THE ROMAN FORT AT AMBLESIDE, CUMBRIA

Consolidation Works 2011-12

Finds Report

Oxford Archaeology North

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SUMMARY

In August 2012, Oxford Archaeology North (OA North) was commissioned by Jamie Lund of the National Trust to report on a assemblage of finds collected in the course of consolidation and other surface works at the Roman fort, at Ambleside, in Cumbria (NY 3725 0340), during 2011 and 2012. The consolidation works concentrated on the exposed remains of the stone fort. This report is intended to present the varied artefact assemblage in a manner accessible to members of the volunteer force who carried out the collection.

In all, some 1150 fragments of artefacts, weighing a minimum of 73.862kg, were submitted for analysis. They ranged from Romano-British coarsewares and imported finewares to fragments of brick and tile and other building materials, including dressed stone. The finds were subdivided by material and broadly by function. The earliest material included pottery of late first- to second-century date, the latest pottery and glass being dated to the twentieth century, and some may well have been deposited in the course of excavations in the early twentieth century. Evidence gained from the finds fits neatly with conclusions drawn from excavations undertaken in 1914 (Collingwood 1915), 1982 (Leech 1993) and in 1990-3 (Drury and Dunwell 2004), and contribute towards enhancing the understanding of the appearance of, and activity within, the Roman fort.
ACKNOWLEDGEMENTS

Oxford Archaeology North is grateful to The National Trust, and its representative, Jamie Lund, for commissioning this project and for providing information about the site. The analysis was undertaken by Christine Howard-Davis, quality assurance being provided by Rachel Newman.
1 INTRODUCTION

1.1 BACKGROUND

1.1.1 In August 2012, Oxford Archaeology North (OA North) was commissioned by The National Trust to report on a small assemblage of finds collected in the course of consolidation and other surface works at the Roman fort, at Ambleside, in Cumbria (NY 3725 0340) in 2011 and 2012. This is a Scheduled Monument (SM 10240).

1.1.2 The fort at Ambleside has been identified with the Gallava of the Antonine Itinerary and the Ravenna Cosmography (Rivet and Smith 1979, 365), both works effectively the modern equivalent of travel itineraries or route maps. This confident identification is not without problems, however (Drury and Dunwell 2004, 71). Archaeological investigation of the fort and its environs has been dominated by the work of Collingwood (1915; 1916; 1921; Haverfield and Collingwood 1914), his results suggesting the presence of two successive forts, the earliest a turf and timber structure of mid-late Flavian date, which was probably abandoned before the reign of Trajan (Potter 1979, 177), to be replaced shortly afterwards by a stone-built fort, parts of which are currently exposed at the site. The presence of the earlier fort remains problematic, however (Drury and Dunwell 2004). It is likely that most of the finds examined by this report pertain to the occupation of the stone fort.

1.1.3 In all, some 1150 fragments of artefacts, weighing a minimum of 73.862kg, were submitted for analysis. For logistical reasons, three of the larger stone fragments were not weighed, so the total weight should be regarded as substantially in excess of 75kg. The finds were subdivided by material and broadly by function, and the individual reports are presented below, all in broadly the same format.

1.1.4 All the finds can be regarded as effectively unstratified, so they are referred to in this report by their general place of origin, as recorded during collection. In all, four collection areas were defined, and appeared on the bags of finds submitted for analysis. The majority of the finds came from the ‘Commander’s House’, with smaller groups from the ‘Main Gateway’, the ‘Armoury (north)’, and the ‘Armoury (south)’. These locations are abbreviated, as appropriate, as CH, MG, NA, and SA respectively.

