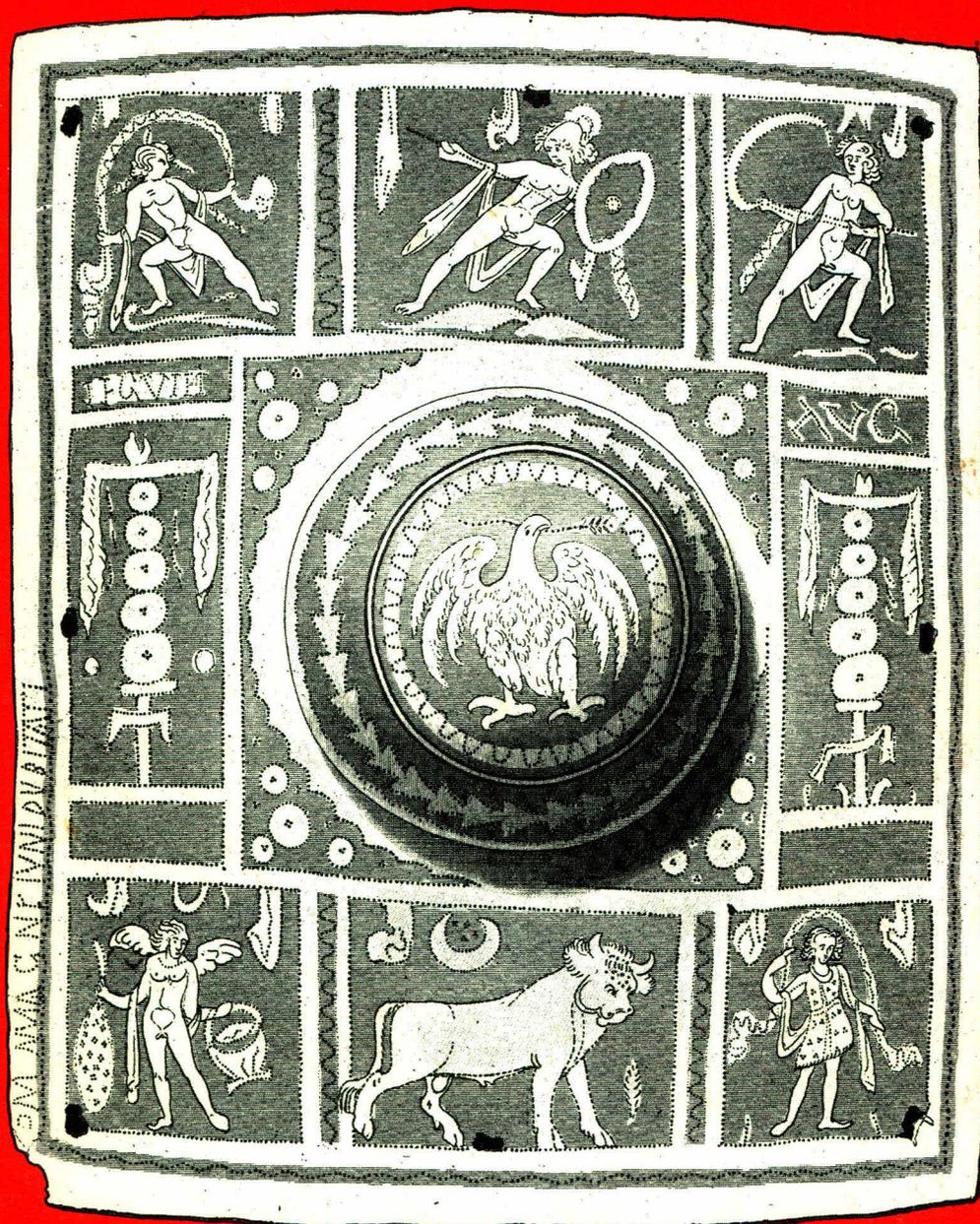


# THE ARBEIA JOURNAL

VOLUME 6 -7 1997-98 (2001)



## Contents include:

- A probable Roman shipwreck on the Herd Sand
- Origins and development of the supply-base at South Shields
- Experiments in Roman military cooking
- A ring mail shirt from South Shields
- Roman brooch of Dacian type



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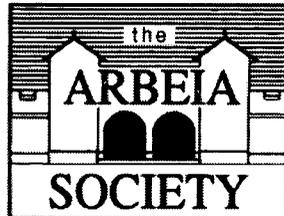
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*Tynemouth Castle and Priory and the mouth of the River Tyne, c. 1545 (Cott Mss Aug 1).  
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# **THE ARBEIA JOURNAL**



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## EDITORIAL

The first volume of *The Arbeia Journal* appeared in 1992, launching a series which has fulfilled one of the founding objectives of the Arbeia Society. Five volumes have now appeared under the editorship of Bill Griffiths, and the journal is now well established and widely disseminated through exchanges with other societies. This sixth volume appears in a larger format and on a different grade of paper. The A4 page size is better suited to illustrations, particularly the detailed plans which often accompany archaeological papers, and the improved paper quality allows crisper reproduction of photographs. The larger format is also more economical: the Editorial Board is anticipating the inclusion of more substantial archaeological reports in future issues, a result of the greatly increased range of work carried out by Tyne and Wear Museums Archaeology Department over the last few years.

The scope of *The Arbeia Journal* remains unchanged. It still reflects the main aims of the Arbeia Society which are: to promote interest in, and the study of, the Roman fort of Arbeia at South Shields and other Roman sites, especially in north-east England; to carry out archaeological fieldwork in the region; and to use the techniques of reconstruction and re-enactment for the purposes of research and to stimulate the interest and imagination of the public. The Roman fort of Segedunum at Wallsend, where perhaps the largest single programme of interpretation ever to have been undertaken on an archaeological site in Britain has recently been completed, now joins Arbeia as a central preoccupation of the Society. It is being managed by Tyne and Wear Museums on behalf of North Tyneside Council, and the Archaeology Department is engaged in a programme of excavations at the site which it is hoped will continue far into the future.

Previous issues of the journal have contained a number of articles on unpublished finds from early excavations at Arbeia together with important reconsiderations of published finds. Continued research on all aspects of the site is one of the obligations that the programme of research excavation has imposed on us. It is firstly an acknowledgement that new excavations are not the only possible source of new knowledge about the site. Secondly, it is essential in order to understand fully the results of new excavations that we are able to draw on all that is known or may be deduced about previous discoveries on the site. The present volume contains a wide range of new research ranging from a catalogue of finds from the Herd Sand which suggest the presence nearby of one or more shipwrecks to notes on torc beads and Dacian brooches from the fort. Such articles will continue to appear in the journal, but we are anxious to maintain and if possible increase the range of subjects providing that they are consistent with the aims of the Society.

This volume is a double issue for the years 1997-8. Another double volume, for 1999-2000, will appear later in 2001, after which it should be possible to issue volumes in

a regular cycle. Members might perhaps feel short-changed by losing two annual volumes but they will be handsomely compensated. In 2001 the report by Tyne and Wear Museums Archaeology Department on its excavations at the Roman fort of Wallsend will be issued free to all members. It will be a substantial publication describing two second-century cavalry barracks, the first examples to have been excavated in their entirety anywhere in the Roman Empire, as well as many other buildings in the fort. The Wallsend excavations have led to a better understanding of fort planning and the report will be an essential text for the study of Roman barracks. Although the report will be partly funded by the Arbeia Society, the requirements of other funders mean that it will be published as the second in the Tyne and Wear Museums Service archaeological monograph series, the imprint under which Roger Miket's *The Roman Fort at South Shields* (1983) appeared. Next to appear in this series should be the report on the late-Roman courtyard house at South Shields which it is hoped will also be issued free to members.

P. Bidwell

31 January 2001

# A PROBABLE ROMAN SHIPWRECK ON THE HERD SAND AT SOUTH SHIELDS

Paul Bidwell

*'The port or haven of this river ... having rocks on the north side of the haven, and sands upon the south, [is] dangerous in the north-east wind', Gray 1649, 83.*

## Introduction

Until the creation of a harbour in the mid-nineteenth century, ships entering the River Tyne in a northerly or north-easterly gale ran the risk of being driven onto the large expanse of the Herd Sand, which formed the southern side of the river mouth. Over the last 150 years, and especially between 1880 and 1915, many coins and other objects, Roman and medieval, have been found on the sands, often following heavy storms, or have been dredged from their northern edge (Table 1). Until the 1920s it was generally accepted that the objects came from wrecks, but from 1925 onwards it has often been asserted that they had been dredged from the bed of the river at Newcastle and then re-deposited at the river mouth.

The Roman objects include an elaborately-decorated shield-boss which had belonged to a soldier of *legio VIII Augusta*, stationed at Strasbourg, and a bronze *patera* dedicated to Apollo Anextiomarus, apparently a deity of Northern Gaul and Upper Germany. In addition to 64 Roman coins there are other notable objects: a decorated cheek-piece from a helmet and two other bronze *paterae*. Twenty-seven of the coins have been found since 1979, the most recent find being in 1999.

If such a striking collection of objects had come from almost any other spot on Britain's coast with as fearsome a reputation as a peril to shipping as the Herd Sand, shipwreck would be the obvious explanation for its loss. The history of the River Tyne from the medieval period onwards unfortunately does not allow such a straightforward conclusion. The lower reaches of the river and its mouth have been transformed by dredging and engineering since the mid-nineteenth century. Furthermore, from the medieval period until well into the nineteenth century many million tons of ballast – gravel, sand and chalk, mostly from the bed of the River Thames and its banks – have been spread along the margins of the Tyne and sometimes thrown into the river itself. When examined, the ballast has on very rare occasions proved to contain archaeological material clearly from its point of origin.

A detailed examination of the history of the river mouth and of how dredging and the dumping of ballast affected the Herd Sand follows, in order to establish whether indeed the Roman objects were originally lost there. Then, for the first time, the evidence for the dating and affinities of the objects is drawn together. After touching on the possibility that the objects were deposited for ritual reasons, which is remote, the likely historical circumstances

for their loss, the shipwreck of a legionary expedition to northern Britain in the early AD 180s, are discussed.<sup>1</sup>

## The river mouth in antiquity

Records from the mid-sixteenth century onwards record the presence of the Herd Sand (Fig. 1) and provide some detail about changes in its extent at its northern end. There is also evidence to suggest that large sands existed on the south side of the river mouth in the later first millennium BC. A round house, destroyed by fire in the third century BC, was found under the southern corner of the Roman fort on the Lawe (the low headland which commands the south side of the river mouth). The remains of the house were covered by a layer of wind blown sand up to 0.30m thick.<sup>2</sup> Further layers of wind-blown sand were seen to have accumulated in this area until it was covered by the mid-Antonine stone fort. Gales on this part of the north-east coast are often from the east or north-east and the sand was presumably blown up on to the Lawe, 20m above sea level, from dunes and sands exposed at low tide between the foot of the Lawe and the sea. Other important evidence that the Herd Sand was an ancient feature is provided by bore-holes at its northern end. In 1910 the Tyne Improvement Commission encountered boulder clay at a depth of about 15 feet (4.5m)<sup>3</sup> and recent ground investigation on the site of the Littlehaven Hotel also encountered boulder clay at depths of between 6.6m and 8.3m, overlain by naturally deposited sand (Fig. 1, 6).<sup>4</sup> Recent excavations have shown that as late as the sixteenth century the southern river bank was formed by the edge of a shelf of boulder clay extending out from the foot of the Lawe; as the town grew, houses were built on the shelf on either side of a street called Long Row and the bank was revetted by a series of stone walls which eventually reclaimed from the river a strip of land up to 50m wide (Fig. 1, 1-5).<sup>5</sup> It seems that this shelf of boulder clay continued around the north-east corner of the Lawe and down the coast, underlying at least part of the Herd Sand. In ancient times, therefore, the high-water mark must have lain some distance east of the Lawe and it is highly likely that, as in later times, there were extensive sands south of the river mouth.

<sup>1</sup> This is a revised and expanded version of part of an article on the maritime aspects of Roman South Shields (Bidwell and Hodgson forthcoming).

<sup>2</sup> Bidwell and Speak 1994, 13, fig. 2.3.

<sup>3</sup> Noted in an unpublished report by the Archaeological Practice, University of Newcastle upon Tyne.

<sup>4</sup> Unpublished survey by Solmek Ltd, 1991, 11.

<sup>5</sup> Unpublished excavations by Tyne and Wear Museums Archaeology Department.

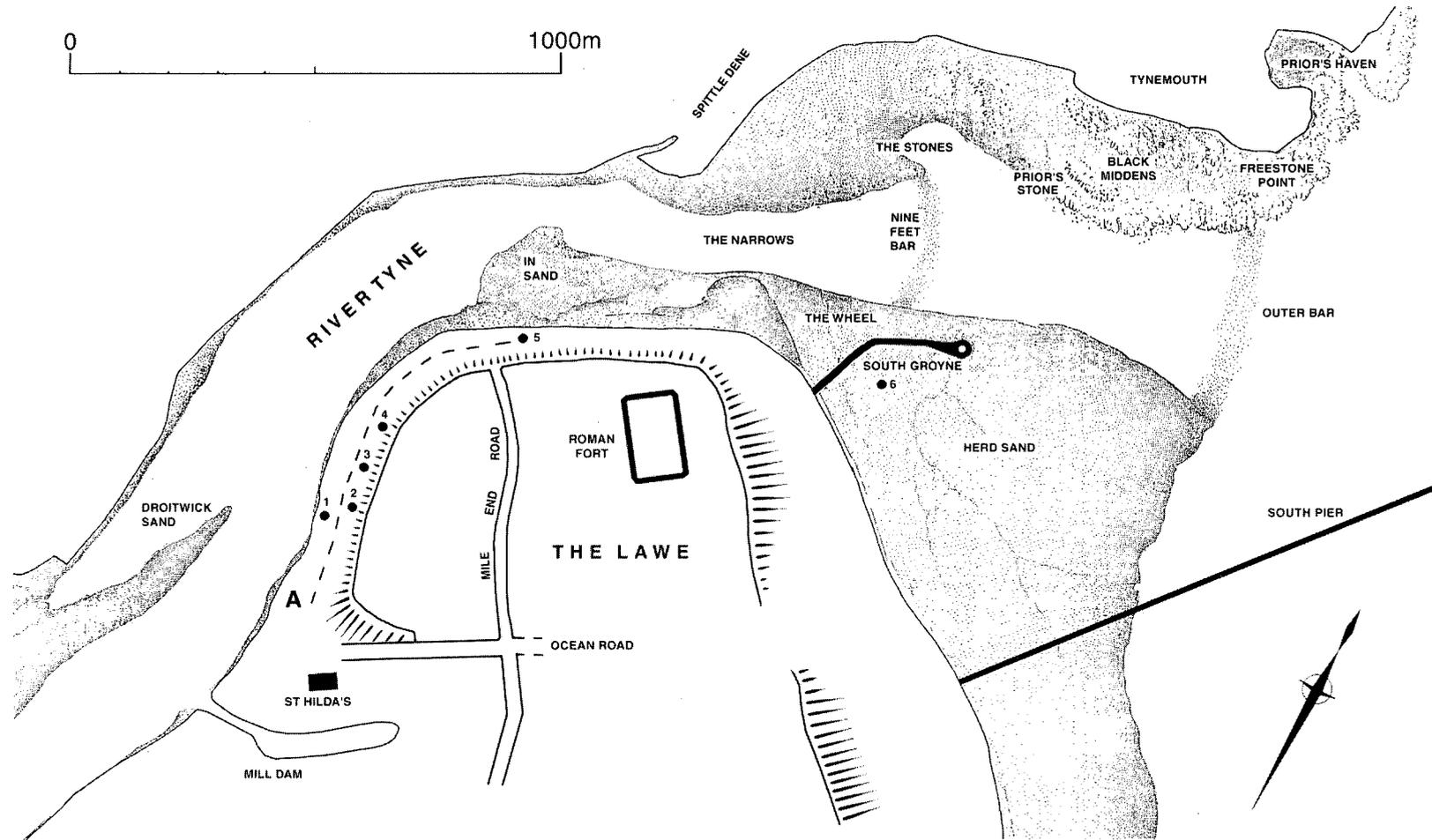


Figure 1. The mouth of the River Tyne, showing sands and bars as shown on later eighteenth- and early nineteenth-century maps. Extent of Herd Sand as on Fryer's map of 1772; In Sand as on Wood's map of 1827, the sands by then having engulfed the Middle Ground. The broken line marked A to the west and north of the Lawe shows the line of Long Row and Wapping Street which probably ran along the top of the original river bank. The dots marked 1 to 5 are excavation areas; at 1 the early river bank was seen, but at 5 there were a series of successive walls revetting the river bank, the earliest of sixteenth-century date. 6, south of the South Groyne, is the approximate location of various ground investigations which have shown that at this point the Herd Sand is underlain by boulder clay. The Mill Dam is shown as on Richardson's map of 1768 with the ancient church of St Hilda's to the north. The north-south road (now Mile End Road), leading from the river to Westoe, is apparently of medieval origin. The road running to the east is King Street, laid out with the market square on previously undeveloped land in 1768; King Street was later extended to the west of the medieval highway by forming Ocean Road (formerly German Street) in 1856 to 1862.

The Trow Rocks, not shown on this plan, lie 2km south of the river mouth.

Somewhere on the southern side of the river mouth there would have been a port during the Roman period. From the Severan period, if not earlier, the fort was combined with a supply-base which eventually contained 24 stone-built granaries with an estimated capacity of over 3,300 tonnes of grain.<sup>6</sup> In the fourth century, if South Shields is correctly identified as the *Arbeia* of the *Notitia Dignitatum*, which is a near certainty, it accommodated in addition to a reduced supply-base the *numerus barcariorum Tigrisiensium*, originally raised from bargemen on the River Euphrates but likely to have become a light naval unit by the time it was posted to South Shields.<sup>7</sup>

Use of the fort as a supply and naval base would have required extensive riverside facilities, but in addition South Shields served as the main port of entry to the Roman northern frontier. Excavations along the southern river bank have found no traces of the port, but in spite of this it probably lay on the southern side of the river immediately to the north of the Lawe or a little further to the west.<sup>8</sup>

### Wrecks on the Herd Sand

The Herd Sand, the 'grave of good ships and seamen', was the site of many wrecks.<sup>9</sup> The *patera* apparently found in the 1830s came from 'the north sands at South Shields' (clearly the Herd Sand) in what was taken to be the 'wreckage of a sailing ship' according to an accompanying label.<sup>10</sup> Robert Blair, a local antiquary, recalled 'many years ago seeing the remains of a small vessel to the east of Salmon's ballast hill [i.e. on the Herd Sand]. They are now entirely covered by the sand. There is, however, no tradition of the vessel having come ashore, but she must have been very old as her timbers, which projected above the sand, were so black'.<sup>11</sup> Whether these two references are to the same wreck is uncertain.

There are references to wrecks in the lands of the manor of Westoe as early as 1195-1208 and also in 1417 and 1447.<sup>12</sup> These lands included the Herd Sand, the most likely spot for ships to founder. From the seventeenth century references to wrecks are more frequent.<sup>13</sup> In 1851 'an ancient six-pounder piece of ordnance was found on the sands below the Lawe, and many skeletons were found about

the same place'.<sup>14</sup> In 1886 it was reported that 21 Scottish and 10 English coins dating from the later thirteenth to early fifteenth centuries had been found on the beach 'between the 'fish' [i. e. the South Groyne] and south piers' (Fig 1).<sup>15</sup> Medieval coins of this period continued to turn up on the beach for many years to come, often being found at the same time as the Roman *denarii*.<sup>16</sup> No doubt the medieval coins, as well as a silver spoon of fifteenth-century date,<sup>17</sup> came from one or more ships driven onto the Herd Sand by storms and broken up by the pounding of the waves.

### The topography of the river mouth from the sixteenth century onwards

Little now remains of the sands, bars and reefs which until the middle of the nineteenth century made entry to the river mouth so hazardous (Fig. 1). There are many records of these now-vanished obstacles which can be briefly described as follows. The entry channel, the Narrows, was constricted by the In Sand which in the eighteenth and early nineteenth centuries encroached across much of the southern side of the river. A second sand bank, the Droitwick Sand, constricted the channel on the north side of the river, upstream from the In Sand. There were also two bars across the river mouth. The outer bar had a depth of water of only 7 feet (1.83m) at low water spring tides, and the name of the inner bar, the Nine Feet Bar, presumably refers to its depth. A local oral tradition claims that in exceptional circumstances the river mouth could be crossed dry shod between South Shields and Tynemouth. On the north side of the channel between the two bars there still lie dangerous rocks, the Black Middens. On the south side lay the Herd Sand, equally fatal as a lee shore to vessels seeking the river in a gale and the find-spot of most of the Roman finds which are the subject of this paper.

The Herd Sand is shown clearly on a chart of the Tyne probably drawn in 1545, the earliest detailed representation of the river mouth (Fig. 2A).<sup>18</sup> Rather better known is a larger-scale, coloured map of Tynemouth which also shows the river mouth, but, as is now apparent, with considerable distortion (Frontispiece).<sup>19</sup> A lighter-coloured area on the south side of the river mouth has been taken to represent the area around South Shields and an 'island' detached from this area has been interpreted as the Lawe, the promontory on which the fort stands, supporting arguments that it was isolated by high tides flowing along what is now Ocean Road.<sup>20</sup> Previous reproductions of this map

<sup>6</sup> Bidwell and Speak 1994, 20-33.

<sup>7</sup> Bidwell and Hodgson forthcoming.

<sup>8</sup> Bidwell and Speak 1994, 12-13; Bidwell and Hodgson forthcoming.

<sup>9</sup> Hodgson 1903, 47.

<sup>10</sup> Bosanquet and Richmond 1936, 139.

<sup>11</sup> *PSAN*<sup>2</sup>, 2 (1885-6), 334

<sup>12</sup> *Ibid.*, 40, 46-7.

<sup>13</sup> For the wreck of 'a french barke' at South Shields in 1627, see *PSAN*<sup>3</sup>, 8 (1917-18), 119-20, and for a dispute in 1748 about the salvage of 'a ship founderd and broke up at *Hard End* [i.e. the Herd Sand, see n. 21] near South Shields ... the master drownd the rest of the men saved', see *ibid.*, 161. See also note 24 below, for eight ships which foundered at the same time in 1672.

<sup>14</sup> Hodgson 1903, 86.

<sup>15</sup> *PSAN*<sup>2</sup>, 2 (1885-6), 334; catalogued in *PSAN*<sup>2</sup>, 6 (1893-4), 102-4.

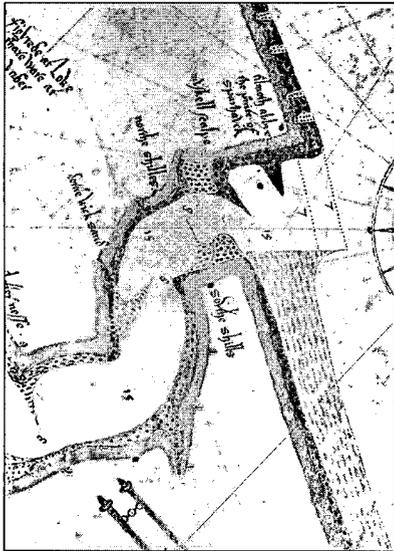
<sup>16</sup> *PSAN*<sup>3</sup>, 3 (1907-8), 193; *PSAN*<sup>3</sup>, 4 (1909-10), 124; *PSAN*<sup>3</sup>, 5 (1911-12), 3; *PSAN*<sup>3</sup>, 7 (1915-16), 213.

<sup>17</sup> *PSAN*<sup>2</sup>, 5 (1891-2), 147.

<sup>18</sup> Craster 1907, pl. 15.

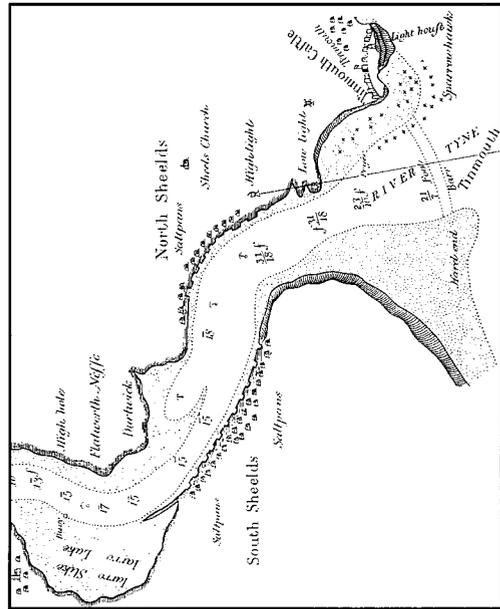
<sup>19</sup> BM Cott. MSS., Aug. I, ii, Art. 7; reproduced in Savage 1898, facing p. 68. For the date of both maps, see Colvin 1982, 682-4.

<sup>20</sup> Longstaffe (1852, 46) was the first to interpret the map thus.



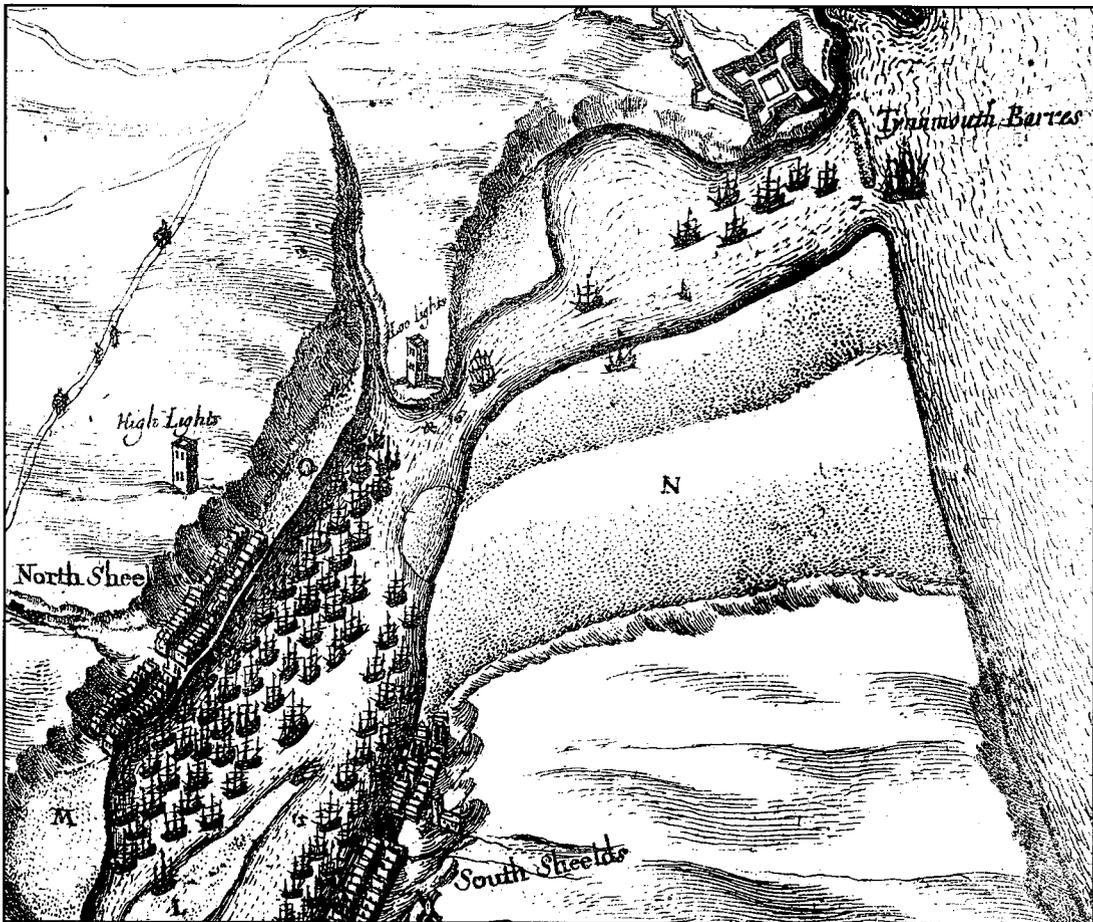
A

Figure 2A. Mouth of the Tyne in c. 1545, after Craster 1907, p1.15.



C

Figure 2C. Mouth of the Tyne in 1723. After Guthrie 1880, reproduced from G. Collins, Great Britains Coasting Pilot, 1723.



B

Figure 2B. Mouth of the Tyne from Gardner's map of 1654. After Spence 1889, pl. 18.

have been monochrome, but now that a photographic colour print of the map can be examined, it seems that the lighter colouring probably represents areas of sand, the land on the south side of the river being represented by the darker areas in undulating relief. The monastery at Jarrow, represented by a cluster of buildings, is shown due south of Tynemouth. In reality, it lay to the south-west; it seems as if in order to show Jarrow, the most important place in the vicinity of Tynemouth, the topography south of the river has been rotated in a south-easterly direction. The sands shown due south of Tynemouth therefore probably represent the Herd Sand; the detached 'island', once taken to represent the Lawe, is likely to be an isolated sandbank, unless this is an attempt to show 'The Wheel', a channel shown on later maps that ran north-south across the Herd Sand (see below).

The Herd Sand is apparently first named in a report to the Privy Council in May 1633 of the 'Commissioners especially appointed for the Conservancie of the River of Tyne' which noted that 'a sande lying on the South side of the River called the Hirde, is growne more to the northe than formerly, it was so that the Barr is grown more narrow and of lesse water by a foote than it hath bene within these three or four yeares, which we conceive to be greatly occasioned by want of land floods and Ice which are the ordinary meanes to scour the River'.<sup>21</sup> Gardner's map of 1654<sup>22</sup> clearly labels the 'Hird Sand', but shows it due south of Tynemouth and immediately north of the Lawe instead of to its east (Fig. 2B). It seems to display the same distortion as the large-scale map of c. 1545, but probably for a different reason. Either the cartographer placed the division between the sands and the Lawe wrongly, drawing a line east-west instead of north-south, or confused the Herd Sand with the In Sand. Collins' chart of 1723 represents the In Sand as if it was an westerly extension of the Herd Sand and shows the latter extending further north than on the other early maps (Fig. 2C). In 1633, as we have seen above, it was stated that the Herd Sand had encroached northwards into the river mouth. When in 1672 eight ships were sunk in the harbour mouth by the 'Freshes',<sup>23</sup> two large vessels 'lying so near the Hurd Sands [*sic*], caused such a strong Sluce betwixt that and the Wrecks that it hath thrown the Hurd up further Southward'<sup>24</sup>, an illustration of how small changes in the tidal flow could affect the extent of the Herd Sand.

<sup>21</sup> Terry 1899, 88, n. 13. In the eighteenth century the Herd Sand was sometimes called Hard End, as on Collin's chart of 1723.

<sup>22</sup> Spence 1889, pl. 18.

<sup>23</sup> 'Fresh' in this context seems to refer to 'a flood of fresh water flowing into the sea: especially an ebb tide, whose force is increased by heavy rains', the definition in the *Oxford English Dictionary* which then cites J. Collins, *Making Salt in England* (c. 1682), 10: 'sometimes there are great freshes in the River of Tyne'.

<sup>24</sup> *PSAN*<sup>3</sup>, 2 (1905-6), 260-2, giving the text of a rare pamphlet published shortly after the event; the plate facing p. 260 is an extraordinary panorama by Wenceslaus Hollar of the river

Fryer's map of 1772 is the first to show the Herd Sand at an accurate scale (Fig. 3A).<sup>25</sup> It extends about 600m eastwards from the foot of the Lawe and sweeps around its northern side, as fifty years earlier in Collins' chart. There had been further changes in the sands at the river mouth during the mid-eighteenth century: 'John Slightholme who had been master of a trader between Shields and London for forty years, deposed before the House of Commons, in the year 1765, that the Middle-Ground and In-Sand, which were then dry at low water, had appeared within the preceding twelve years'.<sup>26</sup> Although the charts of the Tyne drawn in c. 1545 and 1723 show sands north of the Lawe, their extent is quite different from that of the In Sand as shown on later maps. Perhaps parts of these earlier sands had been swept away only to reappear in the mid-eighteenth century as the lower reaches of the river began to silt up. A map published in 1827 shows that the In Sand had encroached northwards over much of the river, engulfing the Middle Ground bar (Fig. 3B).

Fryer's map also shows a darker north-south band running across the Herd Sand which is almost certainly a channel called The Wheel.<sup>27</sup> In 1832 MacGregor quoted the testimony of 'an aged and intelligent pilot, who had been so employed for 50 years' to the effect that there had been a channel 'with a bottom of boulder stones' running close to the base of the Lawe and which vessels had sailed up.<sup>28</sup> MacGregor's pilot was probably referring referring to The Wheel, described by a later source as a tidal channel running from the northern edge of the Herd Sand as far south as Bents House (i.e. as far as the southern foot of the Lawe).<sup>29</sup>

From the middle of the nineteenth century colossal improvements were made to the tidal reaches of the river by the Tyne Improvement Commission: between 1851 and 1902 many million tons of material were dredged from the channel, widening and deepening its course, and in 1855 work began on building two piers to protect the river mouth, the south pier, not completed until 1895, eventually being 1.57km in length.<sup>30</sup> At an early stage in these works the northern and eastern edges of the Herd Sand were cut back during the formation of Shields Harbour, a deep-water haven protected by the piers (cf. p. 7).

mouth with an inset showing the results of blowing up the wrecks by sinking a powder chest next to them and detonating it by employing 'a new way to convey a Fire-Ball through a hollow Mast fastened to the Chest at the bottom of the Sea'.

<sup>25</sup> Hodgson 1903, facing p. 128

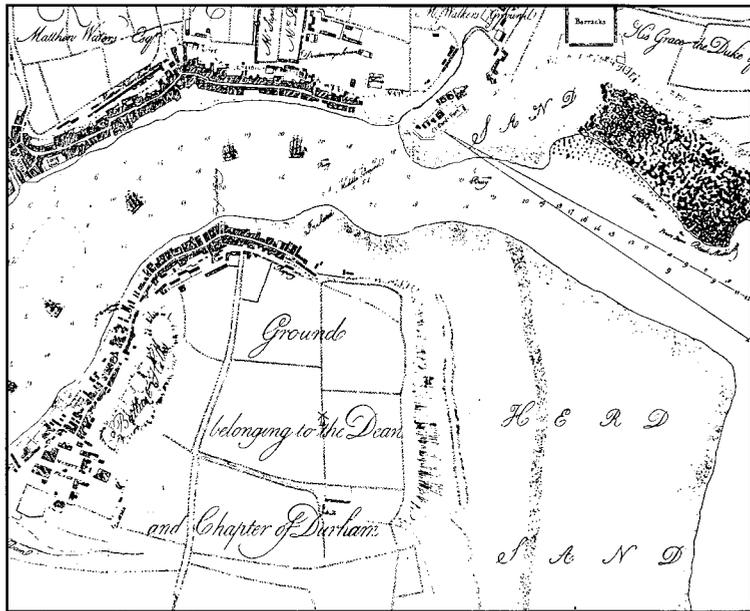
<sup>26</sup> MacGregor 1832, 23. The Middle Ground was a bar extending diagonally across much the river from the In Sand, leaving a narrow deep-water channel only by the north bank.

