 158. Mortaria ceased to be stamped in these potteries probably within the decade AD 170-180 and the form of spout used by Cicur... is one used by the latest potters stamping mortaria there. The optimum date for his work was within the period AD 145-175. Heavily worn.

Similis 1?

8. M115, 5028, fabric MH1.

Only part of a border survived with part of a letter which could be M. The stamp was too fragmentary to identify with complete certainty, but the border was identical with the top border of one of the die-types of Similis1 (see Monaghan 1997, 933, fig.371, no. 3372 for a similar, but different stamp of this potter). If this identification was correct a date within the period AD 130-160 was probable.

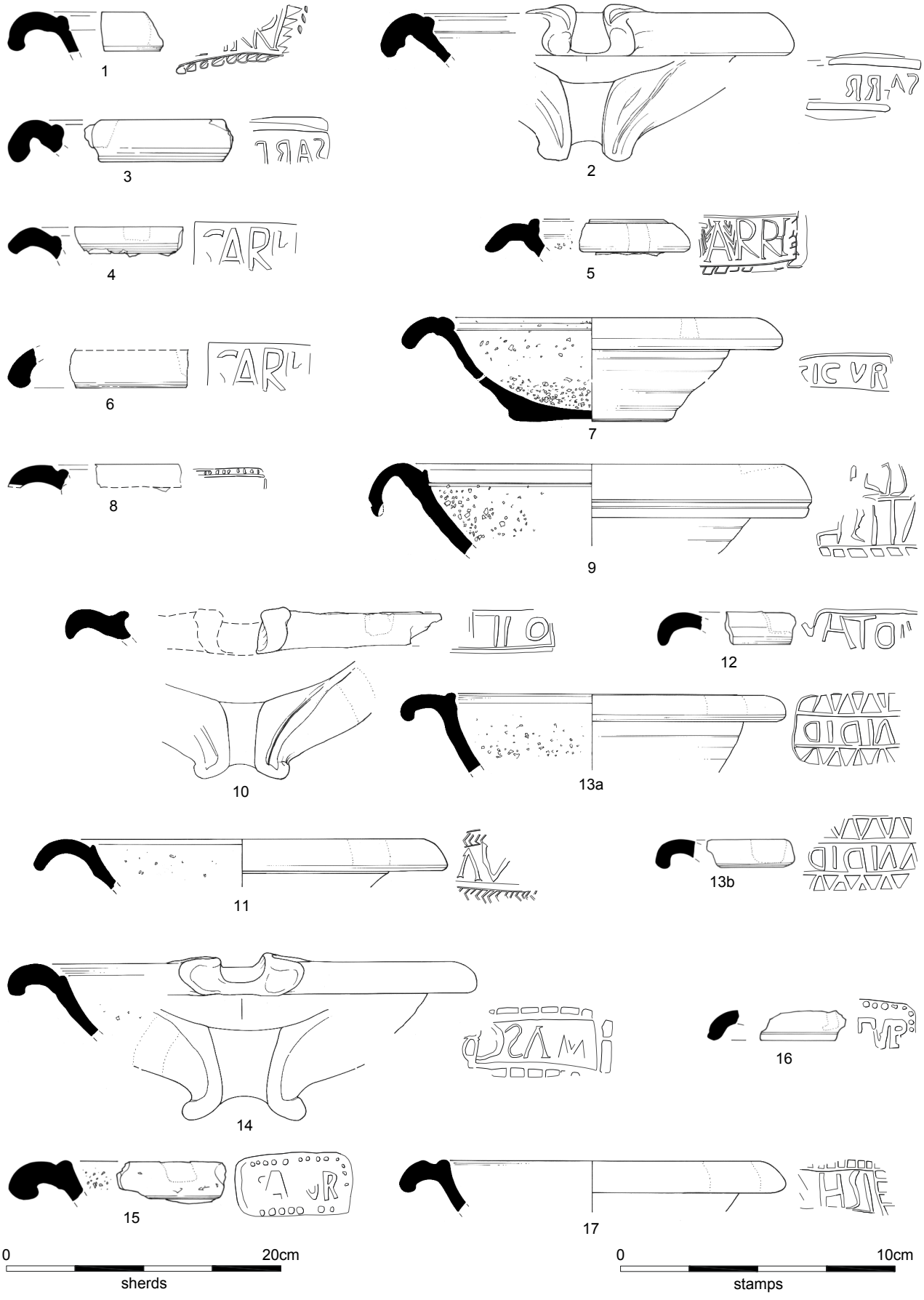


Figure 204: Mortaria with stamps

Vitalis 2

9. M151, 5034, Field 63 joins M88, 5019.

Other sherds from same vessel are M232, 5279; M165, 5042; M76, 5011; M408, u/s Fabric MLTC WH. The two left-facing, retrograde stamps impressed close together, were broken so that only the ends of the stamps survive. They were from one of the two dies of Vitalis whose kiln was found when making extensions to the Technical College on Cathedral Street in Lincoln (Baker 1936, 187 and JRS xxvii, 1937, p234). The lower, more complete impression showed part of A followed by LIS, all retrograde, the A has a dash instead of a bar and the L is represented with I. The fabric of this mortarium was very distinctive. Other mortaria of this potter have been recorded from Aldborough; Carlisle; Corbridge; Doncaster; Harpham villa; Leicester; Malton; Newport, East Yorkshire; Winterton (2 examples); and York (2 examples). The rim-profiles produced by Vitalis indicate manufacture within the period AD 90-120 and Wenham considered that his Vitalis mortarium (stamped with the second die) from Blossom St, York was Trajanic (Wenham 1965, 552, no. 1).

?Viator

10. M267, 5583 joining M289, 5901 joining M271, 5596, fabric MALD WS3.

Together these provided the rim profile. The right-facing stamp was worn because of the softness of the fabric. One end of the letter panel was impressed and a careful rubbing of the stamp indicated that it ends in]ICO, perhaps]TICO. It is an unknown stamp, but the mortarium is easy to attribute to a workshop at Aldborough. The characteristics of the fabric and the rim-profile, set it with complete certainty among semi-legible stamps made at and found there along with kiln-waste (Jones 1971, 53-54 and fig. 18, nos. 6 and 7; see also Proctor 2012, 100, fig. 61.6). Three to four mortaria were found which had semi-literate stamps likely to be of Viator (see below). They and this example would best fit a date in the first half of the 2nd century. (See Proctor 2012, 100, fig. 61.6 and Snape, Bidwell and Croom 2002, 89-90, nos. 14-16 for some further comments).

11. M216-8, all joining, 5234, fabric MALD WS4.

The fragmentary, probably right-facing stamp appears to read AV[…..] from left to right with blind A. Complete stamps read AVTIOR, with blind A and OR touching or squashed together. This is one of a series of stamps with semi-literate readings found at Aldborough and probably made there, which are probably intended to read VIATOR. For part of the upper border see Jones 1971, fig. 19, no.11. His mortaria are known from Aldborough (3); Birdoswald; Cardurnock; Castleford; Chesters; Corbridge; and Slack. The only complete impression is the unpublished one from Chesters (Hartley *pers. comm.*). Everything about his work points to production at Aldborough in the first half of the 2nd century.

12. M362, 8018, fabric MALD WS2.

The fragmentary stamp reads [.]ATO[.]. Complete stamps from the same die read VATOR. Mortaria stamped with the same die are known from Aldborough (7 examples; Jones 1971, 65-66, nos. 1-5, and fig.18, 1-5); Bainbridge; Bourne, Lincs; Bowness-on-Solway; Carlisle (Howard-Davis 2009, fig.298, no. 7); Hartlepool, Catcote; Malton (Wenham and Heywood 1997, fig. 42, no.5 and p111) and *Vindolanda*. This stamp appears on mortaria in both white and red-brown fabrics. The Aldborough mortaria were found with kiln-debris which again points to production there. The stamp was probably meant to read VIATOR. A date within the first half of the 2nd century would best fit the mortaria.

Stamps 10-12 are from three of at least five die-types, likely to have been produced at Aldborough, which provide variant spellings, almost certainly of 'VIATOR'. There were two more which may have been used at Castleford (Rush 2000, p.187, nos. 30-31 and see also no. 29) judging from distribution, and three more for whom the source is in the north, but uncertain (for one of these see Templeborough, May 1922, pl. 38, 12a-f, 8 Viator stamps). In all there were 10 of these die types attributable to a Viator working in the north; the Templeborough and Castleford stamps actually read VIATOR. The characteristics of the stamps and the distributions would fit with all belonging to one potter, but it was unlikely that all were being used at Aldborough.

There were also two die-types of Viator used in East Anglia, one of them at Colchester (May 1930, p.241, fig. 7, no.45; Symonds and Wade 1999, fig. 4.27, 123-124) the second at Caistor-by-Norwich; and four two-line die-types, some or all of which were used in the Lower Nene Valley in the Castor-Water Newton area (for further details see Proctor 2012, 101, fig. 61.10). All of these and the northern ones could have dated to the period AD 100-140 or thereabouts. While it is certain that several workshops were involved, it was not clear to whar extent any or all of the workshops were linked. Until this is clarified it was necessary to treat the stamps from all of these dies in their respective batches.

Candidus 3

13a & b. M349 joins M351 and M350, 8014; M310, 6922 does not join, but could be the complementary stamp from the other side of the spout, fabric MALD WS1.

M310 had most of the letters and read [..]NDID retrograde, with part of what was likely to be an A preceding the N. Although no other stamp from the same die is known, there was an unpublished stamp at Aldborough from another, similar die which reads [.]ANDID retrograde. It was reasonable to restore the name as Candidus. Two other potters were known called Candidus, Candidus 1 who worked in the Verulamium region and Candidus 2 who worked in the Mancetter-Hartshill potteries. Their die-types differed and it seems likely that this was a third potter of that name. It seems likely that Candidus 3 worked at Aldborough. His date is unknown, but a date in the first half of the 2nd century was perhaps most likely and the Healam Bridge mortarium would fit with that date.

Mascellio

14. M208 joins M207, 5323, fabric MCTR WS2.

The left-facing, virtually complete stamp on this heavily worn mortarium read MASC retrograde. This is an abbreviated stamp of Mascellio who had up to four other dies. For details of Mascellio's activity see Wilson 2002a, 446, MS5 and for a distribution map showing all of the mortaria apart from this one, see p.449, fig. 206. The evidence from distribution plus that from the distribution of stamps from individual dies indicate that he began

his activity in the Bainesse/Catterick area and that he moved northwards where he may have been involved in production in the Corbridge/Carlisle area and even in Scotland where all of the seven stamps recorded for him are from a single die. His total activity was *c*.AD120-165 and the rim-profile of the Healam example certainly dates within the first 30 years of the 2nd century and would actually best fit within the first 20 years.

Satur…

15. M21, 2131, Field 62, fabric MCTR WS3.

A very poorly impressed stamp of which only the final R and part of preceding V were reasonably clear together with the dots which make up the upper and lower borders. When clearly impressed stamps from the same die read SATVR, probably for Saturninus, which was a common name. This stamp was from one of four dies attributable to the same potter. At least three other potters are known with various contractions of this name and this one is known as Saturninus 2. For a stamp from the same die see Wilson 2002a, fig. 204, MS10 (MS23 is from a different die) and for details of his work and its distribution of see p.448, MS10 and fig. 207. There can be no doubt that his whole activity was in the Bainesse/Catterick area and his work fits within the period AD 100-140.

Satur….

16. M317, 7134, Field 64, fabric MCTR WS2.

A stamp from the same die of Saturninus 2 as M21, but on a flange fragment from a different mortarium. See M21 for comments.

Caesi(us)?

17. M148, 5011 joining M116, 5028, fabric MCTR WS1.

The partially impressed stamp is from a die which gives CAHSI in complete examples; this is the first example to show the end of the stamp in full. All of his three, possibly four, dies have H representing E, and can be interpreted as CAESI, probably for Caesius. The Healam stamp is from the same die as two Catterick stamps (Wilson 2002a, 339, fig. 167, MS 41 and 53). Seven mortaria are now known for him from Catterick (two examples, above), Corbridge, Newstead, Piercebridge, and Rocester, Staffs (Esmonde Cleary and Ferris 1996, fig. 30, no. 18 and p.68) with an extra stamp from Aldborough (Hartley *pers. comm.*), from another unpublished die which is probably his. Distribution points to production in the Catterick area; both this and his rim-profiles would best fit production in the first half of the 2nd century. The Rocester example will be a casual carry.

Fabrics and illustrated unstamped mortaria (Figs. 205 and 206)

Well known vessels described in the National Roman fabric reference collection (Tomber and Dore 1998) are not described in detail but the Tomber and Dore fabric code is given.

EYCT

East Yorkshire. *Calcite-gritted ware as EYCT.*

This vessel was flanged and compared to Crambeck type 6 but may not be a mortarium.

MCNG OX

Central Gaul, Rhone Valley, CNG OX.

One small bodysherd was identified.

M E ANGLIA

East Anglia white ware. *Buff with pink core. Moderate, medium to fine quartz, sparse coarse flint and medium rounded red/brown inclusions. Probably from a source in East Anglia.*

Trituration grits: 2-3mm flint and quartz.

18. M E Anglia flanged mortarium with corrugated wall, 2nd century AD. *Phase 3c, midden 5028. Not illustrated*

M VER

Verulamium Region White ware. *Tomber and Dore 1998 VER WH.*

Two vessels, one from pit fill 2850, Field 62, Phase 2 (M61) and another with sherds in contexts 8498, Field 51a, Phase 1i and deposit 8282, Field 61A, Phase 1ii.

19. Verulamium flanged mortarium. *Gillam 1970, no. 240, AD 70-110. Worn. M381 and 373, 8498, Field 51a, Phase 1i and 8282, Field 61A, Phase 1ii.*

Aldborough mortarium wares

Both white and oxidised white slipped wares were identified as probably from Aldborough. The white ware has been described by Tomber and Dore 1998, ALD WH but not the white-slipped wares.

MALD WH

Tomber and Dore 1998, ALD WH. Two sherds M275 and 403 from a flanged mortarium and a bodysherd, M78, possibly also from Aldborough from Field 63 subsoil.

20. MALD WH flanged mortarium. Jones 1971, fig. 18, no. 1. Late 1st to early 2nd century AD. M275 and 403 from one vessel, sherds in Field 63, Phase 1d, 5630 and unstratified.

MALD WS1

Aldborough White slipped ware 1. Orange/brown with cream slip and buff core. Moderate, medium, subrounded quartz and rounded black/brown inclusions.

Trituration grits: dense, where surviving, 3-4mm mixed red/brown and sandstone.

Two flanged mortaria, one of which is stamped Candidus (see stamp report no. 13, M349, 350, 351, 310 – two stamps but possibly all from one mortarium, dated AD 100-140), and the other from M215, Field 63, Phase 1a, context 5234. A further three bases (M184, context 5059; M22 topsoil 2131 and M85, 5109 subsoil also belonged to this group.

21. MALD WS spout of flanged mortarium. Very similar to Candidus mortarium, 2nd century AD. M215, Field 63, Phase 1a, context 5234.

MALD WS2

Aldborough White slipped ware 2. *Orange with buff/grey core and white slip. Sparse to moderate, medium, subrounded quartz and sparse grey inclusions.*

Trituration grits: none surviving

Four flange sherds (M127, context 5028; M413, context 5324 and 62, context 2851) and very abraded spout sherd (M314, context 7007). These included a flange stamped VATOR (stamp no.12) and dated to the first half of the 2nd century.

MALD WS3

Aldborough White slipped ware 3. *Pale orange with grey core, powdery and soft with white slip traces. Orange/brown with cream slip and buff core. Sparse orange/brown inclusions.*

Trituration grits: few surviving. A large flint and some red/brown grits.

This group comprised a vessel with a Viator stamp no. 12, M267, 289, 271, from Field 63, Phase 1c, contexts 5583, 5596, and 5901 (see below), a flange M330 from Field 63, Phase 3, context 7802 and an incomplete rim M353 from Field 61A, Phase 3i, context 8017.

MALD WS4

Aldborough White slipped ware 4. Orange/brown with very slight traces of white slip and grey core. Moderate, quite fine, subangular quartz and rounded black/brown inclusions.

Trituration grits: where surviving, 3-4mm quartz and flint.

Two vessels, one stamped Viator (no. 11) with a M216-8, Field 63, Phase 1a, context 5234, and a basal sherd M342, Field 61A, context 8008.

MCOL WH

Colchester White ware. Tomber and Dore 1998, COL WH.

Two vessels, a Hull 1963 no. 497 and 498, M337 and M191 from Field 61A subsoil and Field 63, Phase 1d, context 5071 and dated AD 130-70 and mid-2nd to mid-3rd century AD respectively.

22. MCOL WH flanged mortarium, Hull 1963, type 497, fig. 66, no. 7, AD 130-70. M337 from Field 61A subsoil. Fig. 205

MCOR WH

Corbridge White ware. Tomber and Dore 1998, COR WH.

23. MCOR WH flanged mortarium. M40, 41, 42 and 44 from Field 62, Phase 2, context 2583. AD 150-200. Fig. 205

Crambeck and Crambeck type mortarium wares

Kay Hartley identified a group of mortarium fabrics in the Crambeck tradition which were not good matches to Crambeck wares from the known kilns and suggested these were rather too soft and in poor condition to be true Crambeck ware. These may be from kilns at Catterick and were given distinct fabric codes.

MCRA M1

Crambeck copy. Pale brownish pink fabric with paler core. Fairly hard, finely irregular fracture, and powdery feel. Very few quartz visible, sparse medium, rounded red/brown inclusions, rare, coarse, subrounded cream cognates and sparse medium subrounded quartz. Slightly micaceous.

Trituration grits: abundant, black slag, very angular, 4-5mm. One vessel has abundant tiny grits (2mm).

This was the most common Crambeck copy fabric and included examples of Corder types 5b, 7 wall-sided mortarium, 8, and 9 all dating after *c*.AD 370.

24. MCRA M1 wall-sided mortarium, M128, Field 63, Phase 3c, context 5028. Fig. 205

25. MCRA M1 Corder type 8 mortarium, M132, Field 61A, Phase 5, context 8002. Fig. 205

26. MCRA M1 Corder type 9 mortarium, M332, Field 63, Phase 3c, context 5028. Fig. 205

27. MCRA M1 Corder type 7 mortarium, M388, Field 63, Phase 3, context 9056. Fig. 205

MCRA M2

Crambeck copy. Pinkish cream with vestigial traces of darker slip. Fairly hard with sandy feel and finely irregular fracture. Moderate, fine, well-sorted angular quartz and sparse, fine, rounded, red/brown inclusions.

Trituration grits: moderate black slag, *c*.4mm.

This was uncommon and was represented by only one reeded-rim mortarium.

28. MCRA M2 reeded-rim mortarium, late 3rd to 4th century. M64, Field 1, context 3249. Fig. 205

MCRA M3

Crambeck copy. Hard white fabric with granular feel and fracture. Abundant, medium, subangular quartz and sparse, rounded brown inclusions. Decorated with brown/orange paint. Quite different to above.

29. Only one vessel, a Corder type 7 mortarium with painted decoration. AD 370+. M399, Field 63, Phase 3, context 9093. Fig. 205

MCRA PA

Crambeck Parchment ware. Tomber and Dore 1998, CRA PA.

Corder types 5b, 6, 7 wall-sided, and 8 were present.

MCRA WH

Crambeck white ware. Tomber and Dore 1998, CRA WH.

Two Corder type 6 mortaria and a type 7.

30. MCRA WH Corder type 6 mortarium, 4th century. M416, Field 25, context 1145. Fig. 205

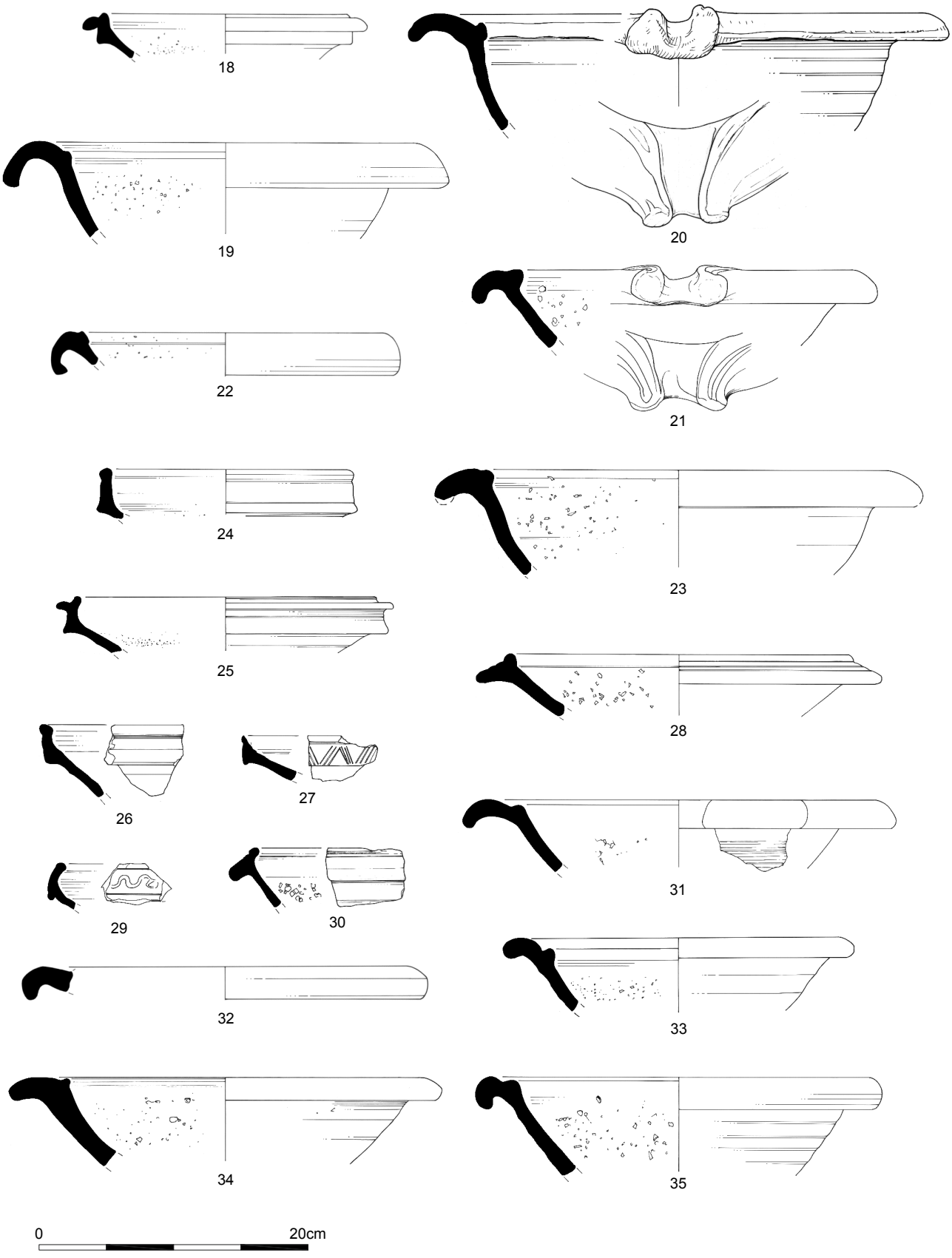


Figure 205: Mortaria

MCTR WS

Catterick White slipped ware. Tomber and Dore 1998, CTR WS- this group included both the 2nd century mortaria at Catterick and the late mortaria in the Cantley/Catterick tradition. This group was further subdivided in the Catterick report (Hartley 2002, 357-8, fabrics M14-7) and was attributed to the Catterick area on the basis of stamp distribution which suggests production at Catterick/Bainesse. It is possible that some of the fabrics listed below were locally made rather than at Catterick.

MCTR WS1

Catterick White slipped ware. Medium-orange with grey core. Hard and smooth with finely irregular fracture and white slip (not always present).

Trituration grits: sparse, coarse, 4-5mm angular. White quartz.

Perhaps Hartley MB14. This fabric was very similar to OAB1 sherds from bead-rim hemi-spherical bowls and flanged bowls from Healam.

This group included stamped vessel 17, M116 and 148 from Field 63, Phases 3b and c, contexts 5028 and 5031, dated AD 130-60.

31. MCTR WS1 flanged mortarium, dated early to mid-2nd century AD. Hartley 2002, M7. M319, Field 63, Phase 1c, context 7417. This vessel was also present in Phase 1c, contexts 6710 and 6924; Phase 1d, contexts 5042 and 5237; Phase 3b, contexts 5031 and 5629; and Phase 3c, context 5068. Fig. 205

32. MCTR WS1 flanged mortarium, dated early to mid-2nd century AD. M79, Field 63, Phase 5, subsoil. Fig. 205

MCTR WS2

Catterick White slipped ware. Orange to orange/brown with buff core and white slip traces. Fairly soft and powdery with irregular fracture. Moderate, fine, subangular quartz and rounded red/brown inclusions. Perhaps Hartley 2002, 357-8, MB15.

Trituration grits as fabric 1.

This group included stamped mortaria nos. 14 Mascellio, dated *c*.AD 125-65, M194-7, 207-8, and 409-10 from Field 63, Phase 1a, context 5084, Phase 1d, context 5323, and unstratified respectively and no. 16 Satur, dated AD 100-140, M317, Field 64, Phase 1, context 7134.

MCTR WS3

Catterick White slipped ware. Orange brown with grey core. Similar to fabric 1 but a little coarser with mixed trituration grits.

Trituration grits: mixed, 2-3mm, quartz. Flint and red/brown grits.

This group included some apparent wasters which had burnt grey and blistered but this may have been due to an on-site conflagration which also affected the samian and coarse pottery sherds.

This group included stamp no. 15 SATUR, M21, Field 62, context 2131, dated AD 100-40.

33. MCTR WS3 flanged over-fired mortarium. Early to mid-2nd century. M199, 202 and 203 from Field 63, Phase 1a, context 5142. Fig. 205

34. MCTR WS3 flanged over-fired mortarium. Hartley 2002, M12. Probably early 2nd century AD. M312, Field 63, Phase 1c, context 6924. Fig. 205

35. MCTR WS3 flanged mortarium. Hartley 2002, M2. Early to mid-2nd century AD. M296, Field 63, Phase 1, context 5976. Fig. 205

MCTR WS4

Catterick White slipped ware with slag trituration grits. This was the fabric described in Tomber and Dore and covers the fabric made in the Cantley/Catterick tradition in the 3rd and 4th centuries. Tomber and Dore 1998, CTR WS. Hartley 2002, MB12.

Bodysherds and a multi-reeded-rim mortarium M71 from Field 63 subsoil dated after AD 230.

MH

Mancetter-Hartshill White ware. Tomber and Dore 1998, MAH WH.

Stamped vessels nos. 1-3 and 6-8.

36. MH mortarium with curving flange, AD 140-70. M298, Field 63, Phase 1c, context 6710. Fig. 206

37. MH bead rim mortarium with downbent flange. Mid-late 2nd century AD. M343, Field 61A, Phase 5, context 8008. Fig. 206

38. MH bead rim mortarium with downbent flange. Late 2nd to early 3rd century AD. M339, Field 61A, Phase 5, context 8002. Fig. 206

39. MH bead rim mortarium with downbent flange. AD 150-80. M35, Field 61, Phase 3, context 3204. Fig. 206

40. MH collared mortarium. Late 2nd to mid-3rd century AD. M108 and 121, Field 63, context 5028. Fig. 206

41. MH collared rim mortarium with fat round beads. Very late 2nd or early 3rd century AD. M145-8, Field 63, Phase 3b, context 5031. Fig. 206

42. MH2 collared rim mortarium, divided into three parts. AD 170-230. M407, Field 63, unstratified. Fig. 206

43. MH multi-reeded mortarium with finger spout. AD 230-300. M214, Field 63, Phase 1a, 5234. Fig. 206

44. MH2 multi-reeded mortarium. AD 230-300. M367, Field 61A, Phase 2, context 8053. Fig. 206

MLNV CC

Lower Nene Valley White ware. Tomber and Dore 1998, LNV WH with colour coat.

Three bodysherds and a fragment from a wall-sided mortarium of 4th century AD date.

MLTC WH

Lincoln Technical College White ware. Tomber and Dore 1998, LTC WH.

One stamped vessel, no. 9 M76, 88, 151, 165, 232, 408 from Field 63, Phase 1c, 1d, 3b, subsoil and unstratified and Field 64, Phase 1, dated AD 90-120.

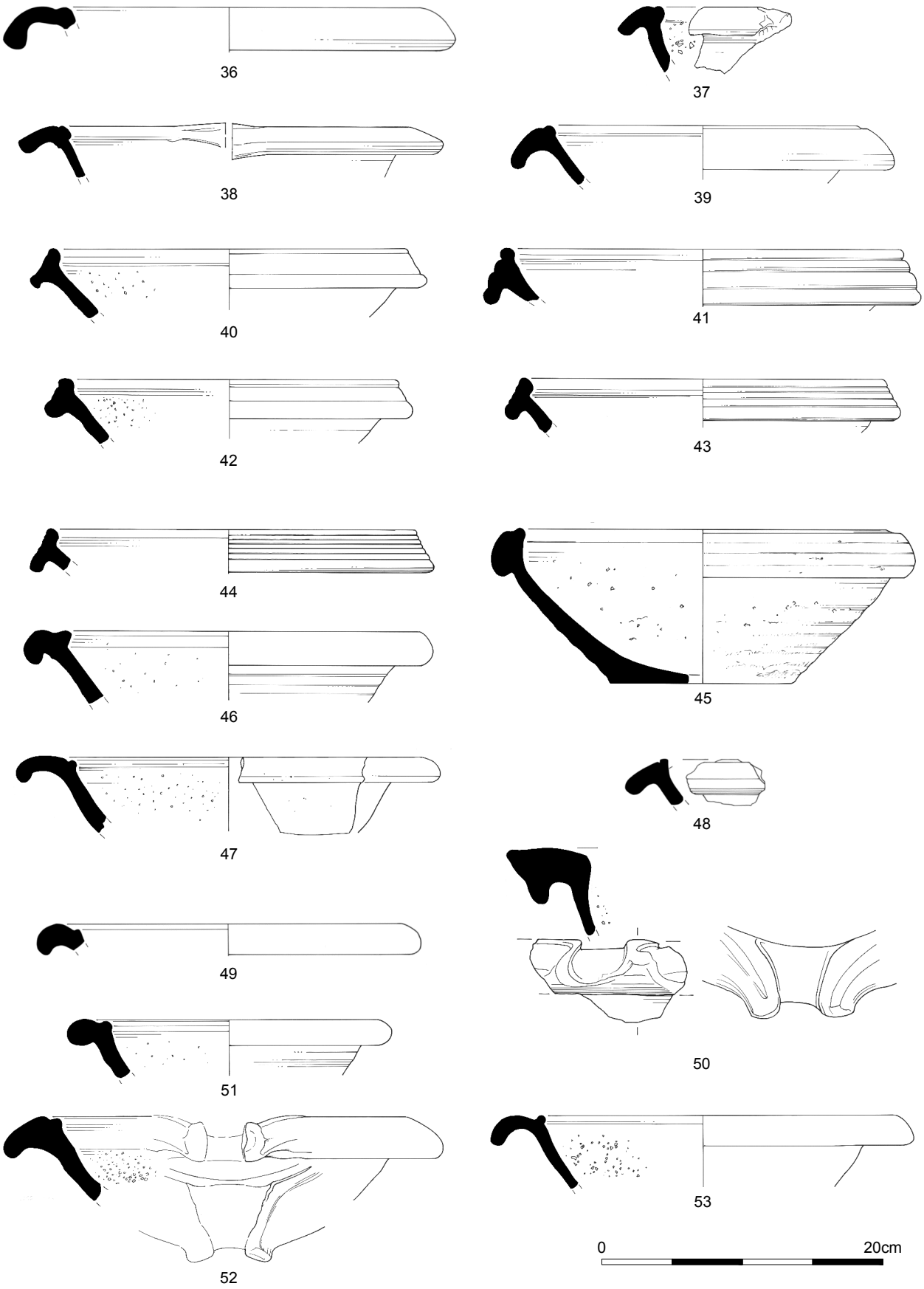


Figure 206: Mortaria

MNOG WH4

Northern France, Oise-Somme Region White ware. Tomber and Dore 1998, NOG WH4.

45. MNOG WH4 Gillam 255. AD 140-200. M209, Field 63, subsoil. Fig. 206

46. MNOG WH4 flanged mortarium. AD 80-150. M210-11, Field 63, Phase 1a, context 5230. Fig. 206

47. MNOG WH4 Gillam 238. AD 65-110. M387, Field 63, Phase 1, context 9039. Fig. 206

MOAB EBOR

Possible Ebor ware. Reddish orange. Very hard and quite smooth. Moderate. Medium subangular quartz and sparse, rounded, red/brown inclusions.

Only one basal sherd was identified in this fabric which Kay Hartley thought was likely to be produced by or for the military, perhaps at York and probably in the 1st century.

MOAB/MOWS INDET

A number of oxidised sherds could not be attributed or identified. Of these a body sherd from context 8015 (M352) was in a yellow fabric with moderate medium, angular quartz and sparse red/brown inclusions with trituration grits of 2-3mm quartz, sandstone and red/brown inclusions. A rim and body sherd from an oxidised white slipped mortarium with bead rim and downbent flange from context 5434 (M263) was in a hard orange fabric with grey core. This has abundant, medium, subangular and subrounded quartz with a texture similar to Cantley and other South Yorkshire fabrics. The trituration grits were *c*.3mm with quartz and red/brown inclusions present. This vessel was dated by Kay Hartley after *c*.AD 150 and considered local.

48. MOWS INDET white-slipped oxidised mortarium with bead rim and downbent flange, Unknown source. Later than AD 150. M263, Field 63, Phase 3b, context 5434. Fig. 206

MOAB NE1

North-east. Orange-brown with grey core. Burnt. Sandy and fairly soft with moderate, medium, subangular quartz. No trituration grits extant.

This group included stamp no. 4, M28-30, Field 62, Phase 2, context 2253, dated *c*.AD 135-70.

49. MOAB NE2 flanged mortarium, early to mid-2nd century AD. M130, Field 63, Phase 3c, context 5028. Fig. 206

MOAB NE2

North-east. Orange/brown with thick grey core. Hard and smooth with moderate, well-sorted, medium, subangular quartz.

Trituration grits: 5mm red/brown sandstone and quartz and some fine grained dark brown material.

Stamp no. 5 dated AD 135-70, M412, Field 63, subsoil.

MOAB NE3

North-east. Pale orange with darker slip and grey core. Moderate to sparse, medium, subangular quartz, sparse, coarse, angular, black inclusions and sparse fine, rounded red/brown inclusions. The fabric has white streaks.

Trituration grits: 2-3mm mixed quartz, red sandstone flint and red/brown grits.

50. MOAB NE3 spout, 2nd century AD. M327, Field 63, Phase 1b, context 7607. Fig. 206

MOAB NE4

North-east. Yellow with pink core. Soft with abundant, fine subangular quartz and sparse rounded red/brown inclusions.

Trituration grits: 2-4mm flint.

One vessel represented by spout fragments, M152-5, 157-161, dated *c*.AD 80-150 from Field 63, Phase 1c, context 5035.

51. MOAB NE4 bead and flange mortarium. M185, Field 63, context 5059. Fig. 206

MOXCM

Oxfordshire Cream ware. Tomber and Dore 1998, OXF WH.

One vessel Young 2000, type M17, AD 240-300, M54-7, Field 62, Phase 3, context 2714.

MRAETIAN RS

Raetian Red-Slipped ware, possibly local. Medium orange with very tiny traces of red slip on flange. Hard, smooth with fairly smooth fracture. Sparse fine quartz and red/brown inclusions.

Trituration grits: fairly dense, *c*.1-2mm quartz, reddish sandstone and red/brown grits.

52. MRAETIAN RS one Raetian mortarium, Hartley 1997. Antonine. M230, Field 63, Phase 1d, context 5255. Fig. 206

MSOC WH

South Carlton, Lincoln. *Tomber and Dore 1998, SOC WH.*

53. MSOC WH flanged mortarium. Mid-late 2nd century AD. Webster 1944 type J. M111, Field 63, Phase 3c, context 5028. Fig. 206

MW/MW INDET

White ware mortarium sherds from unknown sources and indeterminate scraps of white quartz tempered mortaria which could not be firmly attributed to a specific fabric. These are described in more detail in the catalogue where appropriate.

MW NE

North-east. Hard, yellowish fabric with pink core with smooth feel and irregular fracture. Moderate, medium, subrounded quartz and sparse medium, rounded orange/brown inclusions.

Trituration grits: moderate 4-5mm brown sandstone, quartz and soft orange/brown grits and possible flint.

Indeterminate flange and base sherds, early to mid-2nd century AD.

THE AMPHORAE

David Williams

The majority of the amphorae sherds recovered from Healam Bridge belonged to the commonly found globular-shaped amphora form Dressel 20, which carried olive oil from Baetica in southern Spain (Peacock and Williams 1986, class 25; Carreras in Williams and Keay 2005). The Dressel 20 form had a long life and it is difficult to closely date most ordinary bodysherds. However, included in the Healam Bridge Dressel 20 assemblage were nine rims. These can be approximately dated on typological grounds by comparison with Martin-Kilcher's statigraphical classification of Dressel 20 rims from the well-dated Swiss forts of Augst and Kaiseraugst (1987). This suggested a date for five of the rims in the first half of the 2nd century AD and all to the Trajanic-Antonine period (see Catalogue, below). In addition, the stamps from two separate handles were dated to the Flavian-Antonine period and the form of a complete unstamped handle also suggested an Antonine date. All this leads one to believe that the bulk of the Dressel 20 vessels may have arrived at the site during the first half of the 2nd century AD. Though the presence of a carved number on one of the rims suggested that after it had reached the site and its olive oil contents were emptied, it may well have been reused for another storage purpose, extending the active life of the vessel; it is therefore possible that this was the case for other vessels recovered from the site.

The non-Dressel 20 amphorae were primarily made up of material representing the series of flat-bottomed amphora that were made in Gaul and which predominantly carried wine (Laubenheimer 1985; Laubenheimer and Schmitt 2009; Laubenheimer in Williams and Keay 2005). There were three rims from the Gauloise 4 type, which was mostly made in Narbonnensis and which in Britain dates from the second half of the 1st century AD to the end of the 3rd century AD. This was the most common wine amphora imported into Roman Britain during the 2nd and 3rd centuries AD. It was likely, but not certain, that the majority of the Gaulish foot-rings, handles and bodysherds at Healam Bridge belonged to this form. A single small rod from a bifid-handle was also present that almost certainly belongs to a Dressel 2-4 wine amphora and whose fabric suggested an Italian origin (Williams *et al.* in Williams and Keay 2005). The main thrust of Italian Dressel 2-4 exports belonged to the 1st century AD (Arthur and Williams 1992; Williams *et al.* in Williams and Keay 2005), though it is clear that Italian production of this form continued at least into the early 3rd century AD (Freed 1989). The likely Verulamium White ware vessel rim of Hadrianic-early Antonine date appears to be some distance away from its production site (Davies *et al.* 1994, fig. 36, no. 169). In this context it would be interesting to see if Verulamium mortaria also reached Healam Bridge (cf. Grew and Seeley in Williams and Keay 2005). In addition, there were a small number of undesignated sherds in the assemblage.

Catalogue (Figs. 207-208)

Dressel 20

1. Dressel 20 rim (Martin-Kilcher 1987, Beilage 1, nos. 80-81, AD 110-150). Unstratified, Field 63. Fig. 207

2. Dressel 20 1 rim (Martin-Kilcher 1987, Beilage 1, nos. 83 or 89, AD 110-150). Context 2131, Field 62. Fig. 207

3. Dressel 20 rim (Martin-Kilcher 1987, Beilage 1, no. 80, AD 110-150). Context 8297, Field 61A, Phase 2i. Fig. 207

4. Dressel 20 rim, (Martin-Kilcher 1987, Beilage 1, no. 77, AD 110-150). Context 5824, Field 63, Phase 1. Fig. 207

5. Dressel 20 rim (Martin-Kilcher 1987, Beilage 1, nos. 76-77, AD 110-150). Context 5028, Field 63, Phase 3c. Fig. 207

6. Dressel 20 1 rim (Martin-Kilcher 1987, Beilage 1, no. 80, AD 110-150). Context 5067,Field 63, Phase 1c. Fig. 207

7. Dressel 20 complete rim (Martin-Kilcher 1987, Beilage 1, no. 81, AD 110-150). Complete unstamped handle attached to body and two bodysherds also present. There was a crudely made graffito VI incised onto the top surface of the rim. This seems to resemble the graffiti noted on Dressel 20 rims and handles from the Roman sites at De Horden (van der Werff 1987) and Augst (Martin-Kilcher 1987), where they were taken as an indication of the re-use of the amphora once the original olive-oil contents had been disposed of. This suggestion implies that some Dressel 20 vessels may have had a longer active life than the usual typological dates allocated to them. Context 5228, Field 63, Phase 1a. Fig. 207

8. Dressel 20 rim (Martin Kilcher 1987, Beilage 2, nos. 92, 95-8, dated AD 150-210). Context 5031, Field 63, Phase 3b. Fig. 207

9. Dressel 20 rim (Martin Kilcher 1987 Beilage 2 nos. 92, 95-8, dated AD 150-210). Context 2782, Field 62, Phase 1. Fig. 207

10a & b. Dressel 20 two handles - one of the handles contains a partial stamp but the letters were too faint to allow an accurate reading. Context 5001, Field 63, Phase 4. Fig. 207

11. Dressel 20 handle containing a faint but complete impressed stamp *in ansa* enclosed in a cartouche. The reading was slightly difficult due to the faintness of the letters but would appear to be TAASIATICI in abbreviated form (Callender 1965, no. 1696; Carreras and Funari 1998, no. 70). An identical stamp from Colchester was found in layers dated AD 160-300 (Funari 1996, no. 44a), though this stamp is normally dated earlier (Berni Millet 2008, 604). The workshops for this stamp were situated at Adelfa and Tostoneras on the south bank of the River Guadalquivir, near to Arva. Context 6789, Field 63, Phase 3b. Fig. 207

12. Dressel 20 fitting sherds for neck and attached unstamped handle – Antonine form (cf. Millet 2008, fig. 9). Context 5121, RF 184, Field 63, Phase 1d. Fig. 207

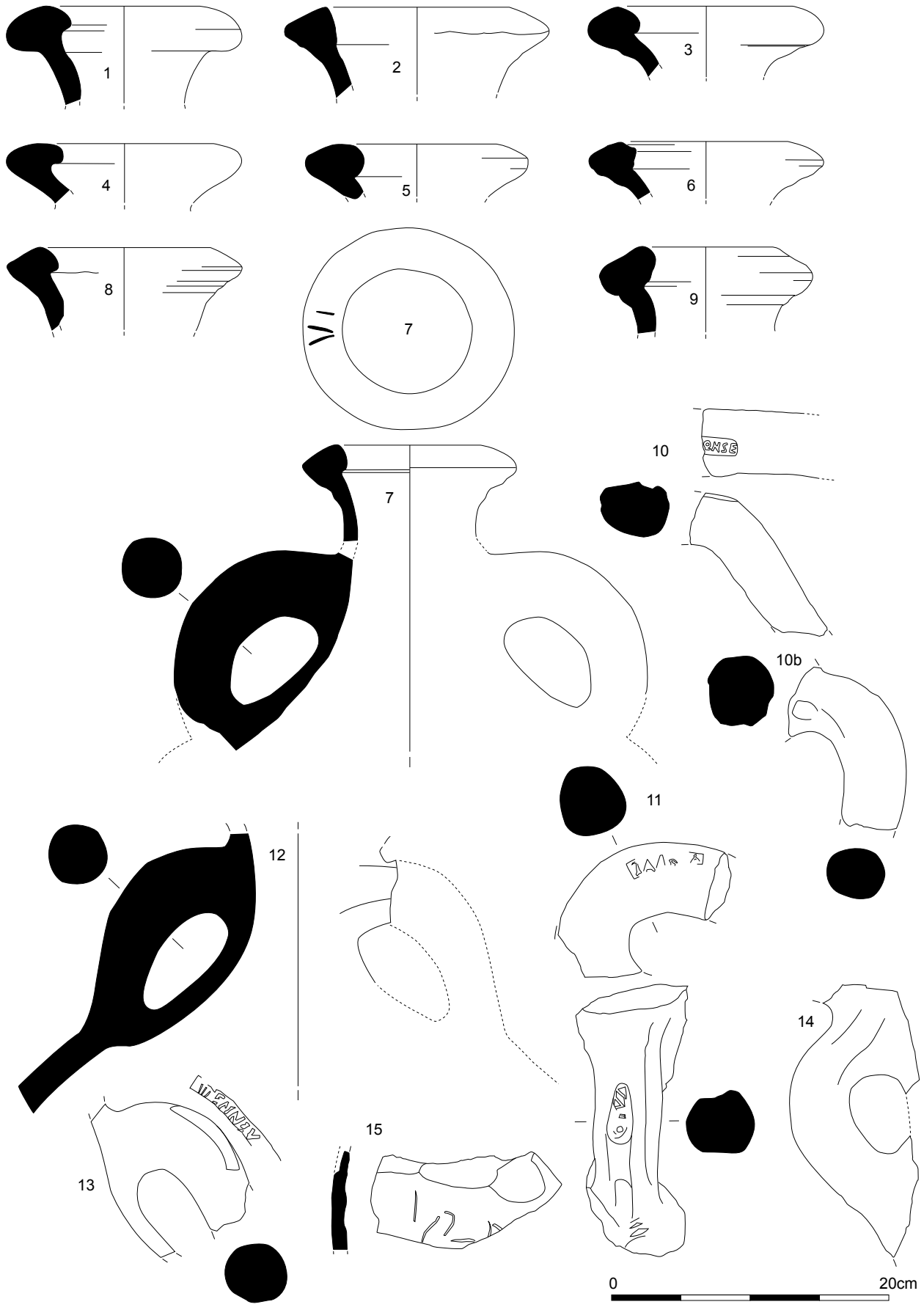


Figure 207: Amphorae

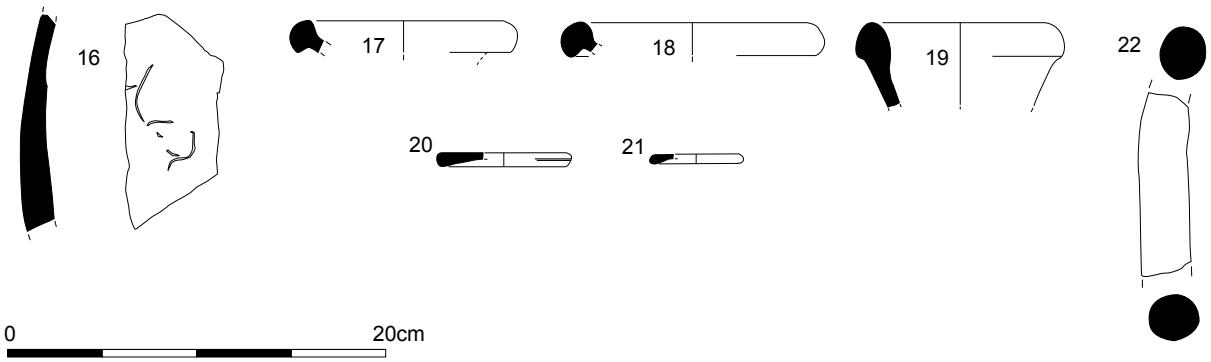


Figure 208: Amphorae

13. Dressel 20 stamped handle with attached bodysherd. The partial impressed stamp *in ansa* is enclosed in a cartouche and reads III ENNIIVL……(Callender 1965, fig. 7, 14, no. 581; Carreras and Funari 1998, no. 176). The pottery workshop associated with this stamp was located at Las Huertas del Rio, just east of Axati, roughly halfway between Seville and Cordoba and seems to have operated during the Flavian – Antonine period. Many examples of the stamps of the three. Context 8328, Field 61A, Phase 1. Fig. 207

14. Dressel 20 complete handle with an impressed illegible stamp *in ansa*. Context 8297, Field 61A, Phase 2. Fig. 207

15. Dressel 20 bodysherd with an illegible graffito scratched onto the surface. Context 5071, Field 63, Phase 1d. Fig. 207

16. 21 Dressel 20 bodysherds, 1 with graffito, plus small fragments. Probably all from the same vessel. Context 7495, RF 495, Field 63, Phase 1b. Fig. 208

Gaulish

17. Gauloise 4 rim. Context 5028, Field 63, Phase 3c. Fig. 208

18. Gauloise 4 rim. Context 5096, Field 63, Phase 3c. Fig. 208

19. Gauloise 4 rim. Context 7090, Field 63, Phase 1a. Fig. 208

20. One small piece of an amphora lid. Context 5028, Field 63, Phase 3c. Fig. 208

21. One small piece of an amphora lid. Context 5071, Field 63, Phase1d. Fig. 208

Dressel 2-4

22. One rod of bifid handle, the fabric appears to be Italian. Context 5028, Field 63, Phase 3c. Fig. 208

Verulamium Region White ware

23. One rim from a ?amphora/flagon. This appeared to belong to a Verulamium Region White ware vessel, dating to the Hadrianic-early Antonine period (Davies *et al.* 1994, fig. 36, no. 169; Grew and Seeley in Williams and Keay 2005). It was in a slightly granular white fabric with a noticeable scatter of red iron-rich inclusions (cf. Tomber and Dore 1998, 154-155). Context 5596, Field 63, Phase 1c. Not illustrated

ANGLO-SAXON POTTERY

Chris Cumberpatch

Introduction

The post-Roman pottery assemblage consisted of 467 sherds, weighing 4,930g, and represented a maximum of 428 vessels. The date range extended from the late 5th/early 6th century AD to the early 20th century AD (Cumberpatch 2011b; 2012a; b). This section concentrates on the small Anglo-Saxon pottery assemblage recovered during the excavations at Healam Bridge.

Anglo-Saxon pottery (5th to mid-11th century AD) – *Table 127*

Anglo-Saxon pottery was not abundant and fell into two small groups. Fields 63 (context 5990) and 64 (context 6883) both produced single sherds in very fine brown fabrics, burnished externally to black and decorated with multiple concentric ring stamps. In addition to the ring stamps, the sherd from context 5990 also bore parts of two wheel stamps and it is possible that the two sets of motifs were arranged in rows around the vessel (Fig. 209, 1 and 2).

Field 63 also included a small quantity of ambiguous sherds of handmade pottery (context 5028). Of these, the rim and spout from a spouted pitcher (Fig. 209, 3) was clearly of post-Roman date (most probably 10th to early 11th century) but other body sherds were less easy to distinguish from pre-Roman Iron Age and Roman period fabrics (Table 127). Detailed examination showed that the range of inclusions was more diverse than is typical of the earlier material and included both calcareous (chalky white to grey grains) alongside fine quartz sand in orange or orange-brown bodies. While such fabrics are present in prehistoric and Roman assemblages (where they are classified as type H3), they are rare and generally lack the distinctive colour and texture shown by these sherds. This having been said, there remains a degree of ambiguity around the body sherds and it is not impossible that a small number of body sherds, particularly abraded and very small fragments, have been misclassified. The assemblage from Field 63 should therefore be regarded as a complex one and suitable for re-examination should any synthesis of the later prehistoric, Roman, and post-Roman period in the wider region be undertaken in the future.

Discussion

Field 63

Context 5028, part of an extensive midden deposit, included a range of material including local medieval wares, unglazed red earthenware, and early modern to recent wares. Context 5028 also included a substantial amount of handmade pottery of Late pre-Roman Iron Age or Roman date and the rim and spout of a late Saxon spouted pitcher (fig. 209, 3) together with a number of handmade sherds of probable post-Roman type. The midden also included pottery and other finds of Roman date spanning the period of Roman occupation. Taken together the assemblage was an extremely diverse one and no simple interpretation can be offered on the basis of an examination of the post-Roman pottery alone.

Context 5990, the fill of a pit, contained a sherd of Anglo-Saxon pottery decorated with ring and wheel stamps, similar in terms of its fabric to the sherd from Field 64, context 6883 (fig. 209, 1; below). The sherd from 5990 appears to be broadly contemporary with the glass bead from the same context (section 11.2, no. 41).

Field 64

Context 6883, the fill of a ditch, produced a sherd of ring-stamped Saxon pottery. It was associated with Roman pottery of 2nd century AD (Hadrianic) date (fig. 209, 2).

Catalogue of illustrated Anglo-Saxon pottery sherds *(Fig. 209)*

1. Stamp decorated Anglo-Saxon pottery. Field 63, context 5990.

2. Stamp decorated Saxon pottery. Field 64, context 6883.

3. Spouted pitcher, late Saxon Field 63, context 5028.

Field	Context	Type	No	Wt (g)	ENV	Part	Form	Decoration	Date range	Notes
63	5028	H2	2	39	2	BS	Hollow ware	Impressed lines ext	?Post Roman	Fine soft orange-brown oxidised sandy fabric w/fine quartz up to 0.2mm
63	5028	H2	1	41	1	Rim and spout	Spouted pitcher	Smoothed ext	Late Saxon	Very fine orange-brown sandy fabric w/abundant fine quartz sand up to 0.4mm, occasionally larger. Fig. 209, 3
63	5028	H3	1	9	1	BS	Hollow ware	U/Dec	?Post Roman	Pale orange sandy fabric w/ mixed temper including white chalky inclusions up to 1mm and sparse fine quartz sand; laminated fracture
63	5028	H3	3	53	2	BS	Hollow ware	Smoothed int and ext	?Late Saxon	Fine sandy grey fabric w/ abundant rounded quartz up to 0.2mm and rare angular calcite up to 4mm
63	5028	H4	2	3	2	BS	U/ID	U/Dec	?Post Roman	Small abraded vesicular fragments

Table 127: Handmade post-Roman pottery from Field 63 context 5028. No - sherd count; Wt - weight; ENV - estimated number of vessels; BS - body sherd; U/Dec - undecorated; U/ID - unidentified; int - interior; ext – exterior.

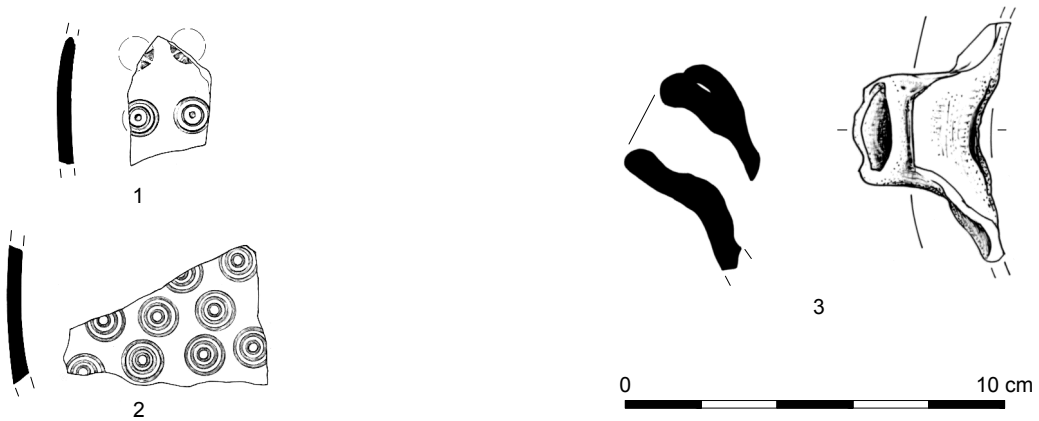


Figure 209: Anglo-Saxon pottery

CHAPTER 11 - THE SMALL FINDS

COINS

Richard Brickstock

Introduction

A total of 413 coins were recovered through excavation, fieldwalking, and controlled metal-detecting. The validity of the use of metal detectors in the course of professional archaeological investigation has been discussed at length elsewhere (e.g. Brickstock *et al.* 2007) and need not be revisited here: so long as the limitations of the technique are borne in mind, it is clear that numismatic assemblages compiled in this fashion are of considerable value and bear direct comparison with data compiled by more conventional means.

Overview

The overwhelming majority of the coins (397) were Roman, but there was also one Northumbrian styca recovered by metal-detection in Field 61A and 15 modern issues that dated from the reign of Elizabeth I and later. Of the Roman coins, more than 150 were sufficiently well-preserved to allow identification without the requirement for cleaning or conservation, a further 70 were sufficiently legible for useful data to be obtained without intervention, while the remainder (nearly 200) were cleaned and conserved by Jennifer Jones (formerly at Durham University) prior to identification. As a result, it was possible to catalogue (online Appendix I, Table 128) all but 10 of the Roman coins in sufficient detail to include them in the statistical analysis presented below (Fig. 210). This used the widely-used methodology and date brackets outlined in the English Heritage guidance note (Brickstock 2004).

These finds from Healam Bridge and environs, and the information generated from them, were comparable with those from Bainesse Farm, Catterick, roughly a day's (Roman-period) travel to the north (Brickstock et al. 2007), as well as those from Catterick as a whole and Aldborough (the latter a similar distance south of Healam Bridge, Brickstock 2002), and Roecliffe (the predecessor of Aldborough, Brickstock 2005).

The Roman coins from Healam spanned the full temporal range of coinage visible on many sites throughout the province, beginning with five Republican issues and running through to a single issue of the House of Theodosius (AD 388-402). There were, however, some significant gaps in the sequence, as well as some other statistically significant variations from the national and regional norms (see discussion below).

One of the topics of debate in this project was the nature of the settlement (or settlements) at Healam Bridge; in particular, whether or not there was a military origin or presence throughout the Roman period. Unfortunately, the coins from other regional sites had little to contribute to this debate. The vast majority of gold and silver coinage that entered northern Britannia came in as payment to the military garrisons and the majority of the base-metal coinage, particularly in the early period of occupation, probably also passed into circulation as soldiers sought to convert their pay to more usable denominations (Brickstock 2000a). Thus, coin assemblages from northern Britannia were dominated by the presence of the military to the point that it has proven impossible to make a numismatic distinction between military and civilian occupation (or a combination of the two). The coinage can contribute, however, to the debate over the foundation date and continuation of occupation at Healam Bridge and environs.

The coin assemblage

Other than the five Republican issues, the assemblage began with 19 coins minted in the Flavian period (14 between AD 69 and 81, the remaining five between AD 81 and 96). On the face of it, if one regarded the Republican material as residual, this would suggest a foundation date somewhere in the reign of Vespasian (AD 69-79). There was a strong possibility, bordering on certainty, that these coins should be regarded as residual. Without exception, they exhibited very considerable circulation wear and it was more than likely that they were deposited in contexts considerably later than their mint-dates. The problem, of course, lies in deciding just how much later.

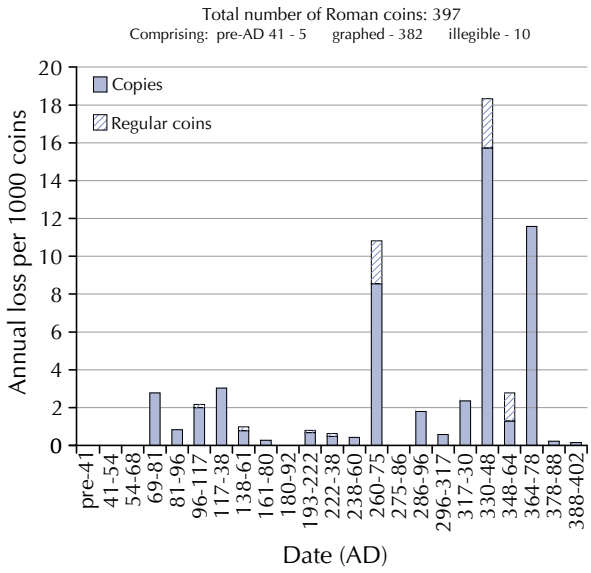


Figure 210: Statistical summary of the Roman coins

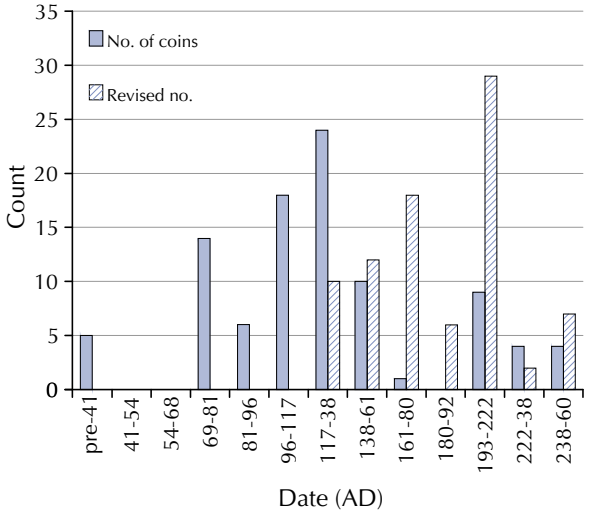


Figure 211: Suggested plausible dates of deposition for 95 coins minted before AD 260

The Republican *denarius* and the base-metal fractions of the *denarius* introduced by the Emperor Augustus (31 BC-AD 14) remained legal tender until the eventual collapse of that currency system in the third quarter of the 3rd century AD. It was abundantly clear from both hoard and site finds that individual coins could remain in circulation for many decades, even centuries (e.g. Brickstock 2000b), but it has always been hard to quantify the wear exhibited by individual coins recovered from archaeological contexts in terms of an approximate number of years of active circulation.

Plausible dates of deposition for the 95 coins in the current assemblage that were minted before AD 260, following methodology developed by the author (Brickstock *forthcoming*), are shown in Figure 211. In essence, the methodology was based on an in-depth study of hoards, such as the Rudchester hoard, which contained material ranging from extremely worn Republican coins through to unworn issues of Marcus Aurelius, allowed rough quantification of wear. This approach can be applied to finds from other sites. It must be stressed, however, that this is a somewhat subjective technique and that the assessment of circulation wear is by no means an exact science; the data generated from it should be viewed with some reservations.

Using absolute numbers, the first column of Figure 211 summarises the early coins from Healam and environs according to mint-date following the date periods used in Figure 210. The second column presents the 'revised' date, which is the suggested date of deposition taking the level of wear into account.

Using this method, the Flavian coinage, which was all very worn, was reassigned to the mid-2nd century or even the early 3rd century AD. The earliest suggested date of deposition for any coin in the assemblage was in the reign of Hadrian (AD 117-38), to which 10 coins were reassigned. Of these, the least reliable were the five Republican issues, which were so worn that even the 150-year add-on applied could actually be too little. Of the remainder, three were Trajanic (RF 215 from Field 62, RFs 109 and 378 from Field 63) and the other two Hadrianic (RF 747 from Field 63 and RF 929 from Field 61A). RF 747, a *dupondius* of Hadrian minted between AD 119 and AD 121, provided an indication that this method of analysis might produce results that are broadly correct. It was the earliest coin in the assemblage to exhibit only 'slight wear' (thought to indicate deposition within about five years) and the first appearance of lightly-worn coinage in any given coin sequence (another possible indicator of contemporary, or near-contemporary, activity).

Thus, the coin sequence at Healam appeared to indicate a start-date in the Hadrianic period (conceivably a little earlier, but probably no later) and an early history therefore somewhat at variance with that of Bainesse and Roecliffe. By contrast with Healam, the earliest little-worn coinage from Bainesse, for which a rather earlier foundation date had been postulated, was Trajanic. Some of the Flavian coinage from that site was also less worn than the examples recovered from Healam. Roecliffe provided a still more marked contrast, where the presence of seven Claudian copies (significantly absent from Healam) and a slightly-worn coin of Nero in an assemblage of only 23 coins, suggested a foundation date very early in the Flavian period (under Bolanus or perhaps Cerialis). None of the 11 coins of Vespasian exhibited more than slight wear, which suggested abandonment no later than the late 70s or early 80s AD, probably in favour of Aldborough. At Aldborough, the very large assemblage contained late Republican, Julio-Claudian, and Vespasianic coins, but virtually no Claudian copies. The presence of a number of little-worn coins of AD 77-8 and later suggested a foundation date of perhaps the early 80s AD.

Further into the Roman period there was a broad correspondence between the pattern of coin finds from Healam and that of North East England as a whole, but within that pattern there were also some significant discrepancies between Healam and Bainesse and indeed between Healam and what may be termed the 'normal' pattern of finds from the region. Assessment of the pottery suggested the possibility of a reduced level of activity at Healam the late 2nd and 3rd centuries AD and a possible hiatus in within the 3rd century (see Section 10.2). The coinage appeared to offer some partial support for those suggestions.

The histogram value for the Antonine period (AD 138-61) at Healam appeared fairly 'normal', in that it lay midway between that of Bainesse and Catterick as a whole. At the latter, the Antonine peak was depressed by a supposed diminution of site activity between the abandonment of the early fort *c*.AD 120 and the foundation of its successor in *c*.AD 160; at Bainesse the peak was observed (for various possible reasons) to be rather higher than 'normal'.

The percentage of coins dating from the later 2nd century and early 3rd century AD in the Healam assemblage was very low, but this reflected the situation at virtually all Romano-British sites. However, the peaks for the later 2nd century were arguably even lower than what would be considered 'normal' and it would be possible to postulate reduced activity for the period from *c*.AD 160 through to *c*.AD 200 (though the reassignment of earlier coins to these deposition levels suggested by Figure 211 should be noted). There was certainly some numismatic activity in the Severan period (AD 193-22) in at least some areas and for some time thereafter, since much of the Severan material was considerably worn by the time it was deposited.

Interesting patterns emerged by splitting the assemblage between Field 61A (the '*vicus*' site to the west) and Fields 61-5 (to the east). Virtually all the recovered Roman coins came from these two areas: 170 from Field 61A and 223 from Fields 61-5 (of those, 185 came from Field 63 alone). Both assemblages began with Republican coins and ran through to the late 4th century AD, but there were some distinctions of note. Field 63 yielded a larger proportion of early finds (dated up to the end of Hadrian's reign in AD 138) than Field 61A: 38 coins from Field 63 and 17 coins from Field 61A. This was a significant difference in assemblages of roughly comparable size. The 28 coins from Field 62 contained another nine early coins, further emphasising the contrast with Field 61A.

In the periods that followed, however, the assemblage from Field 61A appeared fairly continuous, but there was a later 2nd century (AD 161-93) gap in Field 63 and a much longer gap in Field 62 (AD 138-268), with the exception of a single Severan counterfeit (RF 605). Accordingly, we had the possibility of a gap or diminution in activity in certain areas (Field 63) in the later 2nd century and perhaps also in the early 3rd century AD (Field 62). The latter suggestion is more tentative since the Field 62 assemblage was much smaller and therefore statistically less reliable than those from Fields 61A and 63.

Counterfeit Severan and early 3rd-century AD silver coinage was a widely observed phenomenon throughout Roman Britain. The occurrence was undoubtedly linked to the profit that could be generated in a time of debasement and high inflation by producing the semblance of earlier silver-rich issues. The appearance of a couple of examples in this assemblage therefore came as no surprise. RF 605 from Field 62 was a counterfeit Julia Domna (wife of Septimius Severus) issue of AD 193-96. The second example (RF 1008) from Field 63 erroneously paired an obverse from the later years of Severus Alexander (AD 228-35) with a reverse of his successor Maximinus I (AD 235-36). This is a pattern seen on other counterfeit coins from this period.

These examples were interesting, but not unusual. Counterfeits of earlier emperors were much less common (but by no means unknown) and are worthy of note. In this assemblage we had at least two, possibly four, such instances. RF 869 (Field 61A) counterfeited a late Hadrianic obverse against an issue from the beginning of the reign of Antoninus Pius (AD 125-28 and AD 139 respectively). RF 279 (Field 63) was similar, counterfeiting an obverse of AD 134-38 against a reverse of AD 139. RF 466 (Field 63) appeared to be a hybrid of two incompatible types of Antoninus Pius (an obverse of AD 140-44 seemingly paired with a reverse of AD 139) and therefore may have also been a counterfeit (AD 140-44). RF 1009 (Field 63), a Trajanic *denarius* of AD 103-11, was perhaps also a counterfeit. Such issues remind us that counterfeiting was a potentially profitable enterprise not only in the early 3rd century AD, but also at any time prior to the introduction of modern-style token coinage.

The most obvious divergence between the Healam assemblage as a whole and the normal pattern for the region occurred in the coins dated to the later 3rd century AD. The expected peak for AD 260-73, where a surge in coin deposition that accompanied the eventual collapse of the Augustan coinage system, was dramatically under-represented at Healam being some 50-60% lower than might be expected when compared to nearby sites. This divergence extended, less obviously but equally, to the following periods, including that of Carausius and Allectus (AD 286-96) and perhaps also continued into the very early years of the 4th century (though not beyond AD 310). This dramatic divergence from the norm argues a diminution of coin-using activity across the site as a whole for much of the second half of the 3rd century, since the phenomenon appeared across the various areas of the site. It cannot represent a complete hiatus in occupation, since the number of coins was still considerable; and it was not likely to represent a hiatus ending mid-way through the AD 260s. In that instance, one would expect an over-representation of copies as opposed to regular coinage. The percentage of copies was, if anything, rather lower than normal.

By contrast, the 4th-century AD coin evidence at Healam appeared very strong in comparison to most other sites in the area. The histogram peaks for both AD 317-30 and AD 348-64 were at, or a little above, the expected values. Those for AD 330-48 and the House of Valentinian (AD 364-78) were both much higher than normal -as much as double the expected values.

The statistical process used for the production of Figure 210 was to some degree responsible for the apparent overrepresentation of the 4th century AD at Healam. It presented the finds as a proportion of the site total and the underrepresentation of the later 3rd century AD had the inevitable effect of inflating the 4th-century peaks beyond their true values. However, this provided a partial explanation only. Occasionally, such peaks can be explained by the presence of scattered hoards amongst the site finds, but overrepresentation of coins of AD 330-48 in particular, was spread evenly over the site, rendering that possible explanation unlikely in the extreme. The Valentinianic finds were concentrated in one area (44 of the 62 finds of AD 364-78 came from Field 61A), but there was nonetheless a strong presence from Field 63, which also argues against the 'scattered hoard' theory.

The obvious conclusion, therefore, is that we must also view an increased level of activity across the site that extended from the AD 330s (or a little earlier) through to the 370s. Beyond that, the Roman coin sequence ended with a single coin of AD 378-83 (RF 981 from Field 61A) and another of the House of Theodosius (RF 268 from Field 63), allowing one to postulate the continuation of coin-using activity across the site, at least until the end of the Roman period.

For the post-Roman period, comparison with Bainesse was once again instructive. At that site, the post-Roman coinage fell into three categories, following the 'normal' pattern for North East England: medieval silver of the 12th to 16th centuries, 17th-century small change, and modern English small change from William III through to Elizabeth II. Healam yielded one Northumbrian styca (RF 890) to add to the small, but growing, corpus of pre-Conquest material from the region. Material from the 17th to 20th centuries corresponded to the second and third categories at Bainesse. However, no medieval silver coins prior to the reign of Elizabeth I were found, which was further confirmation of the apparent absence of medieval settlement along the line of the A1 between Dishforth and Leeming.

DRESS ACCESSORIES AND PERSONAL ITEMS

Gail Drinkall with contributions from Quita Mould and Penelope Walton Rogers, The Anglo-Saxon Laboratory

Brooches (Figs. 212-216)

Summary

A total of 32 brooches were retrieved from all phases of work during the scheme. The majority were from Healam, in particular Field 63 where 22 brooches were recovered. A range of types were represented with trumpet brooches and their derivatives being the most common (11 examples). Headstud, knee, disc, and penannular brooches were also present, along with single examples of crossbow and cruciform brooches. For most cases Mackreth's (2011) corpus of Roman brooches was used to classify the assemblage. The notable exceptions to this were the penannular, crossbow, and cruciform brooches, the latter being beyond the chronological range of his work. Detailed discussion regarding the usage of different brooch types and the brooch wearing habits of the region were beyond the scope of this report, though it is worth reiterating Mackreth's (*op. cit.*, 237) observation that every brooch type of the later 1st century and onwards showed some sort of bias towards two types of site (towns and military), because on the whole these have received the greatest attention from archaeologists.

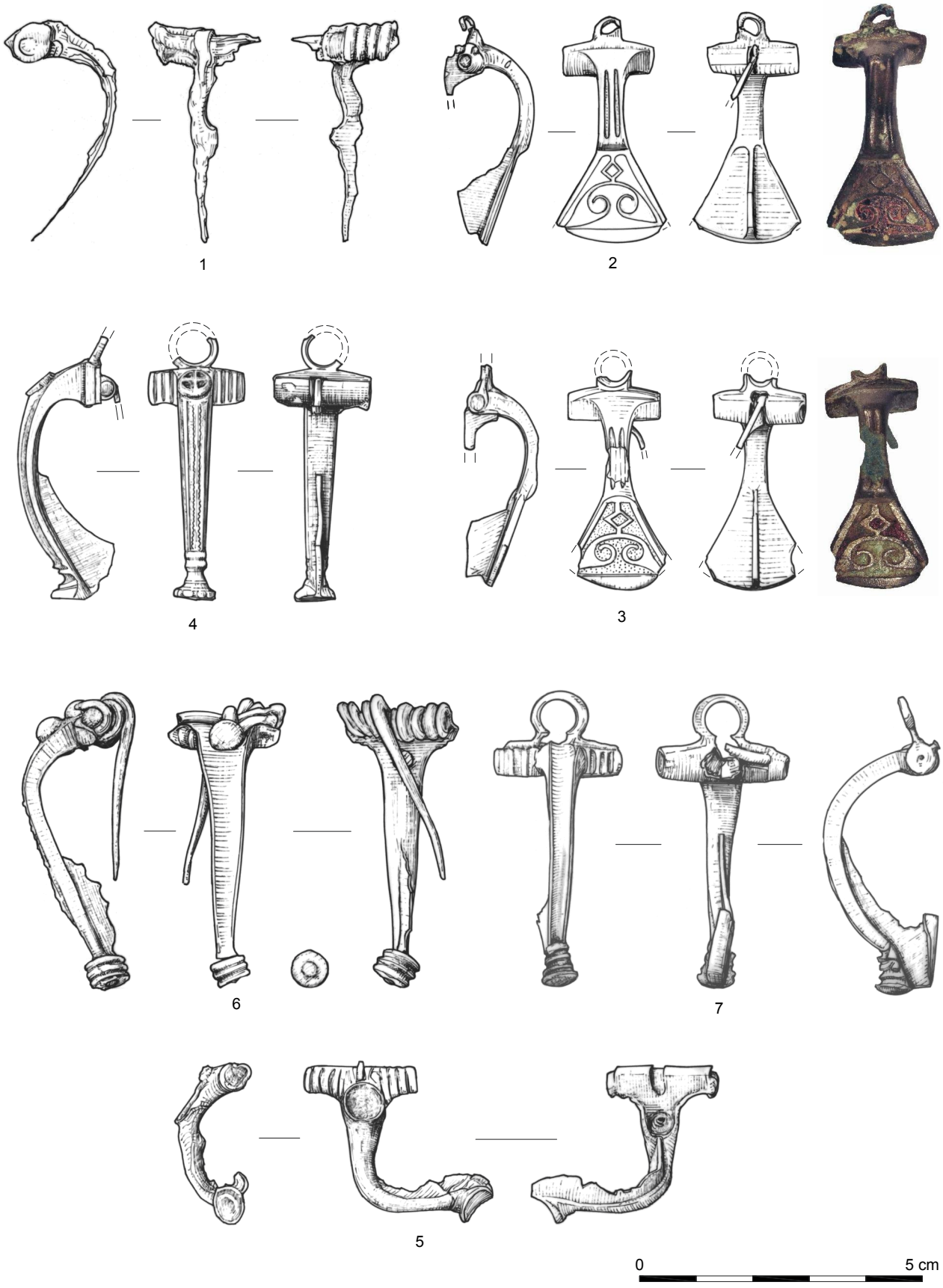


Figure 212: Colchester, colchester derivatives, and headstud brooches

An object may have many contexts between its initial manufacture and its eventual discovery. While many of the brooches were found in their tertiary contexts, for example from the infilling of ditches (e.g. no. 6), deposited in middens (e.g. nos. 1 and 3), or from the clearance of latrine and rubbish pits (no. 24), others were found as a result of metal-detecting over the spoil heaps or during field walking. A few have a different story to tell: trumpet brooch no. 11 may have been lost when structure 6949 burnt down and the wheel brooch (no. 25) hints at the religious affiliation of its wearer. Others, such as the fantail, and some types of penannular brooches, reflected the native manufacturing traditions that were in use at the time of the Roman Conquest.