1.2 METHODOLOGY

1.2.1 The nature of recovery means that all of the material can be regarded as ‘bulk finds’ and, in consequence, the same general methodology has been used in their analysis. All classes of ceramic and other fired clay finds were quantified by fragment count and weight, as was the stone. The smaller groups of finds, for instance glass, were quantified only by fragment count. Data gathered during the analysis were entered into an Access database for ease of manipulation. Broad quantification of the finds, by material and by place of origin on the site, was made (Table 1).
Table 1: distribution of finds by material
2 THE ROMAN FINDS

2.1 POTTERY

2.1.1 In all, 114 fragments (2.298kg) of Romano-British pottery were collected, with only the ‘Armoury (south)’ failing to produce any Roman ceramics. Although small, the assemblage produced what might be regarded as a full range of pottery fabrics and types, including samian ware and other finewares, locally made and imported coarsewares, and fragments of amphora. As has been seen in other excavations in the fort and extramural settlement (Leech 1993; Drury and Dunwell 2004), the pottery is predominantly second- to early third-century in date, and the assemblage has what might be regarded as a typically military composition, reflecting the range of vessels and fabrics available to the complex and wide-ranging military supply system, which was developed to provide a reliable supply of pottery and other commodities to the forts and other military establishments of northern England and Scotland, literally at the edge of Empire.

2.1.2 In total, 20 Roman fabrics were recognised (Appendix 1). Most were represented by only small amounts of material, and beyond a note of their presence, their significance cannot be further interpreted. When all Roman fabrics were considered together, there was an average sherd weight of 20.14g, but if the thick and bulky amphora sherds were omitted, this was reduced to 10.2g, giving a better indication of the battered and abraded nature of the assemblage. As the group is too small for any valid statistical conclusions to be drawn from the presence or absence of fabrics, it is discussed in terms of the day-to-day use of pottery, almost entirely involved in the preparation, cooking, consumption, transport and storage of food and drink.

2.1.3 Mortaria, used in food preparation, came from the ‘Commander’s House’ and the ‘Main Gateway’. A typically Roman pottery vessel, there is nothing to suggest that these were in use prior to the arrival of Roman troops in Britain in the first century AD (Cool 2006), and evidence suggests that, in the absence of locally made substitutes, military-controlled kilns at Carlisle were providing the fort there with mortaria from an early stage, and continued to do so until other reliable sources of supply were forthcoming, well into the second century (Swan et al 2009). A single, very battered fragment of a North-western product (M1; probably from the Fisher Street kilns in Carlisle) came from the ‘Main Gateway’, and can be broadly dated to the late first to late second century (Johnson and Anderson 2008). Small fragments of one or more mortaria (M3) produced in the South Carlton area of Lincoln in the late first to second century came from both areas, and although they were not reaching the North in great numbers, these were in use in Carlisle at this time (Hird 2010), and are likely to have reached Ambleside via the same military supply chain. Two small fragments of Mancetter-Hartshill mortaria (M2) date to the second or third century, when these Midlands producers dominated the military market (Tyers 1996), and were again found in the vicinity of the ‘Commander’s House’.

2.1.4 There is a wide range of fabrics represented amongst the coarsewares, used mainly for cooking and the serving of food. Many of the fabrics, for example reduced greywares (R1, R2, R4; Appendix 1) and orange oxidised wares (O1-O6), are likely to have been relatively locally made (certainly within the North West), but are too abraded for confident identification, and are also lacking chronologically diagnostic sherds, for instance rims, which might allow identification of forms that could refine dating.
Most seem likely to have come from cooking jars, and several individual vessels show signs of sooting and burning, indicating their use in cooking over an open fire, or standing in its embers.

2.1.5 Although the sherds are all somewhat small (the average sherd size is \(c 8.8g\)), Black-burnished ware category 1 (R3) is probably the best-represented pottery fabric, with at least four jars and three bowls identified. It is a long-lived fabric, appearing in the North in \(c AD 120\), and continued in use well into the fourth century (Tyers 1996, 183). Evidence from Carlisle and Brougham seems to suggest that supplies of Black-burnished wares may well have been erratic during the earlier second century, with the shortfall made up with locally produced copies (Swan \textit{et al} 2009; Leary forthcoming). Although the fragments are somewhat small, the jar rims all suggest a late second- to mid-third-century date (see, for instance, Gillam (1970) form 135 (AD 170-250)). The deep flat-rimmed bowls amongst this group are earlier (see Gillam (1970) form 219, dated to AD 125-40) and find close parallels in the material from the 1993 excavations (Hartley and Hird 1993, figs 7.18 and 7.23).