<sup>27</sup> The Wheel is shown clearly on the 1855 Ordnance Survey map and is thus labelled.

<sup>28</sup> MacGregor 1832, 35.

<sup>29</sup> Taylor 1851, 101.

<sup>30</sup> Hodgson 1903, 328-47.



A

Figure 3A. Fryer's map showing the mouth of the Tyne in 1772.



B

Figure 3B. Wood's map showing the mouth of the Tyne in 1827.

### The dredging of the river in the nineteenth century

A brief account of the creation of the modern river and Shields harbour is needed at this stage because of claims that the Roman objects shortly to be described were re-deposited at the river mouth with material dredged from further upstream at Newcastle. Petch was the first to put forward this view; he was soon followed by Bosanquet in an essay on the Roman bridge at Newcastle and more recently by others.<sup>31</sup> It had been previously accepted by local antiquaries that the Roman objects came from wrecks on the Herd Sand. Their knowledge of its fearsome record as a lee shore would not have encouraged any other explanation. But Petch's view is by no means perverse and needs to be judged against what we know of the dredging which formed part of the Victorian river improvements.

The early Victorian attempts to improve the river were inept. Much criticised at the time, they led to the setting-up of a Royal Commission in 1855 to examine the effectiveness of the works and to investigate alleged abuses. From the proceedings it is clear that material dredged from the bed of the Tyne was being dumped on its margins behind penning walls so inadequate that the material was spilling back into the river, or was even being redeposited elsewhere in the river. These works, however, did not appear to have affected the Herd Sand.<sup>32</sup>

In 1855 work began on building two piers to create Shields harbour. By 1863 six dredgers were at work on the river, two of them 'undoubtedly the most complete and efficient machines of their class ever constructed'.<sup>33</sup> On 14<sup>th</sup> June 1866, John Ure, Engineer to the Tyne Commissioners, listed removal of 'a portion of the Herd Sand' amongst projects which were 'completed, or nearly so'.<sup>34</sup> Between 1861 and 1866 about twenty million tons of material were dredged from the river, removing most of the sands and the bars across its mouth.<sup>35</sup> The programme extended upstream to beyond Newcastle, but there is certainly no question of material from any part of the river having been dumped at the river mouth. The whole object was to create a wide harbour at the river mouth linked to a deep-water channel; the dredged material would have been disposed of well out to sea where it could not be washed back into the harbour.

### Dumping of ballast from ships

A further factor in the history of the river which needs to be taken into account is the deposition of ballast from ships

sailing to the Tyne to take on full cargoes, which will generally have been of coal. The most common port from which these ships had sailed was London and the ballast was dredged from the River Thames or dug from its banks. The material consists of gravel, sand and sometimes chalk. It has been encountered on many archaeological sites on Tyneside and Wearside and is usually sterile. On rare occasions, however, it incorporates finds from its point of origin. At Panns Bank, Sunderland, far from any known Roman site, the ballast contained a water-worn sherd of black-burnished ware (BB2).<sup>36</sup> Less prosaically, in May 1778 ballast taken up from the River Thames by the collier *John and Mary*, Captain Cummings, proved to contain a large number of Tudor gold and silver coins when it was taken off board at Cookson's Quay, South Shields.<sup>37</sup>

The proper disposal of ballast was a matter of concern for the corporation of Newcastle, which controlled the Tyne, from at least as early as the sixteenth century.<sup>38</sup> The matter was regarded very seriously, for the river channel was very shallow in many places and, if ballast had been shed into it, before long the river would have been impassable for shipping. In the eighteenth century, and presumably in earlier centuries, the ballast was unloaded into keels (small boats used to transport coal in the confines of the river) and disposed of on land. As early as 1633 the northward encroachment of the Herd Sand had been connected with an increase in the height of the bar across the river mouth (see p. 5), and it would have been as important to prevent the dumping of ballast there as anywhere else. Of course regulations against casting ballast into the river or its approaches were sometimes contravened in order to evade fees due to the corporation of Newcastle. In 1850, Robert Plummer, a former sea-captain, testified that in fine weather 'ballast may safely be cast at sea ... ships coming to the Tyne in very fine weather began to cast their ballast south of the Tees...' Ballast was also cast less than three miles from the mouth of the Tyne and sometimes near the river mouth, the possible cause of an increase in the size of the bar.<sup>39</sup> However, given the lack of wear displayed by most of the objects from the Herd Sand, it is most unlikely that they had been washed there from the bar or sea-bed beyond it.

### Roman finds from the Herd Sand: circumstances of their discovery<sup>40</sup>

All the coins in Table 3 are described as either having been found on the beach at South Shields or on the Herd Sand. These two descriptions probably in all instances refer to

<sup>31</sup> Petch 1925, 29; Bosanquet 1930, 513-4. Their views were followed by Allason-Jones and Miket (1984), e.g. their description of the inscribed *patera* (3.357) '...deposited by the high tide. Its original provenance could therefore be Arbeia Roman Fort, Newcastle or Wallsend'.

<sup>32</sup> *Royal Commission on the River Tyne*, 116, 434.

<sup>33</sup> Guthrie 1880, 138. For the building of the piers, see Thornborrow 1988.

<sup>34</sup> Ure 1866, 4.

<sup>35</sup> *Ibid.*, 138-41.

<sup>36</sup> Unpublished excavations by Tyne and Wear Museums Archaeology Department. The sherd is from a rounded-rim bowl of late second- or third-century date. The main source of the BB2 which reached the Roman northern frontier at this period was an industry on the Essex shore of the Thames.

<sup>37</sup> Hodgson 1903, 122-3.

<sup>38</sup> Brand 1789, 19, note 'n'.

<sup>39</sup> *Admiralty Inquiry*, 9, 189.

<sup>40</sup> See Table 1 for references to the find-spots of the objects.



Figure 4. Coins from the Herd Sand showing state of wear; one and a half times actual size. Catalogue numbers (Table 3), from left to right: nos 18, 44, 45, 51, 57 and 59.

the same general location. The 1908 finds, for example, are listed under the heading ‘Herd Sand, South Shields’ and then in the main text are said to ‘have turned up on the beach at South Shields, having been washed up by the heavy seas’. The 27 coins found since 1979 are all from the beach north of the South Pier; those found by Mr Inkster were picked up roughly halfway between the South Pier and South Groyne.<sup>41</sup> The *denarius* of Hadrian found in 1894 came from ‘S[outh] S[hields], beach opposite bank well’, that is, the Bankside Well which lay due east of the site of the Roman fort.<sup>42</sup>

A more specific provenance is also given for the Republican coin found in 1903: ‘within the “wave trap” just within the Fish pier’ (the South Groyne at the northern end of the Herd Sand, Fig. 1). The find-spots of some of the finds apart from coins are described specifically. The *patera* apparently found in the 1830s came from the ‘wreckage of a sailing ship’ (p. 3). The shield-boss was ‘from the bed of the River Tyne, at its mouth’, but a later reference is more precise: ‘dredged up on the south side of the Tyne at its junction with the sea’, that is, along the northern edge of the Herd Sand.<sup>43</sup> It was discovered ‘about the same time and place’ as the cheek-piece.<sup>44</sup> Its date of discovery was between 1865 and 1867 and probably can be fixed at 1866 when John Ure’s annual report notes the removal of part of the Herd Sand.<sup>45</sup> The inscribed *patera* ‘was found at low water mark on the Herd Sand, South Shields’ and the *patera* base ‘on the Herd Sands [*sic*], South Shields’.

Two or possibly three brooches are recorded from the river at South Shields. In 1875 a newspaper referred to ‘a Roman *fibula*, which had been found in the river’. The Blair Album lists ‘two *fibulae*, one with chain attached from River Tyne in South Shields’, which when published by Parker Brewis were said to have been dredged from the River Tyne.<sup>46</sup> One of these brooches might have been that

found in 1875. The find-spots of the brooches are not specific enough to associate them with the objects from the Herd Sand. The glass intaglio and sherd of pottery found in 1912 and 1996-7 were washed up on the beach.<sup>47</sup>

Doubt attaches to the find-spot of the coin of Tasciovanus. In the unpublished Minute Book of the Society of Antiquaries of Newcastle upon Tyne, an entry for 28 May 1885 describes the coin as having been found ‘in the Herd Sands [*sic*] at South Shields’, but in the published account it is said to have been ‘found in the Roman camp’. Coins of Tasciovanus are distributed beyond the territory of the Catuvellauni, which was centred on Verulamium, penetrating into East Anglia and the eastern Midlands, but apart from the South Shields example, none is known north of The Wash.<sup>48</sup> Its quite exceptional presence can readily be explained if the coin was indeed found in the fort, the interior of which had been covered in places by ships’ ballast. The southern distribution of the coins extends to the area of the lower Thames.

One notable aspect of the objects from the Herd Sand is that few show signs of having been scoured by the materials of the sea bed. If the coins, for example, had been rolled by currents across the sea-bed for considerable distances before being cast ashore by storms, they would all have been heavily abraded (Fig. 4). Their condition suggests that they were originally deposited not far from the present beach.

### Coins from the Trow Rocks

Between 1903 and 1908, 29 coins were found at the Trow Rocks (Table 2). This outcrop of magnesian limestone, much of it removed in the later nineteenth century, lies at the southern end of the Herd Sand, 2.2km from the mouth of the Tyne, and forms the northern end of a line of cliffs

<sup>41</sup> This part of the beach at South Shields, a remnant of the Herd Sand, has recently been given the name Littlehaven, hardly appropriate as it is still a dangerous spot for shipping.

<sup>42</sup> Blair Album, p. 94; cf. Hodgson 1903, 153.

<sup>43</sup> Bruce 1875, 58; Bruce 1885, 262.

<sup>44</sup> *Archaeol. J.*, 35 (1879), 99.

<sup>45</sup> See note 34.

<sup>46</sup> Brewis 1924, 178-9.

<sup>47</sup> The find-spot of the intaglio was described to Robert Blair in a letter from John Jameson of 30 Malvern St, South Shields, dated March 1912: ‘it was washed up after a storm, in the neighbourhood of a Roman encampment at the mouth of the Tyne’.

<sup>48</sup> For the distribution of coins of Tasciovanus, see Rodwell 1976, figs. 24-7.

which continue down the coast for a distance of 6km. The finder of the first batch of coins to be recovered said that they had been mixed with material taken out of the river-bed at Newcastle by divers, which had subsequently been dumped at the Trow Rocks. The Tyne Commission Engineer, Mr Walker, doubted whether the coins had come from Newcastle, unfortunately without saying why, but antiquarian opinion was with the finder.<sup>49</sup> Of the 29 coins, 24 span much the same period, from Vespasian to Marcus Aurelius, as the *denarii* from the Herd Sand, although 20 are *aes* coinage and only 4 are *denarii*. Despite the different composition of the collection from the Trow Rocks, its date-range suggests some connection with the objects from the Herd Sand, possibly a contemporaneous shipwreck (see further, p. 16).

### The dating and affinities of the objects from the Herd Sand

What follows is not a detailed catalogue of all the Roman objects from the Herd Sand (Table 1). Some of the objects are of great importance and have already been illustrated and described in numerous publications; full bibliographies appear with each catalogue entry in the *The Catalogue of Small Finds from South Shields Roman Fort*.<sup>50</sup> Rather, this section lays out the evidence for the date of the objects and in two instances their affinities, established principally by inscriptions which suggest they were first acquired and used by persons living in continental Europe before they were lost at the mouth of the Tyne. However, references to publications later than the *Catalogue* and references not accessible to earlier writers are included.

#### The coins

Of the 64 coins recorded, all but 7 are silver *denarii*, apart from a single *quinarius*; there is one Republican *denarius* but the remaining coins were issued between the reigns of Nero and Marcus Aurelius (Table 3). Could they represent a hoard or at least have been deposited on the Herd Sand at the same time? By a curious coincidence, there is a hoard of 12 *aureii* and about 200 *denarii* from the *vicus* of the fort at South Shields which consists of issues spanning much the same period as the Herd Sand *denarii*.<sup>51</sup> In both groups of coins the earliest issues are of Nero and the commonest issues are of Trajan and Hadrian, followed by those of Vespasian and Antoninus Pius. The latest coin in the *vicus* hoard is apparently an issue of AD 185, the latest from the Herd Sand being a slightly worn issue of AD 176-80.<sup>52</sup>

The *vicus* hoard contained bronze coins,<sup>53</sup> and so the three bronze coins from the Herd Sand (Table 3, nos 28, 49, 55) might well have been associated with the *denarii*.

The resemblances between the Herd Sand collection and the South Shields hoard allow the former to be plausibly interpreted as a sort of hoard, perhaps in the sense of savings in transit. The three later third-century coins (nos 62-4) are common types and are presumably casual losses.

#### The military equipment

The shield-boss has scenes showing the Four Seasons, Mars, a bull with moon and stars above, and legionary standards; within the decorative scheme are two panels inscribed '*leg(io) VIII Aug(usta)*' (Fig. 5A). A punched inscription along the edge of the boss gives the owner's name: '*(centuria) Iuli Magni Iuni Dubitati*' ('(property) of Iunius Dubitatus in the century of Iulius Magnus').<sup>54</sup> Seven other shield-bosses are known with similarly elaborate pounced and incised designs.<sup>55</sup> They include a fragmentary example from the site of the legionary fortress at Vindonissa (in modern Switzerland) which has a decorative scheme very similar to that on the South Shields boss; both have the letters 'AVG' in the same position and, although the left-hand border of the Vindonissa boss is missing, 'LEG VIII' can be plausibly restored.<sup>56</sup> Klumbach dated this group of shield bosses to the second half of the second century AD.<sup>57</sup> A fragment with similar decoration, possibly from a shield-boss, was recently published from Slovakia; it was found in a context dating to the second half of the second century in a Germanic settlement at Pác.<sup>58</sup> The cheek-piece, which shows one of the Dioscuri or Heavenly Twins (Castor and Pollux), is likely to be of the same date as the shield-boss: they were found in the same place and both have punched decoration which is very similar stylistically (Fig. 5B). The cheek-piece, indeed, seems to be unique, for figured decoration on helmets is otherwise always moulded in relief. Robinson stated that the cheek-piece was from an auxiliary helmet of 'type h', of late second- or early third-century date, but recent opinion is less certain on the question of assigning helmets of this period to specific types of unit.<sup>59</sup>

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issued in AD 192 (*RIC* 241) really belonged to the hoard.

<sup>49</sup> The account in *Archaeol. J.* 35 (1878), 100, also refers to the inclusion of 'one or two copper coins' in the hoard.

<sup>50</sup> *RIB* 2426.1.

<sup>51</sup> Klumbach 1966. I am grateful to W. B. Griffiths for this reference.

<sup>52</sup> Most recent publication with bibliography in Unz and Deschler-Erb 1997, 565, Taf. 26.

<sup>53</sup> Klumbach 1966, 189.

<sup>54</sup> Krekovic 1994, 220, fig. 8, 5. Another fragment possibly from a shield boss inscribed 'VLPINICI+' within an ansate panel surmounted by an eagle came from the fort at Iža, Bez. Komárno in Slovakia but was not apparently from a closely dated context (Rajtár 1994, Abb. 6, 2).

<sup>55</sup> Robinson 1975, pl. 287; cf. Bishop and Coulston 1993, 145-8.

<sup>49</sup> *PSAN*<sup>3</sup>, 1 (1903-4), 94; Walker might have meant that the coins were unlikely to have been washed onto the Trow Rocks from material taken up from the bed of the Tyne at Newcastle because it had been deposited so far out to sea (cf. p. 7, above).

<sup>50</sup> Allason-Jones and Miket 1984.

<sup>51</sup> The hoard was found in 1878 'near the site of the Roman station' (*Shields Daily News*, 10 June 1878, found 'within the past few weeks'; see also *Archaeol. J.* 35 (1878), 100). It was dispersed and never properly recorded, but its composition was partly re-established by P. J. Casey (1979, 72, 90) who was able to list 12 *aureii* and 115 *denarii*.

<sup>52</sup> Casey (*op. cit.*, 72) doubted whether a coin of Commodus

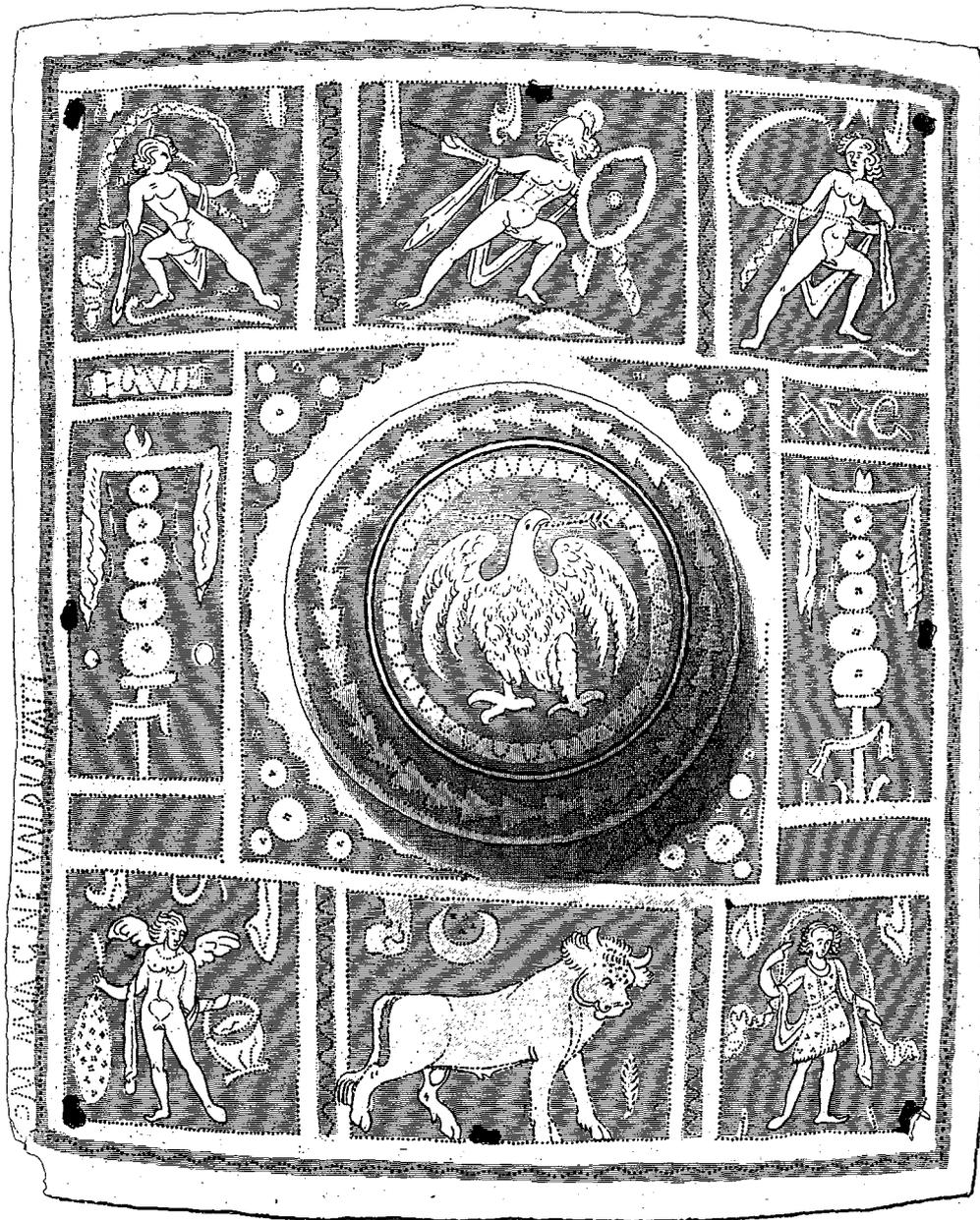


Figure 5A. Shield-boss. Scale 1:2.

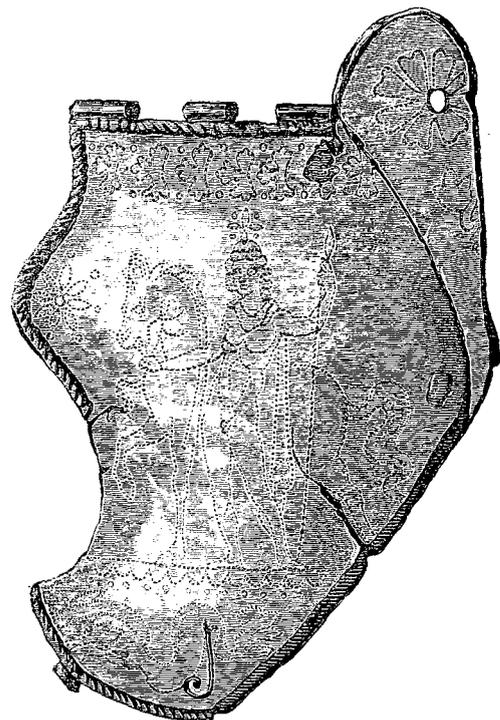


Figure 5B. Cheek-piece. Scale 1:2.

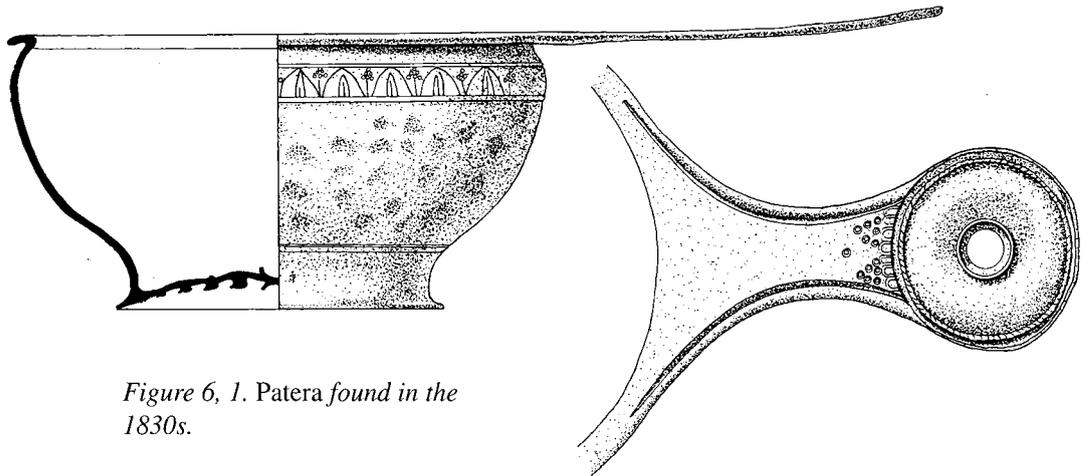


Figure 6, 1. Patera found in the 1830s.

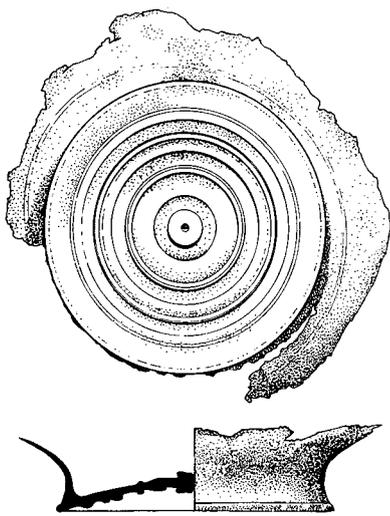


Figure 6, 2. Patera base found in 1889.

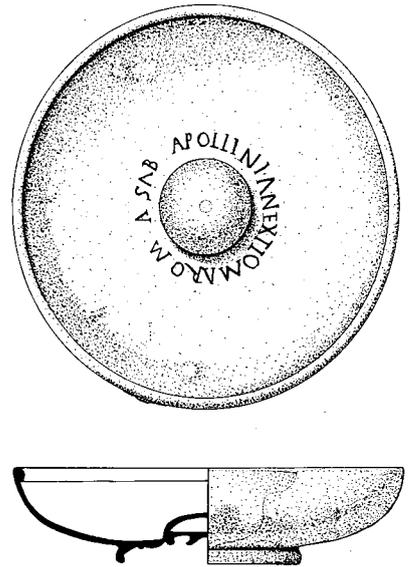


Figure 6, 3. Patera with dedication to Apollo Anextiomarus found in 1887.

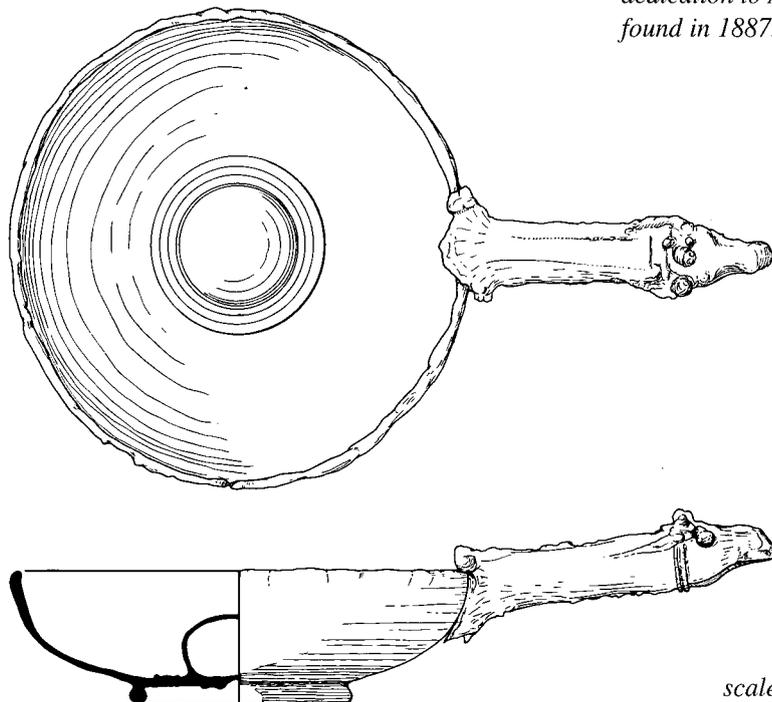


Figure 6, 4. Patera from Wallsend.

scale 1:3



### The paterae

The *patera* apparently found in the 1830s is of Norling-Christensen's Gødåker type, Phase 2, a long-lasting type in use from the Flavian period (Fig. 6, 1). Norling-Christensen accepted the *patera* from the Herd Sand as one of a later group of vessels in Phase 2 which 'seem datable to the second and part of the third century'.<sup>60</sup> In 1936 Bosanquet and Richmond had described it as a 'developed type .. in vogue [during] the first half of the third century' and with 'Gallic associations'.<sup>61</sup> It is not necessarily as late as the third century, but the decoration has been regarded also by others as specifically Gaulish.<sup>62</sup> There are other occurrences of this type in Britain. A notable example was found in a Flavian context at Caerleon in 1984; it is similar to the Herd Sand vessel, although somewhat shallower and with a wider base.<sup>63</sup> The *patera* base found in 1889 is very similar in profile to the *patera* just considered and has the same heavy base with multiple rings (Fig. 6, 2).

The inscribed *patera* has a pronounced *umbo*, a fairly common feature but unusual in that the *umbo* has been manufactured separately and then soldered onto the floor of the vessel (Fig. 6, 3). It finds a parallel amongst a hoard of bronze vessels and other objects at Welshpool; Boon argued that the Welshpool *patera* was of Italian manufacture and likely to be of the late first century AD.<sup>64</sup> He was unable to find a precise parallel for the separately-manufactured *umbo*, the South Shields vessel having not been properly illustrated at the time he was writing, but there is now another example from the fort of Wallsend at the eastern end of Hadrian's Wall (Fig. 6, 4 illustrated here for the first time).<sup>65</sup> In addition, a grave at Toppesfield in Essex contained a similar *patera* along with other first-century finds; it has a very pronounced *umbo*, but the vessel is lost so it is not possible to see whether the *umbo* was separately manufactured.<sup>66</sup>

The *patera* with an *umbo* might thus have been as much as a century older than the other two from the Herd Sand, but it is well known that these durable metal vessels could have a long life. Boon considered that the Welshpool hoard was deposited between AD 150 and 200,<sup>67</sup> and the Wallsend *patera* was found in a mid-third-century context in Barrack IX.<sup>68</sup>



Figure 7. Wax impression of intaglio found in 1912; the original has been lost. Scale 3:1.

All three *paterae* could therefore have been in use in the later second century, and the shield-boss and cheek-piece could belong to the same period.

### Other personal possessions

It is doubtful whether the brooches can be safely associated with the objects from the Herd Sand (cf. p. 8).<sup>69</sup> The intaglio, showing a fox looking up at a bunch of grapes on a vine, is probably a representation of one of Aesop's fables; it is not closely datable and indeed might be post-Roman (Fig. 7). A third find, the base of an enclosed grey-ware vessel, is of some interest because no example of its distinctive fabric has been recorded amongst more than two tonnes of pottery catalogued from the Roman fort at South Shields and its environs, nor indeed amongst the large amounts of pottery from the forts at Wallsend and Newcastle.<sup>70</sup> It appears to be an exotic item quite distinct from coarse wares from northern Gaul and the Rhineland which occasionally reached South Shields as objects of trade.

<sup>60</sup> Norling-Christensen 1952, 192; cf. den Boesterd 1956, 11, confirming that this form continued in use throughout the second century.

<sup>61</sup> Bosanquet and Richmond 1936, 149-50.

<sup>62</sup> Cf. den Boesterd 1956, 10-11, pl. 24, 28.

<sup>63</sup> Boon 1984.

<sup>64</sup> Boon 1961, 22-3, pl. V, b, fig. 4, 2.

<sup>65</sup> Full description to be published by L. Allason-Jones in the forthcoming report on the excavations by C.M. Daniels.

<sup>66</sup> *VCH, Essex*, vol. 3, pl. xxviii, B.

<sup>67</sup> Boon 1961, 18-19.

<sup>68</sup> Apparently found in construction levelling over the decurion's quarters of the Antonine cavalry barrack but possibly from an undetected pit dug in the floor of the succeeding building, possibly also a decurion's quarters.

<sup>69</sup> First published by Brewis (1924, 178-9, pl. VIII); see also Snape 1993, 16. The brooch with the attached fragment of chain is a headstud derivative; headstud brooches date to between the Flavian and early Antonine periods.

<sup>70</sup> The base is 600mm in diameter and is a little water-worn. The fabric is lead-grey with frequent small quartz inclusions and other soft white inclusions; under X20 magnification very small, irregular black inclusions can be seen. I am grateful for the opinions of Alexandra Croom and Vivien Swan, agreeing that it is not a fabric familiar from northern Britain.

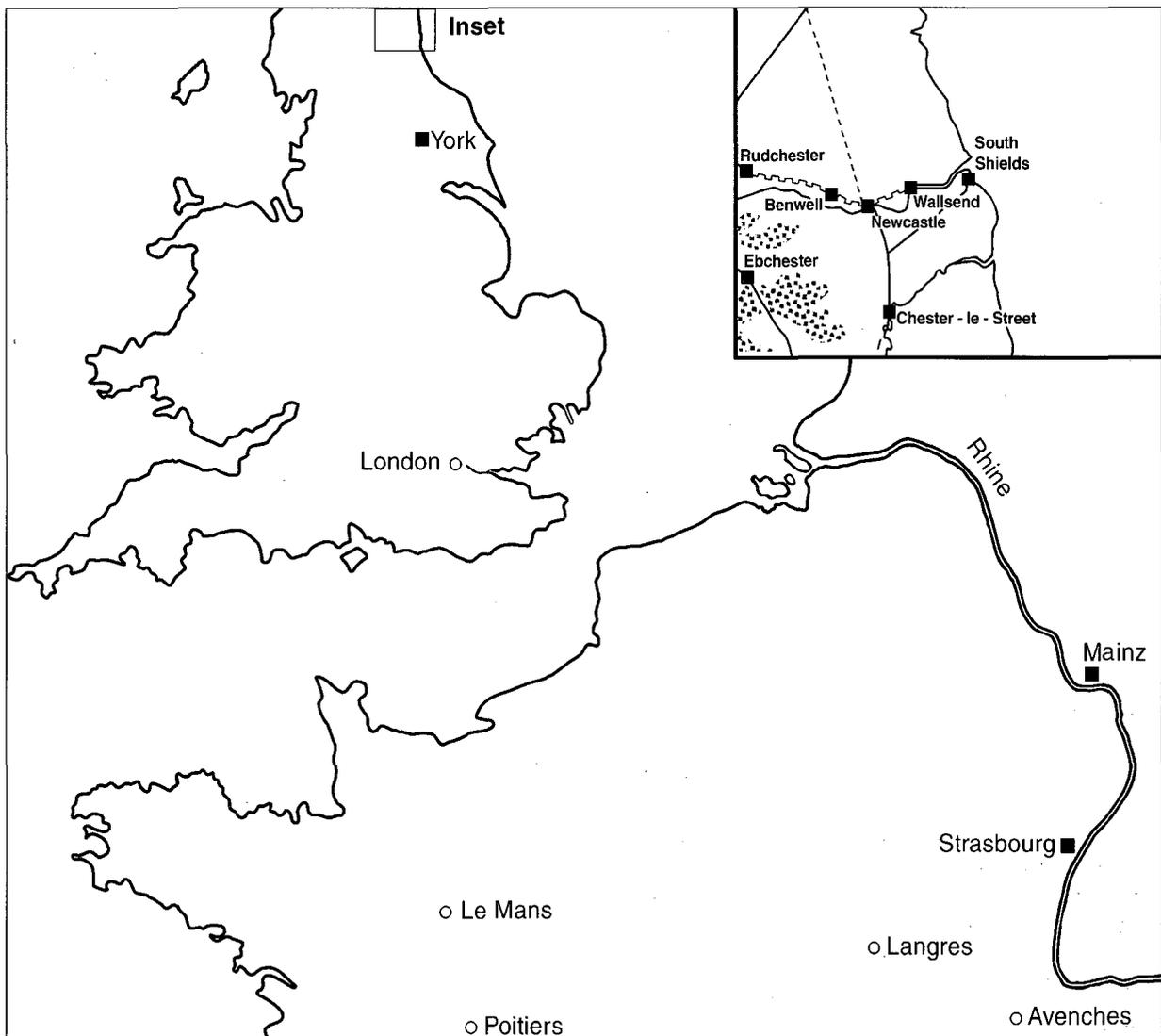


Figure 8. Britain, Gaul and Germany showing distribution of 'Anex...' names and the locations of the legionary fortresses of legio VIII Augusta at Strasbourg and of legio XXII Primigenia at Mainz.