Colchester and Colchester derivative brooches

Brooch no. 1 (Fig. 212) was an incomplete and poorly preserved Colchester bow brooch, probably of the standard British Type (Mackreth 2011, 37, pl. 22). Hattatt (2000, 296) listed these as a 1st-century AD brooch form, though many are found in 2nd to 3rd century AD deposits. The lack of any true *floruit* was explained (Mackreth *op. cit.*, 38) by the fact that so many examples were degraded during movement from one deposit to another and subject to secondary and tertiary deposition. This particular example from Healam was itself redeposited in a midden (5045) of the late 4th to early 5th century AD.

Two of Mackreth's Type 7.b3 Colchester Derivative fantail foot brooches came from Field 63 (Fig. 212): no. 2 from an extensive and productive dump deposit of late 2nd-century AD date and no. 3 from Phase 3c midden 5028. Both examples were near complete. Each bow had parallel moulded grooves widening to a triangular foot decorated with a curvilinear hanging pelta design that was inlaid with red and green enamel, or possibly yellow/green in the case of no. 2. Tin plating was detected on no. 2, while no. 3 had been silver plated. Close parallels were found at Yarwell, Northamptonshire and Heckington, Lincolnshire (*op. cit.*, pl. 59, nos. 2861, 2866).

It is thought that detailed study of some categories of brooches from the Conquest period can in some instances allow discrete groups of people to be detected. The precursor to the Type 7 brooch was the Colchester Derivative Rearhook, which originated in the homelands of the Iceni. The development of the Rearhook system and the derivative hinged styles (including Type 7) showed that their influence crossed to the western margins of the Fens, with the distribution of Type 7 brooches indicating that the centre of manufacture was likely to have been Lincolnshire, with an inception date of *c.*AD 60/65 (*op. cit.*, 89, 91). Ravaging of Iceni lands during the Boudiccan uprising (AD 60/61) and the destruction of home-based markets may have resulted in a migration of bronze smiths to this area (*op. cit.*, 234).

Headstud brooches

Five examples of headstud brooches came from Fields 61-63 (Fig. 212, nos. 4-7 and Fig. 213, no. 8). The first (no. 4) was a classic headstud with hinged pin, stepped wings, and traces of enamel inlay down the bow. Its small size, decorative design of lozenges, and stud with a recessed cross motif, placed it within Mackreth's Headstud Type 6 category (op. cit., 107, pl. 73, e.g. 11868). Many examples derived from Yorkshire: Castleford in particular, where it was suggested there may have been a manufacturing centre. No examples from Scotland or the north of England were known at the time of compiling the corpus. No. 5 was found in the topsoil of Field 61 and was of Type 9b with plain bow, swept back wings, and deep cell with a hole through the back for a metal rivet to fix a solid enamel stud. Their distribution favoured the west and military north, though they were absent from Hadrian's Wall (*op. cit.*, 108, pl. 73, e.g. 7412). No. 6 utilised the Colchester spring system and fell within Mackreth's Type 11a, while nos. 7 and 8 with what would have been hinged pins were Type 11c (described as Thealby type by Hattatt 2000, 333). The former are found mainly in northern England and Scotland and Type 11c are mainly found north of the Wash with an emphasis on the eastern side of England (Mackreth *op. cit.*, 109-110, plate 74).

Headstuds were in use between the 1st and early 2nd century AD. Type 6 brooches were established by AD 75 and continued into the early 2nd century. The example from Field 63 came from a 2nd century midden. The majority of Type 9b headstuds were in use from the later 1st century and into the third quarter of the 2nd century (*op. cit.*, 108). The earliest manufacturing date for the Type 11 brooches was *c.*65/70 and they passed out of use by AD 90 (*op. cit.*, 109). No. 6 was heavily worn and corroded and had been redeposited in a late 3rd to late 4th-century ditch fill (Group no. 2890) in Field 62. No. 7, though incomplete, was better preserved and came from a layer in Field 63 dated to between AD 180 and 200. No. 8 was a metal detected find from the spoil heap in Field 63.

Trumpet brooches

Trumpet brooches were the most numerous brooch type with a total of nine examples, seven of which were complete or with a fragmentary/missing pin (Figs. 213 and 214). In these cases it was possible to allocate them to one of Mackreth's trumpet groups. No. 9 was of Type TR 1.a1a with four petals running around the bow and three mouldings below the knob. Five (nos. 10-14) were Type TR 1.a1b, again with four petals around the bow, but with two mouldings below the knob. Petalling restricted to the front of the bow and three mouldings below the knob placed no. 15 within Type TR 1.b1. No. 16 was near complete, but worn and although the petalling appeared to be continuous, the details of the moulding was indistinct (not illustrated). Only the head of no. 17 survived (not illustrated).

Type 1.a1a generally dated from the later part of the 1st century AD into the 3rd century and a distributed mostly north of the Humber-Dee line and Yorkshire may have been the main area of manufacture (*op. cit.*, 116). The only example of this type (no. 9) came from a spoil heap (8304) in Field 61A. Manufacture of Type 1.a1b was thought to have ceased by AD 175 and passed out of use in the 20-30 years following. It was a relatively common brooch type from East Anglia into Scotland and was popular in the north. No. 10 was a substantial example of this type and was well preserved. It also had the remains of a split ring through the headloop where a chain was once attached, which indicated that it had been worn as part of a linked pair. It was found in a ditch fill dating to between the late 1st to early/mid-2nd century in Field 62. No. 11 was in poor condition and heavily encrusted prior to conservation (M. Felter, archive conservation record). It was found in a black charcoal-rich deposit along with sherds of burnt samian ware and was associated with Phase 1c structure 6949, a building that was thought to

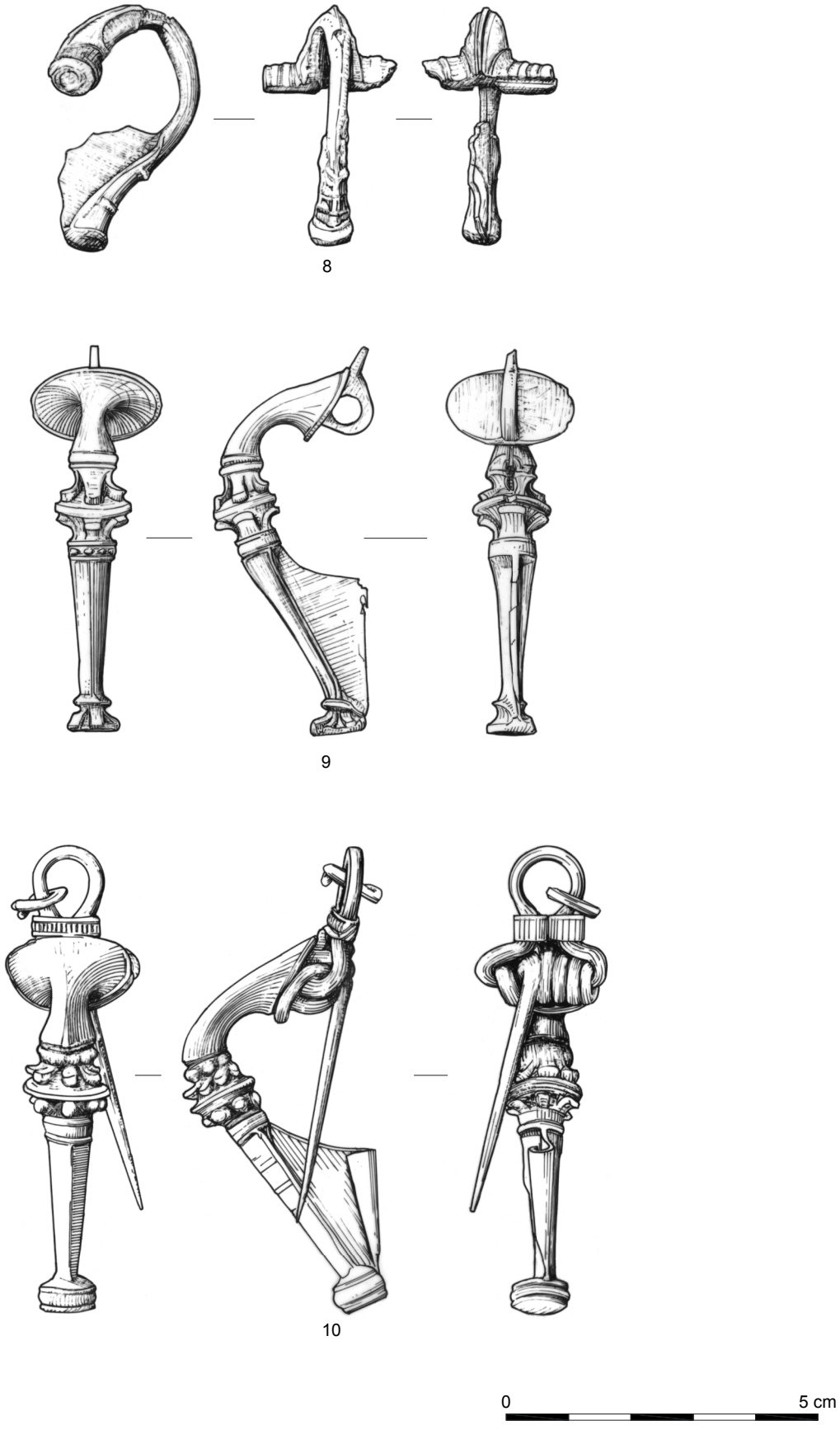


Figure 213: Headstud and trumpet brooch

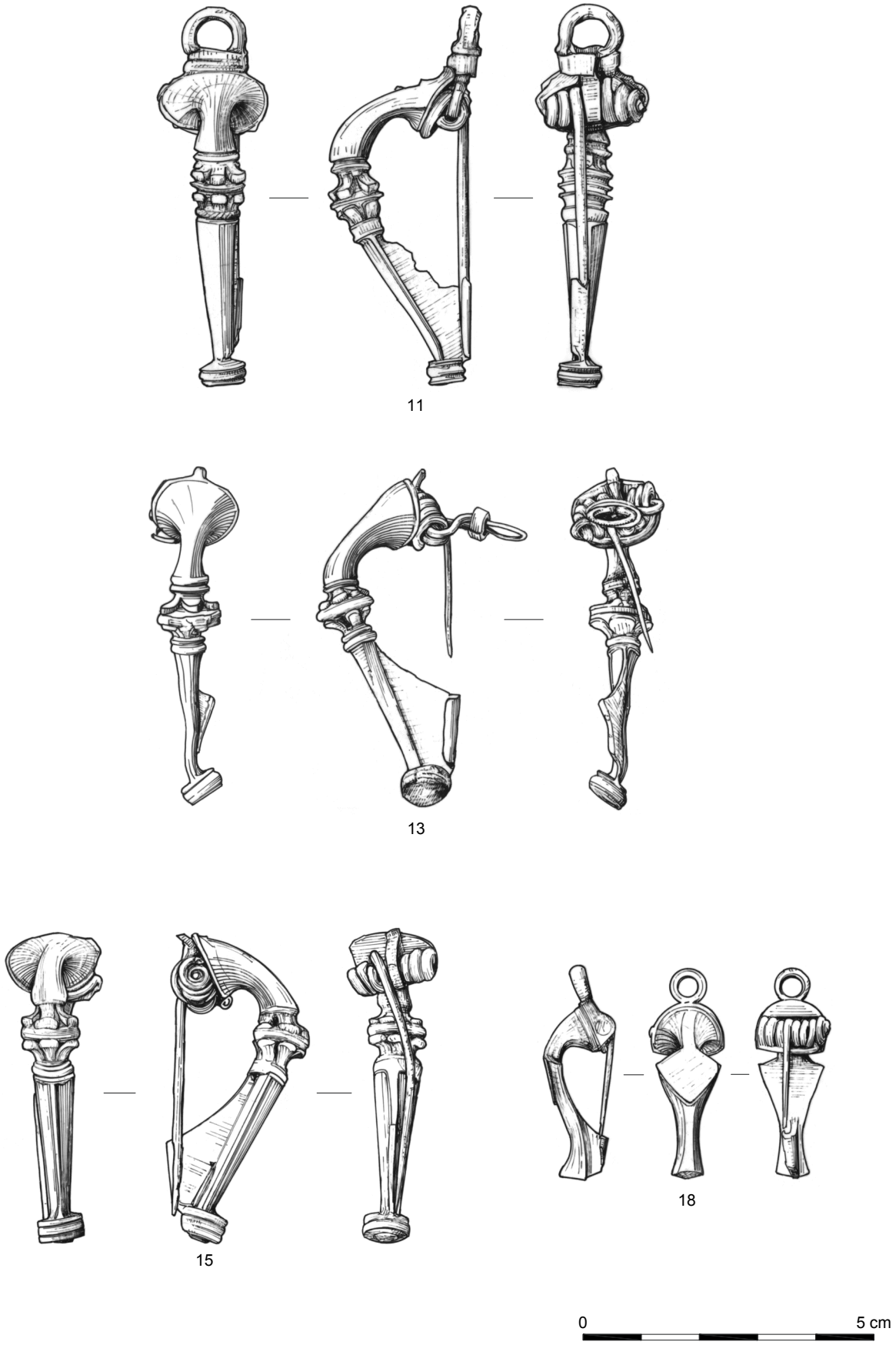


Figure 214: Trumpet and trumpet variant brooches

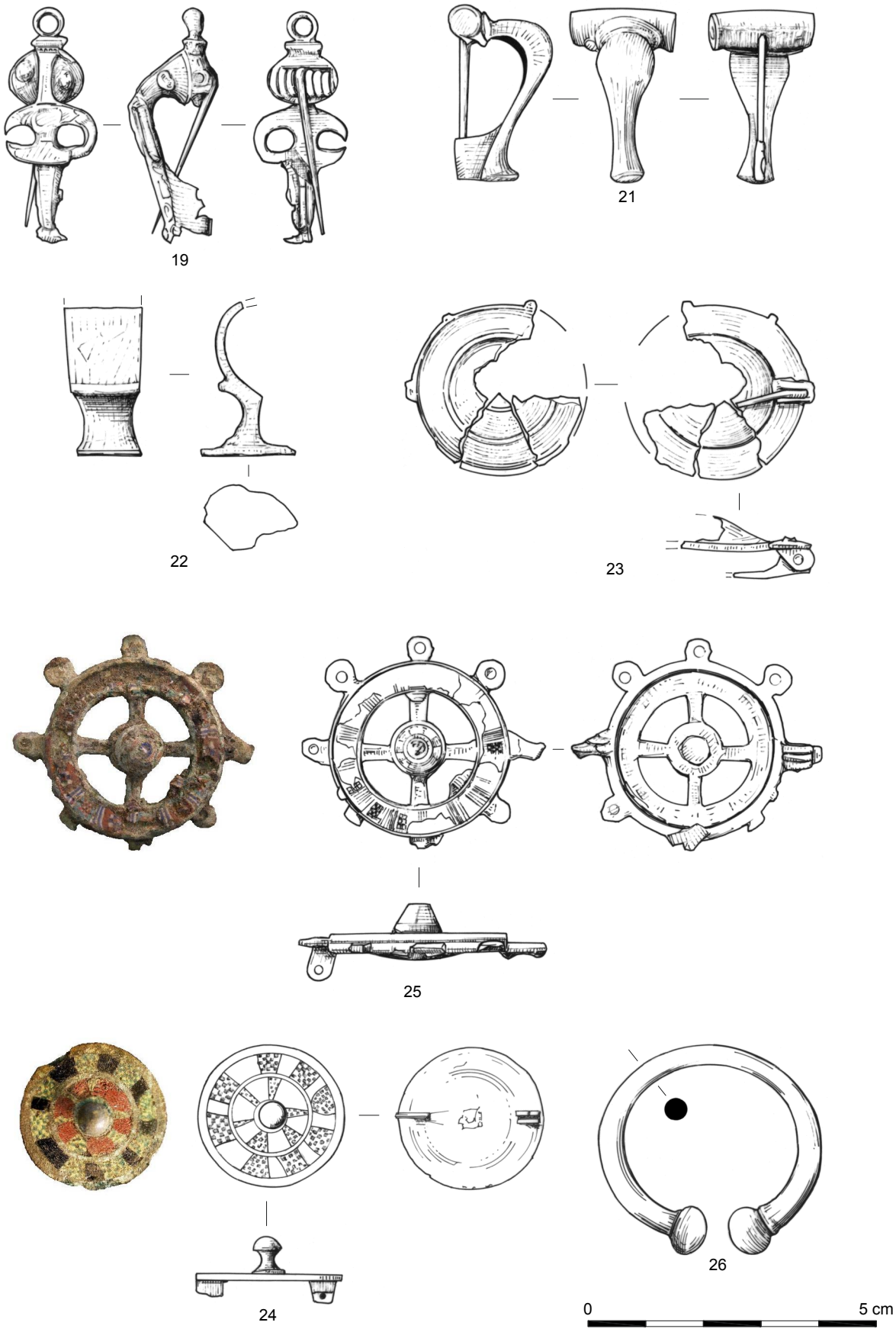


Figure 215: Trumpet variant, knee, disc, and penannular brooch

have burnt down. No. 12 derived from Phase 1c layer 5058 in Field 63. No. 13 was a spoil heap (8439) find from Field 61A. Moving away from Healam, no. 14 was found in association with the early Roman ditched trackway in Field 23 (1581).

The single example of Type TR 1.b1 retained a smooth dark green patina (no. 15). This category had a limited distribution. Apart from Hadrian's Wall and its hinterland, all the examples were on the eastern side of Britain (Mackreth 2011, 118). Its date range was also restricted, as it was as early as AD 80 or before to AD 160. There was an absence of later residual finds in Roman contexts in the corpus, suggesting the type may have been out of use by about AD 125. No. 15 was therefore unusual in being found in a midden deposit (5042) of the late 2nd to 3rd century AD.

Trumpet variant brooches

No. 18 was an unstratified find from Field 63 (Fig. 214). This trumpet derivative had a flat plate rather than a knob. Usually these plates were circular, but on this particular example it was heart-shaped and had traces of enamel. Although the group was sub-divided by foot style (knobbed or peltate), this example had a slightly flared plain foot and therefore did not fit in with the existing typology. These brooches can generally be dated from the earlier 2nd century AD into the early 3rd century (*op. cit.*, 125).

Instead of a disc, as with no. 18, no. 19 (Fig. 215) had a pelta (Mackreth Type TR 3.2). Unfortunately, the foot is too damaged to be able to specify a sub-group. There were too few examples of this type for any meaningful distribution patterns to emerge. Type TR 3.2 brooches were in use during the 2nd century AD. No. 19 came from a dump deposit dated to the late 2nd to early 3rd century.

Bow brooch fragment

The corroded coils and part of a spring (no. 20) from a bow brooch came from the Phase 1 remains of the Roman road in Field 64 (not illustrated). It was not possible to determine the type of brooch from which it derived.

Knee brooches

Two unstratified knee brooches came from Field 63 (Fig. 215). The first was a British tubular headed brooch (no. 21) with rounded bow (Mackreth Type KNEE Br 2.a2) and traces of tin plating. More than half of the known examples of this type came from Hadrian's Wall and further north. There was a solid military presence in the distribution of these Type 2 brooches, which raised the question as to whether they were truly British. However, an inscription found on a Type 3 brooch, FIBVLA EX REGIO LAGITIENSE (brooch from the region of Lagitium – Castleford), showed that this type was made there and it was suggested that Type 2 may also have been made at places such as Castleford (*op. cit.*, 190). Both continental and British types dated to the second half of the 2nd century AD and the early 3rd. Examples from later contexts were regarded as residual. The large number from Hadrian's Wall suggested the main period of use was the mid-2nd century AD and a little later. The other (no. 22) consisted only of the remains of a knee brooch foot and bow from a continental Type (Mackreth Type KNEE CONT 2.a). These were also present on Hadrian's Wall, but there was a concentration at Catterick (Mackreth 2002, 154; 2011, 191) and a more dispersed one in East Anglia and Cambridgeshire.

Disc brooches

Three disc brooches with hinged pins were found (Fig. 215). A fragmentary tutulus type brooch (no. 23) of Mackreth Type Plate 5 came from Field 63 in Phase 3c midden deposit 5045. It had a concave circumferential moulding with the trace of a small peripheral lug on two fragments. Due to its fragmentary state it was not possible to allocate it to a sub-type. The volume of examples in Britain guarantees that it was of British manufacture. It was primarily in use from the 2nd and into the 3rd century AD (Mackreth 2011, 163).

The other two disc brooches were both continental forms. An enamelled plate brooch (no. 24) of Mackreth Type PL CONT 9a came from a Phase 3 spread (2589) in Field 62. It was generally a 2nd-century AD type, possibly extending into the 3rd century, found in most parts of Britain. A similar example came from a late 2nd-century deposit at Wroxeter (*op. cit.*, 174, pl. 16, 6974) with others listed from Castleford and *Verulamium*. Context 2589 was an extensive dark homogenous deposit that sealed features to the west of the large boundary. It contained artefacts dating predominantly from the late 3rd to 5th century AD. The location and finds assemblage from the deposit suggested that the origins of the material lay in an area of settlement to the immediate west of the stripped area close to the latrine and rubbish pits. Other items included seven coins with dates ranging from AD 98-341, a copper alloy mirror fragment (no. 72), and a copper alloy spoon probe-head (no. 81) also came from this deposit.

The third disc brooch was in the shape of a wheel (no. 25). It had traces of millefiori enamelling in red, blue, white, and green, and bore eight peripheral lugs (Mackreth Type PL CONT 13b). It came from Phase 5 subsoil (5019) north of building 5009. A similar example was found in a 4th-century AD context at Housesteads (Birley and Charlton 1934, 197, pl 29, C1) though it was generally considered to be a 2nd-century AD brooch form (Hattatt 2000, 347, fig. 206. 546). It has been suggested that these brooches may combine functional design with the cult representation of the Celtic wheel-god Taranis/Romano-Celtic Jupiter, for which there was widespread evidence in Britain. For example, a wheel brooch and a clay mould for a bearded deity with an eight-spoked wheel against his leg was found at Corbridge (Green 1978, 18, plate 52). Mackreth (*op. cit.*, 174) made little comment on this category of disc brooch and described it only as a 'mixed bag'.

Penannular brooches

Five examples of penannular brooches were found and have been classified first according to Fowler's (1960) typology with supplements from Mackreth. Four were Type A and one was Type C with the terminals coiled and twisted so that the coils were at right angles to the plane of the ring (Fowler 1960, 150-152).

Three of the Type A brooches came from Field 63. One was a near complete Type A3 from Phase 3c midden deposit 5028 (no. 26, Fig. 215), another was a Type A4 with only part of the pin missing from Phase 5 subsoil (no. 27, Fig. 216), and there was a heavily corroded Type

A4 fragment from a secure Phase 1 ditch fill (no. 28, not illustrated). An additional Type A brooch (no. 29, not illustrated), possibly A3, came from excavations carried out at Healam Bridge in 1995 (Wright 1995). The Type C brooch (no. 30, Fig. 216) from Field 61A was a metal-detected find from the spoil heap. It was not decorated.

Type A3 penannular brooches consisted of plain bulbous knobs with a basal moulding that Mackreth further sub-divided between those with a single basal moulding and those with two or more. A geographical distribution was noted between these two sub-divisions. Those with single mouldings, the category into which the Healam examples fell, have a predilection for a distribution covering North Wales and Yorkshire, down the Severn Valley, back to Devon with an extension along the coast to cover examples from Kent, Essex and the Thames Estuary (Mackreth 2011, 213). Interestingly those with two or more mouldings, none of which were found at Healam, were found especially along Hadrian's Wall and Scotland and few in eastern England and south of the Bristol Channel. Type A4 brooches were also sub-divided by Mackreth between those with and without basal mouldings. These also had a difference in geographical distribution. Those without mouldings were suggested to be a north British type with an emphasis on military or coastal districts with completely Roman or heavy Roman influence. Those with mouldings, such as the examples from Healam, have been found along Hadrian's Wall and in Scotland, but have also been found in the south in areas where the other type was missing.

The penannular brooch from Field 61A fell into Fowler's Type C category. Plain examples of this type were likely to date to the 1st century AD, or possibly earlier. It was a long-lived type that developed into a flat-sectioned, often decorated, ring in the later Roman period (Fowler note in Crummy 1983, 18-19). Mackreth suggested a date range spanning the Late Iron Age to the later 2nd century AD, possibly into the 3rd century, some deposited in the 4th century, and a few found in Anglo-Saxon cemeteries (Mackreth *op. cit.*, 207). Dating these brooches becomes problematic due to their long period of use and their broad distribution across northern Europe.

Crossbow brooch

Although the crossbow brooch from Field 61 (no. 31, Fig. 216) was a metal-detected find, it was worth considering it in detail. These brooches do not occur in great number in Britain, for example at Lankhills (Clarke 1979; Booth *et al.* 2010), Richborough, and London (Swift 2000). More recently, this type of brooch was found at Scorton near Catterick (Eckardt *et al.*, 2015). They have been the subject of much research, particularly in terms of their manufacture, symbolism, and use (Cool 2010a, 2010b; Bayley and Butcher 2004; Mackreth 2011).

No. 31 was stylistically ascribed to Pröttel's (1988) Type 3/4 group. Corrosion damaged the detail of the foot, making refinement of the typological classification difficult. The type was used on the continent from the last two thirds of the 4th century AD into the early 5th century when its manufacture was thought to have ceased (Swift 2000, 88). There has been little independent dating evidence from British sites, but the burial within grave 5 at Scorton was accompanied by one of these brooches together with a coin hoard deposited around or shortly after AD 353-6 (Eckardt *et al.* 2015, 197).

Surface EDXRF analysis showed no. 31 (J. Jones, archive conservation record) and crossbow brooch 502AA from Scorton grave 1 (Clogg 2008) to be of a leaded-alloy along the gunmetal range. Results of recent metallurgical analysis on assemblages from Britain indicated that a brass/gunmetal composition pointed to a Danubian origin, though the process by which these brooches arrived in this country remained unclear (Swift 2000, 87-88). At present, this has only been viewed as a tentative suggestion until more analysis has been undertaken on the continental material (H. Cool *pers. comm.*). It was notable that at Scorton all four individuals (graves 1, 5, 7, and 14) with crossbow brooches were accompanied by D-shaped belt sets of the type frequently found in Europe, especially around the Danube. Isotope analysis has shown that all of these individuals were probably immigrants to Britain (Eckardt *et al.* 2015).

Cruciform brooch

A side knob from a cruciform brooch was an unstratified find in Field 63 (no. 32, not illustrated).

Catalogue

All brooches are of copper alloy. Measurement abbreviations: L-length; D-diameter; W-width

COLCHESTER AND COLCHESTER DERIVATIVE BROOCHES

(**1**) Fragment: heavily corroded. Bilateral spring with external cord held by a forward facing hook, narrow bow, corroded. L 37mm+. A1DB09, RF 128, context 5045, Field 63, Phase 3c. Fig. 212

(**2**) Bow and fantail: Mackreth Type CH H 7.b3. Near complete: pin and part of head loop were missing. Integral head loop, head with decorative moulding, the reverse was formed into a cylinder through which an axis bar held the pin in place. Bow with parallel moulded grooves widened to a triangular foot decorated with curvilinear design, enamel inlay of red and yellow/green. EDXRF analysis confirmed presence of tin plating on the front of the brooch. L 40mm. A1DB09, RF 453, context 6924, Field 63, Phase 1c. Fig. 212

(**3**) Bow and fantail: Mackreth Type CH H 7.b3. Near complete: pin, part of head loop, and catch plate were missing. Integral head loop, head with decorative moulding, the reverse was formed into a cylinder through which an axis bar held the pin in place. The head of the pin was pierced to hold the axis bar. Bow with parallel moulded grooves widened to a triangular foot decorated with curvilinear design, enamel inlay of red and green enamel. EDXRF analysis confirmed presence of silver plating on the front and back of the brooch. L 37mm+. A1DB09, RF 351, context 5028, Field 63, Phase 3c. Fig. 212

HEADSTUD BROOCHES

(**4**) Mackreth Headstud Type 6. Near complete: pin and part of catch plate were missing, fragmentary head loop. Integrally cast head loop, stepped wings, flat on reverse, remains of hinged pin mounted on an axis bar held within a cylinder behind the wings. Stud with recessed cross motif with no trace of enamel, raised serrated central rib down bow with indeterminate yellow/green enamel inlay on either side, transverse mouldings around foot. L 45mm. A1DB09, RF 233, context 5042, Field 63, Phase 1d. Fig. 212

(**5**) Mackreth Headstud Type 9b. Incomplete: damaged and distorted, missing pin, head loop and catch plate. Swept back wings with stepped front, wings coiled to form a cylinder for axis bar, deep headstud cell with central perforation, crest above stud, plain and narrow bow, transverse mouldings around foot. L *c*.45mm. A1DB09, RF 750, context 2110, Field 61, topsoil. Fig. 212

(**6**) Mackreth Type 11a. Near complete: head loop, part of pin and catch plate were missing. Colchester spring system, stepped wings, headstud consisted of prominent raised boss, slight channel along centre of bow, transverse mouldings around foot. L 51mm. A1DB09, RF 304, context 2756, Field 62, Phase 3. Fig. 212

(**7**) Mackreth Headstud Type 11c, Hattatt Thealby type. Near complete: pin and part of catch plate were missing. Stepped wings, the pin would have been held on an axis bar within the wings, deep central groove along the bow that tapered slightly to the foot, transverse moulding around foot. L 51mm. A1DB09, RF 498, context 5652, Field 63, Phase 1c. Fig. 212

(**8**) Mackreth Headstud Type 11c. Possible Hattatt Thealby type. Incomplete: heavily corroded and distorted. Pin and head loop were missing, transverse mouldings on wings and upper bow, single central ridge on the bow, indistinct moulding above foot. Incomplete solid catch plate, pin would have been held on an axis bar within the wings. L *c*.61mm. A1DB09, RF 748, metal detected from spoil heap, Field 63. Fig. 213

TRUMPET BROOCHES

These were characterised by a separate spring mounted on a central lug behind the head by means of a loose wire loop, which was also clipped above the head; an oval trumpet-shaped head, plain except for a marginal groove; a central moulding of petalled lobes flanked by transverse ribs that was continuous at the back; the lower bow of triangular or D section ending in a multiple foot moulding that had a recessed ring on its underside.

(**9**) Mackreth Type TR 1.a1a. Near complete: pin and fragments of spring were present but detached. L 56mm. A1DB10, RF 715, context 8304, Field 61A, Phase 5. Fig. 213

(**10**) Mackreth Type TR 1.a1b. Complete. Clip for head loop had beaded central moulding, split ring encircled head loop. L 73mm. A1DB09, RF 203, context 2470, Field 62, Phase 1. Fig. 213

(**11**) Mackreth Type TR 1.a1b. Complete. Clip for head loop was decorated with transverse mouldings. L 64mm. A1DB09, RF 357, context 5652, Field 63, Phase 1c. Fig. 214

(**12**) Mackreth Type TR 1.a1b. Near complete: pin and head loop were missing, catchplate was almost intact, highly corroded. L 42mm+. A1DB09, RF 389, context 5058, Field 63, Phase 1c. Not illustrated

(**13**) Mackreth Type TR 1.a1b. Near complete: part of pin was missing. Clip for head loop was decorated with transverse mouldings. L 77mm. A1DB10, RF 720, context 8439, Field 61A, Phase 5. Fig. 214

(**14**) Mackreth Type TR 1.a1b. Incomplete: part of bow, catchplate, and head loop was missing. Fragments of spring were detached. L 35mm+. A1DB09, RF 52, context 1584, Field 23, Phase 1. Not illustrated

(**15**) Mackreth Type TR 1.b1. Near complete: clip and head loop was missing. L 52mm+. A1DB09, RF 273, context 5042, Field 63, Phase 1d. Fig. 214

(**16**) Near complete: part of pin and catchplate was missing. Petalled moulding was very worn. L 37mm. A1DB09, RF 414, context 5001, Field 63, Phase 5. Not illustrated

(**17**) Incomplete: only the trumpet head, spring, and head loop survived. L 26mm+. A1DB09, RF 200, context 5001, Field 63, Phase 5. Not illustrated

TRUMPET VARIANT BROOCHES

(**18**) Mackreth Type TR 3.1. Disc and trumpet. Complete, copper alloy, with iron spring. Trumpet head with circumferential mouldings and moulding to either side of junction with bow, cast integral head loop, spring recessed and held between two lugs, flat almost heart-shaped panel at mid-bow with enamel inlay of two colours that now appear yellow/brown, tapering leg widened to a plain foot. EDXRF analysis confirmed traces of tin plating around the head and bow. L 35mm. A1DB09, RF 745, unstratified, Field 63. Fig. 214

(**19**) Mackreth Type TR 3.2, openwork disc and trumpet. Near complete: part of catch plate was missing. Trumpet head with circumferential moulding and single lug either side of bow, integral head loop, spring recessed and held between two lugs, central flat disc with openwork design, leg tapered to a narrow foot that was damaged. L 40mm. A1DB09, RF 448, context 7167, Field 63, Phase 1a. Fig. 215

BOW BROOCH FRAGMENT

(**20**) Bow brooch spring. Three coils and part of spring. L 13mm. A1DB09, RF 684, context 9061, Field 64, Phase 1. Not illustrated

KNEE BROOCHES

(**21**) Mackreth Type KNEE Br 2.a2, tubular headed. Complete. Copper alloy with iron pin axis. Plain head, spring recessed and held between two lugs, moulding at junction of head and bow, plain bow and leg. EDXRF analysis confirmed substantial traces of tin plating all over surface. L 30mm. A1DB09, RF 743, metal detected find, Field 63. Fig. 215

(**22**) Mackreth Type KNEE CONT 2.a. Incomplete: only foot and part of bow remained (catchplate was missing). Foot splayed out both sideways and in profile, bow and foot form an S-shaped profile, transverse moulding across the front of the bow towards the foot end. L 28mm+, W of bow 10-13mm. A1DB09, unstratified, Field 63. Fig. 215

DISC BROOCHES

(**23**) Mackreth Type Plate 5, tutulus type. Incomplete. Concave circumferential moulding with trace of small peripheral lugs, incised bands around raised centre, remains of hinged pin secured between two lugs. D 30mm. A1DB09, RF 118, context 5045, Field 63, Phase 3c. Fig. 215

(**24**) Mackreth Type PL CONT 9a, enamelled, plain edged. Near complete: pin was missing. Flat with central boss, decoration consisted of inner and outer bands of millefiori enamel. The inner band was made of uneven red cells interspaced with variously sized yellow and yellow with green enamel, outer band had black uneven cells between which were fields of yellow and green enamel

set in a chequer board pattern. Trace of lug and catch plate on reverse for a hinged pin. D 25mm. A1DB09, RF 331, context 2589, Field 62, Phase 3. Fig. 215

(**25**) Mackreth Type PL CONT 13b, wheel brooch. Near complete: pin and catch were missing. Heavily corroded. Central raised boss with traces of millefiori enamel, four radiating spokes joining outside circle, decoration within the wheel was fragmentary and consisted of millefiori enamel in red, blue, white, and green. Lug on reverse for pin. Eight peripheral lugs. D 43mm. A1DB09, RF 237, context 5019, Field 63, Phase 5. Fig. 215

PENANNULAR BROOCHES

(**26**) Fowler Type A3. Near complete: pin was missing. Large rounded bulbous terminals, plain with single moulding. D 37mm. A1DB09, RF 289, context 5028, Field 63, Phase 3c. Fig. 215

(**27**) Fowler Type A4. Near complete: part of pin was missing. Rounded bulbous terminals, knurled with single moulding, remains of pin encircled the ring. D 21mm. A1DB09, RF 186, context 5001, Field 63, Phase 5. Fig. 216

(**28**) Fowler Type A4. Fragmentary and heavily corroded. Rounded bulbous terminal with trace of knurling and single moulding. External D *c*.23mm, D of wire 2mm. A1DB09, RF 360, context 6801, Field 63, Phase 1. Not illustrated

(**29**) Fowler Type A3? Incomplete: pin and half of ring was missing. Heavily corroded. Bulbous terminal, possibly plain with a single moulding. External D *c*.21mm, D of wire 2mm. LEE 95 Trench R, RF 4. Not illustrated

(**30**) Fowler Type C. Incomplete: pin was missing. Slightly expanded terminals coiled and twisted at right angles to the plane of the ring. Ring had sub-rectangular section. D 34mm. A1DB10, RF 718, context 8304, Field 61A, Phase 5. Fig. 216

CROSSBOW BROOCH

(**31**) Pröttel Type 3/4. Complete. Rectangular sectioned crossbar with collar at either end, onion-shaped knobs, front of crossbar expanded to either side of bow with two vertical ribs at either edge. Trapezoidal-sectioned curved bow, same width, but slightly shorter than foot. Flat foot with notched grooves down each side and, although

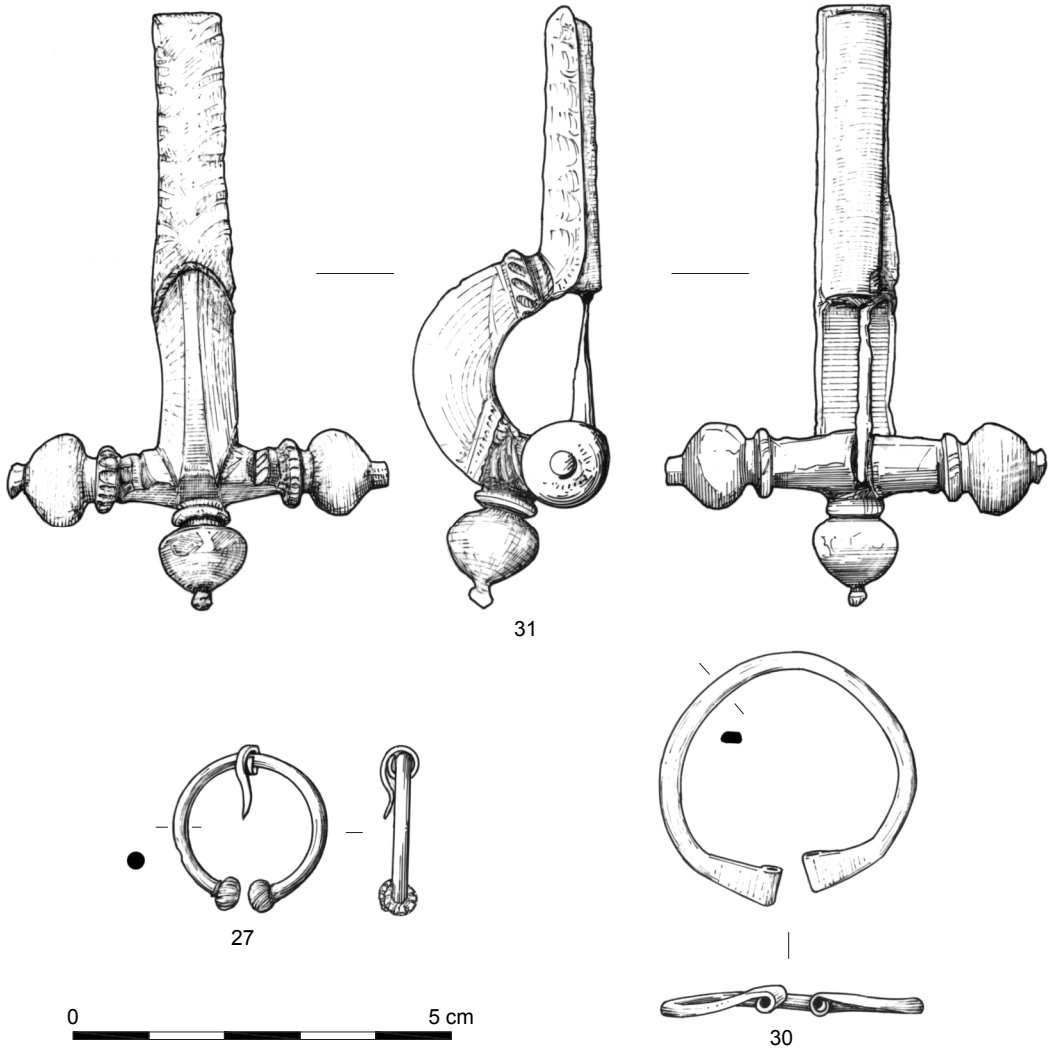


Figure 216: Penannular and crossbow brooches

cleaned, the detail remained obscured by corrosion damage. Flange bent around to form catch plate. EDXRF analysis detected copper, lead, and tin with traces of zinc and silver. Brooch was a tinned quaternary alloy (Cu/Sn/Pb, Zn) or low zinc brass with an incidental silver content, though the possibility remains that the quaternary alloy or brass may have been silver-coated (J. Jones, archive conservation record). L 79mm, L of bow 31mm, L of foot 39mm, W of bow and foot 10mm, W of crossbar 50mm. Weight 56g. A1DB10, RF 725, context 8304, Field 61A, Phase 5. Fig. 216

CRUCIFORM BROOCH

(**32**) Side knob with single groove and slot for axis bar. L 15mm, W 10mm. A1DB09, RF 757, unstratified, Field 63. Not illustrated

Beads and pendant

Summary

A total of 11 beads were found during excavations in Fields 61A, 62, and 63 at Healam (Fig. 217). Of these, five were melon beads (nos. 33-37), three were glass cylinder beads (nos. 38, 39, and 41), while no. 40 was a glass segmented bead. The remainder were of amber (no. 42) and antler (no. 43). A jet pendant (no. 44, Fig. 217) was found during fieldwalking in Field 61A.

All the beads were found individually; how they were originally worn or used was not known. Although there are many examples of bead necklaces from inhumation cemeteries, it should not be assumed that all beads were worn around the neck. Some may have been used as toggles, or were perhaps stitched decoratively onto garments (Drinkall and Foreman 1998, 265). It has been suggested that large melon beads may have been used as decoration on horse harnesses (Price 1995, 107) especially where they occurred in large numbers and in close association with military activity. A comparison has been drawn between the melon beads from Hofheim and beads shown on a decorative strap around the neck of a horse depicted on a tombstone found at Cologne (Ritterling 1912/13, 179-80, Abb35). Their use as decorative elements on dolabra sheaths has also been postulated (B. Birley *pers. comm.*).

The terminology used to describe both the shape and colour of beads, particularly in the case of translucent glass, varies between reports. This has been largely the result of human factors: in particular the conditions under which the bead was examined and how people describe the colours and shapes they saw. Furthermore, glass beads were not precisely made as their shape was frequently a matter of chance. Colour also varied due to impurities, fluctuations in temperature, the use of different recipes, and the thickness of the bead itself (Evison 1987, 61). There is currently no analytical method of scientifically assessing the colour of glass beads, nor a widely accepted terminology for their body shape. The terminology employed in this report followed that of the author's previous work on Anglo-Saxon beads (Drinkall and Foreman 1998, 259-264, fig. 48) and of Brugmann (2004, 24, fig. 10), both of which used Guido's (1978) work on Iron Age and Roman beads as a starting point. Terms were restricted to exclude those words used to refer to colour depth or intensity of translucent glass (e.g. 'light' and 'dark'), given that the size, shape, and thickness of glass affects the colour. It was hoped that the inclusion of colour photographs and illustrations (Fig. 217) would aid comparison for future research.

Melon beads

Four out of the five melon beads were of turquoise frit. The absence of any visible glazing may have been due to their worn condition. No. 33 came from the fill of Phase 1a gully 7086 in Field 63, which drained water from the area to the north down towards the beck. No. 34 was from an occupation deposit (7011), also of an early phase, while no. 35 was from a Phase 3a layer, and a large midden deposit yielded no. 38. The only translucent blue glass melon bead (no. 37) came from the primary fill of ditch recut (9049) dated to the late 1st-early/mid-2nd century AD. Guido's (1978) schedules showed that this type of bead was most numerous in the 1st century, with many coming from Flavian and Antonine sites. They were frequently, but not exclusively, found on military sites (Guido 1978, 228-30) and in much larger quantities than at Healam: a total of 31 frit and translucent glass melon beads from Carlisle (Howard-Davis 2009, 774), 80 from Vindolanda (Birley and Greene 2006, 39), and just 15 from nearby Catterick Bypass and Catterick site 434 (Wilson 2002b, 259, 261) though mainly from residual or unstratified contexts. A single example came from the site at Bridge Road, Brompton on Swale (Cool 2004). Their popularity waned after the 2nd century AD, until the 5th and 6th century when they appear as 'heirlooms' in Anglo-Saxon grave assemblages.

Glass Beads

Translucent green beads, one cylinder (no. 38) and a long cylinder with uneven square cross-section (no. 39), came from a Phase 1a peat layer and a Phase 1d layer respectively (the latter contained a large quantity of residual finds). Green cylinder beads were listed in Guido's schedules (1978, 95), but were noted for being nearly always opaque and a long-lived type. Green beads in a variety of shapes were common in the necklaces found during Clarke's (1979) Lankhills excavation, but less so during the later works (Cool 2010a, 293). They were also found in the late Roman deposits at *Vindolanda* (B. Birley *pers. comm.*). Qualitative EDXRF analysis carried out on no. 39 suggested that the blue-green colour was the result of iron and copper in the glass, though it was possible that the iron was naturally occurring in the sand.

No. 40 was formed by drawing out a piece of glass that was then separated off at the perforated ends and crimped to form four segments. Segmented beads are found in a range of colours, the earliest example noted by Guido was from a 2nd-century AD context at Godmanchester, Huntingdonshire (1978, 92), but they tend to be found in later Roman contexts from the late 3rd to 4th century AD continuing well into post-Roman period. They have been found at a range of sites, including: villas, military establishments, Roman-Celtic temples, and in late Roman graves. No. 40 came from the primary fill of a late 3rd to late 4th century gully 2696 in Field 62.

No. 41 was an opaque red bead. Described by Guido (*op. cit.*, 17) as terracotta, these beads were not extensively used until the post-Roman period, possibly because the colour was difficult to achieve. Qualitative EDXRF analysis indicated that copper was probably the main red colourant and that tin was possibly the opacifier (Jones 2012). They are rare on Roman sites, tending to be found in very late contexts, for example: *Vindolanda*, Piercebridge, and Lankhills (Cool 2010a, 294). It has been suggested that they derived from a Germanic bead tradition, rather than a Roman one.

Evidence for this came from grave assemblages in the Lower Rhine, Baden-Württemburg, and an early 5th-century AD grave in Cortrat, France of a woman from Lower Saxony (Brugmann 2004, 28-9). They were also common components of bead strings from Anglo-Saxon inhumations of the 5th to 7th century AD (Drinkall and Foreman 1998, 260; Brugmann 2004).

Beads of other materials

A small, well-made amber disc bead (no. 42) in good condition came from a dumped deposit (Group no. 8339) in Field 61A Phase 1ii. Amber beads are often thought of as Anglo-Saxon, but the use of amber in bead making has a long tradition going back to the prehistoric period (Shepherd 1985, 204-216, cf. plate 4.51). Although its use was not common in the Roman period, amber beads have been known to be found in contexts dated to the 1st century AD onwards (cf. Lankhills for list of sites with finds from bead strings, Cool 2010a, 294).

A cylinder bead (no. 43) made from an antler tine was found in the grave fill of the inhumation of a mature adult male (skeleton 5016), which had been cut into midden deposit 5002. The skeletal remains provided two radiocarbon dates: 339-536 cal AD (SUERC-40754) and 318-441 cal AD (SUERC-40388). Although it cannot be conclusively demonstrated that the bead accompanied the individual, this date range would be consistent with other finds of antler beads. Prior to the medieval period, beads made from osseous materials were not common. The few exceptions include the late Roman cemetery at Lankhills and the Anglo-Saxon cemetery at Spong Hill, Norfolk (MacGregor 1985, 100-102).

Pendant

A complete, highly polished jet or shale pendant (no. 44) was discovered in Field 61A during fieldwalking carried out by Birmingham University Field Archaeology Unit in 1993. The pendant was wedge-shaped with two perforations for suspension on the edge of the thinnest part of the block. One of the holes was damaged, possibly from wear and/or the result of being drilled at a weak point in the object. The sides and front were decorated and in places this was poorly executed. A similarly chunky, but flat, pendant of jet with a perforation running longitudinally through its centre, was found at Catterick site 433 (Isaac and Thompson 2002a, no. 30, fig. 313). The published collection of Roman jet finds in the Yorkshire Museum does not have any directly comparable examples, as only flat portrait pendants were present (Allason-Jones 1996, 24-25).

Catalogue

Measurement abbreviations: *H-height; D-diameter; Th-thickness; L-length; W-width*

MELON BEADS

(**33**) Turquoise frit melon bead, fragment. Gadroons were worn. H 10mm, D *c.*15mm. A1DB09, RF 397, context 7087, Field 63, Phase 1a. Fig. 217

(**34**) Turquoise frit melon bead, complete. Uneven shallow nicks formed spiral gadroons, interior grooved. Unevenly shaped. H 10mm, D 12mm, D of perforation 6mm. A1DB09, RF 387, context 7011, Field 63, Phase 1b. Fig. 217

(**35**) Turquoise frit melon bead, fragment. Spiralled well-defined gadroons. H 11mm, D *c.*15mm. A1DB09, RF 365, context 5200, Field 63, Phase 3a. Fig. 217

(**36**) Turquoise frit melon bead, complete. Spiralled gadroons, interior grooved. Unevenly shaped. H 11mm, D 13mm, D of perforation 6mm. A1DB09, RF 106, context 5027, Field 63, Phase 3c. Fig. 217

(**37**) Translucent blue glass melon bead, fragment. Well-defined gadroons. H 13mm, D 21mm, D of perforation *c.*10mm. A1DB09, RF 671, context 9036, Field 63, Phase 1. Fig. 217

GLASS BEADS

(**38**) Translucent green cylinder bead, complete. H 3mm, D 5mm, D of perforation 2mm. A1DB09, RF 433, context 5201, Field 63, Phase 1a. Fig. 217

(**39**) Translucent blue-green long cylinder bead, complete. Square in section, but slightly bowed on one side. Surface wear. H 14mm, Th 7mm, D of perforation 4mm. A1DB09, RF 130, context 5042, Field 63, Phase 1d. Fig. 217

(**40**) Blue-green, drawn, four segments. Tapered at one end. L 10mm, D 3-4mm. A1DB09, RF 297, context 2697, Field 62, Phase 3. Fig. 217

(**41**) Opaque red cylinder bead, complete. H 6mm, D 7mm, D of perforation 4mm. A1DB09, RF 354, context 5990, Field 63, Phase 1. Fig. 217

BEADS OF OTHER MATERIALS

(**42**) Amber disc bead, complete. Perforation drilled from both sides, surface wear on both faces. D 10-11mm, H 5mm, D of perforation 2mm. A1DB10, RF 649, context 8332, Field 61A, Phase 1ii. Fig. 217

(**43**) Antler (L Gidney, material ID) cylinder bead, complete. Patina around perforation. H 12mm, D 7-8mm, D of perforation 3mm. A1DB09, RF 1124, skeleton 5016, Field 63, Phase 3d. Fig. 217

PENDANT

(**44**) Jet or shale pendant, complete. Highly polished, wedge shaped, plain flat back, slightly bulging front. The sides and front were decorated with an incised single circumferential line, while the base had a crudely executed single and double incised line. Oblique notched decoration along all edges except the back. Two small perforations for suspension at top edge, but one was damaged. Faint saw marks on back and base. Worn overall. H 49mm, W 28-34mm, Th 2-24mm. D of perforation *c.*2mm. Weight 29g. C2 1993, Area 24, RF 1, D54, Field 61A. Fig. 217

Bangles and bracelets

Summary

The fashion of wearing glass, metal, and jet jewellery around the wrist or arm can be seen in the finds of various bangle fragments and complete bracelets. These were mainly found in Field 63 in areas of occupation and rubbish disposal. Two copper alloy bracelets (nos. 51 and 52) came from inhumations in Field 61A.

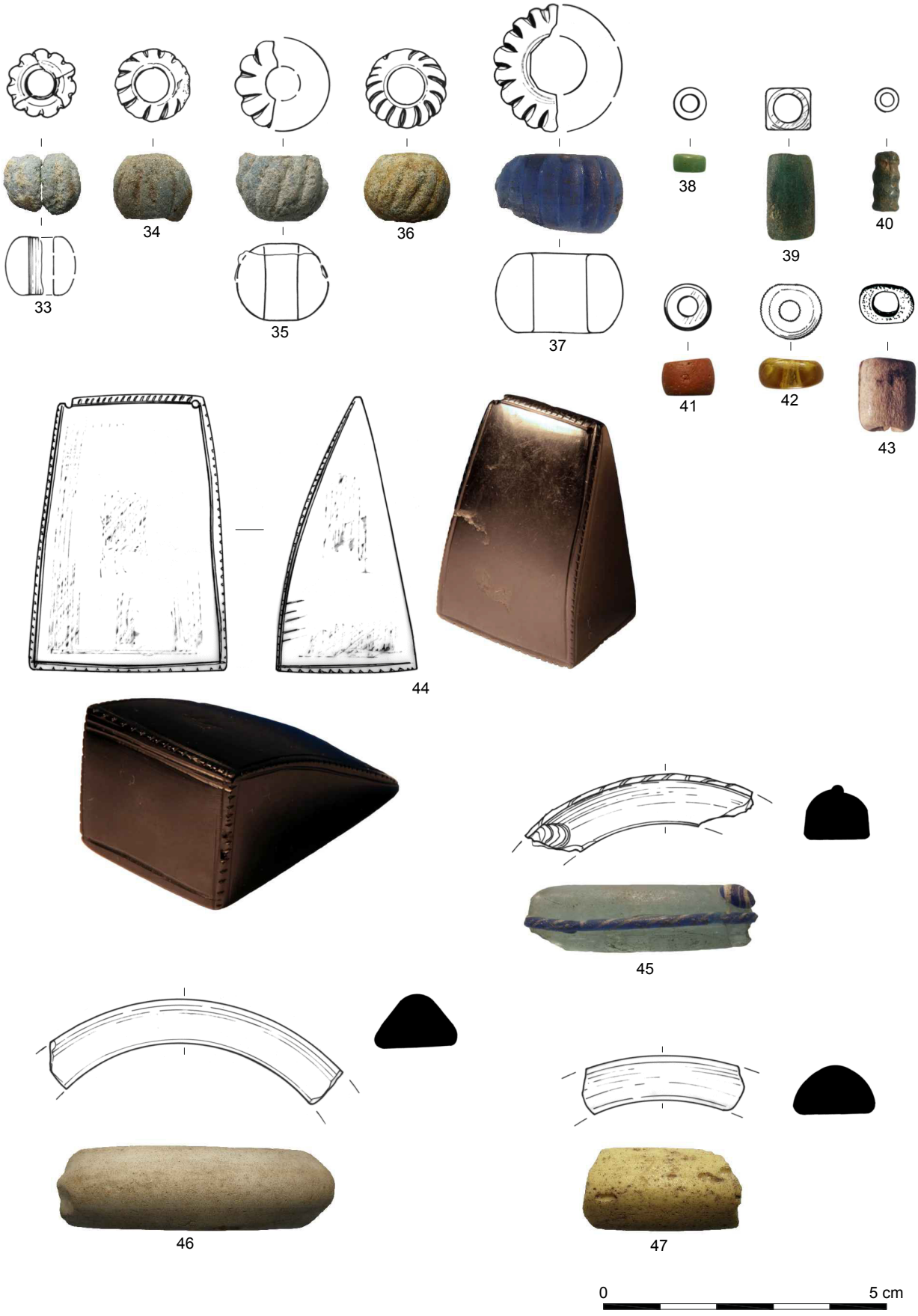


Figure 217: Beads, jet pendant, and glass bangles

Glass bangles

Five glass bangle fragments were recovered from Fields 61A, 63, and 64 at Healam (Figs. 217-218). No. 45 derived from a bangle of translucent pale blue-green glass with a plano-convex or D-shaped cross-section. It was decorated with an applied single cord of cobalt blue and opaque white glass in a clockwise twist. There were remains of an oval eye in the same blue and white colours. This was the only Type 2 bangle fragment in the assemblage, as classified by Kilbride-Jones (1938). This type was characterised by circumferential cords applied to a typically pale blue-green glass core. Further classification by Price (1988) placed this particular example within Type 2Ai, which had a single central cord, some with one or more eyes.

The remainder were Type 3 bangles, which were defined by their triangular cross-section and sub-divided into categories based on colour variation and decoration. Nos. 46 and 47 were both plain opaque fragments in white (Type 3A) and yellow (Type 3B) respectively, while no. 48 had a translucent pale blue-green ground with an opaque white pot-hook trail (Type 3F). Similar examples to the latter were found during excavations at Bridge Road, Brompton on Swale, North Yorkshire (Cool 2004a) and Catterick Bypass (Cool and Price 2002, 242). No. 49 was unusual, as it had an amber ground and a faint trace of a black circumferential trail. The cross-section was triangular. The use of amber glass was rare, both as a base colour and within cords. A fragment from Hownam Rings, Roxburgh had six white lines on an amber body (Stevenson 1956, 215). Amber glass was used in combination with yellow and white in a Type 2 cord fragment from Thearne, East Yorkshire (Campbell 2009). Six other examples of its use within cables were noted by Stevenson (*op cit*). These included a fragment from nearby Piercebridge. It is thought that Roman military installations were the main source of broken glass vessels used in the manufacture of bangles, although amber glass vessels were unusual by the Flavian period (Price 1988, 347).

Romano-British bangles were initially studied from a Scottish perspective (Kilbride-Jones 1938; Stevenson 1956) and as a result the distribution of Type 2 and 3 were held to be chiefly between the Antonine Wall and Hadrian's Wall (Kilbride-Jones 1938, 375, 388). More recent studies have shown a much wider distribution. Type 2 bangles have been found in small groups from sites in southern Britain and Wales and only two examples have been found outside Britain; however, the greatest concentration occurred on military sites in northern England and lowland Scotland (Price 1988, 342; 1999, 130). The distribution of Type 3 bangles was exclusively British. Of those finds that have been recorded, most occurred north of a line drawn between Chester and the Humber estuary (Price 1988, 349).

In Britain, bracelets were generally a late 3rd- and 4th-century AD fashion. Glass bangles, however, were a 1st to 2nd century AD object with evidence to suggest that plain opaque white bangles (e.g. no. 48) were a 2nd-century AD type (Cool and Price 1998, 189). This date range was reflected in the finds from Healam, three of which derive from Phase 1 deposits (nos. 45, 46, and 48), although no. 47 was found during fieldwalking and the amber fragment (no. 49) was likely to be a residual find in a Phase 3a deposit.

There has been much debate on the function of glass rings and some have suggested that the smaller rings could not have been worn as bracelets. Three of the four bangles from Healam would have had an internal diameter of approximately 60mm, but no. 49 was even smaller at only 40mm. Type 2 bangles in northern Britain generally had small internal diameters though larger examples (internal diameters of between 70 and 90mm) came from Chichester; Lease Rigg Roman Fort, North Yorkshire; and Faxfleet, East Yorkshire (Price 1988, 344). Small bangles would not have slipped over an adult hand. The suggestion that they may have been children's armlets was dismissed by Kilbride-Jones (1938, 378) who postulated that the complete diminutive form (internal diameter 40-60mm) were ring pendants that would have been suspended from a torc (Kilbride-Jones 1938, 380). This idea was discounted on the grounds of impracticality, given that the decoration would not have been visible and Stevenson suggested that they would have functioned as hair fasteners (Stevenson 1979, 50). Unfortunately, few examples have been found in association with human remains and the contexts from which the Healam examples derived shed no light on their possible use. No. 45 came from a deposit laid down after building 5009 fell out of use, while no. 46 was in the fill of the northern enclosure ditch in Field 64, and no. 49 came from an alluvial deposit sealing inhumations in Field 61A.

Copper alloy bracelets and armlet

Three complete (nos. 50-52, Figs. 218-219) and two fragmentary (no. 53, Fig. 219, and no. 54, not illustrated) bracelets were found in Healam Fields 61A and 63. No direct parallel could be found in the published literature for the large wire hoop, which was possibly worn on the upper arm as an armlet (no. 50). The decorative spiral was similar to that on a cable twist bracelet with hook and eye clasp and a finger ring of the same design from Colchester. The motif was noted to have clear native British links (Crummy 1983, 47, fig. 41.1602, fig. 50.1756). Although no. 50 came from Phase 3b fill of ditch 5562, it was likely to have originated in or around structure 7951 (Phase 1b) and subsequently found its way into the ditch via midden 5042/5237 (Chapter 3).

A cable twist bracelet (no. 51) was worn around the left wrist of a female aged between 36 and 45 years (skeleton 8126, radiocarbon dated (SUERC-40752) to 235-403 cal AD). The bracelet consisted of a three-stranded cable twisted clockwise, with a hook and eye terminal that had broken in antiquity. Possible impressions of textile remains on the inner face suggested that a long-sleeved garment had slipped under, or the bracelet was placed over, at the time of interment. Cable twist bracelets are one of the most commonly found types of bracelets from Roman Britain (Cool Group 1) and they appeared by the early 2nd century AD, but they were most common in the 4th century AD when bracelet wearing was at its peak (Cool 2010a, 296, fig. 3.142). No. 52 was a solid hoop with hook and eye terminals of Cool's Group 35A and was found around the right wrist of a female aged over 46 years (skeleton 8247, radiocarbon dated (SUERC-41448) to 243-393 cal AD). The decorative grooves on either side of the terminal were worn and the bracelet itself was misshapen possibly due to wear. An incomplete strip bracelet (no. 53) with a central row of punched dot decoration and a fragment with a worn crenellated outline (no. 54) came from Phase 3c midden 5028 and a Phase 1 posthole associated with structure 5729 respectively. A complete example of no. 54 was found along with a range of jet and gold jewellery in a gypsum burial of a woman at Heslington Field, York (Allason-Jones 1996,

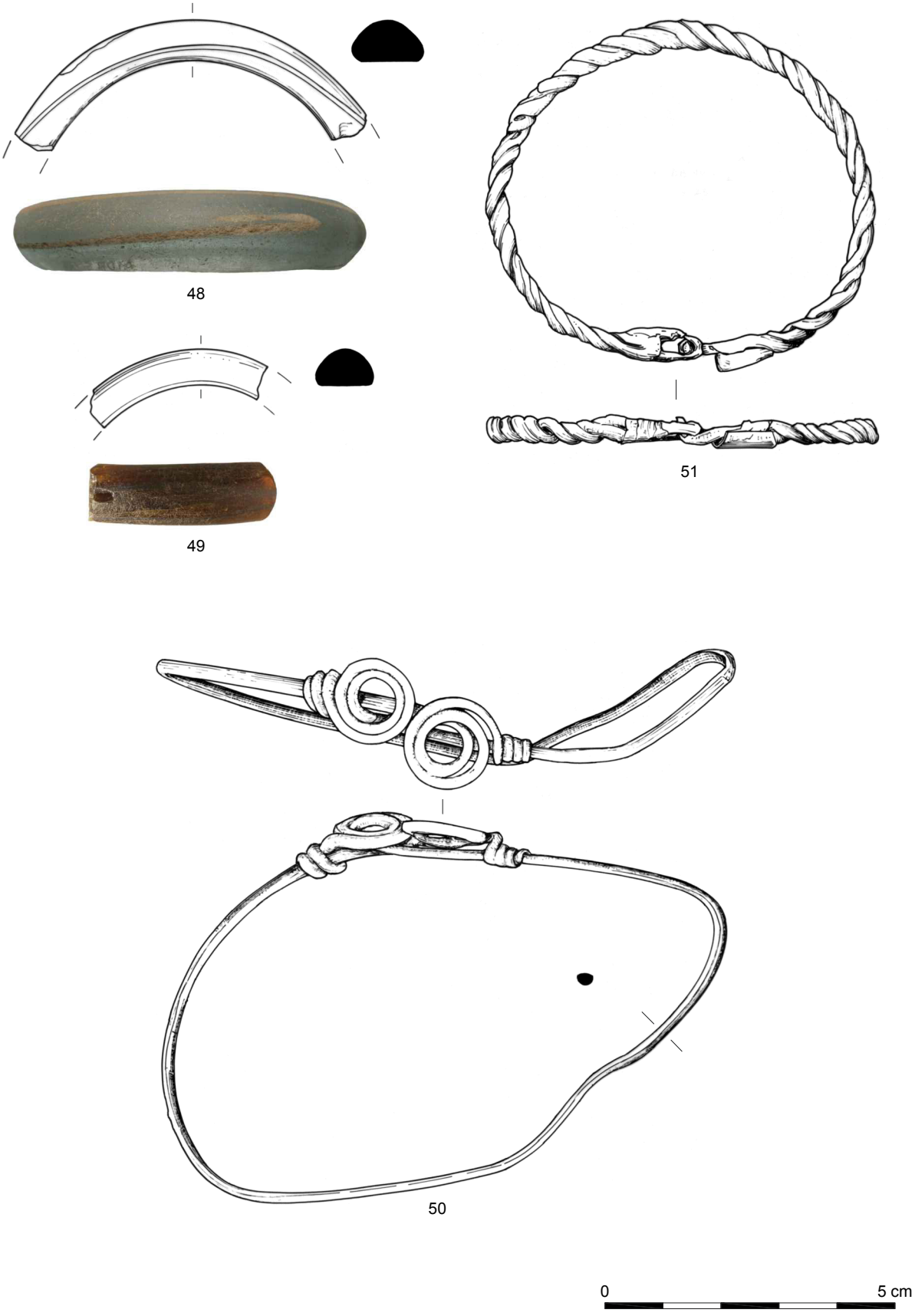


Figure 218: Dress accessories and personal items: Glass bangles, copper alloy bracelet, and copper alloy armlet

21, fig. 18). Light bangles, represented by nos. 51-54, would have been worn in numbers around the wrist (cf. Lankhills, Cool 2010a, 296-303). There is evidence to suggest that there was a preference for younger girls to be buried with ten or more bracelets, while older women wore one or two (*op. cit.*, 301).

Jet or shale bangle

A single fragment of jet or shale bangle (no. 55, Fig. 219) came from a Phase 3 ditch fill in enclosure 2, Field 63. It had the remains of two single ring-and-dot motifs and was similar to the shale piece from Catterick Bypass (Isaac and Thompson 2002a, fig. 312.13). It was one of only two finds of jet or shale from Healam compared to 35 objects recovered from Catterick Bypass and Catterick 1972 (Isaac and Thompson 2002a, 173), and eleven from Bainesse and Catterick Bridge (Bell and Thompson 2002a, 177). This discrepancy could be explained by the nature of the contexts they were found in at these sites: casual loss in the bath house at Catterick, or from inhumation burials at Catterick Bridge and Bainesse. Other examples of armlets, frequently of shale, bearing this commonly used motif are known from the region at Corbridge (Bishop and Dore 1989, fig. 98.3), *Vindolanda* (Bidwell 1985, fig. 45.9), and South Shields (Allason-Jones and Miket 1984, nos. 7.114-5). Further afield, examples were found in Colchester (Crummy 1983, fig. 38, no. 1554) and Wroxeter (Cool *et al*. 2014), but they are scarce in York where jet was preferred (Allason-Jones 1996, 32). Although jet and shale armlets were worn throughout the province from the late 2nd century AD, armlets in a variety of materials were increasingly popular by the late 3rd and 4th century by which time they were almost solely worn by women (Allason-Jones 1996, 29). No. 55 was found in association with a coin dating to AD 323-24 (RF 325) and pottery of the 4th-5th century AD (Section 10.2), which suggested a Late Roman date.

Catalogue

Measurement abbreviations: *L-length; W-width; H-height; D-diameter; Th-thickness*

GLASS BANGLES

(**45**) Type 2Ai bangle fragment. Translucent pale blue-green with central circumferential cord of twisted cobalt blue and opaque white glass, and partial cobalt blue and opaque white oval eye at one broken edge. D-shaped cross-section. L 38mm, W 11mm, H 10mm, internal D *c*.60mm. A1DB09, RF 190, context 5121, Field 63, Phase 1d. Fig. 217

(**46**) Type 3A bangle fragment. Probably originally opaque white, but now appears grey. Triangular cross-section. L 51mm, W 15mm, H 9mm, internal D *c*.60mm. A1DB09, RF 1122, context 7283, Field 64, Phase 1. Fig. 217

(**47**) Type 3B bangle fragment. Opaque yellow. Triangular cross-section with rounded corners. L 26mm, W 14mm, H 8mm, internal D *c*.54mm. A1DB05 fieldwalking, Area 24, G17. Fig. 217

(**48**) Type 3F bangle fragment. Translucent pale blue-green with inlaid opaque white circumferential trailed pot-hook pattern. Triangular cross-section. L 60mm, W 12mm, H 7mm, internal D *c*.60mm. A1DB09, RF 327, context 5069, Field 63, Phase 1d. Fig. 217

(**49**) Type 3 bangle fragment. Translucent amber glass with circumferential trails that appeared black. Surface abrasion was visible. Triangular cross-section, rounded corners. L 30mm, W 10mm, H 6mm, internal D *c*.40mm. A1DB10, RF 627, context 8026, Field 61A, Phase 3i. Fig. 218

COPPER ALLOY BRACELETS AND ARMLET

(**50**) Complete wire armlet, distorted. Lozenge-sectioned wire, each end was twisted into a pair of decorative spirals above an expanding clasp. External D 100 x 63mm, wire D 2mm. A1DB09, context 5628, RF 305, Field 63, Phase 3b, Fig. 218

(**51**) Complete cable bracelet, oval. Three-stranded cable clockwise twist. Hook and eye terminal: one strand formed a downward facing eye with an incomplete tube of copper alloy sheet that encased the free strand, a sideways hook was formed from a single stand on the other end and was also encased by a copper alloy sheet. The clasp showed ancient breaks. Interior surface had possible impressions of textile remains. External D 65 x 58mm, cross-section D 5mm. A1DB10, RF 633, skeleton 8126, Field 61A, Phase 3ii, Fig. 218

(**52**) Complete strip bracelet, oval. Rectangular-sectioned hoop, strip thickest in the centre and thinning slightly towards either end; one end narrowed to form a hook that was upwards facing and linked with the other end, which was slightly expanded and pierced to form an eye. Either side of the terminal was decorated with grooves across the hoop, which was very worn. The remaining half of the hoop was decorated with a repeating design of paired incised lines with ring-and-dot motif in-between. External D 64 x 52mm, Th 2mm, H 4-6mm. A1DB10, RF 639, skeleton 8247, Field 61A, Phase 3ii, Fig. 219

(**53**) Incomplete strip bracelet. Flat strip with central row of punched dot decoration. Pierced at one end to form an eye. L 91mm+, W 4mm, Th 1mm. A1DB09, RF 522, context 5028, Field 63, Phase 3c. Fig. 219

(**54**) Incomplete strip bracelet. Heavily corroded and worn. Crenellated design. L 39mm+, W 4mm, Th 2mm. A1DB09, RF 486, context 7461, Field 63, Phase 1. Not illustrated

JET OR SHALE BANGLE

(**55**) Jet/shale (material not confirmed) bangle fragment. Rectangular-section, tapered towards one edge. Two ring-and-dot motifs set 29mm apart. L 49mm+, W 7mm, Th 6mm, internal D *c*.54mm. A1DB09, context 5648, RF 319, Field 63, Phase 3. Fig. 219

Finger rings

A group of six copper alloy finger rings (Fig. 219 no. 56) accompanied a juvenile burial aged between 10 and 11 years (skeleton 8240, radiocarbon dated (SUERC-39590) to 135-349 cal AD). Traces of poorly preserved enamel survived in some of the rings, while one still contained *c*.60% of the blue enamel in the bezel and another had possible white enamel surrounding three upstanding cast-in dots. Despite an overall similarity, the presence of the ring with integrally cast dots suggested that they were not all cast from the same mould. During conservation, non-mineralised thin dark coloured hairs/fibres were observed amongst the corrosion products inside the ring hoops. A sample hair was examined using scanning electron microscopy and was found to have surface scale pattern. The hair/fibre was not well preserved, but the scale pattern was not consistent with human hair. It was undoubtedly of animal origin and probably derived from a textile or pelt present in the burial (J. Jones, archive

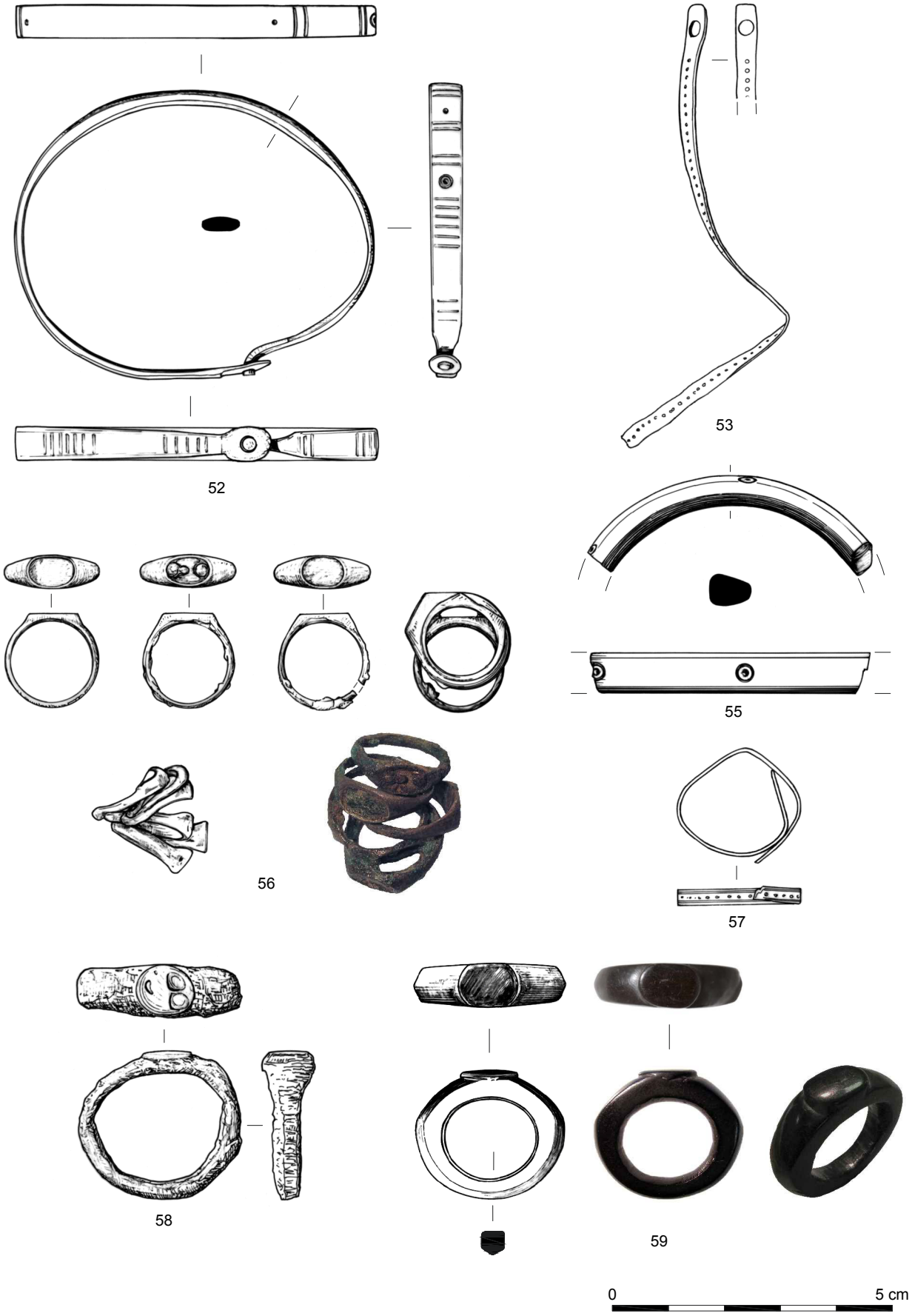


Figure 219: Copper alloy bracelets, jet/shale bangle, and finger rings

conservation record). Traces of a layer of dark material with a slight linear pattern were also found on the inside of the ring with cast dots. This may be further evidence of a pelt, or it may be the remains of body tissue preserved by the biocidal effect of contact with the copper in the ring. The rings were recovered corroded together, overlapping in such a way as to make it unlikely that they were worn on one finger at the time of deposition. The range of internal diameters (11mm to 14mm) also makes this unlikely. The rings were probably tied together and may have been suspended or placed in an organic container.