2.1.6 Fine tablewares, used for serving and eating food at table, and for drinking wine, were dominated by samian ware, widely favoured for these purposes during the late first, second, and early third centuries. It was demonstrably expensive to buy (Willis 2011, 171), and decorated samian bowls are quite often found repaired, having remained in use after breakage. Graffiti on plain samian dishes, bowls, and cups seem to indicate that an individual vessel might change hands several times during its lifetime (Howard-Davis forthcoming), implying that they must have been handled with relative care, in order to survive in use for so long. There were 11 fragments (81g) of samian ware (Fabric 4), all badly abraded, as is often the case in Ambleside (Dickinson 2004, 88), their poor condition making both their attribution to a specific maker, and dating, difficult. Their distribution concentrated on the ‘Commander’s House’ and the ‘Main Gateway’, with the ‘Commander’s House’ certainly being a place where relatively expensive tablewares, like samian, were most likely to have been used, although evidence suggests that such minor luxuries were within the reach of most soldiers, and would have been used throughout the garrison (Willis 2011). The sherds are too small to estimate the number of vessels present, although it is quite likely that each sherd represents a separate vessel.

2.1.7 A single fragment in a pinkish-yellow fabric, probably that from Montans, in South Gaul, was the only decorated piece, coming from either a cylindrical bowl (form Dr 30) or a hemispherical bowl (form Dr 37; see Webster 1995). Rather small, it bore only the very badly abraded remnant of the \textit{ovolo} border, which would have marked the upper extent of the decorated zone seen on such bowls. It was too poorly preserved to allow it to be further identified, although it is likely to date to the late first or second century AD, when the Montans kilns were exporting to Britain in small amounts (Tyers 1996; Dickinson 2004, 89). It came from the area of the ‘Commander’s House’. The remaining ten sherds were in a bright orange fabric with no visible inclusions, and can probably be attributed to the early second-century Central Gaulish production centre at Les Martres de Veyre, near present-day Clermont-Ferrand (Webster 1995, 2), and dominating the British markets briefly during the first decades of that century (\textit{ibid}). All the fragments in this fabric are from undecorated vessels, and include single examples of cup forms Dr 27 and Dr 33, and dish form Dr 31, which appears in the mid-second century (\textit{op cit}). A partial maker’s stamp, probably from the inside base of a cup, was found in the ‘Main Gateway’ area, but the maker cannot now be identified. Both fabrics are noted as dominating the
small assemblage from the extramural settlement (published in 1993; Hartley and Dickinson 1993).

2.1.8 As might be expected in the second and early third centuries, when samian imports dominated the luxury market (Willis 2011), there are few other finewares. A single fragment in F2, a fine pale orange fabric with black colour-coat, is from a dish reminiscent of samian form Dr 18/31, and is probably black samian, as other Central Gaulish Black-slipped wares (Tomber and Dore 1998, CNG BS) seem to be used principally for beakers and cups (Tyers 1996). A single small cornice-rimmed fragment from a grey or black colour-coated beaker (F3, perhaps Colchester colour-coated ware), comes from the area of the ‘Main Gateway’, and is again likely to date to the second century (op cit, 167). Potentially slightly later finewares, represented by three small joining sherds in fabric F1 (Nene Valley colour-coated ware), are probably from a beaker of mid-second- or predominantly third-century date (op cit, 175).

2.1.9 Although only 11 small fragments of amphora were present, three distinct fabrics were noted (A1-A3). Amphorae were very large storage vessels, used to transport a range of liquids (mainly olive oil, various fish sauces, and wine), from Spain and the Mediterranean (Tyers 1996). A handle fragment from the ‘Armoury (north)’ is from a Dressel 20-type olive oil amphora, as are other sherds from the ‘Commander’s House’ (A1). Sherds in amphora fabric A2 came from the same locality, as did those in A3, possibly from Gaulish wine amphorae. Again, their presence in the vicinity of the ‘Commander’s House’ is not unexpected, as this is where it might be expected that the strongest evidence for the consumption of imported luxury foods and drink might be expected.