*The dedication to Apollo Anextiomarus*

It only remains to see whether any of the other objects share the same affinities as the shield-boss which originated from Strasbourg in Upper Germany, the fortress of *legio VIII Augusta* from the Flavian period until late Roman times. The dedication of the *patera* to Apollo Anextiomarus has been linked by Mowat, Haverfield and others with dedications to *Anex(...)* from Le Mans,<sup>71</sup> to the goddess Anextiomara from Avenches in Switzerland<sup>72</sup> and with the name 'Anextlo' from Poitiers.<sup>73</sup> The dedication from Avenches, once thought to be to 'Anextlomara', has now been read as 'Anextiomarae | et Aug(usto) | Public(ius) | Aunus | ...?'.<sup>74</sup> The Le Mans dedication is to 'Anex(...) Sac(...)' and might therefore refer to Anextiomarus or Anextiomara.<sup>75</sup> The Poitiers 'Anextlo' is

a personal name on a tombstone;<sup>76</sup> on another tombstone from Langres, not noted previously in connection with the Herd Sand dedication, the name Anextlomarus appears.<sup>77</sup>

There are thus two records of deities who might be linked to Apollo Anextiomarus, the female deity Anextiomara at Avenches and the 'Anex(...)' of Le Mans. The personal names Anextlo and Anextlomarus have long been regarded as cognate with Anextiomarus or Anextiomara.<sup>78</sup> A shrine to Apollo Anextiomarus would not have been out of place at Strasbourg given the distribution of the name in northern Gaul and upper Germany (Fig. 8). It is otherwise unknown in Britain and the *patera* might well have belonged to a devotee of the cult sent to the province on military duties.

<sup>71</sup> *PSAN*<sup>2</sup>, 4 (1889-90), 272-3.

<sup>72</sup> Stähelin 1931, 480.

<sup>73</sup> *PSAN*<sup>2</sup>, 5 (1891-2), 186-7.

<sup>74</sup> *EDH*-Nr.: HD025887.

<sup>75</sup> *CIL* XIII, 3190.

<sup>76</sup> *CIL* XIII, 1165.

<sup>77</sup> 'D(is) M(anibus)//Cameii/Anextlo/mari (fil(ii))': *EDH*-Nr.: HD031035; *L'Année Épigraphique*, 1903, 102.

<sup>78</sup> Haverfield in *PSAN*<sup>2</sup>, 5 (1891-2), 187. Cf. Birley 1986, 44, accepting the identification of Anextiomarus with Anextlomarus.

## How were the objects lost?

In his publication of the shield-boss John Collingwood Bruce speculated on the fate of its owner: 'from the position in which the relic was found it may with probability be surmised that the unhappy man suffered shipwreck as he was approaching the termination of his voyage, and that he parted with life and shield together. How many have perished since in the same place!'.<sup>79</sup> Nothing compels dissent from Bruce's view that the objects were lost on the Herd Sand in Roman times, but another explanation for their deposition apart from shipwreck needs to be considered.<sup>80</sup>

### *A ritual deposit?*

In Roman times the mouth of the Tyne was the beginning or end of many hazardous voyages, calling for vows to the deities reinforced by sacrifices or offerings.<sup>81</sup> However, it is unlikely that the objects from the Herd Sand, if offerings, were deposited directly from a ship entering or leaving the harbour: shipping would certainly have kept as far away as possible from this perilous part of the river mouth. To account for their ritual deposition, a sacred spot on the sands would have to be postulated, perhaps a pool or channel: a permanent shrine would not have withstood storms and high tides. All the objects from the Herd Sand would have made appropriate offerings and can be paralleled in numerous undoubted ritual deposits. Many thousands of coins were recovered from Coventina's Well at Carrawburgh on Hadrian's Wall and from the Sacred Spring at Bath.<sup>82</sup> The latter also contained a number of bronze and pewter vessels. Weapons were also deposited for ritual reasons: the fort at South Shields has produced a probable foundation deposit from under the rampart of the Severan extension consisting of fine enamelled belt-fittings and swords, including two pattern-welded swords, one with decorative brass inlay.<sup>83</sup>

When some of the objects from the Herd Sand are compared more closely with those from definite ritual deposits, some differences emerge. The overwhelming majority of the coins from Coventina's Well were of low denomina-

tions and, apart from the sculptures and altars, the other objects seem scarcely to have been of any monetary value. The Bath coins were likewise mostly of lower denominations and the vessels found with them might have been temple plate, many bearing inscriptions, which had perhaps been deposited 'at the end of their useful life or as the result of the dictates of a special ceremony'.<sup>84</sup> The only object from the Herd Sand with a clear ritual association is the *patera* dedicated to Apollo Anextiomarus, but it might have been inscribed as part of the equipment used in the worship of the deity, as with the vessels from the Sacred Spring at Bath, rather than specifically as an offering to the deity. It could thus have been amongst the personal possessions of a soldier who was also a devout adherent of the cult.

The two strongest arguments against a ritual character for the Herd Sand objects, their contemporaneity and their context, are closely linked. Offerings at sacred sites accumulated over a long period. Most of the objects from the Herd Sand could have been deposited at the same time. There are hoards or collections of high value deposited in a single action which some would see as ritual offerings: for example, late Roman silver hoards or the objects from the pits at the Roman fort of Newstead. When nothing is known of the context of these hoards, that is, when they occur as isolated finds rather than in the proximity of a building such as a temple or shrine which might suggest why they were buried, a wide range of interpretations opens up, the majority of which have nothing to do with ritual.<sup>85</sup> The Herd Sand objects have a context: they are from a spot where many vessels were wrecked in later periods and many of the *denarii* were found at the same time as coins from medieval wrecks. Their loss in a shipwreck seems as compelling an explanation today as it was for Bruce over a century ago.

### The probable shipwreck

A possible reconstruction of how the objects from the Herd Sand were lost can now be proposed. They came from a ship carrying a soldier of *legio VIII Augusta*, wrecked when it was entering the Tyne.<sup>86</sup>

### *The soldier Junius Dubitatus*

The shield-boss is inscribed along its lower left-hand edge with the name of Junius Dubitatus, in the century of Julius Magnus. Why was this soldier of *legio VIII Augusta* trav-

<sup>79</sup> Bruce 1875, 78.

<sup>80</sup> The tombstone, or rather memorial, of an *optio* awaiting promotion to centurion who died in a shipwreck ('*qui naufragio perit*') was found reused in the north wall of the legionary fortress at Chester in 1891; a touching detail is the space left for the first letter of H. S. E. ('[*hic*] *situs est*': 'he is buried here'), in case the body was recovered (*RIB* 544).

<sup>81</sup> Before departure a sheep or bull would be sacrificed; an early third-century relief from Portus shows a ship entering harbour with a libation or sacrifice being made at an altar on the afterdeck: Casson 1974, 155, pl. 6. An example of a religious dedication connected with a voyage from South Shields is an altar (*RIB* 1054) dedicated to the Gods the Preservers (*Dis Conservatoribus*) for the welfare of the emperors Caracalla and Geta on their return from Britain in AD 211.

<sup>82</sup> Allason-Jones and McKay 1985; Cunliffe 1988.

<sup>83</sup> Croom 1995; cf. Bishop and Coulston 1993, 37-8 for other instances of the ritual deposit of weapons.

<sup>84</sup> Cunliffe 1988, 361.

<sup>85</sup> Johns (1996, 14-15) proposed nine possible explanations for treasure hoards, only two of which involve votive offerings made with no intention of recovery. The Herd Sand objects, if lost in a shipwreck, would fall within her ninth category, 'treasure which was lost rather than deliberately concealed ... this possibility need be invoked only in the case of a hoard in deep water'.

<sup>86</sup> It is unlikely that a ship would have put out to sea from the Tyne when a storm was raging. In October and November 1646 '300 saile of ship' had been kept in the river 'by the Windes this 6 weekes at least' (Terry 1899, 132).

elling from his base at Strasbourg to the Tyne? Promotion to a new post with another legion based in Britain can be ruled out. For an ordinary soldier the path to the centurionate was normally through advancement to intermediate posts in the unit with which he was serving. In any event promotion to the centurionate was also usually within the same unit and was granted by the governor of the province.<sup>87</sup> Another circumstance worth considering is that Junius Dubitatus had been sent to Britain on a long-distance mission. There is an apparent instance of soldiers being sent to Gaul from Stobi in Moesia (in modern Bulgaria) to collect clothing and perhaps grain.<sup>88</sup> Evidence of soldiers travelling so far afield is exceptional, but the main objection to this explanation for the journey of our soldier is the shield-boss and cheek-piece, for if he had been sent abroad merely to secure supplies, he would hardly have needed to take his cumbersome panoply with him.

A more obvious explanation is that Junius Dubitatus had sailed to the Tyne with many others of his legion to reinforce the British garrison at a time of military crisis. A number of legionary vexillations from outside the province are recorded in Britain, including two drawn from *legio VIII Augusta*, and it can be shown that the mouth of the Tyne was used as the port of entry for such expeditions.

#### *Vexillations of legio VIII Augusta in Britain*

*Legio VIII Augusta* is known to have contributed detachments to Britain on two occasions in the second century.<sup>89</sup> An inscription honouring T. Pontius Sabinus records that he took three thousand men from three legions, *VII Gemina*, *VIII Augusta* and *XXII Primigenia*, on an *expeditio Britannica* in the reign of Hadrian.<sup>90</sup> At the Anglian monastery of Hoddom, 5km from the fort of Birrens in south-west Scotland, there has recently been found a fragmentary inscription dedicated by detachments of *legiones VIII Augusta* and *XXII Primigenia*, the latter legion being stationed at Mainz (Fig. 8). The decoration of the inscription is 'stylistically Antonine' and it is assumed that the detachments were sent to Britain at the beginning of Antoninus Pius' reign when the frontier was advanced into Scotland.<sup>91</sup> The detachments of *legio VIII Augusta* attested in Britain are too early to be associated with the remains on the Herd Sand, but they make it clear that the legion at Strasbourg could be drawn on to reinforce the army in Britain when necessary.<sup>92</sup> An emergency took place early in Commodus' reign when the 'tribes in [Britain] crossed

the wall that separated them from the Roman forts. They did much damage, killing a certain *strategos* and the troops that he had with him'. Commodus is said to have 'sent Ulpius Marcellus against them' in the greatest war of his reign.<sup>93</sup> Dealing with a revolt on this scale might well have required reinforcements from Germany, although any evidence for their presence has hitherto been lacking. Other emergencies followed, leading to the Severan campaigns of AD 208-11. Again there is no firm evidence of reinforcements sent from Germany, but Herodian records that 'drawing troops from all sides, [Severus] amassed a great army'.<sup>94</sup> However, any connection with the Scottish campaigns or the preceding troubles in Severus' reign seems to be excluded by the absence of coins later than AD 180 from the Herd Sand collection.

It has been said that in Britain 'no other barbarian initiative [throughout] the second century has such unambiguous verbal attestation' as the incursion at the beginning of Commodus' reign,<sup>95</sup> but it has left no certain archaeological traces. Even the identity of the wall that was crossed has seemed uncertain until recently. Now that a sound case has been made for a final abandonment of the Antonine Wall beginning in c. AD 155-8, after a single period of occupation, it must be concluded that the wall in question was Hadrian's Wall.<sup>96</sup> The burning of buildings at Corbridge, Halton Chesters and Rudchester has been associated until recently with the incursion early in Commodus' reign, and it is still possible that the fires were the result of hostile action.<sup>97</sup>

see RIB 1026 from Piercebridge.

<sup>87</sup> Cassius Dio 72.8. Cf. Breeze and Dobson 1987, 130-1; Frere 1987, 147-8.

<sup>88</sup> Herodian III 14.3; for the likelihood that vexillations from the Rhine and Danube were included in Severus' army, see Birley 1988, 175. Swan (1992) in her discussion of pottery at York has made a convincing case for the presence there of Africans under Severus, probably from *legio III Augusta*.

<sup>89</sup> Gillam and Mann 1970, 25-6.

<sup>90</sup> Hodgson 1995.

<sup>91</sup> Accepted by Breeze and Dobson (1987, 130) but subsequently passed over in silence by Daniels (1989, 11). There is no question that a barrack in the *retentura* at Rudchester (Gillam *et al.*, 82-4) and a granary and timber courtyard building (possibly the hospital) in the central range at Halton Chesters (*J. Roman Stud.*, 5 1 (1961), 164; 52 (1962), 164-5) burnt down in the later second or possibly the early third century. Hartley (1972, 46) showed that the so-called destruction deposit at Corbridge included too much residual material to represent the debris from the burning of the site. Jobey (1979, 110-12) suggested that, although the site had been destroyed, rubbish was also brought in as levelling for the new buildings, explaining the admixture of earlier pottery. Nothing from the relevant levels at these sites indicates that the buildings had been burnt as a result of hostile action. The sites, however, are adjacent and no other forts in the Wall zone have produced evidence of burning at this period. The possibility that they were overrun and destroyed by hostile forces sweeping down Dere Street and breaking through the Wall remains but is certainly unproven.

<sup>87</sup> Breeze 1997, 74, 85. I am grateful to Dr D. Breeze for guidance on these points.

<sup>88</sup> Fink 1971, no. 63.

<sup>89</sup> There is no real evidence that the legion took part in the original Claudian invasion: Keppie 1971.

<sup>90</sup> *ILS* 2726. For evidence that the expedition probably dated to c. AD 122, see Jarrett 1976.

<sup>91</sup> *Britannia*, 23 (1992), 311, pl. 32.

<sup>92</sup> As also *legio XXII Primigenia*, with detachments in Britain not only at the same time as those of *VIII Augusta* but also in the early third century, apparently after the Severan expedition,

The discovery of a diploma dated 23<sup>rd</sup> March AD 178 naming Ulpus Marcellus as governor of Britain has resolved some difficulties.<sup>98</sup> Dio's statement that Commodus sent Ulpus Marcellus against the barbarians had previously been taken to mean that the emperor appointed this experienced general governor of Britain in order to deal with their incursion. The diploma shows that he was already governor of Britain; the passage in Dio means only that he was ordered by Commodus to take the offensive against the barbarians, unless, that is, his term as governor had ended and he was recalled to Britain from a subsequent posting. An altar from Kirksteads to the west of Carlisle dedicated by the legate of *legio VI Victrix* 'because of successful achievements beyond the Wall' ('*ob res trans vallum prospere gestas*') may be connected with this offensive.<sup>99</sup>

That is the sum of knowledge about 'the greatest war' of Commodus' reign.<sup>100</sup> The addition of a vexillation of *legio VIII Augusta* to the forces available to Ulpus Marcellus would emphasise the seriousness of the crisis. Choice of the Tyne as a landfall, however, cannot be taken to indicate where on the northern frontier the centre of that crisis was. There were other occasions when the Tyne served as a port of entry for military expeditions operating elsewhere in northern Britain. An inscription of c. AD 155-8 found near the site of the *Pons Aelius* at Newcastle records the arrival of men from Germany to augment the three British legions.<sup>101</sup> From South Shields there is an altar dedicated *Dis Conservatoribus* for the safe return of the emperors Caracalla and Geta;<sup>102</sup> the dedication strongly suggested to Collingwood that the emperors and their army had embarked for Gaul at or near South Shields when the Scottish campaigns were concluded.<sup>103</sup>

### Conclusions and some speculations

To claim that this study establishes beyond doubt that the Roman objects come from the wreck of a legionary transport on the Herd Sand would be to go too far. Although alternative explanations for their presence there – redeposition in recent times with ballast or dredged material, or a Roman offering at a sacred spot – seem unsatisfactory, it must be conceded that the history of the

Herd Sand is sketchy and much remains to be learnt about Roman ritual deposits. Yet, on the available evidence, shipwreck seems the most probable explanation by far for the loss of the objects.

A final answer might be possible. The objects with provenances more specific than merely the Herd Sand or beach all came from the northern end, including the shield-boss and cheek-piece dredged from its northern edge in the earlier part of the 1860s (p. 8). Few of the objects display much wear and cannot have been washed far from where they were lost. They have been picked up from the present beach in two periods: between 1887 and 1915 and from 1979 to the present. After its enlargement 'Shields harbour was greatly disturbed by the range of sea during storms';<sup>104</sup> new patterns of current might have washed the sands away from part of the wreck. The second period followed a huge drop in the volume of shipping using the Tyne, perhaps likewise causing a change in currents. At least some part of the wreck probably still lies below the sea bed, for the most recent find from the beach was made only last year (1999). There is a chance that underwater investigation will locate its remains.

However, it is quite possible that more than one legionary transport was wrecked. The Trow Rock coins hint that another ship foundered a little further down the coast, if the opinion given by the Tyne Commission Engineer in 1903 is to be relied on.<sup>105</sup> A legionary vexillation would have required a fleet of vessels for its transport. *Legio XXII Primigenia* at Mainz had its own dockyard (*navalia*) and it has been suggested that ships built there were also used by other legions on the upper Rhine for the transport of men and supplies.<sup>106</sup> Quite small vessels were used as troop transports on the open sea. In the winter of AD 15-16 Germanicus prepared 'the greatest naval expedition ever undertaken by the Roman Empire',<sup>107</sup> ordering the construction of a thousand ships so that in the spring he could move his army up the North Sea coast and into the *fossae Drusianae* for a campaign against Arminius and the German tribes.<sup>108</sup> His forces consisted of eight legions, about 40,000 men, together with a large but unspecified number of auxiliaries.<sup>109</sup> If there were approximately the same number of legionaries and auxiliaries, as for example was apparently the case in the army which invaded Britain in AD 43,<sup>110</sup> each transport would have held 80 men, a figure corresponding to the size of a century.<sup>111</sup>

<sup>98</sup> *Britannia*, 26 (1995), 390.

<sup>99</sup> *RIB* 2034; Breeze and Dobson 1987, 130. The formula refers to success in war: Iulius Severus' *ornamenta triumphalia* was granted '*ob res in [lu]dea prospere gestas*' (*ILS* 1056).

<sup>100</sup> Dessau restored part of an inscription from Rome setting out the career of L. Vehilius Gratus Julianus, later Commodus' praetorian prefect, as follows: '*praep. vexil[la]tion. tempore belli [Britannici...]*' (*ILS* 1327). He apparently had in mind the war in Britain at the beginning of Commodus' reign, but A. Birley's reconstruction of his career (1987, 190) places this post before AD 175 and therefore a connection with Britain is unlikely.

<sup>101</sup> *RIB* 1322. This difficult inscription might actually have a reverse meaning, referring to men from the British legions sent to the two Germanies (various readings collected in Daniels 1989, 8-9).

<sup>102</sup> *RIB* 1054.

<sup>103</sup> Collingwood 1923, 61-2.

<sup>104</sup> Hodgson 1903, 346.

<sup>105</sup> Cf. note 49.

<sup>106</sup> Starr 1993, 148. Epigraphic evidence for the *navalia* is supplied by three dedications by *optiones navaliarum* of *legio XXII Primigenia* (*ILS* 2453; *CIL* XIII, 6712, 6714).

<sup>107</sup> Starr 1993, 144.

<sup>108</sup> Tacitus, *Ann.* II, 6.

<sup>109</sup> Tacitus, *Ann.*, II, 16.

<sup>110</sup> Frere 1987, 48.

<sup>111</sup> It is clear from Tacitus' account (*Ann.*, II, 23) that sailors manned the ships and that panic amongst the soldiers on board contributed to the disaster when on its return voyage storms scattered the fleet and sunk part of it.

If the vexillation of *legio VIII Augusta* was a thousand strong, the number contributed by the same legion to the expedition sent to Britain under T. Pontius Sabinus in c. AD 122,<sup>112</sup> then a dozen vessels might have been required. The size of the fleet might have been much greater. Britain had the largest army of any province in the Roman empire and, if the emergency was so grave that reinforcements were needed from the Rhine, a vexillation from *legio XXII Primigenia* perhaps also formed part of the expedition to Britain, as on two other occasions in the second century (p. 15). A fleet consisting of twenty or more ships is thus by no means out of the question.

Whatever the size of the fleet, and bearing in mind that the association of the Roman objects with a wreck or wrecks, although very probable, has not yet been established beyond all doubt, there is still the prospect of recovering from the Herd Sand remains of one or more Roman wrecks of a type not seen before: a military transport packed with legionaries, their arms, armour, personal possessions and savings, together with the equipment of the unit: legionary standards, vehicles, artillery and documentation.

Quite apart from its likely historical associations, the shipwreck would be of the greatest importance because of its date. Only one certain Roman wreck site is known in coastal waters of the British mainland, at Pudding Pan Rock near Whitstable in Kent, where since the 1720s oystermen have trawled up many samian-ware vessels imported from Central Gaul.<sup>113</sup> Wrecks of this period seem to be equally scarce

on the Atlantic coast of Europe, with only two examples known off the coast of France: a small trading vessel at St Peter Port, Guernsey,<sup>114</sup> and a wreck at Ploumanac'h containing a cargo of lead ingots, some apparently bearing stamps of British *civitates*.<sup>115</sup>

### Acknowledgements

South Shields is unusual in having extensive records of casual discoveries made in the nineteenth and early twentieth centuries; references are scattered through archaeological journals, local newspapers and personal papers. Without these careful records, and without the efforts of many people who have trawled through them, this study would not have been possible. In particular, I am grateful to Boswell Whittaker who first began a systematic search of local newspapers and showed what archaeological treasures they contain, even though his first interest was in reconstructing the nineteenth-century shipping history of the Tyne. Tables 2 and 3 are the product of identifications by John Casey and Richard Brickstock as well as by Robert Blair and other nineteenth- and early twentieth-century writers. I am indebted to Alexandra Croom and Nicholas Hodgson for comments on a draft of this paper and to David Breeze, Martin Dean, Valerie Fenwick, Bill Griffiths, David Heslop and Vivien Swan for information on specific points. Mr Inkster of South Shields kindly made his collection of coins from the beach available for examination. The illustrations were prepared by Graham Hodgson and David Whitworth.

<sup>112</sup> See note 90.

<sup>113</sup> Fenwick and Gale 1998, 34; for wrecks or abandoned ships of the Roman period in rivers and estuaries see Marsden 1997, 32-45. Dean (1984) has collected maritime finds which might indicate the location of Roman wrecks around the coasts of Britain. A large collection of Roman brooches, coins and pipeclay statuettes from Nornour in the Isles of Scilly might have been washed ashore from a wreck, see Fulford 1989.

<sup>114</sup> Rule and Monaghan 1993.

<sup>115</sup> L'Hour 1987. The *civitates* in question are the Brigantes and Icenii. The latter were not in a lead-producing area; L'Hour suggests that the *civitas Icenorum* was the initial destination of the ingots.

Date of discovery	Object(s)	Earliest published reference	Catalogue number(s) or other publications
'1830s'	Patera	AA <sup>4</sup> , 13, 139-51	A-J & M 3.358
'1865-7'	Decorated cheek piece of helmet  Decorated shield boss	Arch J, 35, 99  <i>Lapidarium Septentrionale</i> , no 106	A-J & M 3.724  A-J & M 3.723; RIB 2426.1
1875	'A Roman fibula'	SSG&DT, 4.3.75	Lost
1880	Twisted bronze loop	Label: 'River Tyne, 23.8.80'	Arbeia Museum, unpublished
(1885)	(Coin of Tasciovanus)	(PSAN <sup>2</sup> , 2, 115; cf Minute Book SANT, 28.v.1885)	
1887	Patera with dedication to Apollo	PSAN <sup>2</sup> , 3, 173-4	A-J & M 3.357; RIB 2415.55
1889	Base of patera Coin, <i>dup./as</i>	PSAN <sup>2</sup> , 4, 11	A-J & M 3.359 C 55
1894	Den. of Hadrian	Blair Album, p. 96	C36
Before c. 1900	'Two fibulae, one with chain attached'	Blair Album, p. 178	Brooch with chain: Brewis 1924, 178, no. 5, pl. 8
1903	Republican coin	PSAN <sup>3</sup> , 1, 27	C 1
1908	11 denarii	PSAN <sup>3</sup> , 3, 193	C 4, 7-9, 17, 20-1, 35, 38, 48, 56
1909-10	10 denarii and AE coin of Victorinus	PSAN <sup>3</sup> , 4, 83, 103, 124, 288	C 2, 13, 23, 31, 37, 43, 46-7, 55, 59, 63
1911-12	4 denarii, Ant. of Gordian III, radiate of Tetricus I	PSAN <sup>3</sup> , 5, 3, 161, 188	C 14, 33, 39, 53, 62, 64
1912	Glass intaglio	Letter, March 1912, Blair Album	Lost, but impression survives
1915	7 denarii	PSAN <sup>3</sup> , 7, 6, 33, 213	C 3, 11, 22, 25, 42, 52, 54
1979-80	10 denarii	Museum enquiries	C 10, 15-16, 19, 24, 29, 34, 41, 50, 61
'1986'	11 denarii and as of Vespasian	Museum enquiry, 'Inkster' colln	C 5-6, 12, 18, 30, 32, 44- 5, 51, 57-9, 60
1995	Sest. of Trajan	Museum enquiry	C 28
1996	Den. of Trajan	Museum enquiry	C 27
1996/7	Base of grey-ware vessel	Museum enquiry	
1997-8	Den. of Trajan, sest. of A Pius	Museum enquiry	C 26, 49
1999	Den. of Hadrian	Museum enquiry	C 40

**Table 1:** Roman objects from the Herd Sand, South Shields. Abbreviations not in bibliography, etc.: A-J & M = Allason-Jones and Miket 1984; Blair Album = notes, newspaper cuttings, sketches and wax impressions of coins, sealings and engraved gems from South Shields compiled by Robert Blair held in Local Studies Section, South Tyneside Central Library; C = coin number of catalogue (Table 3); PSAN<sup>1-5</sup> = *Proceedings of the Society of Antiquaries of Newcastle upon Tyne*, 1<sup>st</sup> - 5<sup>th</sup> series; AA<sup>1-4</sup> = *Archaeologia Aeliana*, 1<sup>st</sup> - 5<sup>th</sup> series; SANT = Society of Antiquaries of Newcastle upon Tyne; SSG&DT = *South Shields Gazette and Daily Telegraph*.

	COIN	RIC	YEAR	REFERENCE
<b>Augustus?</b>				
1. Illegible	AE			PSAN <sup>3</sup> , 4,222
<b>Vespasian</b>				
2.	As	497	71	PSAN <sup>3</sup> , 1,102
3.	AE	?	?	PSAN <sup>3</sup> , 4,222
<b>Domitian</b>				
4.	D	68?	85-6	PSAN <sup>3</sup> , 4,222
5. Illegible	AE	?	?	PSAN <sup>3</sup> , 4,222
<b>Trajan</b>				
6.	D	37	100	PSAN <sup>3</sup> , 4,222
7.	D	49	101-2	PSAN <sup>3</sup> , 1,94
8. Illegible	AE	?	?	PSAN <sup>3</sup> , 1,94
9. Illegible	AE	?	?	PSAN <sup>3</sup> , 4,222
10. Illegible	AE	?	?	PSAN <sup>3</sup> , 4,222
<b>Hadrian</b>				
11.	Sest	647? 1	25-8	PSAN <sup>3</sup> , 1,94
12-13.	As	975?	138-9	PSAN <sup>3</sup> , 4,222
14. Illegible	AE	?	?	PSAN <sup>3</sup> , 4,222
<b>Antoninus Pius</b>				
15.	Sest	749	144	PSAN <sup>3</sup> , 4,222
16.	Sest	761	145-61	PSAN <sup>3</sup> , 1,94
17.	Dp/As	930/934	154-5	PSAN <sup>3</sup> , 1,102
18. Illegible	AE	?	?	PSAN <sup>3</sup> , 4,222
<b>M. Aurelius</b>				
19.	D	164	166	PSAN <sup>3</sup> , 2,189
20.	Sest	959?	168	PSAN <sup>3</sup> , 4,222
21.	AE	?	?	PSAN <sup>3</sup> , 1,94
22. Illegible	AE	?	?	PSAN <sup>3</sup> , 4,222
<b>Faustina II</b>				
23.	Sest	1368	under A Pius	PSAN <sup>3</sup> , 1,102
24.	Dp/As 1	390	under A Pius	PSAN <sup>3</sup> , 1,102
25.	Sest	1379	161	PSAN <sup>3</sup> , 4,222
<b>Valerian</b>				
26.	Ant	89	253	PSAN <sup>3</sup> , 4,222
<b>Victorinus</b>				
27. Radiate, 'LAETITIA AUG'				PSAN <sup>3</sup> , 1,94
28. Radiate, 'LAETITIA AUG'				PSAN <sup>3</sup> , 4,222
<b>Illegible</b>				
29.	AE			PSAN <sup>3</sup> , 2,189

Table 2: Coins from the Trow Rocks, South Shields.

	COIN	RIC	YEAR	REFERENCE
<b>Republican</b>				
1.	(Repub)			PSAN <sup>3</sup> ,1,278
<b>Nero</b>				
2.	D	45	63-8	PSAN <sup>3</sup> ,4,124
3.	D	45	63-8	PSAN <sup>3</sup> ,7,213
<b>Vitellius</b>				
4.	D	2	69	PSAN <sup>3</sup> 3,193
<b>Vespasian</b>				
5.	D	30	70-72	MN
6.	D	52	72-73	MN
7.	D	84	74	PSAN <sup>3</sup> 3,193
8.	D	90	75	PSAN <sup>3</sup> ,3,193
9.	D	90	75	PSAN <sup>3</sup> 3,193
10.	D	107	77-9	MN
11.	D	239, 243-6	76-9	PSAN <sup>3</sup> ,7,213
12.	As	as 528	72-79	MN
<b>Domitian</b>				
13.	D	152	90-1	PSAN <sup>3</sup> ,4,288
14.	D	152	90-1	PSAN <sup>3</sup> ,5,188
15.	D	190	95-6	MN
16.	D	?	?	MN
<b>Nerva</b>				
17.	D	7	96	PSAN <sup>3</sup> 3,193
18.	D	15	97	MN
<b>Trajan</b>				
19	D	11-27	98-9	MN
20	D	52	101-2	PSAN <sup>3</sup> ,3,193
21.	D	56?	101-2	PSAN <sup>3</sup> ,3,193
22.	D	61	101-2	PSAN <sup>3</sup> ,7,33
23.	D	119?	103-11	PSAN <sup>3</sup> ,4,124
24.	Q	135?	103-11	MN
25.	D	303	114-7	PSAN <sup>3</sup> ,7,33
26	D	116	103-11	MN
27	D	uncertain		MN
28	S	uncertain		MN
<b>Hadrian</b>				
29.	D	71	119-22	MN
30.	D	78	119-22	MN
31.	D	80	119-38	PSAN <sup>3</sup> ,4,288
32.	D	102	119-22	MN
33.	D	127	119-22	PSAN <sup>3</sup> ,15,3
34.	D	162	125-28	MN
35.	D	169	125-28	PSAN <sup>3</sup> ,3,193
36.	D	146-202	125-28	BA,96
37.	D	172?	125-28	PSAN <sup>3</sup> ,4,83
38.	D	330-58	134-8	PSAN <sup>3</sup> ,3,193
39.	D	uncertain	128+	PSAN <sup>3</sup> ,5,161
40.	D	uncertain	?	MN
<b>Antoninus Pius</b>				
41.	D	80?	140-3	MN
42.	D	178	148-9	PSAN <sup>3</sup> ,7,6
43.	D	203	151-2	PSAN <sup>3</sup> ,4,288
44.	D	204	151-2	MN
45.	D	249	155-6	MN
46. (Aur. Caes.)	D	422?	140-4	PSAN <sup>3</sup> ,4,288
47. (Aur. Caes.)	D	424	140-4	PSAN <sup>3</sup> ,4,224
48. (Aur. Caes.)	D	461	153-4	PSAN <sup>3</sup> ,3,193
49.	S	uncertain	?	MN
<b>Faustina I</b>				
50.	D	344 (A Pius)	141+	MN
51.	D	351 (A Pius)	141+	MN
52.	D	396 (A Pius)	141+	PSAN <sup>3</sup> ,7,6

<b>Faustina II</b>				
53.	D	502 (A Pius)		PSAN <sup>3</sup> ,5,3
54.	D	502 (A Pius)		PSAN <sup>3</sup> ,7,6
55.	Dp/As	1395 (A Pius)	145-6	PSAN <sup>2</sup> ,4,11
<b>Marcus Aurelius</b>				
56.	D	33/38	161-2	PSAN <sup>3</sup> ,3,193
57.	D	209	168-9	MN
58.	D	207	168-9	PSAN <sup>3</sup> ,4,288
59. (A. Pius posth.)	D	429		MN
60. (Faustina II posth.)	D	746	176-80	MN
<b>Lucilla</b>				
61.	D	787 (M Aur)		MN
<b>Gordian III</b>				
62.	Ant	144	243-4	PSAN <sup>3</sup> ,5,3
<b>Victorinus</b>				
63.	3AE			PSAN <sup>3</sup> ,4,103
<b>Tetricus I</b>				
64. Radiate	3AE			PSAN <sup>3</sup> ,5,3

**Table 3:** Coins from the Herd Sand. Many of the coins found up until 1915 probably passed into the possession of Robert Blair and then into the coin collection of the Society of Antiquaries of Newcastle upon Tyne which are held in the Black Gate. It has not so far proved possible to identify the Herd Sand coins: the majority of the collection is now without provenances. The state of wear of the most recent finds is as follows: no.5:VW/VW; no.6:VW/EW; no.12:VW/VW; no.18:W/W; no.26:VW/VW; no.27:W/W; no.28:VW/EW; no.30:W/W; VW/VW; no.32:VW/VW; no.44: ? W/W; no.45:W/W; no.51:SW/SW; no.57:SW/SW; no.59:W/W; no.60:SW/SW. MN = Museum notes of public enquiries.

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# THE ORIGINS AND DEVELOPMENT OF THE ROMAN MILITARY SUPPLY-BASE AT SOUTH SHIELDS: AN INTERIM REPORT ON THE RESULTS OF EXCAVATIONS IN THE EASTERN QUADRANT AND CENTRAL AREA, 1990-2000

N. Hodgson

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## Introduction

Since 1934 few archaeologists have doubted Richmond's suggestion that it was at the time of the British expedition of Septimius Severus in 208-11 that the fort at South Shields was enlarged and converted into a supply-base.<sup>1</sup> But until now formal proof of the Severan date for this event has been lacking. The stratified pottery could only indicate a late-second to early-third century date. Strictly, the numerous but unstratified lead-sealings of Severus and his sons, bearing the three Imperial portraits and often the legend AVGG, did no more than establish use of the supply-base on the eve of, or during, the campaigns, and it remained theoretically possible that the fort filled with granaries might have *originated* in the later-second century, in connection, for example, with the campaigns of Ulpius Marcellus in the 180s.