No. 57 was a simple copper alloy ring fashioned out of a strip with overlapping ends. A similar example was worn by a child at Lankhills, Winchester (Cool 2010a, 305, 1866.6). No. 59 was a jet ring found in the Phase 3 fill of ditch 5984. An iron ring with expanded bezel (no. 58) came from a Phase 3i fill of boundary ditch 8310. The hoop had been repaired or modified at the back with a semi-circular band of copper alloy. The bezel was set with an intaglio of amber glass that had traces of a now indeterminate pattern.

With the exception of no. 57, all the metal rings were of Guiraud's (1989) type 2 category, the equivalent of Henig II and III (1974), which span the 1st to early 3rd century AD. No. 58 was likely to have been manufactured at the earlier end of this date range, as it had a rounded form with no definite angle between the shoulder and the hoop (a characteristic of finger rings from the 2nd and 3rd century AD).

No. 59 came from Field 23 and was a complete jet (confirmed by EDXRF analysis) ring. The band expanded to a slightly undercut oval panel. It was comparable to examples found at South Shields (Allason-Jones and Miket 1984, no.7.92) and York (Allason-Jones 1996, 36-37, no.169). There was evidence to suggest that jet was being worked in York as early as the 2nd century AD, but it became increasingly popular in the 3rd and into the 4th century AD (*op. cit.*, 9). At Catterick, there was a concentration of jet finds from the 4th century AD (Isaac and Thompson 2002a, 173).

Catalogue

Measurement abbreviations: *D-diameter; W-width; Th-thickness*

(**56**) Group of six copper alloy finger rings corroded together. All with D-sectioned hoop widening to an integral oval to sub-rectangular shaped bezel (all but one *c*.9 x 6mm, one 8mm wide) with shallow recess (<2mm). Traces of poorly preserved enamel survived in some: one had *c*.60% of the bezel filled with plain blue enamel, another had three cast-in dots surrounded by (possible) white enamel. Internal D from 11-14mm, external D 14-17mm. A1DB10, RF 638, skeleton 8240, Field 61A, Phase 3ii. Fig. 219

(**57**) Copper alloy. Finger ring consisted of an overlapping folded strip, now distorted. The band was decorated with central punched dot decoration and an incised line border. D *c*.22mm, Th 1mm, W 3mm. A1DB09, RF 330, context 5686, Field 63, Phase 3. Fig. 219

(**58**) Iron with repair to back made with copper alloy. Oval inset of amber glass with two circular indentations, a dot, and a line. Internal D 19 x 22mm, external D 26 x 28mm. Glass inset 8 x 11mm. A1DB10, RF 629, context 8133, Field 61A, Phase 3i. Fig. 219

(**59**) Jet, complete. Pentagonal-sectioned band that expanded to a slightly undercut oval panel. Internal D 15 x 14mm, external D 26 x 23mm. Weight 2g. A1DB06, RF 635 AB, context 635, Field 23. Fig. 219

Hairpins

Summary

In order to fashion the wide range of Roman period hairstyles hairpins were required. These items were decorative, functional, and manufactured in a range of materials. The way they were used can be seen in contemporary works of art and from their position in graves (Cool 1990, 149-150). Pin length was related to changes in hairstyles: longer examples were generally suited to holding piles of plaits and curls on the crown (a 1st to 2nd centuries AD style), while shorter pins fastened the hair close to the back of the head as favoured in the 3rd and 4th centuries (Cool 1990, 173-174). Studies of metal hairpins have shown that different groups of pins were in use at different times and that they could be used as an indicator of the speed in which new ways of life were adopted by native communities (*op. cit.*, 148).

Copper alloy (Fig. 220)

Eight copper alloy pins were recovered from Fields 61A, 63, and 64 (also see below no. 82, pin/pick). A single example of a glass-headed pin (no. 60) came from Field 61A. It had a well formed dark blue globular glass head and fell within Cool's group 16. Interestingly, however, these pins were thought to be a 4th-century AD type and where contexts have been closely dated they have all been attributed to the second half of the 4th century. This particular example was in layer 8015 with pottery dated to the mid-/late 2nd to early 3rd century AD and a coin dated to 103-117 AD (RF 612), which suggested a considerably earlier date than would be expected.

Pin no. 61 had a double reel, bead, and conical head decoration. Similar examples were listed in both Crummy (1983, type 2) and Cool (1990, group 3), but these examples had either a flattened sphere or finial knob head. However, Cool noted that group 3 was a disparate group with many variations on the basic head form. The group was generally found in contexts dated to the mid-1st through to the 4th century AD, though they many have been residual finds in the latter period (Cool 1990, 154). No. 61 came from a secure late 4th century AD fill of ditch 6810.

No. 62 had a heavily worn, flattened head with bead and reel moulding. No direct parallel was found. No. 63 was highly corroded, though originally it probably had a conical head. No. 64 was a diminutive pin with a globular head. It came from a late 4th to early 5th-century AD layer over road 9159/9099. Similar examples were found at South Shields (Allason-Jones and Miket 1984, fig. 3.542, 3.544). An incomplete bead and reel decorated pin (no. 65) came from the subsoil in Field 61A. Nos. 66 and 67 were shank fragments and could have equally derived from toilet implements.

No. 60, 62, and 63 would be considered 'long' hairpins, as they were over 80mm in length (109, 83, and 103mm respectively), and thus earlier in date. Although some caution is needed when determining date based on length, as the length of an individual pin does not automatically date it (Cool 1990, 173). It was interesting that for nos. 62 and 63 that the earlier date suggested by the length of the pin corresponded with the find contexts. However, no. 60 was more complicated given that both the context and pin length suggested an earlier date, but

this was contradicted by the date of other glass-headed pins.

Iron

An iron pin (no. 68) from Field 1 was found in association with sherds of Grey ware. The pin shank was stepped at the head end and the head itself was opposed to the plane of the shank. The spiral motif was noted to have clear native British links (see section on bracelets above). Two step-headed pins, both from North Yorkshire, were published on the Portable Antiquities Scheme website, but listed as date unknown (www.finds.org.uk ref nos. LVPL-845082 and LVPL-83FA31).

Bone

Three bone pins came from Phase 1d layers in Field 63. Nos. 70 and 71 came from the same deposit (5237=5042). Nos. 69 and 70 were complete and of Crummy's type 2 category with transverse grooves beneath a conical head. Type 2 pins were found in early deposits at Colchester and were absent from major late Roman deposits implying an end date of *c*.200 AD (Crummy 1983, 21). Numerous comparable examples were found at Catterick, where they were noted to be found throughout the Roman period (Isaac and Thompson 2002b, 188, fig. 320). No. 71 was a highly polished shaft fragment (not illustrated).

Catalogue

Measurement abbreviations: *D-diameter; L-length*

COPPER ALLOY PINS

(**60**) Cool Group 16. Complete. Spherical opaque dark blue glass head, circular sectioned shank that tapered only towards the tip. X-ray showed that the pin shank consisted of a flat topped cylinder, which was slightly wider than the shank, within the head. Manufacturing flaws visible at the pin tip. L *c*.109mm, D of head 7mm. A1DB10, RF 654, context 8015, Field 61A, Phase 2. Fig. 220

(**61**) Complete. Circular-sectioned shank. Decoration from the shaft end up: reel, reel, bead, conical head. L 83mm. A1DB09, RF 400, context 6811, Field 64, Phase 3. Fig. 220

(**62**) Near complete, tip missing. Circular-sectioned shank. Decoration from the shaft end up: reel, bead, trapezoidal flattened head with incised cross motif. L 83mm. A1DB09, RF 490, context 6926, Field 63, Phase 1a. Fig. 220

(**63**) Near complete, tip missing. Highly corroded. Circular-sectioned shank. Detail of head indistinct due to corrosion, possibly originally conical. L 103mm+, D of shank *c*.2mm, D of head *c*.4mm. A1DB09, RF 482, context 5084, Field 63, Phase 1a. Not illustrated

(**64**) Near complete, tip missing. Circular-sectioned shank. Head incomplete, but possibly originally globular. L 36mm+, D of shank 1mm, D of head 3mm+. A1DB09, RF 695, context 9160, Field 63, Phase 3. Fig. 220

(**65**) Incomplete. Circular sectioned shank, heavily corroded. Decoration from the shaft end up: reel, reel bead. Missing head. L *c*.62mm, D of shank 2mm. A1DB10, RF 760, context 8011, Field 61A, Phase 5. Not illustrated

(**66**) Pin or toilet implement shank. Circular in section. L 70mm+. A1DB09, RF 231, context 5237, Field 63, Phase 1d. Not illustrated

(**67**) Pin or toilet implement shank. Circular in section. L 35mm+. A1DB09, RF 251, context 5336, Field 63, Phase 3b. Not illustrated

IRON PIN

(**68**) Spiral-headed pin, most of shank missing, heavily corroded. Head consisted of coiled wire, square-sectioned shank bent at right angles before being coiled around to form head. L 40mm+, D of head 15mm, shank 4 x 4mm. A1DB09, RF 1132, context 3247, Field 1. Fig. 220

BONE PINS

(**69**) Crummy Type 2. Near complete, but missing tip. Two transverse grooves, lower one does not meet, conical head, knife carved, shaft was gently tapering and faceted towards the head. L 74+mm, D of shaft 4-2mm; D of head 4mm. A1DB09, RF 358, context 5093, Field 63, Phase 1d. Fig. 220

(**70**) Crummy Type 2. Near complete, but missing tip. Two transverse grooves, lower one did not meet, conical head, knife carved, shaft was gently tapering and faceted towards the head. L 71+mm, D of shaft 4-3mm; D of head 4mm. A1DB09, RF 301, context 5042, Field 63, Phase 1d. Fig. 220

(**71**) Pin tip and shaft fragment, highly polished, oval section. L 30mm+, D 4 x 3mm. A1DB09, RF 275, context 5237, Field 63, Phase 1d. Not illustrated

Toilet articles

Items related to grooming and personal hygiene were scarce, but included a mirror fragment, nail cleaner, tweezers, various forms of spoons, and probes. Objects, such as these, tend to be described as toilet implements, though some could have been used for surgical purposes.

A fragment of copper alloy mirror (identified by M. Bishop) came from Phase 3 context 2589 in Field 62 (no. 72). The context contained material, including a probe (no. 81), that may have originated from an area of settlement close to the latrine and rubbish pits. The mirror would have been highly polished and was likely held within a wooden frame, examples of which rarely survive. Lloyd-Morgan (1977) noted that there was a concentration of mirror finds in the south-east with a gradual spread to the north and west that probably reflected the comparative wealth of the area and trade links to the continent where most, if not all, the pieces found in Britain were made. The most northern examples came from Traprain Law and along Hadrian's Wall. A single unstratified example came from Bainesse site 46 (Mould 2002, 111, fig. 282.26).

No. 73 was a complete nail cleaner of type 2a (Crummy 1983, 58, fig. 62.1872) with leaf-shaped blade and a suspension loop. It was typologically dated to the mid- to late 1st century AD, probably continuing into the 2nd century. It was likely to have been a residual find in the fill of pit 5429, which contained a large assemblage of pottery dated to the late 3rd or 4th century AD. The significance of this artefact type in terms of its status, cultural identity, gender, and age has been discussed by Crummy and Eckardt (2003).

One set of tweezers (no. 74) were found redeposited in the backfill of gas main trench 8016 in Field 61A. Tweezers were used to remove unwanted hair, but their use in a surgical context have been discussed (Milne 1970, 91-3). They varied in size and shape, though all have in-curved blade tips and often had a ring that could keep the blades together when not in use. An incomplete ring was present on no. 74.

No. 75 was an incomplete toilet implement from a chatelaine. Traces of enamel were visible, indicating a 2nd or early 3rd century AD date. No. 75 derived from a layer of the same date range (5042). The end of the implement was missing, but those with enamel decoration often had odd tool types and frequently appeared almost bespoke (H Cool *pers. comm.*; cf. Castleford, Cool and Philo 1998, fig. 31), rather than the usual combination of tweezers, nail cleaner, and ear scoop/cosmetic spoon.

There were several examples of spoons and probes. No. 76 with a hammered-out cupped scoop and a pointed terminal came from a mid- to late 2nd century AD layer associated with structure 7951. No. 77 had a flat elongated scoop and was from a late 3rd to 4th century AD ditch fill in Field 61A. No. 78, a possible spoon probe, had a shank that flattened into what would likely have been a spoon and was comparable to those from Colchester (Crummy 1983, fig. 65). Nos. 79 and 80 had similarly decorated shafts, but no terminals to determine their use. No. 81 was an elongated probe with only a short section of shank remaining. No. 78 was from a Phase 3c midden deposit, no. 79 from the late 1st to mid-2nd century AD peat deposit 5201, both in Field 63, and no. 80 was a topsoil find. No. 81 was from the same deposit as the mirror fragment (no. 72). Several types of spoon were known, ranging from almost flat circular spatulas to elongated cups. The diversity in size and shape probably reflected their range of uses. Spoons could be used to extract cosmetics from flasks and boxes, as well as being used as cuticle removers. Spoon-probes were employed as surgeon's curettes or sounds, but were also used to extract and apply cosmetics (Crummy 1983, 59-60). They were manufactured throughout the Roman period (Crummy 1983, 59).

Similar items to no. 82 have been described as both a pick (Crummy 1983, 60, fig. 66.1940) and as hairpins (Cool 1990, fig. 6). The decoration on these, however, all consisted of a cross-hatched cylindrical drum below a perforated disc finial. All known examples of this type could have come from the same workshop and were clustered in the eastern part of southern Britain (Cool 1990, 160). No. 82 had bead and reel decoration below a perforated disc. It was an unstratified find from Field 63.

Catalogue

Measurement abbreviations: *L-length; W-width; Th-thickness; D-diameter*

All the following are copper alloy.

(**72**) Mirror fragment. Circular striations and indentation towards one edge. Th 1mm. A1DB09, RF 216, context 2589, Field 62, Phase 3. Fig. 220

(**73**) Nail cleaner, complete. Leaf-shaped blade, serrated on reverse, triple reel moulding above the blade, circular suspension loop integrally cast. L 55mm, max W 11mm. A1DB09, RF 350, context 5428, Field 63, Phase 3. Fig. 220

(**74**) Tweezers, complete. Beaten and folded. Originally parallel sided blades with in-curved ends, a ring (now split) gripped the blades half-way down. L 88mm, W 5mm. A1DB10, RF 611, context 8014, Field 61A, Phase 5. Fig. 220

(**75**) Toilet implement, incomplete. Suspension loop with traces of red enamel on flat panel. Working end missing, but appeared to have been tapering. L 26mm+, W 4mm, D of perforation 2mm. A1DB09, RF 332, context 5042, Field 63, Phase 1d. Fig. 220

(**76**) Spoon, complete. Rolled sheet with hammered cupped scoop, top of the shaft was pointed. L 126mm, D of scoop 9mm. A1DB09, RF 153, context 5088, Field 63, Phase 1b. Fig. 220

(**77**) Spoon, near complete. Rolled sheet with hammered flat elongated scoop that was angled slightly upwards, top of shaft missing. L 52mm+, W of scoop 15mm. A1DB10, RF 644, context 8307, Field 61A, Phase 3i. Fig. 220

(**78**) Possible spoon probe, incomplete at both ends. Single decorative reel moulding towards one end of the shank. The other end was decorated with reel, bead, and spool mouldings. The shank flattened into what may have been a spoon. L 108mm+. A1DB09, RF 171, context 5045, Field 63, Phase 3c. Fig. 221

(**79**) Implement handle with double reel and bead moulding that flattened out into what was probably a spoon, circular sectioned shank. L 89mm+, D of shank 2mm. A1DB09, RF 368, context 5201, Field 63, Phase 1a. Fig. 221

(**80**) Implement handle with reel, bead, and reel moulding. Sub-rectangular to circular sectioned shank. L 68mm+, D of shank 3mm. A1DB10, RF 707, context 8000, Field 61A, Phase 5. Fig. 221

(**81**) Cast probe, incomplete. Shaft missing. L 24mm+, max D 5mm. A1DB09, RF 227, context 2589, Field 62, Phase 3. Fig. 220

(**82**) Pin/pick, complete. Tapered shank that was circular in section. Moulded decoration consisted of reel, bead with spiral decoration, and reel below suspension loop. L 126mm, D of head 4mm, D of perforation 2mm. A1DB09, RF 163, unstratified, Field 63. Fig. 221

(**83**) Implement handle with flat leaf-shaped terminal, incomplete. Patinated shank, sub-rectangular in section. L 52mm+, maximum W 5mm. A1DB09, RF 356, context 5990, Field 63, Phase 3. Fig. 221

Leather

Quita Mould

Methodology

The material was initially examined wet and washed. Relevant measurements were taken and a working drawing (scale 1:1) was made of the one-piece shoe (no. 84, Fig. 221). The material was later re-examined following conservation by freeze-drying. Leather species were identified by hair follicle pattern using a low-powered magnification. All the leather that retained any diagnostic features was found to be of Roman date.

Discussion

Parts of three shoes (nos. 84, 85, and 86) and a very small amount of leather scrap (no. 87) were present in deposits in Field 63. All were found associated with a range of other material, including pottery, baked clay, animal bone, and oyster shell, which suggested domestic

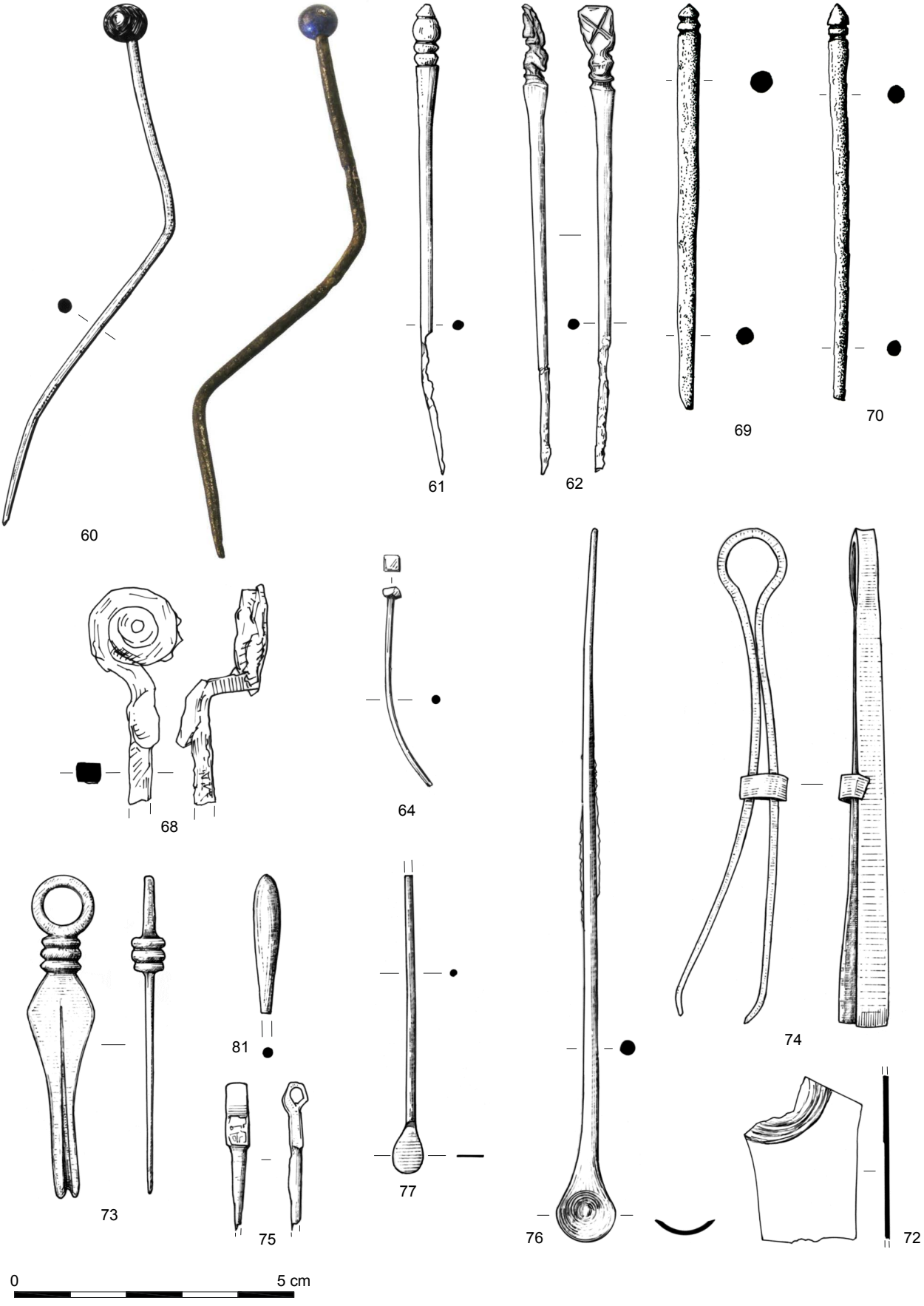


Figure 220: Hairpins and toilet articles

refuse dated to the Antonine period. Part of a shoe of one-piece construction (no. 84) was found in layer 5084, which may have abutted part of structure 7152 (attributed to Phase 1a). The one-piece shoe (no. 84) of cattle hide was heavily worn before it was eventually thrown away, but there was no surviving evidence that it had been repaired. The back seam was sewn with whipped grain/flesh stitching from the inside and survived to a height of 52mm. The toe area was missing along with much of the right side, but it appeared to have had a symmetrical cutting pattern. The left side had three plain oval loops in the middle section and a long lateral loop to fasten around the ankle. On these criteria it appeared to be of Dragonby-U type dating to AD 100-160, according to the newly devised classification and dating scheme of primary cutting patterns for European archaeological footwear (Volken 2012). This was a common cutting pattern found in Britain, both in London and the northern military zone and along the German limes.

The remains of a bottom unit of a nailed construction shoe (no. 85) was found in a layer of brown/orange silty sand (7641) and a heel stiffener (no. 86) from an adult sized second shoe of nailed construction in a layer (5303=5088/5231) in the stone building (group 7951) in Phase 1b. The toe and upper tread area of the bottom unit (no. 85) was missing, but what remained was of natural shape with no distinct waist present. The shape was consistent with the early dated pottery. The two surviving components of the bottom unit (no. 85), the insole and midsole, were held together with constructional thonging and nailing likely to be of van Driel-Murray's type 1C (van Driel-Murray 2007, 351).

The leather scrap (no. 87) was found in white sandy layer (7834) associated with revetting. Very small fragments of leather scrap (no. 88) with all edges torn and no distinguishing features were recovered from the secondary fill (8178) of ditch (8177) at the northern end of the stopple pit in Field 61A. The iron staining may suggest that it derived from the broken bottom unit of a shoe of nailed construction.

Catalogue

Measurement abbreviations: *L-length; W-width; Th-thickness; H-height*

(**84**) One-piece shoe, ?right foot, adolescent/small adult size. Better preserved on the left side, toe area and right side were missing, tread and seat areas were worn away, no sign of repair. Grain/flesh whip stitched back seam (whip stitched from the inside), stitch length 7mm, surviving height 52mm and edge/flesh stitched seat seam. Plain oval cut-out loops with a long ankle fastening loop (lateral loop) with a single lobe on the upper edge survived on the left side. Edges were tooled. Cattle hide 2.84mm Th, L toe to back seam *c.*200mm. Estimated UK child size 12 (EU size31). A1DB09, RF 526, context 5084, Field 63, Phase 1a. Fig. 221

(**85**) Shoe of nailed construction, right foot, adult size. Part of the bottom unit of a shoe with insole and midsole present. Toe and upper tread area were missing, toe shape unknown, natural tapering shape with no distinct waist. Constructional thonging was present at the upper seat/lower waist and the centre of the tread suggested type 1. Iron nailing type 1 probably type 1C (van Driel Murray 2001). Surviving L of insole 250+mm, max W 70+mm, waist area *c.*55mm. A1DB09, RF 494, context 7641, Field 63, Phase 1a. Not illustrated

(**86**) Heel stiffener. Near complete large crescentic, from a shoe of nailed construction of adult size. Cattle hide 2.58mm Th, L 181mm, H at centre back 51mm. A1DB09, RF 213, context 5303, Field 63, Phase 1b. Not illustrated

(**87**) Scrap. Five very small fragments of compacted leather, all edges broken, no distinguishing features. Largest 23x14x3.37mm, Total weight 3g (wet). A1DB09, context 7834, Field 63, Phase 1a. Not illustrated

(**88**) Scrap. Small fragments of compacted leather, all edges broken, no distinguishing features. Iron staining present, suggested possibly broken from a fragment of nailed shoe bottom unit component. Some soil still adhered to the surfaces. Total weight 28g. A1DB10, RF 742, context 8178, Field 61A, Phase 2. Not illustrated

Hobnails, nailed shoes and burial textiles

Penelope Walton Rogers, The Anglo-Saxon Laboratory

Introduction

Nailed shoes were represented at Healam by clusters of iron hobnails in cremation burials 2221, 2431, and 6839, as well as by the association of pronged iron plates with hobnails in inhumations 5015 and 8125. The cremation burials came from Phase 1 and the inhumations from Phase 3. Further hobnails were recovered from a range of non-burial contexts belonging to Phases 1-3, including ditches, gullies, and pits (Fields 61A, 62, 63, and 64). Those from pit 5863 in Field 63 (no. 102) were associated with a child's tooth and may have come from a disturbed burial, while 19 hobnails in a cluster from pit fill 8347 in Field 61A (no. 111) were probably the remains of a shoe. Most of the finds, however, were recovered singly, or in small groups, and perhaps represent accidental loss from the shoes of people walking in the area.

Graves containing nailed shoes have been comparatively rare in Yorkshire until now. Since some of the shoes had been placed on the feet of the dead, this raised the question of whether the bodies had been buried fully clothed and traces of textiles in association with the hobnails in one inhumation will also be discussed. These last provided some useful new information on burial practice among what were probably some of the less wealthy members of society.

Hobnails and plates

More than 350 hobnails were recovered from Healam. Many of these were damaged, but where the head form could be discerned, it was either domed (mushroom-shaped) or pyramid-shaped (Manning 1985). Domed heads were in the majority and were found in all types of contexts, but at Healam, pyramid heads were only identified with confidence in non-burial locations (approximately 25 examples from eight contexts). If this distinction was a real one, it supported the view that most of the loose hobnails found in pits and ditches did not originate in disturbed burials. Nail shanks had angular, often square, sections and were tapered to a sharp tip. They might be gently curved, bent at a sharp angle or turned in a 'U', so that the tip pointed back towards the head (termed 'curled' in the catalogue), and some short examples had not been bent at all.

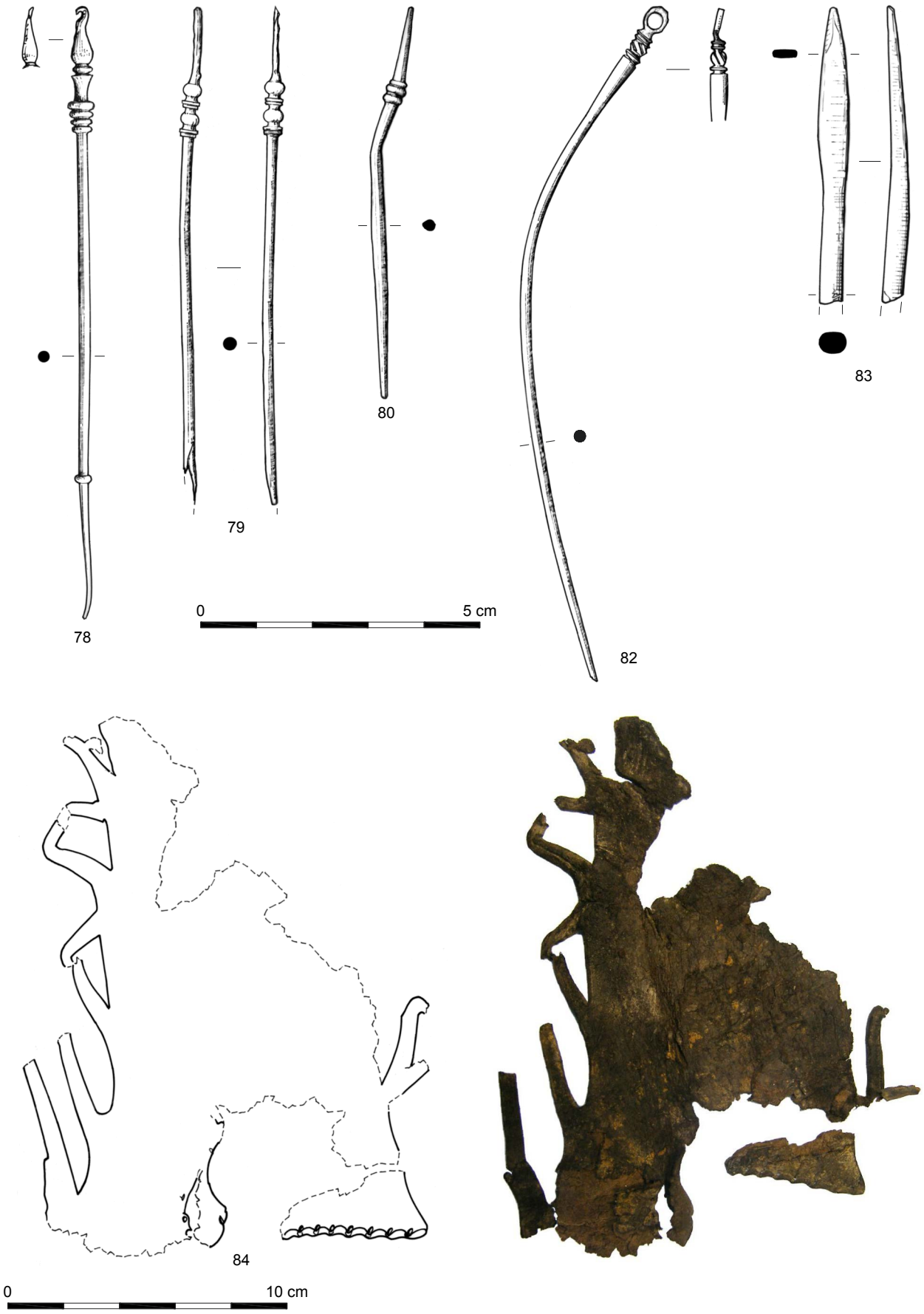


Figure 221: Toilet articles and one piece shoe

Different sizes of hobnail could be discerned. The smallest (no. 93) had domed heads (6-7mm in diameter) and an in-use length (from the apex of the head to the outside turn of the shank) of 10-13mm. Most nails, however, were slightly larger and had heads 10-12mm in diameter and in-use lengths of 14-17mm. Pyramid-headed nails were mostly comparable with the standard size of dome-headed nails, but a large example from ditch fill 8309 had a head 11-12mm square, 8mm deep, and an in-use length of 20mm.

The fragment of an iron plate (no. 91) from inhumation 5015 had two sharp prongs extending 8mm from one face and the fragment from inhumation 8125 also had the stub of a prong present. No complete dimensions could be recorded for the plates, although they were estimated as having been approximately 30 by 20mm and 30 by 12mm respectively. These probably served the same function as the 'boot plates' used in the shoes in the Lankhills cemeteries, Winchester, although in those the prongs were made from the pointed ends of the plate, bent upwards (Powell 2010, 316-7). Boot plates were usually applied at heel and/or toe.

Many hobnails, including those from burials, displayed signs of extensive use. The heads were often flattened and lop-sided and there were numerous examples where the shank had broken through the domed head. This indicated that all the shoes from the burials had been worn in life.

Shoes

Hobnails represent the studs used to give extra grip and wear-resistance to the soles of leather shoes and sandals. The typical nailed shoe will have had a bottom unit made up of three layers of leather: the outer sole, the middle sole (around the edge of the shoe this would give way to the lasting margin of the upper), and the insole (Hooley 2002, 324-335). The nail would be driven in from the outside, through the layers of leather, until it met an iron tool held against the insole in order to turn the tip back on itself. Few organic remains were preserved in the Healam graves, but in some burials the thickness of the whole bottom unit of the shoe could be estimated as 8-11mm, based on the 'in-use' lengths minus the depth of the nail head. The small nails (no. 93) in inhumation 8125, however, were comparable with those found in sandals from the mid-2nd century AD onward (Hooley 2002, 328, 335) and probably represent lighter footwear than the other examples.

The stud patterns on Roman shoes can sometimes be related to date, status, and place of manufacture (Rhodes 1980, 103-115; van Driel-Murray 1983, 21-2; MacConnoran 1986; Hooley 2002, 328-331). No complete patterns could be determined in the shoes from Healam and Bainesse, although the right foot in inhumation 5015 may have been Type 1bi, see Figure 222. Type 1 nailing, which has a single peripheral nail line, represents the most common variant and occurs on both civilian and military sites (van Driel-Murray 1983, 21; Hooley 2002, 329-331). Three fragments of leather that probably derived from shoes of nailed construction found at Healam included an example that may have had Type 1c nailing (RF 494, context 7641, Field 63; see Mould above, cat. no. 85).

SHOES IN ROMAN BURIAL RITUAL

At Healam, shoes were inhumed with an adult male (skeleton 5016, inhumation 5015), an adult female (skeleton 8126, inhumation 8125), and possibly a child if pit 5863 was correctly interpreted as a disturbed burial (sex and age could not be determined in the cremation burials). The shoes had been placed on the feet of skeleton 5016. The relationship of the shoes to the body, or indeed how many shoes were present, was unclear in the other graves.

Nailed shoes have previously been regarded as stereotypically Roman. They have been found in cremation burials of the 1st to 3rd centuries AD and inhumations from the 2nd century onwards, most commonly in the 4th century (O'Brien 1999, 25). Those from occupation levels at Catterick came from contexts ranging from the first half of the 2nd to the 4th centuries AD (Cool 2002, 26) and at Healam leather fragments that derived from nailed shoes have been placed in Phases 1a, 1b, and 2, which spanned the 1st to mid-3rd centuries AD (Mould this volume). Increasingly refined radiocarbon dates, however, necessitated a reconsideration of the end-date for burial in nailed shoes. For example, an adult female (883) from Parlington Hollis had been dated to 400-667 cal AD (Holbrey and Burgess 2001, 97-102), while the inhumation of an adult male at Bainesse provided two dates spanning 406-620 cal AD (Speed, *pers. comm.*). These provided parallels for the 406-556 cal AD date of Healam inhumation 5015. The extension of the practice of burial in nailed shoes into the 5th century AD (at least) provided significant evidence for the continuation of Romano-British technology and cultural practice in northern England.

Graves that contained nailed shoes, either worn on the feet or placed beside the body, have been recorded more frequently in the southern half of England than in the north (Philpott 1991, 458, fig. 28; O'Brien 1999, 24, Map 8). Since the ratio of nailed to un-nailed shoes from occupation levels at Catterick (Hooley 2002) was similar to that of Roman sites in London (Rhodes 1980, 103; MacConnoran 1986, 218), it would appear that nailed shoes were worn just as often, but were entering the burial ritual less frequently, in the north. Cool listed three inhumations with nailed shoes at Bainesse (site 46) and one at Honey Pot Road, but noted their absence from Catterick Bridge (Cool 2002, 26). They were also absent from the mainly clothed inhumations at Hollow Bank, Scorton, tentatively identified as the burials of either army officers or government officials (Eckardt *et al.* 2015).

As well as regional practice, the social status of the wearer will have played a part. Throughout the country, nailed shoes have been found in the graves of men, women, and children, in both urban and rural sites. They were well represented, for example, in the large extra-mural cemeteries at Lankhills outside Roman Winchester (Clarke 1979, 178-180, 322-5; Booth *et al.* 2010, 45-7; Powell 2010, 311-9) and in the much smaller 4th century AD plot at Wasperton, Warwickshire (Carver *et al.* 2009, 50-1). At Lankhills it was noted that there was an inverse relationship between nailed shoes and status, as indicated by accompanying grave goods (Clarke 1979, 178; Powell 2010, 318), and the same can be said of Wasperton, where graves with hobnails and graves with other artefacts were for the most part mutually exclusive (Carver *et al.* 2009, 51, table 4.3). The most likely explanation for

this pattern was that hobnails represent walking shoes and that they were the footwear of choice for working people. Wealthier people probably also owned walking shoes, but their more lightweight un-nailed footwear may have been chosen for burial. It was significant that the most lightweight pair of shoes at Healam, possibly nailed sandals, came from the only hobnail burial with a second artefact (a bracelet).

Textile remains

Evidence for textiles was preserved in association with hobnails in one grave. In inhumation 5015, an X-ray revealed the 'ghost' of a twill weave, seemingly arranged in loose folds in the corrosion product that had penetrated the surrounding soil. No trace of the textile was found in the soil itself (Fig. 222). This was a very coarse fabric, probably a 2/2 twill, with 4-5 threads per centimetre.

The coarse, blanket-quality twill from Healam was unusual in a Romano-British context. It had closer parallels to the Iron Age (3rd to 2nd centuries BC) burials from East Yorkshire, where very coarse twills, representing wool cloaks or blankets, were the norm (Crowfoot 1991). In the Healam burial, the fabric lay outside the hobnails and cannot have come from clothing on the body. It seems likely that the body had been wrapped in, or laid on, the textile. Finer linen wrappers have been recorded in non-clothed gypsum burials in Yorkshire, but a coarse, probably wool, textile around the feet represents a new piece of evidence for burial practice in this period.

Catalogue

The bend in the shank was categorised as: 'curved' for a shallow arc, 'bent' for a sharper angle, and 'curled' for a shank turned back so that it pointed towards the head. The 'maximum in-use length' represented the distance from the apex of the nail head to the outer edge of the curve of the shank.

Measurement abbreviations: *L-length; D-diameter; Th-thick. None of the hobnails have been illustrated.*

FROM BURIALS

(**89**) *c.*25 iron hobnails. Those with intact heads were domed. *c.*10mm in D, 4-7mm deep, but several had flattened and damaged heads. Maximum in-use L 14-17mm. No organic remains. Cremation 2221, Field 62, Phase 1.

(**90**) Iron nails, or fragments of nails, of different types, including some hobnails. (i) At least three complete nails with round flat heads, 17-18mm D, 40-45mm in L. (ii) At least seven smaller nails with domed heads, *c.*9mm D, with shanks curved in the manner of hobnails. Where the dome was intact, it was 2-3mm deep. Maximum in-use L 12-13mm. No organic remains. Cremation 2431, Field 62, Phase 1.

(**91**) The iron hobnails were arranged in a single layer on the soles of both feet. No organic remains were detected on the nails. Right foot (69A): X-rays showed that the hobnails on the heel were heavily corroded, but seemed to be arranged in a single dense layer. Those on the front

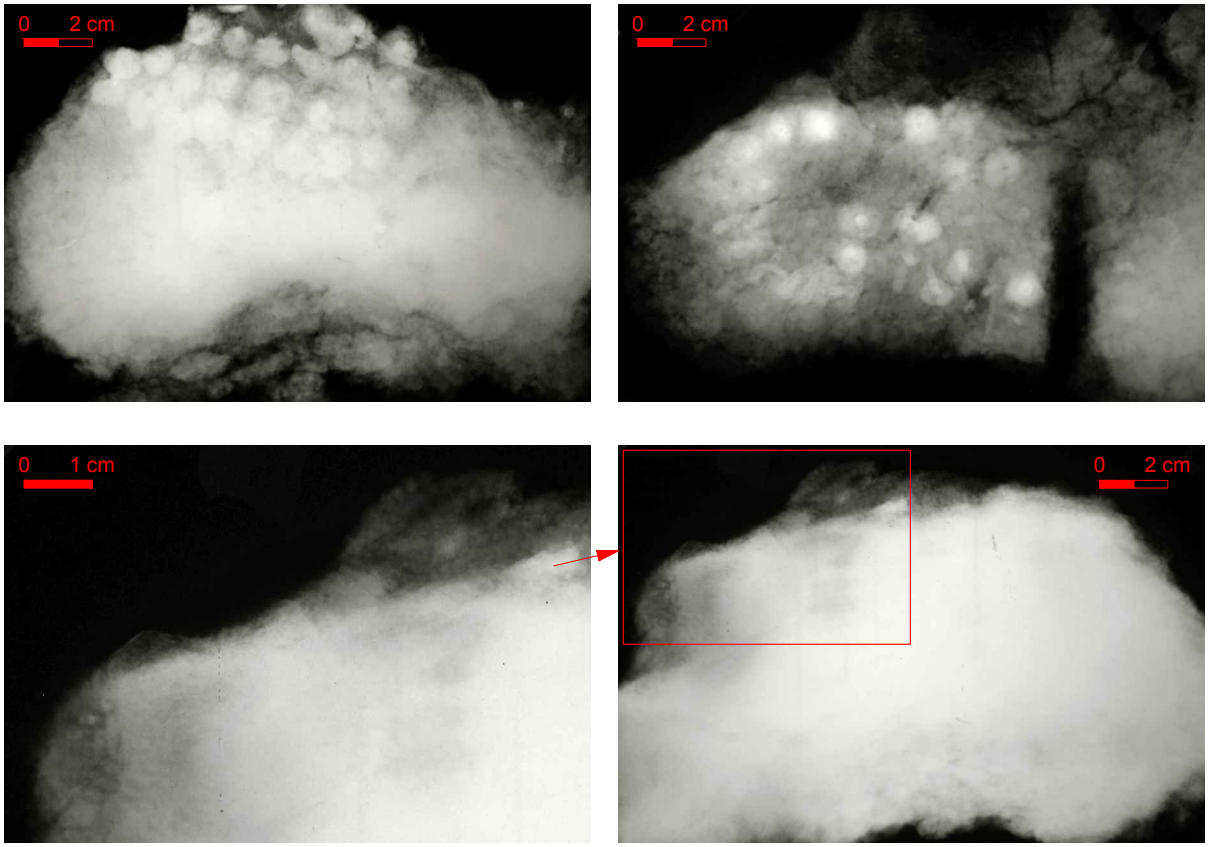


Figure 222: Hobnails and textile remains from inhumation 5015

part of the sole were better preserved and arranged in four convergent rows containing 4/6/7/8 hobnails (at least 25 in all). Examination of the hobnails after they had been removed from the soil block confirmed that there were at least 25 present in the group detached from the front part of the foot and a further corroded cluster detached from the heel. Only one hobnail, from the front part of the shoe, was complete. It had a L of 20mm, an angular-section shank and a circular, shallow domed head with a 12mm D. Other incomplete examples were over 14mm in L and had domed heads, D 11-12 mm, or oval heads measuring 11x14mm. Left foot (69B): X-rays showed the hobnails arranged in a line around the periphery of the heel with a few more in the centre. Those on the front part of the sole were arranged in a dense all-over pattern. There were at least 19 hobnails on the heel and a similar number on the front sole. At least 38 hobnails were recovered from the left foot. They mostly had domed heads measuring 11-12mm D. Shanks were square/rectangular in section with angular tips that were often curved or bent to the side. Some had domed heads, measuring 11-12mm D and 3-4mm deep, but others were almost flat, possibly from wear. Maximum in-use L 15-16mm. Textile was recorded from the X-ray of the right foot: it could not be discerned in the soil block itself. It appeared to cover an area of 140x50mm in loose folds along the side of the foot. It had the appearance of a 2/2 twill with approximately 4x4-5 threads/centimetre. Fig. 222

Approximately 41 iron hobnails and a plate, packed with a single toe bone: (i) Most examples had a domed head 11mm in D. Where the dome was intact, it was 5-7mm deep, but several had flattened heads and the shank sometimes protruded through the head. The shanks were slightly curved or almost straight and the maximum in-use L was *c*.17mm. (ii) Two small examples had domed heads, 9mm D, and shanks of 13mm. (iii) A fragment of an iron plate 25x18mm, 2mm Th, with two sharp prongs on one face, 10mm long (including thickness of plate). Inhumation 5015, skeleton 5016, Field 63, Phase 3. North-south, supine extended male aged 36-45.

(**92**) Remains of 8 or 9 poorly preserved iron hobnails with probably domed heads, 9-10mm in D. Shanks were incomplete, L of longest was 12mm. From sample AB: fragments of 5 iron hobnails with flattened heads measuring 12x10mm. Shanks were incomplete, L of longest was 12mm. Cremation 6839, context 6812, Field 64, Phase 3.

(**93**) At least 16 poorly preserved iron hobnails and an iron plate. (i) The hobnails were small, with domed heads, 7mm D. Where the dome was intact it is *c*.3mm deep, but most were flattened. Straight-shanked examples were 13mm in L (including head) and those with a curved tip were 10mm in L. Traces of ginger-coloured organic material were present on the shanks. (ii) A fragment of an iron plate, 4mm Th, with a flared end and a stub/shank protruding from one face, 21x11mm. (iii) A single complete iron hobnail (RF 737) with a ?domed head 7 mm D and a straight shank: maximum in-use L 14mm. (iv) Seven hobnails (RF 634) with domed heads, 6mm D. Where the dome was intact it is 3mm deep. The shanks were curved with a maximum in-use L of 14mm. (v) Fragment of bone with corroded iron object(s) adhering. Possibly remains of two hobnails. Fragment 13x5x5mm. Inhumation 8125, skeleton 8126, Field 61A, Phase 3. Female 36-45.

FROM NON-BURIAL CONTEXTS

(**94**) A single iron hobnail with head of uncertain form, *c*.10mm D, 6-7mm deep, up to 16mm in L. RF 733, context 2175 ditch fill, Field 62, Phase 3.

(**95**) Fragment of an iron hobnail with domed head, 11mm D, 5-6mm deep; shank incomplete, maximum in-use L 13mm. Context 2262 from metalled surface, Field 62, Phase 3.

(**96**) A single iron hobnail with a flattened ?domed head, 7mm D; shank curved, maximum in-use L *c*.14mm. Context 2282 ditch fill, Field 62, Phase 3.

(**97**) A single iron hobnail with pyramid-shaped head, 9x8mm; shank protruding through head, maximum in-use L 14mm. Context 2315 ditch fill, Field 61, Phase 3.

(**98**) Fragments of at least 4 iron hobnails, 9-10mm D, one domed (5-6mm deep), the others flattened; shanks incomplete, maximum in-use L 11-15mm. Context 2852 pit fill, Field 62, Phase 3.

(**99**) Remains of 6 iron hobnails, two with probable pyramid-shaped heads (7-9mm square), the remainder with flattened heads up to 12mm D; shanks mostly curved, maximum in-use L of 15-17mm. One pyramid-headed example had a curled shank, maximum in-use L of 11mm. RF 732, context 5001 subsoil, Field 63, Phase 4.

(**100**) Head only of iron hobnail, dome 7mm D, 5mm deep. Context 5046 ditch fill, Field 63, Phase 3b.

(**101**) Remains of *c*.9 iron hobnails with relatively flat heads, 11-12mm in D, shanks where complete were curled, maximum in-use L 12mm. Context 5369 fill of gully, Field 63, Phase 3.

(**102**) (i) Over 20 iron hobnails with domed heads, 10-11mm D; domes 4-5mm deep; square-section shank, tip curled, maximum in-use L 15-16mm. (ii) Lifted in a single soil block, probably representing the sole of one shoe. Over 45 iron hobnails with domed heads, 8-9mm D, domes flattened, square-section shanks, curved, maximum in-use L 12-14mm, or straight 16mm in L. RF 338. Pit, possibly a disturbed burial, context 5863, Field 63, Phase 3.

(**103**) 11 small iron hobnails with pyramid-shaped heads, 7-9mm square, 6-7mm deep; maximum in-use L 13-14mm. Context 7356 fill of gully, Field 64, Phase 1.

(**104**) Remains of *c*.8 iron hobnails, some with pyramid-shaped heads, 10mm square, 6-8mm deep, others flattened domes; shanks curved or straight, maximum in-use L of complete examples 12-14mm. Context 7360, Field 64, Phase 3.

(**105**) Poorly preserved fragment of iron hobnail with probable pyramid-shaped head 10x8mm; surviving L 9mm. Context 7362 ditch fill, Field 64, Phase 3.

(**106**) Poorly preserved iron hobnail with pyramid-shaped head 9x8mm, 6mm deep; surviving L 13mm. Context 7392 ditch fill, Field 63, Phase 3.

(**107**) A single iron hobnail with pyramid-shaped head, 10x8mm, 6mm deep; shank curved at tip, maximum in-use L 14mm. Context 8033 pit fill, Field 61A, Phase 1.

(**108**) Three small iron hobnails, with flattened domed heads, 7-8mm D; straight shanks, complete L of one

15mm, incomplete L of others 11-14mm. Context 8105 pit fill, Field 61A, Phase 2.

(**109**) A fragment of an iron hobnail with a flat head, 10x13mm; shank incomplete, protruding through head, surviving L 16mm. Context 8121 burnt area, Field 61A, Phase 3.

(**110**) Two large iron hobnails (i) with pyramid-shaped head, 12x11mm, 8 mm deep; shank straight, maximum in-use L 20mm; (ii) fragment with possible pyramid-shaped head, 7mm deep; surviving L 14mm. Context 8309 ditch fill, Field 61A, Phase 3.

(**111**) Approximately 19 poorly preserved hobnails with domed (or flattened domed) heads, *c*.9mm D, often with shank protruding through dome; shanks of complete examples slightly curved, maximum in-use L 18mm. Context 8347 pit fill, Field 61A, Phase 2.

(**112**) Poorly preserved iron hobnail, head 10x9mm, maximum in-use L 17mm. Context 8368 pit fill, Field 61A, Phase 2.

(**113**) Fragments of three iron hobnails, (i) domed head, 11mm D, dome 4mm deep; (ii) flattened head 11mm D; (iii) curved shank 16mm in L. Context 9170 fill of posthole, Field 63, Phase 3.

MILITARY EQUIPMENT

Mike Bishop with contributions from Paul Holder

Introduction

A small number of artefacts from Healam were identified as being items of Roman military equipment. Arms and armour were both present, but only as single examples. The armour, however, was perhaps one of the most exciting artefacts from the excavations. A fragment of *lorica plumata* (chain mail with scales) was found; this was an extremely rare find even at a military site, so to find it at a civilian settlement was even more unusual. In contrast, weaponry was only represented by a single example of a spear butt. The remaining assemblage was made up of various mounts, belt fittings, studs, and other fittings, including a phallic pendant. The small assemblage and restricted range of artefact types reflected the nature of a civil settlement with limited or sporadic military presence.

Armour

A portion of fine copper alloy mail (no. 1, Fig. 223) with attached copper alloy and ferrous scales (so-called *lorica plumata*). It appeared to consist of a 'parcel' of mail and scale folded over on itself into a rectangle, perhaps for recycling (although this would require separation of the two metals at some point). The copper alloy scales were approximately 7mm by 6mm, while the ferrous examples measured 8mm by 7mm. The chainmail rings had a diameter of only *c*.3.3mm and the wire thickness was *c*.0.7mm. There was evidence for riveted rings, especially where broken rings had split across the rivet hole.

This type of armour was rare in the Roman Empire and this particular portion is only the tenth example known. It has inevitably been suggested that such an item was expensive to produce and purchase and must have belonged to a high-status individual, such as an officer. In dealing with the Roman army, however, the second suggestion does not necessarily follow from the first (e.g. fine 'sports' helmets were issued to all cavalry troopers, not just officers, the same could be true of body armour). Ferrous and copper alloy scales would have been combined for decorative effect, a practice noted elsewhere on this type (Augsburg and Vize) and other forms of scale armour (e.g. from Carlisle: Bishop 2009a). A recent collection of studies has listed the other examples as: near Rome (Italy), Augsburg (Germany), Vize (Turkey), Ouddorp (Netherlands), Newstead (Scotland), Usk (Wales), unknown, Xanten (Germany), and Mandeure (France). Where datable, these fall within the 1st or 2nd centuries AD (Wijnhoven 2009).

This was, without doubt, the most interesting find in this assemblage of military equipment. This would be an extremely rare find on a military site, so its presence at a roadside settlement was intriguing, but explicable in the light of discussion elsewhere about the garrisoning of civil sites (see below). Any form of mail is potentially under-represented in the archaeological record since, unless it received a substantial blow, this form of armour was able to maintain its integrity better than either scale or plate armour. One suspects that the scales attached to the plumata were more for decoration than function and did not affect the integrity.

Weapons

Weapons were limited to a single ferrous conical spear butt (no. 2, Fig. 223). The x-ray suggested this example had a split socket. Conical spear butts are common finds. They were used for protecting a shafted weapon when grounding it, as well as forming a useful secondary point for stabbing in the event of a spearhead breaking off. Bundles of spearheads with broken shafts suggest they did this quite frequently (Allason-Jones and Bishop 1988, 103).

Personal fittings

A varied collection of mounts, decorative studs, button-and-loop fasteners, and binding strips were also present within the collection. No. 3 (Fig. 223) was a copper alloy openwork mount with three internal volutes (two larger and one small central), probably a decorative baldric mount. An analogous (unpublished) piece is held in the Corbridge (75.627) collections. The style of openwork decoration showed this to be 2nd or 3rd century AD in date. A belt buckle (no. 7, Fig. 223) was also decorated with internal volutes (joined in the centre, rather unusually) and had a wedge-shaped hinge shank. This type of buckle was very common in military contexts and a number of examples are considered by Oldenstein (1976, taf.76, 1006–25) amongst the finds from the Upper German and Raetian frontier and date to the 2nd or 3rd century AD.

A cast in one copper alloy belt plate fragment with a discoid frog was also found (no. 8, Fig. 223). It had one surviving integral fungiform shank on the underside. The body and the disc both retained traces of original enamel inlay: the disc had a dark central dot with a concentric ring of white, but the colour of the body segments could not be determined. Belt plates of this type were generally 2nd or 3rd century AD in date and similar examples have been found on the German frontier, both in terms of the knobbed frog (Oldenstein 1976, taf.63, 805–8; 64,816–18) and inlay (*op. cit*., taf.64, 826–31).

Six different studs of different shapes were found, most of which were circular, but there were tear-drop shaped studs (nos. 10 and 13, Fig. 224) and a vulvate stud (no. 4, Fig. 223). Two of the circular studs (nos. 5 and 6,

Fig. 223) can both be dated to the 2nd or 3rd centuries AD. No. 5 was a copper alloy circular domed stud with a raised border around the edge. There appeared to be caulking within the hollow head and the remains of a ferrous shank. Comparable examples have been found at Newstead (Curle 1911, pl. XXV, 1–33) and Windisch (Unz and Deschler-Erb 1997, Taf.73, 2231–3). No. 6 was a copper alloy circular fungiform stud. It was small by comparison with many examples of the type and was probably from a ring-buckle belt, used to fasten one of the two doubled-over belt ends. These have most often been found in the 2nd or 3rd centuries AD, like examples from the German frontier illustrated by Oldenstein (1976, Taf.48, 525–7). The ring buckle type of belt did continue into the 4th century in some instances.

The copper alloy teardrop-shaped stud head (no. 10, Fig. 224) resembled the head of a boss-and-petal button-and-loop fastener, but the fact that the head was both flat and separate from the dome-headed ferrous shank suggested an alternative interpretation was necessary. This form of decoration was found on native British vehicle harnesses and continued into the Roman period, so it was possible that it was in some way associated with a transport function. T-shaped fasteners, as with no. 13 (a teardrop-shaped knobbed terminal), were occasionally used on Roman military equipment, especially on 2nd and 3rd century AD saddle plates (e.g. James 2004, fig. 46 no. 361). However, it was unusual to find a pendant of this kind equipped in such a way.

A copper alloy sub-rectangular vulvate stud (hollow) with two intact cast in one fungiform shanks (no. 4, Fig. 223). The type was common in frontier regions during the 2nd or 3rd century AD. Oldenstein (1976, Taf.34,267–72) included a number of examples from the German frontier and many examples are also well known in Britain, including Aldborough (Bishop 1996, fig. 38, 440) and *Vindolanda* (Bidwell 1985, fig. 40, 18).

Two fragments of copper alloy button-and-loop fasteners were recovered. No. 9 (Fig. 223) consisted of the head and part of the shank of a boss-and-petal button-and-loop fastener. It was broken across the narrowest part of the triangular loop, which would have served to fasten it to a garment. It also appeared to have been abraded on either side of the head (perhaps to adapt it to a smaller aperture in a secondary use). The boss retained traces of a central dot of white enamel within two concentric circles of red enamel. No. 11 (Fig. 224) was two fragments of a triangular shank from a button-and-loop fastener. The arms of the shank were sub-rectangular in section and formed a triangular aperture. It had rounded outer edges and the main body was a flattened oval in section. Typical examples were known from Newstead (Curle 1911, pl. LXXV, 7–8). Button-and-loop fasteners are found in a variety of forms and it has been suggested that there was a variety of functions performed by these items (including sidearm suspension, dress fastening, and horse harness). The shape of the shank may be one indicator for use and there is a distinct subset of fasteners with triangular shanks like those in no. 11.

Binding strips could be used on ferrous armour (body armour or helmets) to neaten edges and provide a decorative effect, as well as act as guttering on scabbards. Fragments of binding strips were a common find on both military and civil sites and examples may be cited from Aldborough (Bishop 1996, fig. 44, 489–93) and South Shields (Allason-Jones and Miket 1984, 3.1062–3). No. 14 (Fig. 224) was a fragment of U-sectioned copper alloy binding and it may have been used in this way.

Equipment

Evidence for Roman military equipment was also equally varied. A complete copper alloy terret ring (no. 15, Fig. 224) and fragments of two others (no. 16, not illustrated, and no. 17, Fig. 224) provided evidence for transportation. No. 15 was a small ovoid strap-mounted terret. The circular-sectioned loop was narrowest at the top and then broadened towards the ovoid basal terminals that flanked the sub-rectangular-section basal bar. There was no obvious damage to the object, but one side was less worn than the top and opposing side. There was a comparable, but slightly larger, undated fitting from Catterick that showed similar biased wear (Wilson 2002b, fig. 283, 42). A similar (slightly more elaborate) terret from Newstead (Curle 1911, pl. LXXV, 2) had a 2nd-century AD date, while an example from *Vindolanda* had a 3rd-century AD date (Bidwell 1985, fig. 41, 35). No. 16 was a distorted fragment of another ovoid strap-mounted terret. The circular-sectioned loop was separated from the rectangular-sectioned basal bar by a disc. The loop was wrenched upwards and the basal bar was fractured adjacent to the second (missing) disc. No. 17 was a circular-sectioned loop with more wear on the inside of the apex.

Also possibly connected with transportation was a copper alloy phallic pendant. It depicted a stylised pubic region, testes, and phallus. The massive central suspension loop was aligned from front to back and suggested it was hung from a neckband of some kind, rather than hinged to another fitting. As such, it was likely to be a piece of harness decoration. In the past, items of this size and weight have been associated with baggage animals. There was a comparable example on the Portable Antiquities Scheme database from Wraxall (GLO-221C74) and stratified pieces from Jac-Porolissum in Romania (Gudea 1989, pl. CCXIX,1–3), which must have predated the 3rd-century AD abandonment of that portion of Dacia.

Other artefacts related to equipment included a copper alloy tubular ferrule that contained wood (no. 18, Fig. 224). There were no diagnostic clues other than the wood fragments, but these at least indicated that it was not a part of a helmet plume tube. It may have formed the binding for a staff, or even a decorative band around a javelin shaft. Its distorted shape would point towards its having been put aside for recycling. There were also two nearly identical copper alloy bell-shaped studs with ferrous shanks (or remains of, in the cases of nos. 19 and 20, Fig. 224). A third, more complete, bell-shaped stud, no. 21 (Fig. 224), had a concave head with central projection, a plain square-sectioned iron shank, and no lead caulking visible at the join with the head. These objects, although enigmatic in their function, are well known from military sites. Comparable examples have been found at South Shields (Allason-Jones and Miket 1984, 3.889–910).

Conclusion

Both in size and content, this was not the sort of assemblage that might be expected from civil settlements of active forts, but was more in-line with the limited

amount of equipment normally found at isolated civil sites, such as roadside settlements or even small towns. Equipment from forts tend to 'creep' across to their adjacent *vici*, so they can be quite rich sources of military equipment, especially where (as on the German frontier) rapid withdrawal occurred, as in the case of the 3rd century AD.

The phenomenon of military equipment on civil sites has long been known and a number of possible interpretations offered (Bishop 1991), although the garrisoning of small detachments of troops in such places has many factors in its favour (Bishop 1999). Whilst it was long thought that the army was confined to the frontier regions in the north of England and in Wales, the distribution of military equipment across the province with evidence of outposting elsewhere in the Empire, makes it clear that soldiers would have been a familiar site in most settlements, large or small.

Catalogue

Measurement abbreviations: *D-diameter; L-length; W-width; Th-thick; H-height*

Armour

(**1**) Fine copper alloy mail with scales. The copper alloy scales measured *c*.7x6mm, ferrous ones were *c*.8x7mm. Ring D *c*.3.3mm, wire D *c*.0.7mm. Overall Dimensions: L 56mm, W 39mm, Th 20mm. A1DB09, RF 674, context 9039. Fig. 223

Weapons

(**2**) Conical ferrous spear butt. L 83mm, socket D 25mm. A1DB09, RF 1125, context 7816. Fig. 223

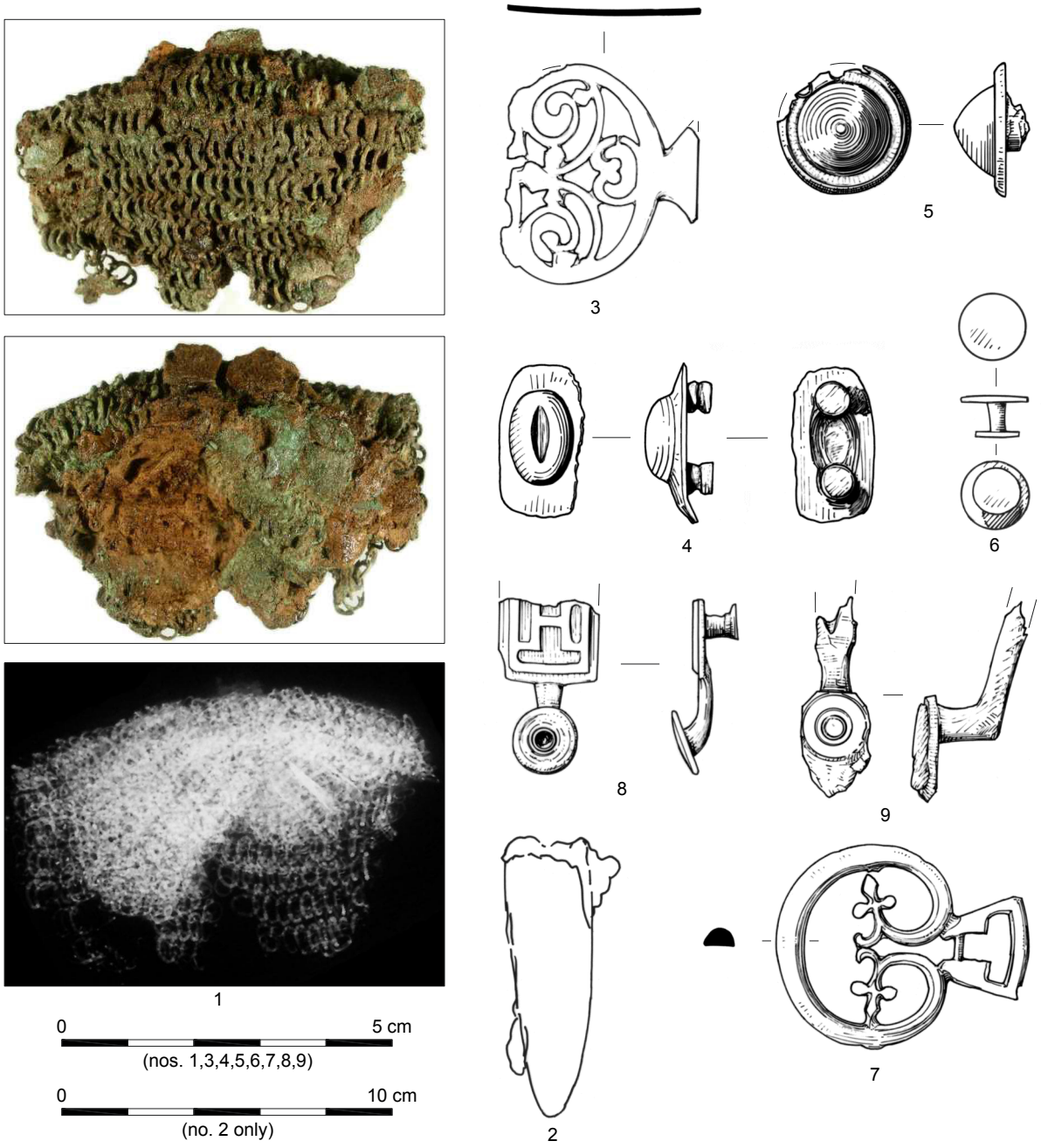


Figure 223: Armour, spear butt, and personal fittings

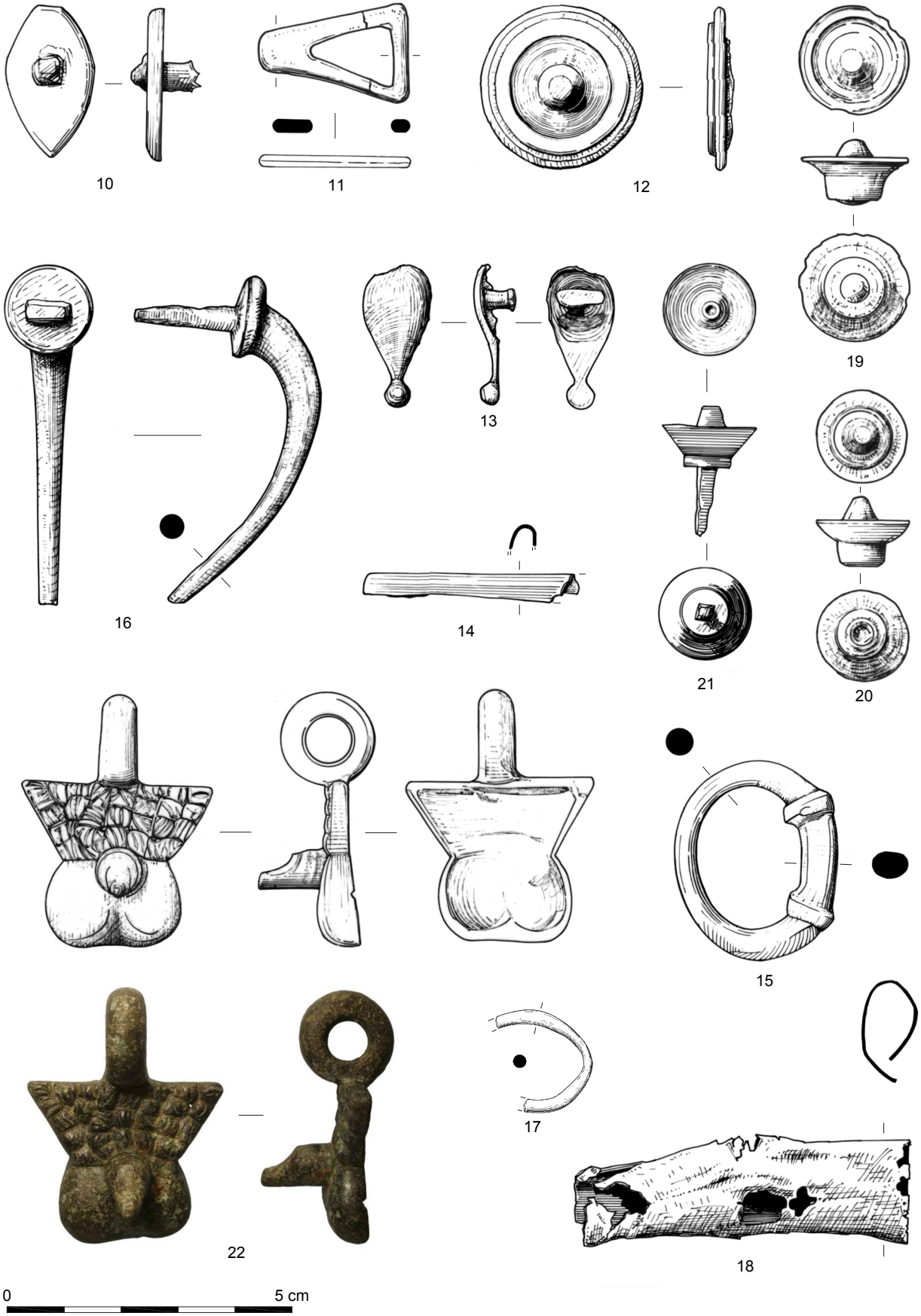


Figure 224: Roman military personal fittings and equipment

Personal fittings

(**3**) Copper alloy openwork mount with three internal volutes, stylistically dated to 2nd or 3rd century AD. H 28mm, W 32mm, Th 1mm. A1DB09, RF 348, context 5996. Fig. 223

(**4**) Copper alloy sub-rectangular vulvate stud. L 23mm, W 13mm, H 9mm, deduced Th of strap 2mm. A1DB09, RF 280, context 5001. Fig. 223

(**5**) Copper alloy circular domed stud. D 20mm, H 10mm. A1DB09, RF 110, context 5001. Fig. 223

(**6**) Copper alloy circular fungiform stud. D 9mm, H 6mm, strap Th 4mm. A1DB10, RF 704, context 8000. Fig. 223

(**7**) Copper alloy openwork belt buckle. L 38mm, W 30mm, Th 3mm. A1DB10, RF 716, context 8304. Fig. 223

(**8**) Copper alloy belt plate fragment, single cast. A1DB10, RF 161, context 5045. Fig. 223

(**9**) Copper alloy button-and-loop fastener, fragment-only head and part of shank remained, traces of white and red enamel, boss-and-petal design. L 30mm, W 11mm, H 14mm. A1DB09, RF 758, context 5001. Fig. 223

(**10**) Copper alloy teardrop-shaped stud head. L 25mm, W 16mm, head Th 2mm, shank L 12mm, shank D 4mm. A1DB09, RF 759, context 5001. Fig. 224

(**11**) Copper alloy button-and-loop fastener, triangular shank fragment only. L 25mm, W 16mm, Th 2mm. A1DB09, RF 1073, context 5000. Fig. 224

(**12**) Copper alloy circular stud, possibly the head of a button-and-loop fastener, or post-medieval button. It had a central domed boss with one raised concentric ring. The slightly convex underside would lend weight to the interpretation as a button. D 28mm, Th 5mm. A1DB09, RF 755, context 2100. Fig. 224

(**13**) Copper alloy teardrop-shaped knobbed terminal with a T-shaped fastener to the rear. Slight damage to broader (?top) end. L 24mm, W 13mm, H 8mm. A1DB10, RF 711, context 8003. Fig. 224

(**14**) Copper alloy U-sectioned binding fragment. L 36mm, W 5mm, H 3mm. A1DB09, RF 469, context 6924. Fig. 224

Equipment

(**15**) Complete copper alloy ovoid strap-mounted terret. W 34mm, H 28mm, Th 7mm, W of aperture 25mm, H of aperture 19mm. A1DB10, RF 710, context 8003. Fig. 224

(**16**) Copper alloy ovoid strap-mounted terret fragment (distorted). W 35mm, H 60mm, Max D of loop 7mm. A1DB10, RF 717, context 8304. Fig. 224

(**17**) Copper alloy circular sectioned loop from a cast terret. H 42mm, W 45mm, max D of loop 5mm. A1DB10, RF 659, context 8386. Fig. 224

(**18**) Copper alloy tubular ferrule that contained fragments of wood. L 58mm, W 18mm, H 10mm, original D *c*.14mm. A1DB10, RF 651, context 8031. Fig. 224

(**19**) Copper alloy bell-shaped stud with remains of ferrous shank in situ. D 19mm, H 11mm. A1DB, RF 1128, context 771. Fig. 224

(**20**) Copper alloy bell-shaped stud with remains of ferrous shank in situ. This item was slightly smaller, but otherwise identical to no. 19. D 16mm, H 12mm. A1DB, RF 1127, context 742. Fig. 224

(**21**) Copper alloy bell-shaped stud, Allason-Jones Type 1. Concave head with central projection; plain tapering iron shank, square in section, no lead caulking visible at join with the head. Head D 12mm, H 6mm, shank L 13mm, W 3mm, Th 3mm. A1DB09, RF 334, context 5438. Fig. 224

(**22**) Copper alloy phallic pendant that depicted a stylised pubic region, testes, and phallus. W 43mm, H 33mm, Th 26mm, Ext D of loop 24mm, Int D of loop 10mm. A1DB05, context 252AA. Fig. 224

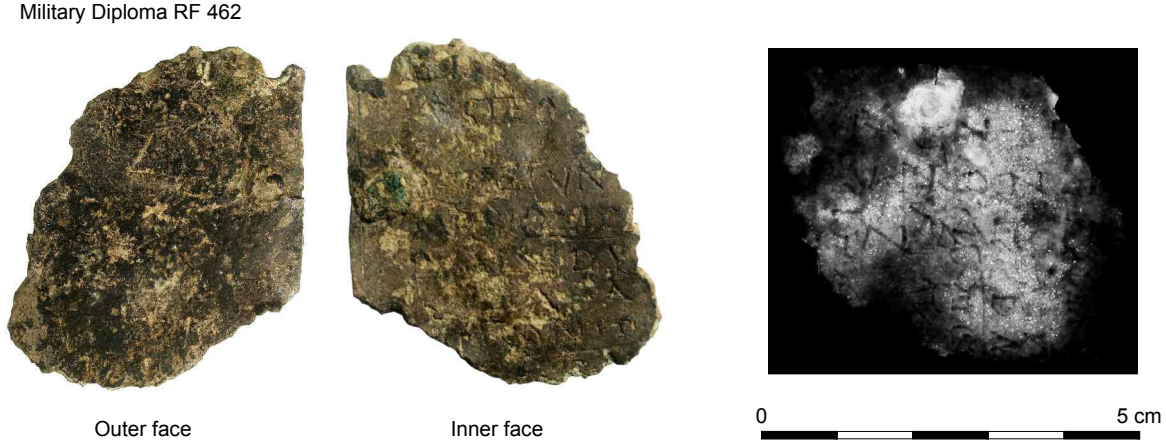


Figure 225: Military Diploma RF 462

The Military Diploma

Paul Holder

Introduction

A piece of copper alloy sheet was found during the excavation of the Roman period settlement to the north of Healam Beck (Fig. 225). The item (A1DB09: RF 462), was recovered from context 6924, one of a number of shallow, but extensive layers near the Roman period beck.