2.2 IRONWORK

2.2.1 A group of 57 fragments of heavily corroded ironwork was collected from the ‘Commander’s House’, the ‘Main Gateway’, and the ‘Armoury (north)’. All the fragments were subject to x-radiography (Appendix 2), in order to help in their identification, but no cleaning or conservation was undertaken. All of the fragments can be identified as coming from headed nails of various sizes. For the most part, they appear to have been hand-forged (the shank having a square cross-section) rather than being drawn (usually with a round cross-section), or cut nails. Where it can be determined, they appear to have flat, round heads.

2.2.2 Nails are a simple, long-lived form, their use in Britain probably beginning in the Roman period, and, for the most part, they were used in general carpentry rather than to secure large structural timbers. It cannot be stated with certainty that the hand-forged nails are all of Roman date, as such nails continue to be made to this day, but it seems likely that most originated in structures within the fort. Manning (1985) has developed a typology of Roman nails, based originally on those from the Roman fort at Inchthulh, and most of those found during this project fall into his types 1a and 1b. Three large examples from the ‘Commander’s House’ fall into type 1a and are up to 155mm long, with heads some 24mm in diameter; the remainder are appreciably smaller (type 1b), between 40mm and 50mm long, with heads c 12mm in diameter. Few of them appear to have been ‘clenched’ (the shaft hammered into an L-shape after going completely through a timber, to fix it in position), but one or two shanks have a more sinuous bend, probably the result of their being removed from woodwork.
in the course of reclamation or recycling. Similarly, one or two have deformed heads, again suggesting their removal from timbers.

2.3 CERAMIC BUILDING MATERIAL

2.3.1 There was a relatively large assemblage of ceramic building material, comprising mainly floor tile and flue tiles of the kind used in hypocaust systems. There were, in all, 444 fragments, weighing almost 23kg, and it is likely that all is of Roman date, although this cannot be stated categorically, as it is effectively impossible to distinguish small fragments of Roman bricks or tiles from later material.

2.3.2 It must be noted that the fragments vary significantly in size, with many of them less than 50mm in their greatest dimension. The average fragment weight was c 50g, giving a clear indication that the ceramic building materials from the site were fragmentary in the extreme. The weight of individual tiles is seldom noted in excavation reports, but even a small example might be expected to weigh several kilograms. It is interesting that no ceramic roof tiles (imbrices and tegulae) were evident within the assemblage, although it must be accepted that some of the fragments of thinner tiles could have come from these, and one fragment from the ‘Commander’s House’, bearing part of a curving ‘signature’, is more likely to have been from a tegula than from any other kind of tile (Brodribb 1986, 99). This absence, and the presence of stone roofing slabs, seems to suggest that the buildings within the fort were entirely roofed with local slates rather than ceramic roof tiles.

2.3.3 Very few fragments retained diagnostic features, and apart from being able to record the original thickness of a few of the larger fragments, none of the fragments survives to anything approaching its likely original size. All four of the areas examined produced ceramic building material but almost half (47.4%) was from the ‘Commander’s House’. There was very little (only three joining fragments) from the ‘Armoury (north)’, but the ‘Armoury (south)’ produced 40% of the total assemblage. Although self-evident, it is perhaps worth noting that floor and other tiles must have been extensively used in these areas. Most of the larger fragments were from robust, probably quite large, bricks, which, where measurement was possible, were c 70-80mm thick and would have been used in building and as flooring. There is now nothing to suggest the original overall size of these tiles, but it is likely that they fall into Brodribb’s (1986) sesquipedalis and tegula bipedalis groups, used predominantly as flooring. Occasional fragments provided evidence as to the manner in which they were produced, with knife-trimming evident on several, and a well-preserved fingerprint on one from the ‘Commander’s House’.