At first, the intensive campaign of excavation that proceeded annually at South Shields from 1983 seemed only to complicate matters. By the time of the publication of the 1994 excavation report, it had been established that the supply-base had evolved in more than one stage of development.<sup>2</sup> These were termed Period 5 (a supply-base of 15 granaries) and Period 6 (24 granaries). By 1994 it was also established that the expanded supply-base of 24 granaries had remained in use at least until the later-third century.

In the eastern quadrant of the enlarged fort two successive arrangements of barracks had emerged. Naturally, the earlier of these was associated with 'Period 5', when a dividing wall apparently separated a fifteen-granary supply base in the northern half of the fort from an accommodation area to the south. The later arrangement of barracks was seen as being introduced in 'Period 6', at the same time as the demolition of the dividing wall, the provision of the full total of 24 granaries, and the shift of the *principia* to sit alongside the newly arranged accommodation compressed into the southern end of the fort. The unusual character of the 'Period 6' barracks (resembling other barracks of the later-Roman period), and the evidently considerable period of use of the 'Period 5' barracks, led to the enlargement of the supply-base from 15 to 24 granaries being thought to date to a period later than the Severan campaigns (provisionally 222-35).

At the end of 1999, after 16 years of work, excavation of the entire accommodation area in the eastern quadrant was completed. In view of the complete plan now revealed, and following post-excavational analysis, it is no longer

possible to accept a simple correspondence between the two periods of barracks and the two phases of supply-base, smaller and larger. At the same time, the excavation of 2000 in the central part of the fort in advance of the re-consolidation of Granaries C10, C11, C12 and C13 has revealed information which allows the two stages of the development of the supply-base to be viewed in an altogether different light. This work has also disclosed firm stratified evidence for the date of the first building of the supply-base.

The purpose of this paper is to provide an interim report on these important findings relating to one particular aspect of the history of the fort, namely the process by which the supply-base was created and reached its maximum and permanent third-century state. The development of the supply-base is now followed through four principal phases. Description is confined to the basic character of structures and those stratigraphical relationships which establish the sequence of development. Similarly, discussion of finds is confined to a few objects that help to date the sequence or establish the identity of the garrison. No more than a sketch is attempted of the development of the site before and after the period of the supply-base: ideally this report should be read in conjunction with the history of the fort published in 1994 (which it supersedes in part but does not replace).<sup>3</sup> Some general implications and issues are raised in conclusion, but this discussion does not attempt to be exhaustive.

## Before the supply-base (Period 4)

The supply-base was created out of the Period 4 stone fort of 1.67ha occupied by an unnamed *cohors quingenaria equitata* (Periods 1-3 denote periods of Roman occupation pre-dating the Period 4 fort). The Period 4 fort is presently thought to have been founded in the mid-Antonine period (c. 160). The fort stood until the creation of the supply-base. There are indications that towards the end of its life there was an absence or running down of the garrison: the *principia* was turned over to industrial use and there are hints that parts of the barracks may have been disused.

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<sup>1</sup> Richmond 1934.

<sup>2</sup> Bidwell and Speak 1994. Chapter 2 of that volume comprises the most recent general history of the fort in the light of excavations since 1983.

<sup>3</sup> See previous note for the 1994 interim report; for a summary of the sequence presented there, see, e.g., Hodgson 1999.

### Period 5A (Fig. 1)

This period saw the enlargement of the fort to 2.1ha, accomplished by demolishing the south-east defences and building an extension. At the same time the enclosure was divided into two halves by a massive wall. The area north of the dividing wall was intended as a supply-base, that to the south for the accommodation of troops. In addition to the double granary surviving from the Period 4 fort, 11 granaries lay in the northern part. These were of a distinctive type (Type 1) in which the buttresses at the ends of the side walls formed extensions of the end walls. In addition, the 'forecourt granary' was constructed now, for although its corners were of 'Type 2', it was wrought from the surviving structure of the Period 4 *principia* forecourt.

The plan south of the dividing wall was never completed. The Period 4 *principia* (actually lying north of the dividing wall) was re-arranged to face south-east and serve the accommodation zone. The re-arranged *principia* must have originated in Period 5A, rather than later, because it is the only building in the sequence on the *principia* site which could have had a wall aligned with the dividing wall (although we do not know whether this part of the building was ever completed). Two granaries of Type 1 (C10 and C11) were built south-east of the dividing wall. These were probably intended as the granaries for the garrison as distinct from the supply-base. North-east of these, some foundations were begun but rapidly aborted. These were cut directly into the remains of the demolished Period 4 barracks here. As remnants of those barracks survived to a higher level than the foundations, it is impossible that the latter formed the remnants of a building completed and truncated at a later date. A foundation for an apse suggests that a *praetorium* containing a bath suite was intended. Immediately north-east of the *via praetoria* (in the area of the later Granaries C14 and C15) it appears that nothing was built.

In the eastern quadrant, Building III, a long structure with stone partitions, backing on to the *via praetoria*, stood in isolation. Although it was certainly occupied for a time (each room contained a hearth), Building III had collapsed into the subsided ditches of the smaller second-century (Period 4) fort. Only after the building had been rebuilt at a higher level and the entire ditch subsidence consolidated were any neighbouring structures provided to the north-east (in Period 5B).

Incomplete as it is, the plan of Period 5A so far recovered suggests that it was intended to lay out the buildings in the accommodation zone in four quadrants divided by streets. Lack of excavation there makes it impossible to say what might have been begun or completed in the south quadrant and much of the north quadrant.

### Period 5B (Fig. 2)

This period is essentially defined by the enlargement of the supply-base to take up three-quarters rather than half of

the walled space. This was accomplished by building a further six granaries (C12-16) in the area immediately south of the dividing wall. In contrast to the Type 1 granaries, the Type 2 granaries of Period 5B were distinguished by having buttresses offset at equal distances from the corners. North of the dividing wall, re-excavation of Granary C7 in 1998 showed that this was indeed of Type 2 (despite its former reattribution to Type 1).<sup>4</sup> This suggests that it was inserted in Period 5B, or that the change of granary type (and therefore the expansion to the 5B supply-base) occurred before the complement of granaries north of the dividing wall had been completed.

In the midst of the granaries the *principia* of Period 5A most probably remained in use. We have seen that the dividing wall assumed its presence in period 5A, and no *principia* was provided in the southern part of the fort until Period 6A. Theoretically the fort could have been without a *principia* during Period 5B, with the cross-hall granary replacing it then. But on our present knowledge of the accommodation, the garrison seems to have been the same in Periods 5B and 6A. If the unit possessed a *principia* in the latter period it will also have required one in the former. The assumed forecourt of the Period 5A *principia* would, however, have obstructed traffic circulation in the expanded supply-base of Period 5B. The removal of the forecourt in Period 5B (if it had ever in fact been completed) is the most convincing explanation for a row of post holes running parallel to the south-east side of the cross-hall: this feature probably represents a colonnaded frontage to the forecourtless *principia*, lining up with the southern ends of Granaries C7 and C8.

Excavations in 2000 in the area of Granaries C12 and C13 showed that these buildings had been built straight off the demolished remains of the Period 4 barracks. Apart from the few scraps of foundation for the aborted building laid in Period 5A, there was no intervening horizon of occupation or abandonment.

In the southern end of the fort, we know nothing of what lay in the south quadrant. In the eastern quadrant, on the other hand, the complete plan has now been recovered, and this shows that there in Period 5B accommodation was provided for three infantry centuries (Fig. 3).

Two bipartite barracks, that is single barracks each formed by two buildings placed back-to-back, have already been reported (II/X and VIII/IX).<sup>5</sup> Each of these bipartite barracks contained eight *contubernia*, a junior officer's house and a centurion's house. Half of a third bipartite barrack (Building I) was discovered in 1999. This contained four *contubernia* and a detached house for a junior officer. The other four *contubernia* and the centurion's house were inserted into Building III, reconstructed at this time at a higher level, no longer with stone partitions, except for one within the area of the officer's house. The accommodation in this

<sup>4</sup> *Contra* Bidwell and Speak 1994, 23.

<sup>5</sup> Bidwell and Speak 1994, 24-5 and fig. 2.9.

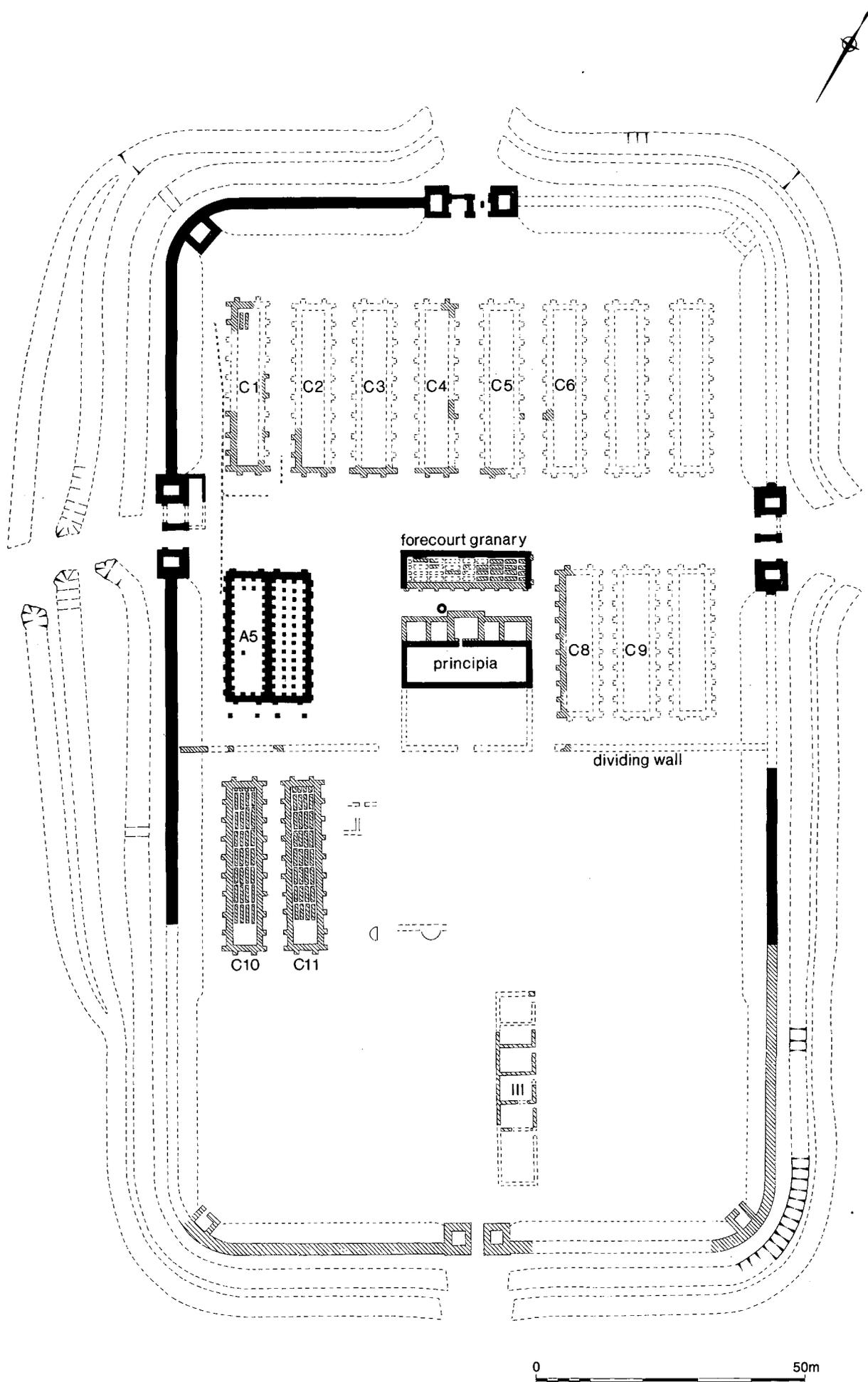


Figure 1. The supply-base in Period 5A. Scale 1:1000. Structures surviving from previous phase = black, construction of this period = hatched.

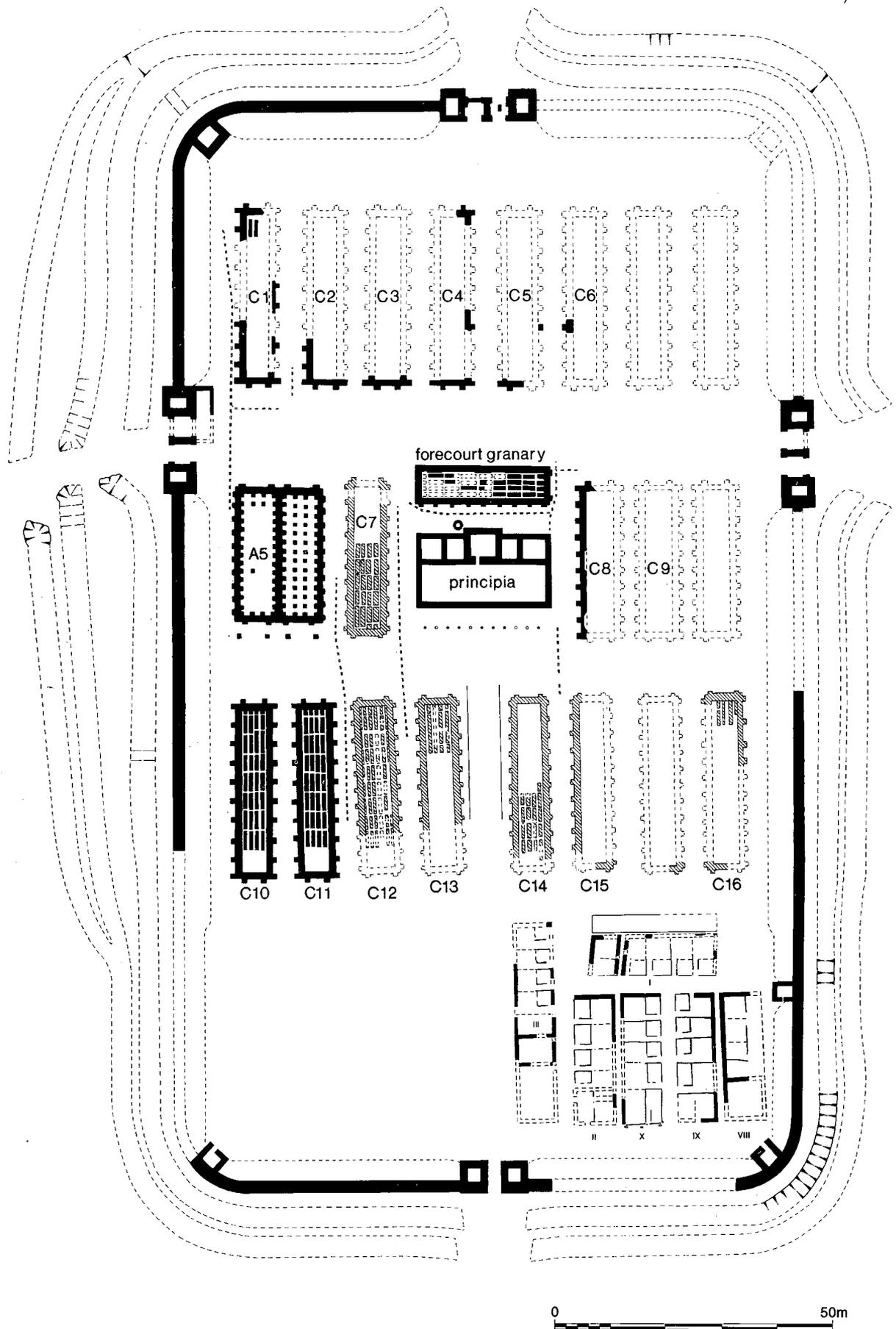


Figure 2. The supply-base in Period 5B. Scale 1:1000. Construction of this period = hatched (except barracks in east quadrant).

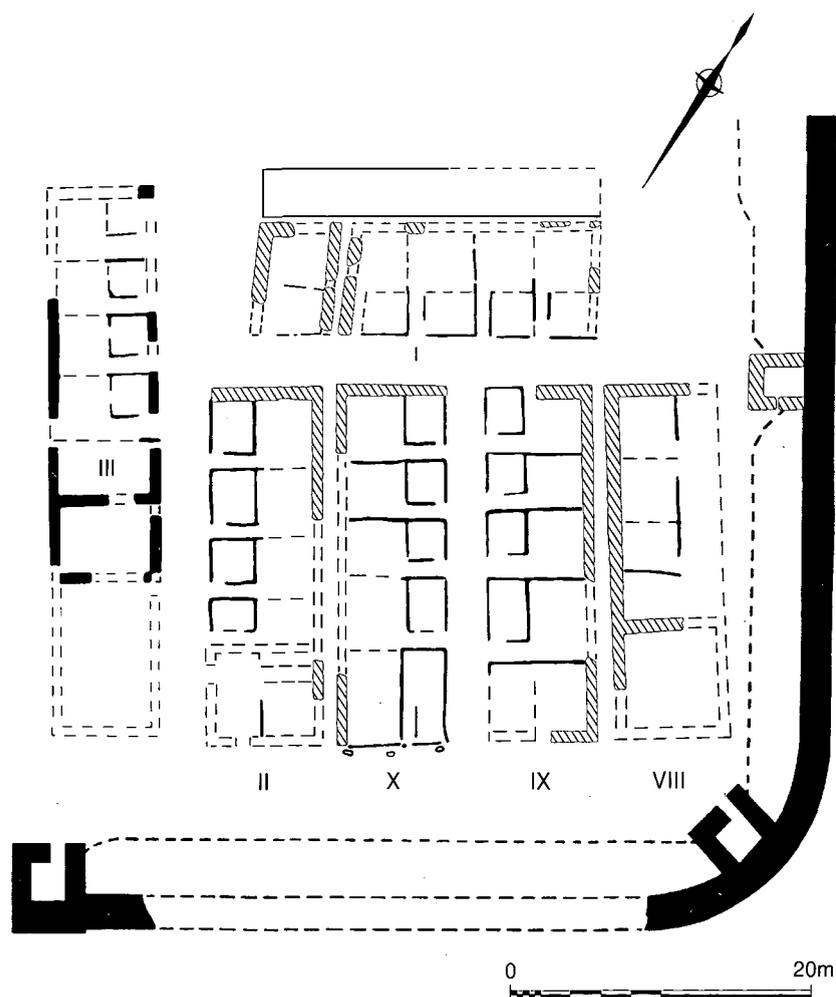


Figure 3. Barracks of Period 5B in the eastern quadrant of the supply base. Scale 1:500. Construction of this period = hatched.

quadrant of the fort therefore consisted of three bipartite barracks, each with rooms for centurion, *optio*, and eight *contubernia*. Traces have also been recorded of a building, possibly a stable, in the south-east rampart area (not illustrated). North of Building I lay a long timber structure 4m wide, interpreted as a workshop (*fabrica*). This fronted onto a south-west to north-east running street, which was probably the south-east *intervallum* street of the Period 4 fort re-used.

Like each of the other components of the bipartite barracks, Building I as first built was 22.50m by 7.50m overall. The *contubernia* possessed clay bonded stone walls at rear and ends, and frontages and internal partitions of timber; they were entered by passages. Two stone walls on either side of an alley separated off the junior officer's house. This house contained a large latrine or horse-urine collection pit. This discharged into a subterranean drain running along the street in front of the barrack, towards the latrine at the north-east rampart. This drain - inserted in Period 5B - entered the area from the north-west (between Buildings I and III) before turning a right-angle to run along the street between Building I and the ends of II/X and VIII/IX. The drain discharged into the latrine (which must have originated in Period 5B) in the north-east rampart. In its north-west to south-east running stretch three drains lo-

cated beneath the passages of the *contubernia* inserted into Building III discharged into this drain, as did a major drain which ran from the *via praetoria* and passed through Building III.

Period 5B must, of course, have seen the removal of the dividing wall. The drain just described, which entered the eastern quadrant from the north-west, primary and integral to the Period 5B arrangement of granaries and troop accommodation, was continuous with a drain which was diverted around, i.e. respected, the north-eastern half of the dividing wall. But this need not be a difficulty: one would not expect the dividing wall to be demolished until the building of the expanded supply-base had been completed. It is now known that an equivalent to the dividing wall was eventually formed at the southern end of the granary zone, by placing blocking-walls between the south-eastern ends of the granaries. But these blocking-walls (and a ditch preceding one of the walls and serving the same purpose) do not seem to have been supplied until Period 6B.

#### Finds

The primary make-up of the street laid between Granaries C12 and C13, that is, immediately overlying the demolished Period 4 barracks and aborted Period 5A foundations,

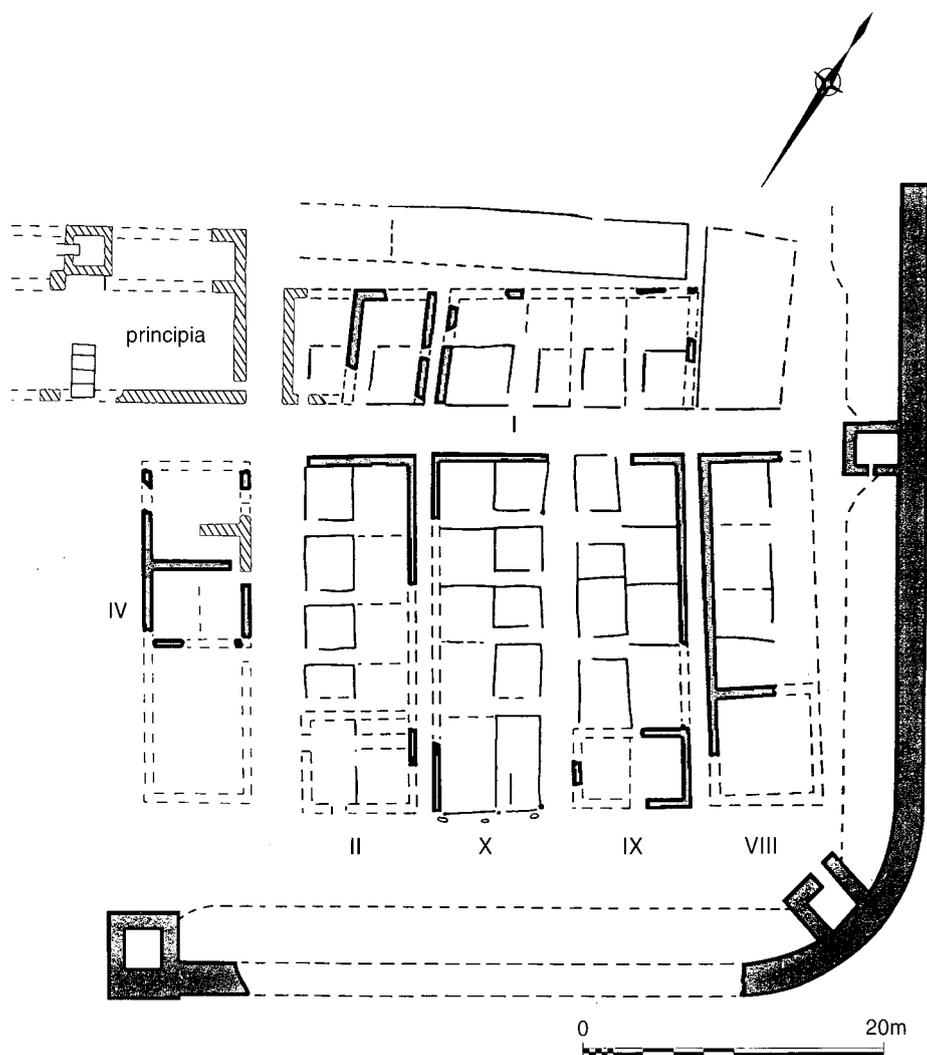


Figure 4. Barracks in eastern quadrant of the supply-base in Period 6A. Scale 1:500. Construction of this period =hatched.

was found in 2000 to contain a group of six Imperial lead sealings of the type bearing the busts of Severus, Caracalla and Geta,<sup>6</sup> now familiar at South Shields and datable to the period from 198 to 209 (or more probably 210/11).<sup>7</sup>

**Alterations later in Period 5B: ‘5C construction’**

Alterations in the eastern quadrant seem to have been made preparatory to the construction of the southern *principia* in Period 6A. Essentially, additions were made to Building I to compensate for the loss of accommodation entailed

in the projected demolition of the northern part of Building III to make way for the new *principia* (Fig. 4). The phase of alteration to Barrack I structurally pre-dates the building of the *principia*, but it is to be expected that accommodation would be provided for the displaced troops before their existing barrack was destroyed.

While the *contubernia* in Building III were still in use (or at least before the drains leading from them had been filled), extensions were added to the ends of Building I. That at the rampart end was timber. Although it possessed a passageway drain which discharged into the subterranean channel, it was more probably an officer’s (centurion’s?) house than an extra *contubernium*: there was no sign of an end wall or partition where a 3.60m wide *contubernium* would have ended. This ‘5C’ timber extension is not illustrated here: Fig. 4 shows the extension as rebuilt in Period 6A. At the south-west end, a stone extension was added. This was the formerly reported south-west end of Building I, already appearing on interim plans. The extension was raised on a dump of clay and wall-plaster (to fill the subsidence of the Period 4 inner ditch); the plaster was probably derived from the junior officer’s house next door, which was now converted to an ordinary *contubernium*. The extension now probably housed the junior officer, as indicated by its stone frontage and mortar flooring. The

<sup>6</sup>None of the sealings under discussion has an intact AVGG legend (which is what supplies the exact dating), but the portraits are clearly the same as those on previous finds from the datable series. The only possibility opened by the absence of legend is that there were three rather than two Augusti, which would date the seals to late 210 or early 211. Only an isolated example of an AVGGG legend on a three-bust sealing has been claimed (by Tomlin in *Britannia*, 28 (1997), 467), but examination of this sealing suggests that the reading is erroneous and the legend was AVGG. In 2000 a lead sealing with the legend AVGGG was discovered (unstratified) at South Shields, but this was of a previously unknown type, without the Imperial portraits.

<sup>7</sup>See Birley 1988, 218 (citing work by G. Di Vita-Evrard) for the probability that Geta was made Augustus in later 210 or early 211, rather than in 209, as has previously been assumed.

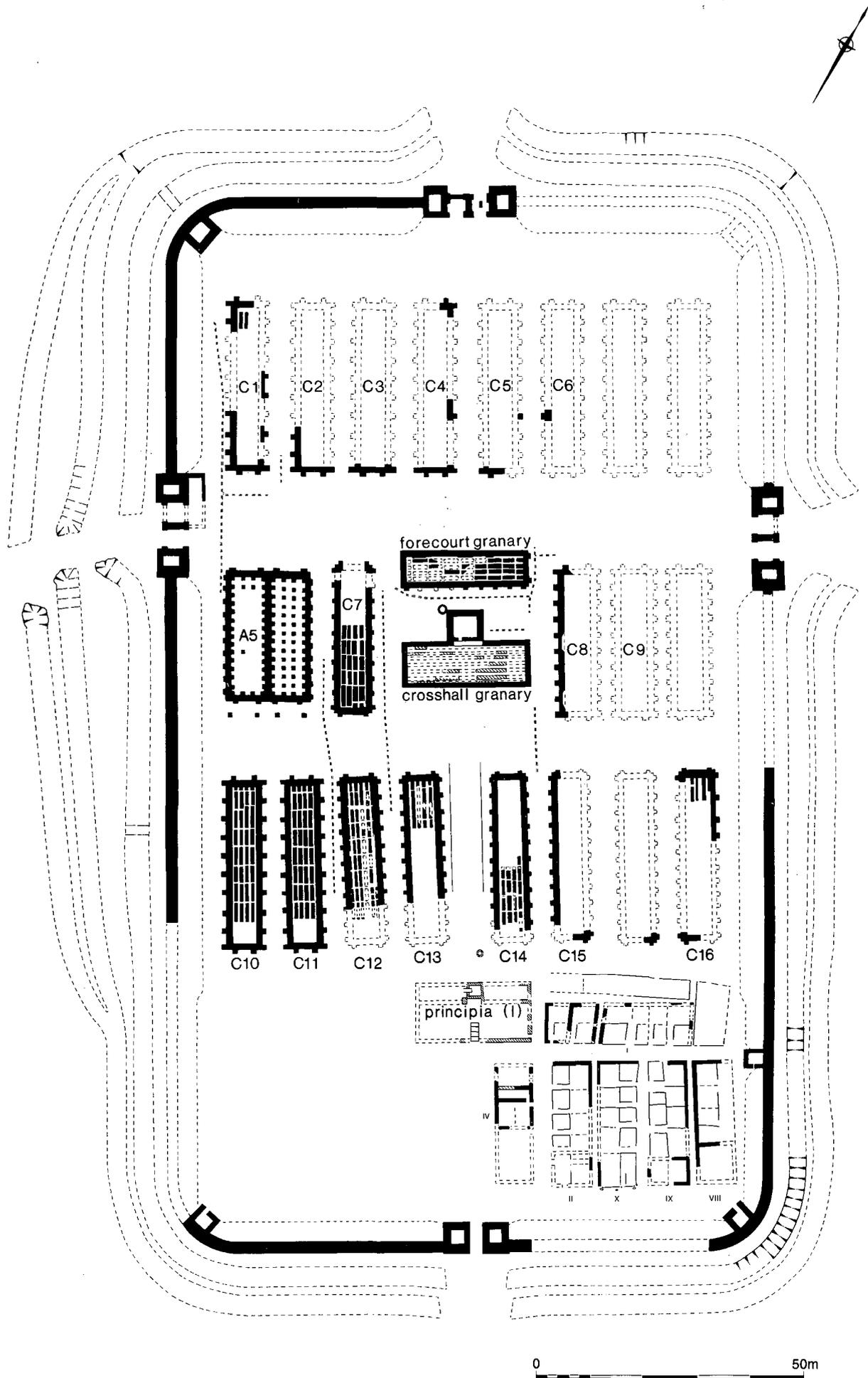


Figure 5. The supply-base later in Period 6A. Scale 1:1000. Construction of this period hatched (except in barracks in east quadrant).

barrack now housed the two officers and at least five *contubernia*.

How long Building III remained in use after the construction of the extensions to Building I is uncertain, but silt and broken pottery accumulated against the extended Building I, lying over a street surface which was contemporary with the extension but which was stratigraphically earlier than the robbing of at least some of the drains leading out of Building III. This need not imply a long period of co-existence for Buildings I and III: the street surface was probably laid at the time of the extension. It was laid to surround the extension but did not extend to abut Building III; it was in pristine condition and was not altered or re-surfaced in any way before the demolition of the north part of Building III. The timber extension at the north-east end of Building I presumably had some use before its rebuilding in Period 6A (see below), but that re-building could have taken place some time after the beginning of Period 6A.

#### Period 6A (Figs 4-5)

This was marked by the suppression of the central *principia* and the installation, in its place, of the 'cross-hall' granary. This brought the number of granaries in the supply-base to its maximum of 24. Now the administration as well as the accommodation of the garrison was rigorously segregated from the supply-base by the building of a new *principia* in the southern end of the fort.

The northern part of Building III, containing four *contubernia*, was demolished to make way for the new *principia*. The previous street surfaces around the *principia* building site (including that associated with the extension of Building I) were covered with pink clay, followed by a distinctive construction deposit of green sandstone masons' chippings, and a new metallated surface.

The primary Period 6A street along the north-east side of the *principia* was supplied with a drain which ran along the end of Building I, swinging around the southern corner of that building and joining an intersection of drains. Although the point of intersection was robbed, it was clear that a drain had run north-east from it along the street onto which Building I fronted, on the same course but at a higher level than the subterranean drain formerly described. The two drains leading from Building I into the subterranean drain were now abandoned.

In Building I all of the passages were rebuilt with under-floor drains leading from the frontage of the building into the uppermost (6A) drain, the new outlets superseding the two drains which had formerly discharged into the lower, subterranean drain. The reconstruction of the barrack interior was therefore definitely of Period 6A date, although it could have happened some time after the insertion of the *principia*. The timber parts and passages of Barrack II to the south-east were also rebuilt at the beginning of or during Period 6A, for the drains leading from its passages

discharged into, and were of one build with, a drain which ran north-west to the intersection of drains next to, and associated with the insertion of, the *principia*. This drain was joined on the way by a drain which, running north-west along the frontage of Building III, had been diverted because of the demolition of the northern part of the building to make way for the *principia*.

There were evident second phases of construction in Buildings X and IX to the north-east, and these presumably fall into Period 6A like those in I and II. In Building IX the passages were rebuilt so that each pair of *contubernia* shared a single extra-wide passage; an example of this also occurred in the rebuilt Building I. Also during Period 6A, the additional timber building at the rampart end of Building I was rebuilt and extended to the north-west (to accommodate a further *contubernium* as well as the centurion's house?). Now Barrack I apparently consisted of a centurion's house, junior officer's house and six *contubernia*. The probable *fabrica* to the north-west of Building I was entirely rebuilt at the same time, for the rebuild shared the misalignment of the northern extension of Building I.

The rump of Building III continued in use, not as a barrack but as a high-status residence of some kind. An internal wall face was decorated with white plaster, and one room possessed a latrine outlet. The southern limit of the building (destroyed by later activity) is unknown.

#### Finds

From the demolition levels of the bipartite barracks came a lead sealing of *cohors V Gallorum*.<sup>8</sup> Although falling short of absolute proof, this find makes the presence of at least part of this unit in Period 6A (or earlier) very likely. As the plan of the barracks remained basically unchanged from Period 5B, it seems highly probable that *cohors V Gallorum* also formed the garrison then.