During initial cleaning, photography, and radiography, it was clear that the object could be securely identified as a fragment of a Roman military diploma. One face of the fragment showed significantly more damage than the other. Further cleaning to specific areas of the fragment enabled a full decipherment of the text to be made.

Certain conventions are used to describe each side of a diploma. The text on the side that ran at right angles to the surviving edge and that has faint traces of a border, was the outer face (*extrinsecus*) of the first tablet (*tabella* I). On the other side, the text that ran roughly parallel to the surviving edge was the inner face (*intus*) of the first tablet.

A Roman military diploma was a personalised and certified copy of a decree issued by the Emperor. It bestowed certain privileges on troops who had served twenty-five years or more in the Roman army. The original was set up at Rome. Each copy was engraved on two tablets bound together with wire. The two inner faces received the authenticating copy of the text. This was protected from tampering by being hidden. The outer face of the first tablet had a second, visible, version of this text so that the owner could readily advertise his status. That of the second tablet had the names of the seven witnesses who had authenticated the copy along with their seals on the binding wire protected by a metal cover.

Description

The fragment was from the middle of the left hand side of *tabella* I, when viewed from the outer face. Height 45mm, width 38mm, thickness c.1.0-1.5mm, weight 9g (after conservation). The fragment was badly corroded, which obscured lettering on both faces, but more so on the inner. The script on the outer face was well defined and easy to decipher where not obscured by corrosion products. That in the inner face was more irregular and angular, which made it more difficult to decipher. The letter height on the outer face was 3.0-3.5mm and on the inner 3.0-4.0mm. There were traces of two framing lines parallel to the left hand edge of the outer face. The line with no lettering on the outer face was the space for the binding holes and marked the middle of the original tablet. The size of the complete *tabella* I would have been about 143 x 115mm, with an area of 16450mm^2. There was about 1690mm^2 surviving from this fragment, or about 10% of a complete tablet.

Along the left hand edge there was one complete hole and two incomplete holes. The complete hole still retained a rivet. These were punched from the outside after the diploma had served its primary function. The presence of these rivet holes would suggest that this piece was cut from the original tablet for a secondary use. It was quite common for diplomas to be reused for other purposes once the need to retain the document was felt unnecessary by the recipient or their heirs (see below).

The text engraved on the surfaces of a diploma was highly formulaic, because it was a legal document and many parts of the text can therefore be restored. The inner face contained the titles of the reigning Emperor, while the outer face carried part of the text of the privileges bestowed on the recipient. The penultimate two lines on this face preserved part of the day and date that the diploma was issued. The last line, which was very fragmentary in the excavated diploma, comprised the name of the unit that the original owner had served.

(intus: tabella I)

]•+RI[•.]N F•D[
]ERV PRONEP[
]NIN AVG PIV[
]● COS III[
]++[

(extrinsecus: tabella I)

•MISS[
POST EOR[
●[
•QVAS TVNC[
AVT SIQVI CA[
DVXISS·DVM[
A [
•]ANTONIO·[

Reading

INNER FACE (INTUS)

line 1: following further cleaning five letters could be deciphered with the naked eye. To the left of the later rivet was an R and an I. They were preceded by the traces of a further letter. After the rivet was a wide N. This was followed by an upright with a bar to the right at the top. This could be interpreted as an F. One further letter could be deciphered as a D.

line 2: further cleaning enabled all the surviving (nine) letters to be deciphered.

line 3: further cleaning revealed most of this line, which had irregularly spaced letters. The first was partially preserved, but was definitely an N. The last was incomplete and difficult to see, but was a V.

line 4: it was clear that the surviving left part of the line was devoid of letters. The first clear one was a C, then an O, followed by an S. The latter was partly obscured by corrosion products. There was then another area with corrosion products, but no obvious inscribed letters. Rather, there was an elongated vertical mark running toward line 5. There were then three regularly spaced uprights, of which the right hand one was very close to the surviving edge. Each seemed to have a serif to the right. Such a letter could be an I or an L.

line 5: further cleaning revealed traces of letters that would have been part of a fifth line. The metal here

was bent and abraded. In combination with corrosion products still on the surface, this meant an interpretation could not be offered.

Between line 4 and line 5 along the left hand edge seemed to be a regular curving line that formed the remains of the upper binding hole when viewed from the inner face. Its position could be more clearly seen from the outer face (below).

OUTER FACE (EXTRINSECUS)

line 1: none of the letters were complete and they were further obscured by corrosion. However, MISS could be read with confidence.

line 2: the first two letters and the last two were not easy to read. But, with the aid of radiographs, they could be deciphered.

line 3: the first three letters were partially obscured by corrosion products, but there was an unmistakeable elongated tail of a Q beneath these traces. The final letter was only partially preserved, but could be read as a C.

line 4: the last letter was damaged, but could be read as A with the aid of the X-rays.

line 5: all letters were clear.

line 6: despite appearances, there was only one letter visible and that was an A.

line 7: the first letter survived only as the trace of an apex. The next three were partially obscured, while the next three were very clear. The reading ANTONIO was confirmed by the X-rays. After the final O was what could be an interpunct (centred dot), or perhaps the trace of a letter.

Date	Tablet	Reference	Description
AD 68	tabella I	RMD III, 136	Hole pierced through
AD 80	tabella I	RGZM 4	Hole punched from outside at the bottom right of the fragment
AD 92	tabella II	AE 2005, 1706	Cut into approximate roundel; circular depression in centre
AD 97	tabella II	RMD III, 140	Rectangular strip; hole pierced top and bottom in middle
AD 97	tabella I	RMD V, 338	Cut into rectangle; hole pierced through upper part
AD 127	tabella I	ZPE 171, 238	Converted into lock plate; rectangular hole cut through but now broken through
AD 128	tabella I	ZPE 170, 207	Cut into rough rectangle; vertical line of four holes pierced through from outside near to right edge; left hand edge traces of solder
AD 129	tabella I	AE 2006, 1845	Converted into lock plate; rectangular hole slightly off-centre; four holes to fix plate; square hole near bottom
AD 128/129	tabella I	RMD V, 373	Left hand edge trimmed apart from small tab in middle; symmetrical to tab an oval was cut with large rectangular section to right; hole pierced through about 15 mm from tab
AD 121/132	tabella I	RMD IV, 246	Cut into rectangle with rounded corners; squared notch in top
AD 135	tabella I	Chiron 39, 541	Cut into square; hole pierced through from outside in the middle of the left side just in from the edge
AD 136/137	tabella I	RMD III, 160	Irregular hole pierced through the centre
AD 138	tabella I	AE 2007, 1260	Cut into rectangular shape with rounded upper left corner but with a protruding tab
AD 133/140	tabella II	RMD I, 41	Cut into a roundel with a hole in the middle; 70 mm diameter
AD 140	tabella I	AE 2005, 1718	Cut into rectangle but now broken; hole pierced through from outside in upper left corner
AD 142	tabella I	RMD V, 395	Large hole pierced through from outside
AD 141/147	tabella II	RMD I, 45	Cut into a roundel; 53 mm diameter
AD 145/154	tabella I	AE 2008, 1741	7 circular shapes on the outside face; two of the centres make a hole through to the inside; purpose not clear
AD 157/158	tabella I	RMD IV, 276	Cut into roundel; 23 mm diameter
AD 148/160	tabella II	RMD V 429	Hole pierced through from outside
AD 160	tabella II	ZPE 171, 247	Roughly rectangular piece with hole pierced through from outside just below the centre along the top edge
AD 138/161	tabella I	RMD I, 57	Cut into a roundel; 27 mm diameter
AD 162/163	tabella I	RMD V, 437	Cut into rough circle 52-53 mm diameter; hole 4.5 mm diameter pierced through from outside just to left of centre
AD 180/184	tabella I	RMD II 124	Hole in bottom left corner
AD 192	tabella I	RMD V 447	Converted into lock plate; rectangular hole at middle with small plate covering bottom of hole rivetted on the inner face; four large holes to fix lock in place.
AD 202	tabella I	RMD III, 190	Repair for base of lead vase; heat distortion

Table 129: Examples of re-use where a tablet from a diploma has been modified in antiquity to have a new function

line 8: there were traces of the tops of five letters. The bottom edge was damaged and the letters did not show on the X-rays. The first letter hardly showed to the naked eye, but was the top of an upright. It was followed by two uprights close together. Then there seemed to be the curved top of a letter, but there was surface damage in the same place, the right end did not extend downwards. The final surviving letter barely showed in a nick in the surface very close to the bottom edge, but appeared to be an apex.

Between lines 2 and 3 was a line without lettering. This was the midpoint of the outer face and would have had two binding holes. These would have been matched by two holes in the *tabella* II. It was possible that the curved area along the edge represented part of this hole as indicated on the transcription.

Date

Enough survived of the titulature on the inner face to show that the diploma was issued in the reign of Antoninus Pius. The date range of the issue of the original constitution of which this diploma was a copy was therefore between 10th July AD 138 and 7th March AD 161. There were two factors that enable a closer date to be established:

1) Line 4 of the inner face would have listed the number of years of tribunician power held by Pius and the number of times he had held the consulship. Combined, both of these elements would have provided the likely year of issue of the constitution. However, the former, which ran between 10th December and the following 9th December, was missing. The latter survived as COS followed by a numeral. There were definitely three uprights in the numeral. Antoninus Pius was consul for the third time as one of the *ordinarii* of AD 140 and for the fourth time as one of the *ordinarii* of AD 145 (Kienast 1990, 134-5). Comparable texts on nearly contemporary diplomas are as follows:

CIL XVI, 175 July/Aug139

]AN F DIVI TRAIAN PARTH
]E PRONEP T AEL HADRIAN
]PIVS PONT MAX TRIB
] COS II P P
]●

RMD V, 386 30 Oct 139

IMP CAESA[ ]RAIANI
PARTHIC[ ]DIVI N[ ]PRONEP
T AELIVS HADR[.]AN AN[ ]VS AVG
]ON MAX TRI ● PO[ ]II DES III P P

CIL XVI, 87 22 Nov 139

IMP CAES DIV HADR F DIVI TRAI PARTH
NEP T AEL HADR ANTONIN AVG PIVS
PON MAX TRI POT II COS II DES III P P
●

RMD II, 95/58 1 Mar/31 Oct 140

]AIA[.]I PARTH[
]ONINVS AVG PI[
]II COS III P[

AE 2008, 1724 Jan/Nov 140

]IN AVG[
]III C[

RMD V, 387 Nov/Dec 140

]VI HADRIAN FIL D[.]VI T[
]NERV PRONEP T AELI[
] AVG PIVS P[.]NT MAX[
]OS III [ ]P P [

RMD I, 39 13 Dec 140

.]MP CAES DIVI HADRIANI F DIVI TRAIANI
]PARTHICI N DIVI NERVAE PRON T AELIVS
HADRIANVS ANTONINVS AVG PIVS PON MAX
TR POT III COS III P P
●

RGZM 29 15 Ian 142

IMP CAES DIVI HADRIAN F DIVI TRAIAN PARTH
N DIVI NERV PRON T AELIVS HADRIAN AN
TONIN AVG PIVS P M TR POT V COS III P P
●

AE 2004, 1925 10 Dec 141/31 Iul 142

IMP CAES DIVI H[
NEPOS T AELI[
IVS PONT MA[

RMD IV, 266 7 Aug 143

IMP CAES DIVI HADRIANI F DIVI TRAIANI PART
NEPOS T AEL HADRIANVS ANTONINVS AVG
PIVS PON MAX TRI POT VI IMP II COS III P P

CIL *Corpus Inscriptionum Latinarum;* ***RMD*** *Roman Military Diplomas;* ***AE*** *l'Année Epigraphique;* ***RGZM*** *Römisch-Germanischen Zentralmuseums.*

2) On line 2 of the outer face were traces of the formula for the award of citizenship to the existing children of the recipient: ... *ipsis liberis] POST(erisque) EOR(um) [civitatem dedit* ... In AD 140 changes were made to the privileges granted to auxiliary troops in these constitutions. Existing children ceased to receive citizenship. This was replaced in the constitution by a statement that citizenship was given to those men who were not already citizens (... *civitatem Romanam qui eorum non haberent dedit* ...) (Eck 2007, 87, 90-1, 104). The earliest dated example occurred on a diploma of 13th December AD 140 (RMD I, 39; Waebens 2012, 267-277). All subsequent auxiliary diplomas had this formula except for some awarded to centurions and decurions. Comparable texts on the outer faces of near contemporary diplomas are as follows:

CIL XVI, 175 18 Iul 139

POSTERISQ EORVM CIVIT[
CVM VXORIB QVAS TVNC[

AE 2007, 1786 22 Aug 139

... IPSIS LIBERIS
POSTERIXQ EORVM CIVITATEM DEDIT
ET CONVBIVM CVM VXORIB QVAS
TVNC HABVISSENT ...

RMD V, 386 30 Oct 139

...]LIB[
]ATEM DE[
]VAS TVNC HABV[

CIL XVI, 87 22 Nov 139

... IPSIS LI
BERIS POSTERISQ EORV● CIVITAT DEDIT
ET CONVB CVM VXORIB QVAS TVNC HABVIS

CIL XVI, 177 26 Nov 140

... IPSIS LIBERIS
POSTERISQVE EORVM CIVITATEM DEDIT
ET CONVBIVM CVM VXORIBVS QVAS TVNC
HABVISSENT

AE 2005, 1718 1 Ian/9 Dec 140

...]RISQ EORVM C[
]BIVM CVM[

RMD I, 39 13 Dec 140

CIVITAT ROM QVI EOR NON HABERENT
DEDIT ET CONVB CVM VXORIB QVAS TVNC
HABVISS ...

RMD V, 387 Nov/Dec 140

QVI E[
VXO[.]IB QVAS[

CIL Corpus Inscriptionum Latinarum; ***RMD*** Roman Military Diplomas; ***AE*** L'Année Epigraphique.

The day of issue of the constitution would have been provided by lines 7-8 on the outer face of the fragment, but neither the month nor day could be restored. The *nomen* of the consul pairs in office when the constitution was promulgated had survived in part (*ANTONIO*); this could narrow the period to within a few months, depending on how many pairs of consuls held office in that year. Unfortunately the list of definite consuls for AD 140 is not complete and an Antonius was not among them.

This might suggest that the titulature of Antoninus Pius only showed the date of issue as after he had been consul for the third time in AD 140 and that the privileges for existing children was a mistake. However, no consul named Antonius definitely appeared in the consular *fasti* prior to AD 145 when Antoninus Pius was consul for the fourth time. After this date, the new text of the constitutions would already have been well used and a mistake in recorded privileges would have been most unlikely.

Yet there was a senator, Q. Antonius Isauricus, whose wife Sosia Iuncina dedicated an altar at York while he was legionary legate there, presumably of *legio VI Victrix* (PIR A 841; RIB I 644). There was also a Q. Antonius I[..]V[---] who was consul with L. Aurelius Flaccus, both of whom were otherwise unknown (PIR A 840). The inscription naming them as consul was a lost fragment of the *Fasti Feriarum Latinarum* (CIL VI, 2017; CIL XIV, 2244; Degrassi 1937 154-5). Exactly when they held the consulship was not known, but dates of between AD 142 and AD 144 have been suggested (AD 142/144 Degrassi 1952, 40; AD 143 Alföldy 1977, 144-145). While a further pair of consuls, C. Iulius Pisibanus and [A. Larcius(?)] Lepidus was named from the following year on this fragment. They too, were otherwise unknown (Alföldy *op. cit*., 148).

The key source for consular *fasti* for this period was the *Fasti Ostienses*, but it unfortunately was fragmentary for these years (Vidman 1982, 49-50; Eck and Weiß, 2001, 251-260). The evidence for the consuls of the years AD 140 to 144 based on the *Fasti Ostienses* is as follows:

140

[imp.Caesar T.Aelius Antoninus Aug.
Pius IIII, M. Aelius Aurelius Verus Caesar]
[?k. Mart. - Iulius Crassipes, ---]

RMD II, 95/58 (Raetia)

[k. Mai.

k. Iul. [

k. Sept. [

k. Nov. M. [Barbius Aemilianus, T. Flavius Iulianus]

CIL 16, 177; RMD I, 39; RMD V, 387 (Raetia)

141

[T. H]oeni[us Severus, M. Peducaeus Priscinus]

k.. Ma[rt.

k. M[ai.

k. [?Iul.

[?k. Sept. T. Caesernius] Stati[anus, ---] RMD V, 391

[?k. Nov. L. Annius] Fabianus, [

142

[L. Cuspius Pactumeius Rufinus], L. [Statius Quadratus]

RGZM 29

[?k. Apr. L. Granius] Castus, [Ti. Iunius Iulianus]

ZPE 182

[k. Iul. M. Corneli]us Fronto, [L. Laberius Priscus]

RMD IV, 264; RMD V, 392; RMD V, 394

[k. Sept. L. Tusidiu]s Campester,

[Q. Cornelius ?Senecio Annianus]

RMD II, 106; RMD V, 395; RMD V, 396

[k. Nov. - ?Sulpicius] Iulianus, [- ?Iulius Castus]

143

[C. Bellicius Torquatus, Ti. Claudius Atticus Herodes]

[?k. Apr.

[?k. Iul. Q. Iunius Calamus, M. ValeriusIunianus]

RMD V, 266

[?k. Oct.

144

[T. Statilius Maximus, L. Lollianus Avitus] CIL XVI, 90

[?k. Apr.

[?k. Iul. Q. Laberius Licinianus, -. --- TVS]

RMD V, 397; AE 2004, 1065

[?k. Oct. D. Velius Fidus, M. Calpurnius Longus]

RMD V, 398

RMD Roman Military Diplomas; ***CIL*** Corpus Inscriptionum Latinarum; ***RGZM*** Römisch-Germanischen Zentralmuseums; ***ZPE*** Zeitschrift für Papyrologie und Epigraphik; ***AE*** l'Année Epigraphique.

The very recently discovered diploma for Dacia superior of 25 April AD 142 named L. Granius Castus and Ti. Iunius Iulianus as consuls (Eck and Pangerl 2012, 173-182). This meant that it was now highly unlikely that Q. Antonius I[---] and L. Aurelius Flaccus could be retained as consuls in AD 142. Rather they should be restored in AD 140. Similarly C. Iulius Pisibanus and [A. Larcius(?)] Lepidus should be restored as consuls in AD 141.

The evidence provided by the Healam fragment would seem to support the theory that there was one senator called Q. Antonius Isauricus, who was consul in mid-AD 140 and had been legate of *legio VI Victrix*.

The unit

The name of the unit of the recipient of the diploma was partially recorded on the last surviving line of the outer face. It could be restored as *cohors II Gallorum*. A number of auxiliary units with that name were known to have existed in the Roman army:

cohors II Gallorum attested on diplomas for Britain between AD 122 and 178 (AD 122 CIL XVI 69; AD 178 RMD III 184; RMD IV 293-4).

cohors II Gallorum attested on a diploma for Mauretania Caesariensis of AD 107 (CIL XVI, 56).

cohors II Gallorum attested on diplomas for Moesia inferior between AD 92 and AD 111 (AD 92 AE 2003, 1548; AD 111 CIL XVI, 58). Then in Dacia inferior between AD 120/130 and AD 146 (AD 120/130 RMD V, 376; AD 146 RMD IV, 269, ZPE 176, 225).

cohors II Gallorum Macedonica attested on diplomas for Moesia superior between AD 94 and AD 160 and in Dacia in AD 109 (AD 94 CIL XVI, 39, RMD V 335; AD 160 CIL XVI, 111; Dacia AD 109 RMD III, 148).

cohors II Gallorum Pannonica attested on diplomas for Dacia between AD 109 and AD 113/114 (AD 109 RMD III, 148; AD 113/114 RMD IV, 225). Then in Dacia superior between AD 124 and AD 179 (AD 124 ZPE 175, 248; AD 179 RMD II, 123).

cohors[II] Gallorum Dacica attested on diplomas for Dacia superior in AD 136/138 and AD 156 (AD 136/138 RMD V, 384; AD 156 CIL XVI, 107).

However, all diplomas found in secure contexts in Britain related only to the auxiliary garrison of Britannia. Three fragments have been reported as found in Britain, but their provenance was unclear. One, of AD 102, related to the auxiliary garrison of Pannonia (AE 2005, 954). On balance, the *cohors II Gallorum* recorded on this fragment was part of the garrison of Britain and that the original constitution was an award to units in that province.

Cohors II Gallorum was first recorded in Britain on the diploma of AD 122 (CIL XVI, 69). It was possible that it was the same as the cohort named on the diploma for Mauretania Caesariensis of AD 107 (see above), but not later (Spaul 2000, 157-158). There were further diploma attestations in AD 127, AD 130/131, AD 145/146, and AD 158 (AD 127 RMD IV, 240; AD 130/131 AE 2006, 1836; AD 145/146 CIL XVI, 93; AD 158 RMD V, 420). On the diplomas of AD 178 it was named as *cohors II Gallorum veterana* (RMD III, 184, RMD IV, 293-4). The recipient of one of these issues of 23 March AD 178 had been a cavalryman in the cohort. At the time of his honourable discharge, his commander had been Domitius Hiero. This equestrian commander was to be identified with the T.

Dom[i]tius Heron d(omo) Nicomedia named on a lost altar from Old Penrith as prefect of *cohors II Gallorum equitata* (RIB I, 917; Devijver 1976, I,IV D22). The cohort was also recorded at Old Penrith during the reign of Severus Alexander and Gordian III (AD 225/235 RIB I, 929; AD 244/249 RIB I, 915).

The discovery of this diploma fragment at Healam Bridge did not help to locate *cohors II Gallorum* during the reign of Antoninus Pius, or during the reign of Hadrian. The sparse evidence for the settlement of auxiliary veterans in Britain suggested they settled in sheltered pleasant sites even in the military zone (Mann 2002, 183-188).

Restored text

intus

imp caes divi ha]DRIAN F D[ivi traian pa 7

(+ 24 letters restored)

rth nep divi n]ERV PRONEP[t aelius 9

hadrian anto]NIN AVG PIV[s pont max 9

trib pot]● COS III[p p 6

extrinsecus

MISS [quor nom subscript sunt ips lib 4

(+ 26 letters restored)

POST EOR [civit dedit et conub cum uxor 7

(+ 24 letters restored)

●[

QVAS TVNC [habuiss cum est civit is data 8

(+ 24 letters restored)

AVT SIQVI CA[elib cum is quas postea 10

(+ 20 letters restored)

DVXISS DVM[tax sing sing 9

(+ 11 letters restored)

A [d 1

.] ANTONIO [8

co]H II GA[ll 5

The expanded text based on this reading is as follows:

[Imp. Caes(ar), divi Ha]dri[a]n(i) f., d[ivi Traian(i) Parth(ici) nep(os), divi N]erv(ae) pronep(os), [T Aelius Hadrianus] Anto]nin(us) Aug(ustus) Piu[s, pont(ifex) max(imus), tr(ibunicia) pot(estate) ---], co(n)s(ul) III, [p(ater) p(atriae)],

[eq(uitibus) et ped(itibus) q(ui) mil(itaverunt in al(is) -- et coh(ortibus) ---q(uae) app(ellantur) --- et sunt in Britann(ia) sub --- dim(issis) hon(esta)] miss(ione),

[quor(um) nom(ina) subscript(a) sunt ips(is) lib(eris)] post(erisque) eor(um) [civit(atem) dedit et conub(ium) cum uxor(ibus)] quas tunc [habuis(sent) cum est civit(as) is data] aut siqui ca[elib(es) ess(ent) cum is quas post(ea)] duxiss(ent) dum[tax(at) sing(uli) sing(ulas)].

a. [d. ---(?)Q.]Antonio[Isaurico, (?)L. Aurelio Flacco cos.]

[co]h(ortis) II Ga[ll(orum) cui praest ---]

This can be translated as follows:

The Emperor Caesar T. Aelius Hadrianus Antoninus Augustus Pius, son of the deified Hadrianus, grandson of the deified Traianus conqueror of Parthia, great-grandson of the deified Nerva, pontifex maximus, in his year of tribunician power, three times consul, father of his country,

has granted to the cavalrymen and infantrymen who have served in the alae and cohorts which are called --- and are in Britain under --- who have served twenty-five years/twenty-five years or more and have been honourably discharged,

whose names are written below, citizenship for themselves, their children and descendants, and the right of legal marriage with the wives they had when citizenship was granted to them, or, if they were unmarried, with those they later marry, but only a single one each.

- in the consulship of ?Q. Antonius Isauricus and ?L. Aurelius Flaccus (AD 140).

To --- ex cavalryman/ex infantryman of cohors II Gallorum, commanded by --- .

Reuse of diplomas

Table 129 listed examples of reuse where a tablet from a diploma had been modified in antiquity to have a new function. There were also numerous diploma fragments that had been deliberately broken into halves, or quarters, or broken into small squares or rectangles. These seem to have been scrap metal ready for melting down for possible reuse (Roxan 1989, 127-181).

FITTINGS AND FASTENERS

Gail Drinkall

Introduction

This section included those studs, mounts, and fasteners that could not be definitely ascribed to the categories of dress accessory or military, as well as non-structural strap fittings, possibly from wooden boxes or caskets, and rings that would have been multi-purpose. Keys were considered as fasteners and were also discussed within this group of finds.

Studs, mounts and fasteners

Two small studs (nos. 1 and 2, Fig. 226) were likely to have been secured to leather items, possibly belts or straps, as decorative fittings. No. 1 was heart-shaped with well-preserved yellow enamel circles set in a blue field and a single shank on the reverse for attachment. It came from a late 2nd-century AD layer in Field 63, a date consistent with the use of enamelling as a decorative feature. Circular mount no. 2 was from an extensive dumped deposit, of late 1st to mid-2nd century AD date, immediately east of refuse pits 7583, 7732, and 7862. The enamel on this particular piece was fragile with numerous losses and cracks (M. Felter, archive conservation record). The concentric bands of decoration may have belonged to a northern school of enamelling, which produced brooches and seal boxes (Lentowicz 2002, 66). A centrally placed stud remained intact on the reverse. An almost identical piece was found at Catterick Bypass, site 433 (*op. cit.*, no 228). Similar published examples were noted at Colchester (Crummy 1983, 118, no 3220 and 3221), and a circular enamelled stud with petalled design appeared on the Portable Antiquities Scheme database as a metal-detected find from a field adjoining the A1, just south of Dishforth Aerodrome (record ID DUR-B80192). Examples from South Shields were from 2nd- to 3rd-century AD contexts (Allason-Jones and Miket 1984, 92) and mid-2nd to early 4th century at Catterick (Lentowicz *op. cit.*, 66).

Large boss or mount no. 3 (Fig. 226) was unusual. It was not a military-style fitting (M. Bishop *pers. comm.*) and there was some speculation as to whether it was Roman (H. Cool *pers. comm.*). It derived from a layer stratigraphically dated to between the late 2nd to 3rd century AD, but contained pottery with a production range spanning the 1st to 4th centuries AD, a glass bangle fragment (above, section 11.2), and a 1st century AD coin (RF 119). No medieval or post-medieval intrusive finds came from this context. The three copper alloy rivets on the reverse, only one of which survived in-tact, indicated that it would have functioned as a stud, though no parallel was known at the time of writing (F. Hunter *pers. comm.*).

A near complete reel-shaped stud (no. 4, Fig. 226) was an unstratified find recovered during initial investigation in Fields 60/61. It may have been multifunctional, in much the same way as bell-shaped studs (cf. Bishop above, section 11.3; Allason-Jones and McKay 1985, 95-108). Two copper alloy studs with tapering shanks and decorative globular heads came from a late 1st to mid-2nd century AD fill of a corn-dryer (no. 5, Fig. 226) and from a Phase 3 road surface (no. 6, Fig. 226), which also yielded post-medieval material. Crummy (*op. cit.*, 115) opines that these were almost certainly from upholstered furniture, though their use as decorative elements on wooden chests was also postulated (Howard-Davis 2009, 739, fig 399.305). Globular and dome-headed studs were prevalent at *Verulamium*, with over 30 examples recorded (Frere 1984, nos. 158-162).

Three dumb-bell toggles came from late 1st to mid-2nd century AD contexts in Fields 62 (no. 7, Fig. 226) and 63 (no. 8, Fig. 226), and from a late 4th to early 5th-century AD ditch also in Field 62 (no. 9, not illustrated). These fittings were common in northern Britain and were not a continental type (Taylor and May 1996, 350). They were in use from the late 1st through to the 3rd century AD, perhaps continuing into the 'Dark Ages' (*sic*) (MacGregor 1976, 134) and are fashioned in wood, bone, and horn, with copper alloy examples usually being of a later date (Taylor and May *op. cit.*). Usually described as buttons, they could have served to fasten a range of items and could have derived from Iron Age toggles.

Keys

The lever lock key (no. 10, Fig. 226) would have worked in the same way as a modern day mortise lock. Copper alloy examples, such as this one, would probably have served to secure a small box or cupboard, as iron was used for more substantial door locks (Crummy 1983, 123-124). It was collected from a layer that may have been associated with the occupation of an earlier domestic structure (structure 7951, Phase 1b). An anchor-shaped iron latch lifter (no. 11, Fig. 227) was found in the Phase 5 subsoil overlying structure 5009, but was part of a largely Roman assemblage that included substantial amounts of wheel thrown coarsewares, as well as amphorae, samian, and mortaria, and only small quantities of medieval and modern ceramics. Although latch lifters had a long period of use, it was likely, given the components of the rest of the assemblage, to be of Roman manufacture.

Iron strap fittings

The fragmentary remains of a diminutive iron strap terminal (no. 12, Fig. 227) could have derived from a small drop hinge, or the strap off an angle bracket from a wooden chest or similar item (H Cool *pers. comm.*). It was found in a ditch (2174) of the late 3rd to 4th century AD that ran parallel to an earlier boundary ditch (2178) in Field 62.

An incomplete iron strap fitting (no. 13, Fig. 227) came from a deep refuse pit (3250) in Field 1 and was found in association with a large assemblage of pottery sherds of late 3rd and mid-4th century AD date. The fitting consisted of an arrow-shaped terminal with mineralised wood, possibly oak or ash, on one face (J. Jones, archive conservation record). Its slender proportions may hint that it was from a wooden container, rather than door furniture.

Rings

The contexts from which these items were recovered was of little use in ascribing a possible function to any of the eight rings that were found, being largely ditch fills (no. 15, not illustrated, and 20, Fig. 227), a midden deposit (no. 16, Fig. 227), a stream channel (no. 18, Fig. 227), and subsoil (no. 14, Fig. 227, and no. 17, not illustrated). The earliest were two iron rings, nos. 18 and 19 (Fig. 227), from late 1st to late 2nd-century AD contexts in Field 63.

Catalogue

Measurement abbreviations: *D-diameter; L-length; W-width; Th-thick; H-height*

All were copper alloy, except where noted otherwise.

Studs, mounts and fasteners

(**1**) Enamelled, heart-shaped stud, complete. Four inlaid yellow enamel circles, one central, set in a blue field, tapered lug on reverse. L 21mm, W 17mm, Th 3mm, L of lug 10mm. A1DB09, RF 444, context 5034, Field 63, Phase 1c. Fig. 226

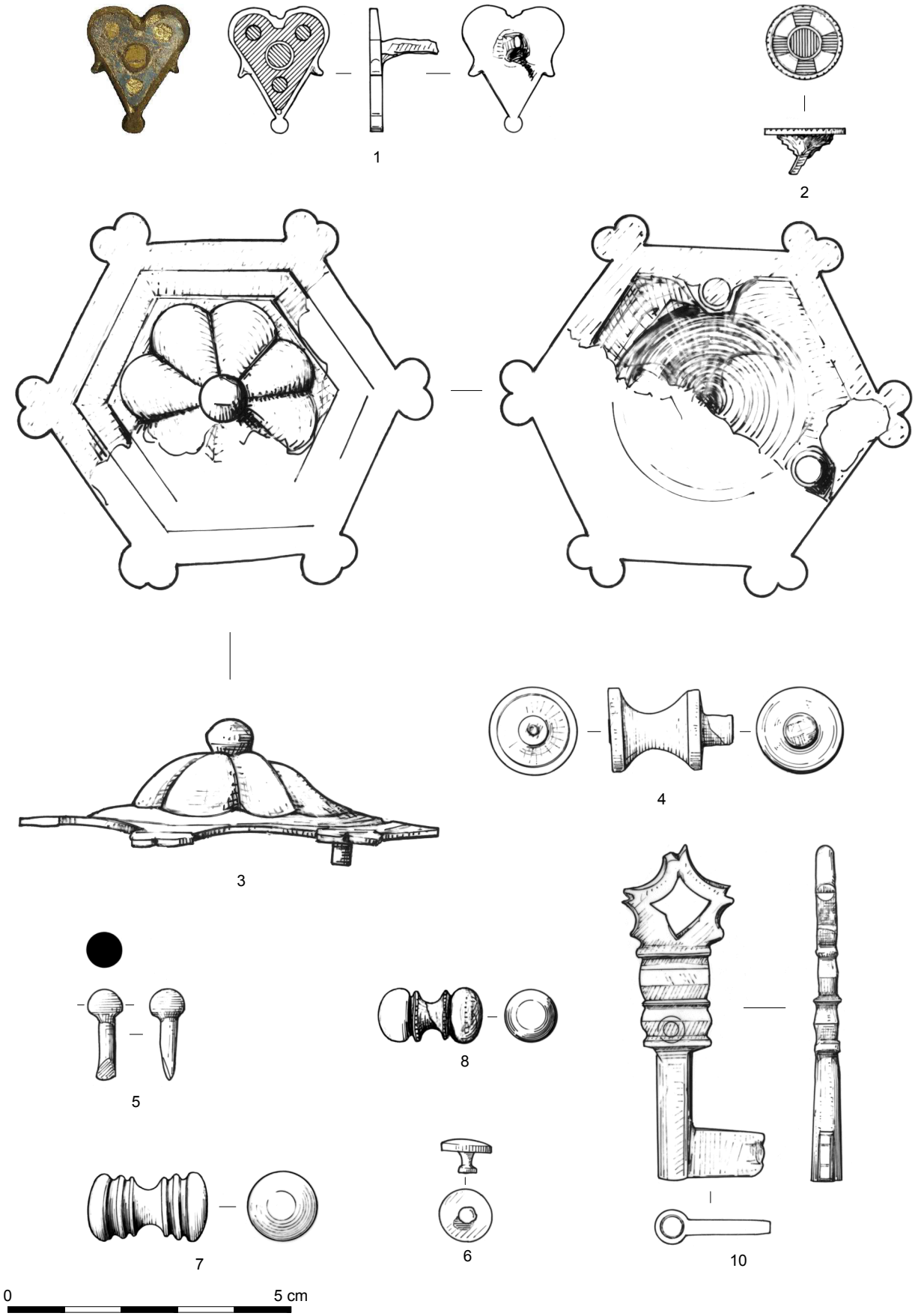


Figure 226: Studs, mounts, fasteners, and key

(**2**) Enamelled circular stud, complete. Notched decoration around circumference, central red enamel circular inlay, outer band alternated green and possibly red cells (only small spots survived), off-centre shank on reverse. D 14mm. A1DB09, RF 488, context 6926, Field 63, Phase 1a. Fig. 226

(**3**) Mount. Six-sided with bi-lobed terminals, central raised dome of eight petals around a solid knob. Reverse was concave with a protruding rivet, circular in cross-section, at one edge and traces of two other rivets or lugs on opposing sides. L and W including terminals 72mm, H 23mm, Th 2mm. A1DB09, RF 177, context 5069, Field 63, Phase 1d. Fig. 226

(**4**) Stud, near complete. Reel shaped, head decorated with circumferential outer band and slightly raised central projection. Incomplete shank, integrally cast and circular in section. Head D 15mm, 8mm at waist, L 17mm, shank L 5mm+, D 6mm. A1DB09, RF 756, topsoil at CH 11600, Field 60/61. Fig. 226

(**5**) Stud, most of shank missing. Globular head, oval sectioned shank. L 15mm+, D of head 6mm. A1DB09, context 5412, Field 63, Phase 1a. Fig. 226

(**6**) Stud. Slightly convex head. L 6mm, D 9mm. A1DB09, RF 694, context 9159, Field 63, Phase 3. Fig. 226

(**7**) Dumb-bell toggle. L 20mm. A1DB09, RF 207, context 2372, Field 62, Phase 1. Fig. 226

(**8**) Dumb-bell toggle. L 17mm. A1DB09, RF 534, context 7896, Field 63, Phase 1a. Fig. 226

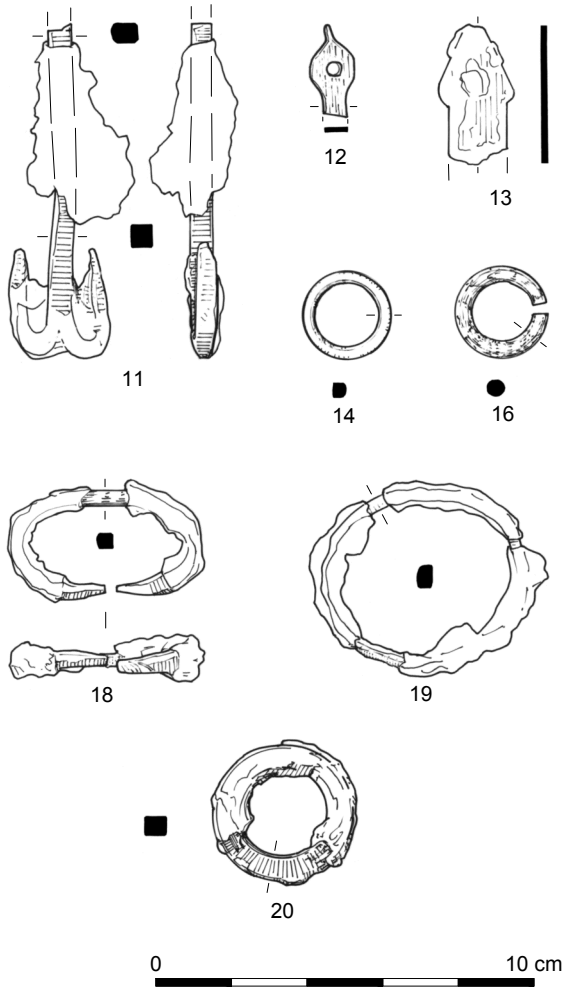


Figure 227: Latch lifter, iron strap fittings, and rings

(**9**) Dumb-bell toggle. L 21mm. A1DB09, RF 58, context 5004, Field 63, Phase 3. Not illustrated

Keys

(**10**) Lever lock key, near complete. Transverse mouldings on grip, diamond shaped bow with openwork, incomplete bit (teeth missing), tooling marks suggested originally three teeth. L 58mm, W 19mm+. A1DB09 RF 458, context 6924, Field 63, Phase 1c. Fig. 226

(**11**) Latch lifter, iron, near complete, but highly corroded. X-ray revealed an incomplete rectangular sectioned shank that bifurcated and thinned into two arms that were bent back to form the bit. L *c*.27mm+, shank 5x7mm. A1DB09, RF 1075, context 5013, Field 63, Phase 5. Fig. 227

Iron strap fittings

(**12**) Strap terminal, incomplete. Narrow strap, expanded head with central, square perforation and pointed projection. L 22mm+, W of strap 6mm, W of head 11mm, Th 1mm. A1DB09, RF 734, context 2175, Field 62, Phase 3. Fig. 227

(**13**) Strap fitting, incomplete. Arrow shaped terminal with nail through the centre, shank missing. Mineralised preserved wood on one face, grain ran parallel to the object's length. Microscopic examination suggested the wood was a ring-porous hardwood, such as oak or ash, positive identification was not possible (J. Jones, archive conservation record). L 37mm+, W 21mm, Th 1mm, D of nail head 3mm. A1DB09, RF 20, context 3249, Field 1. Fig. 227

Rings

COPPER ALLOY

(**14**) Complete. Cast, sub-rectangular section. External D 22mm, internal D 16mm, Th 4mm. A1DB10, RF 714, context 8299, Field 61A, Phase 2. Fig. 227

(**15**) Complete. Cast, sub-rectangular section. External D 25mm, internal D 18mm, Th 4mm. A1DB09, RF 284, context 5324, Field 63, Phase 3. Not illustrated

(**16**) Near complete. Cast, sub-rectangular section. Heavily corroded, split in ring may have been original. External D 23mm, internal D 15mm, Th 4mm. A1DB09, RF 266, context 5028, Field 63, Phase 3c. Fig. 227

(**17**) Complete. Cast, sub-rectangular section. External D 27mm, internal D 20mm, Th 4mm. A1DB09, RF 205, context 2410, Field 62, Phase 5. Not illustrated

IRON

(**18**) Split ring, complete. Oval loop or chain link made from sub-circular-sectioned bar. External L 53mm, external W 30mm, Th 5mm tapering to 3mm at the ends. A1DB09, RF 1091, context 5238, Field 63, Phase 1a. Fig. 227

(**19**) Ring, complete. Slightly oval ring made from a circular-sectioned bar, broken at narrowest point, possibly through wear. External D 52mm, Th 4.5-6.0mm. A1DB09, RF 1088, context 5042, Field 63, Phase 1d. Fig. 227

(**20**) Ring, complete. Rectangular-sectioned ring. External D 35mm, internal D 24mm, Th 5mm. A1DB09, RF 162, context 5143, Field 63, Phase 3c. Fig. 227

TEXTILE MANUFACTURE

Gail Drinkall with contributions from Martin Foreman and Gwladys Monteil

Introduction

Artefacts related to textile manufacture processes (spinning, weaving, and sewing) were found in Fields 61-63 at Healam in the form of spindle whorls, a bobbin, and sewing needles. These were not found in great numbers, with only thirteen items being recovered. The bone bobbin (no. 10, Fig. 228) and a copper alloy needle (no. 11, Fig. 228) were both found in occupation deposits associated with structure 7951. The remaining items were from ditch and pit fills, a midden, and subsoil.

Spindle whorls

The diagnostic feature of a whorl is the diameter of the spindle hole. Iron Age and Roman examples had small spindle holes that ranged in size from 4 and 8mm in diameter to accommodate the thin spindles of these periods. Late Anglo-Saxon and medieval whorls had larger holes: 9-11mm in diameter (Walton Rogers 1997, 1731). Nos. 1-7 were all disc-shaped with perforations that ranged between 4 and 8mm in diameter and 11mm in the case of no. 7, which came from Phase 5 topsoil in Field 61A and could be of later date. Nos. 1 and 2 were from a late 1st to mid-2nd century AD alluvial deposit in Field 61A and a ditch fill dated to the 2nd century in Field 63 respectively. Nos. 3 and 4 derived from late 4th-century AD contexts in Field 63 (ditch 5044 and midden 5028). Nos. 5 and 6 were from subsoil 5001, but were included here given the amount of residual material in this context and due to their similarity with those from Roman deposits. These disc-shaped Form B (Walton Rogers 1997, fig 807) whorls were generally between 10g and 55g in weight (*op. cit.*, 1743). Those from Healam all fell within this range being between 19g and 41g. Although it is broadly true that heavy whorls were useful for plying threads and the lighter ones allowed short fibres and fine yarns to be spun, much depended on the size and weight of the spindle, the way the yarn was being wound on, and the skill of the spinner (*op. cit.*, 1744-45).

Two plain fragments of Central Gaulish samian pottery had been re-worked as spindle whorls (nos. 8 and 9). No. 8 was near complete with a spindle hole 8mm in diameter, while no. 9 was incomplete. They were found in Phase 1 and 3 ditch fills respectively. Pot sherds fashioned into spindle whorls were known from 2nd century AD or later Roman contexts at Colchester with examples in black burnished ware and grey ware (Crummy 1983, 67, fig. 71.1997, 71.2003, and 71.2005). In Cool's (2000, 47-65) study of late assemblages of small finds from sites including South Shields, Birdoswald, York, and Filey, just under half of the spindle whorls in mid-4th century AD assemblages were perforated pottery discs. In the late 4th century the proportion of pottery whorls had gone up by more than two-thirds of the total (9 examples). The use of Central Gaulish samian in the late assemblages came from a single site, Birdoswald, and was not the result of earlier material being redeposited (Cool 2000, 53). Furthermore, samian whorls were conspicuously absent in 1st to 2nd centuries AD contexts when the pottery was in use, with the majority coming from the later 4th century AD. It appeared that, for whatever reason, people of late 4th-century Britain may have selected and re-worked older material culture (Cool 2000, 54).

Bobbin

Martin Foreman

The identification of perforated sheep bones as bobbins (no. 10, Fig. 228) followed discoveries at the Iron Age villages at Glastonbury and Meare, Somerset, where they were associated with textile working equipment. Some from Glastonbury, and elsewhere, bore paired holes (St George Gray 1966, 316-22). Numerous 'metapodial tools' were associated with weaving at Dragonby, North Lincolnshire, which were polished or marked by use (Taylor and May 1996, 353-357). At Silchester, bobbins were made from sheep metapodials (Boon 2000, 382, fig. 177 nos. 5 and 9). An untrimmed sheep cannon bone with a single mid-shaft perforation was suggested to have served as a netting needle or bobbin at Rudston, East Riding of Yorkshire, where it was incorporated in terracing dated no later than the end of the 3rd century AD (Stead and Pacitto 1980, 105, fig. 69 no. 73), and at Winteringham, North Lincolnshire (Stead 1976, 225, fig. 122 no. 205). Either use would confer a high surface gloss, which was a feature on the Somerset and North Lincolnshire examples, but was not noted of the Rudston or Winteringham examples. Such use wear was not present on the Healam example.

Needles

A Type 3 (Crummy 1983, 67, fig 70 no 1991) copper alloy needle (no. 11, Fig 228) came from a cobbled surface associated with structure 7951, dated between *c.*150-180 AD. The groove below its eye could have served to mark out the position in which the eye was to be made. The groove above could have carried the thread, so that the maximum thickness of the head was not increased. At Colchester they were found in 3rd to 4th century AD and post-Roman contexts.

Two bone needles were found in Field 61A. One was a complete Type 2 (Crummy 1983, 65, fig 70 nos. 1976-1990) needle (no. 12, Fig. 228) with a flat spatulate head. It was found in a late 3rd to 4th century AD pit fill. Type 2 needles of both copper alloy and bone were used throughout the Roman period. A needle fragment (no. 13, not illustrated) came from Phase 5 subsoil 8011. The remains of the rectangular eye and shank were highly polished through use.

Catalogue

Measurement abbreviations: D-diameter; L-length; W-width; Th-thick; H-height

Spindle whorls

Except where otherwise noted, all were cast lead and knife-trimmed.

(**1**) Disc-shaped, complete. D 27mm, H 6mm, D of perforation 7-8mm. Weight 36g. A1DB10, RF 665, context 8433, Field 61A, Phase 1i. Fig. 228

(**2**) Disc-shaped, complete. D 26mm, H 4mm, D of perforation 7mm. Weight 19g. A1DB09, RF 485, context 5998, Field 63, Phase 1. Not illustrated

(**3**) Disc-shaped, complete. D 22mm, H 4mm, D of perforation 4mm. Weight 11g. A1DB09, RF 307, context 5031, Field 63, Phase 3b. Fig. 228

(**4**) Disc-shaped, complete. D 25mm, H 6mm, D of perforation 7-8mm. Weight 24g. A1DB09, RF 255, context 5028, Field 63, Phase 3c. Not illustrated

(**5**) Disc-shaped, complete. D 36mm, H 7mm, D of perforation 6mm. Weight 41g. A1DB09, RF 741, context 5001, Field 63, Phase 5. Not illustrated

(**6**) Disc-shaped, slightly conical, complete. D 26mm, H 6-8mm, D of perforation 6mm. Weight 29g. A1DB09, RF 246, context 5001, Field 63, Phase 5. Fig. 228

(**7**) Disc-shaped, complete. D 30mm, H 7mm, D of perforation 11mm. Weight 30g. A1DB10, RF 726, context 8003, Field 61A, Phase 5. Not illustrated

The following catalogue entries were provided by Gwladys Monteil.

(**8**) Disc-shaped, near complete. Two joining samian sherds, most of the slip was missing, outer edge smoothed down. Probably made from the base of a Central Gaulish cup. D 33mm, D of perforation 8mm. A1DB09, RF 290, context 2782, Field 62, Phase 1. Fig. 228

(**9**) Disc-shaped, half remaining. Samian sherd, some slip remained on one side, outer edge was very smooth. Central Gaulish. D 42mm. A1DB09, RF 68, context 2288, Field 61, Phase 3. Fig. 228

Bobbin

(**10**) Possible bobbin. Sheep metatarsal, right. Shaft with a pair of drilled perforations set either side of the mid-shaft. The drill was set on the naturally flattened surface of the shaft and the same holes were carried through to the opposite surface. Though bone next to the holes on one side – presumably it was drilled from behind – had spalled away, there was scant discernible trace of wear of the holes, so their use cannot have been heavy or prolonged. Abraded overall, with both ends eroded. L 95mm, W 12mm, Th 11mm, perforation D 4mm. Weight 11g. RF 543, context 7473, Field 63, Phase 1b. Fig. 228

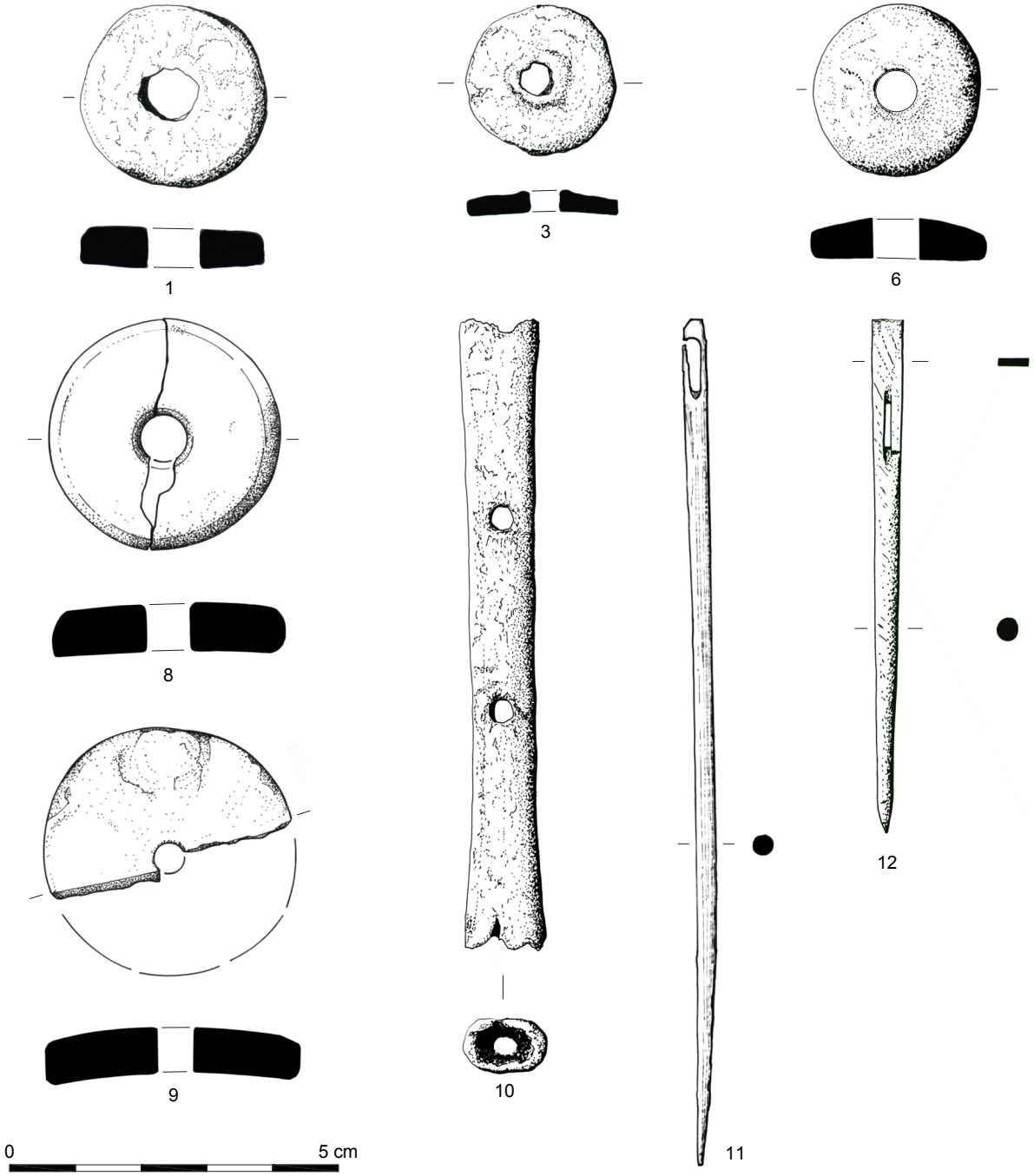


Figure 228: Spindle whorls, needles, and bobbin

Needles

(**11**) Copper alloy needle (Crummy Type 3), near complete, head damaged. Head squared off and flattened. Sub-rectangular eye with groove above and below, shank sub-rectangular to circular in section. L 129mm. A1DB09, RF 398, context 6763, Field 63, Phase 1b. Fig. 228

(**12**) Bone needle, complete (Crummy Type 2). Flat spatulate head, rectangular eye, highly polished shaft. L 78mm, W of head 5mm, D of shaft 4-2mm. A1DB10, RF 625, context 8094, Field 61A, Phase 3ii. Fig. 228

(**13**) Bone needle fragment. Remains of rectangular eye and shank, highly polished, shank oval in section. L 36mm+, shank 3 x 4mm. A1DB10, RF 641, context 8011, Field 61A, Phase 5. Not illustrated

LITERACY AND ASSOCIATED OBJECTS

Gail Drinkall

Introduction

Objects associated with writing were scarce, as only one stylus and the partial remains of two seal boxes were found. The paucity of evidence for literacy was supported by the small amount of graffiti on samian ware, a complete absence of samian inkwells (Section 10.3), and no literate graffiti being present in the rest of the Roman pottery assemblage (Section 10.2).

Stylus

A stylus (no. 1, Fig. 229) was found in a late 4th to early 5th-century AD midden deposit (5028) at Healam. It was of Manning Type 4 (1985, 85) with the point and eraser clearly formed and a decorated stem. The lack of styli at Healam was unusual given the degree to which literacy had spread throughout the province after its introduction by the Roman army. Evidence for this has been seen in the finds of writing tablets and stone inscriptions from urban and military sites (cf. Carlisle, South Shields, *Vindolanda*, and Bath). By comparison, a total of 47 styli came from the Catterick excavations of 1958-1997: the site at Bainesse (site 46) produced the most with 16 examples, closely followed by Catterick Bypass (site 433) with 12 (Cool 2002, 36, table 101).

Seal boxes

The enamelled lid from a square seal box (no. 2, Fig. 229) was found in an alluvial deposit in Field 61A thought to contain finds that had been washed in from a nearby midden, or area of domestic occupation. The deposit was dated to the mid-/late 2nd to early 3rd century AD. An unstratified base of a lozenge-shaped seal box (no. 3, Fig. 229) possibly came from one of the fields at Healam. The use of enamelling indicated that it was likely to be of 2nd or 3rd century AD date (Crummy 1983, 103) when the use of this decorative technique was favoured. Seal boxes protected the lump of wax that held together the bindings of a packet or writing tablet. There was some suggestion that seal boxes ceased to be manufactured in the late 3rd century AD (Henderson 1949).

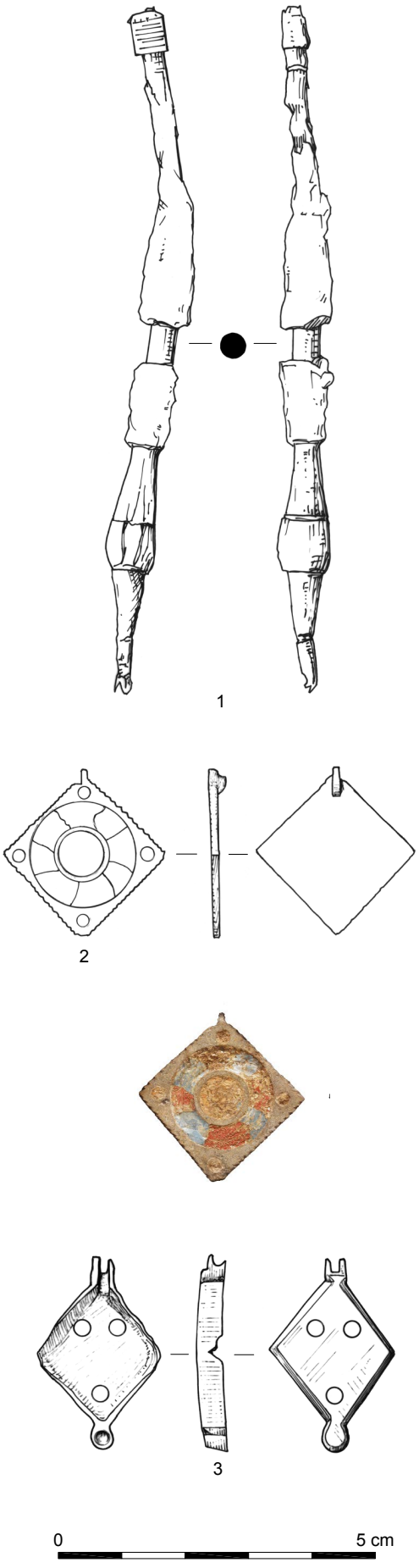


Figure 229: Stylus and seal boxes

Catalogue

Measurement abbreviations: *D-diameter; L-length; W-width; Th-thick; H-height*

Stylus

(**1**) Iron Manning (1985) Type 4, near complete. Round sectioned stem, simple square eraser, swelling before point with circumferential moulding, point missing. L 107mm+, D of stem 4mm, eraser 4x6mm. A1DB09, RF 270, context 5028, Field 63, Phase 3c. Fig. 229

Seal boxes

(**2**) Lid, lozenge shaped with champlevé enamel. Central roundel of what now appeared to be orange enamel, outer band of alternating blue and red enamel, orange eyes at each corner. Trace of hinge at one corner, outer edge decorated with incised notches. L 18mm, W 18mm, Th 2mm. A1DB10, RF 662, context 8386, Field 61A, Phase 2. Fig. 229

(**3**) Base, lozenge shaped, copper alloy. Three circular perforations in base, distorted sides, broken hinge. L 30mm, W 29mm, H 4mm. A1DB09, RF 744, unstratified. Fig. 229

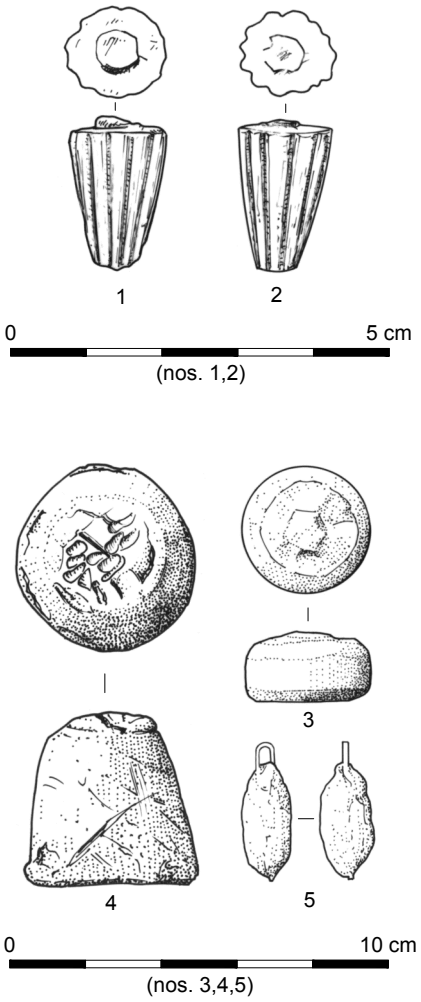


Figure 230

WEIGHING AND MEASURING

Gail Drinkall

Introduction

As with coins, weights and measures provided an insight into the commercial life that operated in Roman Britain and although not numerous at Healam, their presence was a reflection of a society where many items were sold by weight. An oval weight with a suspension loop may have been used in surveying. Only two items (nos. 1 and 3) were from stratified contexts and both of these were associated with different phases of structure 7951.

Steelyard weights

Nos. 1 and 2 (Fig. 230) were near identical copper alloy steelyard weights with a fluted design comparable to examples from South Shields (Allason-Jones and Miket 1984, 174, 3.475-3, 3.476). No. 1 derived from an extensive dumped deposit (6924) of Phase 1c that may have been residual from the occupation of an earlier domestic structure (7951, Phase 1b). No. 2 was from subsoil 5001 in Field 63.

Lead weights and measures

No. 3 (Fig. 230) was a neatly formed cylindrical disc. It was found in a layer of metalling that formed a yard around the southern edge of structure 7951, extending down the slope towards the Healam Beck. A cast conical weight (no. 4, Fig. 230) had a slight indentation that may have been provision for a suspension loop, though it could equally sit on its flat base. Its date was uncertain, being an unstratified find from Field 63. No. 5 (Fig. 230) had a slender ovoid form and may have been a plumb-bob from a *groma*: the principal Roman surveying instrument. This was only a tentative suggestion, as the find was unstratified.

Catalogue

Measurement abbreviations: *D-diameter; L-length; W-width; Th-thick; H-height*

(**1**) Steelyard weight, copper alloy, near complete. Conical, tapered to a blunt point, fluted, broken lug for suspension. L 19mm excluding lug, D 13-6mm, Weight 10g. A1DB09, RF 468, context 6924, Phase 1c. Fig. 230

(**2**) Steelyard weight, copper alloy, near complete. Conical, tapered to a blunt point that appeared worn, fluted, broken lug for suspension. L 19mm excluding lug, D 13-6mm, Weight 10g. A1DB09, RF 413, context 5001, Phase 5. Fig. 230

(**3**) Cylindrical, with flat faces, cast lead, complete. Central indentation on one face and slight raised projection on the other. D 32mm, H 28mm. Weight 130g. A1DB09, RF 454, context 6762, Field 63, Phase 1b. Fig. 230

(**4**) Conical weight, cast lead, complete. Slight central indentation at widest end. No trace of iron loop for suspension. H 38mm, D 30-46mm, Weight 537g. A1DB09, RF 1131, Field 63, unstratified. Fig. 230

(**5**) Possible *groma* weight, oval, lead, complete with copper alloy suspension loop running through body. L 35, W 10mm, Th 9mm. Weight 20g. A1DB09, RF 527, unstratified. Fig. 230

TOOLS

Gail Drinkall with contributions from John Cruse, Vin Davis, Martin Foreman, Geoff Gaunt, and Louisa Gidney

Introduction

A total of five tools for metalworking and/or carpentry and a single agricultural implement were recovered from the fields at Healam, with a further possible tool found in Field 25. The condition of the iron work was generally poor and items could only be identified from examination of the X-ray plates and from further investigative cleaning. The absence of finer leatherworking or textile processing tools, such as awls and wool combs, may be due to the burial environment and the problem of misidentifying corroded nail fragments.

Knives and knife handles appear in this section, though it was recognised that these were multi-purpose items that could equally be discussed under the category of personal equipment. Two knives were associated with structure 7951 with others recovered from ditch and pit fills, dumped deposits, and subsoil. Two or possibly three of the knives were Anglo-Saxon, one of which was found with a tanged implement accompanying inhumation skeleton 5026. Six hones were also present in the assemblages from Field 61A-63.

Metalworking, woodworking and agricultural tools

A single adze (no. 1, Fig. 231) came from late 4th to early 5th-century AD midden deposit 5028. Implements of this form could have equally been used as cultivation tools, as well as for carpentry. It was only when combined with a hammer head that they could definitely be identified as a carpenter's tool.

Nos. 2-4 (Fig. 231; no. 4, not illustrated) were all chisels or punches, although their narrow blades made it difficult to distinguish between the two, as a narrow bladed chisel could act as an efficient punch (Manning 1985, 10). They were similar to a group of small chisels or punches from Hod Hill (Manning 1985, A23-25). No. 2 was from a late 3rd to late 4th-century AD fill of ditch 2142 in Field 62. No. 3 was from a late 4th to early 5th-century AD fill of a possible roadside ditch (5182) adjacent to the beck in Field 63 and no. 4 was from an occupation deposit within structure 7951.

No. 5 (Fig. 231) was a set, a complete chisel-like tool, from a colluvial deposit (8018, Phase 3i) in Field 63. As with a similar example from Kingsholme, Gloucestershire (Manning 1985, 9, plate 5, A18), the blade was too thin to have been used on cold metal and the handle was too short to have been hand-held. This was the only item in the assemblage that could be positively associated with working hot metal.

Only one metal item related to agricultural practices was found: a spud (no. 6, Fig. 231) from a late 4th-century ditch fill in Field 63. These were short-bladed tools, usually socketed, and used for weeding or cleaning the share and mould board of a plough (Manning 1985, 49, plate 20, F12). This particular example was of diminutive size, but could have functioned as a drill or weed spud similar to those in use until fairly recent times (cf. http://www.antiquefarmtools.info).

A highly corroded and incomplete tool or implement (no. 7, Fig. 231) with a rounded point came from the fill of pit 1031 in Field 25. It could have been a centre punch for perforating hot metal.

Knives and tanged implement

Knives were multi-purpose tools used for a wide range of domestic and craft activities. Six iron knives were found at Healam. Nos. 8-10 (Fig. 231) were recognisable Romano-British types, nos. 11 and 12 were Anglo-Saxon forms (Fig. 232), while no. 13 was too fragmentary to be confident about its period of use (not illustrated).

A total of 24 principal Romano-British knife types have been identified, although it was unclear whether any slight differences in shape had any real significance, we know that they were used in food preparation and in a variety of trades, just as they are today (Manning 1985, 106-123). Most of the knives in the assemblage had a whittle tang that would have been inserted into a cylindrical handle of osseous material or wood (see Foreman, below). No. 8, however, had a flat plate tang with traces of horn plates that would have been riveted to either side of it. Its distinctive concave back and S-shaped cutting edge placed it within Manning's Type 7b, of which examples were known from London, Richborough, and Newstead. They were also common in 1st and 2nd-century AD contexts in Germany (Manning 1985, 112). No. 8 came from a Phase 1b (150-180 AD) deposit associated with the occupation of structure 7951. Nos. 9 and 10 had triangular blades with straight backs and the cutting edge rose at the tip (types 11a and 12a respectively). Both forms had a long period of use (Manning 1985, 114). At Healam, no. 9 came from another Phase 1b deposit associated with the occupation of structure 7951, while no. 10 came from a late 4th-century AD recut of enclosure ditch 5151/5311. Heavy-bladed cleavers of the same form as nos. 9 and 10, but with socketed handles, were not uncommon. These were a Roman introduction, designed for butchery, as they were used for chopping, rather than slicing, and their use increased over time on military and urban sites (Mould 2011, 169-170). None were present in this assemblage, though butchery marks on the animal bones were common (section 8.2, Volume 1).

Nos. 11 and 12 were angled-backed knives of Type E1 (Drinkall and Foreman 1998, 279). These usually, but not exclusively, dated to the 7th century AD. No. 11 was found with a tanged spatulate implement (no. 14), which lay alongside the left femur of an adult male aged between 36 and 45 years (skeleton 5026, radiocarbon dated to 600-691 cal AD (SUERC-39609)). No. 12 was recovered from Phase 5 subsoil 5013 overlying building 5009. No. 13 may have been another angled-backed knife of the same date, but it was too fragmentary to state this with any certainty. It was in the subsoil to the north of building 5009.

A tanged spatulate tool (no. 14, Fig. 232) was found alongside knife no. 11 and accompanied a 7th-century inhumation (skeleton 5026). In some reports these have been described as sharpening tools (cf. Evison 1987, 110, Buckland cemetery, Dover), usually due to their association with knives. Metallographic analysis of the examples from Sewerby, East Yorkshire (Hirst 1985, 88), however, showed that they were softer than the knives they accompanied, indicating that they would have been unsuitable for the task of sharpening. The form and profile of no. 14 suggested a file, which could have been used for

bone or woodworking, though no grooves were visible. Two spatulate tools were recovered from Castledyke, Barton-on-Humber. Two knives accompanied one of these and it was worn suspended from the hip in a textile-lined leather container, possibly a bag or purse (Drinkall and Foreman 1998, 283). The burial of this 17-25 year-old woman was dated to the late 7th century AD. Other 7th-century AD examples were known at Uncleby (Smith 1912, 157) and Garton Slack (Mortimer 1905, pl. 83, fig. 625; pl. 88, fig. A.4), both in the East Riding of Yorkshire.

Tool handle

Martin Foreman

Tool handle (no. 15, Fig. 232) was made from antler. The strength of this material makes it peculiarly suitable for tool handles as the tang may be easily inserted (MacGregor 1985, 25-9; 168-9). The sparse decoration and modification of this example was consistent with such a use and its shape may have improved grip during a long working life. Boon (2000, 382, fig. 177 no. 4) noted an antler handle from a Flavian context at Silchester that might have served on either a tool or a key. An antler handled chisel from Baldock, Hertfordshire, was of 3rd-century AD date (Manning and Scott 1986, 162, fig. 69 no. 610). An undecorated antler handle from Colchester was of similar size, but could only be generally assigned to Roman period activity (*c*.AD 150-400) at Colchester (Crummy 1983, 107, fig. 110 no. 2916).

Handles of antler and bone were used from the later Iron Age (e.g. Coles 1987, 51-61, 88-105) and through the Roman period (MacGregor 1985, 167-9, fig. 88, a-i). They were probably displaced by horn handles in the Early Anglo-Saxon period. A handful of examples where mineral preserved organic remains were examined may illustrate this point. Late Roman burials at Lankhills, Winchester, included seven complete knives with traces of wooden handles and a single detached bone handle. These were all from graves dated AD 350-400 and were thought to represent 'native military dress'. A further sheep metatarsal handle was also recorded (Clarke 1979, 249, 251). At the West Heslerton cemetery, North Yorkshire, 62 6th-century AD knives bore traces of horn on their tangs (Haughton and Powlesland 1999, 120). Anglo-Saxon cemeteries at Ipswich, Suffolk, dated between the late 5th and 8th centuries AD, produced 34 knives: 32 with horn handles, one of bone or antler, and one of wood (Scull 2009). At Castledyke, Barton upon Humber, North Lincolnshire, graves spanned the 6th and 7th centuries AD and included 71 knives with horn handles and one of hazel (Edwards and Watson 1998, 242). Occupation debris from Flixborough, North Lincolnshire, with a *floruit* between the 8th and 10th centuries AD, included 87 knives with horn handles, two with wood handles, and no bone or antler handles (Ottaway 2009, 212). A note of caution, however, is called for: reporting of Roman ironwork has long been biased towards weaponry, often without benefit of magnified examination.

Hones and whetstones

John Cruse with lithology by Geoff Gaunt

Whetstones and hones are very similar types of objects. Here, a whetstone was considered to have a coarser grain than a hone, which was fine grained. They were both used in the process of sharpening tools, but the hone was used to produce the final finish. Of the six stones considered here, five were from Romano-British contexts restricted to Fields 61A-63 at Healam, which suggested that this was a local focus for metal finishing. Most of these stones were fine grained and were thus likely to be hones.

When the querns from Healam were discussed, it was noted that they used stone sources sited to the north-west or south-west, but that no querns had been acquired from the Jurassic sources around the North York Moors (Chapter 13). However, for these six hones, this geographic distinction did not seem to hold, as two (nos. 16 and 21, Fig. 233) were from a Jurassic area (i.e. easterly), one (no. 17, not illustrated) was from the Wensleydale Formation (i.e. north-west), another (no. 19, Fig. 233) was either Jurassic or Wensleydale, and at least two (potentially) were made from erratics (no. 18, Fig. 233, and no. 20, not illustrated).

No. 16 (Fig. 233) was complete. The wear on all three faces presumably reflected its use as a hone, as it had two sets of multiple parallel striations from smoothing the edge of a blade prior to sharpening. It was found with Romano-British pottery in the fill of ditch 1697 from enclosure 1676. No. 17 (not illustrated) was possibly part of a hone/whetstone. It was found in pit 8355, where it was found with Romano-British coarseware and mortaria, human bone, and sealed by secondary Romano-British burials within structure 8249. An intact, well used hone/whetstone (no. 18, Fig. 233) came from subsoil north of structure 5009 with a pot-lid and Romano-British and later pottery. If the rock source was Silurian, the cobble may have been a convenient erratic. No. 19 (Fig. 233) was a well-used hone/whetstone. The undulating work surfaces contrasted with the single 'waist' on no. 21 and may indicate some different use. It was found with hone no. 20 in a Phase 3c midden deposit with Romano-British pottery. No. 20 (not illustrated) was another well-used hone/whetstone. If the 'waist' was symmetrical, its intact length was estimated at *c*.120mm, implying a 60-65% survival. The unusual rock source most likely reflected the usage of a glacial erratic cobble, but could have been the result of long distance exchange. No. 21 (Fig. 233) was a complete well-used hone/whetstone with a 'waisted' profile from a ditch fill with Romano-British pottery. Gaunt noted that an identical rock was used for one specimen of the 70+ hones from Wharram Percy, which mostly came from early medieval contexts. However, RF 244 from South Manor (Clark and Gaunt 2000, 107) used a comparable 'Wharram Type A' sandstone for a hone with four honed faces and a similar profile, which came from the earliest Phase 1 (prehistoric to Romano-British) layer, so this type of hone had a long period of usage (from the Romano-British to the early medieval).