2.3.4 A few fragments of thinner tile had been roughly keyed, suggesting that they were intended to be plastered, and the three joining fragments from the ‘Armoury (north)’ had been keyed by using a five-tined comb-like tool, and were clearly from a box-tile, intended to duct hot air from a hypocaust heating system through the walls. There were, in addition, a few fragments of brick c 40mm thick, which could have come from the smaller square bricks (bessales) normally used to construct hypocaust pilae (Brodribb 1986, 34). Without complete, or near complete, examples, however, this cannot be confirmed.
2.4 ACCIDENTALLY-FIRED BUILDING MATERIALS

2.4.1 The site produced a considerable amount of friable yellowish mortar (364 fragments, weighing c. 12kg). Incomplete wooden lath and/or reed impressions, flat surfaces, and erratic angles suggest that this derives from a sandy mortar used to render stonework and wooden structures within the fort. Very slight surface rippling seen on some fragments might suggest a surface treatment intended to smooth the wall (perhaps with the use of a plasterer’s float, like that found within the fort at Carlisle (Howard-Davis 2009, 814, fig 490), or perhaps that it had been coated with lime-wash. Like the ceramic building material (Section 2.3), it did not survive in particularly large fragments.

2.4.2 Several of the fragments from the ‘Main Gateway’ showed signs of having been subject to intense heat. Whilst it is possible that these derived from hearths built from clay or daub, this does not seem, at a subjective level, to be the case, and it might be suggested that the mortar comes, at least in part, from buildings which might have been damaged by fire.

2.5 STONE BUILDING MATERIAL

2.5.1 Some 73 fragments of stone were collected, weighing in excess of 33kg. Most came from the ‘Commander’s House’, and there was none from the ‘Armoury (south)’. Most were thin slabs in a range of relatively locally available stones, including sandstone and green Lakeland slate. There were, in addition, three blocks of dressed building stone. As was the case with the tile and brick (Section 2.3), it is not possible to state definitively that all of the modified fragments are of Roman date, but there is little to challenge the likelihood, although late buildings on the site might have contributed to the group of fragments recovered.

2.5.2 Several of the thin slab fragments retained single peg holes, usually close to one edge, indicating that they had been used as roofing slabs. These seemed to have been made in a relatively rough-and-ready manner, by striking the slab with a pointed tool from one side, creating an approximately round hole, but usually pushing away a flake of stone on the opposing side. The edges were shaped by knocking away any irregularities, producing rectangular, or diamond-shaped, slabs. Two relatively complete examples from the ‘Commander’s House’ group suggest that some of the roofing slabs used were 345-430mm long and 275-297mm wide, although in many instances the size of slabs used varied, depending on where on the roof it was used. It is worth noting that one of the two more complete slabs is very worn, and might have been reused as paving. The slates would probably have been held in place on the roof with wooden pegs or iron nails. The two slabs which might be close to their original size seem to show that the tiles were suspended by a single peg, and the position of the peghole might suggest that they were set point-down, rather than with their lower edge parallel to the gable. There is evidence from elsewhere for this arrangement (for instance, at Dalton Parlours, near Collingham in West Yorkshire; Clarke 1990, 164) and there are also occasional instances of ceramic roof tiles intended to be hung in this manner (Brodribb 1986, 18).

2.5.3 One of the building blocks is from the ‘Commander’s House’. It is simply a roughly dressed and squared fragment of stone, of a kind likely to have been used in a rubble wall. One of the two fragments from the ‘Main Gateway’ is much larger, and although
not particularly carefully dressed, it was clearly part of a relatively substantial wall. The other fragment of dressed stone has been deliberately made with a trapezoidal section, and could well have been a voussoir, perhaps from the stone surround of a small arch.