#### Period 6B (Fig. 6)

In this period the southern *principia* remained in use but the entire complement of accommodation in the eastern quadrant was re-planned. There is still no knowledge of what happened in the southern quadrant. In the excavated area, the two bipartite barracks and the expanded Building I were demolished and replaced by a new series of barracks, each with five *contubernia*. Five barracks are certainly identified, and there is fragmentary evidence for a sixth in the south-east rampart area. The intersection of drains by the *principia* was now robbed; the backfill, and the drain which had been contemporary with the street between the *principia* and Building I, were overlain by the south-west wall of Barrack III; a new raised gutter was provided along the end of this barrack, above the former drain. This was connected to a drain to the south-east which ran along the end of Barrack V and turned to run

<sup>8</sup>Bidwell and Speak 1994, fig. 2.11

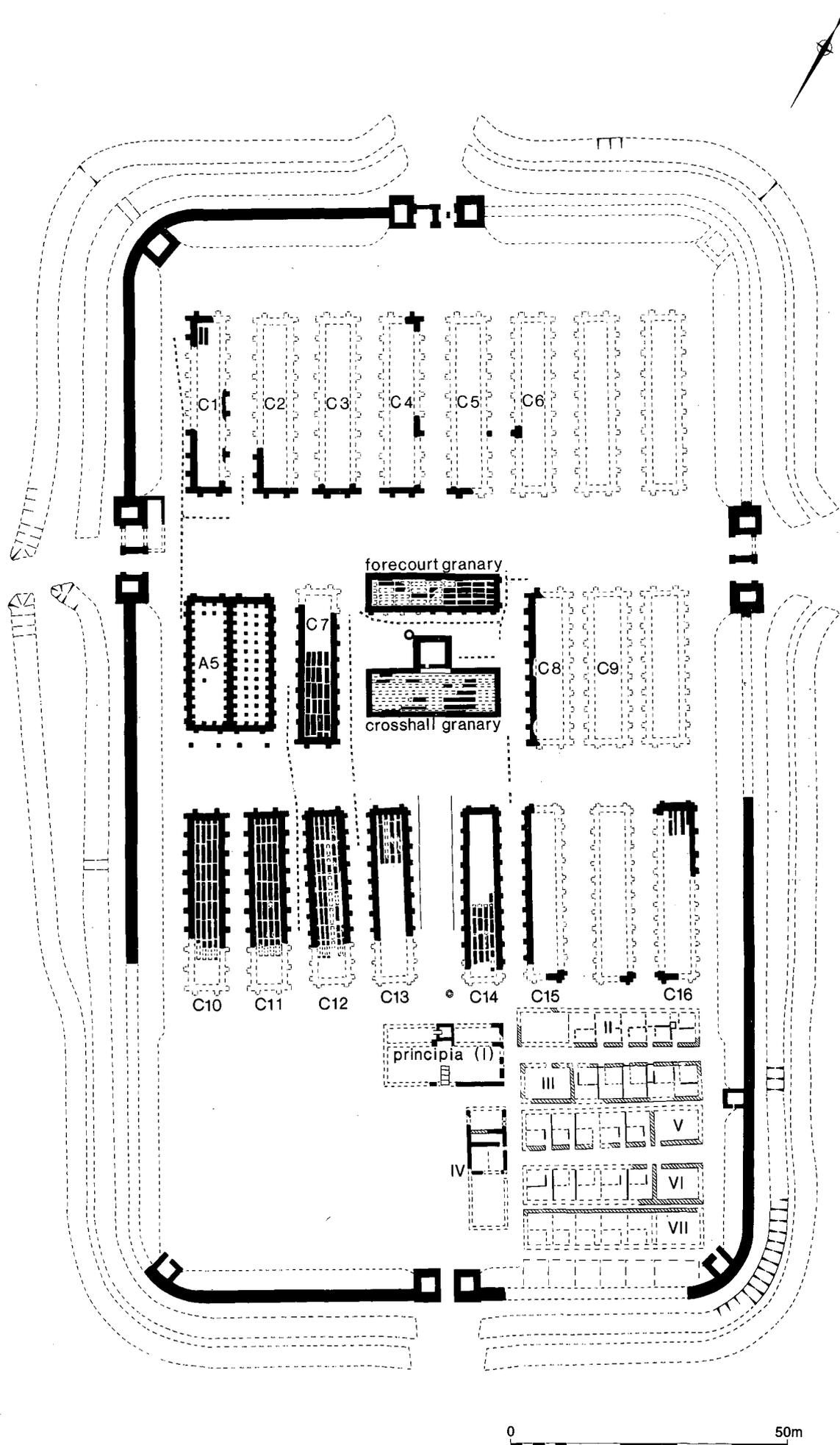


Figure 6. The supply-base in Period 6B. Scale 1:1000. Construction of this period = hatched.

down the street between Barracks V and VI.

The residential building along the *via praetoria* continued in use and is designated IV in the period (6B) after the reconstruction of the barracks.

### The length of Period 6B

The supply-base had now reached its final form. This arrangement was to have a long life. It is beyond the scope of this interim report to discuss in detail the evidence for the date of the reduction or decommissioning of the supply-base which eventually occurred when all of the granaries in the southern half of the fort were converted into barracks, and the fort replanned, evidently to accommodate a fresh unit (Period 7). The occurrence of radiate coins in occupation deposits of Period 6B shows, however, that this change did not take place until after *c.* 273 at the earliest, and a possible coin of Carausius in a construction deposit of Period 7 suggests a date after 286 for the rebuilding.<sup>9</sup>

### Dating of Periods 5A-6B

It must be stressed that the lead sealings described above which provide a *terminus post quem* for Period 5B are not the only dating evidence: they represent the only intrinsically dated material for the construction of the supply-base. The coins from the relevant contexts are generally residual, with Severan issues not occurring before 6B construction.<sup>10</sup> In addition there is the samian ware and coarse pottery. Although this cannot in itself be dated with exactness, work to date on cataloguing and studying the pottery from the contexts discussed here has reinforced the impression of a late-second or early-third century date. Furthermore the assemblage indicates a sudden influx of pottery types from a variety of non-local and previously unusual sources – exactly as might be expected in a situation where supplies were being gathered from different parts of the province for stockpiling at South Shields.

Nevertheless, there is great importance in the fact that the lead sealings of the period 198-209/10 found in 2000 are the first to be stratigraphically linked to the development of the supply-base. They date Period 5B construction – and the practical completion of the supply-base – to the time of the Severan campaigns or later. The context of the sealings must be treated as either a construction level of Period 5B, or as a street make-up laid after use of the Period 5B granaries had begun, which would allow the seals to have been discarded during Period 5B. But the

Period 5A arrangement cannot be pre-Severan, not only because it is incomplete, but because there was no intervening horizon of activity or abandonment between the aborted layout laid among the Period 4 remains and the construction work of Period 5B. Periods 5B, in other words, followed Period 5A without any appreciable interval of time. It is extremely unlikely, on the other hand, that the construction of the supply-base post-dates the Severan campaigns by any significant interval. Although the sealings technically supply a mere *terminus post quem*, they were not scattered in the manner of residual finds but occurred as a tight group in a single context which can be closely associated with the construction of Period 5B, or, at the very latest, the completion of the 5B arrangements. For the supply-base to have been built later in the third century, the sealings would need to be residual finds, originating in Period 4, but the occurrence of the sealings surely denotes the operation of a supply-base, which the Period 4 fort was not.<sup>11</sup> The connection between the building of the supply-base and the Severan expedition must now be considered proven.

There are still several possible ways of accounting for the two phases of the supply-base, 5A and 5B:

1. The Period 5A plan might have been the work of Severus' governor in Britain, Alfenus Senecio, carried out *c.* 205-7 as part of the renovation of the northern frontier before the British expedition was planned. This work may have been interrupted by the requirements of the Imperial expedition, leading to the expansion of the base in Period 5B. See 2. below for the possibility of an expansion of the supply-base during the campaigns.

2. The change of plan might reflect different phases of the campaigns. The literary sources – Herodian and Cassius Dio – make it clear that there were two campaigns: one which can be placed in 209 (followed by a victory in early 210), and a second which was initiated after a revolt by the Maeatae and Caledonians some time later in 210. The progress of the successive campaigns has been plausibly (though without proof) traced in two series of marching camps in Scotland, the second consisting of camps almost twice the size (48ha) of those making up the earlier series (25ha). If correct, this would suggest that a much larger army was assembled for the second expedition. There is an almost irresistible temptation to associate the enlargement of the Severan supply-base at South Shields in Period 5B with the preparations for the second campaign. In this model, the Period 5A supply-base would have been constructed in the winter of 208-209, following the arrival of

<sup>9</sup> *Ibid.*, 42-3.

<sup>10</sup> A possible exception is reported in Miket 1983, 48: coin 20 (Severus, 193-211), from rampart material backing the south-east extension wall. Because ramparts were prone to removal and reinstatement, no great weight could be placed on this single coin. Coin 23 (Elagabalus, 218-222) in the same report, also from the south-east rampart, has been re-read as a coin of Hadrian (Bidwell and Speak 1994, 28).

<sup>11</sup> The provenance of the great series of Imperial sealings found in 1877-80 is unknown. This included at least 13 examples of the three-busts type. The first examples to be found in modern excavations began to come to light in 1996 and now number 11. Although five occurred in residual contexts, it is remarkable that these finds were made as the excavations progressed to the areas close to, or within, the south-eastern row of granaries. Conversely, the levels of Period 4 beneath the granaries have produced no sealings.

the emperors in Britain and while they were making preparations for the first campaign. The Period 5B arrangement would follow some time after the spring of 210, giving an interval of some eighteen months to two years, which would accord well with the unfinished state and brief nature of the occupation in Period 5A.

3. The final possibility is that Period 5A was built for the Severan campaigns and that Period 5B followed after the end of the war, representing part of a 'Caracallan' settlement of the northern frontier in 211-12. The strength of this explanation is that the form of the Period 5B supply-base seems to have been appropriate to the permanent requirements of the third century. Nor was the troop accommodation supplied with it of a temporary nature, as it lasted through Periods 5B and 6A. This third possibility could, however, one day be disproven by the discovery of AVGG sealings discarded at the time of the use of the granaries added in Period 5B, which would definitely associate this period with the Severan campaigns. Such an association may in fact be hinted at by the discovery of the sealings reported here in the street between two Period 5B granaries.

We know with near certainty that *cohors V Gallorum* was present in Period 6A, whose demolition levels produced a CVG sealing. Because the barrack plan goes back to Period 5B, we can associate the Gauls with that period, which as we have seen is unlikely to have started before 210 or much after 211-12. The barrack arrangement which originated then must still have been current in 213, when the unit is first epigraphically attested at South Shields, because the plan enjoyed two distinct and not noticeably short-lived periods (5B and 6A).

There is no close dating evidence for Period 6A (the transfer of the *principia* to the south). But that event was flanked by the two periods of occupation (5B and 6A) of the barracks. On the current understanding of the pottery evidence, the complete re-planning of the barracks in Period 6B cannot have happened much after *c.* 225. That means that the construction of the new *principia* must fall in the period 210/12 - *c.* 225. Presumably the Period 5B/6A barracks must have seen their reconstruction around the middle of that period. The last firm attestation of *cohors V Gallorum* is the water-stone of 222.<sup>12</sup> Although theoretically this could belong to the Period 6A arrangement, it is tempting to wonder whether this inscription heralds the beginning of Period 6B.

### Some general points

1. The barracks of Periods 5B and 6A in the eastern quadrant represent accommodation for three centuries, each of eight *contubernia* (64 men?) plus officers. Where was the rest of the garrison? Although there could have been more accommodation in the south quadrant of the fort, this would

leave no space for a commanding officer's house, and it must be suspected that part of *cohors V Gallorum* lay elsewhere, possibly at Cramond.<sup>13</sup> If so, this arrangement would seem to have persisted until Period 6B, that is, until the 220s. This could be taken to indicate that Cramond and other Scottish outposts, such as Carpow, continued to be held down to the 220s.<sup>14</sup> The re-planning of Period 6B may represent the re-integration of the Gauls at South Shields. No extra space was provided, but there are signs that at this time centuries may have been re-structured and reduced in size, so that now, technically at least, the whole unit may have been able to fit into the space available.<sup>15</sup> Another possibility is that the detachment never returned and that the rump of the unit was reformed into a six-century structure.

2. Once its two parts had been merged into one building, Barrack I possessed either five or six *contubernia*. It could be argued that two *contubernia* might have been detached and inserted in the area of the southern (later destroyed) end of Building III, but this seems unlikely: the extended Barrack I had a centurion's house at one end and a junior officer's at the other, and seems complete in itself. Its complement of *contubernia* is obviously short of the number (eight) in the original bipartite barrack. It is not possible to argue that by the time the supply-base was enlarged, and the southern *principia* built, the size of centuries had been reduced, the new barrack presaging the five-*contubernium* barracks of Period 6B: for the other two bipartite barracks were rebuilt in Period 6A, each with eight *contubernia*. It is much more likely that the rearranged barrack indicates the practical reality of the number of members of that century needing accommodation at the fort at the time it was rebuilt and extended. The other barracks, having been designed at the outset, reflected the theoretical strength of the century.

3. Although the origins of the supply-base can now be linked more firmly than ever with the Severan campaigns, it is equally evident that the supply-base continued to serve an important role. The provision of the Period 6A *principia*, certainly after the closure of the northern war, had the effect of increasing the number of granaries to the maximum, and the granaries still determined the layout of the fort in Period 6B. The method of importing and concentrating supplies which had been applied during the British expedition now evidently served as a permanent logistical system for the northern frontier.<sup>16</sup> It is not the function of this report to discuss the full implications of this; in the light of what has been reported here it is now obviously a matter of priority to establish whether the enlargement of the supply-base in Period 5B occurred while the Severan campaigns were in progress, or whether this work formed part of the arrangements put in place after the withdrawal from Scotland.

century date (Kewley 1973).

<sup>14</sup> Cf. the suggestion by Frere (1987, 179, n.49).

<sup>15</sup> Bidwell 1999, 27-8.

<sup>16</sup> Bidwell and Speak 1994, 30-1.

<sup>12</sup> RIB 1060.

<sup>13</sup> RIB 2134, suggested, though not proven, to be of third-

## Acknowledgments

Excavations to research and display the eastern quadrant of the fort have been financed over many years by South Tyneside MBC, Training for Work, the Arbeia Society and, since 1993, the Earthwatch Institute. The British Academy assisted the 1994 season. Particularly warm thanks go not only to the Earthwatch Institute for its financial support, but to the many members of that organisation who have participated in the work on site, and without whom this research could not have taken place. Research excavation in advance of re-consolidation in the central area of the fort has taken place since 1998 as part of a scheme funded by the Heritage Lottery Fund, the Earthwatch Institute, and the Arbeia Society.

Overall direction of the work reported here has been by Paul Bidwell and Nick Hodgson, and, at particular times, Steve Speak and Graeme Stobbs. Large-scale excavations running over many years have of course involved a very large number of professional staff, too many to thank individually here, but the contribution of none is forgotten. Supervisors of particular areas which bear upon the present interim report have included Jonathan McKelvey, Lorraine Bayley, Gary Brogan, Glen Foley, Terry Frain, Bill Griffiths, Roger Oram and Margaret Snape. The excavations at South Shields have long benefited from the participation of numerous trainees, volunteers, students, and work-experience placements, and they are thanked for their enthusiasm and dedication

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# EXPERIMENTS IN ROMAN MILITARY COOKING METHODS

A. T. Croom

From the very year that Quinta was set up, Society members have cooked food using Roman recipes and cooking methods, and over the years the Society has accumulated a large selection of equipment, from a stone quern to cooking pots. When Vivien Swan suggested the Society try using replicas of the casseroles, platters and lids of North African tradition that have been found on a number of Roman sites in north Britain - including South Shields - it was thought that it would be interesting to compare the two cooking methods: the Romano-British open fire and the North African brazier. The Society therefore had a brazier, casserole and platter made, which have been used over a couple of years (Fig. 1).

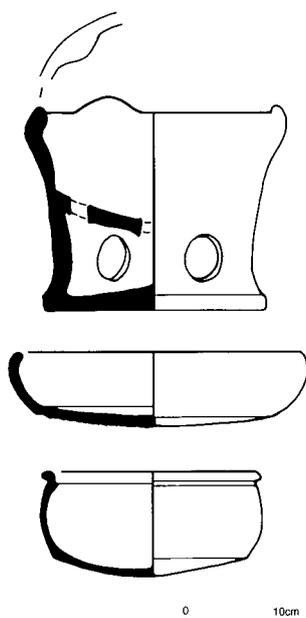


Figure 1. Brazier, platter and casserole.

An experiment was carried out cooking bread and a stew made to the same recipe using both an open fire and a brazier, described below, while observations were also made when Roman food was cooked on a number of other occasions. The recipes chosen were ones that would have been known to the Romans, using ingredients that could have been found in this country.

As no complete examples have been found in this country, the brazier was based on examples from Sabratha, Libya.<sup>1</sup> It consists of a fire basket with holes in the floor, where the charcoal sits, and an ash-box with windows cut into the wall, where the ashes collect. The rim of the fire basket has lugs for vessels to sit on. The casserole and the platter, chosen because of the characteristic rilling on the lower surface, were based on examples from Old Kilpatrick.<sup>2</sup>

## Cooking in a military context

According to Herodian, when Caracalla acted as an ordinary soldier 'he ate the bread that was available; grinding with his own hands his personal ration of grain, he made a loaf, baked it in the ashes, and ate it'.<sup>3</sup> Soldiers generally cooked together in their messes of about eight men within their rooms in the barrack-block. At South Shields there were two large bread ovens set in the rampart backing of the east wall of the fort, probably provided for the cavalry occupying the two adjacent barracks.<sup>4</sup> Communal bread ovens appear to be most common in the first and second centuries,<sup>5</sup> and when the South Shields examples went out of use they were certainly not replaced in the same location. It may be that they were never replaced, and that bread-baking was no longer done in bulk, but was carried out along with the rest of the cooking within the barracks themselves. Excavation of the third-century Barrack III has revealed not only hearths in the back room, but ovens set in the walls of the front rooms which were probably for cooking bread.<sup>6</sup>

## Bread ovens (Fig. 2)

Bread ovens have a smooth floor, a small mouth and a thick, domed clay roof. A fire, generally made up of faggots of brushwood, furze or twigs, is lit in the oven, with the door open, to heat the whole structure. When the oven is ready the ashes are swept out, the floor washed over and the loaves of bread put in, covering the whole of the floor area. The door is then sealed tightly and the bread left to cook. The water from the washing and moisture from the dough produce the steamy atmosphere needed for bread baking.<sup>7</sup>

A modern user of a brick bread oven estimates it takes about two hours for her oven to reach a proper cooking temperature, which she then leaves for a further half hour after the ashes have been removed so that the temperature evens out. The largest loaves are put at the back and sides, and the little ones at the front, and take from one to two hours to cook. Traditionally, after the loaves have been removed, other items of food are cooked, and an experienced cook can even produce meringues in the oven as it gradually cools down over twelve hours.<sup>8</sup>

<sup>3</sup> Herodian 4.7.5.

<sup>4</sup> Miket 1983, 20.

<sup>5</sup> Evans 1993, 107.

<sup>6</sup> Hodgson 1999, 78.

<sup>7</sup> See David 1979, 155-90 for a comprehensive discussion of bread ovens.

<sup>8</sup> *Ibid.*, 175.

<sup>1</sup> Dore 1989, fig. 37, 91.713, 92.777.

<sup>2</sup> Swan 1992, fig. 5, nos 99, 104.



Figure 2. Reconstructed bread oven.

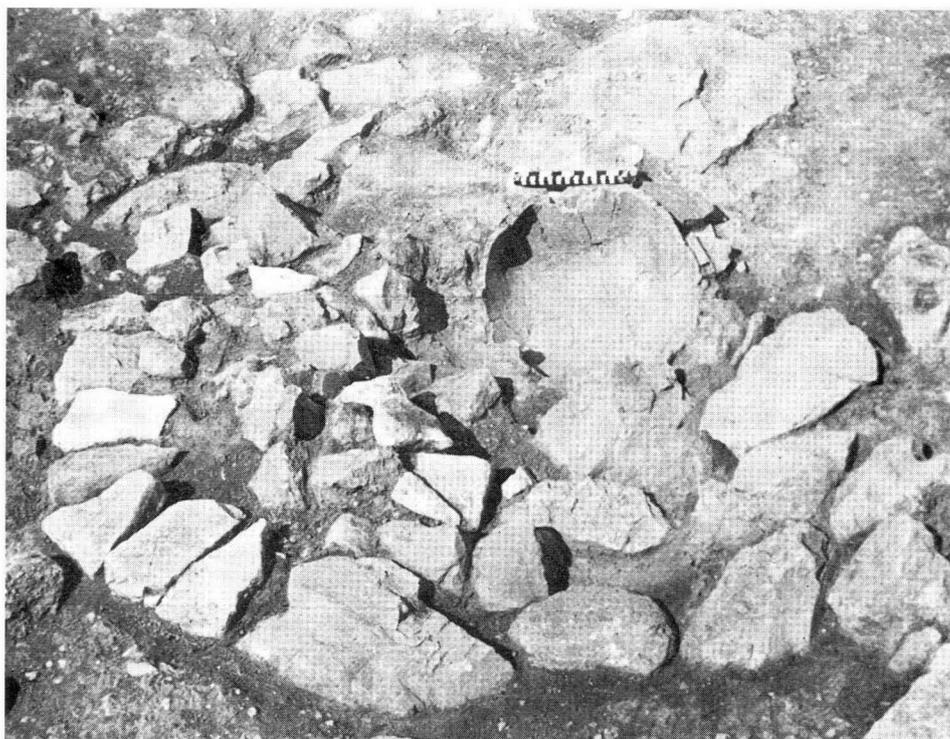


Figure 3. Partially excavated oven with base of jar in situ, Holcombe villa, Devon.  
© Devon Archaeological Society.

*Open fire*

The hearth is set at ground level, often with a clay floor, and is possibly edged round with a number of stones. The stones help to demarcate the hearth, but primarily serve as stands for vessels during cooking. Although ancient texts refer to cooking on open fires, they rarely identify the type of pots used, which might be either pottery or metal vessels. Martial refers to an oak fire 'crowned with many a pot',<sup>9</sup> and Pliny mentions 'sparks piling up on the top of a copper pot hanging over the fire, or live coals sticking to pots when you take them off the fire' when describing weather signs,<sup>10</sup> but there are very few certain references to pottery cooking vessels.<sup>11</sup> The vessels could be set within the ashes of the fire, on tripods, or possibly on grid-irons.

From the earliest times bread was baked on open fires, originally just in the ashes, and later with tiles to act as a cover over the loaf.<sup>12</sup> In Italy an earthenware vessel called a *testu* was developed to take the place of the tiles to form an oven.<sup>13</sup> *Testa* appear to be circular, flanged domed vessels, often with a hole at the top,<sup>14</sup> although other shapes of cooking covers are known. There is also the problem of distinguishing between the various Latin names for cooking covers and portable ovens, including *testu*, *clibanus*, *furnus* and *thermospodium*.<sup>15</sup> There seems to be a distinction between cooking covers that sat on the hearth and had ashes piled on and round them, and portable ovens (*clibani*) that were heated up with ashes that were then raked out, as with bread ovens.<sup>16</sup> A possible *clibanus* with an integral base that must have been used in this way has been found at Catterick.<sup>17</sup>

Examples of *testa* are not known from this country, but purpose-made vessels are not actually necessary, and could be easily improvised using dishes. These methods of cooking not surprisingly continued for a long time, and two modern examples of this form of cooking are the iron pot ovens used in recent times as a cooking cover in Cornwall,<sup>18</sup> and the three-legged, lidded pan that is used to make South African *potbrood* by piling ashes round and on top of it.<sup>19</sup> It is clear that in Roman Britain pots tended to be multi-functional rather than made with only a single use in mind; for example signs of use show that dishes could be used as cooking covers or as table-ware without having to have a different form or design (and note also Romano-British cremations buried in kitchen- or table-ware rather than in specially made urns). In southern England, there is a series of ovens made out of ordinary storage jars rather

than specially made structures. An example from Holcombe in Devon had a 460mm tall decorated jar laid on its side and covered in a layer of tile fragments set in mortar and blackened in the interior and round the neck (Fig. 3).<sup>20</sup>

*Grid-iron*

Grid-irons may also have been used on low-level open fires, but would have been particularly used in buildings with proper kitchens, over charcoal-burning fires set on stone-built benches at waist height. They seem to have been used particularly for roasting meat, in the manner of a barbecue. Anthimus explains how to cook pig's liver: 'when it has been cut up well and placed on a metal grid-iron with broad rods, it is coated with oil or with fat, and then grilled over gently burning charcoal' while Martial refers to a grid-iron sweating 'with the round morsel'.<sup>21</sup>

**North African cooking traditions**

The brazier had been used in the Mediterranean region from the first and second centuries BC and, in Libya at least, continued to be used up to the third century AD.<sup>22</sup> In Morocco, braziers are still used for cooking today.<sup>23</sup> The brazier has lugs on the rim so that larger vessels sit on the top of the brazier, away from the heat, while smaller vessels fit inside the fire basket and sit directly on the charcoal itself. The three forms of vessel most commonly associated with this form of cooking in Britain are the caserole, large platter and lid.

**Comparisons between open fire and closed stove cooking**

In Africa the charities Appropriate Technology International and Intermediate Technology are trying to encourage the use of simple stoves rather than open fires and have introduced charcoal burning stove called *jikos* and wood-burning stoves called the *Upesi* that can be made cheaply and easily. The *jiko* has a pottery liner with a drilled base (grate) set into a metal hour-glass shaped casing that provides the ash-pan and lugs. Instead of having holes in the wall of the ash-pan, it has a single door that can be opened for fast cooking or closed for slow cooking. It is popular because it saves fuel and is safe to use.<sup>24</sup> The stoves last only about a year because the grates have a tendency to fail; in fact the Thai bucket stove that the *jiko* was based on has a removable grate for easy replacement.<sup>25</sup>

The *Upesi*, although usually built into a working surface of mud and stone, can also be made as a more expensive portable stove in a metal casing; the stove is a ceramic tube, with an arched opening at the base to insert the fuel and lugs at the top to rest the cooking vessel on, thus re-

<sup>9</sup> *Epigrams* 12.18.19-21.

<sup>10</sup> *Natural Histories* 18.84.358.

<sup>11</sup> Evans 1993, 104.

<sup>12</sup> Frayn 1978, 32.

<sup>13</sup> *Ibid.*, 29.

<sup>14</sup> Cubberley *et al.* 1988, figs 1-2.

<sup>15</sup> Williams and Evans 1991, 51.

<sup>16</sup> Cubberley *et al.* 1988, 100.

<sup>17</sup> Williams and Evans 1991.

<sup>18</sup> Hartley 1954, 46.

<sup>19</sup> Duff 1993, 165.

<sup>20</sup> Pollard 1974, pls XLII- XLIII; fig. 21, no. 139.

<sup>21</sup> Anthimus: Grant 1996, 59; Martial: *Epigrams* 14.221

<sup>22</sup> Riley 1979, 303-4.

<sup>23</sup> Petersen-Schepelen 1997, pl. on pp.8-9; Hawkins 1998, pl. on p.9.

<sup>24</sup> Allen 1991, viii.

<sup>25</sup> *ibid.*, 1-2.



Figure 4. Cooking the stew in a casserole over a brazier and in a cooking pot in an open fire.

stricting the fire and placing the vessel immediately above the source of heat as with a brazier. Tests revealed that an *Upesi* stove used 40% less fuel than an open fire and reduced smoke by up to 60%.<sup>26</sup>

The drawbacks with this form of stove, as reported by *Upesi* users, are that only one item can be cooked on it at any one time, and that it gives out less heat and light.<sup>27</sup> It is therefore useful as a cooking stove, but less serviceable than an open fire which also provides heat and light for the room. A study comparing traditional and 'improved' stoves in Third World countries has shown that versatility is highly prized, including the ability to use anything available as a fuel source, such as crop residues. Even the reduction of smoke may not always be a complete advantage: smoke can be used to cure food and helps keep insects away.<sup>28</sup>

### The experiments

Two different forms of cooking were tried during the ex-

periments: Romano-British and North African. The Romano-British style of cooking consisted of cooking on an open hearth, generally in the ashes,<sup>29</sup> while the North African style consisted of cooking on a charcoal burning brazier. For the main experiment comparing these two methods, a stew and two loaves of bread were cooked in an open fire and over a brazier (Fig. 4). The dishes for both methods of cooking were prepared at the same time, and divided between the two vessels and cooked at the same time, to see if there would be any differences. Further experiments were carried out on bread-baking methods, and of course other meals have been cooked during public displays, mainly using the brazier as this has the advantage of being portable, self-contained, safer, and leaves no traces behind after use.

### The pottery vessels

The vessels were made for the Society by professional potters A. McDonald and D. Fry, working from detailed specifications. Although correct in appearance, the clays

<sup>26</sup> Abbott *et al.* 1996, 3.

<sup>27</sup> *Ibid.* 1996, 3.

<sup>28</sup> Gill 1987, 139-9.

<sup>29</sup> Evans 1993, 105.

used needless to say do not necessarily have the same characteristics and properties that the original clay types would have had. The Romano-British vessels were a BB2 (black burnished ware fabric 2) cooking pot that will hold c. 3000ml, and a number of BB2 shallow dishes, while the North African style vessels were a casserole with a capacity of c. 1500ml, and a shallow platter.

Roman cooking pots were unglazed and their walls could absorb their contents. It is known that pots used for storing liquids such as wine were covered in pitch.<sup>30</sup> Alternatively, the pots were soaked with other liquids so they were already saturated before anything was put in them: 'For [this preserve] new earthenware vessels are prepared, not treated with pitch, and in order that they may not be able to absorb the oil, they are soaked... with liquid gum and dried'.<sup>31</sup> Cato describes a similar method: 'If you intend to store oil in a new jar, first wash down the jar with crude *amurca* [lees of oil], shaking for a long time so that it may soak up the *amurca* thoroughly. If you do this, the jar will not soak up the oil, it will make the oil better, and the jar itself will be stronger'.<sup>32</sup> New pots are frequently recommended, as here, for the storage of food.

It is not known if vessels used for cooking were lined or simply soaked. Modern cooks using clay pots say that the pot should be soaked in cold water for fifteen minutes before use as the damp walls help to create a moist cooking environment.<sup>33</sup> The pot becomes seasoned with age, like a wok, and builds up its own protective layer, so abrasive cleaning has to be avoided. Stubborn stains or flavours can be removed by filling with water and bicarbonate of soda, heating the mixture if necessary.<sup>34</sup>

A replica cooking pot that held 1740ml of water had absorbed 100ml after an hour. Having fatty or oily stew liquid repeatedly seeping into the walls of the pot might eventually result in tainted food, and as the narrow mouthed vessels are not the easiest vessels to clean, it is clear that after a while the pots become unpleasant to use for cooking.

### Fuel

Charcoal was used for both the open fire and brazier experiments. In many ways charcoal is a wasteful fuel, since 6kg of firewood are needed to produce 1kg of charcoal, but it continues to be popular because it is light in weight in comparison to firewood, it produces more heat for its volume, and it burns with little smoke, which is very useful in rooms without fireplaces.<sup>35</sup>

### The bread

Cato gives a recipe for a simple form of bread from the first century BC: 'wash your hands and a mortar thoroughly. Pour wheat into the mortar, add water gradually, and knead thoroughly. When it is well kneaded, roll out and bake under a *testu*'.<sup>36</sup> The poem *Moretum*, once attributed to Virgil and written some 150 years after Cato, describes the bread making process in detail:

'And now, faring forth, he takes his place at the mill and on a tiny shelf, firmly fastened for such a purpose to the wall, he sets his trusty light. Then from his garment he frees his twin arms, and girt in shaggy goat's hide, with tail-brush he carefully sweeps the stones and hollow of the mill. Next he summons his two hands to the work, dividing them between the two-fold tasks: the left is bent on serving the grain, the right on plying the mill. This, in constant round, turns and drives the wheel (the grain, bruised by the stones' swift blows, runs down); the left, at intervals, seconds her wearied sister, and takes her turn. Anon he sings rustic songs, and with rude strains solaces his toil; at time he shouts to Scybale. She was his only help... Her he calls, and bids her place on the fire fuel to burn, and over the flame heat cold water.

Soon as the revolving mill has filled up the measure due, his hand then transfers to a sieve the bruised meal and shakes it, and lo! The husks remain on the upper side. The corn, clean and pure, sinks down, filtering through the crevices. Then straightway on a smooth table he lays it out, pours over it warm water, packs together the now mingled moisture and meal, kneads it by hand until hardened and, the liquid subdued, from time to time sprinkles the heap with salt. And now he smoothes off his vanquished work and with open palms broadens it into its roundel form, and marks it in four parts, stamped in equal divisions. Then he puts it in the hearth (Scybale first has cleaned a fitting place) and covers it with tiles, heaping up the fire above'.<sup>37</sup>

Although neither recipe includes yeast, raising agents were certainly known.<sup>38</sup> The flour was sieved to produce fine flour by removing partially ground grains, the quality of the flour depending on the size of mesh used. Sieves and strainers were made of linen or wicker.<sup>39</sup>

In the experiment the bread was made from spelt wheat, samples of which have been found at South Shields.<sup>40</sup> Although the Society have a replica quern, shop-bought flour was used; although it will produce a fine flour (after sieving) the quern is made of sandstone, and produces so much

<sup>30</sup> Cockle 1981, 94; see also Pliny, *Natural Histories*, 31.35.68; 31.46.114; Columella, *On Farming*, 12.29; 12.44.5.

<sup>31</sup> Columella 12.50.1.

<sup>32</sup> Cato, *On Farming*, 100.

<sup>33</sup> Hawkins 1998, 7.

<sup>34</sup> *Ibid.*, 9.

<sup>35</sup> Allen 1991, vii, 4.

<sup>36</sup> *On Farming*, 64.

<sup>37</sup> Fairclough 1969, lines 19 - 50.

<sup>38</sup> Pliny, *Natural Histories*, 18.12.68 and 18.26.

<sup>39</sup> Pliny, *Natural Histories*, 18.28.108; 18.16.77; see also 21.73.122; Moritz 1958, 166.

<sup>40</sup> van der Veen 1994, 249.

sand with the flour that no-one was willing to eat the bread made from our own flour after the first attempt. Sandstone querns were used in the Roman period, with a number found at South Shields itself.<sup>41</sup> The quern was not made by some-one with years of experience of quern making, and the two stones did not fit together perfectly. After more than three years of occasional use the quern still produces flour too gritty for modern tastes, although perhaps eventually its surfaces will be smooth enough to prevent the contamination of the flour with so much sand.

### Open fire

As no *testa* are known from this country, cooking bread under a cover by using a BB2 dish was tried. A deeper bowl would probably have worked better, as the bread tended to fill the whole of the dish and had no room to rise; however, a study of sooting patterns on Romano-British pottery has shown that dishes are more frequently found sooted than bowls.<sup>42</sup> The fire was set in the hearth, and allowed to burn for about 45 minutes. A space was then cleared, the loaf was put straight onto the floor of the hearth, a dish put over it and the ashes heaped round it. To avoid getting too much ash on the lower crust, the loaf was put on bay leaves as suggested by Cato when baking cakes.<sup>43</sup> Pliny mentions the use of cumin, anise, green or dried anise, fennel, celery and git under the bottom crust of loaves<sup>44</sup> and only once mentions anything for the top crust in the modern manner.<sup>45</sup> However, the Romans may not have bothered too much about the ashes: interviews with more modern bread oven users revealed that 'these bits of charcoal gave an extra flavour to the bread according to the old people who are generally very critical of modern shop-bread'.<sup>46</sup>

A second loaf was put in a dish with another dish upturned over it to act as a lid, and the ashes again heaped round it. They were then left to cook (Fig. 5). The loaf in the two dishes had cooked well, without burning, while the loaf under the single dish was still basically undercooked in the centre while being burnt in a few places on the outside; for this method it is obviously necessary to make sure the hearth is hot enough in the first place (presumably not a problem for the Romans who would have kept a fire constantly lit). Needless to say, it is important to make sure the heat is consistent all the way round the vessel to avoid uneven cooking.