Catalogue

Measurement abbreviations: *D-diameter; L-length; W-width; Th-thickness*

Metalworking, woodworking and agricultural tools

(**1**) Adze, complete. Triangular blade with convex edge, gently curving profile, round eye, and narrow neck. No weld lines visible on x-ray. Total L 90mm, L of blade to eye 51mm, W of blade 33mm, D of eye 11mm. A1DB09, RF 182, context 5028, Field 63, Phase 3c. Fig. 231

(**2**) Chisel or punch, complete. Short body, rectangular in section, battered head. L 90mm, W 15mm, max Th 14mm. A1DB09, RF 1083, context 2143, Field 61, Phase 3. Fig. 231

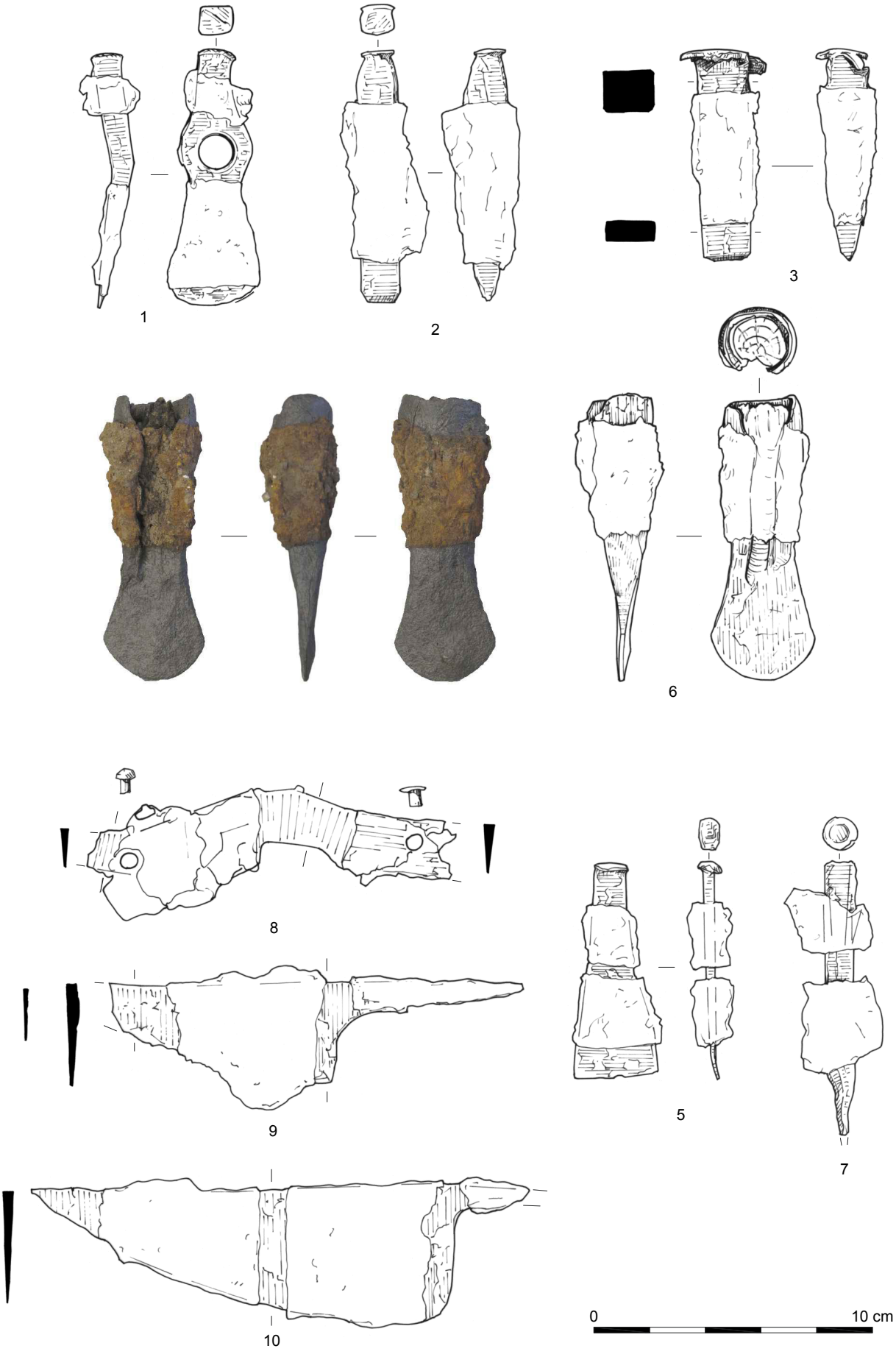


Figure 231: Adze, chisels/punches, metalworking set, spud, and knives

(**3**) Chisel or punch, complete. Short body, rectangular in section, wide battered head. L 74mm, W 18mm, max Th 15mm. A1DB09, RF 1093, context 5185, Field 63, Phase 3c. Fig. 231

(**4**) Chisel or punch fragment, missing head. Rectangular sectioned bar tapered at one end. L 61mm+, W 21mm, Th 12mm. A1DB09, RF 1105, context 7021, Field 63, Phase 1b. Not illustrated

(**5**) Set, complete. Tapered rectangular sectioned stem, flared thin-edged blade, battered head. L 76mm, W of blade 31mm, Th of blade 2mm, W of handle 12mm, Th of handle 5mm. A1DB10, RF 724, context 8266=8018, Field 61A, Phase 3i. Fig. 231

(**6**) Spud, complete. Damaged socket with mineral preserved wood in situ. L 100mm, W of blade 36mm, D of socket 27mm. A1DB09, RF 1094, context 5336, Field 63, Phase 3b. Fig. 231

(**7**) Tool or implement, highly corroded and incomplete. Circular in section, intact end had a projection that was square in section with a rounded point. L 100mm+, D 12mm, pointed end 4x4mm. A1DB09, RF 38, context 1072, Field 25, Phase 2. Fig. 231

Knives and tanged implement

(**8**) Knife, near complete, Manning Type 7b. Down-turned concave back, flattened S-curved edge, plate tang incomplete with remains of mineralised horn handle and in situ rivet, additional rivet now detatched. L 129mm+, W of blade 18mm, W of tang 15mm, Th of blade 4mm. A1DB09, RF 1103, context 7473, Field 63, Phase 1b. Fig. 231

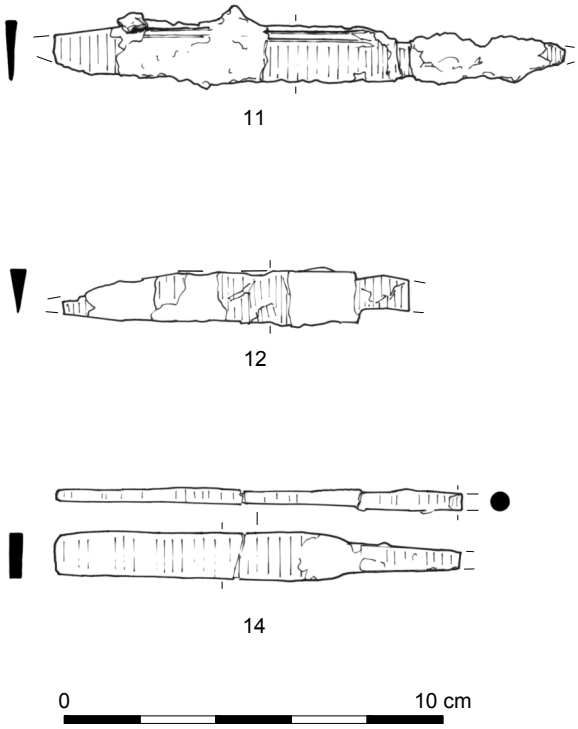
(**9**) Knife, Manning Type 11a. Near complete, tip missing. Back in line with a whittle tang, worn edge rose at the tip, which was broken in antiquity, tang was rectangular in section. L of blade 80mm+, max W of blade 42mm, L of tang 65mm. A1DB09, RF 546, context 7548, Field 63, Phase 1b. Fig. 231

(**10**) Knife, Manning Type 12a. Near complete, tang broken in antiquity. Straight back in line with the remains of a narrow tang, wide blade with convex edge rose at the tip. L of blade 150mm, max W of blade 50mm, L of tang 25mm+. A1DB09, RF 333, context 5438, Field 63, Phase 3b. Fig. 231

(**11**) Knife, incomplete, tip missing and tang detatched. Worn parallel sided blade with two crudely incised lines running along the back of one side of the blade, slightly angled-back with cutting edge that appeared to rise to meet the back, but tip was missing. Sloping shoulder, flat tang with trace of incoherent mineral preserved organic material (M. Felter, archive conservation record). Blade L 90mm+, blade max W 15mm, Tang L 42mm, Tang W 7mm. A1DB09, RF 72a, skeleton 5026, Field 63, Phase 3d, found next to spatulate tool no. 14. Fig. 232

(**12**) Knife. Near complete, end of tang was missing. Slender blade, angled-back, straight cutting edge, slight shoulder, flat tang. L of blade 75mm, max W of blade 12mm, L of tang 10mm+. A1DB09, RF 1074, context 5013, Field 63, Phase 5. Fig. 232

(**13**) Knife, blade fragment. Most of blade and tang was missing, straight cutting edge, back-angled towards the tip. L 32mm+, W 11mm, Th at blade back 4mm. A1DB09, RF 1090, context 5019, Field 63, Phase 5. Not illustrated



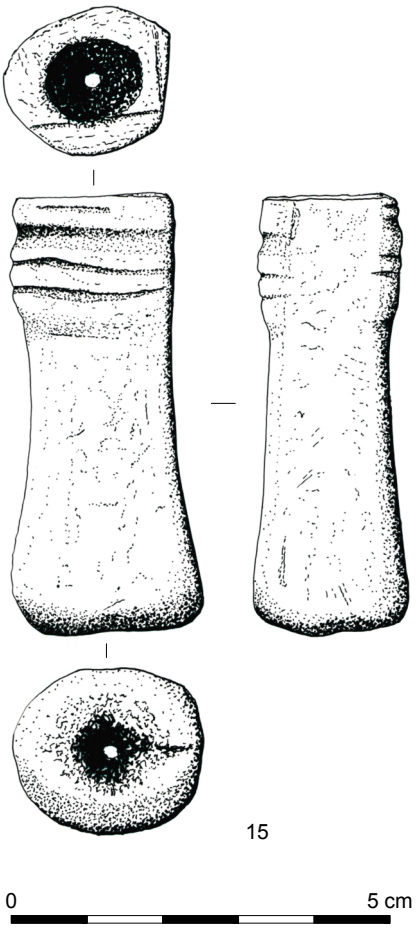


Figure 232: Anglo-Saxon knives, tanged spatulate tool, and tool handle

(**14**) Spatulate blade, rectangular in section, whittle tang central on the blade. Trace of incoherent mineral preserved organic material on the tang (M. Felter, archive conservation record). Blade: L 75mm, W 12mm, Th 3mm; Tang: L 33mm, D 5mm. A1DB09, RF 72b, skeleton 5026, Field 63, Phase 3d, found next to knife no 11. Fig. 232

Tool handle

(**15**) Antler, red deer (L. Gidney, taxa ID), handle. Knife-cut section of antler beam, with light faceting, cut flat at one end and rounded at the other. The object was heavily polished from wear, which together with the preliminary shaping left it waisted with a bulbous terminal. The erosion of the centre of the beam may suggest a whittle-tanged implement projected from the flat-cut end. This end was collared by a circumferential slot of *c*.3.5mm width and 0.5mm depth. After heavy wear, this decorative scheme was apparently reinstated with three or four more crudely knife-cut circumferential lines. The flattening of one side of the handle interrupted the decoration after both had been subjected to prolonged wear and this modification was followed by further use. L 57.7mm, W 25.8mm, Th 21.8mm. Weight 26.0g. A1DB09, context 5084, RF 475, Field 63. Phase 1a. Fig. 232

Hones and whetstones

Lithology Note: *Grains were 'sub-angular to sub-rounded', unless otherwise stated.*

(**16**) Complete hone. Sandstone: pale grey, fine to very fine grained (almost siltstone), with sparse minute black plant debris. North York Moors or coastline Middle Jurassic non-marine formations. Made from a long cobble split length-wise, triangular cross-section with two natural faces. Both ends and length-wise junction of the natural faces were rounded (water-worn). The natural surfaces were worn smooth and each had an incised (40-50mm) long patch of multiple parallel diagonal striations. The cleavage face was also smooth with two shallow parallel grooves (10mm apart) longitudinally placed down the centre of the face flanked on their outside by a hint of parallel sets of shallow pits (*c*.5-10mm apart). One of the rounded ends had an impact scar. The 30° edge between the wider natural face and the cleavage side had two (15-20mm long, 1-3mm deep) shallow notches. L 160mm, max W of natural faces 25mm and 40mm. Weight 190g. A1DB09, RF 763, context 1829, Field 23. Fig. 233

(**17**) Incomplete? hone/whetstone. Sandstone: pale grey, fine grained, with sparse minute muscovite on bedding planes and with siliceous inter-granular matrix, giving the appearance (between bedding planes) of chert. Wensleydale Group, which spanned the Lower to Upper Carboniferous boundary. Tapered rectangular block split parallel to natural bedding plane. Protruding area (20x45x4mm) on 'base', which suggested it fractured irregularly along the bedding plane, and was un-worked. The narrow 'end' appeared more irregular than the opposed broader end, which may indicate that the stone was fractured. Remaining four faces were flat with right angled edges and were sufficiently smooth to suggest that they had been well handled. No unambiguous evidence for any grinding wear. L 80mm, W tapers 35-28mm, Th 20mm. Weight 175g. A1DB10, RF 767, context 8353, Field 61A, Phase 2. Not illustrated

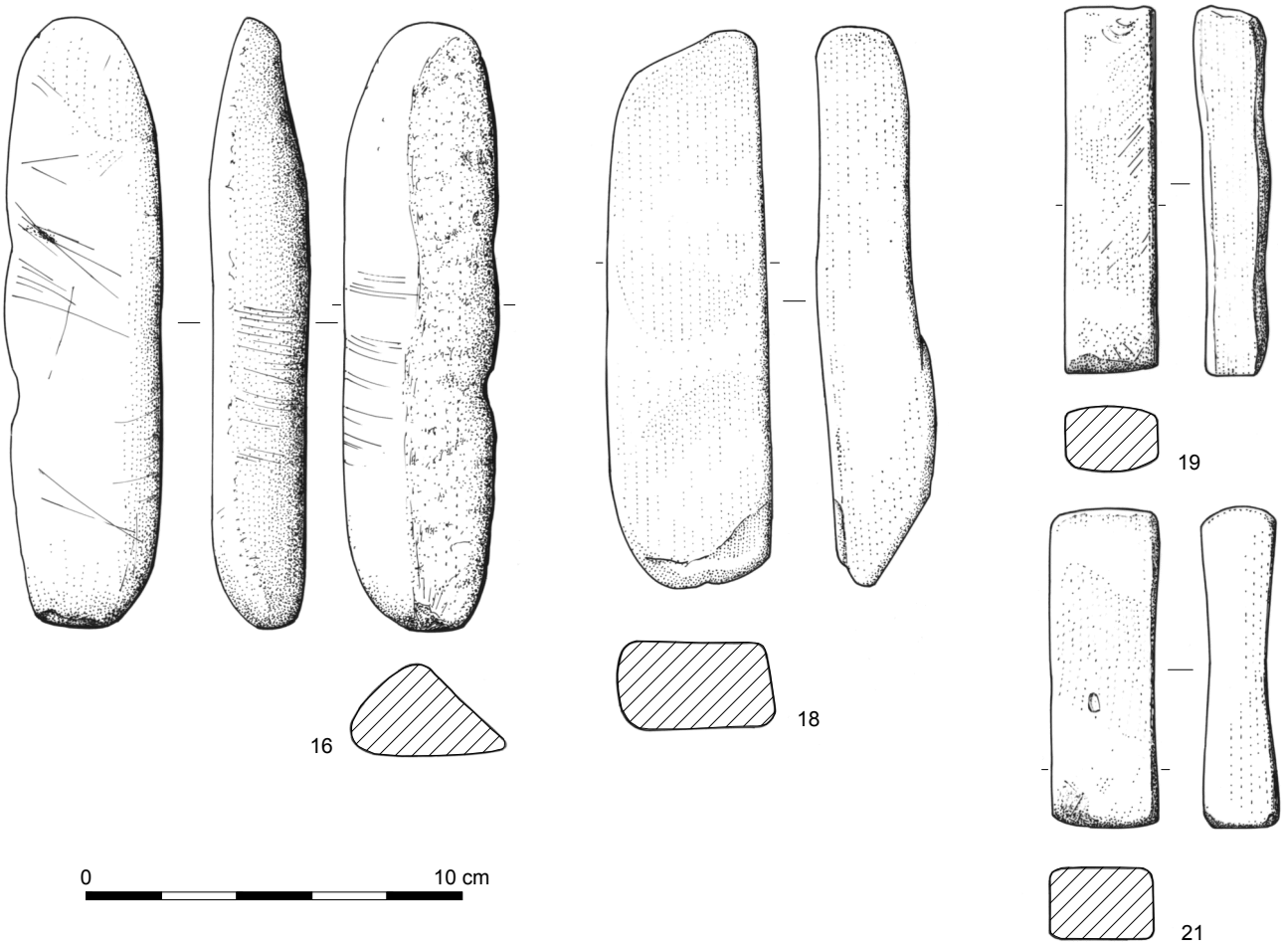


Figure 233: Hones/whetstones

(**18**) Complete hone/whetstone. Sandstone: pale to medium grey, fine grained, fairly well sorted, well compacted, with an appreciable content of dark minerals and/or rock fragments. Probably North Pennines Carboniferous rock, but a Silurian source in the Scottish southern uplands or Cumbria could not be precluded. Long cobble, split along bedding plane, 'working' face was worn slightly convex. Opposed face was well-handled and retained some of its natural rounded surface. At one end 70-90mm of the length was worn flat, at the other end it was worn spatulate. The two thinner sides (25mm) were worn very flat. L 145mm, max W 38mm.Weight 350g. A1DB09, RF 135, context 5019, Field 63, Phase 5. Fig. 233

(**19**) Probably complete hone/whetstone. Sandstone: pale grey, fine grained, well sorted, fairly well compacted, appreciably calcareous. Likely Middle Jurassic marine sandstone, but possibly Wensleydale Group. Rectangular with horizontal parallel smooth sides. In section, the two working surfaces, were symmetrically undulating, with an initial thickness of *c*.16mm, that diminished to 12-13mm, rising to a central section of 15mm, then thinned to 12-13mm and returned to 16mm at the other end. Seen in end-profile, these two working surfaces were both gently convex. Each of the ends were unworked and not 'square', but unlikely to be fractures. L 97mm, W 24mm, Th variable between 12 to 16mm. Weight 90g. A1DB09, RF 136, context 5068, Field 63, Phase 3c. Fig. 233

(**20**) Incomplete hone/whetstone. 'Schistose Grit': medium grey, variably fine to (much less commonly) coarse grained, with subangular quartz grains up to 1mm across within lineated schistose texture. Metamorphic rock (not the Eidsborg Schist or Purple Phyllite) typical of some Scottish Highland rocks, but could have come from nearby parts of continental Europe. Worn 'waist' on all four faces. Intact end was probably originally rounded, but was pitted with impact scars. The fractured end was struck by a sharp point. L >75mm, max W 28mm to min W 24mm, max Th 12mm to min Th 8mm. Weight 60g (estimated intact Weight 90-100g). A1DB09, RF 193, context 5028, Field 63, Phase 3c. Not illustrated

(**21**) Complete small hone. Sandstone-pale grey, fine grained, well sorted, fairly well compacted, with calcareous matrix and with sparse, minute calcareous fossil debris. North Yorks Moors Middle or Upper Jurassic. Smooth, almost parallel sides, slightly rounded ends. In section, the two main working faces were apparent and were worn somewhat asymmetrically concave. L 82mm, W 26mm, max Th 17-18mm, min Th 12-13mm. Weight 100g. A1DB09, RF 265, context 5300, Field 63, Phase 3b. Fig. 233

STRUCTURAL IRONWORK AND LEAD

Gail Drinkall

Introduction

Iron finds from this category were limited in both range and quantity: the majority consisted of nails. Only a small amount of lead in the form of sheet fragments and melt was recovered from stratified contexts, a situation that was likely attributable to it being a valuable commodity and subject to stripping and reuse.

Structural fastenings

Two clench bolts with anchor-shaped heads (no. 1, Fig. 234, and no. 2, not illustrated), the latter with the remains of a rove, came from a Phase 3 midden in Field 62 and a Phase 1 fill of pit 7263 in Field 64. Pit 7263 also contained large quantities of plate hammerscale (section 14.1). T-clamps, such as nos. 3-5 (Fig. 234), were the most frequently encountered items of structural ironwork on sites of this period. They varied in size and had a range of uses, the best known being for attaching tiles, particularly box tiles (Manning 1985, 131-132). All three examples were from Healam: no. 3 from Phase 3c structure 5330, no. 4 from Phase 1a structure 7968, and a possible example from a Phase 3c midden deposit (no. 5).

Loop-headed spikes (nos. 6-8, Fig. 234) were multi-functional. These were found in a Phase 3b ditch fill (no. 6), from the Phase 1d alluvial silt overlying the southern edge of the yard surface associated with structure 5009 (no. 7), and Phase 1c layer 5035 (no.8).

A piece of ferrous sheet (no. 9, not illustrated) resembled a cleat, but was somewhat larger than most examples (cf. Manning 1985, 131 with pl. 61, R54–9).

The majority of the iron objects retrieved during the most recent phase of work consisted of nails, with a total of 183 recovered from stratified contexts in all areas. Although most were highly corroded, it was possible to determine that those of Manning's Type 1b (Manning 1985, 134, fig. 32) with flat sub-rectangular or rounded heads dominated the assemblage. This was to be expected given that the vast majority of nails from Roman sites fall into one of two types, with Type 1 being the most common (Manning 1985, 134). Only one Type 2 nail, with a triangular head and marked shoulders, was identified in the assemblage (no. 16, Fig. 234). Five nails or studs (nos. 10-14, Fig. 234) with large heads, either square or roughly circular, and short shanks were unusual and it was uncertain what function they could have performed. Thirty-six nails (nos. 15-28) were associated with structures (5729, 7951, 6949, 5009, and 5330). Only these nails and those contained within features, such as ditch fills (nos. 39-33) and a grave fill (no. 34), were included in the publication catalogue. The nature of the contexts from which they derived appear at the end of each entry.

A group of 8 Type 1b nails (no. 34) was recovered from the fill of grave 7301. Two were recorded at the foot end, two at the head, and one each on either side of the inhumation, approximately mid-way along the large rectangular grave. All the nails had traces of mineralised wood with the grain running transversely across the shanks. This was identified as oak (*Quercus* sp.) on three examples (J. Jones, archive conservation record). This was the only burial that had conclusive evidence for interment in a coffin. The individual was aged between 10 and 11 years, but the sex could not be determined and osteological analysis of the skeleton revealed that it may have suffered from Trisomy 21 (Down's syndrome, section 7.1, Volume 1).

Lead strips and melt

A sheet strip folded lengthways was recovered from the fill of corn dryer 5413 (no. 35). Nos. 36 and 37 were sheet repair patches (Fig. 234). No. 36 had one original curved edge with a single perforation and came from structure 6949. No. 37, with an original curved edge and three perforations, two of which had in situ iron nail heads, was found in the alluvial silt overlying the southern edge of the yard surface associated with structure 5009. Seven other sheet strips came from a Phase 1d context associated with structure 5009 (no. 38, Fig. 234), Phase 1c dumped deposit of residual occupation debris from structure 7951 (nos. 39 and 40), a Phase 1 ditch fill and a

Phase 3 spread in Field 62 (nos. 41 and 42), from Phase 3b fill of ditch 5044 (no. 43), and from the fill of grave cut 5020 in Field 63 (no. 44).

Accidental burning or melting down lead for recycling was an activity represented by the presence of lead melt in the following contexts: no. 45 from a peat layer, no. 46 in a dumped deposit of residual occupation debris from structure 7951, no. 47 from the cobbled surface associated with structure 7951, no. 48 from the midden deposit to the north of and overlying structure 5009, and no. 49 from the fill of ditch 5070.

Catalogue

All were iron unless stated otherwise. Measurements were taken from X-ray plates where items were not been cleaned or conserved.

Measurement abbreviations: *L-length; W-width; Th-thickness; D-diameter*

Structural fastenings

(**1**) Clench bolt with anchor shaped head, complete, and rove fragment. L 55mm, W of arms 39mm, D of head 12mm. A1DB09, RF 1081, context 2466, Field 62, Phase 3. Fig. 234

(**2**) Clench bolt with anchor shaped head, incomplete stem. L of stem 22mm+, W of arms 63mm. A1DB09, RF 1119, context 6846, Field 64, Phase 1. Not illustrated

(**3**) T-staple, complete. L 155mm. A1DB09, RF 343, context 5632, structure 5330, Field 63, Phase 3c. Fig. 234

(**4**) T-staple, part of shank missing. L 45mm+, L of arms 35mm. A1DB09, RF 1144, context 7906, Field 63, Phase 1a. Not illustrated

(**5**) Possible T-staple, complete. Square-sectioned stem with thick T-shaped head. L 160mm, stem 9x9mm, arms L 44mm, W 20mm. A1DB09, RF 259, context 5028, Field 63, Phase 3c. Not illustrated

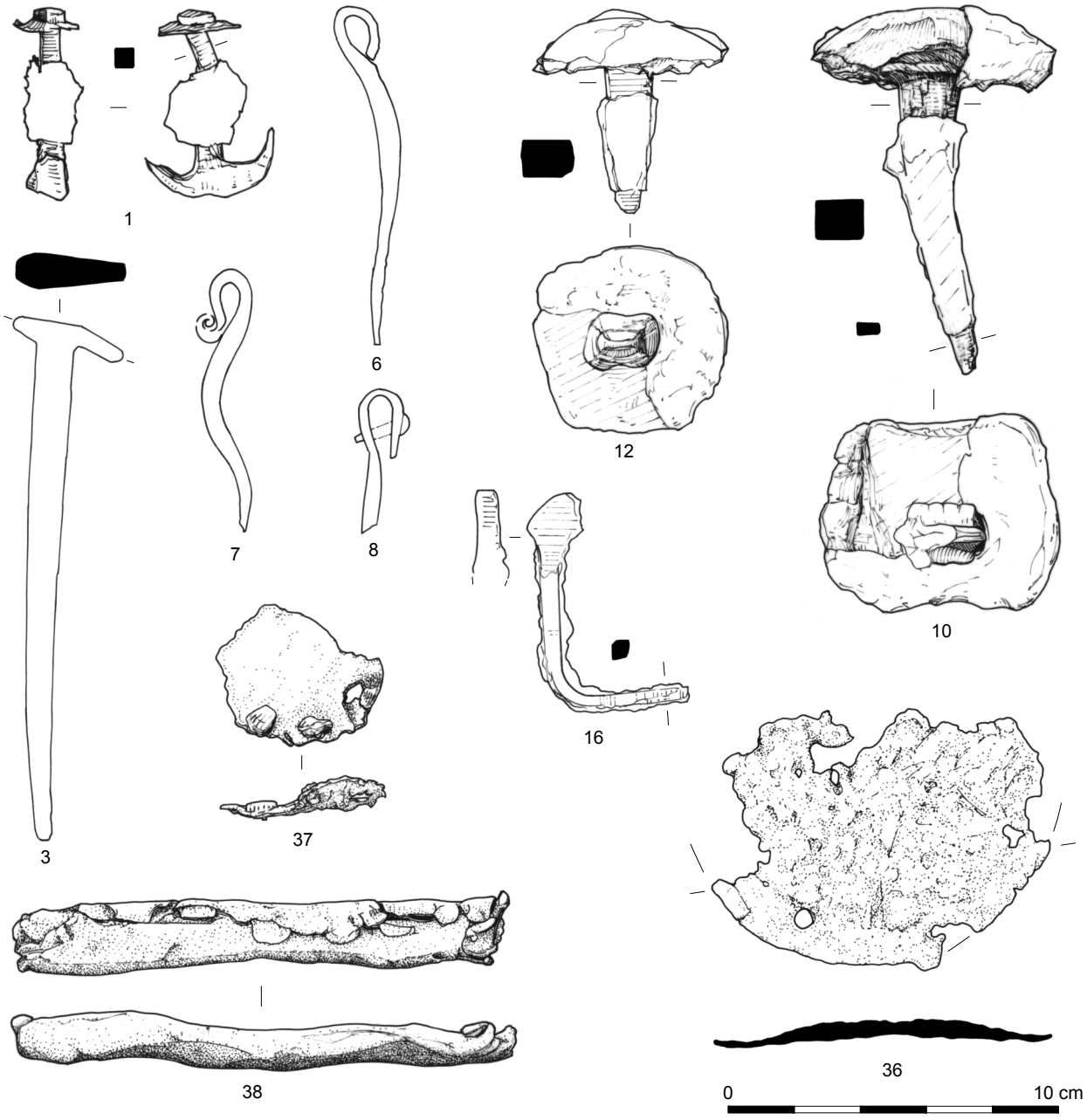


Figure 234: Structural fastenings and lead sheet

(**6**) Ring headed spike, complete. L 100mm, D of head 12mm. A1DB09, RF 116, context 5031, Field 63, Phase 3b. Fig. 234

(**7**) Loop-headed spike, tip missing. Tapering rod with terminal bent over to form a loop. Details from X-ray only. L 80mm, Th of shank 5mm, external W of head 13mm. A1DB09, RF 1142, context 5121, Field 63, Phase 1d. Fig. 234

(**8**) Loop-headed fitting, incomplete. Complete end of shank has a loop formed out of the bar that was drawn out and folded over. Details from X-ray only. L 43mm+, Th of shank 5mm. A1DB09, RF 1141, context 5035, Field 63, Phase 1c. Fig. 234

(**9**) A piece of ferrous sheet, tapered at both ends and turned up at one end. L 67mm, W 20mm, H 9mm. A1DB10, RF 1117, context 8035, Field 61A, Phase 3ii. Not illustrated

Nails/studs

(**10**) Nail, complete. Rectangular-sectioned shank with massive rectangular head, domed. L 114mm, shank 17x12mm narrowing to 8x3mm, head 67x53mm. A1DB09, RF 1082, context 3113, Field 35. Fig. 234

(**11**) Nail, incomplete. Square-sectioned shank, mostly missing. Massive square head, domed. L of shank 15mm+, W 15x15mm, head 65x65mm. A1DB09, RF 672, context 9036, Field 63, Phase 1. Not illustrated

(**12**) Nail, complete. Rectangular-sectioned shank with massive square head, domed. L 60mm, shank 15x12mm narrowing to 7x5mm, head 51x53mm. A1DB09, RF 1078, context 5001, Field 63, Phase 5. Fig. 234

(**13**) Nail, part of shank missing. Rectangular-sectioned shank with massive square head, details obscured by corrosion, domed. L of shank 70mm, D of head *c*.54mm. A1DB09, RF 1140, context 9069, Field 63, Phase 2. Not illustrated

(**14**) Nail, complete. Rectangular-sectioned shank with massive roughly circular head, details obscured by corrosion, domed. L of shank 20mm+, D of head 50mm. A1DB09, RF 1139, context 9038, Field 63, Phase 3. Not illustrated

Nails associated with structures

(**15**) Nail, complete. Thin, rectangular-sectioned shank, large flat head. Detail obscured by corrosion products. L 85mm, Shank 5x10mm, head W 55mm. A1DB09, RF 1134, context 9083, fill of post-pipe 7453, structure 5729, Field 64, Phase 1. Not illustrated

(**16**) Manning Type 2, triangular headed nail, tip missing, rectangular shank. L 100mm+, W 6mm, Th 5mm; W of head 15mm. A1DB09, RF 1137, context 7461, fill of post-pipe 7453, structure 5729, Field 64, Phase 1. Fig. 234

(**17**) Manning Type 1b, complete. Substantial nail with flattened or flat head, heavily corroded. Rectangular-sectioned shank. L 110mm, shank 6x7mm, W of head 25mm. A1DB09, context 7011, structure 7951, Field 63, Phase 1b. Not illustrated

(**18**) Manning Type 1b, complete. Flat roughly circular head, heavily corroded. L 52mm, shank W 5mm, D of head 22mm. A1DB09, context 7120, structure 7951, Field 63, Phase 1b. Not illustrated

(**19**) Manning Type 1b, three complete and four with tips missing. Flat roughly circular heads, shanks square in section where visible, heavily corroded. L 65mm, 55mm, 35mm; shanks 4x4mm, 5x5mm. D of heads 10-16mm. A1DB09, context 7296, collapsed wall, structure 7951, Field 63, Phase 1b. Not illustrated

(**20**) Manning Type 1b, one complete substantial nail with battered head and two complete with small flat heads, all heavily corroded. Spalling of corrosion products revealed square-sectioned shanks. L 125mm, shank 8x8mm, W of head 22mm, smaller nails L 66 and 42mm, W of heads 12mm, shanks 7x7mm. A1DB09, context 7473, structure 7951, Field 63, Phase 1b. Not illustrated

(**21**) Manning Type 1b, two near complete. One with indistinct head, the other with flat circular head partly missing, square-sectioned shanks. L 70mm, shank 5x5mm, D of head 22mm; L 52mm, W of shank 5mm. A1DB09, context 6763, cobbled surface, structure 7951, Field 63, Phase 1b. Not illustrated

(**22**) Group of nail fragments: one complete and one near complete, but heavily corroded nails. One tip, two shanks. L of complete and near complete nails 35 and 32mm+. A1DB09, RF 423, context 6763, cobbled surface, structure 7951, Field 63, Phase 1b. Not illustrated

(**23**) Manning Type 1b, two complete and two with tips missing. Flat circular heads, square-sectioned shanks. L 95mm, 50mm, 60mm+, 35mm+, D of heads 20mm, 12mm, 20mm, 15mm. A1DB09, context 5596, spread within structure 6949, Field 63, Phase 1c. Not illustrated

(**24**) Manning Type 1b, two complete. Flat circular heads, square-sectioned shanks. L 60mm, 35mm, D of heads 10mm. A1DB09, context 6764, structure 6949, Field 63, Phase 1c. Not illustrated

(**25**) Manning Type 1b, three near complete with circular flat head, square-sectioned shank. L 42mm, 25mm+ and 15mm+, D of heads 10-15mm. A1DB09, context 5121, structure 5009, Field 63, Phase 1d. Not illustrated

(**26**) Manning Type 1b, three complete, roughly circular flat heads, details obscured by corrosion products. L 45mm, 30mm and 29mm, D of heads 15-17mm. A1DB09, context 5251, structure 5009, Field 63, Phase 1d. Not illustrated

(**27**) Manning Type 1b, complete nail with flat head, details obscured by corrosion products. L 70mm, D of head 15mm. A1DB09, context 5253, structure 5009, Field 63, Phase 1d. Not illustrated

(**28**) Nails, one complete and one shank, details obscured by corrosion products. L 45mm, 50mm+, W of head 10mm. A1DB09, context 5632, demolition over kiln 5330, Field 63, Phase 3c. Not illustrated

Nails associated with other features

(**29**) Manning Type 1, circular flat head, square sectioned shank. L 170mm, W 6mm, Th 6 mm, D of head 18mm. A1DB09, RF 115, context 5031, fill of ditch 5044, group no. 7958, Field 63, Phase 3b. Not illustrated

(**30**) Manning Type 1, circular flat head, square-sectioned shank. L 77mm, W 4mm, Th 4mm, D of head 20mm. A1DB09, RF 425, context 7130, fill of ditch 7131, Field 64, Phase 1. Not illustrated

(**31**) Manning Type 1, sub-rectangular flat head, square-sectioned shank, tip missing. L 71mm+, W 5mm, Th

5mm, W of head 25mm. A1DB09, RF 426, context 7132, fill of ditch 7044, Field 64, Phase 1. Not illustrated

(**32**) Timber nail. Near complete, part of head missing. Rectangular-sectioned shank. Measurements from x-ray. L 130mm. A1DB09, RF 43.1, context 1741, fill of ditch 1714, Field 25, Phase 2. Not illustrated

(**33**) Timber nail. Near complete, two joining fragments. Form of head was indistinct, but only slightly wider than shank. Measurements from X-ray. L 103mm. A1DB09 RF 43.2, context 1741, fill of ditch 1714, Field 25, Phase 2. Not illustrated

Nails associated with grave fills

(**34**) Two complete and four near complete flat-headed nails (Manning Type 1b), the latter with mineralised wood with grain running transversely across the shanks, and two nail shanks. Corrosion product masked detail. L of complete nails 60 and 74mm. A1DB09, RFs 465, 473, 474, 476, context 7302, skeleton 7303, Field 63, Phase 1c. Not illustrated

Lead strips and melt

(**35**) Sheet strip, folded in two along its length. L 38mm+, W 16mm+, sheet Th 1mm. Weight 6g. A1DB09, RF 286, context 5423, fill of corn dryer 5413, Field 63, Phase 1a. Not illustrated

(**36**) Sheet repair patch with one original curved edge with single perforation. L 100mm+, W 75mm+, Th 5mm. Weight 166g. A1DB09, RF 443, context 7158, structure 6949, Field 63, Phase 1c. Fig. 234

(**37**) Sheet repair patch with one original curved edge, three perforations, two with in situ iron nail heads. L 46mm+, W 38mm+, Th 2mm. Weight 24g. A1DB09, RF 195, context 5121, structure 5009, Field 63, Phase 1d. Fig. 234

(**38**) Lead sheet with uneven edges, rolled into a long flattened strip, broken and folded at one end, the other end cut. L 145mm+, W 19mm, Th 11mm. Weight 194g. A1DB09, RF 317, context 5042, midden deposit to the north of and overlying structure 5009, Field 63, Phase 1d. Fig. 234

(**39**) Cut sheet fragment, irregular strip, folded. Original L *c.*130mm, but L 40mm as folded, W 30-40mm, sheet Th 1mm, folded Th 9mm. Weight 45g. A1DB09, RF 471, context 6924, dumped deposit residual occupation debris from structure 7951, Field 63, Phase 1c. Not illustrated

(**40**) Cut sheet strip, incomplete at both ends. L 30mm+, W 8mm, Th 4mm. Weight 7g. A1DB09, RF 470, context 6924, dumped deposit residual occupation debris from structure 7951, Field 63, Phase 1c. Not illustrated

(**41**) Sheet strip, folded in half, punched central perforation at one end. Original L 71mm+, W 19mm+, sheet Th 2mm. Weight 13g. A1DB09, RF 288, context 2782, fill of ditch 2781, Field 62, Phase 1. Not illustrated

(**42**) Cut sheet strip, folded in two. L 51mm+, W 24mm, sheet Th 2mm, folded Th 8mm. Weight 24g. A1DB09, context 5031, Field 63, Phase 3b. Not illustrated

(**43**) Strip, folded, irregular edges, three perforations along curved edge, one fragment now detached, with perforation. L 30mm+, W 25mm+, sheet Th 1mm. Weight 8g. A1DB09, RF 212, context 2466, spread, Field 62, Phase 3. Not illustrated

(**44**) Sheet strip with irregular edges, folded in two. L 95mm+, W 20-82mm, folded Th 13mm. Weight 114g. A1DB09, RF 117, context 5021, fill of grave cut 5020, Field 63, Phase 4. Not illustrated

(**45**) Melt. L 12mm, W 12mm, Th 6mm. Weight 3g. A1DB09, RF 391, context 5201, Peat layer, Field 63, Phase 1a. Not illustrated

(**46**) Melt. L 25mm, W 9mm, Th 11mm. Weight 9g. A1DB09, RF 455, context 6924, dumped deposit residual occupation debris from structure 7951, Field 63, Phase 1c. Not illustrated

(**47**) Melt. L 26mm, W 10mm, Th 4mm. Weight 5g. A1DB09, RF 459, context 6923, cobbled surface, structure 7951, Field 63, Phase 1c. Not illustrated

(**48**) Melt. L 45mm, W 13mm, Th 7mm. Weight 15g. A1DB09, context 5042, midden deposit to the north of and overlying structure 5009, Field 63, Phase 1d. Not illustrated

(**49**) Melt. L 29mm, W 11mm, Th 5mm. Weight 9g. A1DB09, RF 359, context 5071, fill of ditch 5070, Field 63, Phase 1c. Not illustrated

TRANSPORT AND RELATED FINDS

Gail Drinkall with a contribution from Martin Foreman

Introduction

Other than those described under military equipment above (Section 11.3), only two items relating to transport, a bone cheek piece and a linch pin could be ascribed to Roman contexts. Although analysis of the faunal remains suggested that equids were present and were probably used as baggage or pack animals (section 8.2, Volume 1), none of the eleven horseshoes recovered derived from secure Roman contexts. In addition, they were either too fragmentary to have any chronologically diagnostic features, or were typically medieval or post-medieval in type. Horseshoe nails, other than those found in situ, were absent.

Bone cheek piece

Martin Foreman

This cheek piece (no. 1, Fig. 235) was made from a large mammal limb bone (L. Gidney *pers. comm.*). A sub-cylindrical shaft employed the natural shape of the bone. Cancellous tissue was smoothed on the interior for the first 20mm, which formed a flat and polished end. The smoothed edge of a slot occurred 24mm from the flat end and extended for the remaining length of the shaft. This feature suggested an identification as a cheek piece for attachment to a bridle bit. Both sides were split and there was a ragged, chipped, and probably recent mid-shaft break.

Decoration comprised an open grid of longitudinal and circumferential single saw-cut lines that defined square or rectangular fields. At the flattened end, square fields were alternately left blank or filled by groups of short closely-spaced lines. A rectangular compartment closer to the mid-section of the original object, contained two sets of lines arranged in a chevron pattern, again

flanked by blank panels. Slight irregularity in the spacing of adjacent saw-cut lines, which were between 1mm and 2mm apart, suggested a single bladed saw was used. The finish of the object was neat, although odd cuts strayed over the boundary lines.

The object was smooth overall with light surface gloss around the slot. The decoration was subjected to differential wear and was almost smoothed away in one panel square, although detail in the neighbouring squares remained crisp. This wear was close to the slotted split edge, so the object failed at a point of wear and stress.

Cheek pieces were identified from excavations of prehistoric sites in southern England (St George Gray 1966, 328-36). A bone or antler cheek piece was suggested to represent a native element of Romano-British assemblages from Aldborough, North Yorkshire (Bishop 1996, 6, fig. 3 no. 4) and an antler example came from South Shields Roman Fort (Allason-Jones and Miket 1984, 35, no. 2.5). One from Shiptonthorpe, East Riding of Yorkshire was dated to the 2nd century AD and was decorated with a ring-and-dot motif (Allason-Jones 2006, 235, illus. 10.6 no. 185).

Linchpin

A linchpin (no. 2, Fig. 235) was found associated with structure 7951. This example was an uncommon form, but although rare, it was not unique. Examples were known from Castell Collen, Radnorshire and from German forts at Zugmantel and Famingen (Manning in Britnell *et al.* 1999, 66-67). The hook would have held the lower end of a cord that passed through the loop on the head and around the hub to prevent the pin being jolted out of the wheel (*op. cit.*, 66, no. 5).

Horseshoes

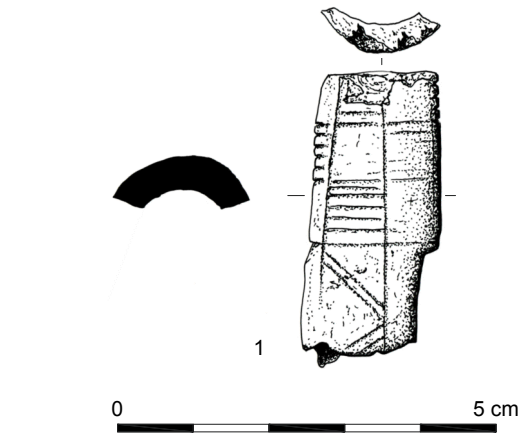
As mentioned, none of the shoes were from secure Roman contexts. In Field 35 context 3113 was a cobbled surface, but probably not secure and the horseshoes all appeared to be of post-medieval or later manufacture (nos. 3-5). In Field 63 context 9159 was a Phase 3 (late) Roman road, but there was a clay tobacco pipe-stem in the assemblage. The horseshoes were medieval (no. 6) of Clark's (1995, 86-7) Type 3 category, post-medieval (no. 7), or fragmentary (nos. 8 and 9). In the same field (context 9038) was another Phase 3 (late) Roman road. The assemblage included a coin dated to 1850-1952 and two later medieval Type 4 horseshoes (nos. 10 and 11) and one possible Type 4 (no. 12). Finally, a fragmentary horseshoe (no. 13) came from context 5207 in Field 63, which was a Phase 3c layer that was not secure, as it lay immediately below the post-medieval subsoils.

Debate continues regarding Roman horseshoes, as none have been found in convincingly stratified Roman contexts (Crummy 2011, 61), though some examples from Carlisle were considered to be from Roman deposits (Howard-Davis 2009, 753). The temporary horseshoe, or hipposandal, was a Roman introduction that appeared to have been in use by the late 1st or early 2nd century AD (Manning 1985, 63). None were recovered during any of the works carried out for the scheme.

Catalogue

Measurement abbreviations: *L-length; W-width; Th-thickness; D-diameter*

(**1**) Bridle cheek piece made from a large mammal limb bone (L. Gidney *pers. comm.*). L 39.5mm, W 17.7mm, Th



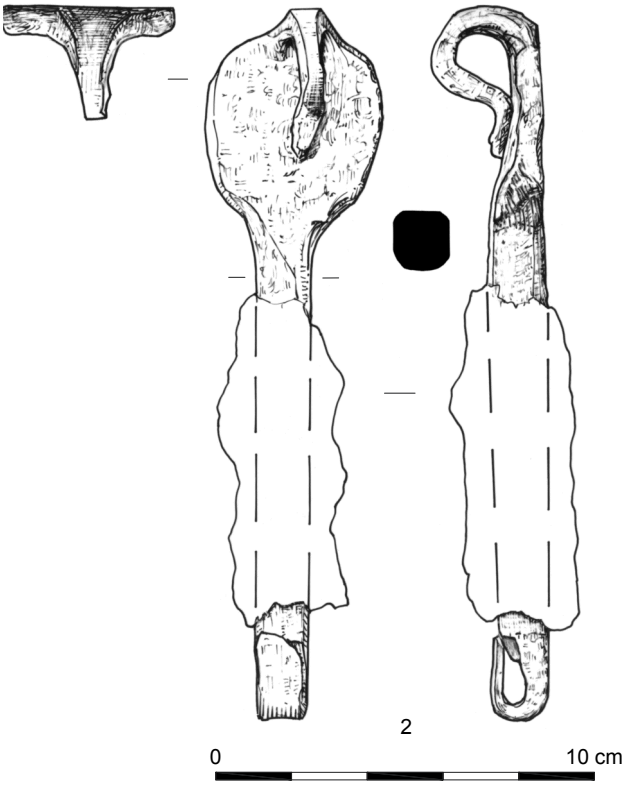


Figure 235: Cheekpiece and linchpin

6.1mm, estimated D of shaft: in excess of 25mm. Weight: 4.6g. A1DB09, RF 355, context 5950, Field 63, Phase 1d. Fig. 235

(**2**) Linch pin, complete. Flat, roughly oval head with straight sides and a loop that curved down from the top of the head, where it met the face. Bottom of the stem was thinned and bent over to form a hook. L 180mm, W of head 45mm, Th of head 7mm, W of stem 15mm, Th of stem 15mm. A1DB09, RF 1108, context 7473, Field 63, Phase 1b. Fig. 235

(**3**) Horseshoe, complete. Narrow webs with smooth profile, fuller with three rectangular nail holes along each branch, four nails in situ, two with rectangular heads, feathered heel. Overall W 116mm, L from toe to heel 112mm, max W of web 22mm. A1DB09, RF 1098, context 3113, Field 35. Not illustrated

(**4**) Horseshoe, complete. Small shoe, narrow webs with smooth profile, three rectangular nail holes on each branch that tapered inwards and lay in a slight channel. Possible remains of fuller running around the shoe, one nail shank in situ. Overall W 100mm, L from toe to heel 115mm, max W of web 27mm. A1DB09, RF 1097, context 3113, Field 35. Not illustrated

(**5**) Horseshoe branch fragment with smooth profile. Remains of three rectangular nail holes within a slight fuller, intact end had rounded terminal. L 137mm+, max W of web 30mm. A1DB09, RF 1100, context 3113, Field 35. Not illustrated

(**6**) Type 3 horseshoe, complete. Broad webs with smooth profile, rectangular nail holes that tapered inwards, four on each branch. Eight nails in situ protruded with large square heads, were cleaned to reveal detail, right-angled calkin. Overall W 120mm, L from toe to heel 130mm, max W of web 36mm. A1DB09, RF 692, context 9159, Field 63, Phase 3. Not illustrated

(**7**) Horseshoe branch, smooth profile. Three counter-sunk rectangular nail holes had been set within fuller. L 100mm+, W 32mm. A1DB09, RF 697, context 9159, Field 63, Phase 3. Not illustrated

(**8**) Horseshoe branch fragment, highly corroded. Remains of three rectangular nail holes with tapered profiles. Overall W 90mm+, max W of web 23mm+. A1DB09, RF 693a, context 9159, Field 63, Phase 3. Not illustrated

(**9**) Horseshoe branch fragment, highly corroded. Remains of two rectangular nail holes with tapered profiles, intact end had a rounded terminal. L 73mm+, max W of web 25mm+. A1DB09, RF 693b, context 9159, Field 63, Phase 3. Not illustrated

(**10**) Type 4 horseshoe, near complete. Small shoe with broad webs, smooth profile, uneven branches, one incomplete. Punched rectangular nail holes, not counter-sunk, three on each branch. Four nails in situ, protruding with large square expanded heads. Branch of a second horseshoe was fused to this one. Overall W 100mm, L from toe to heel 110mm, max W of web 30mm and 25mm. A1DB09, RF 675, context 9038, Field 63, Phase 3. Not illustrated

(**11**) Type 4 horseshoe branch. Narrow web with three rectangular nail holes, not counter-sunk. In situ nail with expanded rectangular head. L 110mm+, max W 22mm. A1DB09, RF 1107, context 9038, Field 63. Phase 3.

(**12**) Horseshoe branch fragment, smooth profile. Broad web with remains of two large rectangular nail holes, not counter-sunk, right-angled calkin. L 91mm+, max W of web 34mm. A1DB09, RF 1106, context 9038, Field 63, Phase 3. Not illustrated

(**13**) Horseshoe branch fragment, smooth profile. Remains of three rectangular nail holes with two in situ expanded square-headed nails. Intact end had rounded terminal. L 85mm+, max W of web 26mm. A1DB09, RF 269, context 5207, Field 63, Phase 3c. Not illustrate.

MISCELLANEOUS ITEMS

Gail Drinkall

Finds in this category include those that could not be assigned to any of the preceding categories.

Counters

Two reworked samian discs (nos. 1 and 2, not illustrated), a reworked sherd of Crambeck grey ware (no. 3, not illustrated), one lathe-turned bone counter (no. 4, Fig. 236), and the trimmed base of a small white ware vessel (no. 5) were found at Healam. The samian counters were from a late 2nd-century AD deposit in Field 63 (no. 1) and a late 3rd to 4th-century AD fill of ditch 2140 in Field 62 (no. 2). They were identified by Gwladys Monteil. The broken grey ware counter (no. 3) was from the Phase 3ii tertiary fill of ditch 8036. The bone counter (no. 4) was recovered from the make-up of a wall overlying the northern edge of a stone floor surface associated with structure 7951, which dated to the mid- to late 2nd century AD. Thin discs of stone, pottery, bone, and glass have often, but not exclusively, been interpreted as gaming counters. Alternative uses, such as gambling tokens and accounting discs, have been postulated (Allason-Jones 2011). Discs of various materials were found at excavations in Colchester from a range of contexts and were generally described as counters for board games (Crummy 1983, 91-96). At Catterick, 77 discs of pottery, bone, glass, jet/shale, and tile were also discussed as counters, though the possibility of larger examples serving different functions was noted (Cool 2002, 39, table 107). At both Colchester and Catterick there were no obvious chronological or spatial concentrations, which suggested that playing board games was common (*op. cit.* 39). In addition there were no chronological biases between bone and samian counters at Catterick.

Copper alloy items

A miniature copper alloy adze (no. 6, Fig. 236) was found during fieldwalking in Field 61. It appeared to have been deliberately made to look like a wooden artefact with carpentry marks along the head and haft. This may be due to the function of an adze (M. Aldhouse-Green *pers. comm.*). Although models were widespread and common finds in both military and civilian areas (Green 1978, 32; cf. Kiernan 2009), the adze form was unusual. Close parallels consisted of a silver pin with its head in the form of an adze from Corbridge (Green *op. cit.*, pl. 123) and a lead adze-hammer from Chester (Green 1981, 253-270). The best parallel, however, was an adze-hammer from a hoard of model objects from an unprovenanced site in Sussex (Green 1975, 65, 70, fig. 52c).

A complete cast tapered point of copper alloy (no. 7, Fig. 236), possibly a tool or implement, but of unknown function, was found in a late 3rd to 4th-century AD layer over road 9159/9099. A short length of copper alloy chain (no. 8, Fig. 236) with the last link encircled around the remnants of an iron object was found in a midden deposit of the late 3rd to 4th century AD. Again, the purpose it served was not known. The iron object was unidentifiable, though its curvature suggested that it had been a larger iron ring or link. Iron rings were frequently used in conjunction with lighter chains (Manning 1986, 140). A thin copper alloy sheet lobate mount or binding (no. 9, Fig. 236) came from a layer dated to the late 1st to mid-2nd century AD, in the vicinity of structure 7968. No parallels were found for this object. Another possible binding, consisted of a sub-circular rod (no. 10, not illustrated) that resembled a shield reinforcing rib. These, however, were invariably rectangular or D-shaped in section, since they had to rest against the shield board, whereas this item had a near circular profile. It derived from the fill of ditch 5281 dated to the late 4th to 5th century AD, but with residual material of the 2nd to 3rd century AD also present. Three fragmentary strips of sheet copper alloy (nos. 11-13, not illustrated) came from

a Phase 1 gully, a Phase 1b cobble surface, and a Phase 2 layer. Punched perforations were present on nos. 12 and 13, These appeared to be for attachment, rather than decoration. A short piece of wire (no. 14, not illustrated) came from the same context as no. 11.

Iron items

Two conical ferrules, one complete (no. 15, Fig. 236) and one fragmentary (no. 16, not illustrated), came from Phase 1c and Phase 1 deposits in Fields 63 and 61 respectively. This type was particularly common on military sites where it was assumed that they protected spear butts, however, their presence on civilian sites suggested this was not their sole purpose (Manning 1986, 140). No parallel was found for a wooden-hafted implement (no. 17, Fig. 236) with bifurcated and turned-down projection. Its use as a tent peg or tether was dismissed on typological grounds (M Bishop *pers. comm.*). It came from a Phase 3c midden deposit that contained a varied assemblage of material dated from the 2nd century AD through to the post-medieval period. A hooked fitting (no. 18, Fig. 236) with an incomplete plate came from Phase 1 ditch 5954 and a larger hook (no. 19, Fig. 236) with an attachment plate was found in a late 4th to 5th-century AD cobbled surface in Field 64. The blunt knob at the tip of the hook suggested that whatever was hung from it needed protection from the damage that would have been caused by a sharp point. Similar examples were known from Roman contexts in London and Hod Hill, Dorset (Manning 1986, 129, pl. 59, R23 and R25). Phase 1d of building 5009 yielded an angled fitting (no. 20, Fig. 236), a distorted flat strip (no. 21, not illustrated), and two incomplete bars with D-shaped sections (nos. 22 and 23, not illustrated). Bar fragments of uncertain function (nos. 24 and 25, not illustrated) also came from Phase 3 deposits in Fields 63 and 61. An incomplete strap fitting (no. 26, Fig. 236) came from a Phase 3c midden deposit 5018. Plate fragment no. 27 (Fig. 236) from a Phase 3 spread in Field 62 remained unidentified. A possible handle fragment (no. 28, Fig. 236) was found in pit fill 1072 in Field 25.

Catalogue

Measurement abbreviations: *L-length;W-width; Th-thickness; H-height; D-diameter*

Counters

(**1**) South Gaulish Dr. 37 reworked as a small counter. Little of the decoration remained, a basal wreath of S-shaped gadroons and the feet of a putto. Max W 18mm, max H 21mm. A1DB09, context 5960, Field 63, Phase 1d. Not illustrated

(**2**) Central Gaulish Dr. 37 possibly reworked as a counter with the head of Diana and deer (Os.106) visible. Max W 33mm, max H 27mm. A1DB09, RF 57, context 2141, Field 62, Phase 3. Not illustrated

(**3**) Uncertain counter. Crambeck grey ware, ground edges, incomplete off-centre perforation *c*.2mm in diameter, counter broken possibly as a result of drilling perforation. D 44mm, Th 9mm. A1DB10, context 8132, Field 61A, Phase 3ii. Not illustrated

(**4**) Bone gaming piece. Circular with chamfered edge. Central indentation on one face from lathe. D 16mm, H 4mm. A1DB09, RF 437, context 7120, Field 63, Phase 1b. Fig. 236

(**5**) Small white ware base worked into a roundel or counter. D 33mm, H 7mm. A1DB09, RF 134, context 5038, Field 63, Phase 3A. Not illustrated

Copper alloy items

(**6**) Miniature adze, complete. Round-sectioned stem tapered to a point that was square in section, skeuomorphic carpentry marks. L 66mm, D of stem 5mm, W of head 22mm. A1DB, context 763, Field 61, fieldwalking. Fig. 236

(**7**) Copper alloy spike, complete. Flat wide terminal, rectangular-section that tapered to a point. L 45mm, W 8-3mm, Th 5-3mm. A1DB09, RF 800, context 9160, Field 63, Phase 3. Fig. 236

(**8**) Chain links, copper alloy. Fragment that consisted of 8 links of double U-shape and folded at mid-line. Copper alloy wire looped around a strip of iron and twisted around the last link. Iron strip was round in section and slightly curved. L 47mm, D of links 8mm, D of wire forming links 2mm. Iron strip L 12mm, D 3mm. A1DB09, RF 132, context 2370, Field 62, Phase 3. Fig. 236

(**9**) Copper alloy, decorative strip. Possible mount or binding. Thin sheet with two decorative lobes along one edge. L 38mm+, W 16mm, Th 0.4mm. A1DB09, RF 523, context 7834, Field 63, Phase 1a. Fig. 236

(**10**) Possible binding. Part of a sub-circular-sectioned rod with an ovoid terminal pierced by a square opening. L 133mm, terminal W 23mm, Terminal Th 2mm, D 8mm. A1DB09, RF 1092, context 5277, Field 63, Phase 3b. Not illustrated

(**11**) Copper alloy strip, fragment. Slightly tapering and rectangular in section. L 11mm, W 2mm, Th 2mm. A1DB09, RF 687, context 9083, Field 64, Phase 1. Not illustrated

(**12**) Copper alloy sheet fragment. Irregular cut edges, two incomplete square punched perforations. L 30mm+, W 22mm+, Th 1mm, perforations 7x8mm and 9x5mm+. A1DB09, RF 374, context 6762, Field 63, Phase 1b. Not illustrated

(**13**) Copper alloy flat strip. Incomplete, circular perforation at complete end. L 43mm+, W 6mm, Th 1mm. A1DB10, RF 660, context 8386, Field 61A, Phase 2. Not illustrated

(**14**) Copper alloy wire, fragment. L 10mm+, D 1mm. A1DB09, RF 688, context 9083, Field 64, Phase 1. Not illustrated

Iron items

(**15**) Conical ferrule maximum 95mm long, circular, and tapered in section, 34mm diameter. The ferrule was penannular for *c*.50% of its length and had a rounded end. The surface was very highly corroded and degraded and had deep longitudinal fissures. Intense reddening of the corrosion products in places indicated burning. The ferrule had a single damaged sub-rectangular perforation *c*.9x4mm for attachment. No trace of wood survived inside. A1DB09, RF 306, context 5596, Field 63, Phase 1c. Fig. 236

(**16**) Conical ferrule, incomplete at both ends and highly corroded. L 25mm+, external D 22mm. A1DB09, RF 1033, context 2267, Field 61, Phase 1. Not illustrated

(**17**) Hafted implement or fitting, incomplete. Rectangular in section at the broken pointed end. The metal bifurcated

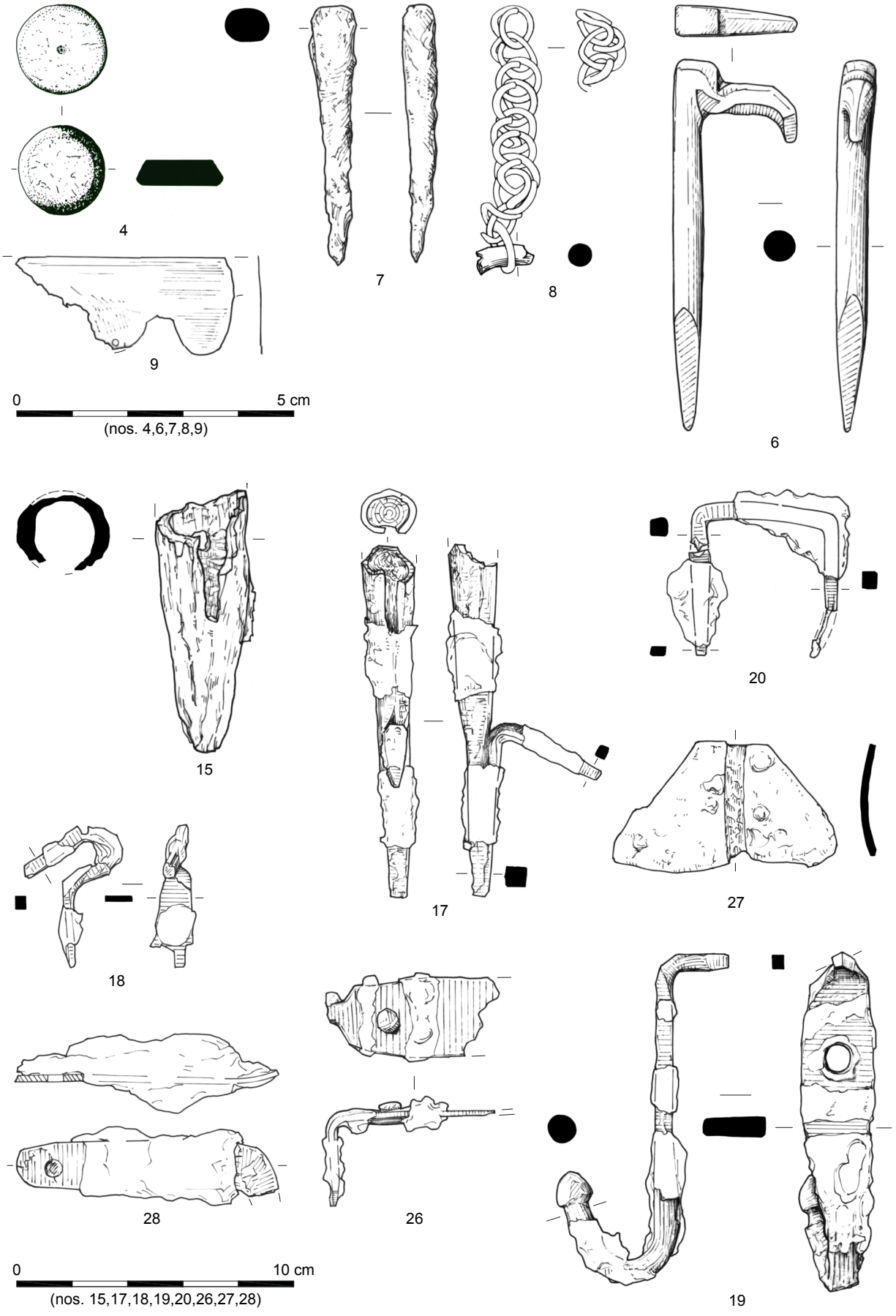


Figure 236: Bone gaming piece, minature adze, chain, ferrules, and miscellaneous objects

and was bent to form a spiked hook. The main body of the object was flattened to form a circular haft, inside of which were unidentifiable traces of mineralised wood. L 126mm+, pointed end 5x7mm, spike L 40mm, circular haft D 19mm, Th 3mm. A1DB09, RF 1076, context 5018, Field 63, Phase 3c. Fig. 236

(**18**) Hooked fitting, incomplete. Tapered flat plate drawn out into a U-shaped hook. Possible original square perforation toward the broken end of plate. L 50mm+, max W of plate 15mm. A1DB09, RF 1095, context 6801, Field 63, Phase 1. Fig. 236

(**19**) Hook, near complete. One end was bent at a right angle and terminated in a broken rectangular shank. Plate with a circular perforation tapered to form a hook with rounded terminal. L 124mm, plate W 26mm, Th 6mm, D of perforation 7mm, hook L 13mm. A1DB09, RF 1102, context 7036, Field 64, Phase 3. Fig. 236

(**20**) Fitting, incomplete. Square-sectioned bar with two arms that were bent at a right angle. Both incomplete. L 50mm, L of longest arm 50mm+. A1DB09, RF 201, context 5222, Field 63, Phase 1d. Fig. 236

(**21**) Unknown object, both ends incomplete and distorted. Flat strip with notch or perforation that was at the centre of the broken edge. Strip was rectangular in section and tapered towards a sub-circular end that was 17mm in diameter. L 82mm, W 34mm, Th 3mm. A1DB09, RF 1120, context 5121, Field 63, Phase 1d. Not illustrated

(**22**) Bar that was broken at both ends. It was square in section at one end, rectangular at the other, and had a D-shaped section along part of the length. L 74mm, W 11-14mm, Th 11-18mm. A1DB09, RF 1121, context 5121, Field 63, Phase 1d. Not illustrated

(**23**) Bar, broken at both ends. It was square in section at one end, rectangular at the other, and had a D-shaped section along part of its length. L 74mm, W 11-14mm, Th 11-18mm. A1DB09, RF 1121, context 5121, Field 63, Phase 1d. Not illustrated

(**24**) Bar, bent into an irregular penannular loop. The wider end was broken. D 36mm, bar 9x6mm tapering to 3x3mm. A1DB09, RF 548, context 7503, Field 63, Phase 3. Not illustrated

(**25**) Bar, incomplete at both ends, rectangular in section. Surface was covered with corrosion product, the innermost being a slaggy in appearance. L 72mm, W 9mm, Th 5mm. A1DB09, RF 1084, context 2143, Field 61, Phase 3. Not illustrated

(**26**) Strap fitting, incomplete. Flat strip with in situ nail head on the outside face. One broken end, the other arm of the fitting was intact. Rectangular in section and bent at a right angle. L60mm+, W 33mm, Th 2mm, L of pointed arm 33mm. A1DB09, RF 1086, context 5028, Field 63, Phase 3c. Fig. 236

(**27**) Plate fragment, trapezoidal, and concave. One original edge survived. L 79mm, W 42mm, Th 2mm. A1DB09, RF 1080, context 2466, Field 62, Phase 3. Fig. 236

(**28**) Possible handle. Flat rectangular strip with centrally placed rivet hole at the complete, rounded end, incomplete end was curved. L 93mm+, max W 18mm, D of rivet hole 6mm. A1DB09, RF 39, context 1072, Field 25, Phase 2. Fig. 236

Context	RF	Field	Description
8020	628	61A	1 square bottle body frag
8020	620	61A	1 prismatic bottle body frag
8338	648	61A	1 chip probably from a large thick bottle
2516	173	62	1 prismatic body frag
5001	784	63	1 neck frag (or jug or flask)
5013	787	63	1 shoulder frag
5019	236	63	1 square body frag
5019	239	63	2 joining handle fragments, multi-ribbed, angular, probably heat-distorted after breaking
5027	107	63	1 handle frag
5028	291	63	1 square bottle body frag, slightly heat-distorted
5039	794	63	1 prismatic body frag
5040	795	63	1 base frag, prismatic, part of one circle
5040	796	63	1 square base frag
5042	798	63	1 base frag
5042	797	63	1 prismatic body frag
5042	324	63	1 prismatic body frag
5042	320	63	1 prismatic bottle base frag
5045	799	63	1 shoulder frag
5060	803	63	1 neck frag
5141	105	63	1 shoulder frag
5992	361	63	1 large cylindrical bottle fragment, probably from near base, rubbed bands and usage scratches on outer surface
6914	809	63	1 shoulder frag
6942	396	63	1 square body frag
7011	446	63	1 square body frag
7012	445	63	1 neck/shoulder frag
7120	451	63	1 prismatic body frag
7120	427	63	1 prismatic body frag
7120	436	63	2 joining square bottle base and side frags
7222	813	63	1 prismatic body frag
7548	536	63	1 shoulder frag, multi-ribbed and angular
7604	814	63	1 square bottle body frag (fairly small bottle)
7735	815	63	1 prismatic body frag
7737	544	63	1 shoulder frag
6813	808	64	1 shoulder frag, prismatic bottle

Table 130: Blue-green bottle fragments (36 in total)

Context	RF	Field	Description
2117		61A	1 tiny frag
8003		61A	1
8053	621	61A	5 frags with self-coloured spiral trail
8217	636	61A	1
8298	645	61A	1 tiny melted lump
8338		61A	1 tiny frag
2132		62	1
5000	783	63	1
5013	788	63	1
5028	791	63	1
5042	318	63	1 (with tiny bit of handle attachment)
5071	303	63	1
5604		63	1
5629	806	63	1
5999	807	63	1
6679	362	63	1
9059		64	1
9060	686	64	1

Table 131: Indeterminate blue-green glass fragments (22 total)

Context	RF	Field	Description
8298	645	61A	4 tiny melted lumps
8020		61A	1
5237	805	63	1
5045	801	63	1 greenish
5246	185	63	1
7500		63	1
7426		63	1
9056		63	1 tiny frag

Table 132: Indeterminate colourless glass fragments (11 total)

Context	RF	Field	Description
8317		61A	1 amber/brown frag
8381	653	61A	1 amber/brown frag, streaky surface
8381		61A	2 amber/brown frags
5045	165	63	1 small, thin, brown (or may be colourless stained brown)
5058	802	63	1 thin turquoise frag
5423		63	1 small, thin turquoise frag
6980	810	63	1 blue frag

Table 133: Indeterminate coloured glass fragments (8 total)

GLASS VESSELS

Denise Allen

Introduction

This assemblage contained a total of 117 Roman vessel fragments and just one fragment of Roman window glass. There were, in addition, three post-medieval/ modern fragments, all listed below.

The vessel fragments were, as is usual, dominated by blue-green bottles of 1st to 2nd century date: 36 fragments have been identified as such (Table 130). There were two probable fragments of later, colourless bottle-jugs or flasks, but these were, in general, less numerous and were not in circulation as containers in the same quantity as the earlier blue-green ones. There were also 15 cups and/ or bowls, which included examples of common drinking vessels from the 1st to the 4th centuries AD. Four flask and/or jug fragments extended the range of tableware (or possibly unguent containers) from the site. In addition there were 22 indeterminate blue-green fragments (Table 131), 11 indeterminate colourless fragments (Table 132), and eight of a variety of coloured fragments (Table 133). Several of the vessel fragments were fairly substantial in size, and not just the tiny eroded 'fragments that got away' in general well-used domestic contexts.

The presence of just one fragment of blue-green, matt-glossy window glass was a little unusual (there are usually more), but this may just reflect the nature of the contexts from which the glass came.

Vessels

Cups and bowls

A total of 15 glass cups and bowls were represented. The earliest identifiable vessels within this category of tableware are two cast and ground ribbed 'pillar-moulded' bowl fragments (no. 1, Fig. 237, and no. 2, not illustrated) of blue-green glass (Price and Cottam 1998, 44-46, fig. 7). They were easy to recognize because of their finish and are very common finds on sites of 1st century date, with some usage extending into the early 2nd century. Their probable method of manufacture has been discussed by glassmakers Mark Taylor and David Hill on their website (www.romanglassmakers.co.uk/ribbed.htm).

The commonest blown glass drinking cup of the mid-1st century was represented by fragment no. 3 (Fig. 237), that was a simple convex cup with wheel-cut and abraded lines, known as a 'Hofheim cup' after the site of that name (Price and Cottam 1998, 71-73 fig. 21). Their main date range is AD 43-75, but their use extended into the later 1st century, especially on sites in northern Britain.

The very crumbly fragments catalogued as no. 4 (not illustrated) were most likely to have come from a facet-cut cup of a type that was popular during the late 1st and early 2nd centuries. There was some evidence of the cutting and grinding technique that was used to carve these vessels from a thick-walled blown blank and it is common for them to be found in this friable condition. Price and Cottam list many dated examples as their 'Conical Beaker with ground exterior surfaces and facet-cut/relief decoration' (1998, 80-83, fig. 26) and they have been found all over Britain.

Rim fragment no. 5 (Fig. 237) was probably from a convex wheel-cut cup of a type that was popular during the mid to later 2nd century (Price and Cottam 1998, 96-97 fig. 35). No. 6 had a similar rim finish but an apparently cylindrical body, and probably of a similar date (Fig. 237). These vessels were usually decorated with horizontal wheel-cut lines (Price and Cottam 1998, 94-5, fig. 34), but this one was plain.

The most common drinking vessels of the later 2nd and earlier 3rd centuries have been discussed with reference to finds from Colchester (Cool and Price 1995, 82-5) and also Castleford (Cool and Price 1998, 166, no. 195, fig. 57). These are colourless, cylindrical, with two concentric base-rings (as nos. 9 and 11), and some have fire-rounded, in-turned rims like no. 10, whilst others had rims that were turned outward slightly, with a trail beneath, like nos. 7-8. Those with out-turned rims are often called 'Baldock' cups after a complete example from the cemetery there, dated *c.*AD200. Price and Cottam list many other examples of both variants (1998, 99-103, figs. 37 and 38).

None of the three blue-green rim fragments, nos. 12-14 (Fig. 237), could be closely identified or dated – such rim finishes were common on a variety of types over a long period.

The cracked-off and rather unfinished aspect of rim fragment no. 15 (Fig. 237) and the yellow-green colour of glass, place it in a group of late Roman cups and bowls, made of the 'HIMT' (High Iron, Manganese and Titanium) glass that was common from the 4th century (Freestone *et al.* 2008; Paynter and Dungworth 2011, 14 and 31). Bowls and cups of a variety of shapes were finished in this way (e.g. Price and Cottam 1998, 121-129, figs. 50-53).