2.6  **MILLSTONE FRAGMENT**

2.6.1 A single small fragment of a ?millstone grit rotary millstone (or quern) came from the ‘Commander’s House’. It was recognised by the well-defined grooves on the grinding surface. The fragment is too small and battered to determine the exact form of the stone, but hand-powered rotary mills were widely used in the Roman kitchen, and its presence is not unexpected. In addition, broken or unwanted stones seem routinely to have been smashed up and reused as hardcore.
3 POST-ROMAN FINDS

3.1 POST-ROMAN POTTERY

3.1.1 A small amount of post-Roman pottery is included within the group (31 fragments; 187g), and, with only one exception, this can all be dated to the later nineteenth and twentieth centuries. These fragments are not described in detail, as they are not directly relevant to any understanding of the development of the Roman fort. They do, however, have some interest in reflecting more recent activity on the site. Although no post-Roman pottery appears in the finds associated with the ‘Armoury (south)’, it is otherwise fairly evenly distributed amongst the other buildings investigated, and it seems reasonable to suggest that its distribution is in no way associated with the earlier buildings. A single fragment of a later seventeenth- or eighteenth-century salt-glazed stoneware bottle came from the ‘Armoury (north)’, and hints at earlier post-medieval activity, corroborating the dating evidence offered by the single clay tobacco pipe bowl (Section 3.2.1).

3.1.2 Most of the group comprises a range of refined white earthenwares (known today, popularly, as white china), some decorated with stripes of coloured slip, or transfer-printed in blue. Whilst these came into production at the very end of the eighteenth century, they are more characteristic of the nineteenth and early twentieth centuries, and remain in production to the present day (Charleston 1968). There are, in addition, fragments of grey stoneware jam pots, and other black- and brown-glazed red earthenwares, most of which were probably made by local potteries in the early twentieth century.

3.2 CLAY TOBACCO PIPE

3.2.1 Only two fragments of clay tobacco pipe were found, and if this does not reflect a deliberate decision not to collect this material, it would seem to suggest that the site was not intensively visited during the period when clay pipes were in favour, as they were in widespread use, and being easily broken, are frequent discards. The single bowl fragment, from the ‘Armoury (north)’ is a small, heeled bowl, its bulbous shape suggesting a mid-seventeenth-century date (Oswald 1975). The heel is stamped, but the stamp is poorly executed and as a result illegible. A small fragment of pipe stem came from the area of the ‘Commander’s House’. It has evidently been subjected to extremely high temperatures, the surface having been partially vitrified and blistered. Whilst this might be accidental damage, it might also suggest that the fragment in fact came from a waster, discarded in the course of pipe-making, presumably in the near vicinity.

3.3 POST-ROMAN IRONWORK

3.3.1 A single drawn wire nail, with a round-sectioned shank and a small flat round head, more than 115mm long, was found in the vicinity of the ‘Commander’s House’. It is, without doubt, far more recent than the other nails recovered, probably lost in the twentieth century.
3.4  **POST-ROMAN GLASS**

3.4.1  All the glass from the site (34 vessel fragments and two window fragments) is equally late, probably all dating from around, or after, the period when the Borrans Road fort was taken into the care of the National Trust in 1913 (J Lund *pers comm*). The range of vessels is confined to food containers, including an embossed sauce bottle, and it would be tempting to see the earlier material as casual losses and/or discards made by the excavators in the early twentieth century.
4 RECOMMENDATIONS FOR CONSERVATION AND STORAGE

4.1 CONSERVATION

4.1.1 The finds have been stored in such a manner that they are in a stable condition, and require no specialist conservation work. As this material has no further significant analytical potential, it will not, under normal circumstances, warrant specialist conservation in the long term.

4.2 STORAGE

4.2.1 All finds are currently packaged in acid-free cardboard boxes. Metalwork constitutes the only category which is potentially unstable and, although the items are currently in airtight self-seal polythene bags, they will need to be stored in controlled conditions.

4.3 PACKAGING

4.3.1 The assemblage is currently well-packed and requires no further packaging.
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APPENDIX 1: POTTERY FABRIC SERIES

A.1 INTRODUCTION

A.1.1 In all, 21 separate fabrics were defined. Of these, 20 were probably or definitely Roman, the last (21; Mod) was used as a general repository for all post-Roman fabrics, the majority of which were of late nineteenth- or twentieth-century date. Where possible, reference is made to The National Roman Fabric Reference Collection codes, as published in Tomber and Dore 1998. Unless stated, vessels are wheel-thrown.