### Brazier cooking

Bread made using traditional Middle Eastern methods is cooked in small clay ovens, large communal bread ovens, over heated iron domes, on hot pebbles, or on griddles.<sup>47</sup>

Thick breads are used for dipping into stews and gravy, while thin breads are used to wrap round food. Thin leavened bread was cooked in the platter, both with and without a lid to form an enclosed cooking space, turning it once to brown both sides. As no North African style lid was available, an upturned BB2 dish was used as a lid; cooking the bread without a lid seemed to take a while longer, but there seemed to be little difference in the two methods. The bread produced was quite crisp, possibly rather like the type of bread called *lavash*<sup>48</sup> (Fig. 6).

One attempt was made to cook pancake bread like the Ethiopian *injera*, made by pouring batter onto a hot griddle, covering it and cooking it for five minutes.<sup>49</sup> This was less successful, as it was hard to avoid it burning on the outside while still being runny in the inside, probably the result of lack of experience of using this method.

For the thick bread an open platter and a closed platter were used. Bay leaves were put under the lower crust to stop the bread from sticking or burning (Fig. 7). The platter was placed on top of the brazier lugs, some way away from the charcoal, unlike the open fire method where the dish is placed amongst the ashes. The bread was cooked as soon as the charcoal was burning well and at its hottest, and then a further batch was made when the fire was dying down after it had been used to cook the stew (see below). An attempt was also made to cook bread raised above the ashes of an open fire by placing the BB2 dishes on the grid-iron. None of the methods was fully successful; the loaf burned on the outside while remaining undercooked in the centre.

### The stew

The recipe for the experiment<sup>50</sup> was chosen because many of the ingredients are common in traditional Middle Eastern cooking.<sup>51</sup>

'Soak chickpeas, lentils and peas. Grind the barley and then boil with the vegetables. When it has boiled well, add olive oil as required. Chop leeks, coriander, dill, fennel, beets, mallows and tender cabbage. Put these finely chopped vegetables into a saucepan. Boil the cabbage and grind sufficient fennel seed, oregano, asafoetida and lovage. Moisten these seasonings with fish-sauce (*liquamen*) and pour them over the vegetables and stir. Garnish with finely chopped cabbage.'

Barley has been found at South Shields;<sup>52</sup> peas and lentils at Carlisle,<sup>53</sup> cabbage, lentils, lovage and fish-sauce (*muria* rather than *liquamen*) at Vindolanda,<sup>54</sup> and dill and fennel

<sup>41</sup> Welfare 1984, 12.72-83.

<sup>42</sup> Evans 1993, 105.

<sup>43</sup> *On Farming*, 121; see also 75.

<sup>44</sup> *Natural Histories*, 20.58.163; 20.72.185; 20.96.256; 19.53.168.

<sup>45</sup> White poppy seed: 19.53.168.

<sup>46</sup> David 1979, 174.

<sup>47</sup> Duff 1993, 149, 158; Shaida 1992, 64; Wolfert 1989, 45.

<sup>48</sup> Duff 1993, 158.

<sup>49</sup> van der Post 1971, 36.

<sup>50</sup> Apicius, *On Cooking*, book 4, 4, no. 2.

<sup>51</sup> Roden 1986, 26, 61, 342-4.

<sup>52</sup> van der Veen 1994, 258.

<sup>53</sup> Huntley and Stallibrass 1995, 55.

<sup>54</sup> Birley 1977, 76; Bowman and Thomas 1994, no. 205, no. 204, no. 190.



Figure 5. Bread being cooked in an open fire; the left-hand dish is upturned over the loaf set straight onto the hearth floor while the right-hand dish is upturned over the loaf set in another dish.



Figure 6. Baking bread in a platter on a brazier, with an upturned dish as a lid. Note crack in brazier wall to the left and at the base of the fire basket.



Figure 7. Cooking the stew in a casserole, with thick leavened loaves cooked in the platter (at back; note bay-leaves). The top loaf (cut in half) shows slight burning in the centre.

at London.<sup>55</sup> Chickpeas are known from Germany.<sup>56</sup> The fish-sauce was a type still extensively used in Far Eastern cooking (called *nuóc môm* in Vietnam, but with different names in different countries), made by packing fish in brine in barrels and letting them ferment in the sun.<sup>57</sup>

The herbs were mixed in a replica mortarium, modelled on a slightly over-sized Colchester wall-sided prototype with no added grits. The pestle was a conveniently sized pebble; pestles of willow-wood and of iron are known in the literary record,<sup>58</sup> as well as re-used amphorae feet in the archaeological record. A number of feet with a worn-down surface have been found at South Shields, as well as a Campanian 'black sand' amphora foot found with a mortarium in a burnt-down barrack at South Shields (Fig. 8).

The *Moretum* describes using a mortar:

'He sat down by the pleasant fire, and loudly calls to the maid for a mortar. Then he strips the single [garlic] heads of their rough membranes, and despoils them of the outermost skins, scattering about on the ground the parts thus slighted and casting them away. The bulb, saved with the leaves, he dips in water, and drops into the mortar's hollow circle. There-on he sprinkles grains of salt, adds cheese hardened with consuming salt, and heaps on top the herbs [fresh parsley, rue and coriander]; and while his left hand

gathers up the tunic about his shaggy flanks, his right hand first crushes with a pestle the fragrant garlic, then grinds all evenly in the juicy mixture. Round and round passes the hand: little by little the elements lose their peculiar strength; the many colours blend into one, yet neither is this wholly green, for milk-white fragments still resist, nor is it a shining milky-white, for it is varied by so many herbs. Often the strong odour smites the man's open nostrils, and with wrinkled nose he condemns his breakfast fare, often drawing the back of his hand across his tearful eyes, and cursing in anger the innocent smoke.

The work goes on apace: no longer in uneven course, as before, but heavier in weight, the pestle moves on in slower circles. Therefore he lets fall upon it some drops of Minerva's oil, pouring over it strong vinegar in scanty stream, then once more stirs on the dish and handles the mixture afresh. And now at length he passes two fingers round all the mortar, and into one ball packs the sundry pieces, so that, in reality as in name, there is fashioned the perfect *moretum* (country dish).<sup>59</sup>

#### Open fire

The cooking pot was set in the middle of the charcoal, with charcoal piled round up to its widest point (Fig. 4). The stew heated up much more quickly than that in the casserole and had a more even temperature, and stayed hotter for longer when taken away from the heat. It reached a higher temperature, and needed less extra water.

<sup>55</sup> Tyers 1988, 456.

<sup>56</sup> Davies 1989, 199.

<sup>57</sup> Cost 1988, 162.

<sup>58</sup> Columella, *On Farming*, 11.3.33; 6.7.2.

<sup>59</sup> Fairclough 1969, lines 93-118.

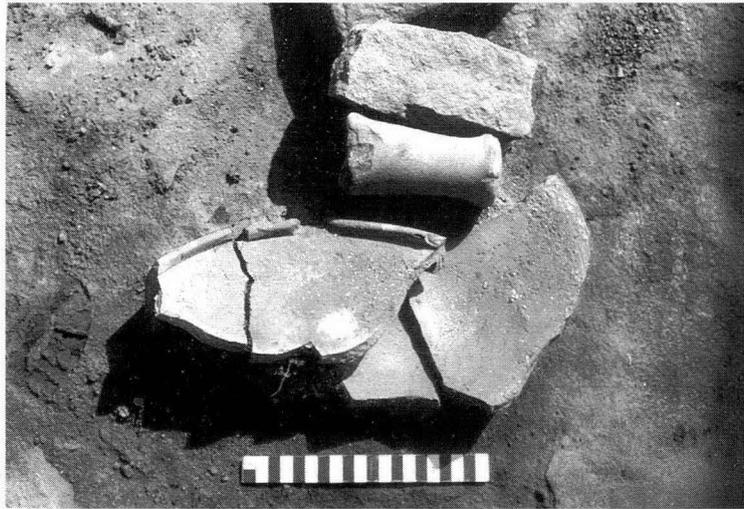


Figure 8. Amphora foot found associated with a mortarium in Barrack II, Period 6, at South Shields.

### Brazier

The casserole was placed inside the brazier, resting on the charcoal (Fig. 7). It was more difficult to get an even temperature, the centre of the pan being cooler, and the large open surface meant that the water evaporated more quickly and had to be topped up more often; a lid would presumably have slowed down this process. It is interesting, however, that in modern Moroccan cooking, the liquid in stews is often boiled away and the food is allowed to fry in the final minutes for 'a firmer texture and a crisper taste',<sup>60</sup> a style of cooking unsuited to the cooking pot. The stew in the casserole cooked more quickly than in the pot, becoming more mushy and drier in consistency, although in the end most people preferred the taste of the stew cooked in the pot (tastes in food are, of course, partially influenced by culture, and this preference for the pot-cooked stew has no bearing on the comparison of cooking methods).

### Breakages

The brazier had been made as a bowl luted onto the ash-box, and it soon broke along this line. Although care had to be taken when moving the brazier, it continued to be used. During further firings, the fire basket also cracked into a number of different pieces, but it only became unusable when the wall of the fire basket came away from the base of the basket; charcoal fell through to the ash-pan and it was difficult to balance vessels on or in the broken walls. This very rapid breaking of the brazier is likely to be the result of the type of clay and degree of tempering used in the reconstruction.

The base of the fire-basket, where the charcoal sat, showed no sign of burning at all; this was reserved for the upper, inner part of the walls, which was soot blackened. The

ash-box, despite having hot ashes in it, showed no signs of burning, although it did grow hot. When the brazier was used on a wooden table (Fig. 6), it burnt the wood underneath it.

A number of the BB2 dishes and platters cracked during use; usually one long crack started out from one wall and slowly spread to the other side. Until the vessels finally broke into two fragments, they continued to be used for some time. The North African platter had sooting on its base, but not up its walls; the sooting was thinnest at the centre, which would appear to be the hottest area, and certainly the bread burnt first from the centre (Fig. 9). It was more difficult to see the soot patterns on the darker BB2 imitations, especially as they had not had the chance to build up thick sooting from frequent use, but they tended to get patches of sooting on both base and wall.

The casserole was also sooted on the underside; after the first time it was used, it was possible to see where the holes in the fire-basket had been underneath it, as these areas were less burnt, but of course on subsequent occasions it was not put on the brazier in exactly the same position, and this sooting pattern soon disappeared.

### Conclusions

It is clear that very similar meals can be cooked using either method of cooking. The open casserole is better for producing thick, dry stews than the narrow cooking pot, but someone wanting such a stew and cooking on an open fire had only to use an open metal cauldron instead of a ceramic cooking pot; the Romans had a wide range of cooking utensils available to them in many types of materials. The brazier probably used less fuel, was portable and could be stored out of the way when not in use. The brazier does have a number of drawbacks however; only one thing at a time can be cooked on it, and it has to be used with charcoal, while an open hearth can have any number of pots stood on it, and could use firewood, charcoal, crop residues,

<sup>60</sup> Wolfert 1989, 31.



Figure 9. The base of the platter, showing sooting on the base but very little on the walls; the centre of the platter shows little sign of sooting. Note also the crack in the platter. The loaves of thin leavened bread show concentric rings of burning from the slight bumps in the floor of the dish. The bread is burnt most at the centre.

dried dung or even peat. The brazier is also basically only a cooking stove and nothing more; an open fire can be used as a cooking hearth, and as a source of heat and light, all of which were probably of equal importance to soldiers during a northern winter. From the evidence of vessel forms brazier cooking was introduced into Britain in the late second century, but it was not adopted as a cooking method by other soldiers. It is likely, therefore, that the brazier and its special cooking vessels were made on request by North Africans living in the country who wanted to continue cooking their food using the method they knew best, that of their own country.

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# EXCAVATIONS AT WESTGATE ROAD, NEWCASTLE UPON TYNE, AND THE POSITION OF HADRIAN'S WALL AND THE VALLUM

Stuart Macpherson and Paul Bidwell

## Introduction

Since 1991 several excavations have been undertaken north and south of Westgate Road, Newcastle upon Tyne, from just to the west of the site of the medieval West Gate of the town to the foot of Westgate Hill (Fig. 1). Clarification of the line of Hadrian's Wall and its accompanying ditch has been obtained, as well as some useful information about the relationship between their remains and the medieval route on the line of Westgate Road. There was also further confirmation that the Vallum did not extend east of the top of Westgate Hill. The most recent of these excavations is described here. When considered in the light of previous observations on Westgate Road, it shows that a feature previously identified as the north lip of the Wall ditch is in fact a hollow way running west from the medieval town.

## Excavations at Angus House in 1999<sup>1</sup>

### *The site*

The site, formerly occupied by Angus House and the Temperance Memorial Hall, occupied the eastern corner of Westgate Road and Rutherford Street (the latter now much enlarged and forming part of the West Central Route or St James's Boulevard). It lies at the foot of Westgate Hill at a height of 45.50m above sea level, on land sloping gently southwards towards the Tyne. The natural subsoil is a stiff grey-brown stony boulder clay overlain by a mixed layer of compact pink-brown clay and medium-grained silty sand, interspersed with layers of gravel.

### *Circumstances of the excavation*

Assessment and evaluation of the site by Tyne and Wear Museums Archaeology Department had demonstrated that late medieval deposits survived on the site.<sup>2</sup> Foundations for a new building would have destroyed these deposits and further excavation was necessary to investigate the Wall corridor and its effect on the development of the medieval town.

### *Methods*

An area of 300 sq m was stripped by machine to a depth of 0.20m revealing a firm grey-brown subsoil with a large east-west linear cut running along the south side of the area. Two trenches, each measuring 10m by 5m, were then opened, their locations determined by the need to avoid large modern foundations and other modern disturbances (Fig. 2).

A system of continuous numbering of archaeological contexts was employed, with separate number series being used

for each trench, and these numbers are adhered to throughout the text.

### *Results of the excavation*

A large, east-west aligned cut (2031) revealed by the initial cleaning continued under the north edge of the Westgate Road pavement, which prevented its full width and depth being recorded. In Trench 2 the cut was 2.0m deep and 3.5m north-south (Fig. 3). It cut into the natural subsoil (2032) and sloped fairly steeply down to the south. The feature had been partly filled with a deposit of mixed clay (2030) up to 1.2m deep. This appeared to be redeposited natural, presumably the result of post-medieval terracing of the land to the north.

A similar cut on the north side of Westgate Road was found 60m to the east at the Bath Lane Triangle in 1995 and was interpreted as the north side of the ditch in front of Hadrian's Wall, which had been partly filled by the medieval period where it became a hollow way running west from the town.<sup>3</sup>

Modern demolition debris in Trench 1 lay directly upon the weathered subsoil (1009). A small number of highly abraded pottery fragments from its surface were of twelfth- to thirteenth-century date. Cutting this was a circular post pit (1014, not illustrated), 0.98m in diameter and 0.48m deep, also containing fragments of twelfth- to thirteenth-century pottery. Nearby was a burnt patch (1019), a hard blackened crust 2.80m long and 0.80m wide overlying a fine sandy clay 0.15m deep, which was discoloured by high temperatures. A second burnt patch (1030) lay 0.45m east. This was severely truncated by a modern foundation trench, but was apparently of similar form. No finds were associated with either of these features. At the south end of Trench 1 a continuation (1008) of the large linear cut seen in Trench 2 ran under the north edge of the Westgate Road pavement. The section exposed fell steeply before flattening out just north of the north facing section. It was filled with a series of deposits, the earliest of which was a fine pea gravel 0.10m thick. This was sealed by (1032), a coarse gritty silt 0.08m thick. Above this lay a sequence of similar deposits of dense silty clay with frequent inclusions of fibrous organic material (1025, 1028, 1029, and 1031), all producing pottery dated to the fourteenth and fifteenth-centuries, and all apparently the result of gradual deposition. A wall (1012) built of clay-bonded sandstones was built on top of these deposits and may represent a revetment wall to support the face of cut (1008). It ran for 5.20m, had a maximum height of 1.10m and was truncated to the east and west and its face robbed out by modern intrusions. A dump of silty clay containing brick and tile

<sup>1</sup> The excavations were carried out for UK Land Estates.

<sup>2</sup> Macpherson 1999.

<sup>3</sup> Durkin and Nolan 1994.



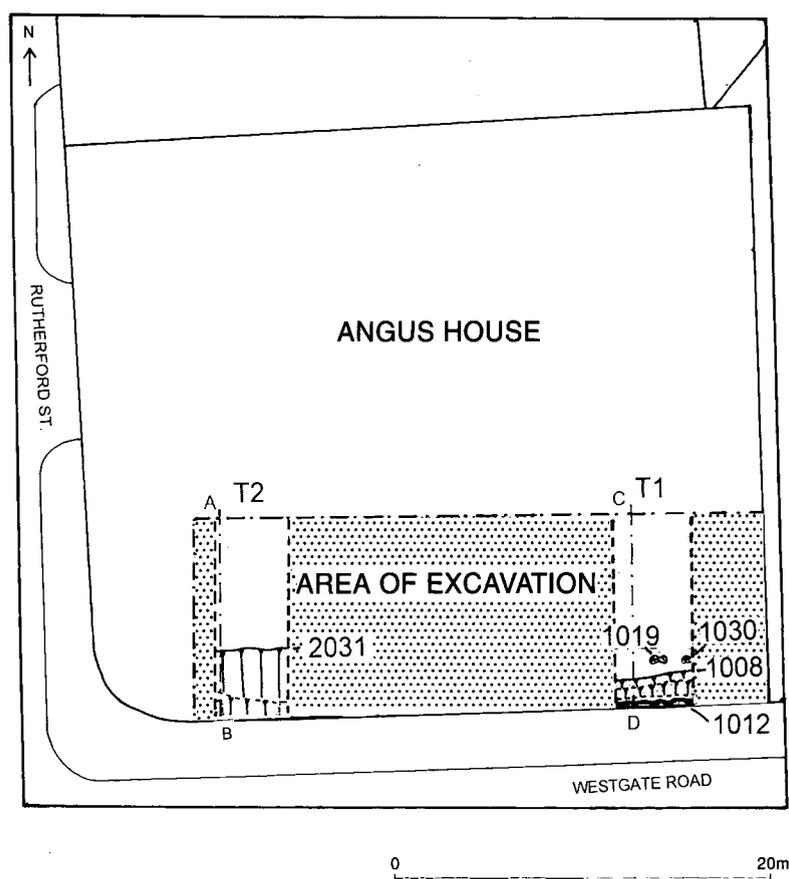


Figure 2. Location of Trenches 1 and 2, Angus House. Scale 1:400.

fragments and sixteenth- to early seventeenth-century pottery filled the space between the wall and cut (1008). This wall is similar to that seen to the east at the Bath Lane Triangle and may well be a continuation of it.

In Trench 1 a row of sandstone slabs (1021, not illustrated) were the remnants of a drain or flue, which had survived only where it had subsided into the Ditch. In Trench 2, in a gap between two large modern foundation cuts, a sequence of poorly preserved features was examined. A row of facing stones (2007) was all that remained of a wall facing onto Westgate Road. A loose gravel (2017) in the construction trench contained some fragments of seventeenth-century stoneware. The wall was robbed out to the north by (2015), a linear cut containing a single row of sandstone slabs (2013), each roughly 0.20m thick. This may have been the base of a drain, but was too fragmentary to securely identify.

After the Civil War, the land north of Westgate Road outside the Town Wall remained as open farmland until 1830, when it is shown in Oliver's plan laid out as an ornamental park. Garden soil up to 1.20m thick accumulated in the excavation area, and a brick-built well to the west of trench 2 was sunk at this time.

#### Earlier accounts of Hadrian's Wall at Westgate Road

In 1724 Sir John Clerk of Penicuik on a visit to northern England noted that: 'from the west gate [of Newcastle] all along to Benwell the foundation of the stone walk [sc.

Wall] and the vallum does appear but not so as to be very conspicuous'.<sup>4</sup> Clerk's reference to 'vallum' is misleading, for he meant not the Vallum proper, the ditch and two mounds running behind the Wall, but the ditch in front of the Wall; this is clear from a sketch section through the Wall at Walbottle where the Wall ditch is labelled 'the vallum or ditch' and from the fact that nowhere in his notes does Clerk use the term 'vallum' to describe the earthworks behind the Wall.<sup>5</sup> Clerk made his trip in the company of Alexander Gordon who also records that the remains of the Wall were visible beyond the West Gate: 'without the West Gate of [the] Town, I recovered its Track, running West near the Carlisle Road, and passing by a house called the Quarry'.<sup>6</sup> In 1725 Stukeley observed the same stretch of the Wall; his description is more precise than Clerk's or Gordon's: 'I pursued the Wall westward out of Westgate. As soon as I passed the houses I espied the ditch on my left hand and the bank whereon stood the Wall, the common road goes all the way on its north side'.<sup>7</sup>

Taken together these three references make it plain that in 1724 and 1725 the Wall and its ditch were visible south of the road at the foot of Westgate Hill, which as eighteenth-century maps show was the westernmost limit of the houses lining the road from the West Gate. Unfortunately a few

<sup>4</sup> Birley 1962, 232.

<sup>5</sup> He describes the Vallum as 'the mud wall and ditch of Hadrianus', following Robert Smith (cf. Birley 1961, 52).

<sup>6</sup> Gordon 1726, 71.

<sup>7</sup> Stukeley 1776, 66.

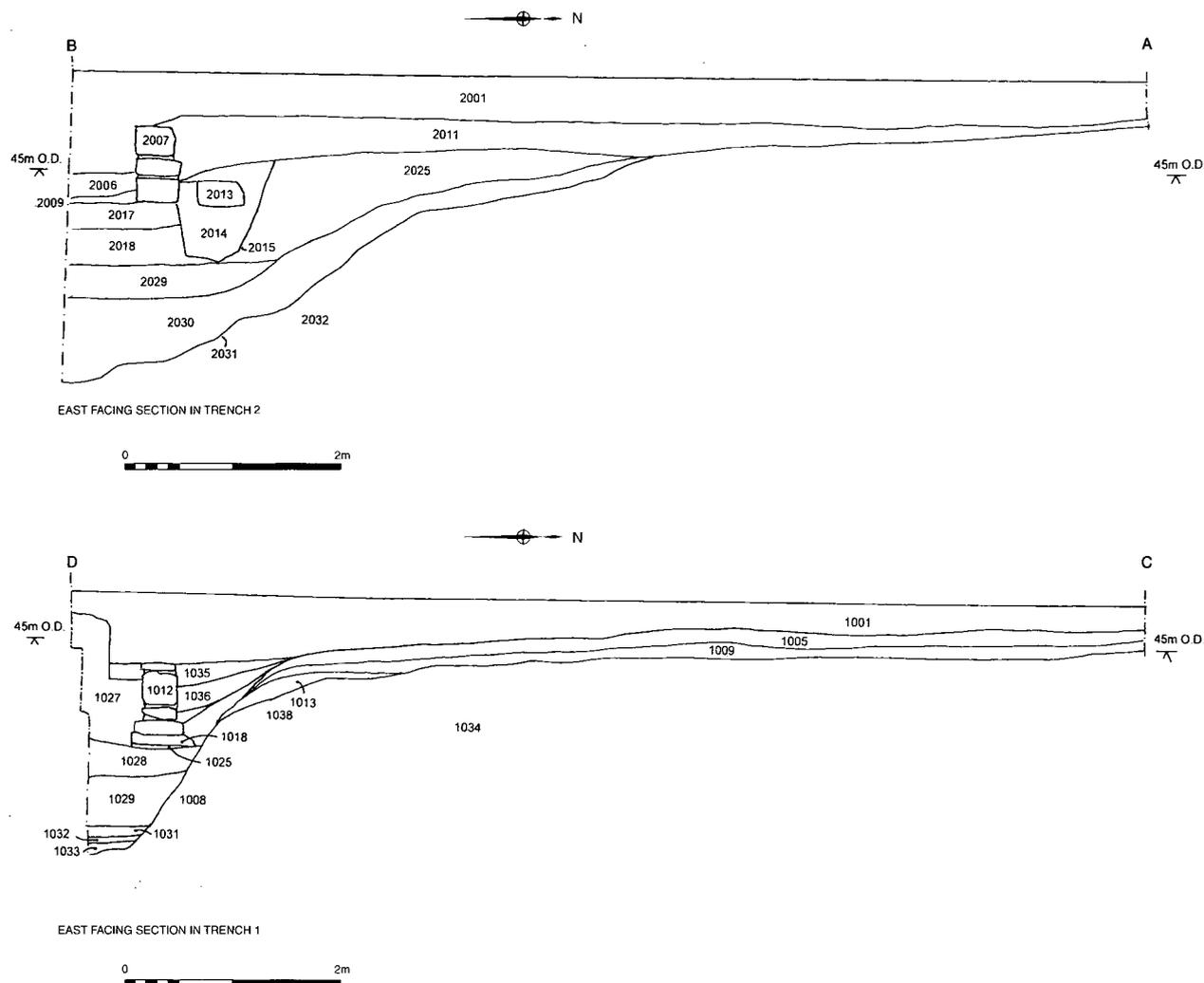


Figure 3. Sections, Angus House excavations. Scale 1:75.

years later Horsley wrongly identified these features as the Vallum: 'just at the end of the houses without Westgate, and on the south side of the street, or highway, what I take to be Hadrian's ditch is for a short space pretty visible; and I believe the raised footway there has been upon the north agger'.<sup>8</sup> He added that after the 'short space' nothing was visible until the 'quarry house' which was at the top of Westgate Hill. By 1789 nothing was to be seen of the Wall 'from ... the town-wall ... the track of it running westward has entirely been destroyed by buildings and gardens, till near the Turnpike-Gate [near the top of Westgate Hill]'.<sup>9</sup> Shortly before 1827 Westgate Road was 'much enlarged and improved', probably involving its extension southwards over the Wall ditch.<sup>10</sup>

Horsley's error was continued by Bruce's inclusion in the first edition of *The Roman Wall* of a map showing the Vallum running south of Westgate Road and the Wall north of the road.<sup>11</sup> In the third edition of this work further confusion was introduced by the quotation of an unpublished manuscript of Thomas Hodgson which Bruce took to in-

dicate another position for the Vallum: 'Of the earthen mound the last I knew was in the field at the Westgate where Blenheim Street now traverses what used to be called Wailes' field ... running up to the garden of the house Wailes used to occupy. In the garden of the house it was still traceable'.<sup>12</sup> This would place the Vallum some distance to the south of Westgate Road, but there is in fact no evidence that it continued eastwards from the top of Westgate Hill (see below). It is possible that Hodgson's mound was the agger of the Military Way.

In 1929 F. G. Simpson found the southern lip of what was assumed to be the Wall ditch in a small trench at the top of Blandford Square and searched for the Wall 'at the appropriate distance [i.e. about 6m] further south'; but 'owing to disturbance of the old surface no trace of the Wall could be found at this point'.<sup>13</sup> No trace of the ditch was seen

<sup>8</sup> Horsley 1732, 137.

<sup>9</sup> Brand 1789, 141.

<sup>10</sup> Mackenzie 1827, 194.

<sup>11</sup> Bruce 1851, pl. V.

<sup>12</sup> Bruce 1867, 106. Thomas Hodgson (1785-1850), editor of the *Newcastle Chronicle* for over forty years, wrote a *History of the Stations on the Roman Wall* and prepared a new edition of Horsley's *Britannia Romana*, both unpublished (*Archaeol. Aeliana*, 3rd ser., 10 (1913), 132-3, giving 1755 as his date of birth; the correct date (following Birley 1961, 285) is 1785, the year of his parents' marriage (Welford 1907, 37)). One of these manuscripts is presumably the source of Bruce's excerpt.

<sup>13</sup> Simpson 1976, 178-81; see also Spain *et al.* 1930, 515.

about 40m to the east when a sewer connection was made in the same year from the west corner of Rutherford Street (now the West Central Route) southwards to the edge of the tramlines at the centre of Westgate Road. In volume 13 of the *Northumberland County History*, published in the following year, these observations were taken to confirm the accuracy of Stukeley's account.<sup>14</sup>

At about the same time that the ditch in Westgate Road was being investigated, two trenches were dug to the west across the open space between the houses on the south side of Westgate Road and Summerhill Grove.<sup>15</sup> Their purpose was to determine whether the Vallum ran any further east than the top of Westgate Hill, beyond which there were no plausible observations of its course. No traces of it were seen in the trenches dug in 1929, suggesting that it had turned south-eastwards at the top of Westgate Hill to run down to the north bank of the River Tyne; the course of the Vallum in its final length would be reflected by the boundary between the townships of Westgate and Elswick. Its suggested line, running south-eastwards from Elswick Road, is now represented by Lancaster Street, Victoria Street, George Street and the road to the new Redheugh Bridge. These streets are not continuous and there are open spaces which could be trenched to test the hypothetical line suggested by Spain and Simpson.

### Excavations since 1985

#### *South side of Westgate Road*

One of the greatest advances in knowledge of Hadrian's Wall on Tyneside was the unexpected discovery of a milecastle at 71-75 Westgate Road (Newcastle Arts Centre) in 1985.<sup>16</sup> Its main importance is its position which casts doubt on previous systems proposed for the spacing of milecastles and turrets between milecastle 3 and turret 7B, and perhaps further along the line of the Wall. But here we are concerned with the position and alignment of the Wall as indicated by the remains of the milecastle. Only its south-western corner was excavated. The south wall was traced as far east as an area of stones which were smaller and more irregular than the foundations of the wall. They were interpreted either as the footings for a stone pier marking the west side of the south gate or the remains of a later blocking wall inserted into the gate passage. This gives two possible positions for the central axis of the milecastle in relation to the line established for its west wall, which makes it uncertain whether the milecastle is of short- or long-axis type. This in turn gives two possible lines for Hadrian's Wall up to 3m apart; these two lines are marked on Fig. 1.

In 1991 excavations on the former Cannon Cinema were undertaken south of the line of the Wall which at this point was thought to have lain under the pavement on the south

side of Westgate Road.<sup>17</sup> Excavations in 1992 further to the west, on the site of the Pavilion Cinema, were sited on the projected line of the Wall.<sup>18</sup> A series of pits had removed any trace of it. However, the pits, containing pottery ranging in date from the early twelfth- to mid-fourteenth century, attested occupation in this area both before and after the construction of the Town Wall.

In 1995 a cut assumed to be the southern edge of the Wall Ditch was observed in a section recorded at 175 Westgate Road.<sup>19</sup> Two years later excavations were carried out on land south of Westgate Road at nos 163-171 on the line of the West Central Route.<sup>20</sup> An east-west aligned linear cut seen in two trenches was again interpreted as the southern lip of the Wall Ditch.

In the following year further trenches were excavated along the line of the West Central Route, extending 208m southwards from the southern frontage of Westgate Road.<sup>21</sup> The Vallum ditch was not encountered, which corroborates the results of Spain and Simpson's work at Summerhill Grove and supports the notion that its final length ran down to the Tyne south-eastwards from the top of Westgate Hill.

#### *North side of Westgate Road*

In 1991 a trench on the eastern side of Cross Villa Place running north from the edge of the Westgate Road pavement found only natural subsoil, cut through by modern cellars.<sup>22</sup>

In 1995 Newcastle City Archaeology Unit excavated trenches on cleared land at 112 – 142 Westgate Road, otherwise referred to as the Bath Lane Triangle. This excavation found that as a result of post-medieval terracing back into the slope, the survival of archaeological contexts was confined to a strip north of the Westgate Road pavement where the principal feature was a substantial linear cut, which, as noted above, was interpreted as the northern lip of the Wall Ditch, with medieval revetting of the side.<sup>23</sup>

### Conclusions

The identification of the cut underlying the northern frontage of the buildings on Westgate Road as the northern lip of the Wall ditch cannot be sustained. First, there are the eye-witness accounts of Clerk, Gordon and Stukeley, cited above, to the effect that the Wall and ditch ran alongside Westgate Road, and Stukeley's specific observation that they were on the left-hand or south side as he went westwards along the road. Secondly, excavations at 112-142

<sup>14</sup> Spain *et al.* 1930, 515.

<sup>15</sup> *Ibid.*, 518-9.

<sup>16</sup> Harbottle *et al.* 1988.

<sup>17</sup> Heslop *et al.* 1994.

<sup>18</sup> Tyne and Wear Museums Archaeology Department 1992.

<sup>19</sup> Durkin 1995.

<sup>20</sup> Young 1997.

<sup>21</sup> Muncaster and Young 1997.

<sup>22</sup> Note by S. Speak in Tyne and Wear Sites and Monuments Record.

<sup>23</sup> Durkin and Nolan 1994.

Westgate Road in 1995 and at Angus House in 1999 proved that occupation on the northern side of Westgate Road was established by the late medieval period: there can be no possibility that in the early eighteenth century Westgate Road ran to the north of its present line. The cut seen on the south side of Westgate Road in 1929, 1995 and 1997 can therefore be accepted as the southern edge of the ditch. This would place its northern edge under the centre of the modern road, allowing 9m or 30 feet for the width of the ditch. The approximate distance between the northern edge of the ditch and the cut behind the northern frontage of Westgate Road is 10m, wide enough to accommodate the medieval road from the West Gate. The road was subsequently widened southwards, probably in the early nineteenth century.<sup>24</sup>

Also to be considered is the position of the Wall further east on Westgate Road, as indicated by the milecastle at the Newcastle Arts Centre. Before its discovery the nearest sightings of the Wall and ditch to the east were at the Stephenson Monument in 1934, where the southern edge of the ditch was seen in a cable trench,<sup>25</sup> and immediately to the north of the Mining Institute in 1952, where a short length of the south face of the Wall was exposed.<sup>26</sup> A straight line between the position established for the Wall at these two points and its position indicated by the south edge of the ditch seen at the foot of Westgate Hill in 1929, 1995 and 1997 runs not along the north side of the milecastle but a little to the south of its estimated centre point. This suggests that over this distance of c. 615m there was a slight change in the line of the Wall, which very probably occurred at the milecastle. Figure 1 shows the line of the Wall and Wall ditch as established by the position of the southern lip of the ditch in the vicinity of the West Central Route and by the projected position of the north wall of the milecastle, assuming it to have been of long-axis type. East of the milecastle the line of the Wall would have veered a little to the south.

The depth of the cut on the north side of Westgate Road indicates that the medieval road running west from the town lay in a hollow way. To the east the line of the road and the Wall ditch gradually converged, so that the two coincided on the site of the West Gate of the town (Fig. 1). Whether at this point the Wall ditch had been completely filled by the time that a route developed along its line is uncertain. At some point near the site of the West Gate the route must have swung to the north so that it ran beyond the north lip of the ditch, which as noted above was still visible in the early eighteenth century in the vicinity of what is now St James' Boulevard.

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<sup>24</sup> See note 10.

<sup>25</sup> Spain 1934.