CATALOGUE

Dimensions: *L-length, W-width, Th-thickness, D-diameter*

Cups and bowls

(**1**) Rim fragment of a 'pillar-moulded' bowl of blue-green glass. Rim ground smooth, part of one rib extant. Rim D *c.*20 mm. A1DB09, RF 252, context 5028, Field 63. Fig. 237

(**2**) Side fragment of a 'pillar-moulded' bowl of blue-green glass. Inner surface rotary polished, outer ribbed surface fire-polished. Diameter indeterminable. A1DB09, RF 524, context 7835, Field 63. Not illustrated

(**3**) Large rim and side fragment of a 'Hofheim' cup of pale green glass. Rim turned inward very slightly, ground smooth, and four horizontal wheel-cut grooves of varying widths around side. Rim D *c.*80 mm. A1DB09, RF 804, context 5201, Field 63. Fig. 237

(**4**) Twenty-seven tiny fragments of a thick-walled vessel, probably a cup, of colourless glass. Evidence of rotary-polishing on at least one surface, and also remnants of a ground foot-ring, a diameter of *c.*30mm suggest that this was from a conical beaker, probably originally with facet-cut decoration on the outer surface. These beakers often crumble into small fragments in this way. A1DB09, RF 285, context 5045, Field 63. Not illustrated

(**5**) Rim fragment of a globular beaker of colourless glass. Rim out-flared and ground smooth, two horizontal wheel-cut lines around upper part of body. D of rim *c.*90 mm; maximum D of body *c.*120 mm. A1DB09, RF 316, context 5042, Field 63. Fig. 237

(**6**) Rim fragment of an apparently cylindrical cup of colourless glass, now stained rather brownish. Rim turned outward slightly and ground smooth. D *c.*120 mm.

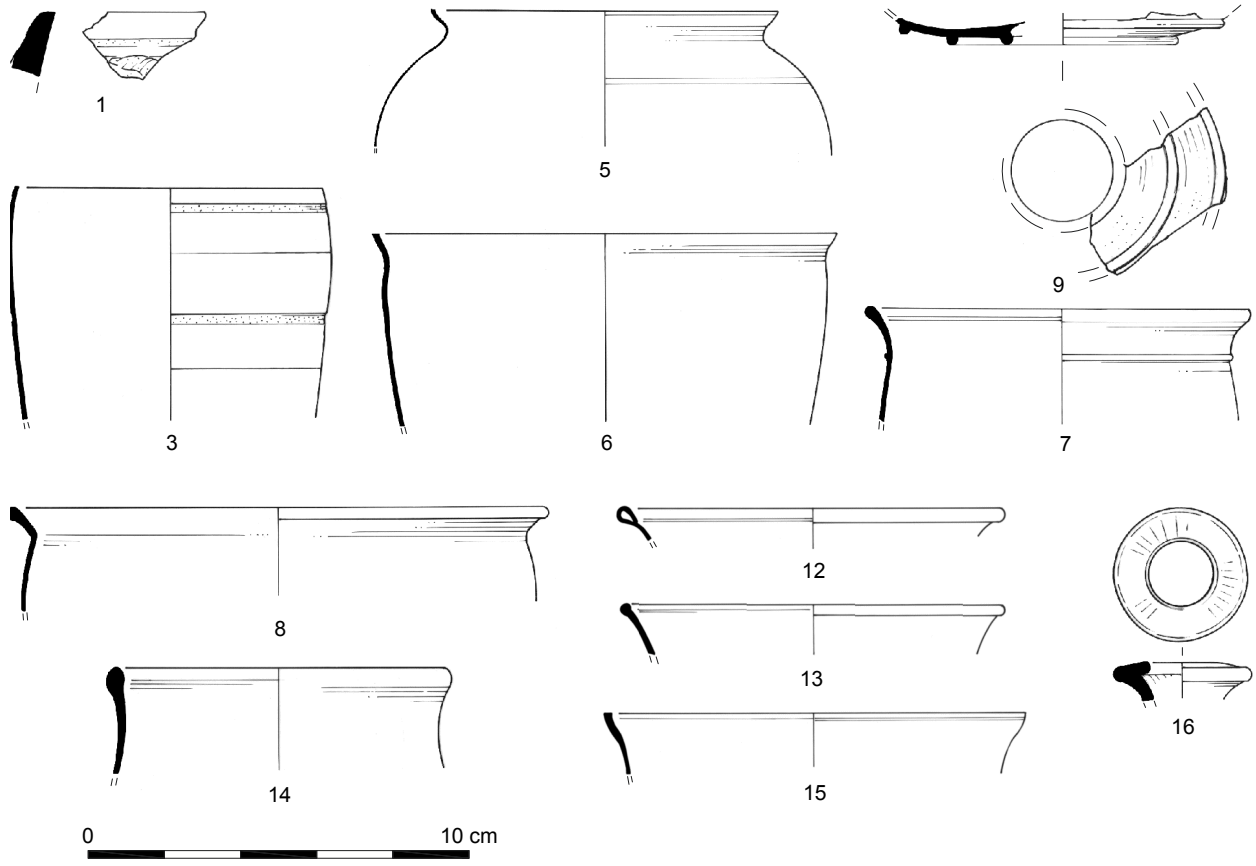


Figure 237: Glass

A1DB09, RF 792, context 5028, Field 63. Fig. 237

(**7**) Rim fragment of a 'Baldock' cup of colourless glass. Rim turned slightly outward and fire-rounded and thickened, horizontal self-coloured trail beneath. D of rim *c.*100 mm. A1DB09, RF 394, context 6942, Field 63. Fig. 237

(**8**) Rim fragment similar to no. 7, but without the trail at the same point beneath the rim. Rim turned outward and fire-rounded and thickened. D 140 mm. A1DB09, RF 67, context 2321, Field 62. Fig. 237

(**9**) Base fragment possibly from same vessel as no. 7. Flattened base with two concentric base rings, the outer apparently an applied self-coloured trail. Another trail at change of angle of lower side. D of outer base-ring *c.*60mm. Fig. 237

(**10**) Tiny rim fragment of a cup of colourless glass. Rim turned slightly inward and fire-rounded and thickened. Diameter indeterminable. A1DB09, context 5300, (from sample AA), Field 63. Not illustrated

(**11**) Inner base-ring of a cylindrical cup of colourless glass. Applied circular trail base-ring applied to underside of cup. D 25mm, with pontil scar. A1DB09, RF 274, context 5425, Field 63. Not illustrated

(**12**) Rim fragment of a bowl or dish of blue-green glass. Tubular rim, out-flared and folded outward, upward and inward. D *c.*100 mm. A1DB09, context 5019, Field 63. Fig. 237

(**13**) Rim fragment of a jar, beaker, or cup of blue-green glass. Rim out-flared and folded slightly inward. D *c.*100 mm. A1DB09, RF 786, context 5001, Field 63. Fig. 237

(**14**) Rim fragment of a jar, beaker, or cup of blue-green glass. Rim out-flared slightly and fire-rounded and thickened. D *c.*90 mm. A1DB10, RF 647, context 8297, Field 61A. Fig. 237

(**15**) Rim fragment of a cup of yellow-green glass. Rim out-flared slightly and cracked off and left rather rough. D 110 mm. A1DB09, RF 84, context 5019, Field 63. Fig. 237

Flasks and jugs

There were two rim fragments of flasks or jugs of blue-green glass (no. 16, Fig. 237, and no. 17, not illustrated), but these lacked sufficient diagnostic features to identify them with certainty. Handle fragment no. 18 may have been from a form of long-necked jug that was popular during the later 1st and earlier 2nd centuries (Price and Cottam 1998, 150-156, figs. 66-68). Handle fragment no. 19 could not be assigned to any specific form with certainty.

The thick colourless fragments, nos. 20-21, were most likely to be from bottle-jugs or flasks that replaced the earlier blue-green bottles as containers for liquids, but were never as numerous (Price and Cottam 1998, 202-207, figs. 92 and 93).

CATALOGUE

Flasks and jugs

(**16**) Rim fragment of a bottle, flask, or jug of blue-green glass. Rim turned outward, upward, and inward to form horizontal lip. D *c.*35 mm. A1DB09, RF 811, context 7120, Field 63. Fig. 237

(**17**) Neck and shoulder fragment of a flask or jug of blue-green glass. Cylindrical neck and bulbous body. D of neck *c.*20 mm. A1DB09, RF 789, context 5013, Field 63. Not illustrated

(**18**) Fragment from the edge of a handle, probably of a jug, of blue-green glass; handle apparently fairly long and straight with at least one rib. A1DB09, RF 376, context 6762, Field 63. Not illustrated

(**19**) Fragment from the edge of a blue-green handle, at the point at which it expanded slightly near the shoulder attachment. A1DB09, RF 812, context 7120, Field 63. Not illustrated

(**20**) Shoulder fragment, jug / flask or bottle-jug, thick greenish-colourless glass. A1DB09, RF 395, context 6942, Field 63. Not illustrated

(**21**) Thick greenish-colourless fragment, probably from a bottle-jug / bottle / flask. A1DB09, RF 243, context 5028, Field 63. Not illustrated

Bottles

Thirty-six fragments (Table 130) were identified as coming from blue-green bottles of the type commonly used for containers in the first two centuries AD (Price and Cottam 1998, 191-202, figs. 88-91). They were made in a variety of body shapes and there was one large fragment from a cylindrical bottle, seven which were certainly squares and a further 12 that were from prismatic bottles (probably squares, but possibly rectangles, hexagons, and octagons, though these are less common). The remaining 16 fragments are handles, rims, shoulders or other parts that were common to all the bottles of this general group. They included some quite substantial pieces, many from large bottles, and a number had lots of usage/storage scratches on their outer surface.

Window glass

The assemblage contains just one fragment of cast matt/glossy blue-green window glass from Field 61A (context 8018, RF 640), in common usage from the 1st century AD to about the end of the 3rd century.

Modern/post-medieval fragments (3 total)

Sherds of recent date came from:

- RF 793, context 5031, Field 63. 1 fragment colourless window glass sherd.
- RF 790, context 5025, Field 63. 1 fragment possibly modern window glass.
- RF 785, context 5001, Field 63. 1 fragment possibly modern window glass.
- A1DB fieldwalking: context 762, Field 63. 1 rim fragment, probably an 18th-century drug bottle.

VESSELS OF OTHER MATERIALS AND RELATED OBJECTS

Gail Drinkall with contributions from Steven J Allen, John Cruse, and Jennifer Jones

Introduction

Items grouped under this heading included vessels of copper alloy and wood, as well as mounts and repairs, and stone discs, possibly used as pot-lids.

Vessels

Copper alloy bowl

CONSERVATION REPORT *(extract) - Jennifer Jones*

Part of a thin sheet copper alloy bowl (no. 1, Fig. 238) was a residual find in subsoil 5001 in Field 63. Originally

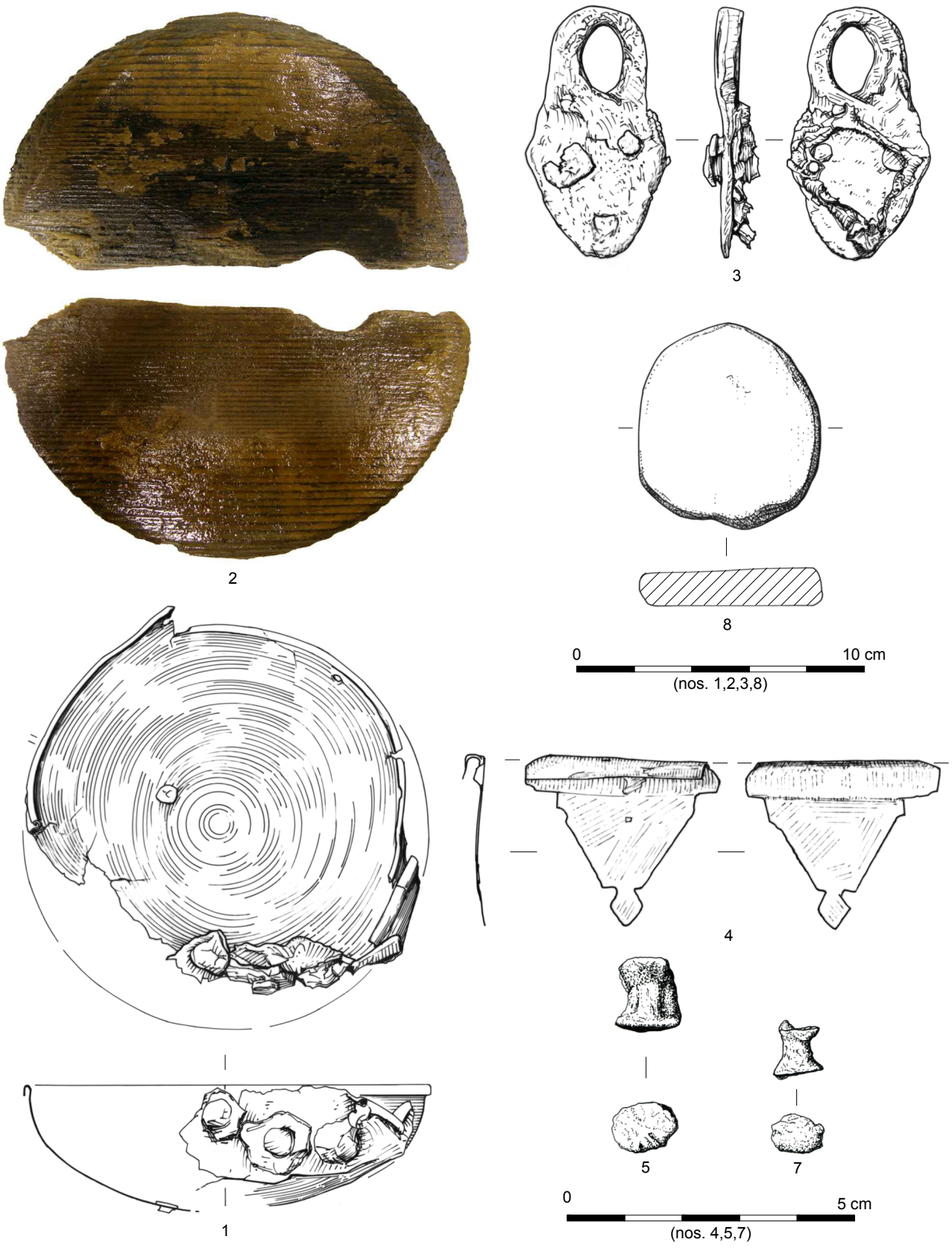


Figure 238: Vessels of other materials and related objects

hemispherical, it was found distorted and damaged. The extreme thinness of the metal together with its shape suggests the bowl was made by spinning the sheet metal on a lathe against a former; there was also a roughly plugged, circular 5mm perforation in the base of the bowl, such as might be found in a spun vessel. However, the perforation was rather larger than would be expected and also appeared to be off-centre, though distortion made this difficult to ascertain. The surface patination has been lost both inside and out and no characteristic tool marks survive to support the spinning theory for the bowl's manufacture. The top 4-5mm of the bowl had been turned over outwards. At least three, and possibly five, small (4mm diameter) perforations had been made from the inside of the bowl around its edge, *c.*7mm from the top. Two of these were damaged. Their purpose was unclear, though they may have served to attach a separate rim or decorative band. Three circular copper alloy rivets of varying size (8, 9, and 10mm) perforated the metal, close together in a roughly curved arrangement. There was iron corrosion around these, particularly on the outside, and they may have been used to attach a possible iron handle, now lost. Their size and clumsy arrangement suggested this may have been a later repair or modification to the bowl. A detached fragment was examined and analysed using the energy dispersive X-ray spectroscopy capability of the Scanning Electron Microscopy system. The metal was found to be a leaded brass; no evidence for surface plating was found.

DISCUSSION - *Gail Drinkall*

Finds of near complete copper alloy vessels are rare. Fragments, usually recognized by their rims, are known from sites such as Colchester and from the 'palace' at Fishbourne in Sussex, but complete ones are unusual (Bishop 2009b). A tinned dish was a largely intact find from an excavated context at Rockliffe Park, Hurworth-on-Tees (*op. cit.*); a small round-based hanging bowl came from Wacher's excavation of Catterick Bypass (site 433), from a mid- to late 4th century context (Lentowicz 2002, 57, fig. 251.140). Substantial portions of copper alloy vessels also occur in hoards and in riverine deposits: a collection of vessels from the Rhine at Doorwerth (Netherlands) thought to be booty from the civil war of AD69, mainly consisted of handled pans (Bishop *op. cit.*). The example from Healam Bridge was found in the subsoil along with a large collection of residual Roman finds including pottery and coins.

Wooden vessel base

CONSERVATION REPORT (*extract) - Jennifer Jones*

Approximately 50% of a wooden disc was received wet and stabilised in a treatment regime of 10% polyethylene glycol 400 and 30% polyethylene glycol 4000 in water, followed by freeze drying. It had been preserved in peat layer 5201, Field 63. Species identification follows Schweingruber (1982) and was confirmed as silver fir (*Abies alba*).

DISCUSSION - *Steven J Allen*

This object (no. 2, Fig. 238) was initially described as a possible lid. This was certainly plausible as the 8 mm wide bevel would allow the disc to be seated over the open rim of a vessel, whether ceramic or wood. However, the presence of bevelling on both faces means that the disc is almost certainly part of the headpiece or base of a coopered vessel.

The asymmetric bevel was characteristic of a headpiece cut to fit neatly into the croze groove in the inner face of the wall staves. Such a 'V'-section croze groove is normally associated with vessels intended to contain liquids. Headpieces from closed vessels, such as casks, often have one or more perforations cut through them to assist in the filling or emptying of the contents (vent holes). These are closed with a bung or stopper to prevent inadvertent loss of contents through evaporation or spills, and the truncated hole in this piece is of the correct size and location for such a purpose. Though the artefact under discussion was of an appropriate size for a bucket base, the through hole would seem to exclude this interpretation.

The wood species, silver fir (*Abies alba*), also points to this association. *Abies alba* is not native to the British Isles and prior to its deliberate planting in the 17th century (Mitchell 1974), all finds of this wood species are derived from imported material. In the Roman period the most common use of this timber was in the construction of casks and similar coopered vessels, for the importation of wine from the Rhineland area where this wood species is native (Boon 1974, 264-5).

Finds of casks made from silver fir include a mid-3rd to late 4th-century example from Droitwich (Crone 1992, 111) and late 3rd to early 4th century from New Fresh Wharf, London (Weeks and Rhodes1986, 231). Second-century cask heads of similar size, albeit in *Quercus* sp. were found in the well at Bar Hill (Robertson *et al.* 1975, 52 nos. 9 and 10) and a stave from a small cask of the same type was recovered in Caernarfon (Boon, 1986, 99). In comparison, buckets made from silver fir include examples from Dalton Parlours, West Yorkshire (Morris 1990, all parts of no. 1, staves from no. 5, isolated base no. 31) and Silchester (St. John Hope and Fox 1894, 223). None of these examples had perforations through their bases. No. 2 was found in a peat layer dated to between the late 1st to mid-2nd century.

Catalogue

VESSELS

(**1**) Bowl, incomplete. Thin (0.5mm) sheet copper alloy, possible spun vessel with rounded base, folded over rim. Three, possibly five perforations close to the rim for the attachment of a decorative band or mounts for suspension. Three circular copper alloy rivets in a roughly circular arrangement perforate the vessel and are surrounded by iron corrosion. Roughly plugged circular perforation, *c.*5mm across, in the base typical of spun vessels but larger than expected and off-centre. Surface patination has been lost and no tool marks characteristic of spinning survive. Microscopic examination at x16 showed random marks or scratches inside the bowl near the rim, caused during manufacture rather than use (J. Jones, conservation archive report). Original D *c.*136mm, Depth *c.*50-60mm. A1DB09, RF 61, context 5001, Field 63, Phase 5. Fig. 238

(**2**) Wooden disc (*Abies alba*, silver fir), incomplete. Cut from a radially faced board. One edge and both ends cut to form a continuous curve with 8mm wide bevel on one face and a 3mm wide bevel on the opposing face. Remains of single perforation (25mm diameter) in face offset towards one end, truncated by broken edge. Remaining edge broken away and missing. Faint hewing marks on bevels. Minor surface damage to 8mm bevelled face and one end. Part of surface of 8mm bevelled face

detached but refitting. L 162mm, W 81mm, Th 10mm. Original diameter of curve *c*.160mm. A1DB09, RF 450, context 5201, Field 63, Phase 1a. Fig. 238

Mounts and repairs

An iron vessel escutcheon (no. 3, Fig. 238) was one of only two finds (the other a nail head from posthole 6899) stratigraphically dated to the late 2nd century. It was probably too elaborate to be a bucket escutcheon, but also a little on the small size, though the range of iron vessels in use is not fully known (H Cool *pers. comm.*). It would, however, have come from something where the handle was functional, such as those from the well assemblage at Dalton Parlours (Scott 1990, 197-200).

A triangular-shaped plate (no. 4, Fig. 238) of thin sheet copper alloy was tentatively identified as a mount or binding. No close comparanda exists in the published literature and further enquiries did not provide any further clues to its precise date or function (H Cool and F Hunter *pers. comm.*). It was found in an extensive dumped deposit (6924) of Phase 1c in Field 63. Other finds from this layer included a copper alloy diploma (Holder, section 11.3), a bow and fantail brooch, a key, coins, and a range of pottery including samian ware, a single mortarium sherd, amphorae, and Roman fine wares. It is thought that these finds may have been residual from the occupation of the earlier, Phase 1b, domestic structure 7951.

Lead repair plug no. 5 (Fig. 238) was the only find from posthole 7162, stratigraphically dated to the late 1st to mid-2nd century. No. 6 (not illustrated) is of a similar constricted form and came from the tertiary fill of Phase 1 ditch 6886, while no. 7 (not illustrated) came from the topsoil in Field 61A. Similar lead plugs with waisted sections are known at Dalton parlours, one of which was found attached to pottery along with a lead cramp, indicating their use for repairs (Mould 1990, 95, nos. 10-14).

Catalogue

MOUNTS AND REPAIRS

(**3**) Vessel escutcheon, iron, complete. Flat, lozenge-shaped plate that narrows and bends around to form a loop. Rectangular fragment of sheet copper alloy sandwiched between the iron plate and another square plate of iron, held in place by three iron rivets. L 87mm, max W 48mm, Th 3mm, suspension loop internal measurements L 22mm, W 15mm. A1DB09, RF 1096, context 6900, Field 63, Phase 1c. Fig. 238

(**4**) Mount or binding, incomplete. Triangular plate of thin sheet copper alloy, folded over at widest end to form a channel, cut work leaf-shaped point. Grassy organic material within the channel is thought to be derived from the burial environment (M. Felter, conservation archive report). L 17mm, W 32mm+, Th 0.7mm. A1DB09, RF 456, context 6924, Field 63, Phase 1c. Fig. 238

(**5**) Lead, repair plug; complete. Waisted. L 13mm, max D 12mm. A1DB09, RF 449, context 7163, Field 63, Phase 1a. Fig. 238

(**6**) Lead, repair plug, circular. Waisted. D 28mm, Th 6mm. A1DB09, RF 539, context 6887, Field 63, Phase 1. Not illustrated

(**7**) Lead, repair plug, complete. Waisted. L 10mm, max D 8mm. A1DB10, RF 731, context 8000, Field 61A, Phase 5. Fig. 238

Stone discs

John Cruse with contributions by Geoff Gaunt

Stone discs (nos. 8-10, no. 8 only illustrated in Fig. 238) are an artefact-type periodically found on Romano-British and early medieval sites. These three examples had no obvious use-wear to indicate their function. They were all of modest diameters, ranging between 50-90mm and made from what Geoff Gaunt (GG) describes as 'relatively indeterminate rock types'. Henrietta Quinell has noted (Nowakowski and Quinnell, 2011, 268) that most of the Romano-British examples in south-west England tend to be small and manufactured from local materials. She adds that 'if their interpretation as pot-lids is correct – and no other interpretation has been put forward, these stone discs were only used for smaller vessels, with wooden or cloth covers, together with occasional ceramic lids, used for larger jars'.

When Clark studied the early medieval examples at Wharram Percy (Clark and Gaunt 2000, 104), she pointed out that some had the same lithology as roofing stones (cf. Cruse and Gaunt, Section 12.2). She considered that 'lid' diameters of 100-150mm were 'too big for counters', but were suitable to seal York Type A and Torksey-type vessels. Leary commented 'vessels in the diameter range of those from Healam would be mostly small jars/beakers and flagons with a few small bowls. As some flagon forms have slight rim rebates the flagons would fit better than the jars and beakers which tend to have everted rims with no obviously secure place to put a lid. Similarly the bowls could have a lid balanced on the rim but they do not have an obvious place for it. It would be desirable to stop flagons to protect their contents and these were likely to have been organic or overlooked, such as stone discs'.

No. 8 (Fig. 238) was from the fill of a stream channel, with Romano-British sherds, laid down during the Romano-British period of occupation at the settlement. No. 9, from subsoil north of structure 5009, was found with Romano-British and later sherds. No. 10 was from a Phase 3c midden deposit; GG noted the possibility that this artefact may have been reworked from an original roofing stone.

Catalogue

STONE DISCS

(**8**) Intact, irregularly oval, disc, 55-60mmx70mm and 13mm thick, split along its bedding plane to give flat, unmarked, parallel surfaces. Edges roughly finished, but smoothed (by repeated handling?). Weight 100g. *Lithology*: (GG): sandstone: pale brownish grey (with medium brown staining on surfaces), fine grained, well sorted, fairly well compacted, thin bedded, with sparse muscovite and black carbonaceous plant debris on bedding planes. The minute black plant debris suggests one of the sandstones in the Middle Jurassic non-marine sequences cropping out in the North York Moors. A1DB09, RF 764, context 5234, Field 63, Phase 1a. Fig. 238

(**9**) Intact, irregularly chipped, roughly circular, disc 80x90mm and 20mm thick, also split along its bedding plane to give two flattish, parallel surfaces, one of which has patches of darkish deposit. Weight 250g. *Lithology*: (GG) sandstone: pale grey, fine to (slightly) medium grained, fairly well sorted, fairly well compacted, with sparse minute muscovite and appreciable black

manganese 'wad'. Either from sandstones of the Carboniferous Wensleydale Group in the north Pennines, or from Middle Jurassic non-marine formations on the North York Moors (or along the coast). A1DB09, RF 765, context 5019, Field 63, Phase 5. Not illustrated

(**10**) Intact, neatly chipped, roughly circular, disc 55x60mm and 10mm thick. The surfaces are flat, smooth, parallel, and unmarked. Weight 60g. *Lithology* (GG): sandstone: pale brownish grey, fine grained, well sorted, fairly well compacted, thin bedded, with appreciable muscovite concentrated on bedding planes. Typical Elland Flags-type sandstone, common in the Upper Carboniferous Coal Measures. Nearest outcrops in Yorkshire are in eastern Leeds, or alternatively, it could have come from the Durham coalfield. Similar sandstones are also present in Middle Jurassic non-marine formations of the North York Moors or coastline. A1DB09, RF 768, context 5002, Field 63, Phase 3c. Not illustrated

CHAPTER 12 BUILDING MATERIALS

CERAMIC BUILDING MATERIAL

Sophie Tibbles

Introduction and methodology

An assemblage of 90 fragments of Roman ceramic building material (hereafter CBM) weighing 7897g was recovered during the course of excavations at Field 20, Field 25 (Humphrey Balk Lane), Field 39, and at Healam Bridge (Fields 61A, 62, 63, and 64).

The CBM was quantified (count and weight) and catalogued by fabric and form. The fabrics were identified using a x20 binocular microscope and are described in full in Table 138. The sub-variant fabrics reflect slight, but significant, variations of composition from the principal fabric. For comparative purposes, the fabrics were cross-referenced with samples identified from other assemblages within the area. Comparisons were made with existing typologies where applicable. No petrographic analysis was undertaken as part of this study. Where a colour code is used (e.g. 5YR 6/8 Reddish Yellow), these refer to Munsell Soil Colour Charts values (1990).

Field 20

One fragment of CBM representing a fragment of tegula was recovered from ditch recut 1009, fill 1010 (Table 134).

As the profiles of *tegulae* flanges can be variable (Brodribb 1987, 13) and may not be uniform along the entire length of the tile, it is often difficult to compare flanges with typologies and/or published examples. Any parallels made take into account the potential variations.

Forms

TEGULAE

The *tegula* was incomplete, with a finger-smoothed upper (flanged) surface and fine sanding on the underside (non-flanged surface). The finger-smoothed flange was broad and slightly bulbous in profile, identified as Type 6a (Brodribb 1987). This type has been noted in North Yorkshire at Brompton on Swale (Tibbles and Tibbles 2004a), Scorton (Tibbles and Tibbles 2001, fig.1), and within late 3rd to 4th/5th century levels at Healam Beck (Fields 61A, 62, 63, and 64) (below). The flange had complete height and width (from base of flange to top) dimensions of 48mm and 19 – 25mm respectively. The tile had a thickness of 22mm and weight of 119g.

Discussion

Given the lack of other CBM present and the paucity of Roman-British activity within Field 20, it was not possible to deduce the use of the tile within its original archaeological setting. It could be postulated that the *tegula* may have been incorporated within the cobbled surface 803 or part of the repair 1013, however, casual deposition was likely.

Although the tile was of little archaeological significance, the fabric was of interest. The main composition of Fabric 6a was comparable to Fabric 6, identified at Bridge Road, Brompton on Swale (Tibbles and Tibbles 2004a) and is considered a new sub-variant. Fabric 6a was also evident at Healam Beck (below).

Based on the parallel with Brompton, the material may have possibly been produced at York, although currently unknown kilns should not be discounted. Confirmation of the production source would require petrographic analysis.

Humphrey Balk Lane *(Field 25)*

Five fragments of Roman CBM were recovered from three contexts within Field 25 (Table 134). No material was recovered from Fields 23 and 28. The material is referred to by context number.

Forms

TEGULAE

The *tegula* (three joining fragments) (1643) was heavily abraded and 'powdery' to the touch. The tile was of Fabric 4 with a complete thickness of 21mm. Very little of the original surface remained. No flange was evident. The fragments had a total weight of 55g.

IMBRICES

Fabric 1 was represented by a tile (1706), tentatively catalogued as a possible *imbrex* based on the slight curvature of the profile and thickness of 24mm. With the exception of the moulding sand on the internal surface and the finger-smoothed original long edge, no other distinguishing features were noted. The possible *imbrex* fragment had a weight of 11g.

BESSALES

The *bessalis* (1700) was incomplete with a thickness of 33 to 41mm and a weight of 426g. The tapering could be the result of use but this cannot be confirmed due to the abraded condition of what little remained of the original surfaces. The brick was in poor condition, was 'powdery' to the touch, and of Fabric 3a.

Discussion

As only four tile fragments and one brick were recovered, the original use of such a small assemblage within the enclosure complex was unclear. All were considered to represent reused material. The tapering thickness of the *bessalis* suggests incorporation within an area of hard standing or repair to a metalled surface or trackway. The *tegula* from posthole 1646 may have been incorporated with other materials, such as stone, for consolidation/post-packing. Reuse of materials within such archaeological contexts is not uncommon (Evans 2005b, 143; Taylor 1996, 395).

Field	Context	Group No	Interpretation	Quantity	Form	Fabric	Wt (g)
20	1010		Fill of ditch recut 1009	1	*Tegula*	6a	119
25	1643	-	Fill of posthole 1646	3	*Tegula*	4	55
	1700	1921	Fill of ditch 1700?	1	*Bessalis*	3	426
	1706	-	Fill of gully 1707	1	*Imbrex*	1	11
39	3175		Fill of modern drain 3176	1	Brick	6b	315

Table 134: Romano-British ceramic building material by context, Fields 20, 25, and 39

All fabrics, including sub-variant 3a, were comparable to those recorded at Bridge Road, Brompton on Swale (Tibbles and Tibbles 2004a). Fabrics 1, 3a, and 4 were also evident at Healam Beck (below).

Based on the published descriptive text only, Fabric 3a could potentially equate with fabric TF3 identified at *Cataractonium* (Isserlin 2002b, appendix 12.1). This may have been a local product or was possibly from Malton. The fabrics from Brompton may also be York products (Tibbles and Tibbles 2004a), although unknown kilns should not be discounted.

Field 39

One fragment of Roman CBM was recovered from the fill 3175 of modern drain 3176 (Table 134).

Forms

BRICK

The fragment of brick was incomplete. No other distinguishing features were present to determine type, although based on thickness, >51mm, it could be suggested that it was one of the larger Roman brick types, such as a *pedalis*. The brick was of poor manufacturing quality, 'powdery' to the touch, and heavily abraded.

Discussion

The presence of the brick within the fill of a modern drain was of no archaeological significance, as it was residual. It is noted here purely as a record of the fabric. Fabric 6b is of very similar composition to Fabric 6, identified at Bridge Road, Brompton on Swale (Tibbles and Tibbles 2004a). Although the slight variation of inclusions could reflect poor preparation of the clay, it is considered a new sub-variant of Fabric 6.

Based on the parallel with Brompton, the material may have been a York product, although unknown kilns should not be discounted.

Healam Bridge *(Fields 61A, 62, 63, 64)*

The assemblage of CBM from Healam Bridge comprised 83 fragments with a combined weight of 6971.2g. The material was recovered from 45 contexts (Table 135). Field 63 produced over half of the assemblage (58%), followed by Field 62 (22%), Field 64 (13%), and Field 61A (7%; for distribution of forms by phase and field, see Table 137). No material was recovered from Fields 60 and 61 and there were no complete items.

Fabrics

Seven fabrics including sub-variants were identified. The sub-variants reflected slight, but significant, variations of composition from the principal fabric. Fabrics 1 and 3, including sub-variant 3a, were predominant (22% per fabric). With the exception of *imbreces* of Fabric 3 and 3a, all forms were represented by both fabrics (Table 136). Distribution of fabrics per field is included in Table 134.

Forms

Three forms were identified: roof tile, brick, and hypocaust tiles. Four pieces of tile were of unknown type (T-NK) and 36 fragments were not identifiable by form or type (U-F/T). The T-NK and U-F/T material are included in the overall quantification of the assemblage, but are not discussed in detail.

TEGULAE

Tegulae were represented by 33 fragments, with a total weight of 4733.4g. The tiles had a thickness range of 18-33mm. Upper (flanged) surfaces were finger-smoothed with patches of knife-smoothing/trimming on the undersides (non-flanged surface). Original edges, where present, were both finger-smoothed and knife-trimmed. All but Fabrics 2 and 8 were represented; Fabrics 1 and 4/4a were prevalent (Table 136). *Tegulae* were recovered from Phases 1, 3, and 4 within Fields 62, 63 and 64 (Table 137); one fragment was un-phased (2131). Phase 3 produced the majority (Table 137). It was estimated that eight individual tiles were present.

Inter-contextual joins were evident: (5028)/(5294) (no. 2, Fig. 239), (6860)/(6819), and (2273)/(2280). Based on fabric and manufacturing characteristics, another flanged fragment from (5028) was considered to be the same *tegula* as (5028)/(5294). Other non-joining fragments considered to equate to two individual tiles were (9094) and (5324)/(5143).

The majority displayed discolouration from indirect and direct heat exposure including post-breakage, from light grey (10YR 7/1) to weak red (2.5YR 5/2). The heavy burning (black 7.5YR 2/N2/) on the underside of *tegula* (5028)/(5294) appeared to 'localise' a small, circular, un-burnt area, approximately 122mm in diameter. This could represent the placement of a vessel on top of the tile, or that the tile was used as an *ad hoc* pot lid during a high temperature process.

Rain pitting was recorded on the upper surface of tile (5069), a result of exposure to the elements during the drying stage of manufacture. Despite being considered a rare occurrence (Betts 1990, 170; Brodribb 1987, 125), rain pitting was also recorded on an incomplete *pedalis* at Leeming (Tibbles 2016).

Flanges and cutaways

Flanges were recorded on eight fragments from Field 63: Phase 3 (5068) (5096) (5324) (9094) and joining fragments (5028) and (5294); Phase 4 (5001); and un-phased (9044). The flange of (6812) Phase 4 was broken in antiquity, but a knife-smoothed upper-cutaway was recorded with a length and width of 44mm and 22mm, respectively.

The flanges, Type 4 and 6a, were finger-smoothed and three examples had knife-trimmed outer edges giving a slightly chamfered profile, though not fully along the length of the flange edge. This style of trimming was evident at Driffield, East Yorkshire (Tibbles 2009, fig. 12).

The profiles varied in both height and width (from the base of the flange to the top). Type 6a: height 41 – 66mm, width 21 – 45mm and Type 4: height 39 – 40mm, width 18 – 25mm. Type 6a has been noted in North Yorkshire at Scorton (Tibbles and Tibbles 2001, fig. 1), Field 20 (above), and Type 4 at Northallerton (Tibbles and Tibbles 2004b). Both have been recorded at Brompton (*ibid* 2004a) and similar flanges were noted at Piddington (Ward 1999, fig. 5) and Frocester (Price 2000, fig. 7.9).

Signatures

Signatures were recorded on the upper surface of three tiles: (5028) Phase 3, (5001) Phase 4 Field 63, and (6973) Phase 3 Field 64. Two, (6973) and (5028), were at the bottom edge of the tiles, considered to be the 'usual position' for signatures (Brodribb 1987, 104; Ward 1999, 69). The signatures were as follows: (5001) a broad 'V' pattern made with a single finger stroke, (5028) a diagonal double finger stroke, and (6973) a single finger stroke in a semi-circular pattern (Fig. 239:1). The signature on (6973) can be paralleled at Castleford (Betts 1998, fig. 99).

IMBRICES

Despite no complete dimensions, two fragments were tentatively identified as *imbrex?* based on the slight curvature of the profile. Both were within Phase 1 contexts, (6924) Field 63 and (6786) Field 64, and were of Fabric 1. Based on fabric and manufacturing characteristics, the fragments were considered to be the same tile. Grey discolouration (5YR/5/1) from direct heat exposure, including post-breakage, was noted on (6786). The *imbrex?* had a weight of 12g.

BESSALES

Four bricks of this type were present within Phase 3 and 4 from Fields 63 and 64 (Table 137). Three fabrics were represented: Fabric 1 (5019), Fabric 3a (5001), and Fabric 6a (5002) and (7073). The bricks had a thickness between 29 – 38mm with a total weight of 1277g. All had either knife-trimmed or finger-smoothed edges. *Bessales* (5001) and (7073) were corner fragments. Four individual bricks were estimated.

BOX-FLUE TILE

Fields 63 and 64 produced four fragments of box-flue tile: (5028) (5045) and (5037) from Phase 3 and (7756) from Phase 1. The tiles had a combined weight of 74.4g and a wall thickness between >3 – >17mm. Burning or heat discolouration was not evident, but all were heavily abraded. Fabrics 1 and 3a were equally represented.

Only one tile (5028) was keyed by combing: a single stroke of 2-tine impressions. The impressions had a broad U-shaped profile indicating flat-tipped/blunt tines. The fragment was too small to determine the orientation of the pattern. Tile (5037) had a finger-smoothed top/bottom edge and (5045) and (7756) were broken at the corner with remnants of the returning face. Remnants of a knife-trimmed lateral vent? were also noted on (7756), but the tile was too heavily abraded to confirm.

TILE (T-NK)

The four fragments of tile had a thickness range of 12 – 18mm with a total weight of 204.8g. No distinguishing features were present to determine type. Weak red (2.5YR 4/2) and light yellowish brown (10YR 6/4) heat discolouration was evident on the finger-smoothed original surfaces of (2445) and (5019). The tiles were recovered from Phase 3: (2445) (5028) and (5032) and Phase 4: (5019) (Table 137). The following fabrics were represented: Fabric 1 from (5019) and (5032) from Field 63, Fabric 3a (5028) from Field 63 and Fabric 6a (2445) from Field 62.

UNIDENTIFIABLE (U-F/T)

Thirty-six fragments were unidentifiable by form or type due to incomplete dimensions and their small fragmentary nature. They are referred to solely as a record of the fabrics. All fabrics with the exception of Fabrics 2a and 4a were represented, (Table 136). Unidentifiable material was present within all phases; Phase 1 and 3 produced the majority, 13 and 14 fragments respectively (Table 137).

Discussion

The presence of numerous buildings could indicate primary use of the assemblage. Healam was well positioned with links to Roman centres at Catterick and Aldborough (Bishop 1996, fig. 1) and material could have been supplied by roads, such as Dere Street, and waterways (McWhirr and Viner 1978, 367; Brodribb 1987, 140; Betts 1998, 232; Isserlin 2002a, 525). However, the quantity of the assemblage does not substantiate buildings with ceramic building material within their construction; loss of material due to later agricultural practices has been taken into account. Although roof tiles were the predominant form, the quantity was insufficient to suggest that any buildings within the excavation area had wholly or partially tiled roofs.

The assemblage is considered to be reused materials, at least secondary if not tertiary use, probably salvaged from structures within the vicinity beyond the limits of the investigation. It is apparent from other rural settlements that the reuse of small quantities of ceramic building material was common practice (Evans 2005b; Taylor 1996, 395; Tibbles 2009, 185).

The material was generally distributed throughout the fields. Small concentrations noted in Fields 62, 63, and 64 appeared to be associated with cobbled/metalled surfaces. A limited element reflects structural aspects, such as incorporation within kilns and possible hearths, but for the most part material was present within the fills of ditches and pits, spreads and midden deposits. The presence within ditch and pit fills reflects casual deposition and subsequent redefinition/working of these features was evident by the inter-contextual joins within the fills. Identification of non-joining fragments considered to be individual tiles, e.g. the *imbrex?*, could have been a result of redeposition through later agricultural activity.

The earliest material was from Phase 1, eighteen fragments, and included box-flue tile, *tegulae,* and the *imbrex?*. The CBM was recovered from gully, pit and ditch fills, layers, a midden deposit, and grave 7265 within Fields 62, 63, and 64. Phase 3 contexts within all fields produced over half of the assemblage (55%). All forms, with the exception of *imbrex?*, were present in this phase.

The condition ranged from good quality to soft and 'powdery'. This variation was also noted at Humphrey Balk Lane (above) and material from Catterick Bridge (Tibbles 2005), and was not specific to a particular fabric. The effects of ground conditions were most likely the

cause, though it could potentially relate to manufacture, e.g. poorly fired.

With the exception of Fabric 8, the Healam fabrics were comparable to those recorded at Bridge Road, Brompton on Swale (Tibbles and Tibbles 2004a). Again with the exception of Fabric 8, these can be paralleled with other sites along the A1 improvement scheme at Humphrey Balk Lane and Leeming (Tibbles 2016) and also at Catterick Bridge (Tibbles 2005).

The number of fabrics could indicate multiple sources of manufacture. Two fabrics, based on the published descriptive text only, could potentially equate with a local? and a York fabric identified at *Cataractonium* (Isserlin 2002b, appendix 12.1): Fabric 3a =? TF3 (locally produced) and Fabric 4a =? TF1b from York (Isserlin 2002a, 525). Some of the other Brompton fabrics may also have been York products (Tibbles and Tibbles 2004a), though the source is currently inconclusive. Kiln sites currently unknown should also be considered as a source.

Catalogue of illustrated examples *(Fig. 239)*

(**1**) *Tegula*. Fabric 4. Fabric colour light red (2.5YR 6/8). Signature at bottom edge: single finger stroke in a semi-circular pattern. Finger-smoothed edge. Light reddish brown (5YR 6/4) indirect heat discolouration on upper surface and underside. Tile thickness: 28 – 30mm. Weight: 384g. Context: 6973 (secondary fill of ditch 6974). Feature No. 6964. Field 64. Phase 3.

(**2**) *Tegula*. Fabric 1. Reduced core with a fabric colour of red (10R 5/6) – grey (7.5YR N5/). Inter-contextual joins, 3 joining fragments. Flange Type 4 – shallow profile. Black (7.5YR 2/N2/) discolouration from direct burning/heat on underside, upper surface and flange top. Same tile as other flanged fragment within (5028), non-joining. Flange height: 40mm. Flange width: 18 – 20mm. Tile thickness 21 – 27mm. Weight: 423g. Contexts: 5028 (midden) and 5294 (fill of pit 5296). Feature No. 5296. Field 63. Phase 3.

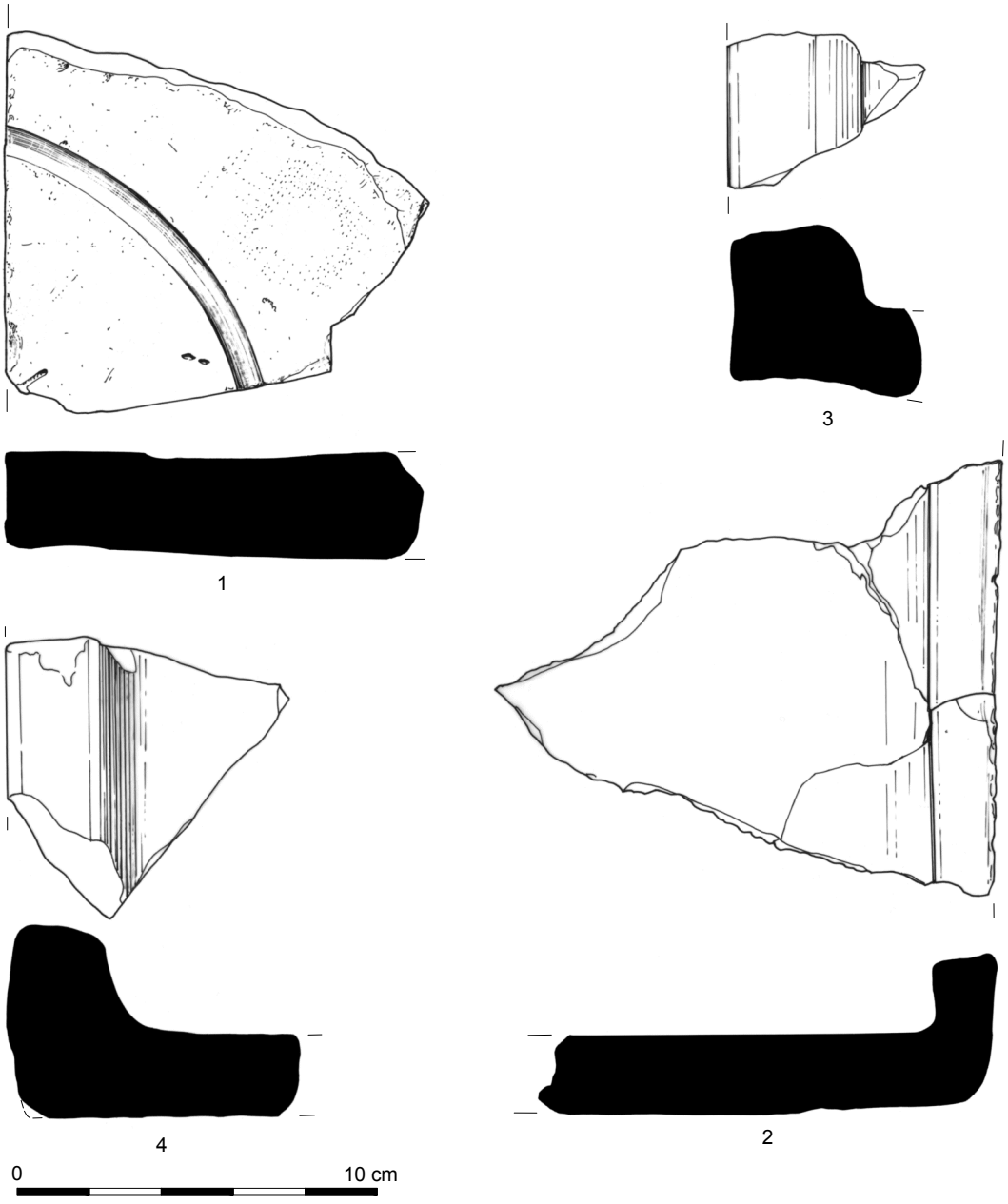


Figure 239: Building materials

Field	Trench	Context	Group No	Feature No	Interpretation	Form	Quantity	Fabric	Wt (g)
61A	B	8096	-	8097	Tertiary fill of ditch 8097	U-F/T	1	2	12
		8297	-	-	Alluvial deposit	U-F/T	1	5	16
		8352	-	8350	Fill of grave 8350 skeleton 8351	U-F/T	1	6	11
		8386	-	-	Alluvial deposit	U-F/T	3	8	17
62	-	2131	-	-	Topsoil	*Tegula*	1	1	77
						U-F/T	2	5	25
	-	2141	2890	2140	Secondary fill of ditch 2140	U-F/T	1	3a	3
	-	2158		2156	Secondary fill of ditch 2156	U-F/T	1	3	19
	-	2162	-	2162	Spread containing Roman period materials	U-F/T	2	5	82.4
	-	2273	-	2273	Deposit of large stones	*Tegula?*	1	3a	56
	-	2280	2890	2140	Tertiary fill of ditch 2140	*Tegula?*	1	3a	3
	-	2435	-	2434	Fill of small pit 2434 at section	U-F/T	7	4	1.5
	-	2445	-	-	Spread overlying ditch 2502	T-NK	1	6a	19
	-	2590	-	2468	Primary fill of ditch 2468	U-F/T	1	1	0.9
63	-	5001	-	-	Subsoil	*Bessalis*	1	3a	461
						Tegula	2	3a	473
							1	4	82
						Tegula?	1	3a	227
	-	5002	-	-	Midden deposit	*Bessalis?*	1	6a	530
						U-F/T	1	6a	77
	-	5019	-	-	Subsoil north of building 5009	*Bessalis?*	1	1	121
						Tegula	1	1	79
						T-NK	1	1	176
						U-F/T	1	8	99
	-	5028	-	-	Midden deposit	Box-Flue	1	3a	1.4
						Tegula	2	1	295
							1	3	103
						Tegula?	1	3	199
						T-NK	1	3a	7
						U-F/T	1	3	24
							1	3a	104
	-	5032	-	5033	Fill of gully 5033	T-NK	1	1	2.8
	-	5034	-	-	Layer	U-F/T	1	3a	12
	-	5037	-	-	Subsoil overlying stone deposit 5036/ Occupation layer?	Box-Flue?	1	1	9
	-	5042	-	-	Midden?/Layer	U-F/T	1	6a	14
	-	5045	-	-	Midden deposit	Box-Flue	1	1	20
						U-F/T	1	8	75
	-	5068	-	-	Midden deposit	*Tegula*	1	1	114
						Tegula	2	2a	115
	-	5069	-	-	Grey sand/gravel layer	*Tegula*	1	4a	84
	-	5096	5330	5330	Stone floor of oven 5330	*Tegula*	1	1	86
							1	6	232
	-	5103	-	5054	Fill of ditch 5054	*Tegula*	1	6a	109
						U-F/T	2	5	20
	-	5143	7966	5144	Fill of ditch 5144	*Tegula*	1	4a	75
	-	5237	-	-	Midden?/layer	*Tegula*	1	1	137.4
	-	5261	-	5260	Fill of possible beam slot-Modern field drain 5260	U-F/T	1	6a	0.7
	-	5294	-	5296	Fill of pit 5296	*Tegula*	1	1	325
	-	5324	-	5323	Fill of ditch 5323	*Tegula*	1	4a	187
	-	5822	7962	5310	Secondary fill of ditch 5310	U-F/T	1	5	12
	-	5944	-	5945	Fill of pit 5945	U-F/T	1	6	3
	-	5960	-	-	Deposit	U-F/T	1	6	7
	-	6924	-	-	Levelling/spread deposit	*Imbrex?*	1	1	3.0
	26	9044	-	-	Topsoil verge of Gt North Rd	*Tegula*	1	6	296
	27	9056	-	-	Primary fill of ditch 9050	*Tegula*	1	4	100
						U-F/T	1	3a	19
		9094	-	-	Fill of ditch 9113	*Tegula*	2	4a	417

Table 135: Romano-British ceramic building material at Healam by context

Field	Trench	Context	Group No	Feature No	Interpretation	Form	Quantity	Fabric	Wt (g)
64	-	6786	-	6785	Fill of pit 6785	*Imbrex?*	1	1	9
	-	6812	-	6813	Fill of ditch [6813]	*Tegula*	1	3a	86
						U-F/T	1	8	15
	-	6819	-	6817	Secondary fill of ditch 6817	*Tegula*	1	5	42
	-	6860	-	6861	Fill of ditch 6861	*Tegula*	1	5	148
	-	6973	-	6964	Secondary fill of ditch 6964	*Tegula*	1	4	384
	-	7073	-	7074	Fill of ditch 7074	*Bessalis*	1	6a	165
	-	7083	-	7082	Fill of pit 7082	*Tegula*	1	4a	175
	-	7188	-	7185	Tertiary fill of pit 7185	*Tegula?*	1	1	27
	-	7276	-	7265	Fill of grave 7265]	U-F/T	1	1	0.1
	-	7756	-	6978	Slag deposit in ditch 6978	Box Flue?	1	3a	44
Totals							**83**		**6971.2**

Table 135 continued: Romano-British ceramic building material at Healam by context

Fabric	Bessalis?	Tegula?	Imbrex?	Box-Flue Tile/?	Tile (T-NK)	Unidentifiable (U-F/T)	Total
1	1	9	2	2	2	2	18
2	-	-	-	-	-	1	1
2a	-	2	-	-	-	-	2
3	-	2	-	-	-	2	4
3a	1	6	-	2	1	4	14
4	-	3	-	-	-	7	10
4a	-	6	-	-	-	-	6
5	-	2	-	-	-	8	10
6	-	2	-	-	-	3	5
6a	2	1	-	-	1	3	7
8	-	-	-	-	-	6	6
Totals	4	33	2	4	4	36	83

Table 136: Romano-British ceramic building material fabrics at Healam by form

Field 61A	Bessalis?	Tegula?	Imbrex?	Box-Flue Tile?	Tile (T-NK)	Unidentifiable (U-F/T)	Total
Phase 1	0	0	0	0	0	0	0
Phase 2	0	0	0	0	0	5	5
Phase 3	0	0	0	0	0	1	1
Phase 4	0	0	0	0	0	0	0
Un-Phased	0	0	0	0	0	0	0
Field 62							
Phase 1	0	0	0	0	0	8	8
Phase 2	0	0	0	0	0	0	0
Phase 3	0	2	0	0	1	4	7
Phase 4	0	0	0	0	0	0	0
Un-Phased	0	1	0	0	0	2	3
Field 63							
Phase 1	0	2	1	0	0	4	7
Phase 2	0	0	0	0	0	0	0
Phase 3	1	16	0	3	2	8	30
Phase 4	2	5	0	0	1	2	10
Un-Phased	0	1	0	0	0	0	1
Field 64							
Phase 1	0	0	1	1	0	1	3
Phase 2	0	0	0	0	0	0	0
Phase 3	1	6	0	0	0	1	8
Phase 4	0	0	0	0	0	0	0
Un-Phased	0	0	0	0	0	0	0

Table 137: Romano-British ceramic building material forms at Healam by phase and field

FIELD 20 FABRIC (A1DB 09)
Fabric 6a: Hard.
5YR 6/8 reddish yellow
(* are the variant inclusions of Fabric 6)
Frequent coarse quartz grains (0.5-1mm)
Moderate very fine mica (up to 0.1mm)
*Moderate coarse iron-rich, red-firing clay pellets (0.5-1mm)
Occasional fine ?ironstone (0.1-0.25mm)
Occasional very fine black flecks (up to 0.1mm)
Occasional very fine white-firing clay pellets (up to 0.1mm)
*Occasional iron-rich, red-firing clay lenses
*Occasional small lithic (1mm x 2mm)
HUMPHREY BALK LANE FIELD 25 FABRICS (A1DB 09)
Fabric 1: Medium Hard.
5YR 6/8 reddish yellow
Abundant fine quartz grains (0.1-0.25mm)
Occasional very fine black flecks (up to 0.1mm)
Occasional very fine mica (up to 0.1mm)
Occasional coarse ?ironstone (0.5-1mm)
Fabric 3a: Very Hard. (= TF3? (Isserlin 2002b, appendix 12.1)
5YR 7/8 reddish yellow
(* is the variant inclusion of Fabric 3)
Frequent fine white-firing clay pellets (0.1-0.25mm)
Moderate coarse ?ironstone (0.5-1mm)
Moderate coarse quartz grains (0.5-1mm)
*Moderate white-firing clay lenses
Occasional coarse chalk (0.5-1mm)
Occasional very fine black flecks (up to 0.1mm)
Occasional very fine mica (up to 0.1mm)
Fabric 4: Medium Hard.
2.5YR 6/8 light red
Abundant fine quartz grains (0.1-0.25mm)
Frequent very fine black flecks (up to 0.1mm)
Moderate coarse ?ironstone (0.5-1mm)
Moderate very fine mica (up to 0.1mm)
FIELD 39 FABRIC (A1DB 09)
Fabric 6b: Hard.
5YR 7/8 reddish yellow
(* are the variant inclusions of Fabric 6)
Frequent coarse quartz grains (0.5-1mm)
Moderate very fine mica (up to 0.1mm)
Occasional fine ?ironstone (0.1-0.25mm)
Occasional very fine black flecks (up to 0.1mm)
Occasional very fine white-firing clay pellets (up to 0.1mm)
*Occasional large chalk (11mm x 10mm)
*Occasional coarse chalk (1mm x 3mm)
HEALAM BRIDGE FIELDS 61A, 62, 63, AND 64 FABRICS (A1DB 09/10)
Fabric 1: Medium Hard.
10R 6/6 light red to 2.5YR 5/6 red
Abundant fine quartz grains (0.1-0.25mm)

Table 138: Ceramic building material fabric type by area

Fabric 1: continued
Occasional very fine black flecks (up to 0.1mm)
Occasional very fine mica (up to 0.1mm)
Occasional coarse ?ironstone (0.5-1mm)
Fabric 2: Very Hard.
5YR 6/6 reddish yellow-2.5YR N3/ very dark grey
Moderate very fine black flecks (up to 0.1mm)
Occasional fine white-firing clay pellets (0.1-0.25mm)
Occasional very fine mica (up to 0.1mm)
Sparse coarse quartz grains (0.5-1mm)
Fabric 2a: Very Hard.
10R 5/6 red to 5YR 7/6 reddish yellow
As Fabric 2 with inclusions of:
Occasional medium sub-angular burnt stone (5mm x 2mm)
Occasional medium chalk (6mm x 1.5mm)
Fabric 3: Very Hard.
10R 5/6 red to 2.5YR 6/6 light red-2.5 YR N4/ dark grey
Frequent fine white-firing clay pellets (0.1-0.25mm)
Moderate coarse ?ironstone (0.5-1mm)
Moderate coarse quartz grains (0.5-1mm)
Occasional coarse chalk (0.5-1mm)
Occasional very fine black flecks (up to 0.1mm)
Occasional very fine mica (up to 0.1mm)
Fabric 3a: Very Hard. (= TF3? (Isserlin 2002b, appendix 12.1)
5YR 7/6 reddish yellow to 2.5YR 5/8 light red
As Fabric 3 with inclusions of:
Moderate white-firing clay lenses
Fabric 4: Medium Hard.
10R 5/6 red to 2.5YR 5/6 red
Abundant fine quartz grains (0.1-0.25mm)
Frequent very fine black flecks (up to 0.1mm)
Moderate coarse ?ironstone (0.5-1mm)
Moderate very fine mica (up to 0.1mm)
Fabric 4a: Medium Hard. (= TF1b? (Isserlin 2002b, appendix 12.1)
2.5YR 6/6 light red to 5YR 7/6 reddish yellow
As Fabric 4 with inclusions of:
Occasional coarse red iron-rich clay particles (0.5-1mm)
Fabric 5: Very Hard.
10R 5/6 red to 2.5YR 6/8 light red
Moderate medium quartz grains (0.25mm-0.5mm)
Moderate very fine chalk (up to 0.1mm)
Moderate very fine mica (up to 0.1mm)
Occasional coarse ?ironstone (0.5mm-1mm)
Fabric 6: Hard.
5YR 5/4 reddish brown-2.5YR N3/ very dark grey to 2.5YR 6/6 light red
Frequent coarse quartz grains (0.5-1mm)
Moderate very fine mica (up to 0.1mm)
Occasional fine ?ironstone (0.1-0.25mm)
Occasional very fine black flecks (up to 0.1mm)
Occasional very fine white-firing clay particles (up to 0.1mm)

Fabric 6a: Hard.
5YR 6/6 reddish yellow to 2.5YR 6/8 light red-2.5Y N/6 grey/ light grey
As Fabric 6 with inclusions of:
Moderate coarse iron-rich, red-firing clay pellets (0.5-1mm)
Occasional iron-rich red-firing clay lenses
Occasional small lithic (1mm x 2mm)
Fabric 8: Very Hard.
5YR 6/6 reddish yellow to 2.5Y 6/8 light red
Moderate mica flecks
Occasional coarse quartz (0.5mm-1mm)
Occasional very fine black flecks (up to 0.1mm)

Table 138 continued: Ceramic building material fabric type by area

(**3**) *Tegula*. Fabric 1. Fabric colour reddish yellow (5YR 7/6). Flange Type 6a – bulbous profile. Dark grey (5YR 4/1) direct heat discolouration on underside, flange top and post-breakage. Flange height: 41 – 54mm. Flange width: 37mm. Tile thickness: 25mm. Weight: 86g. Context: 5096 (stone floor of oven 5330). Group No. 5330. Feature No. 5330. Field 63. Phase 3.

(**4**) *Tegula*. Fabric 4a. Fabric colour reddish yellow (5YR 6/6). Flange Type 6a – tall profile. ?Same tile as (5143). Flange height: 55mm. Flange width: 24 – 32mm. Tile thickness: 25mm. Weight: 187g. Context: 5324 (fill of ditch 5323). Group No. 5323. Feature No. 5323. Field 63. Phase 3.

STONE BUILDING MATERIAL

John Cruse and Geoff Gaunt

Summary

Stone building materials (total weight 3.18kg) from ten contexts were studied. Six of the thin, flat sided slabs (2875, 3249, 6860, 8227, 3249, and 7539) preserved apparently intact dressed edges, with thicknesses typically between 16-22mm, though 7539 was somewhat thicker (20-30mm). One other fragment (9036) without a dressed edge was also within this thickness range. The other pieces (8017, 8317, and 9118) were considerably thinner, so could have been from tiles that had laminated on fracture. The bulk of the 'tiles' were made from locally available material (see below).

Slab 7539 was the best surviving example in the collection. If originally trapezoidal, 180mm long and 190mm wide, with chamfered edges, its intact weight would have been *c*.1.5kg. Assuming each tile overlapped *c*.10mm with its neighbour on either side, it would take around six rows of five tiles to cover a 1m² area, i.e. an estimated tiling weight of *c*.45kg/m². If the above estimated length of 180mm was typical, the other fragment with two surviving sides (8227) would then be *c*.50-60% intact, giving an estimated weight of 1-1.2kg/ tile. With an apparent narrower design, say 140-160mm maximum width, six rows of six to seven tiles would be needed to cover 1m² and weigh *c*.40-45 kg/m².

A comparable roofing tile came from an unphased Roman context at previous excavations at Catterick (Bell and Thompson 2002c, 305, fig. 374.11). This was also *c*.20mm thick and made from micaceous sandstone (Type 2?), but was a somewhat larger trapezoid, 260mm long and 100-240mm wide.

Dimensions: L-length, W-width, Th-thickness, D-diameter

Type 1: Thin parallel bedded stone

Context 2875. Dimensions: L 90-130mm x W 15-70mm, Th 16mm. Two joining fragments of a flat slab: One straight, apparently dressed edge (L 70mm). Wt. 245g.

Context 3249. AA. Triangular, 125mm long, with one side roughly dressed into a curved edge 115mm wide, and two radial(?) fracture surfaces, 20mm thick. One face is smoother than the other and (unlike other finds) is slightly peck-dressed, which may indicate a different function (part of a 200-250mm diameter baking stone?): Wt. 390g.

Context 6860: RF 766. Dimensions: L 75-90mm x W 75-83mm, Th 18mm. Flat slab: one apparent dressed edge (length 90mm), the other three fractured. A roof-peg hole is preserved in section, of hour-glass shape, bored 15mm diam into its smoother, burnt(?), upper(?) side, a minimum of 5mm, with a less regular scar, detached from the assumed underside. Wt. 220g.

Context 8017. Two small fragments, both triangular, with no dressed edge. Dimensions a) L 50mm, W 40mm max, Th 18mm. wt. 60g. b) L 35mm, W 35mm max, Th 7mm thick. Wt. 10g.

Context 8227. Trapezoidal shape slab, damaged at both ends. min. W <100mm, max. W >135mm, max L >120mm, Th 22mm. Two apparent side edges (lengths 80 and 110mm), converge at *c*.20°. One (upper?) surface is smooth, the other (lower?) has a rougher finish. Possible peg-hole scar in narrower edge. Wt. 600g.

Context 9036. One surface burnt. Three joining fragments. no obvious worked edge. L 140mm x W 20-60mm, Th 16mm. Wt. 210g.

Lithology (GG): Sandstone, pale to medium grey and (in places on exposed bedding planes) dark grey, fine grained, well sorted, well compacted. Sparse minute muscovite on bedding plane of 8227. Slight reaction to dilute hydrochloric acid on 2875, but may be due to secondary intergrannular calcite. Suspected fire blackening in places.

This lithology occurs in many parts of the Carboniferous succession in the Pennines. On the basis of proximity of outcrop, it is probably from the Wensleydale Group (formerly Yoredale sequence), which spans the Lower-to-Upper Carboniferous succession in Swaledale and Wensleydale, and in adjacent areas.

Type 2: Thin parallel mica laminated stone

Context 3249 AA. Dimensions: L 15-135mm x W 50-125mm, Th 20mm: Fractured, roughly triangular, flat slab. Two dressed edges, roughly at 90° (L 125mm and 40mm). Wt. 440g.

Context 8315. Thin wafer. Dimension: L 60mm x W 40mm, Th 2mm. Wt. 25g.

Lithology (GG): Sandstone, pale greyish brown, fine grained, well sorted, fairly well compacted, with abundant minute muscovite concentrated on bedding planes (and contributing to marked fissility) and sparse minute plant debris, also mainly on bedding plains.

This lithology is common in the Coal Measures, being in the Yorkshire Coalfield referred to as 'sandstone of Elland-Flags type' and having been used for roofing (and paving) since Roman times (e.g. Roman York). However, the same lithology occurs, but much less commonly, in the Wensleydale Group and even as thin sandstones in the Millstone Grit. There is, in addition, a closely comparable lithology in the Brandsby Roadstone, part of the Middle Jurassic Scarborough Formation of north-eastern Yorkshire, also well used, at least from medieval times, as a roofing stone.

Type 3: Thin irregularly fissile stone

Context 7539. Six joining fragments. Retains five dressed edges from *c* 60% of the original circumference: Reconstructed as triangular, with two chamfered upper edges, 60mm long, which has lost its pointed(?) lower area. Dimensions: L 120mm (originally perhaps 180mm), Max. W 190mm, Th 20-25mm at edge, *c*.30mm at centre. There is a probable peg-hole, 30mm from the nearest edge. Three of the edges are straight and smooth, as if sawn (but lack any saw-wear evidence). The upper surface is slightly convex, somewhat eroded, with the lower surface being darker (burnt/ smoke?) and slightly concave. Wt. 880g.

Context 9118. Four joining fragments. Thin slab, no worked edges. Dimensions: L 110mm x W 50-110mm, Th 5mm. Wt 160g.

Lithology (GG): Uncertain, medium to (on some fissile surfaces) dark grey, apparently very fine to fine grained, but with a variably recrystallised texture visible on the only available surface at right angles to the fissility, consisting mainly or entirely of quartz and/or other silica minerals (e.g. chalcedony, opal) and with a markedly irregular fissility that has produced subparallel undulating surfaces. A few mainly angular calcite masses up to 9mm long are almost certainly the result of secondary deposition in pre-existing voids.

Probably silicified sandstone or chert. Both occur in the Wensleydale Group and closely subjacent and suprajacent strata in the Yorkshire Dales region. The undulating fissile surfaces may reflect original lenticular bedding of silicified sandstone, but in the writer's experience, the more completely recrystallised chert invariably has a more 'blocky' fracture pattern. One cannot but wonder whether these surfaces would provide even a moderately effective roof, and wonder also whether the fragments seen may have been from a large erratic that was fractured by some means, such as heat.

CHAPTER 13 QUERNS AND MILLSTONES

John Cruse

INTRODUCTION

The collection consisted of 26 fragments of stone weighing 262kg. They could be reconstructed into one or two saddle querns, three beehive querns, four disc querns made from local stone, and one from imported lava. Groups of lava crumbs suggested the presence of up to fifteen more. A welcome aspect was the rare presence of two intact millstones and a further five were also reconstructed. Analysis of these improved our understanding of this under-studied artefact. In all, the estimated cumulative original weight of these stones was *c*.580kg.

The finds locations (Table 139) showed that Field 63 had a major phase of grinding activity. This surge in activity mirrored the ceramic evidence, where Field 63 accounted for 78% of total finds. The few disc hand querns from Field 1 suggested the nearby presence of individual settlement sites, presumably utilising the querns for personal consumption. In contrast, the area on either side of the Healam Beck clearly had a phase of cereal processing on an industrial scale. The widespread presence of shattered remnants of imported lava hand querns in this area was also of note.

CHRONOLOGY

When the chronology of the dated implements was considered (Table 140), an interesting picture emerged. Imported lava hand querns were found throughout the site's occupation. In the 2nd century AD, their use was augmented by locally sourced beehives, which were replaced by locally-made disc querns from the 3rd century AD onwards. Some of the lava crumbs from the later Roman contexts were likely to be residual, in a similar manner to that noted for the saddle quern fragments. It was difficult to know how extensively lava querns continued to be used after the early Roman *flourit*. However, four out of five of the millstones from the Healam Beck area were deposited into late 4th century AD contexts, which suggested that the bulk of this industrial scale processing took place after 350 AD.

The Roman coin evidence suggested that an initial phase of occupation in the 2nd century AD was followed by a diminishing deposition of coins in the 3rd, but there was a final resurgence of activity in the 4th century AD. The quern evidence suggested that these two main phases of activity also reflected a significant change in the site activity, with an earlier hand quern using community being replaced during the 4th century AD by one that processed cereals more intensively (using millstones).

USE WEAR PATTERNS

Analysis of the relative wear of the stones also suggested that in the 4th century AD, usage was more intensive than it had been earlier. Whereas the Phase 1a/c beehives were lightly worn, by Phase 1d only one of the three disc querns (no. 12) was modestly used (retaining a rim height of 115mm). By the late Roman period (Phase 3), none of the seven stones were similarly thick, but were either worn down to 45-60mm, or had uneven profiles through heavy usage. So the move to larger millstones was also accompanied by more intense wear.

Site	Saddle	Beehive	Non-Lava Disc	Lava Disc	Small Mill-stone	Large Mill-stone	Total
A1DB (Field 1)	-	-	1	-	-	-	**1**
A1DB (Field 23)	-	-	-	-	-	1	**1**
Healam (Field 61A)	-	-	1	(+1?)	1	-	**2 (+1?)**
Healam (Field 62)	-	1	-	(+2?)	-	-	**1 (+2?)**
Healam (Field 63)	1 (+1?)	2	2	1 (+12?)	1	4	**11 (+13?)**
Total	**1 (+1?)**	**3**	**4**	**1 (+15?)**	**2**	**5**	**16 (+16?)**

Table 139: Summary of quern finds

Phase	1a (98-161 AD)	1c (180-200 AD)	1d (180-250 AD)	3ii (250-400 AD)	3b (350-400 AD)	3c/d (350-450 AD)
Saddle	-	-	-	-	-	2
Beehive	1	1	-	-	-	-
Disc – local	-	-	2	1	-	1
Disc – lava	(+1?)	(+3?)	1 (+1?)	(+2?)	-	(+3?)
Millstone	-	1	-	-	3	1

Table 140: Chronology of the dated querns and millstones at Healam

Type	Saddle	Beehive	Disc	Millstone		Total
				Small	Large	
Millstone Grit	1 (+1?)	3	3	1	4	**12 (+1?)**
Wensleydale Group	-	-	1	-	1	**3**
Mayen Lava	-	-	1 (+15?)	-	-	**2 (+15?)**
Other	-	-	1	1	-	**2**
Total	**1 (+1?)**	**3**	**6 (+15?)**	**2**	**5**	**19 (+16?)**

Table 141: Summary of quern stone lithology

STONE SOURCES

The bulk of the hand querns and powered millstones were made from Millstone Grit (MSG) (Table 141). Heslop already demonstrated that MSG was the favoured material for local beehive querns, because of its excellent milling characteristics (Heslop 2008, 11). It has been found in use at least 40km from likely production areas, occurring across the Vale of York, as far east as the western valleys of the North York Moors (Heslop 2008, 34). A preference for using MSG for large grinding stones increased throughout the Roman period, with MSG millstones from the Pennines/Peak District being found as far south as Highstead, near Canterbury, (Bennet *et al*. 2007, 79) and at Ickham (Spain and Riddler 2010, 278 and 281), both in Kent, some 300-350km away.

The use of Wensleydale Group (or 'Yoredale') sandstones for the three beehive querns continued a local beehive tradition (Heslop 2008, 33), but its limited usage probably also reflected its more moderate milling characteristics. All three examples were upper stones. Wright (2009, 58) observed that such finer grain rocks were more suitable for use as upper stones, as they were 'more comfortable to handle and cause less damage to the skin'. We can note that no stones came from Jurassic sources around the North York Moors. Heslop has previously observed (2008, 29) that few Jurassic beehives were found west of the River Ure and the scheme evidence suggested that this pattern was also evident for Roman disc querns.

With the Healam Beck site conveniently located where Dere Street crossed lower Wensleydale, one of the site's initial roles may have been as a local market. This would have enabled the inhabitants to acquire products (such as querns) from sources in the Dales to the west and so they could provide travellers moving along the north-south road with food (and other services). By the 4th century AD, data from the Portable Antiquities Scheme (Collins 2012, fig. 3.2) indicated that by the 4th century AD the well-used Dere Street corridor became the western boundary for coin-based economic activity in the Vale of York. This contrasted with the Dales to the west, which was virtually a coin-free area. We may therefore wonder whether changes in the late 3rd/early 4th century AD, such as the imposition of the *annona* (requiring taxes to be paid in kind rather than in coin), could have significantly modified the role of sites located on this economic boundary, such as at Healam Beck.

QUERNS BY TYPE

Saddle querns

The saddle quern fragments (no. 1, not illustrated, and no. 2, Fig. 240) were all residual elements in the same cobble layer assigned to Phase 3d (late 4th – early 5th century AD). As small numbers of saddle querns continued in use throughout the Roman period (Wright 2012, 134), these pieces could either be a secondary reuse of contemporary discards, or an incorporation of earlier material brought from a later prehistoric context elsewhere.