A1.2 AMPHORA FABRICS

A1.2.1 Three amphora fabrics were recognised:

A1 Tomber and Dore 1998, 84-5, BAT AM (Plate 1);

A2 Relatively fine pinkish fabric with buff core and darker red immediately below the surfaces (Plate 2).

A3 Thin-walled, buff/white fabric with grey core, with frequent white quartz/sand inclusions to 2mm (Plate 3). Gallic wine amphora?

A1.2.2 Their distribution between the various areas is given in Table 2.

<table>
<thead>
<tr>
<th>Fabric</th>
<th>A1</th>
<th>A2</th>
<th>A3</th>
</tr>
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<td>no</td>
<td>wt (g)</td>
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</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>624</td>
<td>2</td>
</tr>
<tr>
<td>% assemblage</td>
<td>4.3</td>
<td>27.1</td>
<td>1.7</td>
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<tr>
<td>Av sherd wt (g)</td>
<td>124.8</td>
<td>198</td>
<td>56.8</td>
</tr>
</tbody>
</table>

Table 2: quantification and distribution of amphora fabrics

A1.3 SAMIAN WARE AND OTHER FINEWARE FABRICS

A1.3.1 On account of the small size of the assemblage, Samian fabrics were not quantified separately. There were, in addition, three later fineware fabrics:

S1 Samian ware; probably Montans (Tomber and Dore 1998, MON SA) and Les Martres de Veyre (Tomber and Dore 1998, LMV SA) (Plates 4 and 5);

F1 Nene valley colour-coated ware: Tomber and Dore 1998, 118, LNV CC (Plate 6);

F2 Black samian (Plate 7)?

F3 Colchester colour-coated ware?: Tomber and Dore 1998, COL CC 2 (Plate 8).
A1.3.2 Their distribution between the various areas is given in Table 3.

<table>
<thead>
<tr>
<th>Fabric</th>
<th>S1</th>
<th>F1</th>
<th>F2</th>
<th>F3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>no</td>
<td>wt (g)</td>
<td>no</td>
<td>wt (g)</td>
</tr>
<tr>
<td>CH</td>
<td>7</td>
<td>74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MG</td>
<td>3</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NA</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>11</td>
<td>81</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>% assemblage</td>
<td>9.6</td>
<td>3.5</td>
<td>2.6</td>
<td>0.2</td>
</tr>
<tr>
<td>Av sherd wt (g)</td>
<td>7.3</td>
<td>2</td>
<td>6</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 3: quantification and distribution of samian ware and other fineware fabrics

A1.4 Reduced Coarseware Fabrics

A1.4.1 Four reduced coarseware fabrics were recognised:
R1 Reduced greyware version of O1 fabric with dark grey core (Plate 9);
R2 Reduced greyware, sandy fabric (Plate 10). Local product?
R3 Black-burnished ware category 1: Tomber and Dore 1998; DOR BB 1 (Plate 11);
R4 Reduced greyware, gritty fabric (Plate 12). Local product?

A1.4.2 Their distribution between the various areas is given in Table 4.

<table>
<thead>
<tr>
<th>Fabric</th>
<th>R1</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>no</td>
<td>wt (g)</td>
<td>no</td>
<td>wt (g)</td>
</tr>
<tr>
<td>CH</td>
<td>4</td>
<td>124</td>
<td>14</td>
<td>124</td>
</tr>
<tr>
<td>MG</td>
<td></td>
<td>2</td>
<td>34</td>
<td>11</td>
</tr>
<tr>
<td>NA</td>
<td></td>
<td>3</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>SA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
<td>124</td>
<td>2</td>
<td>34</td>
</tr>
<tr>
<td>% assemblage</td>
<td>3.5</td>
<td>5.4</td>
<td>1.7</td>
<td>1.4</td>
</tr>
<tr>
<td>Av sherd wt (g)</td>
<td>31</td>
<td>17</td>
<td>8.78</td>
<td>14</td>
</tr>
</tbody>
</table>