## NOTES

### A RING MAIL SHIRT FROM SOUTH SHIELDS ROMAN FORT *by A. T. Croom* (with contributions by D. Sim and K. Barker).

During 1997 excavations at the fort concentrated on Barrack II of Period 6, constructed in the early third century and destroyed by fire in the late third or early fourth century (Figs 3 and 5). The remains of the building were covered by a thick layer of burnt daub from the collapsed internal walls of the barrack. During the removal of this layer, a complete ring mail shirt (Figs 1-2) was uncovered in a lobby area containing a hearth, immediately in front of two doors leading into residential rooms (Figs 3-4). A fragment of a decorated greave was also found in the same barrack.

#### Construction of the shirt

The shirt is of standard Roman construction with four links looped onto one and with alternate lines of riveted and solid links. There is some random variation in the thickness of the wire used, from 1-1.8mm diameter, but all the broken links show a circular cross-section (Fig. 6).

The solid links have an external diameter of 7mm and are possibly closed by welding. There are no signs of butt-joints or of the D-shaped cross-section of stamped links.

The riveted links are often slightly larger (8mm in external diameter) and are frequently oval rather than circular. The rivets have domed heads c.1mm in diameter and are fastened through the flattened terminals of the links which are approximately 1.75mm across (Fig. 7). A number of the links have lost their rivets and the terminals have sprung slightly apart (Fig. 8).

#### Condition

The fire that had destroyed the barrack had generated temperatures hot enough to melt the inclusions in the daub walls. The shirt had been sandwiched between layers of hot, very dry daub and, thus sealed, was in remarkably good condition when recovered. Although there was little metal left in the core of the links, the shirt was covered with a surface layer of iron oxide that left many of the details of construction visible even before cleaning.

#### Deposition

The suite of rooms in which the shirt was found had been divided into three rooms and a lobby rather than two rooms and a passageway, and was possibly accommodation for junior officers. The shirt was found in the entrance lobby

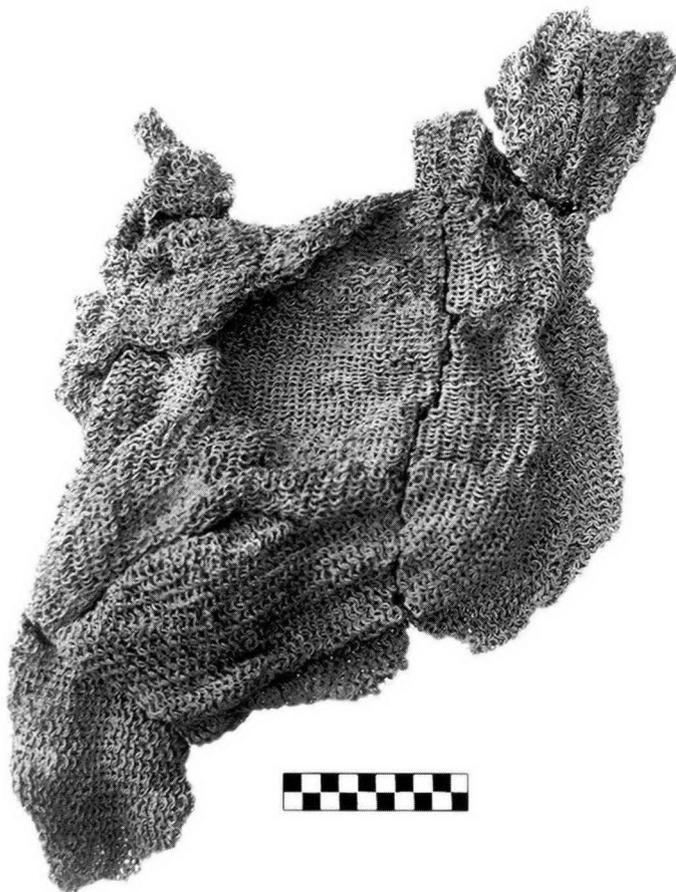


Figure 1. Mail shirt after conservation, upper surface (as found, north would be approximately towards the top right).

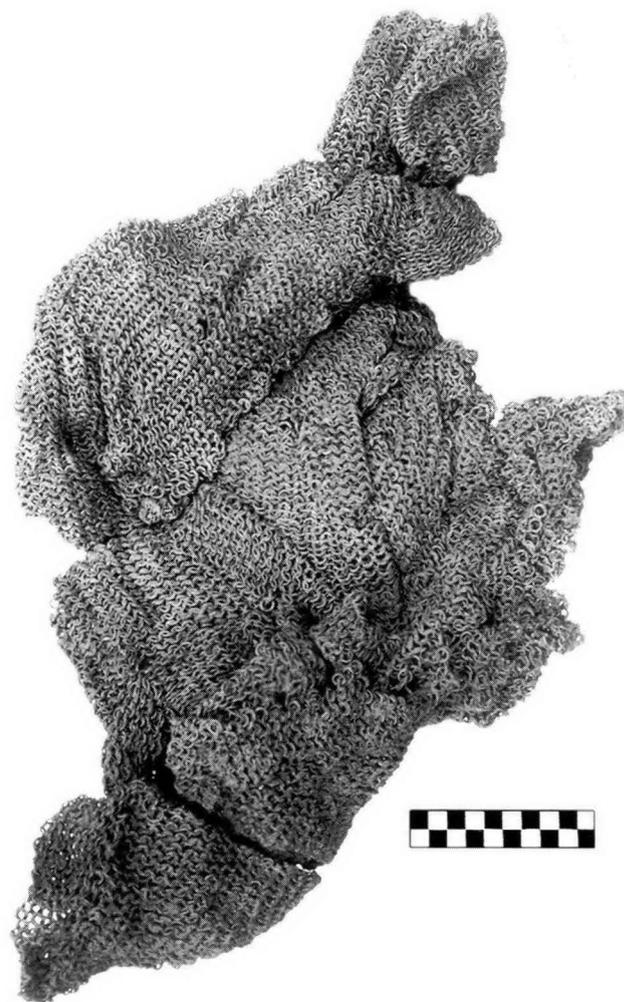


Figure 2. Mail shirt after conservation, lower surface.

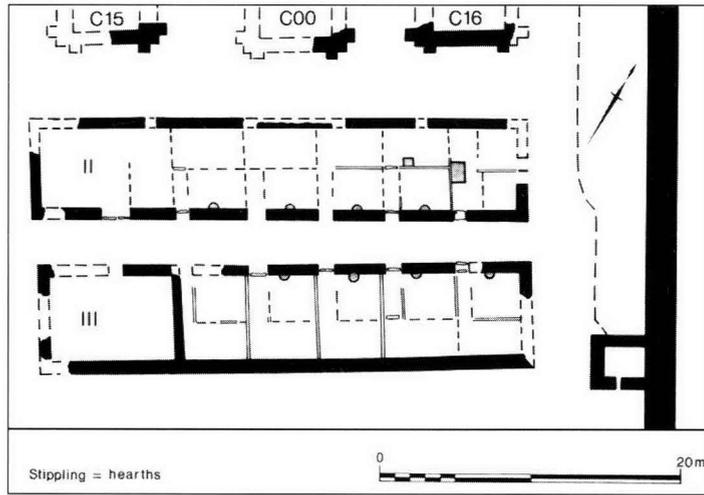


Figure 3. Part of the Period 6 fort at South Shields, showing location of Barrack II (cf. p.33, Fig. 6).

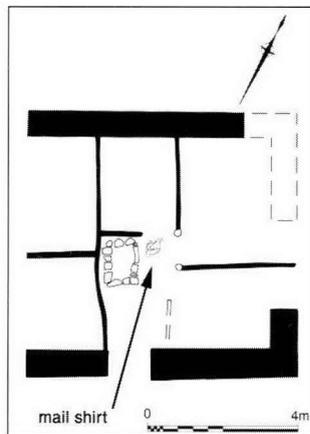


Figure 4. Findspot of the ring mail shirt.



Figure 5. General view of Barrack II.



Figure 6. Fragment of mail, showing cross-section of rings.

that had doorways into at least two (and probably all three) of the other rooms as well as the main entrance. It probably also acted as a kitchen as it contained a large rectangular hearth. The shirt was found between hearth and doorways (Fig. 4). The floor of the barrack was covered with a thin layer of carbonised material which in turn was covered by a layer of burnt orange daub 300mm deep. The shirt when found had a layer of daub underneath it as well as around and over it, so it had not already been lying on the floor before the fire, but it is not clear where it had come from.

Ring mail can be stored in a number of ways. Experience with replica mail shirts belonging to the re-enactment group *cohors V Gallorum* has shown that it is convenient and easy to store shirts piled in heaps on a shelf, or placed in helmets sat on a shelf. Storage in a bag either on a shelf or hanging from a peg could help protect it from damp if necessary. A shirt would not be hung on a peg from the nape of its neck in the manner of a coat as this would put unnecessary pressure on a very small section of links, but it could be slung over a peg so that half of it hung down either side. Another alternative manner of storage would be to thread a pole through both arms, which could then be used as a hanger.

The shape that the ring mail had formed is also of interest. A shirt that was in a heap or in a bag, when dropped vertically by a person, forms a small, roughly circular heap. A shirt that was hung, either from a horizontal pole or by being held up by the shoulders of the shirt, forms a long, roughly rectangular shape when dropped. The South Shields example is roughly diamond-shaped. It is assumed that it has not been disturbed since it fell (for example, by people stirring through the debris of the building for salvage) but whether the shape was a result of the way it was stored, or the way that the building collapsed is impossible to say.

In the room where it was found there was little available wall space for shelves or pegs, although it could possibly have been hung from the rafters. However, neither entrance

lobby nor kitchen seems a likely place to store a ring mail shirt. It is possible that it was in the room temporarily for some reason, or may perhaps have been stored in the roof space above. If the shirt was dropped whilst the rooms were being cleared, the walls must have already started to collapse to account for the daub underneath it.

#### Design of the shirt

From the late second century, Roman mail shirts were generally mid-thigh- to knee-length and generally had short sleeves, although long sleeves may have come into use sometime during in the third century. Shoulder-doublings were no longer used, but the shirts were often fastened at the neck by decorated copper alloy plates. When dropped, however, ring mail is so flexible that it forms a featureless pile of folds and any details of the openings, size of sleeves and design of neckline are lost. Very little, therefore, can usually be said about the design of a shirt even when found complete.

X-rays showed that the South Shields shirt did not have any decorated fastening plates. Due to the way that the shirt fell, the mail is sometimes two layers thick (ie front and back of the shirt) and sometimes four layers thick. In a few areas, only a single layer of mail was seen, most noticeably on the outer edge of the lowest section of the mail as shown in Figure 2. A study of the fragments also revealed a few areas where the links are only connected to two others, which presumably represent the borders of openings. Experiments with a replica shirt has shown that it is usually impossible to distinguish between the wide lower opening and the combination of sleeves and neck opening (when, that is, the openings are visible at all). It is possible that the projection at the top of the mass in Figure 1 is a sleeve, which would suggest that the other end was the lower opening. If this is correct it is possible that the lower end of the shirt was folded under the main body of the shirt, and one arm was flung out. It is further possible that the neck-hole opening lay to the right of this arm, but folded back over the top of the body. This is, of course, only one interpretation of the remains and cannot be proved.



Figure 7. Fragments of two rings, one with a rivet and the other with an expanded and pierced terminal.



Figure 8. Rings in the shirt, showing variety of wire diameter, rows of rivetted rings and a ring that has lost its rivet (centre).

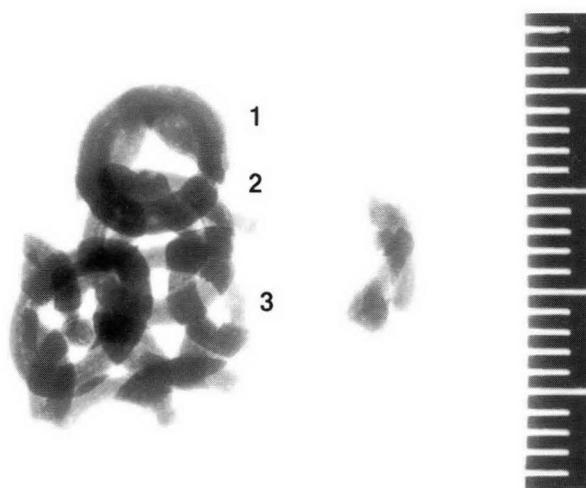


Figure 9. An x-ray of a sample of rings from the shirt (scale shows 1cm divisions).

## Parallels

Fragments of ring mail are found frequently on military sites, but the great majority of pieces are small fragments cut from shirts.<sup>1</sup> Because of their value and size few complete shirts have been found. Some were found at Dura-Europos, on the unclaimed bodies of Roman soldiers in the siege mine, at Tower 19 and five or six were recovered from the votive pool or bog deposit of Thorsbjerg.<sup>2</sup> Another possible votive offering is the folded shirt from Bertoldsheim while another folded shirt, inside a helmet, was found in the first century burial at Chassenard.<sup>3</sup> A helmet and shirt were also found in a well at Buch.<sup>4</sup> Other complete, or near complete shirts, come from the Small North Baths at Banasa and the fort at Zugmantel.<sup>5</sup>

Few complete Roman mail shirts have been recovered from this country. There is a complete shirt in poor condition from Wallsend fort,<sup>6</sup> but there is no trace now of the shirt from Housesteads mentioned by Robinson.<sup>7</sup>

After conservation, the complete shirt weighed 5.440kg. This can be compared with 10.200kg for the St Albans Iron Age shirt,<sup>8</sup> 5.788kg for the Wallsend shirt, and 3.496kg for the Bertoldsheim shirt (probably incomplete). The other possibly complete ring mail shirts have not been weighed. These weights are of course only approximate since metal loss and corrosion products have to be considered, but they give at least an approximate figure for comparisons. The replica shirt with rings 7mm in diameter and 1mm thick (unriveted) belonging to *cohors V Gallorum* weighs 6.600kg and has 54,000 rings.

A huge amount of work goes into the manufacture of a mail shirt. Using the timings suggested by Sim<sup>9</sup> a shirt of 54,000 links, half of which are riveted, would take approximately 215 man-days to manufacture. The result is worth the investment, however, because of the shirt's versatility and durability.<sup>10</sup> A shirt could have a very long life if protected from rust, as there are no fastenings to fail, no organic elements to rot, and the mail is so flexible it is difficult to crush or put under stress. *Lorica segmentata* and scale mail both have to be stored with some care, but a ring mail shirt can be left heaped in a pile, slung across a peg or hung in a soft cloth bag without ill effect. An individual link can fail – and on the South Shields shirt there are a number of sprung rivets – but even if it drops out com-

pletely, the links it was joined to are still attached to three others, and the shirt is not noticeably weakened. For major damage to a shirt to occur, a large number of individual links would have to fail at the same time.

## Report on the mail rings

by D. Sim

A small fragment of mail rings from Arbeia was examined; they had become detached from the main body of the mail shirt before any conservation could be done. Using a jeweller's piercing saw a small section from the broken ends of three different rings was removed but on examination the metal was found to be completely mineralised. X-rays were taken which showed light lines within the rings (Fig. 9). These are probably slag inclusions that run through the length of the ring. Using a shadow graph, measurements were taken on three different rings. The rings selected (Fig. 9) were those that showed a clear outline.

Table 1 Diameter of wire used in links

Ring	position	D of wire (mm)
<b>Ring 1</b>		
Position 1	top of picture	1.799
Position 2	120° to position 1	1.830
Position 3	120° to position 2	1.832
<b>Ring 2</b>		
Position 1	approx. 2 o'clock	1.640
Position 2	100° to position 1	1.644
Position 3	120° to position 2	1.682
<b>Ring 3</b>		
Position 1	top of picture	1.865
Position 2	120° to position 1	1.828
Position 3	120° to position 2	1.828

## The conservation of the ring mail shirt

by K. Barker

### Condition

The ring mail shirt is one of the best surviving pieces of Roman iron to be found at Arbeia. The main bulk of the object had not corroded in the ground and grey metal was visible through the soil. The edges and thinner areas had corroded to form a solid mass. The ring mail shirt, in one piece in the ground, broke into four pieces on recovery; the two larger pieces were in very good condition with a good join, while the two smaller pieces had undergone considerable corrosion and had definite but weak joins to the main body.

### Treatment

Initially the ring mail was X-rayed from a range of directions. This revealed that the mass was links of iron with no solid areas of iron indicated. The soil was removed from the surface using slightly compressed air from an air abra-

<sup>1</sup> See Gilmour 1997, table 1; Croom and Griffiths 1996, table 1; van der Sanden 1993, table 1.

<sup>2</sup> Gilmour 1997, table 2.

<sup>3</sup> Bertoldsheim: Garbsch 1984; Chassenard: Robinson 1975, pl. 338).

<sup>4</sup> Bishop and Coulston 1993, 141.

<sup>5</sup> Banasa: Boube-Piccot 1994, pls 59-61; Zugmantel: Oldenstein 1997, Abb. 138.

<sup>6</sup> Record number WSFE710; Croom forthcoming.

<sup>7</sup> Robinson 1975, 172; *pers. Comm.* G. Plowright.

<sup>8</sup> Gilmour 1999, 160.

<sup>9</sup> Sim 1997, 370.

<sup>10</sup> O'Connor 1992, 1078.

sive unit. As clear uncorroded rings could be seen on the main body of the ring mail, the corroded areas were only cleaned to reveal their basic shape. The corrosion products were harder than the surviving corroded rings, making cleaning slow and difficult so as not to lose fragile rings. It was felt that fragile rings protruding from the surface were liable to be broken by handling and by any physical support required during storage or display, so the corrosion was removed using an air abrasive machine with grade 1 (29 micron) aluminium oxide powder but the centre of the rings were left filled for support.

The ring mail is porous in nature with many air gaps in the matrix: for this reason the iron was not desalinated as the drying process would have caused corrosion and future stress in the interior which would have been impossible to remove or counteract. As the ring mail was not desalinated the display case and storage needs to be kept at a constant low humidity of less than 15% to prevent further corrosion.

An attempt was made to join the two large pieces using Paraloid B72 acrylic resin in acetone while a two part epoxy resin was used to re-adhere the smaller pieces to the main body. This made the object very difficult to handle and the epoxy joins were weak and liable to break during handling, so the treatment was reversed and all adhesive removed.

At the end of the cleaning treatment the ring mail was washed in separate baths of acetone and industrial methylated spirits to remove any grease from prior handling and residual aluminium oxide powder from the interior.

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## TORC BEADS FROM SOUTH SHIELDS ROMAN FORT by A. T. Croom

Excavations immediately to the north-east of the Period 4 (mid-Antonine) *principia* at South Shields produced three copper-alloy fragments described as fittings or settings when originally published.<sup>11</sup> They can now be identified as beads from a native British beaded torc. One fragment was found in an occupation layer in Building II, a turf-walled structure dating to Period 3 (late Hadrianic or early Antonine to mid-Antonine). The other two fragments were found in the metalling of a Period 4B (mid-Antonine) street and a levelling dump beneath the street; these deposits partly covered the remains of Building II and the finds incorporated in them might well have been re-deposited from levels of Period 3 in Building II. It is therefore likely that all three fragments were originally lost at the same time.

### Beaded torcs

Beaded torcs are only found in Britain and usually in the north.<sup>12</sup> They are made up of two separate elements, held together by mortise and tenon joints when complete: a nape section made of a solid bar or rod and a beaded section at the front. The torcs can be divided into two basic forms:

1. *Strung beads*. The nape bar tends to have a rectangular or H-shaped cross-section, and makes up approximately half of the complete torc. The beaded section is made up of individual beads, separated by smaller spacer beads, usually threaded onto a thick iron wire (Fig. 10).

2. *Cast beads*. The nape section is more often circular in cross-section, and usually makes up two-thirds of the torc. The throat bead section is cast in one piece.

There is, however, at least one example, from Lambay Island, Co Dublin, that has features of both categories, with a long, circular cross-sectioned nape section and strung beads.<sup>13</sup>

### The South Shields beads

The South Shields examples are relatively plain and simple in design (Fig. 11). They are fragmentary, and some details are lost to corrosion, but there are at least two separate beads and almost certainly a third, plus a fragment that could belong to any of the three. The beads are flat, with

<sup>11</sup> Croom 1994, 184, no. 25.

<sup>12</sup> MacGregor 1976, map 15.

<sup>13</sup> Kilbride-Jones 1980, fig. 41, 3.

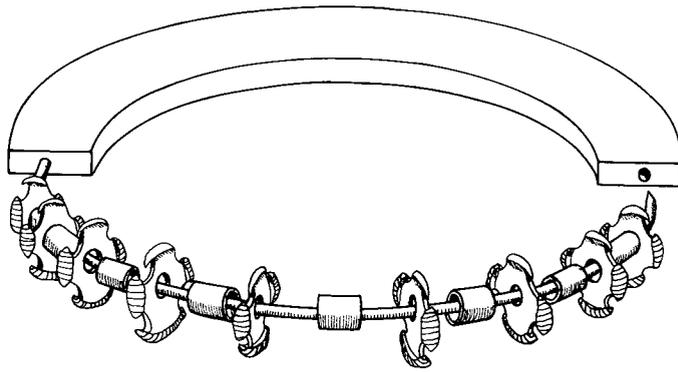


Figure 10. The elements of a strung-bead torc.

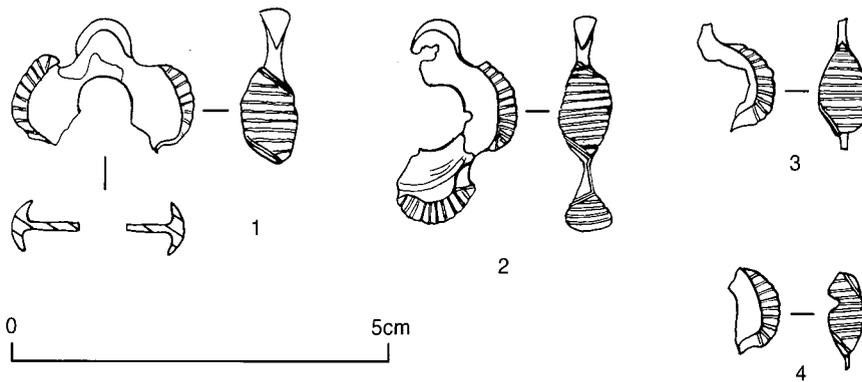


Figure 11. Torc beads from South Shields.

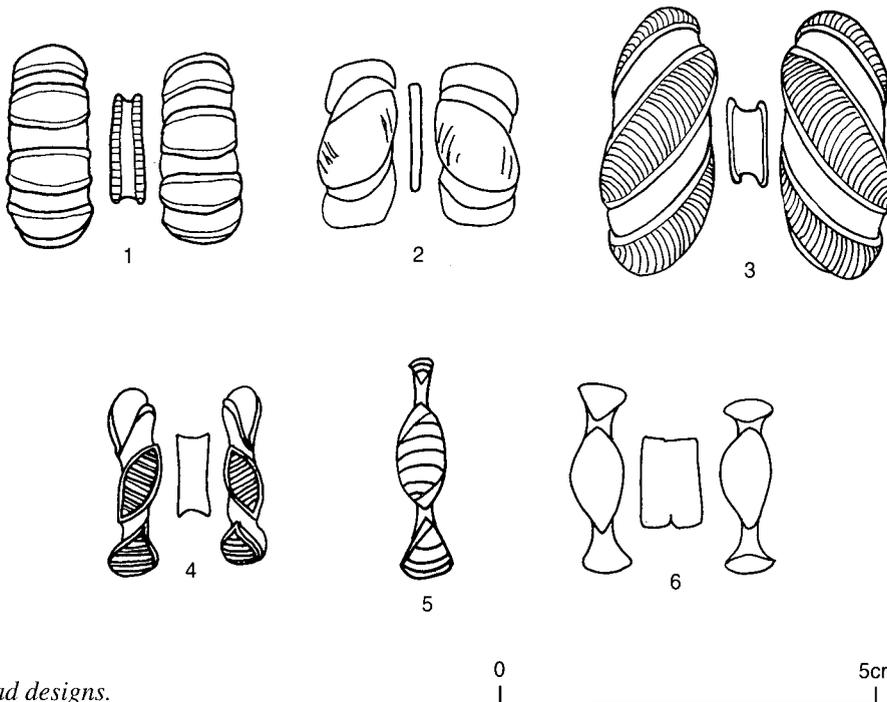


Figure 12. Torc bead designs.

1. Form of bead used on the torc from Hyndford, Lanarkshire (MacGregor 1976, no. 202; Kilbride-Jones 1980, fig. 39) and from Lochar Moss, Dumfries (MacGregor 1976, no. 204; Kilbride-Jones 1980, fig. 38).

2. Lambay Island, Co Dublin (Kilbride-Jones 1980, fig. 41, no. 3). There are possible traces of groove decoration (Macalister 1929, pl. XXIV, no. 3).

3. Mow Road, Rochdale (MacGregor 1976, no. 205, pl. VIIIb; Kilbride-Jones 1980, fig. 40).

4. Perdeswell, Worcestershire (Anon 1844, 554, Maxfield 1974, pl. III, 1).

5. Form of bead found at South Shields, Corbridge (unpublished) and Settle (Roach Smith 1848, pl. XXVII, no. 3).

6. Benwell, Newcastle (Maxfield 1974, pl. I, 1; MacGregor 1976, no. 198).

four expanded sections round the edge, three of them decorated with transverse grooves. The fourth section, apparently undecorated, is smaller than the others, and may have been meant to be the part of the bead resting against the neck.<sup>14</sup> Torc beads can be large and highly decorated, but many of them share certain traits, such as borders round the raised ribs and the use of transverse grooves (Fig. 12).

There are two close parallels for the South Shields beads. A single bead from Corbridge was recovered from Site 12,<sup>15</sup> and another was found, associated with Roman material, in a cave near Settle, Yorkshire.<sup>16</sup> Both these examples are complete, and are pierced by a long slot, although the South Shields examples apparently had a circular central hole. Parallels with beads still associated with their torcs can be found with the groove decoration on the beads of the Perdeswell torc (Fig. 12, no. 4) and the shape of the beads of the Benwell torc (Fig. 12, no. 6).<sup>17</sup>

The Benwell torc, as a local example, is of particular interest. It is almost complete, with an undecorated H-shaped cross-sectioned nape bar and small, plain beads, and, although plain, is quite clearly similar in construction to the more highly decorated examples. Since, however, it was found within a Roman fort, and it was considered to be rather ugly by modern scholars when compared to the other torcs, it was condemned as a soulless Roman interpretation of a native object. It has been described as 'insensitive and unlovely',<sup>18</sup> while the H-shaped section of the nape section, although paralleled on the torcs from Lochar Moss and Rochdale, was considered 'devoid of all artistic feeling',<sup>19</sup> largely because it is undecorated. It seems a trifle unfair to dismiss the torc as automatically Roman just because it is plain, since it is quite clear from their military equipment that Roman metalworkers were quite capable of making elaborate and decorated bronzework whenever they wanted. Nor should its findspot inside a Roman fort have any bearing on by whom it was made, as 'native' objects are frequently found on Roman sites. South Shields, for example, has two 'weaving' combs,<sup>20</sup> two pin-heads,<sup>21</sup> and a parallelepiped die,<sup>22</sup> all considered native objects, as well as a number of sherds from native-made pots. Robertson lists examples of native objects found on Roman sites in Scotland, including a torc at Newstead.<sup>23</sup> As a supposedly Roman object, the Benwell torc has been iden-

tified as a military decoration, since torcs were awarded within the Roman army, but this interpretation has been shown to be highly unlikely,<sup>24</sup> although it has been suggested that Roman cavalrymen may have been fond of wearing torcs as personal decoration.<sup>25</sup> There is no reason to suppose that the Benwell torc is not simply a plain example of a native-made torc.

### Dating

The cast-bead torcs are generally considered to be a development of the more complex strung-bead torcs, and therefore later in date.<sup>26</sup> The strung-bead type is generally dated, by association with material found with some examples, to the late first and early second centuries AD although they are rarely found in well-dated contexts.<sup>27</sup> The Perdeswell torc came from a gravel bed and cannot be dated by association,<sup>28</sup> while the Benwell torc was recovered from a modern builder's trench and thus cannot be closely dated.<sup>29</sup> The Settle example was found with Roman material of mixed dates,<sup>30</sup> while the Corbridge example came from a context probably dated, according to the pottery, to the late Antonine period.<sup>31</sup>

### Conclusions

The beads are further examples of a distinctive cruciform bead belonging to a much wider group of beads used on native strung-bead torcs. Although not as impressive as the more complete examples of torcs, they have a particular importance in that they come from a dated, stratified context and are not just chance finds.

### Acknowledgements

With grateful thanks to G. Plowright for supplying details about the Corbridge example and to R. Oram and D. Croom for their help with this note. Figure 10 was drawn by R. Oram.

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<sup>24</sup> Maxfield 1974.

<sup>25</sup> Cessford 1995, 235.

<sup>26</sup> Burns 1971, 49.

<sup>27</sup> Maxfield 1974, 45.

<sup>28</sup> Anon 1844, 554.

<sup>29</sup> Simpson and Richmond 1941, 23.

<sup>30</sup> Roach Smith 1848, 69.

<sup>31</sup> *Pers. comm.* G Plowright.

<sup>14</sup> The beads from the Hyndford torc are flat on the back (MacGregor 1976, no. 202). Strung-bead torcs are generally quite small, with an internal diameter ranging from approximately 100-120mm, and were presumably quite close-fitting.

<sup>15</sup> Bishop and Dore 1988, fig. 4, site 12 (1947), unpublished small find, accession number CO 23175.

<sup>16</sup> Roach Smith 1848, pl. XXVII, no. 3.

<sup>17</sup> MacGregor 1976, no. 198.

<sup>18</sup> Maxfield 1974, 46.

<sup>19</sup> Simpson and Richmond 1941, 24.

<sup>20</sup> Allason-Jones and Miket 1984, 2.23, and SF no. B165, unpublished.

<sup>21</sup> Allason-Jones and Miket 1984, 6.4, and SF no. J12, unpublished.

<sup>22</sup> SF no. B41, unpublished.

<sup>23</sup> Robertson 1970, 202.

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## ROMAN BROOCHES OF DACIAN TYPE FOUND AT SOUTH SHIELDS ROMAN FORT by Margaret Snape.

New research has shown that two Roman brooches on display in the Museum at Arbeia Roman Fort are extremely unusual in belonging to a type rarely found outside Romania. Both have been catalogued, as indicated below, but they are part of the nineteenth-century collection for which there is no record of context, so it is unfortunately not possible to say whether they were found within the fort or the civil settlement.

Both examples belong to types catalogued in a recent PhD thesis on the brooches of Roman Dacia by Sorin Cociş of the Academia Romana Institutul de Arheologie si Istoria Artei, Cluj-Napoca, Romania, as types specific to the Roman province of Dacia. Brooches of these types did not spread much beyond Dacia. A few examples have been found at Singidunum (modern Belgrade), just to the south of the river Danube which forms the boundary between Dacia and the Roman province of Moesia. A single example is known from Roman Germany, at the Saalburg.

### Catalogue (Fig.13)

1. P-shaped brooch of copper alloy, Cociş type 39 b<sub>1</sub>a. Acc. no. TWCMS T948. Allason-Jones and Miket 1984, 106, no. 3.81, not illustrated; Snape 1993, 22, 110 no. A86. Length: 53mm; width: 23mm.

Two deep grooves cut diagonally across each arm of the crossbar. Top of crossbar has a triangular projection, decorated with shallower horizontal grooves; each end has a terminal knob with a single moulding. Some remains of spring and loop on which it was held, but pin missing. Bow of triangular section, foot with leaf-shaped end and sheath-type catchplate. At the junction of bow and leg is a broad semi-circular plate with scalloped edge, beneath which is a zone of fine horizontal grooves, a second scalloped plate and a zone of fine grooves in a herringbone pattern. These fine grooves give the appearance of a skeuomorphic representation of wire wrapped around the brooch. The brooch has been plated with white metal.

### Distribution

No exact parallels appear to be known, but this is a variant of Cociş type 39 b<sub>1</sub>a (which lacks the terminal knobs on the crossbar) of which 48 examples are known, spread throughout Dacia.<sup>32</sup> Outside Dacia the type is found at Singidunum in Moesia<sup>33</sup> and there is a single brooch from the Saalburg in Roman Germany.<sup>34</sup>

### Dating

Type 39 b<sub>1</sub>a is dated from the end of the second century to the beginning of the third, but Dr Cociş suggests that the terminal knobs on the South Shields example may indicate that it represents a later development.

2. P-shaped brooch of copper alloy, Cociş type 39 a<sub>3</sub>. Acc. no. TWCMS T944. Allason-Jones and Miket 1984, 109, no. 3.90; Snape 1993, 22, 110, no. A72. Length: 43mm; width: 20mm.

Crossbar of sub-rectangular section providing closed housing for hinged pin; iron axis bar still in position, central notch for hinged pin, head still in position, rest missing. Crossbar has single small projection on top. Flat strip bow terminates in three horizontal grooves; foot has simple decoration of cut-out strip at each side; sheath-type catchplate. The brooch has been plated with white metal.

### Distribution

This seems to be a simplified version of the type, lacking the grooved decoration usually seen on the Dacian examples. In Dacia 40 examples of the general type are known,<sup>35</sup> with a few examples from Singidunum in Moesia.<sup>36</sup>

### Dating

First half of the third century.

### Discussion

Both brooches would have been in use in the first half of the third century. At that time the fort at South Shields

<sup>32</sup> Cociş nos 1924-1977.

<sup>33</sup> Bojovic 1983, pl. XXXVI, 350, 353.

<sup>34</sup> Böhme 1972, 23, Taf. 12, 581.

<sup>35</sup> Cociş nos 1858-1898.

<sup>36</sup> Bojovic 1983, pl. XXVI, 350-353.

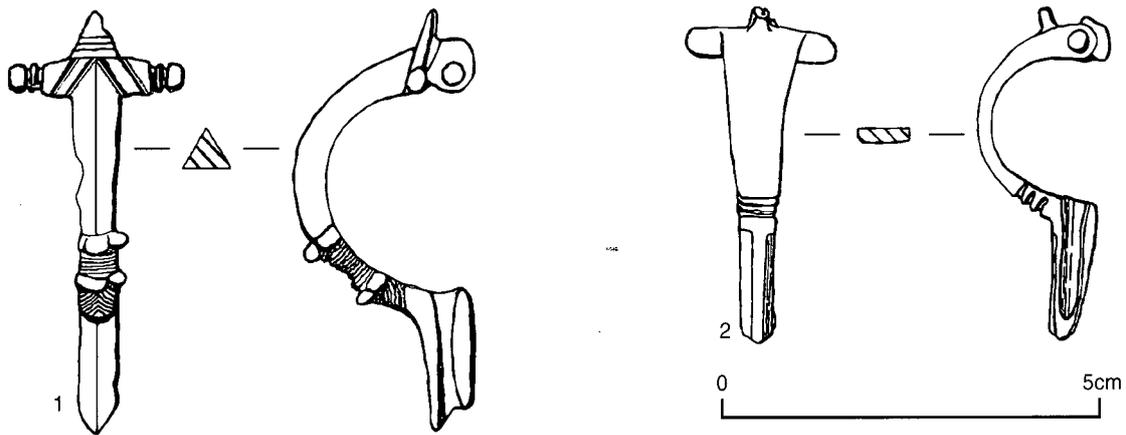


Figure 13. Brooches of Dacian type from South Shields.

was at the height of its importance as a supply base, garrisoned by the Fifth Cohort of Gauls, with a large and prosperous civil settlement, and a port somewhere in the vicinity.