Beehive quern

The two upper stones both have steep 'exterior' angles of 75%, typical of an 'upright' beehive (Heslop 2008, 37). No. 3 (Fig. 240) had a collar around its hopper, similar to that seen on YQS 765 and 679 (Yorkshire Quern Survey), both also from Hambledon district (Heslop 2008, 101 and 106) and a profile that fit comfortably within the Trajanic/early Antonine dating. There were few local parallels for the atypical 'barrel-shaped' profile of no. 4 (Fig. 240). The incompetently drilled feed-pipe suggested it was finished by an idiosyncratic mill-wright. The apparent chisel marks on the grinding surface fracture edge provided rare evidence of the stone being inverted before being deliberately split in half. The smooth peck-dressing on the grinding surface of the lower stone (no. 5, not illustrated) suggested that it had been redressed, before it was taken out of service and roughly halved. From the evidence of the other two beehives, this also could be dated to the 2nd century AD.

Disc hand querns

Local stone

Although the fragment of no. 6 (Fig. 240) had no evidence for the diagnostic lateral slot into its upper surface, the collar profile around its hopper was comparable to that originally noted on a similar quern at Traprain Law (Close-Brooks 1983, 214). Subsequently, more local examples have been noted at Adel (Cruse *in prep*), at Conistone with Kilnsey (Martlew 2011, fig. 9.1), a late 1st century AD example at Castleford (Buckley and Major 1998, 245, SF 266A), and also later Roman examples from Dalton Parlours (Buckley and Major 1990, 118, SF 410, SF 1178A and SF 1478). The vertical dressing of the skirt recalled the striations that often decorated lava querns during the earlier Roman period, which suggested that this quern may have been residual. From its light weight and its minimal feed-pipe, the second upper stone (no. 7, not illustrated) was clearly very well-worn.

Turning to the lower stones, no. 8 (Fig. 240) had a narrow eye, now blocked by the corroded spindle. Its size was certainly insufficient to allow an organic 'bush' around a drive-shaft and may indicate that the spindle was fixed, implying that the clearance of the upper stone was non-adjustable. The flat base, suitable for setting in a wooden frame, was in the tradition of imported lava querns. Such base stones, with their gently convex grinding surfaces, are normally assumed to be paired with disc upper stones. Another option was that they could have been paired with 'developed' beehive upper stones, with their concave grinding surfaces (see Wright 2009, 54, SF 17, fig. 32.3 and Proctor 2009, 82).

The very regular 'balanced' groove pattern on no. 9 (Fig. 241) was more suitable for a back-and-forth hand operation, rather than rotation limited to one direction. There was no indication of how this stone was turned. If the rynd-slot in the grinding surface was solely to hold a pivot hole, the stone could have been hand driven via a handle attached by a band around the skirt, or via a lateral slot handle in the removed section of the upper surface. Alternatively, the rynd could also be directly connected to the drive shaft, which was mechanically powered from below (implying rotary operation). The grain flow through the 'D' shaped space on either side of the central linear rynd was intriguingly similar to that used on a millstone with twin D-shaped opposed feed-pipes (possibly suggesting how this latter millstone design may have originated). Although classified as a large hand quern (due to its 'balanced' groove pattern) with an attached handle, the diameter of no. 9 was very close to the hand quern to millstone transition point of 500-550mm (see below). So we cannot rule out the possibility that it could actually have been a small

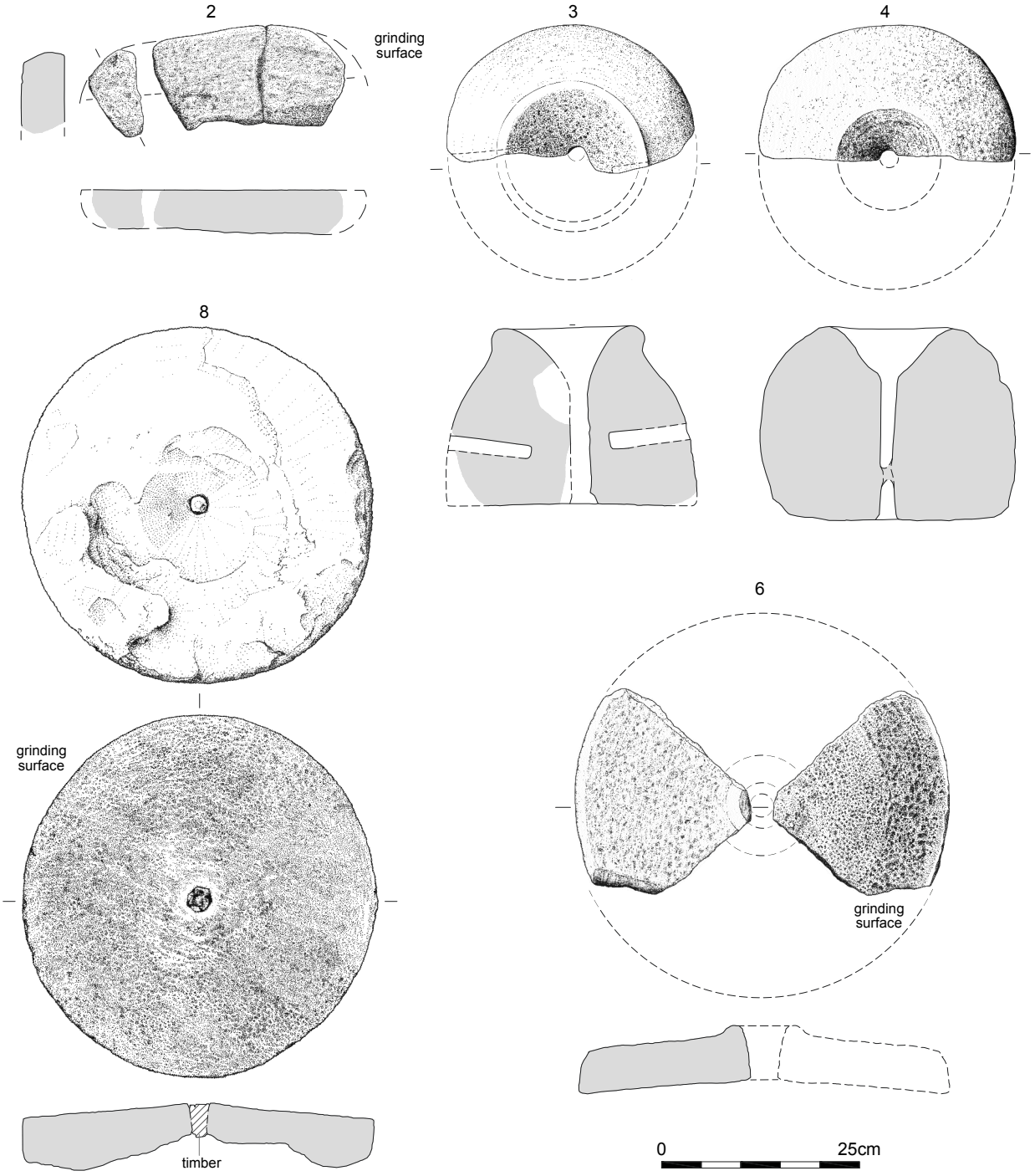


Figure 240: Saddle, beehive, and disc hand querns

mechanically powered millstone. If so, it had been neatly (but inappropriately) dressed for rotary operation by an inexperienced late Roman mill-wright.

Imported lava

The curving 'harp' pattern on the lava base no. 11 (Fig. 241) was striking and has not been recorded previously. The three(?) surviving harps had 22, 12, and 10+ grooves, which could be restored into a pattern of 6 harps of unequal width. Alternatively, if the larger harp was split by the curved divider into 12 and 10 grooves, then it could be a 8 harp pattern of alternating 10 and 12 grooves. In addition, although the pattern indicated anti-clockwise rotation, the orientation of the divider grooves towards a point 20mm offset from the centre of the 'eye' would normally be found in a clockwise rotating stone. As the stone was quite thin and light-weight, its well-worn state supported the idea that it had been recut and its 'non-standard' pattern suggested that this took place locally.

As would be expected at a modern excavation, even small crumbs of lava are now recognised and reported. Significantly, these were only found in the immediate vicinity of the Healam Beck site, which was clearly a focus of activity. What was more difficult to establish was the number of querns that these crumbs represented. Whilst each separate group of fragments could be the degraded remnants of an individual lava quern, it was also possible that a shattered or degraded single quern could be scattered quite widely into multiple find-spots. Thus, whilst we can be sure that several lava querns had been in use on the site, the upper limit may be less than

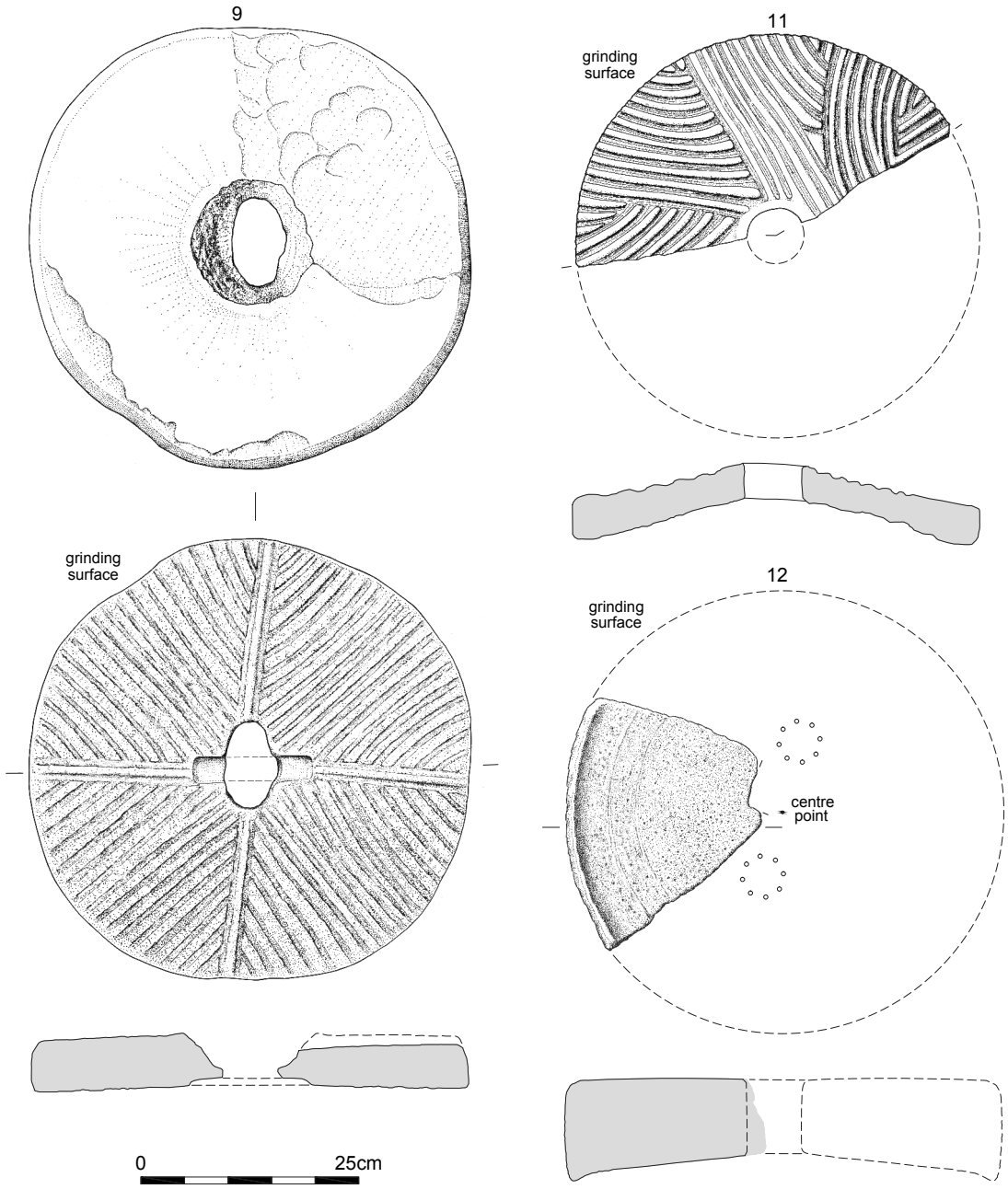


Figure 241: Disc hand quern, imported lava quern, and millstone

the fifteen contexts in which they were found.

Field 63 had the greatest concentration of lava fragments with 12 contexts that preserved such evidence. Whilst this was only a modest proportion (2.8%) of the total 432 contexts in Field 63 that contained Roman pottery, it suggested that at least during the site's earlier phase, lava querns were in common use. Two of the better preserved fragments were assigned to Phase 1c (AD 180-200), which could support the common belief that lava querns were mainly imported in the early Roman period.

In her report on the Catterick querns, Wright (2002, 279) noted that in northern Britain, lava querns were strongly represented on military sites, with small numbers being found on the more prestigious civilian sites (such as the villas at Rudston and Dalton Parlours), whilst 'native farmsteads, mostly close to military establishments' only produced a few isolated finds. In response, Cool (2004, 344) observed that such military and villa sites 'are precisely the sort of sites which have long received the most archaeological attention in the region. More modest rural sites have been relatively under-investigated. Increasingly, when they are, the occasional lava quern is being recovered from them.' She concluded that 'until more non-villa, rural sites have been investigated, the use of lava querns as an index of status should probably be regarded with some caution.'

MILLSTONES

Criteria for recognising a millstone

Many specialists have sought meaningful criteria to differentiate between hand querns and mechanically powered millstones, but without consensus. Study of the Yorkshire Quern Survey archive has led to five criteria (Table 142) that have been tentatively suggested as being useful indicators (Cruse and Heslop 2013, table 30).

Applying this approach to the upper stones (Table 143), we can see that in most cases the majority of the five indicators tell the same story. However, there was an overlap at *c*.500-550mm diameter between the largest hand querns and the smallest millstones. In this

Criteria	Hand Quern	Powered Millstone
Diameter	<c.55cm	>c.50cm
Handle-holes in upper stones	Present	Absent
Non-directional grinding surface grooves	Can occur	Absent
Estimated intact weight of upper stone	<30-35 kg	>30-35kg

Table 142: Proposed criteria for distinguishing between querns and millstones

ambiguous area, no. 9 (Fig. 241) was probably a hand quern, whilst no. 12 (Fig. 241) was probably a millstone.

Size data on a group of 253 stones from the United Kingdom with diameters that exceeded 500mm suggested that certain sizes were favoured. The most popular diameter was *c.*600mm and around half the stones had diameters between 500-650mm. Comparing this data with our stones (Table 143), only two likely millstones fall in the 'small' range of 500-650mm, whereas five were in the 650-800mm 'large' group. This suggested that the grinding equipment from Field 63 was more heavy-weight than would normally be expected.

Small millstones

Of the two small millstones, no. 12 (Fig. 241) had both a well-finished upper surface and a concave grinding surface lip, which indicated that it was an upper stone. Its suspected rectangular 'eye' and its massive thickness were both more appropriate for a small millstone than for a hand quern. Although such rectangular perforations were common on rotary whetstones, this stone had no evidence of such rim wear. Millstones have been occasionally recorded with rectangular openings, such as a late 2nd–early 3rd century AD quern stone with a 860mm diameter at Gadebridge Park villa, Herts (Neal 1974, 192) and the unprovenanced 675mm diameter quern with opposed double feed-pipe stone in Southburn Museum, East Yorkshire.

The other small millstone (no. 13, Fig. 242) was found in topsoil in Field 61A, but from its absence of medieval features, it was assumed to be related (in some way) to the adjacent concentration of later Roman cereal processing equipment. It had three distinctive features. First, it was a rare example of an intact stone (only broken during excavation), which raised questions about its taphonomy (discussion below). Second, although its profile included a modest 80mm deep hopper, it also had a 20mm wide groove around the rim of the hopper (whose significance is also considered below). Third, from its complete survival, we can be sure that it had no handle holes or rynd-slots cut into its central perforation, which raised the question of how it was driven – did the vertically-sided skirt suggest a circumferential band was involved?

Large millstones

Two of the large stones were fragmentary, but as they lacked any evidence for non-central perforations, they were assumed to be conventional millstones. No. 14 (Fig. 242) was taken to be an upper stone, because of its well finished upper surface, its slightly concave grinding surface, and its slim profile (which indicated considerable wear). An additional indicator was the presence of a 'distributor' groove on the grinding face of the upper stone, whose role seemed to have been to improve the grain distribution, as it moved out from the central area (where the grain was broken open), through to the outer area where the narrower gap between the grinding faces produced the flour (Watts 2005, 9). This feature, normally located at between 35-45% of the total diameter, is increasingly being recognised. Of the 19 known YQS examples, three (nos. 14, 15, and 18, Figs. 242-244) came from this scheme.

The thin cross-section of the second conventional millstone no. 16 (not illustrated) suggested that it was well worn and this presumably contributed to its fragmentation. Although the slightly concave lip to its grinding surface edge could suggest it was an upper stone, the functional finish to the non-grinding surface face and its variable thickness were more indicative of it being a base stone.

Double feed-pipe millstone

Examples of upper millstones that lacked any evidence for hoppers, but with opposed D-shaped holes around their central perforations, have occasionally been published (e.g. at Birdoswald, No. 133 in Summerfield 1997, 293). However, the incomplete nature of this evidence has undoubtedly delayed our full appreciation of this distinctive millstone type. The normal fate of millstones at the end of their 'working' life, unfortunately, was to be broken up. Of the 24 comparable double feed-pipe millstone fragments known to the author in mid-2012, no. 18 (Fig. 244) was the only stone that survived intact. It was thus a valuable addition to the archaeological record, which enabled us for the first time to assess all the features of an intact example.

The power to an upper millstone was provided from a central vertical drive-shaft via a horizontal metal rynd, which was usually fixed into opposed rynd-slots cut into the lower face of the stone. However, no. 18 had no such rynd-slots. Instead, it had five inclined vertical slots that were cut into the stone's skirt, which were interpreted as the fixing points for a possible iron band around the circumference. If the drive shaft rose through the central perforation and the stone was then rotated via horizontal

Catalogue no.	no. 7	no. 9	no. 12	no. 13	no. 18	no. 14	no. 15
Diameter (cm)	<55	50	50	>50	>50	>50	>50
Handle-holes	Yes	No	No	No	No	No	No
'Balanced' grinding surface	No	Yes	No	No	No	No	No
Upper stone estimated weight	<35	<35	35	>35	>35	>35	>35
Double feed-pipe in Hopper	-	?	-	-	No	-	No
Interpretation	Hand	??	??	Millstone	Millstone	Millstone	Millstone

Table 143: Summary of quern stone interpretations using criteria from Table 141

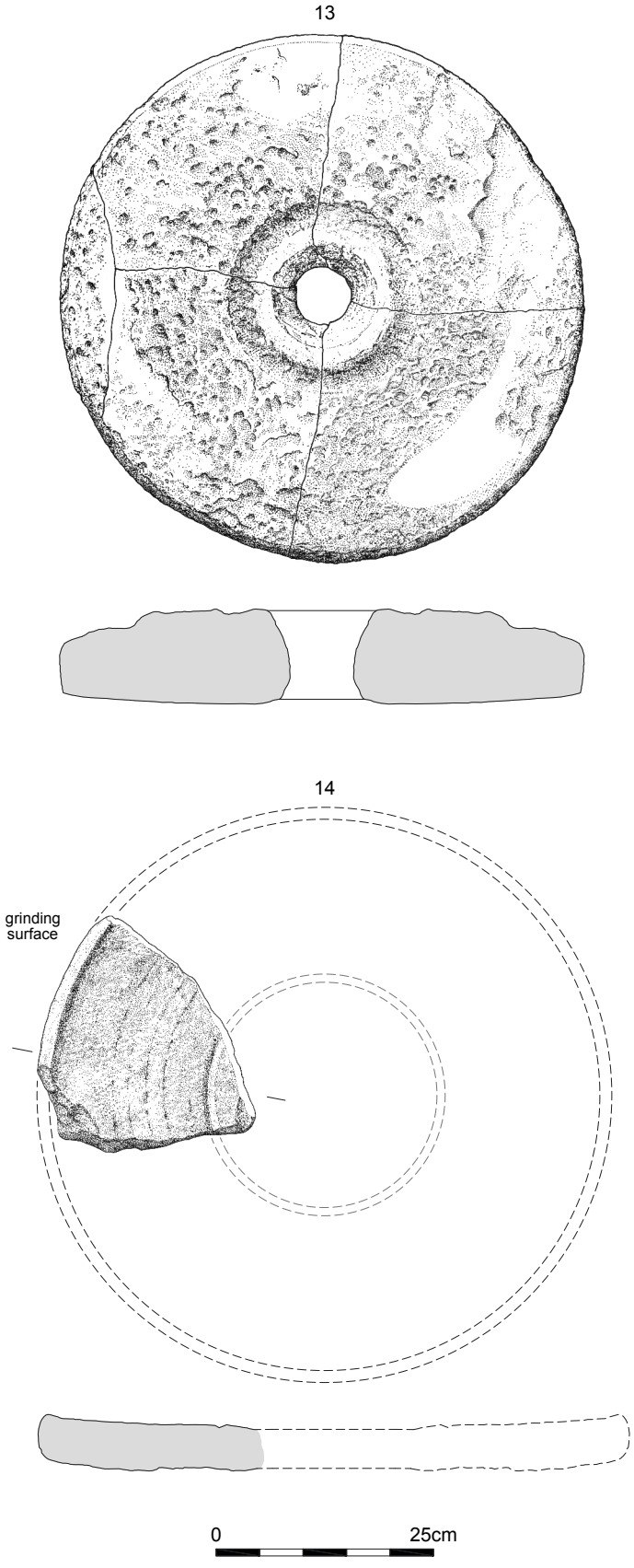


Figure 242: Millstones

bars running above the upper surface linked onto this external band, then these fixing points would ensure that the band did not slip around the circumference. Such an approach left the 'D'-shaped holes free to be used to feed the grain directly into the triple 'distribution' groove area between the grinding faces. The alternative scenario, whereby the drive was transmitted to a horizontal bar via vertical inserts into the opposed 'D' shaped holes, was considered, but rejected. There were no signs of abrasion by such inserts onto the peck-dressed interior of the 'D' shaped holes and the central hole would be too small to accommodate both the drive-shaft and to act as the sole feed-pipe for the grain.

Single grooves around the outside of an integral hopper were known on hand querns, such as on SF 9 at Newbridge Quarry, Pickering (Heslop and Cruse 2012, 56, fig. 36.14) and could have been decorative. McLaren and Hunter's review of Scottish rotary querns (2008, 115) also concluded that such circular pecked features around the hoppers of their type 1a disc querns were non-functional.

However, if we are correct in interpreting the 'D'-shaped perforations on no. 18 as feed-pipes, then some external hopper arrangement set into the upper-side of the millstone would have been needed to feed the grain through each rotating 'D' onto the grinding surfaces. As no. 18 lacked an integral hopper, it was possible that the cereal grains fell from a central hopper into the opposed feed-pipes, via an organic distribution structure that was set into the 'D's and rotated with the millstone (perhaps also held in place by the suggested radial bars between the drive shaft and the outer band). Although the fragmented state of the other 'D' perforated stone (no. 15) was less informative. There was a partial groove over the upper surface of one of its feed-pipes, which could similarly help to support an added distributor.

Turning to the conventional millstone no. 13 (Fig. 242), which as we already discussed, was probably driven via a circumferential band. As this stone also had a circular groove around the top of its central perforation, the presence of some comparable external funnel arrangement for grain can also be suspected.

Comparable millstones ranged in rim thicknesses from 55-60mm at Wattle Syke, West Yorkshire (Cruse and Heslop 2013, 176-7, no.84) to 100-110mm at Wharram Percy, East Yorkshire (Watts 2004, 221 no.35) – so the 80-90mm thickness of no. 18 (Fig. 244) suggested that it was only modestly worn. It was thus unlikely that this 2nd-century AD stone was discarded because of exhaustion. In comparison, no. 15 (Fig. 243) had apparently continued in use, despite its severely asymmetric wear. This may suggest that, by the late 4th century AD, the miller had difficulties in obtaining a suitable replacement stone.

Looking first at a conventional millstone, such as no. 13 (Fig. 242), its 65mm diameter central feed-pipe would have also shared space with a vertical drive-shaft. Watts (2002, 61) illustrated two examples, one from Silchester (30mm diameter) and another from Great Chesterford (30mm across). Allowing for a 30mm shaft, the maximum space for grain that moved through no. 13's feed-pipe would only have been *c.*2500mm^2. In comparison, the 'D'-shaped feed-pipe in a comparably sized millstone, such as no. 18, was *c.*80mm long and 80mm wide, which allowed a total maximum grain input area of *c.*10000mm^2 (roughly four times larger). From this volume difference, we can suspect that the central feed-pipe on no. 13 was only suitable for use with a modest power source, such as an un-geared watermill (powered by either an under-shot or a horizontal waterwheel), by animals, or even by slaves.

The much larger feed capacity of the double feed-pipe millstone implied that they were driven by a more powerful energy source, which could only be provided by a vertical waterwheel. The limited number of known examples from elsewhere in the Roman Empire usually had an over-shot water supply, which required a leat from a nearby dam (or an aqueduct source) to get the necessary 'head'. The resulting 2-4 times increased power output from an over-shot drive (Reynolds 1983, 41, tables 1-5) enabled the use of gearing to improve the rotational speed of the upper millstone and thus, its grinding rate.

Double feed-pipe millstones had a wide distribution throughout England and Wales. Of the seven YQS examples from dated contexts, the majority fell between mid-3rd to mid-/late 4th century AD. Most examples were found on rural sites, with only a minority coming from clear military sites. They have rarely been discovered in major urban areas. The idea of millstones with opposed off-centre feed-pipes seems to have been a British innovation, which was derived from the hand quern design. Separate opposed feed-pipes, combined with opposed D-shaped hoppers, were known from military contexts at Castleford as early as the late 1st to 2nd century AD (Buckley and Major 1998, 246-8, Nos. 16 and 17). Alternatively, the opposed off-centre feed-pipes were intended to strengthen the design of the millstone, by avoiding the progressive widening of the central perforation (see no. 9, Fig. 241) as feed rates were progressively increased.

Intact millstone no. 18 (Fig. 244) was set, with its grinding surface down, in the base of a shallow pit in Field 23. There were three possible explanations for this. It is possible that the millstone was placed intact, so it could carry out some practical secondary function in the base of the pit. Alternatively, the burial of 'whole querns' was one of Chadwick's criteria (2012, 294) for recognising a 'placed deposit'. Or, as a partially used stone (see below), it may have been hoarded away in the ground, with a view to possible future retrieval and reuse.

If we were correct in deducing that millstone no. 18 was powered by a water-wheel, then in the absence of any convenient water-course in the area around Field 23 we can conclude that the millstone was probably transported some distance from its original mill-site. This was presumably located on either the river Swale, or the Ure, or on the nearby Wath or Healam Becks.

Millstone no. 13 was also unusual, in that it survived intact (until broken during excavation). This raised the question of whether the stone had been similarly preserved in an unrecognised shallow pit in Field 61A and whether its deposition may also have been deliberate.

DISCUSSION

The variety of forms and the fact that a date could be assigned to 90% of the recognisable quern stones permitted a rare chance for significant questions to

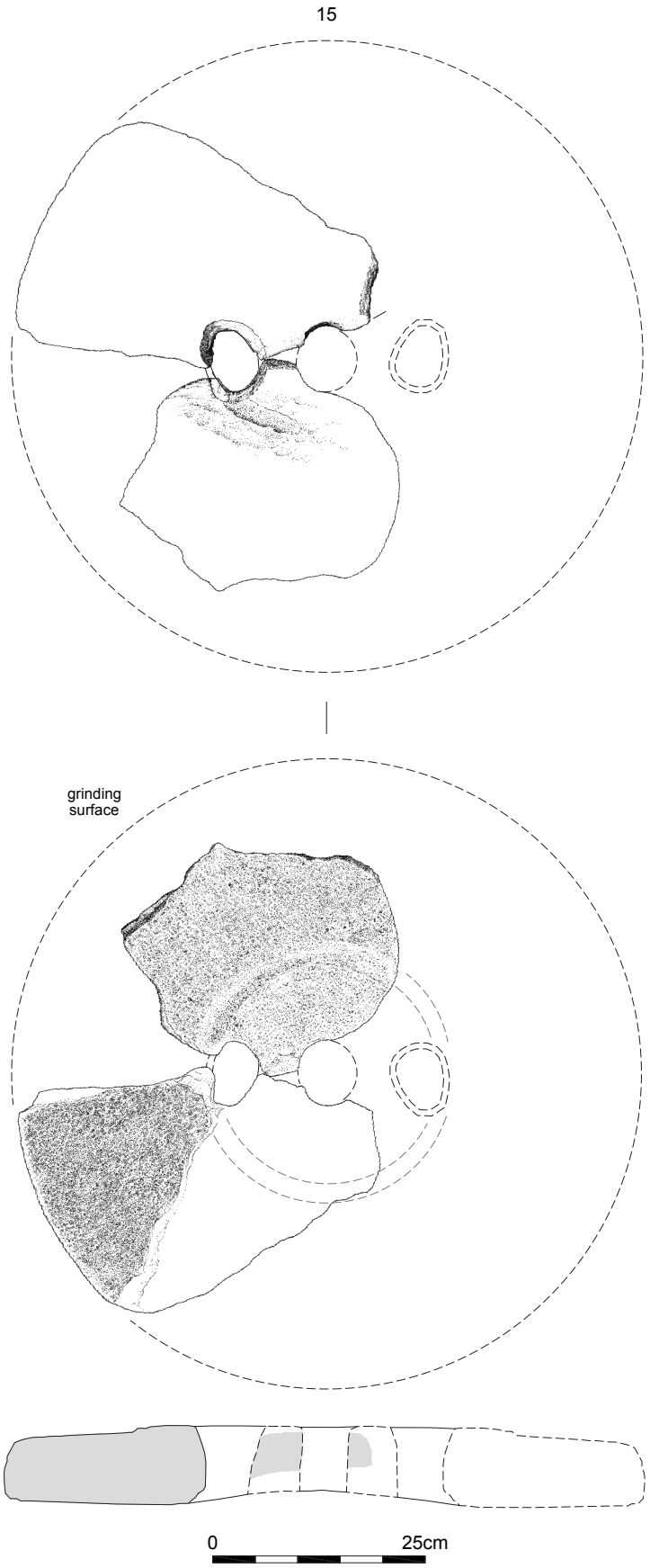


Figure 243: Large millstone

be investigated in greater depth. In the first period of occupation many of the stones were fragmented in the 'traditional' manner at the end of their functional lives. Heslop (2008, 69) demonstrated that beehive querns were either part of a process of 'detachment', where one or more features were selectively removed, and/ or 'division', where they were split vertically. This was a recognised process on the fragmented saddle querns and on all three beehives, which were neatly halved. This process was particularly evident on no. 4, as it retained a line of chisel impact evidence across the grinding face.

It was more difficult to detect comparable treatment of disc querns, as their slimmer profile, especially for the easily shattered lava quern, were more vulnerable to inadvertent damage than the massive beehives. However, it may be significant that the discs from the early Roman period (nos. 11 and 12) were divided, whereas the later Roman period querns nos. 8 and 9 and millstones no. 18 (no. 13?), were all virtually intact. This suggested that 'traditional' attitudes to disposal no longer applied to the larger later Roman millstones.

Anti-clockwise 'harp' patterned grooves have been regularly recorded for the grinding faces of imported lava querns, however, they have been less frequently found on disc querns made from local stone and were almost never used on beehives. In studies of two adjacent Romano-British sites in the Wetherby area, none of the 41 disc querns from the Wattle Sykes settlement were grooved (Cruse and Heslop 2013) and only one grooved millstone was recorded at the nearby Dalton Parlours villa (Buckley and Major 1990). In contrast, Field 63 both featured a high proportion of disc querns with grooving, but none of the millstones were similarly treated. Both the lava quern (no. 11) and one (no. 9) of the four local stone querns were grooved and all these examples had diameters between 390-495mm. As the stones came from earlier Roman contexts, where imported lava querns were also quite common, this suggested that their users were willing and able to adopt Roman technology. Unusually, however, each quern incorporated a different type of 'harp' pattern, so there was no observable uniformity in this adoption.

Detailed statistical analysis of such a small collection of querns would be inappropriate, although we can note that the 2nd/early 3rd century assemblage in Field 63 had beehives and local stone discs in similar numbers, together with a significant proportion of lava querns. YQS data indicated that disc querns (in either lava or local stone) were more commonly found in the vicinity of the Roman road system, whereas beehive querns had a much more uniform distribution spreading deep into the Dales. The difficulty in interpreting the significance of lava querns has already been mentioned. Our records showed that despite the variable recording of lava 'crumb' presence, lava querns made up *c*.25-35% of the total quern assemblage at sites with a military focus, for example at Catterick (Wright 2002). In comparison, at rural civil sites lava presence was modest and only made up *c*.4% of the total quern assemblage. However, this cannot be solely attributed to preferential military access to lava quern imports, as personal study of Museum of London Archaeology (MOLA) records (unpublished) indicated that they were the dominant form amongst the community of traders in London, who very rarely used any local stone variants. For instance, Williams and Peacock have noted that 95% of the *c*.1000 from No.1 Poultry were of lava (2011,452).

The mixed quern assemblage from around Healam Beck was probably best interpreted as those of an earlier Roman community, including local inhabitants, as well as incoming workers/ traders. Their activities could have included providing Roman-style catering for the influential civil and military travellers, who were either entitled to use, or were required to protect, the main road between the Hadrian's Wall forts and the provincial capital at York.

By the 4th century AD, quern sizes changed and the assemblage was dominated by much larger stones. The rotary stone diameters increased from 370mm in the early period to 570mm in the 4th century AD. Most of these large querns appeared to be millstones, of which there were least two different varieties: the ungeared 'conventional' and the probably gear-driven double feed-pipe type. They potentially had different power sources, which suggested that there may have been more than one phase of large-scale cereal processing that took place in the area. Although the excavation did not identify a plausible mill site, or a possible leat or dam, the disposal of the millstones around Healam Beck suggested that such evidence could be present in the vicinity. With no known northern watermills between the military examples along Hadrian's Wall and the civil watermills south of the Humber, any future developments along Healam Beck should be examined for evidence of mill-structures to help fill this gap.

Looking at the regional distribution of millstones, the concentration from Healam was matched by groups at Catterick (8), Aldborough (2-4), Dalton Parlors (7), Wattle Syke (12), and Castleford (3). These examples, when dated, were predominately Late Roman (Wright 2002; YQS records; Buckley and Major 1990; Cruse and Heslop 2013) and were located along the narrow Magnesian Limestone corridor (Cruse and Heslop, *op. cit.*, fig.106). With only four millstones found on the adjacent geologies (two at Adel and two at York), the presence of 36-39 millstones within such a narrow corridor could have been the result of a number of factors. This includes the focus of recent development pressure along an historic transport corridor, or increased 4th-century AD usage. The importance of Dere Street as a communication route increased over the 4th century, especially if eastern coastal shipping movements were threatened by piracy (Collins 2012, 16). Installations along this route could have needed the extra capacity to service the increased numbers, both of the regular *limitanei* within the Military Zone, together with the periodic demands of travelling units of *comitatenses*, as well as supporting civil administrators moving between assignments. Another possible explanation was the presence of large estates on the well-drained fertile Magnesian Limestone soils, whose owners were able to support an affluent Late Roman lifestyle. This was implied by some of the Aldborough town houses (Millett *pers. comm*.). Investment in high-output grinding technology at such estates near Dere Street, would have generated income from flour sales to nearby consumers, which could provide a commercial explanation, or alternatively, a change in Late Roman food supply arrangements. Collins' review of late 4th century AD forts on Hadrian's Wall indicated that at six of the sites, the *horrea* were demolished or converted (2012, 78, 97, and table 4.1). This suggested that military food supply arrangements changed, so that 'food was obtained relatively locally' and the former granaries become redundant. James also noted that the 4th century AD was marked by a greater

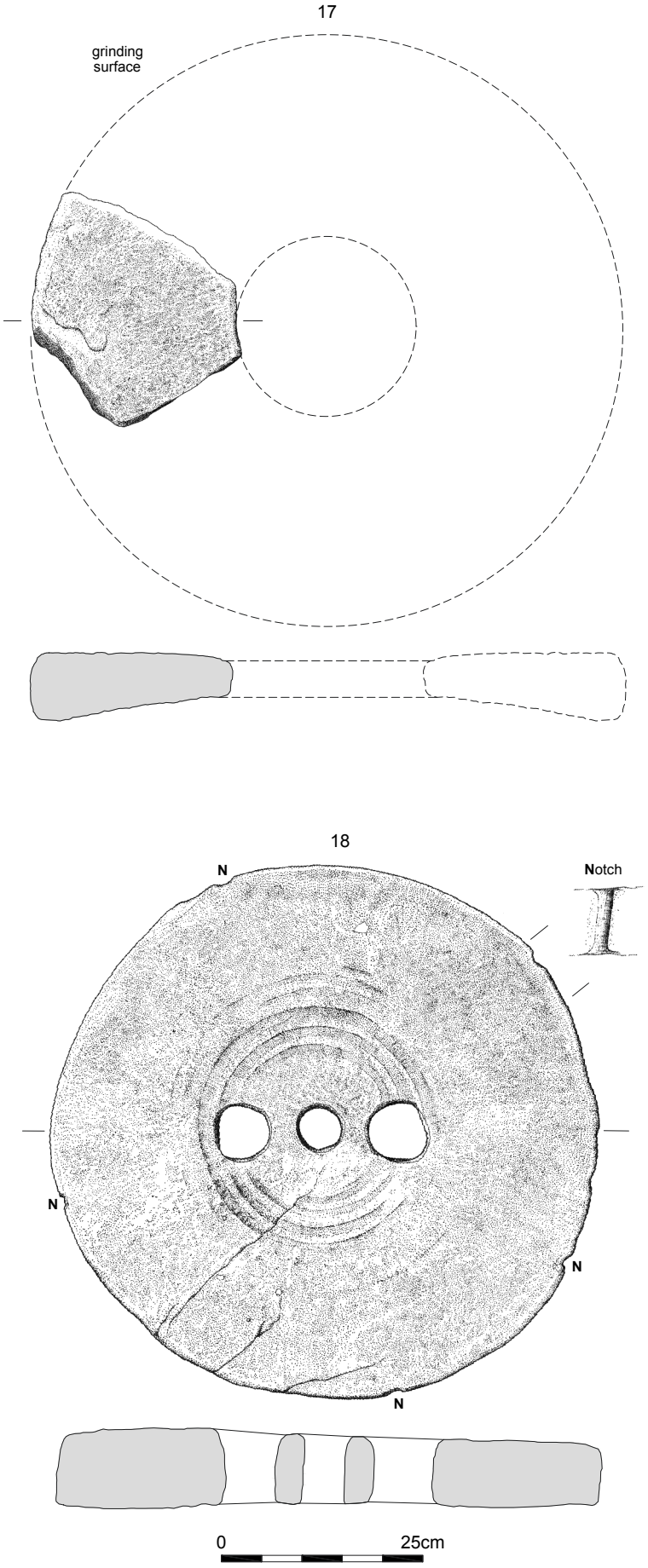


Figure 244: Large millstone and double feed-pipe millstone

integration of the military complex within an expanding administrative elite. This elite was able to build up large estates (through often dubious means) through their ability to enforce the delivery of both monetary taxation and *annona*, or provisions in kind (James 2011, 250-2). From this viewpoint, the concentrations of milling equipment could suggest that (as in medieval times) these estate owners had an ability to benefit from coercing taxpayers into using their monopolistic facilities.

CONCLUSIONS

Despite the small number of quern stones from the scheme, their analysis revealed that grinding activity around Healam Beck was based on hand-operated querns of local manufacture in the 2nd and early 3rd centuries AD. These were supplemented by a significant presence of imported lava hand querns, a mixture suitable for satisfying the requirements of the local population, as well as that of travellers expecting a more 'Romanised' urban diet. By the later 4th century AD, the focus of grinding activity moved to mechanically-powered millstones, which were capable of significantly higher rates of flour production. The two different designs of millstone, one of which was probably powered by a waterwheel through a geared drive system, suggested the presence of more than one (so far unlocated) installation, or that at least two phases of milling operations took place at a single installation. The preservation of intact millstones from sealed contexts in Fields 23 and 63 provided valuable evidence of their actual characteristics, which eliminated the usual need to engage in hypothetical reconstructions of fragmentary evidence. This has been especially helpful in trying to understand the operation of millstones with two opposed 'D' shaped openings, which can now be interpreted as feed-pipes whose function had been physically separated from that of the drive-shaft in the central perforation.

From this collection of millstones, we can also deduce that several of the stones were driven by a band around the periphery of the millstone. The connecting rods linking this band to the central drive-shaft probably also retained an external hopper, whose base was located within a circular groove around the central perforation. We can now recognise the presence of a grain 'distribution' groove, cut into several of the grinding surfaces at a diameter normally *c*.35%-45% of that of the millstone. Several other sites, also located on Magnesian Limestone geology, have produced similar concentrations of later Roman millstones, but to date, this phenomenon lacks an explanation.

CATALOGUE

with lithology by Geoff Gaunt and John Cruse

Measurement abbreviations: *D-diameter; H-height; W-width; L-length; Th-thickness*

Saddle querns

(**1**) Possible saddle quern. Sandstone, medium to (mainly) coarse grained, poorly sorted, moderately compacted, with sparse feldspar and sparse muscovite. Millstone Grit. Single fragment with no clear worked edges. It retained a flat surface (180 x 120mm) that may have been used for grinding. There was an un-worked flat base and a curved edge, but not obviously worked, that could indicate that the stone was split from a boulder. There was uneven reddening that could indicate burning. >160 x >120 x 45mm. Weight 1.9kg. A1DB09, RF 175, context 5066, Field 63. YQS 3304. Not illustrated

(**2**) Probable saddle quern. Sandstone, medium to (mainly) coarse grained, poorly sorted, poorly compacted. Millstone Grit. Three fragments forming about 30% of a quern. Two fragments joined and had a surviving straight edge (RF 174) that lead to the start of a curved end (RF 178). The other, non-joining fragment (RF 179) also had a comparable curved edge. All fragments have the same lithology and thickness (*c*.50mm). The grinding surface of RF 174 and 178 was flat and preserved linear wear patterns that indicated a back-and-forth (rather than circular) grinding. L >220mm, W >110mm, Th 50mm. If symmetrically shaped it may have originally measured 300-400x240mm. Weight (actual) 2.95kg, estimated intact weight 10kg. A1DB09, RF 174, 178, and 179, context 5066, Field 63. YQS 3305. Fig. 240

Beehive querns

(**3**) 'Upright' upper, incomplete. Sandstone, medium to (mainly) coarse grained, poorly sorted, moderately compacted. Millstone Grit. About 45% remained. Fractured across diameter through opposed handle-holes. Approximately 30% of the grinding surface edge was removed. Outer surface and hopper was neatly smoothed and little peck-dressing evident. Convex hopper had a distinct 35-40mm high collar around its top. Grinding surface was slightly concave (*c*.2mm). It was well-worn, smooth, and slightly asymmetric. From peat-like layers on the north slope of Healam Beck. D 315-330mm (slightly oval), H 225mm max, hopper W 140mm, hopper depth 60mm, feed-pipe D *c*.20mm, feed-pipe D at base 40mm, handle holes D *c*.20mm (both), handle hole L 90 and 95mm (orientation was slightly offset from centre indicative of clockwise movement). Weight (actual) 13kg, estimated intact weight 29kg. A1DB09, RF 386, context 5201, Field 63, Phase 1a. YQS 327. Fig. 240

(**4**) 'Upright' upper, incomplete. Sandstone, medium to (less commonly) coarse grained, moderately sorted, fairly well compacted, with sparse muscovite and sparse traces of (?) mudstone pellets. Millstone Grit. About 50% remained. It was split across the diameter along a chiselled line. External surface and hopper were neatly dressed, using a point (impacts 4-5mm D and 1mm depth). Only 40% of the feed-pipe survived. A vertical section that measured 100mm long and was smooth-sided (drilled?) dropped from the base of the small conical hopper, but failed to intersect a 50mm long hole that was inclined at *c*.10° and rose from the grinding surface. The joining section of this poorly executed feed-pipe was presumably present within the missing half. The grinding surface was flat and slightly asymmetric with rounded corners and the surface retained impacts that measured 1-3mm D, with little sign of circular wear. After being split, the fractured face was then burnt. From the fill of posthole 6867. Grinding surface D 270mm, maximum D 320mm, H 245mm, hopper W 130mm, hopper depth 55mm, feed-pipe D *c*.20mm, no handle-hole. Weight (actual) 18.5kg, estimated intact weight 37kg. A1DB09, RF 778, context 6866, Field 63, Phase 1c. YQS 3278. Fig. 240

(**5**) Base of a Heslop Type 3 quern, incomplete. Sandstone, medium to (less commonly) coarse grained, moderately sorted, fairly well compacted. Millstone Grit. About 45% remained. Roughly fractured across diameter. Minor damage removed *c*.20% of grinding surface edge. Grinding surface was slightly concave (2mm) and was

originally peck-dressed, but now worn smooth. Only edge of spindle hole survived. External surface was neatly peck-dressed (point impacts: 5mm D and 1-2mm deep) into a rounded base, which apparently was subsequently fractured asymmetrically. Unstratified from top soil to the south of Healam Beck. D 280mm, H >115mm (perhaps 130mm), spindle hole: estimated D 20-30mm, depth >20mm. Weight (actual) 4.5kg, estimated intact weight 10kg. A1DB09, RF 240, context 2410, Field 62. YQS 3275. Not illustrated

Disc hand querns

Local stone

(**6**) Upper of a 'Traprain Law' type. Fragment, 18% present, broken radially. Sandstone, medium to coarse grained, poorly sorted, moderately compacted. Millstone Grit. Upper surface was peck-dressed flat (impacts 7-15mm D and 2-3mm deep). The steep slightly convex hopper was surrounded by a 25mm W and 8mm H collar. The skirt rose vertically to a curved top that was peck-dressed (impacts 3-4mm D and 1-2mm deep), with a tendency to vertical patterning. Grinding surface: well worn, gently concave (*c.*3mm). D *c.*480mm, rim H 50mm, central collar H 65mm, hopper W *c.*60mm, hopper depth 60mm, feed-pipe D 25mm. Weight 4kg (actual), estimated intact 22kg. A1DB09, RF 19, context 3220, Field 1. YQS 3263. Fig. 240

(**7**) Upper quern, incomplete. Sandstone, fine to (mainly) medium grained, fairly well sorted, moderately compacted, with considerable bioturbation (mainly burrow fills), with sparse molluscan casts and moulds. Wensleydale Group. About 30% remained. It was broken radially through the handle-hole. The upper surface was flat, but abraded, and originally it would have been neatly peck-dressed (impacts 2-3mm D and 1-2mm deep). The skirt and conical hopper were also peck-dressed. The skirt was facetted and with a curved top. The grinding surface was worn smooth and concentric wear was evident. The inner surface was burnt and the outer 20-30mm area was worn smooth. D 410mm, rim H 40-50mm, centre H 40mm, hopper W 140mm, hopper depth 30mm, feed-pipe D 90mm, trace of a cylindrical handle-hole survived (*c.*5mm deep) and measured 85mm long and >12mm D and inclined downwards. Weight (actual) 4kg, estimated intact 13kg. A1DB09, RF 272, context 5399, Field 63, Phase 1d. YQS 3277. Not illustrated

(**8**) Base, incomplete. Medium grained sandstone with sparse rounded quartz pebbles (10x20mm max). Probably Millstone Grit. About 90% remained. Around 20% of the basal area had been removed. The grinding surface was gently convex with an inner lip around the 'eye' and the surface was smooth and worn. The outer 50mm perimeter was the most worn and the interior was still marked by peck-dressing (impacts 2-3mm D and 1-2mm deep). The skirt was vertical. The base perimeter was flat and sometimes roughly dressed, but in other areas it was smoothed. Central concavity. The central perforation was conical and blocked with corroded iron, which was presumably a remnant spindle/drive shaft. From the cut of pit 8093 in the settlement south of Healam Beck. D 450mm, rim H 55mm, centre H *c.*20mm, central perforation D 28mm at top (min 23mm). Weight (actual) 18kg, estimated intact weight 20kg. A1DB10, RF 623, context 8094, Field 61A, Phase 3ii. YQS 3295. Fig. 240

(**9**) Probable upper quern stone. Fine to medium grain sandstone. Probably Millstone Grit type. About 90% remained intact. Around 30% of the upper surface (plus some hopper edge) had been removed. The upper surface was smoothly finished, with a flat top, and curved into a vertical skirt. The conical-sided hopper was oval in shape. The grinding surface was slightly concave (by 6mm) and had opposed rynd slots (that measured 40mm L, 30mm W, and 7mm deep) that were cut into either side of the oval feed-pipe. The grinding surface had a 'balanced' pattern of parallel linear grooves (*c.*3mm W and up to 2mm deep). Two quadrants had 20 grooves each and the other two had 18. There was some ferruginous material that survived in the grooves. Found in cobble lining of pit 5296 on the north slope of Healam Beck. D 495mm, rim H 55-60mm, centre H 55mm, hopper W 135mm, hopper depth 45-55mm, hopper measured 65x105mm (slightly oval), no handle-hole. Weight (actual) 22kg, estimated intact weight 25kg. A1DB09, RF 242, context 5295, Field 63, Phase 3d. YQS 3252. Fig. 241

(**10**) Probable circular 'lid' or possible unused disc quern, incomplete. Fine grain sandstone, which would have had poor milling characteristics. Approximately 20% remained. Radially broken disc, both faces were flat and smooth, but lacked any concentric wear. The skirt was vertical, but was either unfinished, or the edge was removed. No evidence of a hopper or spindle 'eye'. It could have been part of an unused disc quern, but its unsuitable lithology, lack of a convincing grinding face, and its thinness (which resulted in insufficient weight), made it more probable that it was a large stone 'lid'. From fill of post-hole 7622 from structure 6949. D *c.*375mm, Th 43mm. Weight (actual) 2kg, estimated intact weight 10kg. A1DB09, RF 776, context 7621, Field 63, Phase 1c. YQS 3279. Not illustrated

Imported lava

(**11**) Base, incomplete. Mayen lava. Broken radially, approximately 40% remained. The grinding surface was convex at 13°. It was carved in a complex pattern with three 'harps' of curved grooves that were spaced 15-20mm apart. The grooves were 6-7mm W and up to 6mm deep near the 'eye', but 3-4mm W and *c.*4mm deep at the rim (resulting from wear). The grooves had a V-profile, but the left side was steeper than the right. The harps showed an anti-clockwise rotation. If the pattern was symmetrical, there would have been 6 harps with three slightly different curvilinear patterns. The vertical face of the skirt was cut by vertical striations that were 8-10mm apart and up to 2mm deep. The base was concave and neatly chiselled, often with concentric impacts (20-30mm L, 5mm W, and 4-5mm deep). It was suitable for mounting in a frame. D 465mm, rim H 35-40mm, centre H 35mm, conical perforated 'eye' D at top was 65mm, D at base was 70mm. Weight (actual) 5.5kg, estimated intact weight 13kg. A1DB09, RF 440, context 7155, Field 63, Phase 1c. YQS 3254. Fig. 241

Small millstone

(**12**) Possible hand quern upper, incomplete. Sandstone, medium to coarse grained, poorly sorted, poorly compacted, with appreciable feldspar. Millstone Grit. Approximately 23% remained and it was broken radially. The upper surface was neatly dressed smooth, apparently horizontally. The skirt was of comparative thickness, which was also finished smooth and apparently vertical, although there was no evidence that it had been used as a rotary whetstone. The grinding surface had a pronounced outer 'lip', that implied a lower stone D of *c.*460mm. The surface was worn smooth (traces of concentric wear) with no visible pecking. It had a concave shape (*c.*8°)

and was burnt over the whole of the grinding face. The central 'eye' appeared to have fractured through a right-angled corner. This indicated it likely had a rectangular (*c.*40x80mm) central perforation, rather than an atypical rynd-chase. D *c.*500mm, rim H 115mm, centre H 90mm. Weight (actual) 8kg, estimated intact weight 35kg. A1DB09, RF 779, context 5059, Field 63, Phase 1c. YQS 3265. Fig. 241

(**13**) Upper quern stone, complete (in five fragments due to modern breaks). Fine grained sandstone. Upper surface was random peck-dressed (impacts were 5mm D and 1-2mm deep) with a (decorative?) groove around the hopper top (measured 20mm W and 3-5mm deep). The profile thickened towards the centre. The vertical skirt could suggest it was driven via a circumferential band. The grinding surface was concave (by 15mm), but it had no rynd-slots. D 600-610mm, rim H 65mm, centre H 100mm, hopper W 135mm, hopper depth 80mm, feed-pipe D 65mm. Weight 54kg. A1DB09, RF 64, context 2110 (unstratified), Field 61A. YQS 3264. Fig. 242

Large millstone

(**14**) Probable upper millstone, incomplete. Sandstone, medium to (less commonly) coarse grained, poorly sorted, moderately compacted, with locally appreciable feldspar. Millstone Grit. Approximately 12% remained. One radial break and no evidence of a hopper or feed-pipe. The upper surface was neatly dressed with a small point (impacts 5-10mm D and 2mm deep). The outer 100mm profile was slightly convex with the inner (grittier) 150mm area generally flat and horizontal. The skirt was gently curved and neatly peck-dressed with a slight groove (5mm W and 1mm deep) around the periphery and may have been for a band. The grinding surface was worn smooth and was slightly concave with a 15mm W and 5mm deep 'lip' around the rim, which implied a lower stone of *c.*620mm. There was a 'distributor' groove (15mm W and 3mm deep) at a D of 260mm (40% of estimated total diameter). Found with saddle quern fragments. D *c.*650 (+/- 30)mm, rim H 50mm, internal H max 60mm. Weight (actual) 4.5kg, estimated intact weight 38kg. A1DB09, RF 81, context 5066, Field 63, Phase 3d. YQS 3266. Fig. 242

(**15**) Upper double feed-pipe millstone, incomplete. Sandstone, fine to medium grained, but with a few small coarse grains, moderately sorted, moderately compacted, with appreciable flattish sub-rounded grey mudstone 'pellets' and bioturbation traces (mainly on bedding planes). Wensleydale Group: probably from near the top of the sequence. Approximately 30% remained of this quern. There were two non-joining fragments. RF 164 suffered the complete removal of the rim as the result of three impacts, presumably before being divided across the diameter, which separated it from RF 782. RF 782 retained the rim, but lost *c.*50% of the grinding surface through lamination. The central area of the upper surface around the 'eye' was abraded, but the intermediate area between 150-250mm on the radius still retained peck-dressing (impacts 15-30mm D and 3mm deep) and the outer area was abraded and apparently burnt. The stone had split through the two D-shaped feed-pipes, which were chiselled into shape and were unworn. The central cylindrical 'eye' was smooth and set at right angles to the upper surface. There was a groove that measured 60mm L and 15mm W that was roughly finished. It curved and extended from the corner of one of the feed-pipes, which could be used to help locate a central wooden hopper. Combined profiles of the grinding surfaces were difficult to reconstruct. The outer 60mm of the surface rim was flat and apparently had been worn asymmetrically at about 5°. The outer area was worn smooth and the inner area retained 1-2mm pits and showed signs of burning. There was a broad groove in the grinding surface (between 160-240mm D and max 6mm deep), whose outer limit was coincidental with the straight outer edge of the D-shaped feed-pipes (whose presumed function was to assist grain distribution). It is possible that no. 17, which was from the same context, was also part of this quern. D 730mm, rim H max 95mm, centre H 30-40mm, 'eye' D *c.*70mm, D-shaped feed-pipes chord L: upper 105mm, lower 80mm, radial W: upper 85mm, lower 45mm, centre-to-centre 200mm. Weight of RF 164: 7.5kg, RF 782: 9.5kg. Estimated intact weight 57kg. A1DB09, RF 154 and 782, context 5166, Field 63, Phase 3b. YQS 3267. Fig. 243

(**16**) Millstone, incomplete. Sandstone, mainly coarse grained, poorly sorted, poorly compacted, with sparse small quartz pebbles and sparse feldspar. Millstone Grit. Five fragments made up approximately 12% of the quern. Two fragments joined (with rim) and measured 365mm L, 130mm max W, and 45mm Th. Two other fragments joined and measured 195mm L, 160mm W, and thinned from 50-30mm in thickness. The remaining single fragment measured 110mm L, 55mm W, and 40mm Th. All were apparently from the same millstone, as they shared lithology, an evenly worn grinding surface (with a lip at the rim), a base that was roughly dressed flat, and were burnt. Found with no. 15 (given same RF number), but from a different quern stone. D *c.*800mm, rim H 40mm. Weight (actual) 6.8kg, estimated intact weight 57kg. A1DB09, RF 164, context 5166, Field 63, Phase 3b. YQS 3251. Not illustrated

(**17**) Lower millstone, incomplete. Sandstone, mainly coarse grained, poorly sorted, poorly compacted, with scattered small sub-rounded quartz pebbles. Millstone Grit. Approximately 12% remained. It was broken radially, apparently after a section of rim had been removed. The grinding surface was well worn with some voids, probably due to removal of quartz pebbles. The inner 90mm was flat and was probably horizontal, but the outer 150mm was convex. The eye was very wide and conical. The skirt was slightly curved with curved edges. The outer 40mm area of the base was smoothed and the inner area was concave, but without any obvious dressing. Along the limited surviving circumference, the rim height varied by 20mm, which may indicate it was bedded in clay, rather than set in a frame. The uneven profile made it difficult to reconstruct. It may have been paired with no. 15, which came from the same context and whose diameter and grinding surface orientation were quite similar. D 730mm, rim H 55-75mm, centre H 35-40mm, perforated 'eye' D: upper 235mm, lower 255mm. Weight (actual) 6kg, estimated intact weight 50kg. A1DB09, RF 781, context 5166, Field 61, Phase 3b. YQS 3280. Fig. 244

Double feed-pipe millstone

(**18**) Upper, double feed-pipe, complete. Medium to coarse grained Millstone Grit. Upper surface was dressed smooth. The central 'eye' was smooth-sided, with a slightly hour-glass shape, but lacked any hopper. The reversed 'D' shaped feed-pipes were in-line with the eye. They were peck-dressed internally with no evidence of wear. They were thus unlikely to have a 'drive' function. The skirt was vertical sided, dressed with a point (impacts 15mm L, 5mm Th, and 2mm deep), with some vertical dressing that echoed lava querns. There were five V-shaped notches (15mm max. W and 10mm deep) that were cut into the skirt at 25° to the vertical, which could

possibly have retained an iron(?) band that was perhaps needed to offset several incipient cracks in the stone. The inner part of the grinding surface had three sets of circular grooves in the area between the opposed twin feed-pipes. The centred inner groove 200mm D, 12mm W and *c.*4mm deep. A central groove was 250mm D and the outer groove was 290mm D and was 20mm W and 9mm max deep. There were no rynd-slots. The outer area of the grinding surface was peck-dressed flat (15-20mm D and 2-3mm deep) with the outer rim worn smoother (5-10mm D, 1-2mm pitting only). Fill of pit 1142, which had been cut into the fill of enclosure ditch 1769, giving a later Roman context. D 645-665mm (slightly oval), rim H 80-90mm, centre H 85mm, eye D: top 55mm, minimum 50mm, base 80-85mm, reversed 'D' feed-pipes: chord L 45-60mm, radial W 78mm, inputs grain at outer edge of feed-pipe at a D of 280mm. Weight 60kg. A1DB09, RF 28, context 1143, Field 23. YQS 3255. Fig. 244

Lava fragments

Small lava remnants with recognisable features

(**19**) Rim fragment with vertical striations. L 30mm, W 40mm, Th 60mm. Weight 0.17kg. A1DB09, context 5034, Field 63, Phase 1c. Not illustrated

(**20**) Two fragments of quern stone. The largest had a grooved grinding surface with five grooves. The grooves were V-shaped and measured about 55mm long and there was *c.*14mm between them. The grooves were 8mm W at the top, 5mm deep, and 2mm W at the bottom. The fragment was 30mm Th and the non-grinding surface was un-worked, so may have been from a base. Weight 0.19kg. Found in a midden deposit. A1DB09, context 5045, Field 63, Phase 3c. Not illustrated

(**21**) Four small fragments. The largest had a portion of grinding surface that measured 25x30mm. Weight 0.1kg. A1DB09, context 5059, Field 63, Phase 1c. Not illustrated

Small Lava Remnants with No Recognisable Features

The following table (Table 144) is a summary of small lava remnants with no recognisable features.

Field	Context	No of fragments	Max Dimensions (mm)	Weight (kg)
61A	2131	1	v. small	0.02
62	2245	1	50x45x40	0.1
62	2362	3	35x30x30	0.1
63	5001	4	v. small	0.03
63	5013	1	35x30x30	0.04
63	5019	1	35x25x30	0.04
63	5038	1	Not recorded	Not recorded
63	5063	2	v. small	0.03
63	5068	1	Not recorded	Not recorded
63	5937	2	v. small	<0.01
63	5399	1	Not recorded	Not recorded
63	9174	36	60x40x30	0.234
Total		**54**		

Table 144: Summary of small lava quern remnants with no recognisable features

CHAPTER 14 THE METALWORKING DEBRIS

ROMAN PERIOD SITES

David Starley

with contributions from Jane Cowgill

Introduction

Examination of 118kg of industrial debris from the Roman period sites on the scheme (excluding the Iron Age material from Fields 107 and 108 – see section 14.2 below) revealed that the only metallurgical activity in the areas studied was iron smithing. The activity seemed to have taken place at a low level in enclosure 1917 in Field 23. Similar low levels of activity were noted in and around structures immediately to the north of Healam Beck and in Field 61A. By far the clearest and largest scale ironworking evidence came from the enclosures at Healam, particularly around structure 5730. However, the lack of floor surfaces and the fact that almost all evidence was recovered from ditches and other cut features, rather than within the structures themselves, made precise location of a smithy problematic. As the slag was largely recovered from feature sampling, rather than total recovery, smithing activity was likely to have been on a considerably larger scale than the total debris examined suggested. The smithing evidence predominantly dated to the earliest Roman phase (1st to mid-2nd century AD), but some continuation in the 3rd to 4th/5th centuries AD was evident.

Methodology

All bulk debris encountered during the excavation was saved and the report is based on the interpretation of this debris together with material retrieved from bulk samples. Two significant foci of ironworking activity along the line of the investigation were identified. The first and smaller lay between Fields 22, 23, 25, and 28 (Humphrey Balk Lane) and the larger in Fields 61, 62, 63, and 64 at Healam. A total of 118kg of bulk slag and fired clay was visually examined. Most of the debris was derived from pits and ditches that were partially, rather than fully, excavated (50% of pits and 10% or more of ditches), or only sampled, so the examined material does not represent the total extent of surviving material. The debris was classified into standard categories based on those used by the former English Heritage Ancient Monuments Laboratory (Bayley *et al*. 2001, 9-15). Visual observation of the exterior was supported by examination of fresh fracture surfaces and the use of a geological streak plate as well as a magnet. A summary of debris types for this assemblage for Fields 23, 25, and 28 appears in Table 145 and Fields 60 to 64 in Table 146. In addition to the bulk debris removed during hand excavation, processed soil samples (10 to 100l) provided further evidence in the form of small fragments of bulk slags, and more crucially, hammerscale, which is only rarely visible during excavation.

The interpretation of industrial debris is not always unambiguous. Some forms of slag are visually diagnostic and provide clear evidence of specific metallurgical processes. However, a proportion of the material, including much from the scheme sites, cannot be closely classified. For example, the type of metal that was worked can be clear, but not the exact process. In addition, a proportion of the material examined, such as the fired clay, may derive from a much wider range of high temperature processes or circumstances, not necessarily metallurgical ones. Interpretation of such classes of debris requires a wider overview that takes the assemblage as a whole into account and as far as possible eliminates 'possible' processes where no supporting evidence exists. The categories used and their technological origins are given below.

Explanation of classification terms used for bulk debris and hammerscale

Diagnostic Metalworking

IRON SMITHING

Unambiguous evidence for iron smithing is derived from either bulk slags or micro slags. Of the bulk slags, the most easily recognisable type is smithing hearth bottoms, which have a characteristic plano-convex section, a rough convex base, and a vitrified upper surface that is flat or even slightly hollowed as a result of the downward pressure of air from the tuyère (air inlet). Compositionally, smithing hearth bottoms are predominantly fayalitic (iron silicate) and form as a result of high temperature reactions between the iron, iron-scale, and silica from either the clay hearth lining or possibly any sand used as a flux by the smith. They tend to form immediately below the air inlet of the hearth and may have a lip of attached clay, which was used to line the hearth (Plate 71). The Healam site in particular produced a very high proportion of smithing hearth bottoms compared to other debris types.

Plate 71 Smithing hearth bottom with attached hearth lining Field 63, context 7566

In addition to bulk slags, iron smithing also produces micro slag of two types (Starley 1995). Flake hammerscale consists of fish-scale like fragments of the oxide/silicate skin of the iron dislodged during working or quenching. Spheroidal hammerscale results from the solidification of small droplets of liquid slag expelled during hot working, particularly when two objects are being fire-welded together, or when the slag-rich bloom of iron is first worked into a billet or bar. Hammerscale is considered important in interpreting a site, not only because it is diagnostic of smithing, but because it tends to build up in the immediate vicinity of the smithing hearth and anvil. It may give a more precise location of the activity than the bulk slags, which may be transported elsewhere for disposal (Mills and McDonnell 1992) or reuse, such as hardcore for trackways, although on the scheme sites few floor surfaces survived. Ideally hammerscale is collected by systematic sampling, or by recovery from routine environmental soil samples. However, it may be recorded in other circumstances, such as concreted to the surface of bulk slags, carried over with attached

soil into the bulk finds bags, or even recognised during X-radiography within the corrosion that built up around iron artefacts.

COPPER ALLOY WORKING

A number of forms of debris are considered diagnostic of copper alloy working, including: crucible fragments, mould fragments, and various dribbles, spills, runners, and sprue cups that make up copper alloy waste. None of these were found in the assemblage. One or two flecks of copper alloy corrosion were attached to the ironworking slag, most probably derived either from the use of copper alloy for very occasional processes, such as brazing, inlaying, or plating, or the recycling of iron that had received this treatment previously. These small flecks do not indicate a specialist non-ferrous metalworking industry.

IRON SMELTING SLAG

Evidence for smelting was minimal and little emphasis should be placed on it. There were no examples of the dominant Roman iron smelting waste: tap slag. There was, however, a single fragment of dense slag that may have been from a furnace bottom (Plate 72). Significantly, this fragment contained impressions of chopped wood, probably indicating a style of furnace with a sub-surface pit that was filled with such combustible material that on firing created a void to accommodate the slag, rather than the slag being tapped externally. This variant of a non slag-tapping tradition seems to have a limited distribution in the United Kingdom, such as a cluster of Late Iron Age sites in Surrey (Starley 2009), but it also had strong similarities to a Norwegian tradition spanning the first half of the first millennium AD (e.g. at Storbekken-Espelund and Stenvik 1993).

Plate 72: Dense slag fragment with chopped wood impression Field 63, context 5019

Non-diagnostic metalworking

FERROUS METALWORKING

A large group of material found during the excavations was recorded as non-diagnostic ironworking slag, although it did not comprise a high proportion as at many other sites. Such irregularly shaped fayalitic slags can be produced by both iron smelting and iron smithing processes. However, given the lack of diagnostic smelting evidence in any of the areas examined, this material can safely be assumed to derive from iron smithing. The same can also be said for a smaller quantity of dense slag: fayalitic runs and iron-rich cinder. The latter was distinguished by its significant content of iron not combined as silicates, but visible as rust-orange coloured hydrated iron oxides and iron hydroxides.

METALWORKING OR OTHER HIGH TEMPERATURE PROCESSES

Several of the categories of material in this group can be produced by a wide range of high temperature activities and are of little help in distinguishing particular processes. In the absence of any colouration suggesting non-ferrous metal production, or any evidence of iron smelting, the material listed as vitrified hearth/furnace lining was likely derived from ironworking. This material forms as a result of a high temperature reaction between the clay lining of the hearth/furnace and the alkali fuel ash or fayalitic slag. It often shows a compositional gradient from unmodified fired clay on one surface to an irregular cindery material on the other. It tends to form where clay has been applied around the tuyère (Plate 73). Occasionally, the edges of the hole of this 'plate tuyère' are evident, such as the single example illustrated in classed as cinder. This comprised only the lighter portion of this: a porous hard and brittle slag formed by the reaction between the alkali fuel ash and fragments of clay that became detached from the clay wall of the hearth. The considerable quantities of fired clay without any surface vitrification found within the assemblage could have derived from structures associated with metallurgical purposes, or from those used for other high temperature activities, such as pottery production and domestic hearths. Comparison of the distribution has shown that much of this derived from contexts and areas of the site where there was no evidence for ironworking, although some was found in close proximity to metalworking debris and may therefore have been part of iron smithing hearths. Ash was derived from a single context and was not thought to be related to metalworking. Fuel Ash Slag is a porous, light-weight, and light-coloured residue of high temperature burning. A single burned stone was likely to be the accidental product of any heating operations. Finally, a category of material known as Iron Age Grey has recently been recognised on a number of sites (Cowgill *pers. comm.*). Generally, this porous, bloated, material has previously been strongly linked to the pre-

Plate 73: Plate tuyère fragment Field 63, context 7818

Roman Iron Age period and has not been associated with metalworking. However, some fragments do occur in Roman phases. The most probable origin would seem to be daub from buildings that were burnt down.

Other evidence

FUEL

Small fragments of low grade shaley coal were recovered from a large number of soil samples. Three further categories: burned coal, clinker, and clinker/coke all provided evidence for the use of coal as a fuel for iron smithing in the Roman period, where they were attached to, or directly associated with, iron smithing debris. Instances of some coal in contexts away from ironworking on this site did suggest that either its use was not restricted to ironworking, or that a local outcrop led to small fragments being incorporated into the subsoil.

NON-SLAG

The presence of galena, a potential lead-ore, might suggest that this metal was extracted in the vicinity. However, given the lack of other evidence, particularly lead smelting slag, this material may have been stray fragments from a local ore outcrop. The ferruginous concretion may simply be naturally formed iron-pan. The material was examined for the presence of hammerscale, but in its absence there was no reason to link it with ironworking. The concretion was of unknown origin.

Introduction to spatial distribution

Whilst examination of debris permitted the metallurgical activities on site to be identified with consideration of sampling biases and to assess the scale of these activities, a key aim was to identify the purpose of the structures and enclosures at Healam. Unfortunately, though not untypically, no surviving hearths, working surfaces, or other metallurgical features were recognised during excavation. Some finds, however, which included a battered rock, an iron blacksmithing set (RF 724), other possible tools (see section 11.8,) and even a fragment of a smith god pot, may be relevant.

Metalworking activity by area

Fields 23, 25 and 28

Surprisingly, the earliest debris in this area included coal and its waste product clinker, which suggested that this fuel was used from the earliest occurrence of iron smithing on the site (Table 145). Within the early Roman (mid-first to second century AD) contexts, a thin scattering of predominantly ironworking debris was associated with the enclosures. Enclosure 1917 (Fig. 81) contained the earliest debris evidence with hammerscale from two contexts and a few fragments of 'non-diagnostic' ironworking slag from the early Roman ditch fills (1101 and 1103). The hammerscale provided clear evidence of iron smithing and, lacking other diagnostic evidence, the other debris probably also derived from this activity. The fuel, from fragments found in the soil sample from fill 1101, may well have been poor quality shaley coal. On the basis of proximity, the same ironworking may well have been the origin of the debris that was recovered from an unphased fill (1914) of pit 1912 within enclosure 1676 (Fig. 83), but actually only 15m to the south of enclosure 1441.

A modest amount of fired clay was found in Field 25. There was no reason to suggest these derived from a metallurgical process. In Field 28 a small amount of non-diagnostic slag and vitrified hearth/furnace lining was found in a fill of ditch 1798 (Fig. 79) together with the only smithing hearth bottom from this area. This provided diagnostic evidence of iron smithing. Although unphased, the ditch fill also contained 2nd to 3rd century AD pottery.

Taken as a whole, there was clear evidence for iron smithing within Fields 23, 25, and 28, particularly within the vicinity of enclosure 1917, which produced crucial evidence in the form of hammerscale. However, the quantities of any evidence were very small, even considering that the main features (ditches) were only partially excavated. It may be that the evidence had been removed by ploughing, or that the focus of metalworking lay slightly outside the area excavated.

Phasing for Fields 23, 25, and 28

1 *Early Roman (mid-1st and 2nd century AD)*

2 *Late Roman (4th century AD)*

3 *Post Roman*

Fields 60, 61, 61A, 62, 63 and 64

Table 146 provides an overview for all debris from the Healam site. The distribution of this debris will be discussed in the following sections.

Phasing for Healam (Fields 61, 61A, 62, 63, and 64)

1 *1st to mid-2nd century AD*

2 *Late 2nd to mid-3rd century AD*

3 *Late 3rd to 4th/5th century AD*

4 *Early medieval*

FIELDS 60, 61 AND 62

Evidence for metalworking activity in these areas was scarce. No slag was recovered from Field 60, which was the most southerly area. Field 61 produced a mere 80g of non-diagnostic ironworking waste from the fill of the major north-west to south-east ditch (2270, Fig. 54). This Phase 3 ditch also produced very small quantities of cinder and fired clay from other fills, but there was no particular reason to suggest they derived from ironworking.

On the western side of the A1 and presumably the Roman Road, Field 61A produced the most convincing possible ironworking tool; a small iron set (see section 11.8). However, metalworking debris evidence in this area was very limited in quantity and quality. Of the bulk slag, 133g of non-diagnostic waste was distributed widely, spatially, and temporally. However, supporting evidence came from soil samples from the charcoal-rich fill (8452) of two gullies (8453 and 8482, former shown on Fig. 64), which contained very small quantities of flake and spheroidal hammerscale. This therefore suggests there may well have been a focus of metalworking in this area. It was also possible that the presence of coal in ditch fills dating to the same sub-phase 1a may have derived from ironworking activity. The presence of 'Iron Age Grey' slag in Phase 3 contexts gave a late date for

this material (widely thought to be associated with pre-Roman daub structures). It was likely that the very limited quantities and small fragments were subjected to some degree of disturbance.

Immediately to the south of Healam Beck, Field 62 produced frequent finds of fired clay spanning Phases 1 to 4. Clear metalworking debris (160g of non-diagnostic ironworking slag) was limited to a single context, a Phase 2 tertiary fill of enclosure ditch 2505. Given the small isolated quantities, it would seem that the debris in Fields 61, 61A, and 62 was likely to have been redistributed from the core areas of metalworking to the north.