Table 4: quantification and distribution of Black-burnished ware (R3) and other reduced fabrics

A1.5 Oxidised Coarseware Fabrics

A1.5.1 Six oxidised fabrics were recognised:
O1 Soft, sandy oxidised pink fabric, possibly handmade. Angular quartz inclusions to c 1.5mm, some grog to c 2mm. Internal white slip (Plate 13);
O2 Fine oxidised fabric with grey core, in Severn Valley tradition (Plate 14). North-western?
O3 Sandy orange oxidised fabric (Plate 15). Local product?
O4 Fine orange oxidized fabric, thick-walled (Plate 16). Local product?
O5 Fine, slightly sandy, buff oxidised fabric (Plate 17). Local product?
O6  Hard oxidised fabric with frequent voids and occasional calcite inclusions (Plate 18). Handmade.

A1.5.2 Their distribution between the various areas is given in Table 5.

<table>
<thead>
<tr>
<th>Fabric</th>
<th>O1</th>
<th>O2</th>
<th>O3</th>
<th>O4</th>
<th>O5</th>
<th>O6</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH</td>
<td>2</td>
<td>42</td>
<td>16</td>
<td>74</td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>MG</td>
<td>3</td>
<td>18</td>
<td>4</td>
<td>18</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>NA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>18</td>
</tr>
<tr>
<td>SA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2</td>
<td>42</td>
<td>19</td>
<td>85</td>
<td>7</td>
<td>32</td>
</tr>
</tbody>
</table>

% assemblage 1.7 1.8 16.6 3.7 0.8 0.5 10.5 2.5 1.7 1.8
Av sherd wt (g) 21 14.47 4.5 12 4.8 21

Table 5: quantification and distribution of oxidised orange fabrics

A1.6  MORTARIUM FABRICS

A1.6.1 Three mortarium fabrics were recognised:
M1  Fisher Street, Carlisle fabric (Plate 19). Swan et al 2009;
M2  Mancetter-Hartshill. Tomber and Dore 1998, 188, MAH WH (Plate 20);
M3  South Carlton area (Lincolnshire) Tomber and Dore 1998, 162, SOC WH (Plate 21).

A1.6.2 Their distribution between the various areas is given in Table 5.

<table>
<thead>
<tr>
<th>Fabric</th>
<th>M1</th>
<th>M2</th>
<th>M3</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH</td>
<td>no</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>MG</td>
<td>1</td>
<td>136</td>
<td>2</td>
</tr>
<tr>
<td>NA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
<td>5</td>
<td>3</td>
</tr>
</tbody>
</table>

% assemblage 0.8 4.3 2.6
Av sherd wt (g) 10 2.47 41.3

Table 5: quantification and distribution of mortarium fabrics
Plate 1:
Amphora fabric A1

Plate 2:
Amphora fabric A2

Plate 3:
Amphora fabric A3
Plate 4:
Samian fabric S1

Plate 5:
Samian stamp
Plate 6:
Fineware fabric F1

Plate 7:
Fineware fabric F2
Plate 8:
Fineware fabric F3
Plate 9: Reduced coarseware fabric R1

Plate 10: Reduced coarseware fabric R2

Plate 11: Reduced coarseware fabric R3

Plate 12: Reduced coarseware fabric R4
Plate 13:
Oxidised coarseware fabric O1

Plate 14:
Oxidised coarseware fabric O2

Plate 15:
Oxidised coarseware fabric O3
Plate 16:
Oxidised coarseware fabric O4

Plate 17:
Oxidised coarseware fabric O5

Plate 18:
Oxidised coarseware fabric O6
Plate 19:
Mortarium fabric M1

Plate 20:
Mortarium fabric M2

Plate 21:
Mortarium fabric M3
APPENDIX 2: IRONWORK X-RADIOGRAPHS

X-ray: 'Commander's House', Plate 1
X-ray: 'Commander's House', Plate 2
X-ray: 'Armoury North'
X-ray: 'Main Gateway'