The reason why two Roman brooches of eastern European type should be found 1000 miles (1600km) from their homeland must remain a mystery at present. It would be unwise to try to draw any wide-ranging conclusions from the presence of only two objects which could have been the property of a single individual. However the South Shields examples show some slight variations on the examples catalogued by Dr Cocis; perhaps they were made by a local craftsman, copying Dacian originals. This would still indicate influence from Dacia, even if not direct import of the objects, and adds to the existing evidence that Roman South Shields was a cosmopolitan place.

#### Acknowledgements

I am grateful to Professor Mihail Zahariade and to Paul Bidwell for suggesting this study and for their assistance, and to Dr Sorin Cocis for kindly providing the information on typology, parallels and dating. Brooch 1 was drawn by Roger Oram and brooch 2 by Ray McBride.

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### EXPERIMENTS TO FIRE OR BAKE CLAY SLING SHOT IN AN OPEN FIRE by David Sim

#### Introduction

The existence of baked clay sling shot in the Roman period is well attested.<sup>37</sup> Griffiths states that in the Mediterranean area clay sling shot could be dried in the sun, but quite rightly points out that the British climate would prevent this. It seems likely that unbaked clay shot would be of little use as a projectile because its fragile nature would cause it to shatter on impact. This formed the first hypothesis to be tested.

Clay sling shot could have been fired in a pottery kiln; however, in the field other means must have been used. One possible alternative to a kiln is the use of an open fire. Thus the second hypothesis to be tested in this set of experiments was that an open fire could have been used for baking clay sling shots.

#### Method

*Unbaked shot:* in April 1988 three replica sling shots of the biconical type were made and left in a dry, but unheated, outside building (a garden shed). At the end of one week the shot was dry and robust when handled. To test its strength it was dropped from a height of two metres onto a plank of wood on a wooden floor. The shot shattered on impact; there was no damage to the wood. This was repeated with a second shot, with the same results.

*Baked clay shot:* three replica clay sling shots were made to the same pattern as before. They were allowed to stand in still air for an hour. A wood-burning fire had been lit outside; no bellows were used to aid combustion, the air for the fire coming from a natural draught. This experiment was concerned with the making of clay shot in the field; therefore no scientific instruments were used to determine temperature, which was simply estimated.

<sup>37</sup> Greep 1987, 196, Griffiths 1989, 258 and Frere and Wilkes 1989, 177-8.

The remaining shot from the first experiment was placed in the centre of the fire. It exploded within a minute, showing that even after a week of drying there was too much water in the clay. Therefore a different strategy was adopted.

To dry the shots slowly they were placed at the edge of a fire at a point where the heat was bearable to the palm of the hand. After two hours the shots were then moved closer to the fire where they were in contact with the wood at the very edge of the fire. The wood at this point was not alight. An hour later the shots were moved slightly further into the glowing part of the fire but laid on top of the glowing embers. After five hours the shots were put near the hottest part of the fire and covered with embers. The fire was left to die down overnight. Eight hours later the fire was cold and the shot was removed. None of the shot was damaged; all had turned a brick-red colour and their surfaces were hard.

### Testing

A baked sling shot and an unbaked sling shot were tested to destruction in a comprehensive test on an INSTRON Universal testing machine. The same instrument was used to press a sling shot into plastelina (a synthetic material that mimics human flesh).

It required a force of 275N to press a sling shot 4cm into the plastelina. An unfired sling shot withstood a force of 500N before fracture and a baked sling shot withstood 1550N before fracture.

### Discussion

This experiment indicates that both types of projectile are capable of penetrating soft tissue without fracture. Unbaked clay shot will shatter if it strikes hard material such as wood. An open wood fire can be used to bake clay sling shot to a hardness that will make it usable as a projectile. The whole process can be carried out in a single evening if the shot is allowed to dry slowly by moving it gradually from the edge of the fire to the centre.

Although it is possible to use unfired clay as sling shot the dampness of the British climate makes its use problematical. A slinger would carry a supply of shot on him for use at a moment's notice. If unbaked shot was carried in a bag or the like, dampness would cause the individual shots to amalgamate into a single mass and therefore become useless. Also, because of the fragile nature of unbaked clay rough transportation would probably result in the shots breaking. It is possible that unfired shot was used for hunting.

### Conclusions

When thrown from a sling unbaked clay shot will penetrate unprotected soft tissue but will fragment if it impacts on a

hard material such as wood. It would also fragment if it struck bone such as the skull or the ribs. Such a blow to the head or ribcage would cause superficial damage but no deep penetration. It seems likely that because of the dampness of the English climate the use of unbaked clay sling shot would be limited. Although no examples of unbaked shot survive in the archaeological record, their possible use cannot be discounted.

Baked clay sling shot will penetrate soft tissue and could also shatter bone causing severe wounds.

These experiments have shown the value of baked clay sling shot which can be made easily in the field using an open fire.

### Acknowledgement

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### A NEW LEGIONARY BUILDING RECORD FROM HADRIAN'S WALL by Stephen Speak and Ian Walker (with contributions by P. Bidwell and R. Tomlin).

A building stone naming a cohort and century was found c. 150m west of the site of turret 22A during a watching brief on the insertion of a new mains sewer along the southern margin of the B6318 (the Military Road) at NGR 993 687 (Fig. 14) The stone was recovered by an earth-digging machine from a depth of 0.75m below modern ground level in an area where the sewer trench ran through rubble containing several facing stones. The exact line of the Wall is uncertain at this point, though there is no doubt that it is covered by the modern road; it seems likely that the inscribed stone came from rubble that represented the collapse or demolition of the southern face of the Wall.

The block has been cut from local buff-coloured sandstone; the inscribed face measures 350mm by 250mm and the block is 350mm in depth (Fig. 15). The inscription is contained within a rectangular frame with *ansae* on the left and right sides; these features are incised on the face of the stone with single lines.

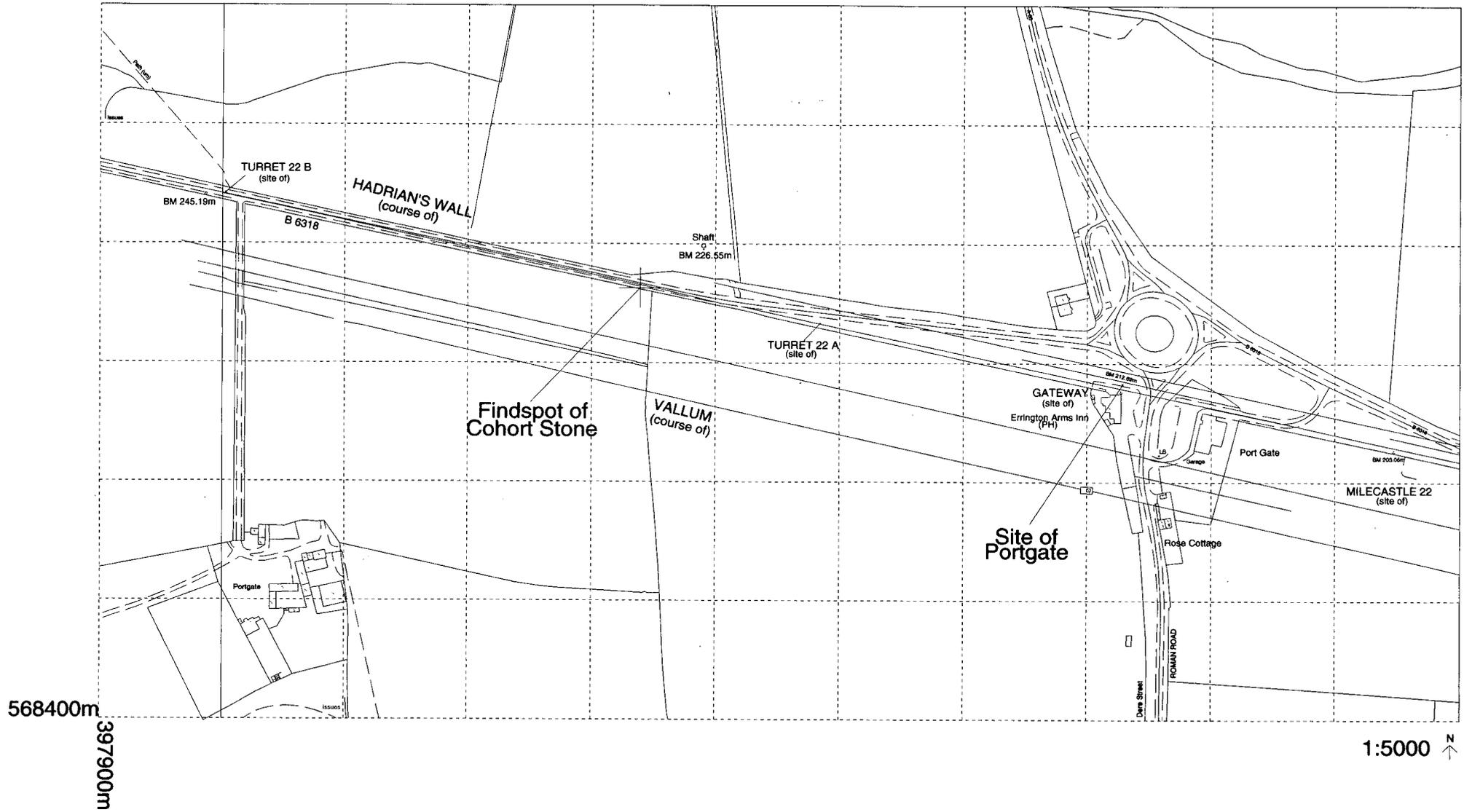


Figure 14. Findspot of the building stone naming a cohort and century.

Based upon the Ordnance Survey Landline digital mapping with the permission of the Controller of Her Majesty's Stationary Office. Crown Copyright reserved. Licence No. 076244.



Figure 15. Building stone inscribed, coh(ortis) VIII / c(enturia) Helleni).

The inscription reads: COH VIII / >HELLENI (*coh(ortis) VIII / c(enturia) Helleni*), 'from the eighth cohort, the century of Hellenius (built this)'. R. S. O. T. Tomlin has commented (*in litt.*) that '“Hellenius” is a rare name which seems to occur only at Rome and Ostia, whereas “Hellenus” is apparently not attested, which is why *RIB* 1515 [see below] prefers the former'.

### The significance of the find

by P. Bidwell

At least 94 building stones naming a cohort and century are known from Hadrian's Wall; uncertainty about the number arises because a few similar stones ascribed to forts might also originally have come from the Wall. These cohort and century stones are slightly less common than building records that only specify a century, which number at least 107. The name '*Hellen(i)us*' appears on one of these latter stones (*RIB* 1515), 'found in 1876 or 1877 in debris on the south side of the Roman Wall on Black Carts Farm near Limestone Corner (sector 29-29b)'. The new find shows that the century of *Hellen(i)us* belonged to the eighth cohort of an unknown legion. The find-spots of the two *Hellen(i)us* stones lie in adjacent legionary lengths, milecastle 22 to turret 27A and turret 27A to turret 36B. The first of these lengths was formerly attributed to *legio XX Valeria Victrix*; the second was thought to have been completed by the same legion, the earlier work in this length having been undertaken by another, unidentified legion. There is now little certainty about which legions were responsible for which lengths of the Wall.<sup>38</sup> Nevertheless, the significance of stones naming the same centuries from

different lengths of the Wall is clear: as E. Birley first noted, they demonstrate that those lengths were worked on by the same legion.<sup>39</sup>

### Acknowledgements

The work was commissioned by Northumbrian Water and an archive report is lodged with the County Archaeologist at County Hall, Morpeth, Northumberland.<sup>40</sup> The stone has been donated to the Museum of Antiquities, Newcastle upon Tyne.

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<sup>38</sup> Breeze and Dobson 2000, 68.

<sup>39</sup> Birley 1939, 231-2.

<sup>40</sup> Walker 1999.

## SOME FINDS FROM THE 1997-98 EXCAVATIONS AT SOUTH SHIELDS ROMAN FORT by A. T. Croom

Most of the finds came from the excavation of the Period 6B barracks in the eastern quadrant of the fort.<sup>41</sup> Period 6B started in the early third century (c. AD 222) and ended sometime in the late third or early fourth century (between c. AD 273 and c. AD 318). Period 7 lasted until c. AD 375. The entries include identification, location, period, context number, small finds number and description.

### Sculpture

A number of phallic symbols were found carved on sandstone building stones built into the front walls of two Period 6 barracks.

#### Fig. 16.

1. Front wall of the centurion's quarters, Barrack II, 6 construction, 24812, S617.

A large phallic symbol set diagonally, with (beside it and overlapping it) a small figure of a man on horseback carrying a shield in one hand and possibly a short spear or sword in his other, upraised hand.

2. Front wall of room 4, Barrack III, 6 construction, 23588, S618.

Large square block with phallic symbol carved on one side and an ithyphallic man on the other with a possible undeciphered inscription. A smaller stone found in Barrack VI also had simple incised images on two opposite faces, in this case images of running men (room 2, Period 6B construction, 20067, S407).

3. Front wall of room 5, Barrack III, 6 construction, 23587, S619.

Phallic symbol.

### Lead sealings

#### Fig. 17.

4. Lead sealing. Street between Barrack II and C15, Period 6B, 24120, L109.

Three imperial busts, poor quality impression. Approximately 25 lead sealings depicting the busts of Septimius Severus and his sons, from at least three different matrices, have been recovered from South Shields.<sup>42</sup> Cf *RIB* 2411.1-16.

5. Lead sealing. Barrack II, room 2, Period 6B, 24279, IM80. DN

*D(omini) N(ostri)* '(property) of Our Lord (Emperor)'.<sup>43</sup>

### Copper alloy

#### Fig. 17.

6. Greave. Barrack II, room 2, Period 6 demolition, 24016, BR931.

Incomplete greave fragment with embossed decoration and one surviving attachment loop. A figure of Victory holding a palm branch is in the upper part of the surviving fragment, separated from a triangular stylized leaf by a line of beading. This was found in the front room of room 2 of Barrack II, the *contubernium* next to that in which the complete ring mail shirt was found.

7. Forceps. Barrack II, room 5, period 6B, 24288, BR979. Smooth-jawed fixation forceps that terminates with a probe rather than the more usual baluster finial. Jackson cites a similar combination from Cologne.<sup>44</sup>

8. Enamel plate from box. Street between Barrack II and C16. Period 6B, 24527, E32.

Rectangular plate with serrated edge to the frame and a curvilinear design. Poor condition, and with only traces of enamel surviving. From a panelled enamel vessel.<sup>45</sup>

### Iron

9. Ring mail shirt. See pp. 55-60 above.

#### Fig. 18.

10. Iron hinge. Barrack II, room 2, Period 6B demolition, 24018, I742.

Iron drop hinge made of a strip held in place by two nails, which narrows and thickens towards the bend. The thickness of the door was c.30mm. Attached by corrosion is the L-shaped hinge staple.

11. Iron hinge. Barrack II, room 2, period 6B demolition, 24017, I743.

Similar hinge, but with one end of the strap terminating in a decorative point.

The door thickness is c.30mm, and there is an associated L-shaped hinge staple.

These two hinges came from door(s) burnt *in situ* within a barrack block. They were found in a corridor between two internal doors and, in view of the different designs, may not have come from the same door.

### Lead

#### Fig. 19.

12. Slingshot. Barrack II, room 3, Period 6B, 24249, L115. A similar lead slingshot was found in the demolition material of the Period 6B Headquarters Building (SF no. L39).

<sup>41</sup> See pp. 31-33.

<sup>42</sup> See p.34, n. 11.

<sup>43</sup> Published: Tomlin and Hassall 1999, 383, no. 20.

<sup>44</sup> Jackson 1986, 139. See Allason-Jones 1979 for another medical implement from Arbeia.

<sup>45</sup> Cf. enamelled vessel (of very different shape) from Corbridge: Casey and Hoffmann 1995.

13. Strap end? Barrack II, room 3, Period 6B, 24120, L110. Openwork object, similar to a strap end but without any method of attachment.

### Intaglios

*Fig. 19.*

14. Blue paste. Barrack C00, Period 7, 24100, INT12. Oval blue paste intaglio with wide bevel. Male figure holding out his left hand, and possibly with spear or staff in right hand.

15. Red jasper. Street between Barrack II and Building C15, Period 6B, 24150, INT13. Oval red jasper intaglio, with large shrimp and small fish.<sup>46</sup>

### Pottery

*Fig. 19.*

16. Crucible. Barrack II, room 4, Period 6B occupation, 24830, P574.

Complete, very tall crucible with narrow neck pinched into small pouring lip on one side. At right angles to the lip there is a semi-circular, narrow handle. Previous crucibles found on the site have been shallow cup-like crucibles without handles.<sup>47</sup>

### Brick

*Fig. 19.*

17. *Tesserae*

The *tesserae* are roughly cut square cubes, shaped before firing. Sixteen were recovered from the pre-1977 excavations on the site<sup>48</sup> and 11 from the excavations since 1977. The earliest context so far for the *tesserae* is Period 6A demolition, but the original location of the tessellated pavement is unknown.

17.1 Street between Barracks II and III, Period 6B occupation, 22837, T382.

17.2 Street between Barracks II and III, Period 6B occupation, 22836, T383.

17.3 Street between Barracks II and III, Period 6B, 24021, T385.

17.4 Street between Barrack II and Building C16, Period 6B, 24527, T388.

17.5 Barrack II, room 1, Period 6B, 24403, T392.

17.6 Street between Barrack II and Building C16, Period 6B, 24527, T426 (illustrated).

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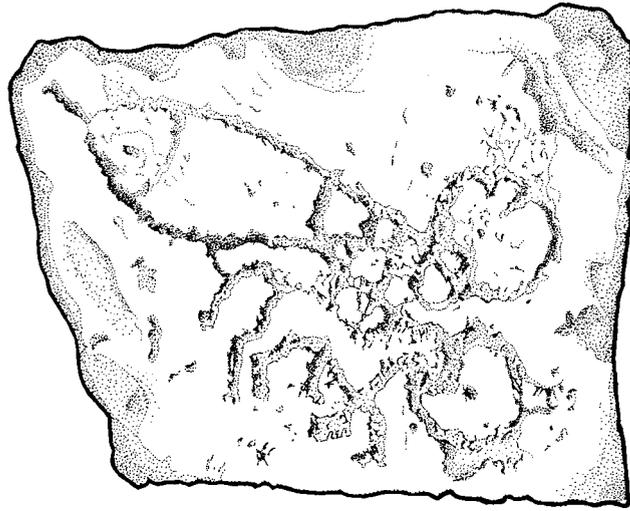
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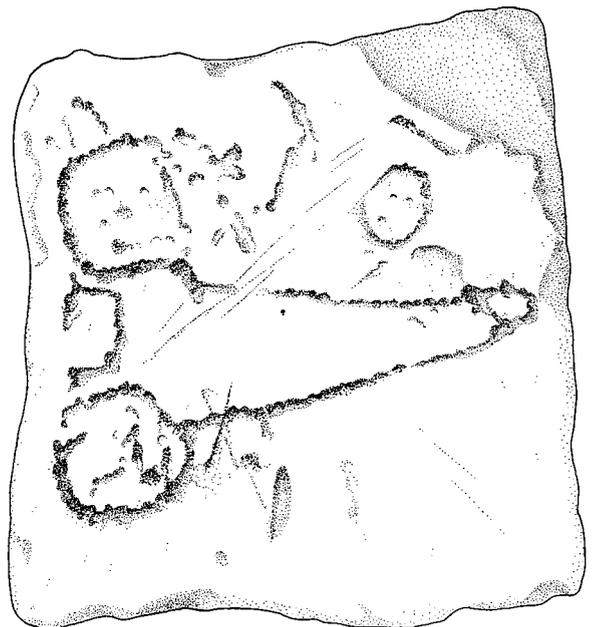
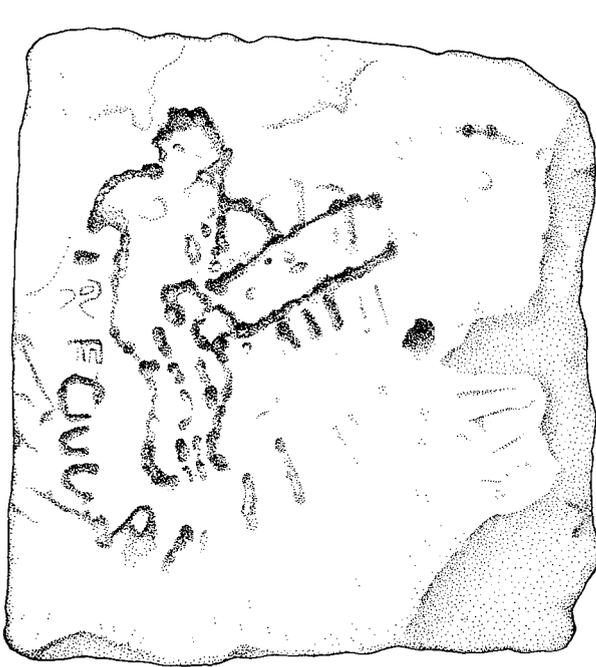
<sup>46</sup> For parallels for shrimps, see Henig 1997, 285, no. 88.

<sup>47</sup> Dore and Gillam 1979, fig. 42, nos 257-61.

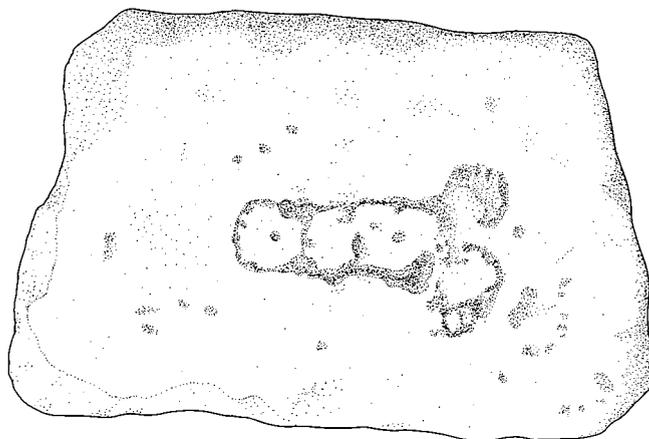
<sup>48</sup> Allason-Jones and Miket 1984, no. 9.62.



1



2



3



Figure 16. Small finds, stone. Scale 1:4.

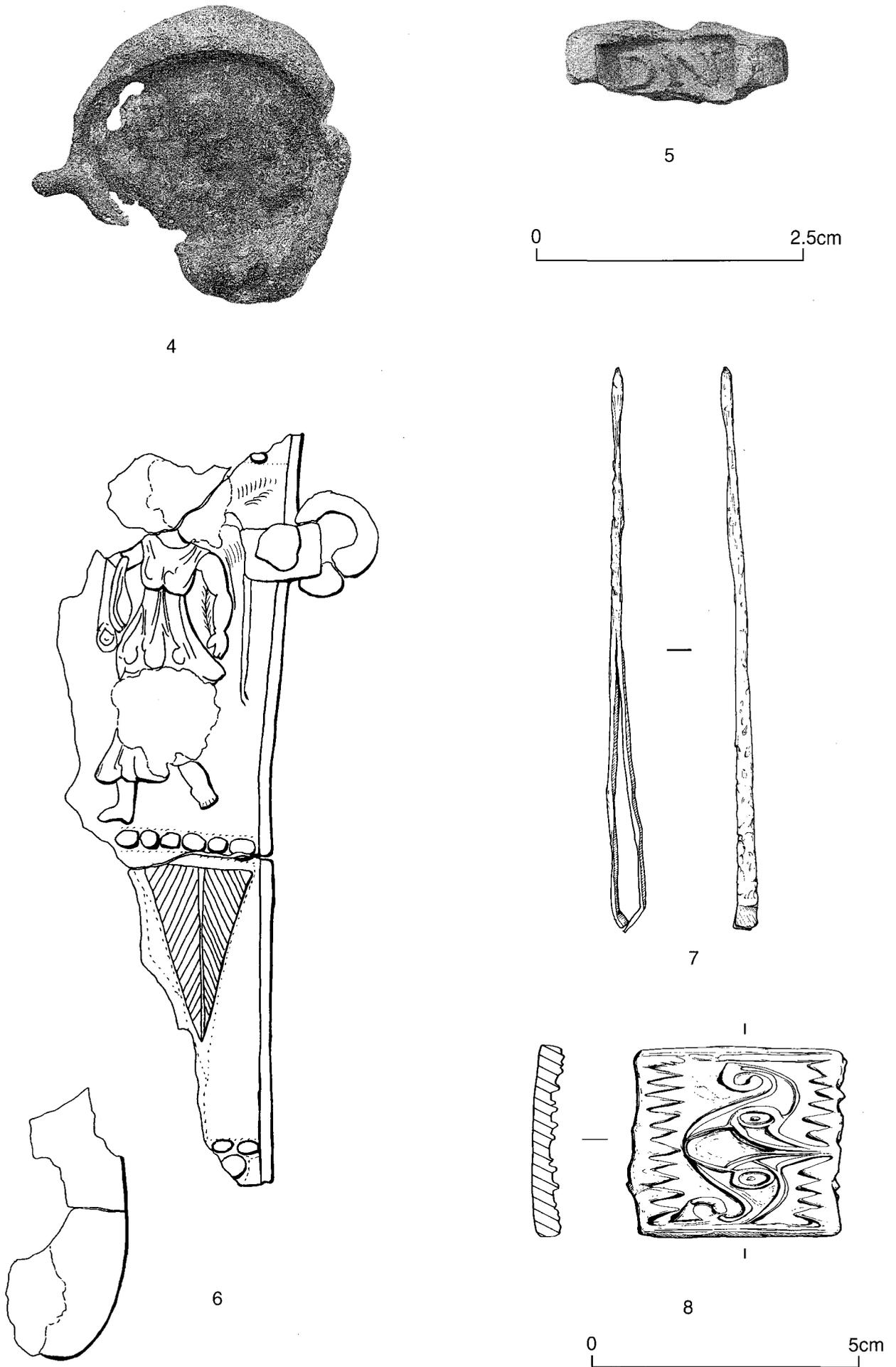


Figure 17. Small finds. Nos 4-5, lead sealings, scale 2:1; nos 6-8, copper alloy, scale 1:1.

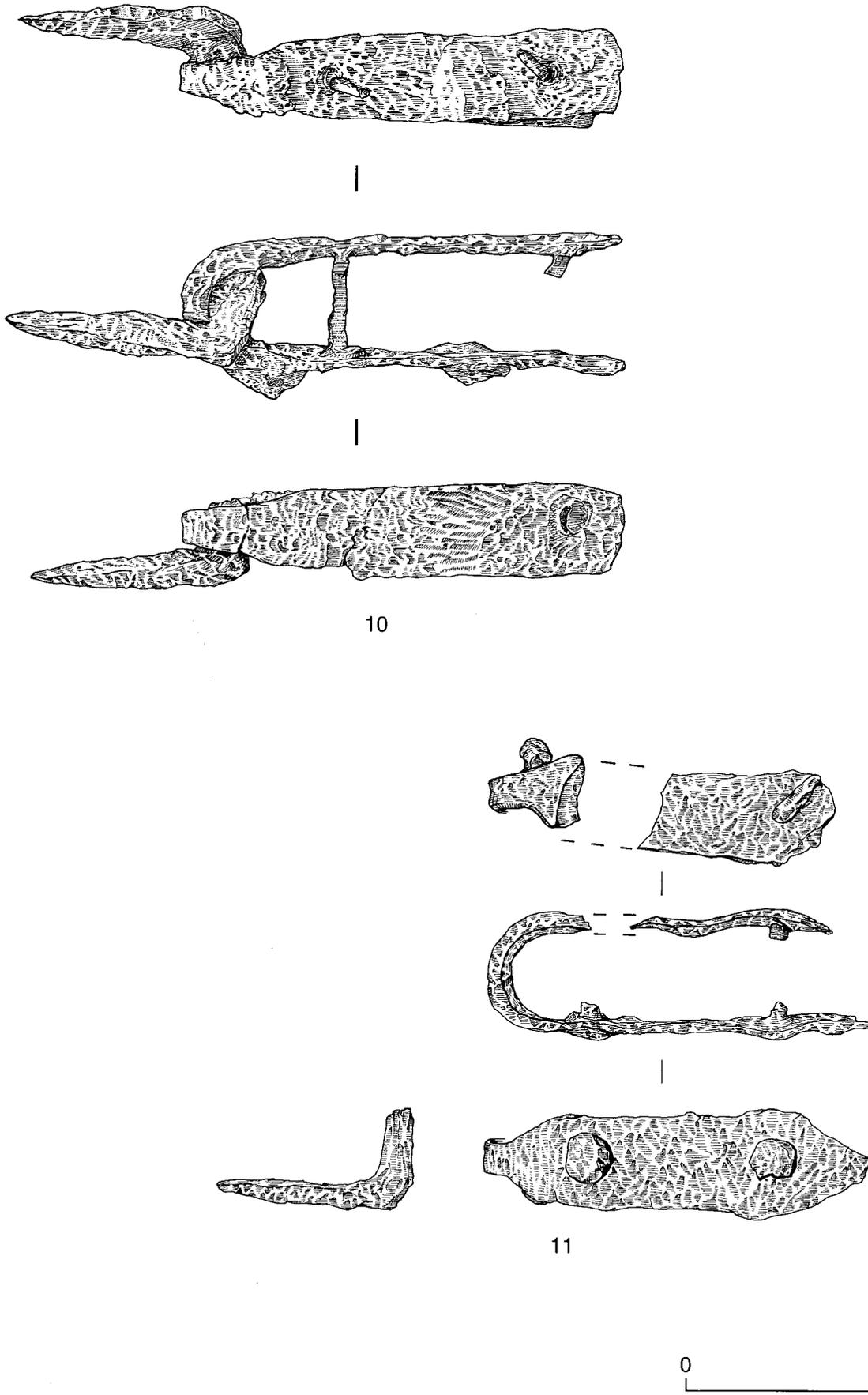


Figure 18. Small finds, iron. Scale 1:2.

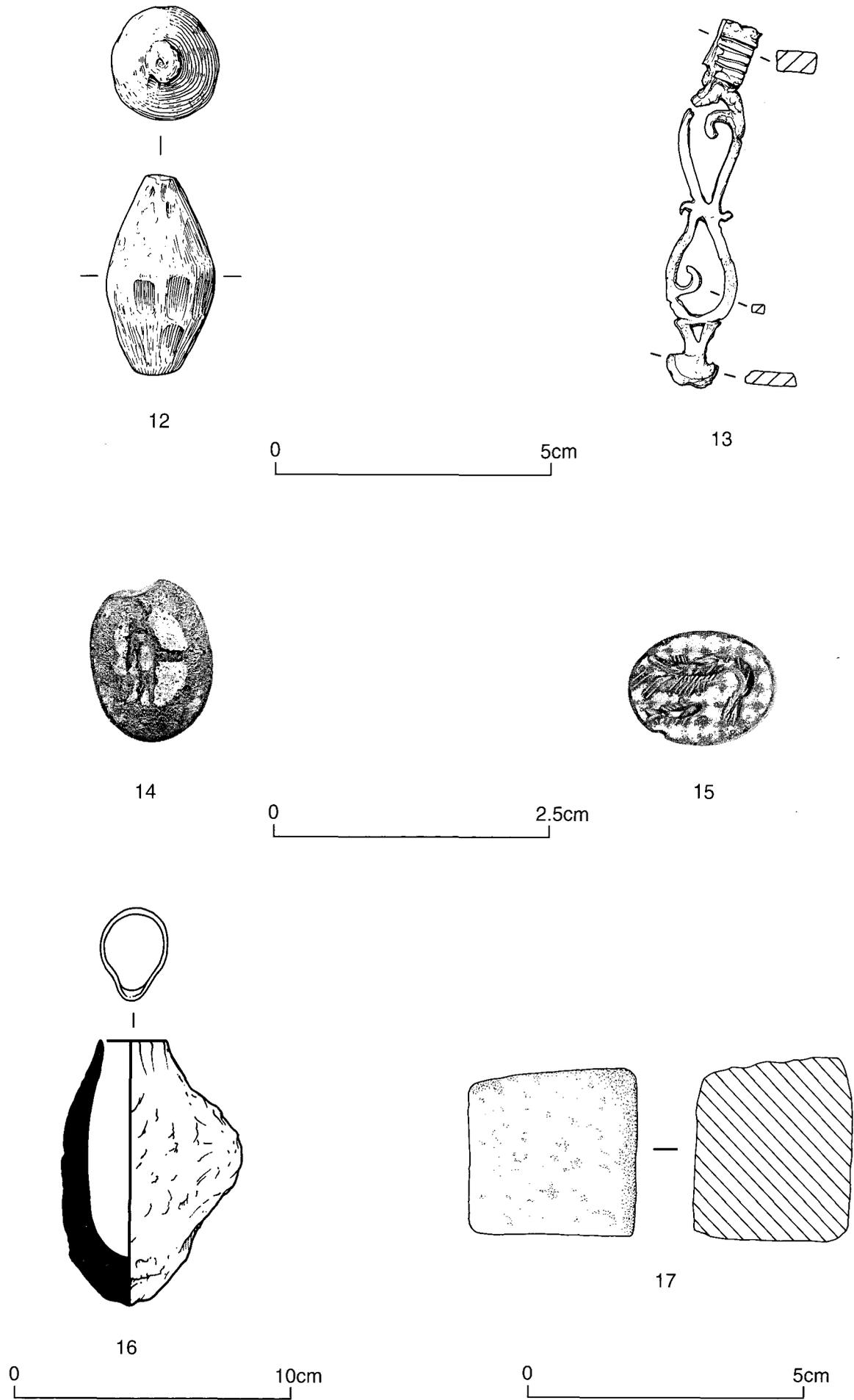


Figure 19. Small finds. Nos 12-13, lead, scale 1:1; nos 14-5, intaglios, scale 2:1; no. 16, pottery, scale 1:2; no. 17, brick, scale 1:1.