FIELDS 63 AND 64

It was to the north of Healam Beck within Fields 63 and 64 where clear evidence for substantial ironworking activity became apparent. A total of 116kg of the 117kg of industrial waste from Healam was concentrated in these fields. Although there was a significant presence of fired clay and other debris that was not necessarily associated with metalworking, there was plenty of evidence for iron smithing. Smithing hearth bottoms, of which there were 200 individual pieces that weighed a total of 42kg, made up the most diagnostic bulk waste associated with this activity. There can be little doubt in the absence of evidence for primary iron production that the non-diagnostic ironworking debris (a further 20kg) also derived from iron smithing. Further evidence for iron smithing came from the micro slag (hammerscale). This material was also diagnostic of iron smithing and in many ways provided a more certain indication of location and scale of the ironworking industry, because it was rarely moved from the place of production. The quantitative figures in Table 147 were calculated by dividing the proportion of flake or spheroidal hammerscale in the magnetic matter by the total litres of soil in each sample. The figures indicate some soils contained very high proportions of this debris.

Field 63 south

The sloping area to the north of the beck provided evidence of a relatively rapid succession of structures on this part of the site, some of which appeared to be related to ironworking.

Phase 1a

Smithing debris was found in some early layers, such as 7060 and 7065, which were considered to predate cut features on site. However, the presence of samian and other Roman pottery in these layers suggested some level of intrusive contamination, or perhaps a date not very different from other activity on the site.

Debris from the three kilns in this area was carefully examined to ensure that these high temperature features had no metallurgical function. All debris was consistent with lower temperature heating and there was no evidence of metalworking. Interestingly, a single fragment of coal from kiln 5413 (Fig. 32) may indicate that mineral fuel was used for heating. To the south, pit 7868 contained one smithing hearth bottom, as well as fired clay.

Closer to the beck, features associated with structure 7968 produced diagnostic ironworking debris. Two postholes (7894 and 7050) and a pit (7788) contained smithing hearth bottoms. More crucially, a gravel layer

Activity/Typology		Phase 1		Phase 2		Phase 3		Unphased		Total	
		Weight (g)	No. Contexts	Weight (g)	No. Contexts	Weight (g)	No. Contexts	Weight (g)	No. Contexts	Weight (g)	No. Contexts
Smithing	Smithing hearth bottoms	179	1	-	-	-	-	-	-	**179**	**1**
	Residues with hammerscale	4	3	-	-	-	-	-	-	**4**	**3**
Undiagnostic Ironworking	Undiagnostic ironworking slag	65	4	-	-	8	1	107	1	**177**	**6**
	Fayalitic runs	3	1	-	-	-	-	-	-	**3**	**1**
Metalworking or other high-temperature process	Vitrified hearth/furnace lining	82	2	-	-	-	-	-	-	**82**	**2**
	Clinker	62	2	-	-	-	-	-	-	**62**	**2**
	Fired clay	18	2	193	7	-	-	546	1	**757**	**10**
Fuel	Coal	8	4	4	1	-	-	-	-	**12**	**5**
	Charcoal	<1	1	1	1	-	-	-	-	**1**	**2**
Total		**421**	**20**	**198**	**9**	**8**	**1**	**653**	**2**	**1277**	**32**

Table 145: Bulk metalworking debris Fields 23, 25, and 28

Table 146: Bulk metalworking debris, Healam Fields 60, 61A, 62, 63, and 64

Activity /Typology		Phase 1		Phase 2		Phase 3		Phase 4		Unphased		Total	
		Weight (g)	No. Contexts	Weight (g)	No. Contexts	Weight (g)	No. Contexts	Weight (g)	No. Contexts	Weight (g)	No. Contexts	Weight (g)	No. Contexts
Smithing	Smithing hearth bottoms	37966	29	-	-	2019	4	1660	-	-	-	**41645**	**36**
	Residues with Hammerscale	5465	24	-	-	24	6	-	1	-	-	**5490**	**32**
Smelting	Dense slag/furnace bottom	-	-	-	-	-	-	633	1	-	-	**633**	**1**
Undiagnostic Iron working	Undiagnostic ironworking slag	19420	48	175	3	2563	18	1142	5	-	-	**23303**	**77**
	Fayalitic runs	15	2	-	-	-	-	-	-	-	-	**15**	**2**
	Dense slag	76	2	-	-	-	-	-	-	-	-	**76**	**2**
	Iron-rich cinder	195	2	-	-	52	1	-	-	-	-	**247**	**3**
Metalworking or other high-temperature process	Vitrified hearth lining	4037	20	-	-	209	7	113	2	-	-	**4359**	**29**
	Fired clay	20387	147	5	1	12753	104	2192	9	3	4	**35356**	**262**
	Cinder	1501	17	2	1	51	5	59	2	-	-	**1643**	**25**
	Clinker	13	2	-	-	-	-	-	-	-	-	**13**	**2**
	Clinker/coke	18	3	-	-	1	1	-	-	-	-	**19**	**4**
	Ash	1685	1	-	-	<1	1	-	-	-	-	**1685**	**1**
	Burned coal	1	1	-	-	-	-	-	-	-	-	**1**	**1**
	Burned stone	6	1	-	-	-	-	-	-	-	-	**6**	**1**
	Fuel ash slag	17	3	-	-	2	2	1	1	-	-	**20**	**14**
	Iron Age Grey	79	5	3	1	1002	12	-	-	86	1	**1170**	**19**
Fuel	Coal	458	26	6	2	54	10	-	-	1	-	**519**	**41**
Non-metallurgical	Galena	309	1	-	-	251	1	-	-	-	-	**560**	**2**
	Ferruginous concretion	306	4	-	-	-	-	133	1	-	-	**439**	**5**
	Concretion	22	1	-	-	-	-	-	-	-	-	**22**	**1**
Total		**91976**	**339**	**191**	**8**	**18981**	**172**	**5933**	**22**	**90**	**5**	**117221**	**560**

(7365) may have provided a later floor surface within the building, which contained several hearth bottoms, a small amount of hammerscale, and non-diagnostic ironworking slag. Such a concentration provided good reason to suspect the building was involved in ironworking, but the quantities were so low that this was likely to be no more than a short-term activity.

Phase 1b

The more substantial stone building (7951, Fig. 34) that replaced structure 7968, also provided evidence of ironworking. In particular, a soil sample from one patch of burned material (7860) that overlaid the foundation provided one of the higher concentrations of hammerscale, as well as other slag indicative of ironworking together with coal. A similar overlying orange/grey layer (7604) contained smithing hearth bottoms and more ironworking debris. Although the total amounts of debris were not great, it was likely that waste material was disposed of externally.

Phase 1c

Stone building 7951 was subsequently replaced by a substantial post-built structure (6949, Fig. 36) in this phase. At first consideration, the north-east facing open side and charcoal-rich layer (5596) within this building suggested that it may have been a smithy and an associated pit (7463) produced a modest amount of hammerscale (fill 7463). However, samples from the charcoal-rich layer did not contain hammerscale and the hearth bottoms and hammerscale that were found in the postholes (7564 and 7625) and pit (7827) may have been residual from the earlier ironworking processes.

Phase 1d

Structure 5009 (Fig. 38) had no metalworking debris directly associated with it, but the later overlying subsoil 5019 to its north had an interesting mix of iron smithing debris and the only putative iron smelting slag found during the excavation – a single large fragment of furnace bottom that preserved the impressions of chopped wood (Plate 72). This was highly reminiscent of Iron Age material from southern England (Starley 2009) and from Norway (Espelund and Stenvik 1993), but little emphasis could be placed on its significance with only a single fragment. The subsoil overlying structure 5013 also contained iron smithing debris in the form of smithing hearth bottoms, occasional flakes of hammerscale, and non-diagnostic ironworking waste.

Phase 3a

Midden 5042/5237 (Fig. 45), which began in Phase 1d and continued into Phase 3a over the remains of structure 7951, contained a scattering of smithing waste as well as fired clay that may have derived from other processes. The continued deposition of smithing waste provided the only clear indication of continued industrial activity between Phases 1 and 3, at a time when it was suggested that the focus of settlement had shifted away from the excavated area. Fired clay was also recovered from contexts associated with structure 5895 on this part of the site, but no slag of metalworking origins

Hammerscale Source	Field	Context	Spheroidal hammerscale (g/l)	Flake hammerscale (g/l)	Context description
Quantified from sample	61A	8452	<0.01	<0.01	Black charcoal-rich fill of gullies [8453] [8482]
	63	5300	nq	nq	
	63	5431	0.04	1.52	Fill of ditch [5430]
	63	5543	nq	nq	Fill of pit [5542]
	63	5558	0.035	2.11	Fill of pit [5557]
	63	5576	0	nq	Fill of ditch [5559]
	63	5591	0	0.91	Fill of cut [5590]
	63	5863	0.01	0.03	Fill of pit [5861]
	63	6846	0.94	37.4	Burnt deposit filling ditch [7263]
	63	6849	0.3	7.53	Fill of ditch [6886]
	63	7367	<0.01	<0.01	Fill of pit [7366]
	63	7463	0	<0.01	Primary fill of pit [7464]
	63	7756	0.1	1.96	Slag deposit in ditch [6978]
	63	7757	0	0.44	Fill of ditch [5954]
	63	7860	0.24	4.05	Charcoal rich layer
Additional hammerscale from bulk slag	63	5013	0	nq	Subsoil overlying building [5009]
	63	5060	0	nq	Fill of ditch [5061]
	63	5901	0	nq	Fill of pit [5900]
	63	7365	0	nq	Gravel layer
	63	7566	0	nq	Upper fill of posthole [7564]
	64	7130	0	nq	Fill of ditch [7131]
	64	7132	0	nq	Fill of ditch [7044]
	64	7134	0	nq	Fill of pit [7136]
	63	9147	0	nq	Cut of tree bole

Table 147: Summary of hammerscale from Fields 61A, 63, and 64 (nq = present but not quantified)

accompanied it.

Phase 3b

The fill of the ditches that demarcated enclosure 5007 (Fig. 46) contained fired clay, with instances of iron smithing debris, such as the two hearth bottoms from fill 5258 of ditch 5259 and occasional flakes of hammerscale from 7960. With more northerly position and later dating, it would seem likely that this material was the outermost distribution of the much larger slag deposits to the north.

Phase 3c

A kiln in this horizon had no associated debris beyond fired clay and one fragment of vitrified clay. A more enigmatic feature was a small pit (5590, Fig. 48). It had been suggested that this was a deliberate cut to hold a ceramic vessel possibly for use as a quenching pit, where iron was cooled after forging, to allow it to be handled or perhaps for the quench-hardening of steel. The context also contained diagnostic and non-diagnostic ironworking slag and the sample had a significantly high hammerscale content. The presence of coal within the context might also point to an industrial purpose. Further debris (including hammerscale and over 700g of non-diagnostic slag) was deposited in fill 5060 of ditch 7966 (Fig. 47), which enclosed the kiln and pit 5590, again suggesting, that ironworking was being practised in the vicinity at this time.

Phase 3d

This final phase was dominated by a midden containing a very wide range of artefacts, including a hafted implement (RF 1076) from midden deposit 5018 (see section 11.11, no. 16). However, given the richness of finds, the presence of a hearth bottom and a small quantity of non-diagnostic ironworking slag and other debris was of little significance.

Phase	No. of SHBs	Statistic	Weight (g)	Length (mm)	Width (mm)	Depth (mm)
Phase 1	190	range	31-1164	40-160	30-140	10-80
		mean	199	85	64	34
		std dev	162	22	18	12
Phase 2	0	range	-	-	-	-
		mean	-	-	-	-
		std dev	-	-	-	-
Phase 3	5	range	88-844	70-130	40-120	30-100
		mean	404	106	80	49
		std dev	273	23	30	27
Phase 5	5	range	95-529	65-115	50-100	25-50
		mean	332	90	79	45
		std dev	151	17	17	10
Total	200	range	31-1164	40-160	30-140	10-100
		mean	208	86	65	35
		std dev	170	22	19	13

Table 148: Smithing hearth bottom (SHBs) dimensions for Fields 63 and 64

Phase 4

There was a small amount of metalworking debris from the early medieval period, but as it was mostly undiagnostic material (e.g. fired clay) this will not be discussed further here.

The enclosures of Fields 63 and 64

1st to 2nd century AD remains

Within this area there was abundant evidence for iron smithing. However, pinning down the actual location of the smithing was difficult due to the nature of the archaeology: in-situ working floors were rare and were presumably removed by ploughing. What debris remained within the stratigraphy was largely confined to the fills of pits, ditches, and postholes.

Early activity in this area included the major ditch group 7954 (Fig. 41) including one of its components, ditch 7044. Whilst the former context produced no evidence, fill 7132 from the latter produced 6.3kg of debris. This included over 5kg of smithing hearth bottoms, some of which still had fragments of coal attached. In addition, hammerscale, non-diagnostic ironworking slag, vitrified hearth lining, cinder, and fired clay were recovered.

Subsequent Phase 1 recuts of the ditch included 6886. The fills of this (6849, 6884, and 6887) produced a smithing hearth bottom and non-diagnostic debris. There was also a high concentration of flake (7.5g/l) and spheroidal (0.3g/l) hammerscale from fill 6849. Again, coal fragments were present that indicated the fuel used for smithing. The same feature, elsewhere recorded as ditch 6978, produced further substantial amounts of debris that was consistent with smithing, including seven hearth bottoms (from fills 6980, 6979, and 7756). A significant quantity of flake hammerscale was found in fill 7756 (2g/l).

A large amount of flake (37g/l) and spheroidal (0.9g/l) hammerscale was recovered from the soil sample of pit 7263 (fill 6846), which cut ditch 7954 and also contained coal and clinker. The context was also reported to have produced an anchor headed clench bolt (RF 1119).

The largest quantity of Phase 1 metalworking debris on site was found within the fill of ditch 7131, which cut ditch 7954 to the north of structure 5730. This totalled 24kg and included one hundred smithing hearth bottoms, flake hammerscale, iron-rich cinder, vitrified hearth lining, and 3.8kg of non-diagnostic ironworking debris that clearly included fragments of smithing hearth bottoms. This ditch was later cut by pit 7136 (Fig. 41), the fill of which (7134) contained 11kg of debris. This included 29 smithing hearth bottoms, occasional hammerscale flakes, and other industrial debris consistent with iron smithing. Although debris abounded in the ditches surrounding structure 5730 (Fig. 42), material associated directly with it was restricted to tiny fragments of coal and fired clay from pit 7666, post-pipe 7742, and two postholes (7725 and 7738). The structure may well post-date the smithing activity.

Enclosure 6802 (Fig. 41) had limited amounts of metalworking debris associated with its features: a soil sample from ditch 7284 (fill 7283) produced a single, but very large hearth bottom. Another fill of the same ditch produced non-diagnostic ironworking slag. Within the enclosure, a rectangular pit (6879) yielded only tiny fragments of non-diagnostic material. Further north in structure 7252, a square pit (6785) contained a small amount of fired clay, whilst the recut (6787) contained a smithing hearth bottom and other debris in its fill (6821).

Ditch 5991 contained small amounts of non-diagnostic ironworking and other debris in fills 5992 and 5999. However, it was the ditch that replaced this (forming enclosure 5430, Fig. 42), which contained a significant assemblage of debris. A 40l soil sample from fill 5431 produced 1.8kg of slag, including four smithing hearth bottoms and a high concentration of hammerscale. Fill 5558 of one pit (5557) that cut the ditch, also contained a high concentration of debris. A 60l sample yielded 2.2kg of bulk material, including the diagnostic smithing hearth bottoms and 2g/l of flake hammerscale. Another pit (5542) that cut ditch 5430, produced 0.4kg of a wide range of slag, including hearth bottoms, from a 10l sample. A soil sample from fill 7757 of ditch 5954 (the same as ditch 5991) contained a further significant amount of hammerscale, diagnostic and non-diagnostic ironworking slag, and the burned and unburned remains of shaley coal. Fill 5953 from the same ditch only contained the typical oxidised-fired clay, whilst both fired clay and a hearth bottom were recovered from fill 6801.

Links between the quantities of debris deposited around the perimeter of enclosure 5430 and the buildings that occupied it were less clear. Non-diagnostic ironworking slag from pit 5823 and 5874 was found in structure 5728. However, to the north of the enclosure a number of postholes, post-pipes, and pits linked with structure 5728 (including 6659, 6690, 6694, 6707, 6788, and 7457) contained small amounts of non-diagnostic ironworking debris and fired clay. More telling were the two hearth bottoms from post-pipe fill 7461. A pit in the centre of the building (5989) that contained a hearth bottom, hammerscale, and other debris, also contained a post-Roman glass bead and pottery and was thought to be intrusive. Further to the south ditch 5589 produced a very small amount of debris.

To summarise, it seemed that the main concentrations of smithing debris within Phase 1 came from the immediate area of the 'T' junction of ditch 7954 (Fig. 41). This included the fills of the main ditch 7954 (as ditch 7044 within this area only), the fills of the first recut (6886/6978 within this area only) and the fills of pits 7263 and 7136. However, the ditches that formed enclosure 5430 also provided enough debris to suggest further activity in this area.

Late 3rd-4th/5th century remains

After an apparent break in occupation, Phase 3 saw further development in the area of the enclosures. Ditch 5696 (Fig. 44) produced modest amounts of fired clay from fill 5699 and a fragment of non-diagnostic ironworking slag from 5702 again with small amounts fired clay from fill 5150 of ditch 5151. A later recut of this ditch (5639) contained an uncharacteristically late fragment of Iron Age Grey slag. The ditch that divided this enclosure (5559) produced a very small amount of hammerscale from a soil sample and a later recut (5323) contained a smithing hearth bottom. Within the enclosure, a series of rubbish pits were largely clear of debris except for occasional fired clay. However, hammerscale was found in pit 5861 (fill 5863), pit 7366 (fill 7367), and coal burning debris and fired clay in the upper fill of pit 5974. These appeared to provide some indication that ironworking continued in the area.

Features further north produced only modest amounts of debris: pit 5429 contained 72g of non-diagnostic ironworking slag, ditch 6813 contained a small amount of fired clay and Iron Age Grey slag, and cremation pit 6838 contained another fragment of ironworking slag.

Roman road trenches

The series of smaller trenches that sought to examine the nature of the road itself generally produced no metalworking evidence. However, in one area the earliest Roman road was overlain with a later road. In the foundations of the latter (9147) a smithing hearth bottom with attached hammerscale, loose hammerscale, and non-diagnostic ironworking slag were found. One fragment of the latter had flecks of copper alloy corrosion attached. Further non-diagnostic ironworking slag was found in a layer overlying the road. This material was found close to the area of ironworking in Field 64 described above. However, metalworking debris was a convenient raw material for road building. Smithing hearth bottoms are regularly found as metalling on informal tracks, but their use in organised road-building may provide a clue to their relatively limited presence at their place of origin. Perhaps of relevance, in the fill of ditch 9057 (Fig. 50) a ceramic fragment of a 'smith god pot' was found, however, it was located in an area without any supporting evidence for metalworking itself.

Discussion

Overall, the metalworking evidence in Fields 23, 25, and 28 suggested that iron smithing occurred, either at a low level of intensity, or perhaps the evidence was at a larger scale and the features were disturbed.

The occupants of the sites at Healam were clearly engaged in smithing iron on a substantial scale. However, not all the debris examined derived from this process, or indeed any form of metalworking. Much of the fired clay, where associated with metalworking debris, was likely to have formed part of the hearths used for heating iron. This was certainly the case for the majority of the vitrified clay and one exceptional fragment that retained the edge of a tuyère. However, quantities of fired clay found elsewhere suggested that this also derived from other activities, perhaps domestic hearths, kilns, or ovens. From the areas studied in this report, there was no persuasive evidence for other metallurgical activities. One fragment of slag, that had impressions of chopped wood, was reminiscent of early iron smelting debris. A piece of non-diagnostic ironworking slag had flecks of copper alloy corrosion and two pieces of galena (lead ore) lacked any indication that it was processed. The origins and purpose of these items might be speculated, but they cannot be considered to indicate on-site industries.

Given the absence of other metallurgical activities, we can be safe in assuming that all the 'non-diagnostic ironworking waste' derived from iron smithing. Consideration of quantities of debris present was important. Taken together, the total 65kg of hearth bottoms and non-diagnostic ironworking slag might have derived from half a person-year of smithing activity. The quantity of hammerscale recovered showed this was a

significant underestimate. However, one must consider the extent of the debris considering it was recovered from relatively small samples of large features and the extent that the surface layers had been destroyed. It was then clear that only a small proportion of the residues of a sizable industry were analysed.

The question of where the smithing took place was also problematic. Except in very temporary situations, iron smithing was always carried out in some sort of shelter. This not only avoided poor weather, but allowed light to be restricted so the smith could observe the metal colour to judge its temperature and suitability for working. No obvious smithy structures were identified on the site. However, as smithing hearths tended to be raised up from the ground, they rarely survived archaeologically. Working floors may have built up a hard pan of fused hammerscale, but few occupation deposits survived in the Healam structures. Sunken quenching pits, such as the one found at Westhawk Farm (Paynter 2007), could be possible subsurface evidence. Although such features are rare in the archaeological record, it was possible that the hammerscale found in the buried pot/cremation pit just north of the kiln on the north side of Healam Beck indicated such a purpose. Unfortunately, other supporting activity in the phase was limited, although the scattered debris throughout contexts to the south of the main enclosures provided a strong suggestion that smithing was carried out there. Field 61A also provided clear, but minimal quantities, of ironworking evidence in the early Roman period. Taken together, although quantities of debris were small, it seems ironworking was carried out over a surprisingly wide area.

It was within the Phase 1 enclosures that the strongest evidence for large-scale iron smithing was found. Most debris was recovered from pits or ditches, many of which were of some length. The density of debris in many of these features suggested that they must have been very close to the smithy and structure 5730 (Fig. 42) may have been at the heart of the metalworking activity. Unfortunately, relatively little evidence was associated with the structural contexts of this building. However, the building had been heavily truncated with no surviving floor deposits and only nine of a suggested twelve postholes that survived. Such destruction, presumably by ploughing, could have removed the vital evidence that would confirm the function of the building.

Unfortunately, there seemed to be no associated raw materials, such as bar-ends or part-finished artefacts, which might have given an indication of the type of iron objects that were produced or repaired on the site. Examination of the slag provided some clues as to the nature of the iron smithing being carried out. Statistical analysis of the hearth bottoms allowed them to be compared with other sites, which showed that they tended to be small. This suggested more compact hearths that were used for the manufacture of small utility items. It was not consistent with evidence for working large blooms of metal, so presumably the raw material was supplied as convenient bar iron or perhaps as billets. The hammerscale was also revealing. Two samples taken close to structure 5730 not only gave high levels of flake hammerscale, but also spheroidal hammerscale, which was a significant component either where blooms were first worked, or when fire welding took place. This implied that more complex composite items, such as tools, were manufactured there.

The apparent hiatus in occupation, seen in structural remains and other finds during Phase 2 (late 2nd to mid-3rd century AD) was generally matched by ironworking debris. The exception was that a midden deposit on the slope to the north of Healam Beck, which spanned the period, seemed to continue in use as a dumping ground for small amounts of debris, presumably from workshops outside the area of the excavation. For the later period of occupation (the late 3rd/4th century AD) lower quantities of slag were deposited across the site. Not only did less metalworking occur, but the evidence also suggested that the focus of this craft had shifted southwards to enclosures 5696/5151 (Fig. 52). With this change, the mean size of hearth bottoms doubled and spheroidal hammerscale became a higher proportion of the total hammerscale recovered. Although the quantities of data were low, a change in the nature of the craft was suggested and perhaps reflected occasional manufacture of large objects.

One of the features of the assemblage was the frequency of small fragments of low quality shaley coal. This may have been from local outcrops (see comments in Chapter 6), but the coal was clearly used in the smithing process, as attested by burnt and unburnt debris attached to slag.

Regional context

An interesting parallel to the Healam remains were those at Bainesse (15km to the north) excavated by the Department for the Environment/English Heritage. A post-built structure dated to AD 200/275 at right angles to Dere Street, contained a large floor level hearth and both smithing slag and hammerscale was found in its fill (Wilson 2002a, 151-154). There was also limited evidence that in the 3rd century AD an existing 'oven' was reused for ironworking, though remains of a covering building did not survive (op. cit., 173). Despite a more limited weight of recovered slag (50kg), craft activities included ironworking and agriculture, which were suggested to be economic supports for the settlement. Wacher's excavations at Catterick located 2.2km north of Bainesse also recovered ironworking evidence with smithing slag and hearth lining spread across the site in 4th-century AD contexts (op. cit., 138). Small amounts of ironworking slag were also noted during the Thornbrough Farm excavations on the outskirts of Roman Catterick (dated to the mid- to late 3rd century AD).

In his synthesis of roadside settlements in Lowland Roman Britain, Smith (1987) suggested that for some sites food production was not the predominant activity. The location alongside Dere Street would certainly have been beneficial for ironworking on different scales. When large scale production occurred, the road would have provided easy access for incoming raw materials and outgoing goods. At times of low level activity, when production was primarily directed at supplying local needs, occasional customers that passed through could have provided a welcome additional source of income.

Historically the North Yorkshire Moors were an important source of rock iron ores. However, it was far more likely that closer sources of ore could have been found that would have provided easily smeltable ores for Roman bloomery furnaces. The products of these furnaces, either as roughly consolidated blooms or as part worked bars, would then have been traded throughout the locality to specialist industries (Schrüfer-Kolb's (2004) 'professional' industries), but also to

'domestic' ironworking sites, such as at villas or farms. Her criteria for distinction were that the former utilised multiple hearths that operated at a considerable scale, whilst 'domestic' smithing activities were often carried out in hearths that were also used for other purposes. This model may fit the different levels of activity during the first and third phases at Healam.

METALWORKING DEBRIS FROM FIELD 107

Jane Cowgill

Introduction

An assemblage of industrial debris was recovered during excavations at Field 107. The material included slags and furnace structures that provided evidence for iron smelting, although some smithing waste was also recorded. The nature of the assemblage suggested these activities were undertaken on, or in proximity to, the site. However, no in situ furnaces were identified. The material was recovered from the fills of ditches, gullies, and pits. Overall, the quantity of industrial debris was large with a total of 1264 pieces that weighed c.142kg. Charcoal samples recovered from the slags returned Early to Middle Iron Age radiocarbon dates.

Recovery and recording methodology

The industrial debris was recovered by both hand-collection and soil sampling, each of which collected different forms of evidence and levels of data that were not directly comparable (Table 151). The highest slag counts (but not necessarily weights) were inevitably recorded from the sampled features and most of the small unidentifiable pieces were from these contexts (greyed in Table 149). This suggested that the hand-collected material represented a fraction of what was actually present, but the absence of the smaller component of the assemblages did not generally affect interpretation of the remains. The most significant form of evidence recovered from the soil samples was magnetic matter, therefore the presence/absence of hammerscale shown on Table 152 was based almost entirely on the features that were sampled.

The slags were identified solely on morphological grounds by visual examination, aided by a x10 binocular microscope. They were recorded using the following encoded fields: Site, Area, Context, Sample, Type, Count, Weight, Craft, Fuel, and Condition. A note of probable fuel type was recorded when fragments or imprints were incorporated within the slag.

Magnetic matter recovered from the sample residues was weighed and scanned on a petri dish using x10 magnification and any hammerscale, slags, or items of note were recorded (soil from the hand-collected slag was also checked for additional hammerscale and was treated in the same manner). If the magnetic matter was abundant, then only a sub-sample was examined and counted. Results were then scaled up, so that the figures given in Table 152 represented approximate amounts present in the whole magnetic element.

Dating

In order to gain a series of radiocarbon dates for the iron smelting and smithing, charcoal samples were extracted from the structure of the slags by gradually reducing fragments from three contexts. During the reduction process visible charcoal, which was well embedded and mineralized, was extracted with a scalpel until the slag was in effect 'smashed'.

The samples, all of indeterminate wood charcoal, returned dates that clustered well, but had a broad range from 770-210 cal BC, as they coincided with a plateau in the radiocarbon curve. The dates indicated an Early to Middle Iron Age date for the industry. The results are summarised in Table 153 below, see Chapter 9, Table 95 for the full data.

Description of the slags and furnace remains

The condition of a high proportion of the slags made their precise identification difficult. Many were encrusted with thick layers of soil and iron-rich corrosion, whilst others had soft, slightly powdery, or matt-pitted surfaces (e.g. context 4054), which led to a high number of indeterminate slags in Table 149. In some cases these factors masked the degree of abrasion the slags may have received, through repeated reburial, disturbance, or weathering on the ground surface. There were very few actual charcoal inclusions, but imprints were common, particularly on the flows, which were often 'moulded' by charcoal.

Furnace structural pieces

A large quantity of pieces (c.26kg) from the actual furnace structures (catalogued as FURNST) were recovered from the site (Table 149), which was an exceptionally large amount at over 18% by weight and just under 11% by count of the total assemblage. This may have been due in part to a hand-collection bias (contexts 1974, 4127, 4246, and 4249), contrasting with sampled contexts 4166 and 4054 from which 27.4% and 12.8% by count, 60% and 21.5% by weight of this type of material was retrieved. Many of the individual pieces were large (e.g. 4114 and 4166 weighing 3472g and 2960g respectively) and indicated they were once parts of bloomery furnaces (so named because the iron, combined with some slag, formed as a bloom inside), although they revealed remarkably little about the size and form of the actual structures. There was very little evidence for contemporary bloomeries and none from this part of England.

Examples of bloomery furnaces excavated on other sites suggested that they were usually constructed as circular shafts, often with internal diameters of c.0.3m, but this may not always be the case as the Late Iron Age furnaces excavated at Priors Hall, Corby were D-shaped and had a distinct 'pot-belly' that formed the front (Hall 2008). Within the current assemblage, curvature was sometimes discernible, but frequently the potential furnace internal diameter was not measurable (e.g. context 4054: weight 1014g), while on other large pieces no curve was apparent (context 4114: weight 3472g). A number of pieces with flat vitrified faces were recorded, such as one from context 4054 (weight 205g), which had three sequential flat layers. Where an attempt was made to reconstruct the internal diameter the results were often unconvincing, the narrowest was 120mm (context 4243: weight 1634g), which seemed far too small and even 200mm recorded from a piece from context 4166 (weight 2156g) was probably too narrow. However, a diameter of 270mm was recorded on a piece of slag from context 1949 (weight 1086g). While becoming vitrified the clays were likely to have become distorted, which may be the cause of the unconvincing internal diameters, or it is possible that the fragments were from the base of the furnace, rather than a side wall. However, the heat at the base was unlikely to have been high enough to cause the clay to vitrify.

Context	Furnace structure		Furnace slags		Tap slags		Indeterminate iron slags		Proto-hearth bottoms and hearth bottoms		Tuyeres?		Fired & vitrified clays		Total	
	Count	Weight (g)	Count	Weight (g)	Count	Weight (g)	Count	Weight (g)	Count	Weight (g)	Count	Weight (g)	Count	Weight (g)	Count	Weight (g)
1931	-	-	-	-	-	-	6	829	-	-	-	-	-	-	6	829
1947*	-	-	-	-	3	1509	-	-	-	-	-	-	-	-	3	1509
1949	9	782	3	797	10	2159	45	3196	4	774	-	-	-	-	71	7708
1957	5	607	-	-	15	1571	29	879	1	27	-	-	90	915	140	3999
1958	7	153	-	-	13	3768	2	458	-	-	-	-	24	18	46	4397
1963	-	-	2	1161	-	-	-	-	-	-	-	-	-	-	2	1161
1970	-	-	-	-	3	2205	-	-	1	378	-	-	-	-	4	2583
1971	1	81	-	-	2	104	-	-	-	-	-	-	-	-	3	185
1974	5	873	-	-	1	56	1	122	-	-	-	-	-	-	7	1051
4054	11	2255	-	-	15	2049	51	1708	9	4481	-	-	-	-	86	10493
4055	6	422	-	-	76	6771	137	8387	9	4154	-	-	4	23	232	19757
4056	9	1542	1	148	45	5893	98	9733	8	2375	-	-	2	10	163	19701
4058	4	223	1	89	6	124	26	240	-	-	-	-	1	6	38	682
4059	1	223	-	-	9	389	13	388	1	129	-	-	4	124	28	1253
4061	1	104	-	-	4	894	10	3151	-	-	-	-	3	13	18	4162
4063	-	-	-	-	-	-	8	655	1	846	-	-	1	65	10	1566
4064	-	-	-	-	-	-	1	17	1	474	-	-	-	-	2	491
4068	3	56	2	102	5	611	20	1645	1	95	1	601	-	-	32	3110
4114	6	3971	14	1071	20	3757	21	3702	9	3141	1	15	1	29	72	15686
4117	1	275	-	-	-	-	9	1304	1	526	-	-	2	35	13	2140
4125	-	-	-	-	-	-	2	420	1	472	-	-	-	-	3	892
4127	6	408	-	-	3	1083	1	689	-	-	-	-	-	-	10	2180
4141	-	-	-	-	-	-	1	422	-	-	-	-	-	-	1	422
4159	-	-	-	-	5	426	-	-	1	640	-	-	1	13	7	1079
4166	49	5474	1	599	7	440	94	1661	1	688	-	-	27	251	179	9113
4167	1	312	-	-	-	-	4	1730	1	343	-	-	-	-	6	2385
4232	1	4944	-	-	-	-	18	211	-	-	-	-	-	-	19	5155
4242	-	-	-	-	5	1211	1	157	1	863	-	-	-	-	7	2231
4243	4	2653	-	-	6	575	13	3413	1	77	-	-	-	-	24	6718
4245	-	-	-	-	3	754	2	1069	-	-	-	-	-	-	5	1823
4246	3	478	-	-	2	515	4	836	-	-	-	-	-	-	9	1829
4249	3	137	-	-	4	185	2	907	-	-	-	-	-	-	9	1229
4250	1	192	-	-	-	-	8	2201	-	-	-	-	-	-	9	2393
Total	**137**	**26165**	**24**	**3967**	**262**	**37049**	**627**	**50130**	**52**	**20483**	**2**	**616**	**160**	**1502**	**1264**	**139912**

Table 149: Summary of the main contexts from which slag was recovered. Both hand collected and pieces extracted from the samples (only those with over 150g are included). Those contexts that were sampled are highlighted. Most contexts were from Field 107; one from Field 108 is marked ''*

Context description	Context	Smelting slags (including furnace structure)				Smithing slags				Smelt/smithing slags				Total	
		Count	Weight (g)	Count	Weight (g)	Count	Weight (g)	Count %	Weight (g)	Count	Weight (g)	Count %	Weight (g)	Count	Weight (g)
Gully [1962] fill	1963	2	1161	-	-	-	-	-	-	-	-	-	-	2	1161
Gully [1962] fill	1970	3	2205	-	-	1	378	-	-	-	-	-	-	4	2583
Gully [1962] fill	1971	3	185	-	-	-	-	-	-	-	-	-	-	3	185
Gully [1962] fill	1974	6	929	-	-	-	-	-	-	1	122	-	-	7	1051
Ditch [1948] fill	1949	25	5693	39	74	4	774	6	10	35	1188	55	16	64	7655
Cut of gully Cut by 4086	4249	7	322	-	-	-	-	-	-	-	-	-	-	7	322
Gully [4249] fill Cut by 4086	4250	9	2393	-	-	-	-	-	-	-	-	-	-	9	2393
Ditch [4086] fill	4054	40	5467	66	53	9	4481	15	43	12	461	20	4	61	10409
Ditch [4086] fill	4055	51	12246	65	67	9	4154	12	23	18	1753	23	10	78	18153
Ditch [4086] fill	4056	49	9720	52	51	8	2375	9	12	37	7084	39	37	94	19179
Ditch [4086] fill	4127	10	2180	-	-	-	-	-	-	-	-	-	-	10	2180
Ditch [4239] fill	4242	5	1211	-	-	1	863	-	-	1	157	-	-	7	2231
Ditch [4239] fill	4243	15	4768	68	72	2	150	9	2	5	1691	23	26	22	6609
Ditch [4052] fill Recut of [4086]	4058	16	2327	46	82	-	-	-	-	19	506	54	18	35	2833
Ditch [4052] fill Recut of [4086]	4061	12	4079	80	98	-	-	-	-	3	70	20	2	15	4149
Ditch [4052] fill Recut of [4086]	4063	-	-	-	-	1	846	-	-	8	655	-	-	9	1501
Ditch [4052] fill Recut of [4086]	4064	-	-	-	-	1	474	-	-	1	17	-	-	2	491
Ditch [4052] fill Recut of [4086]	4125	2	420	-	-	1	472	-	-	-	-	-	-	3	892
Ditch [4052] fill Recut of [4086]	4141	1	422	-	-	-	-	-	-	-	-	-	-	1	422
Ditch [4240] fill Recut of [4086]	4245	4	822	-	-	-	-	-	-	1	1001	-	-	5	1823
Ditch [4240] fill Recut of [4086]	4246	7	1210	-	-	-	-	-	-	2	619	-	-	9	1829
Sealing deposit above Ditch [4086]	4059	3	280	27	38	1	129	-	-	7	320	64	44	11	729
Ditch [1959] secondary fill	1957	27	2819	64	96	1	27	2	1	14	85	83	3	42	2931
Ditch [1959] primary fill	1958	12	3847	86	89	-	-	-	-	2	458	14	11	14	4305
Ditch [4158] ninth fill Group 4256	4166	55	7362	95	96	-	-	-	-	3	296	5	4	58	7658
Ditch [4158] eighth fill Group 4256	4167	3	1132	-	-	1	343	-	-	2	910	-	-	6	2385
Ditch [4228] sixth fill Group 4256	4232	2	5096	11	99	-	-	-	-	17	59	89	1	19	5155
Ditch [4113] fill Recut Group 4256	4114	50	11563	70	74	11	3610	15	23	10	484	14	3	71	15657
Ditch [4113] fill Recut Group 4256	4117	2	829	18	39	9	1276	82	61	-	-	-	-	11	2105
Pit [4153] seventh fill	4159	5	426	-	-	1	640	-	-	-	-	-	-	6	1066
Total		**426**	**91114**			**61**	**20992**			**198**	**17936**			**685**	**130042**

Table 150: The evidence for iron smelting and smithing from the key features, with the percentages for count and weight for each context with over 10 finds. Those contexts that were sampled are highlighted. The quantities differ from Table 148 because this table is less cautious and slags have been assigned to their probable method of generation. The finds from the samples are excluded so that only one method of slag recovery is included

Context	Sample finds					Hand collected finds			Totals	
	Sample Size (ltr)	Count	% of finds from context	Weight(g)	Average fragment weight(g)	Count	Weight(g)	Average fragment weight(g)	Count	Weight(g)
1949	40	7	9%	53	7.6	64	7655	119.6	71	7708
4054	30	25	29%	85	3.4	61	10409	170.6	86	10494
4055	40	150	65%	1581	10.5	82	18176	221.7	232	19757
4056	80	56	34%	423	7.6	107	19278	180.2	163	19701
4243	20	2	8%	109	54.5	22	6609	300.4	24	6718
4058	40	2	5%	3	1.5	35	2839	78.7	37	2842
4059	40	13	46%	410	31.5	15	853	56.9	28	1263
1957	30	46	33%	191	4.1	94	3818	40.6	140	4009
1958	40	29	63%	85	2.9	17	4312	253.6	46	4397
4166	40	110	61%	1232	11.2	69	7881	114.2	179	9113

Table 151: The quantity of finds recovered from the sampled features compared to that which was hand collected, with the average weights of the individual pieces given for the two collection methods

Context	Sampled	Weight (g)	Content
1949	Y	6	P x 6; S x 1; mostlyly brown slag + iron crumbs and corrosion flakes. <100% scanned
1957	Y	34	P x 16; S x 4; mostly brown slag. <100% scanned
1958	Y	14	P x 11; 1 x fired clay; remainder brown slag. <100% scanned
4054	Y	15	S x 2; remainder brown slag with some vitrified clay. <100% scanned
4055	Y	18	P x 2; mostly brown slag. <100% scanned
4056	Y (x2)	27	Vitrified clay (2g); mostly brown slag; rare iron corrosion flakes. <100% scanned
4058	Y	10	P x 2; vitrified clay (1g); mostly brown slag
4059	Y	12	Brown slag
4061		1	P x 1 tiny; mostly brown slag
4063		1	mostly dust
4068		<1	Dust
4100	Y	3	P x 1; remainder brown slag
4114		3	Iron corrosion flakes or brown slag
4117		3	P x 1 tiny; mostly iron corrosion or brown slag
4125		<1	mostly brown slag
4127		<1	Tiny amount of dust
4166	Y	176	P x 9928; S x 504; 1 x thick P; remainder iron-rich brown slag. <100% scanned
4167		<1	mostly brown slag
4232		2	Brown slag + dust
4237	Y	<1	Slag
4242		<1	mostly encrusted
4243	Y	3	mostly brown slag
4246		<1	1 x ironstone
4248	Y	<1	Brown slag
4491	Y	4	P x 1; remainder brown slag

Key: P = plate hammerscale, S = spheroidal hammerscale Note: Weight scaled up to 100% where magnetic matter was sub-sampled

Table 152: The magnetic matter recovered from the samples and from the soil in the bags of hand-collected slag

Feature	Context	SUERC No.	Uncalibrated date range	Date at 95.4% probability
Ditch 4086	4054	40364 (GU27201)	2440 ± 40 BP	753 - 685 cal BC, 668 – 611 cal BC, and 597 – 406 cal BC
Ditch 4086	4056	40368 (GU27202)	2480 ± 35 BP	770 - 486 cal BC and 463 - 416 cal BC
Ditch 4086	4056	38048 (GU26083)	2295 ± 35 BP	307 - 351 cal BC and 297 - 210 cal BC
Ditch 1959	1958	40363 (GU27200)	2355 ± 35 BP	716 - 695 cal BC and 540 - 375 cal BC

Table 153: Radiocarbon dates for the slag from Field 107

The circular shaft of the furnace would have contained one or more air holes that would have been situated near the base to allow for bellows, which would have been required to achieve and maintain the high temperatures required. Sometimes a tuyère was inserted into an enlarged air hole (or built into the furnace) to aid protection of the bellows and limit damage to the inside of the furnace. Two examples of tuyères were identified within the assemblage (Table 149). It was in this zone that the furnace would have been hottest and therefore most of the vitrification of the clay furnace walls and damage occurred there, which resulted in the most extensive repairs being undertaken to this area. The bloom of iron and slag also formed in this zone and may have become attached to the furnace wall just below the air hole. Its removal could be another cause of damage to the structure. It would therefore be anticipated that the majority of the assemblage was derived from this part of the furnace and the quantity suggested there was more than one furnace.

A high proportion of pieces contained multiple layers of repair where a new layer of clay had been applied over an already vitrified surface, which in turn also became vitrified. The clearest example of this (context 4166: weight 2960g) had at least six sequential layers of repair, each of varying thickness and differing degrees of vitrification and measured 140mm thick. Another piece had five or six repairs, some with layers of slag up to 30mm thick between them (context 4232: weight 4944g, catalogued as SLAG). A third had only two or three layers, but each was 55mm thick (context 4056: weight 769g). Many of the pieces were also deeply penetrated by slag, which gave the 'backs' a marbled appearance. The degree of vitrification and slag penetration may suggest that the furnaces were run, accidentally or intentionally, at a high temperature. However, this may also be due in part to the properties of the local clays. If the smelters intended to make steel (iron with a high carbon content) a high operational temperature would have been required. Whether this was made, let alone at this date, still remains a contentious issue, although it has been achieved a number of times in a bloomery furnace experimentally (e.g. Wrona 2013).

The thickness of these multiple repairs was problematic. The thickest measured 140mm (context 4166) with 50mm being the median (and mode), although the thinner fragments could have fractured off much thicker pieces. Assuming they were from the internal wall of the furnaces and near the air hole, they would have significantly reduced the internal diameter, which would have affected the operating parameters. It was obviously done and repeatedly, which suggested other adjustments were made to allow the furnaces to operate successfully, although it was difficult to rationalise how this could have been achieved. A possibility was that the front of the furnace was periodically demolished and then rebuilt to give an adequate internal diameter, but as there were no in situ structural remains there was no evidence for this.

Another key component of many furnaces was an arch at the base for lighting the fire within it, in some instances for bloom removal, and depending on the technology employed, for tapping out the slags. No evidence for an arch was seen amongst these pieces, but it may have been sited where it was unlikely to have become vitrified and therefore for any of it to have survived. Although many fragments were large, their orientation and original location within the furnaces was far from clear.

There was no indication for a wattle or any other framework around which the furnaces may have been built, although one piece of slag/furnace lining had narrow horizontal striations imprinted on the back (context 4250: weight 985g). This texture may have been intended to aid the bonding of a repair layer, although it seemed too fine for this.

The quantity and size of the furnace structure fragments recovered indicated that the furnaces were undoubtedly located within, or in proximity to, the excavation area. The lack of in situ evidence for the furnaces could suggest that they were built on the ground surface or within the topsoil and therefore all trace of them may have since been destroyed by later agricultural activity.

Iron smelting slags

The main categories of slag that were considered to be evidence for iron smelting were flows, volcanoes, furnace slags (FURN), and plates. The main 'types' used in the catalogue were SLAG and TAP; it should be reinforced, however, that none of the slags need necessarily have been actually tapped out of the furnaces.

The flows dominated the assemblage and generally took the form of a mass of multiple small flows, often with imprints of the charcoal they formed around. These flows were generally small, but a few medium sized examples were present. The largest piece of slag that may be characterised as a flow, although not altogether convincing, was what appeared to be an almost complete piece that was quite light in weight due to the many voids caused by burnt out charcoal (context 1970). Individual 'dribbles' that can be quite common on other sites were very rare here even amongst the sample assemblages.

The volcanoes were mostly inverted examples with a wide flattish fairly dense top from which the slag had flowed downwards in a manner that resembled candle wax. These were all small examples, but much larger ones have been recorded on other sites. For example, undated Knaith Park, near Gainsborough (Cowgill 2009) and the author was in possession of one that formed inside a furnace during an experimental smelt by the Wealden Iron Research Group (15th September 2002). Many of the pieces showed no evidence of having been attached to the furnace wall, while others had furnace clays, possibly layered from repairs, attached to their 'backs'.

Furnace slags are usually defined as slags that cooled within the furnace and were characterised by very large charcoal inclusions or imprints within them. They often formed a component of the by-products of a slag-tapping technology, although in this case it appeared unlikely, or they were at least from a non-standard type. Two had a rim of furnace clay attached and both were from context 1949. The first had medium to large charcoal imprints and inclusions on the reverse and the diameter of the reduced fired rim was c.180mm, while that of the second possible example (catalogued as SLAG) was much greater at 270mm. The pieces of charcoal, however, associated with this second piece were small.

The plates were the most problematic group, as it was difficult to discern whether they were a by-product of smelting or smithing. Most were between 15-45mm thick, were extremely dense and heavy, and had flat tops/sides. Blooms can be encouraged to form in a pool of slag

as it appeared to improve their purity and quality (Jake Keen pers. comm.), but the resultant slags usually had a convex top, not flat as with these examples. The bases/backs were variable, some had furnace clay attached, which suggested they formed vertically in the furnace (e.g. context 4056, weight 603g), while others had slag flowing downwards from their bases, which implied they were horizontal (e.g. context 4056: weight 648g). Although similar in appearance, they did not represent a single 'type'. Good examples were those from contexts 1958 and 4055. However, the oval fragment from context 1958 was almost identical, if somewhat larger, to some of the pieces catalogued as hearth bottom and some, if not all, of these pieces may have been smithing (perhaps bloom smithing) by-products.

Iron smithing slags

Identifiable iron-smithing slags comprised a minimum of 4% by count (14% by weight) of the assemblage (Table 150, 9% and 16% by weight if only the hand-collected finds are considered), which may represent debris from either primary or secondary smithing. The only 'type' identified were hearth bottoms and many were complete enough to be measurable (Table 154), which suggested they had suffered very little post-formation damage and were deposited within the ditches soon after production. Complete examples were particularly common (in contexts 4054, 4055, and 4056 from ditch 4086), which spanned the full size range from very large to some of the smallest. A wide variety of hearth bottoms were present, including: classic plano-convex examples (contexts 4055: weight 444g, and 4063: weight 846g), thin flat pieces (4159: weight 640g, and 4166AA: weight 688g), some that were unusually large (context 4114: weight 1611g, and 4054: weight 1748g, neither of which were measurable), and others with tap-slag flows on their bases (contexts 4055 and 4056, weights 370g and 399g respectively). Those with tap slag flows, combined with this diversity, suggested that many may have been from bloom smithing. A number of 'double' hearth bottoms were also present (context 4055: weight 848g) where

Feature	Context	Length* (mm)	Width (mm)	Depth (mm)	Weight (g)	Comment
Cleaning	4068	50	60	35	95	
Ditch 1948	1949	90	110	50	386	
Ditch 1948	1949	65	70	30	164	
Ditch 1948	1949	60	70	25	198	
Ditch 1948	1949	40	50	20	26	
Ditch 1959	1957	40	50	15	27	
Ditch 4052	4063	105	120	40	846	Classic form
Ditch 4052	4064	80	110	30	474	
Ditch 4086	4054	100	115	35	519	
Ditch 4086	4054	100	100	30	438	
Ditch 4086	4054	90	110	35	475	Classic form
Ditch 4086	4054	80	95	40	360	Double
Ditch 4086	4054	75	100	40	326	
Ditch 4086	4055	110	120	70	1046	Double
Ditch 4086	4055	90	120	45	848	Double classic form
Ditch 4086	4055	90	115	45	444	Classic form
Ditch 4086	4055	90	105	40	370	
Ditch 4086	4055	80	120	40	471	Classic form but thin
Ditch 4086	4055	80	100	30	399	
Ditch 4086	4055	80	70	35	272	
Ditch 4086	4055	40	40	20	33	
Ditch 4086	4056	90	85	30	334	
Ditch 4086	4056	90	?	35	348	Double both thin
Ditch 4086	4056	85	120	25	355	Thin
Ditch 4086	4056	80	95	40	399	
Ditch 4086	4056	80	90	40	485	Double
Ditch 4086	4056	70	80	40	197	
Ditch 4086	4056	65	80	40	207	
Ditch 4086	4056	40	45	20	51	
Ditch 4086	4125	95	120	40	526	
Ditch 4086	4125	95	120	30	472	
Ditch 4113	4114	80	110	40	337	
Ditch 4113	4114	65	75	30	206	
Ditch 4113	4117	100	85	45	369	
Ditch 4158	4167	90	110	30	343	
Ditch 4239	4242	100	150	40	863	
Ditch 4239	4243	45	60	30	77	
Ditch 4258	4166 AA	110	155	30	688	Thin
Gully 1962	1970	70	110	40	378	Double
Pit 4153	4159	120	120	30	640	Classic form but thin
Sealing layer	4059	50	70	25	129	Double?

*From front to back (hearth wall).

Table 154: Hearth bottom dimensions and weights

one had been allowed to form on top of another, which was not deemed good practice by modern smiths.

No other type of iron-smithing slag had been identified, but these were likely to be present amongst the many small pieces that were too encrusted to be categorised. Hearth lining was uncommon on the backs of the hearth bottoms with only two examples noted (contexts 4054 and 4056: weights 360g and 334g respectively).

Although a very skilled smith could limit the amount of slag produced, an unavoidable waste product was hammerscale. When iron was heated the surface will oxidise and this oxidised layer flaked off when it was beaten, which produced thin flat plates of scale debris (plate, or flake, hammerscale). Spheroidal hammerscale, being small droplets of slag that solidified, were also produced, but in smaller quantities when two pieces of iron were fire welded together (Dungworth and Wilkes 2009; Young 2011). On smelting sites, it can be quite common, partly because spheroids may be produced within the furnaces, but also because the operation of smithing the bloom to a bar was fundamentally a welding operation and it is thought that this may account for their apparent abundance on these sites.

The amount of hammerscale recovered was extremely small with the sole exception of the upper fill (4166) of ditch 4158 (Group 4256). This assemblage included both plate and spheroidal scale (Table 152) and was great enough to suggest a primary dump of waste from a smithy floor. Surprisingly, only a single identifiable piece of smithing slag came from the same context.

Ore, fuel and clay

No roasted or unroasted ore was recovered from the site, although some iron pan with low iron content was discarded during the cataloguing. The ore would have been prepared by roasting, sorting, and crushing and a certain amount of waste ore (fines) that was deemed unsuitable for smelting is usually present wherever this was undertaken. It was possible that ore processing occurred a distance away from the slag discard zone and away from the area of investigation, or that it was imported to site fully prepared.

Charcoal was the only fuel used in bloomery furnaces, as it was a clean fuel, created the necessary reducing atmosphere, and was able to reach and maintain the high temperatures required. The imprints and inclusions in the slags indicated that large pieces were used, which fit with the experimental work undertaken by Crew (1991, 22) that suggested the optimal size for smelting and bloom smithing ranged from 10-50mm. On most sites where the charcoal had been identified to species, mature oak was the wood of preference (Gale 2003), which was one of the densest native species and will therefore emit the most heat. The amount of charcoal needed to sustain an industry on the scale suggested by the quantity of slag was considerable, especially when the weight for weight ratio of wood required to make charcoal is about 6:1 (Cowgill 2003, 52). It was envisaged that the smelters would have required 40-100kg of charcoal per smelt, depending on the technology employed and ore type used (Crew 2013; Keen pers. comm.). Charcoal would have been the largest resource, certainly in terms of volume, that was needed at the site of the smelts. To achieve this, a significant area of woodland would have been maintained nearby, probably managed by coppicing.

A local source of clay would have been needed for furnace construction and ongoing repairs. Clay extraction pits were a common feature of many smelting sites, but none were identified in Field 107. Clay and wood may also have been required for building the structures that covered the furnace(s) and smithy to protect them from the weather and to provide a degree of darkness that would have allowed the flame colours to be monitored and thereby, amongst other factors, the temperature of the fires.

Discussion

The smelting component of the industrial debris did not represent a normal assemblage, but given the early dates perhaps a normal assemblage would not be expected. Initially it was thought that the range and diversity of the slags indicated that more than one type of furnace technology was employed, or that they reflected several episodes of smelting over a period of time and exhibited innovation and development of an industry. However, although some differences between the ditches were discernible, this was not due to the 'types' of slag present, but rather the size of the pieces, the composition of the assemblages, and the fills they were recovered from. It appeared that all of the smelting debris resulted from bloomery furnaces, although accurately reconstructing the technology employed at the site was hindered by the absence of in situ furnace remains and the lack of evidence for furnace features on the structural pieces.

The most common type of bloomery furnace found in the archaeological record is a slag-tapping furnace, where the slag was periodically tapped through the arch into a pit beside the furnace. The characteristic slags from these structures are large layered plates of tapped slag, but none of these have been recovered from this site. It is still possible that some of the small flows were collected in a pit below or outside the furnace during or after the smelt.

The slags that were made during experimental smelts, even during very consistent and controlled ones, were often variable in both form and quantity. This can be due to a wide range of factors, including: the nature of the ore, furnace form, air hole location, and blast rates to list a few. In reality, the factors involved are still poorly understood. If the furnace repairs outlined above limited the internal dimensions of the furnaces, then this was likely to have affected both the location of the slag formation and quite possibly the slag morphology. Gradually reducing the internal dimensions of the structure could possibly account for the variety of smelting slags recovered in this assemblage, rather than it being due to changes in the technology employed. Another factor that could cause such variation within the assemblage would have been the type of iron the smelter wished to make. Iron smiths used a range of irons that varied from pure ferritic iron (fairly soft), iron containing phosphorus (relatively hard), to steels (potentially very hard, but more brittle; McDonnell 1995, 5). All of these would have been provided, probably in some sort of bar form, by the contemporary iron smelters.

The industrial debris recovered from Field 107 was identified within the fills of the earliest feature (gully 1962), which indicated its infilling was contemporary with or post-dated the industrial activity. The largest assemblages of debris were recovered from the primary fills of the ditches that formed group 4218, which included

the full range of slag 'types'. This material included some exceptionally big hearth bottoms, although these were associated with insignificant amounts of hammerscale. This suggested that they were not smithing by-products, but the debris from smelting. The material recovered from ditch group 4256 and its recut (4113) was noticeably different. Some of the pieces of a furnace structure found here were significantly larger and heavier than any others found on site, as the largest weighed nearly 5kg (ditch 4228, context 4232: 4944g) and the only significant deposit of hammerscale was recovered from this group. The fills of the ditch recut (4113) produced both the highest number of smithing slags and the only assemblage that was dominated by smithing slags (82%, Table 150).

The by-products of iron smelting and smithing were usually discarded in heaps close to the furnaces and the structure that functioned as a smithy. These heaps could have been large and would have been an inconvenience to anyone who wished to use the land on which they were sited. Large pieces of slag were quite capable of damaging an ard or throwing it off course if the land was used later for arable farming. Removal, or at the very least, levelling of these heaps could in such circumstances have become a priority, however, the evidence appeared to suggest that slags from heaps were discarded into the ditches rather than material levelled into the topsoil. If slag was ubiquitous in the topsoil it would probably be present in every ditch fill, rather than in concentrations in a limited number of contexts. That this may have occurred in phases, as the use of the land surrounding the heaps changed and it became incorporated into the farmed landscape, may partially explain the intermittent deposition of the slag in the ditch fills. The slag in ditch 4086, however, appeared to be present in almost random fills, albeit often in quite small quantities, which suggested that the source of the fills was not consistent and probably was not 'topsoil' into which slag heaps had been flattened and dispersed by ploughing.

The lack of domestic debris in association with the smelting slags need not be a surprise, as it is a common feature of this type of site. They were often sited well away from settlements, not because they were noxious or a fire risk (although they could be dusty or noisy in the case of smithies), but because they needed to be close to their main resource: wood for conversion to charcoal, which they needed in considerable volumes. This had implications for the local land use and management, as depending on the frequency of the smelts, a significant area of woodland may have been maintained, probably through coppicing. Rackham (1980) has convincingly argued that most industries did not deplete, but protected their resources.

Both Halkon (2008, 167) and Crew (2013) suggested that smelts at this date were carried out intermittently, with possibly no more than ten smelts a year, which would imply that these sites were returned to periodically, perhaps over several generations. Rather than being permanently established, they may have been episodic, small scale, and only supplied local needs. This could be valid if the site in Field 107 was seen as representative of many more in the area, as if it was isolated, then the only alternative was to suggest that most of the iron used was imported from elsewhere. If the site was envisaged as representing one, or a few, intensive smelting episodes, then it was still unlikely that it supplied the iron requirements for many of the local population, not even on a utilitarian level.

At the time of excavation, there were no Iron Age iron smelting sites recorded in this area of North Yorkshire, even though there was seldom a problem with the availability of suitable ores in any part of England. This may be because the smelting sites did not exist, or because they have not been recognised (e.g. radiocarbon dating has since shown that an isolated pit that contained smelting debris found at Scorton Quarry in 2008 was of early Iron Age date, G Speed pers. comm.). For example, in the Foulness Valley, East Riding of Yorkshire, they are so common that the farmers assumed the slags were 'natural' and geological in origin (Peter Halkon pers. comm.). Likewise, until the 1990s the extensive evidence for iron smelting in South Lincolnshire was unknown (Cowgill 2003). As Haselgrove et al. (2001, 18) pointed out, production sites 'are often elusive and located 'in the landscape' rather than coinciding with settlements... [and often] ... preferentially located in marginal areas.'

In the Northeast of England various types of 'pit' slag seemed to be the dominant type of smelting slag found on Iron Age sites, although no true examples were recovered from Field 107. However, the furnace types used and thus technologies employed are poorly understood, which results in a confusion of terminology. Put simply, it was thought that some of the slags formed in pits below or beside the furnaces (but were not 'tapped'), while others may have just cooled within the furnace shaft. The slags from these sites vary greatly in both shape and size.

A number of sites of probable Iron Age date have been recorded in the Foulness Valley, just north of the Humber Estuary, after extensive fieldwalking (Halkon and Millet 1999). One site at Welham Bridge may have been contemporary with Field 107. Here, a very large slag heap was excavated and 5 tonnes of slag was recorded and dated to 600-380 cal BC and 450-250 cal BC (both given at 2 sigma) from charcoal in the slag (Halkon 2008, 167). Although the shapes of some of the slags were similar to those from Field 107, the Welham Bridge examples were significantly larger with a mean weight of 12.7kg and the largest a vast 74kg (Clogg 1999, 82). The internal diameter at the base of the furnaces was estimated to range between 0.3-0.65m from the slags (op. cit., 89). The technology employed was thought to have been on-tapping shaft furnaces or slag-pit furnaces of some form. Just 5km to the east at North Cave, similar 'huge' pieces of smelting slag were found (Dent 1989, 29) and a furnace with an internal diameter of 0.75m (at the base) was found nearby (Halkon and Starley 2011, 141). At Barnby Moor, 25km to the north, a small assemblage comprised of a tap flow, furnace slag, and pit slags with flat tops and moulded sides were found that were not dissimilar to the Field 107 pieces in size and morphology. When the results of the chemical and mineralogical analysis of the Welham Bridge and Barnby Moor slags were compared, it was clear that different ores were being used at the two sites and that the pit-slag furnaces were run under different operating conditions and were quite possibly of differing form (Cowgill et al. 2003). This indicated that the technology and output of smelting sites that were quite close to each other in terms of distance, but the precise dates for the two could have differed by 100+ years, could have varied considerably.

Single pieces of slag were not uncommon finds from Iron Age sites and have been found at High Catton (Cowgill 2000) and Pocklington (Cowgill 2001a), both East Riding of Yorkshire (the latter 5km east of Barnby Moor), and at Nunthorpe, Teeside (Cowgill 2001b). Larger assemblages were reported from Allerthorpe (Halkon and Starley 2011, 143), further to the west at Elvington (McDonnell pers. comm.), and Elmswell (Halkon and Starley op. cit., 148), but the date of most of these East Riding sites was uncertain and the slag types generally not quantified. With the sole exception of North Cave, no evidence for furnaces had been found on any of these sites. Field 107 therefore currently constituted one of the largest non-tapping slag assemblages found in the North East of England and although the date span was broad, it had better dating evidence than most sites with this type of slag.

This is a site of considerable significance both regionally and for our understanding of the location and extent of the iron production industry at this early date, although only a certain amount about the smelting technology employed could be extracted from the assemblage recovered and no furnaces were found. This site was a relatively isolated example and one of the most northerly English smelting sites known. Other sites in northeast England included the pit at Scorton (noted above), lying 11.5km to the north of Field 107, an Early Iron Age furnaces at West Brandon in Co. Durham (Jobey 1962), and Roxby in Teesside (Spratt and Inman 1986). However, it was quite likely that there were other ironworking areas close to the Field 107 remains and that they may have belonged to a well established industry.

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ABBREVIATIONS

AD	Archaeology Data Service
AE	L'Année Epigraphique, Presses Universitaires de France, Paris, 1888-
ASDU	Archaeological Services, Durham University
ASUD	Archaeological Services, University of Durham
ASWYAS	Archaeological Services WYAS
BAR	British Archaeological Reports
CBA	Council for British Archaeology
CIL	Corpus Inscriptionum Latinarum, Berlin-Brandenburgische Akademie der Wissenschaften, Berlin, 1863-
CUP	Cambridge University Press
EH	English Heritage
HBMC	Historic Buildings and Monuments Commission
HER	Historic Environment Record
IFA	Institute of Field Archaeologists
IfA	Institute for Archaeologists
MoLAS	Museum of London Archaeology Service
NAA	Northern Archaeological Associates Ltd
OUP	Oxford University Press
PIR	Prosopographia Imperii Romani, Berlin-Brandenburgische Akademie der Wissenschaften, Berlin, 1933-
RCHME	Royal Commission on the Historical Monuments of England
RGZM	Römisch-Germanischen Zentralmuseums
RIB	Roman Inscriptions of Britain, Clarendon Press, Oxford, 1965-
RMD	Roman Military Diplomas, University of London, 1978-
WYAS	West Yorkshire Archaeological Services
ZPE	Zeitschrift für Papyrologie und Epigraphik

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APPENDIX A

Data and resources available via the Archaeology Data Service (ADS), see DOI below:

https://doi.org/10.5284/1041575

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Table 98: Field number and chainage concordance

Field Number	Chainage	Grid Reference	Parish
Work Section 1			
1	500 – 850	SE 367 729	HUTTON CONYERS
2	500 – 880	SE 368 731	DISHFORTH
3	850 – 1,250	SE 364 733	HUTTON CONYERS
4	880 – 1,220	SE 366 734	RAINTON WITH NEWBY
5	1,250 – 1,600	SE 363 736	HUTTON CONYERS
6	1,220 – 1,790	SE 364 738	RAINTON WITH NEWBY
7	1,600 – 1,830	SE 362 739	HUTTON CONYERS
8	1,790 – 1,950	SE 363 741	RAINTON WITH NEWBY
9	1,830 – 2,110	SE 360 740	HUTTON CONYERS
10	1,950 – 2,180	SE 362 742	RAINTON WITH NEWBY
11	2,110 – 2,330	SE 360 743	HUTTON CONYERS
12	2,180 – 2,320	SE 361 744	RAINTON WITH NEWBY
13	2,350 – 2,680	SE 359 746	HUTTON CONYERS
14	2,340 – 2,940	SE 360 748	RAINTON WITH NEWBY
15	2,680 – 3,120	SE 358 750	HUTTON CONYERS
16	2,940 – 3,280	SE 359 752	RAINTON WITH NEWBY
17	3,120 – 3,380	SE 357 753	HUTTON CONYERS
18	3,290 – 3,750	SE 357 756	RAINTON WITH NEWBY
19	3,380 – 4,120	SE 355 757	HUTTON CONYERS
20	3,750 – 4,160	SE 356 760	BALDERSBY
21	4,120 – 4,240	SE 353 761	HUTTON CONYERS
22	4,240 – 4,600	SE 352 763	MELMERBY
23	4,300 – 4,700	SE 354 766	BALDERSBY
24	4,600 – 4,700	SE 352 766	MELMERBY
Work Section 2			
24	4,700 – 5,040	SE 352 766	MELMERBY
25	4,700 – 5,050	SE 352 770	BALDERSBY
26	5,050 – 5,110	SE 350 770	MELMERBY
27	5,110 – 5,330	SE 350 771	MELMERBY
28	5,070 – 5,420	SE 351 772	BALDERSBY
29	5,330 – 5,570	SE 349 773	MELMERBY
30	5,420 – 5,770	SE 350 775	BALDERSBY
31	5,770 – 5,920	SE 349 778	BALDERSBY
32	5,920 – 6,050	SE 348 779	BALDERSBY
33	6,060 – 6,130	SE 348 780	BALDERSBY
34	6,130 – 6,290	SE 348 781	BALDERSBY
35	6,290 – 6,590	SE 347 783	BALDERSBY
36	6,590 – 6930	SE 345 786	BALDERSBY
37	6,930 – 7,240	SE 344 790	BALDERSBY
38	7,240 – 7,330	SE 343 791	HOWE
39	7,330 – 7,520	SE 343 792	HOWE
40	7,520 – 7,980	SE 342 795	HOWE
41	7,980 – 8,200	SE 340 798	HOWE
42	8,200 – 8,950	SE 338 804	AINDERBY QUERNHOW
43	8,800 – 8,960	SE 340 807	AINDERBY QUERNHOW
44	9,960 – 9,200	SE 337 808	SINDERBY
45	8,960 – 9,370	SE 339 809	SINDERBY
46	9,200 - 9,300	SE 336 809	SINDERBY
47	9,300 – 9,370	SE 336 810	SINDERBY
48	3,850 – 9,380	SE 334 808	KIRKLINGTON-CUM-UPSLAND
49	9,390 – 9,700	SE 335 811	SINDERBY
50	9,400 – 9,910	SE 333 812	KIRKLINGTON-CUM-UPSLAND
51	9,700 – 9,920	SE 333 813	SINDERBY
52	9,920 – 10,150	SE 332 816	SINDERBY
53	10,150 – 10,390	SE 332 818	SINDERBY
54	10,390 – 10,420	SE 331 819	SINDERBY
55	10,420 – 10,620	SE 330 820	PICKHILL WITH ROXBY
56	10,620 – 10,770	SE 330 822	PICKHILL WITH ROXBY
57	10,350 – 10,900	SE 328 822	KIRKLINGTON-CUM-UPSLAND
58	10,770 – 10,900	SE 329 824	PICKHILL WITH ROXBY
Work Section 3			
58	10,900 - 11,260	SE 329 824	PICKHILL WITH ROXBY
59	11,050 – 11,590	SE 326 825	KIRKLINGTON-CUM-UPSLAND
60	11,230 – 11,730	SE 327 829	PICKHILL WITH ROXBY
61	11,730 – 12,030	SE 325 833	PICKHILL WITH ROXBY
61a	11,680 – 12,320	SE 323 832	KIRKLINGTON-CUM-UPSLAND
62	12,030 – 12,280	SE 324 835	PICKHILL WITH ROXBY
63	12,280 – 12,460	SE 323 838	BURNESTON
63a	12,320 – 12,670	SE 320 838	BURNESTON
64	12,460 – 12,530	SE 322 839	BURNESTON
65	12,530– 12,550	SE 323 839	BURNESTON
66	12,530 – 12,710	SE 322 840	BURNESTON
67	12,710 – 12,830	SE 322 841	BURNESTON
68	12,830 – 12,890	SE 321 842	BURNESTON
69	12,830 – 12,890	SE 320 841	BURNESTON

Field Number	Chainage	Grid Reference	Parish
70	12,890 – 13,000	SE 320 842	BURNESTON
71	13,000 – 13,200	SE 320 844	BURNESTON
72	13,200 – 13,380	SE 319 846	BURNESTON
73	13,400 – 13,680	SE 318 848	BURNESTON
74	13,780 – 14,040	SE 316 851	BURNESTON
75	13,650 – 14,020	SE 314 851	BURNESTON
76	14,030 – 14,120	SE 315 853	BURNESTON
77	14.120 – 14,210	SE 315 853	BURNESTON
78	14,210 – 14,370	SE 314 854	BURNESTON
79	14,370 – 14,490	SE 314 856	BURNESTON
80	14,490 – 14,690	SE 313 857	BURNESTON
81	14,690 – 14,720	SE 313 858	BURNESTON
82	14,720 – 14,850	SE 312 859	BURNESTON
83	14,820 – 15,000	SE 309 860	THEAKSTON
84	14,850 – 15,000	SE 311 862	THEAKSTON
Work Section 4			
83	15,000 -15,220	SE 309 860	THEAKSTON
84	15,000 – 15,250	SE 311 862	THEAKSTON
85	15,220 – 15,350	SE 308 862	THEAKSTON
86	15,250 – 15,350	SE 309 863	THEAKSTON
87	15,150 - 15,650	SE 307 865	THEAKSTON
88	15,650 – 15,950	SE 306 867	THEAKSTON
89	15,950 – 16,580	SE 303 871	EXELBY, LEEMING AND NEWTON
90	16,580 – 16,700	SE 301 873	EXELBY, LEEMING AND NEWTON
91	16,580 – 16,700	SE 300 873	EXELBY, LEEMING AND NEWTON
92	16,700 – 17,050	SE 299 874	EXELBY, LEEMING AND NEWTON
93	16,710 – 16,910	SE 300 875	EXELBY, LEEMING AND NEWTON
94	16,740 – 16,790	SE 301 875	EXELBY, LEEMING AND NEWTON
95	16,790 – 16,910	SE 300 876	EXELBY, LEEMING AND NEWTON
96	17,110 – 17,240	SE 297 877	EXELBY, LEEMING AND NEWTON
97	16,940 – 17,240	SE 299 878	EXELBY, LEEMING AND NEWTON
98	17,240 – 17,620	SE 296 879	EXELBY, LEEMING AND NEWTON
99	17,240 – 17,620	SE 297 880	EXELBY, LEEMING AND NEWTON
100	17,620 – 17,740	SE 294 881	EXELBY, LEEMING AND NEWTON
101	17,620 – 17,720	SE 296 882	EXELBY, LEEMING AND NEWTON
102	17,740 – 17,940	SE 294 883	EXELBY, LEEMING AND NEWTON
103	17,740 – 17,940	SE 295 884	EXELBY, LEEMING AND NEWTON
104	17,970 – 18,030	SE 294 885	EXELBY, LEEMING AND NEWTON
105	18,030 – 18,150	SE 293 886	EXELBY, LEEMING AND NEWTON
106	18,200 – 18,320	SE 292 887	EXELBY, LEEMING AND NEWTON
107	18,320 – 18,500	SE 291 888	EXELBY, LEEMING AND NEWTON
108	18,500 – 18,850	SE 289 890	EXELBY, LEEMING AND NEWTON
109	18,700 – 18,850	SE 289 892	EXELBY, LEEMING AND NEWTON
110	18,900 - 19,000	SE 287 891	EXELBY, LEEMING AND NEWTON
111	19,000 – 19,100	SE 286 892	AISKEW
112	19,000 – 19,300	SE 286 893	AISKEW
112a	19,000 – 19,300	SE 284 892	AISKEW
113	19,100 – 19,500	SE 284 894	AISKEW
114	19,400 – 19,500	SE 283 895	AISKEW
115	19,525 - 19,600	SE 282 896	AISKEW
116	19,625 – 19,825	SE 280 897	AISKEW
117	19,625 – 20,150	SE 281 898	AISKEW
118	19,825 – 20,150	SE 279 899	AISKEW
119	20,150 – 20,200	SE 279 900	AISKEW
120	20,200 – 20,600	SE 278 903	AISKEW
121	20,150 - 20,730	SE 280 903	AISKEW
122	20,400 – 20,730	SE 281 906	AISKEW
123	20,400 – 20,730	SE 282 906	AISKEW
124	20,300 – 20,550	SE 284 906	AISKEW
125	20,630 – 20,830	SE 277 906	AISKEW
126	20,600 – 20,775	SE 279 906	AISKEW
127	20,730 – 20,980	SE 280 908	AISKEW

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HEALAM BRIDGE

Evidence for pre-Roman Iron Age through to post-Roman activity was revealed during a major programme of archaeological works undertaken as an integral part of the construction scheme to widen the A1 trunk road between Dishforth and Leeming Bar in North Yorkshire. Significant archaeological remains were encountered at Healam Bridge, a scheduled Roman settlement located on Dere Street Roman road, midway between the walled towns of Isuriam Brigantum and Cataractonium (the modern villages of Aldborough and Catterick).

This two-volume set presents the results and discussion of the excavations and analysis of the environmental and human remains (Volume 1), and the analysis of the artefactual assemblages (Volume 2). Evidence from Healam Bridge indicates activity dating from the early 2nd century AD into the Anglo-Saxon period. The location of the site astride the main Roman route to the north of England and Scotland was reflected in the wide range of pottery and other finds recovered, and activities such as iron-smithing are likely to have served the passing trade as much as the local community. The extensive animal bone assemblage suggested that horse, possibly mule, breeding was a significant activity at Healam Bridge throughout the Roman period.

Appendices and other supporting documents and data are available electronically via the Archaeology Data Service (ADS).

Northern Archaeological Associates
Marwood House
Harmire Enterprise Park
Barnard Castle
Co. Durham, DL12 8BN

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carillion AECOM MORGAN SINDALL highways england