

## VI

### AN EXCAVATION OF THE NORTH CURTAIN WALL AT HOUSESTEADS, 1984

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*With contributions by L. Allason-Jones, D. Allen, J. Casey, J. Dore, R. Grove,  
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#### INTRODUCTION

THE EXCAVATION at Housesteads fort was situated on the north side of the north curtain, 20 m east of the central spine of the North Gate (fig. 1), at a point where a farm track crossed the fort wall. Following a change in the tenancy of Housesteads Farm, access was no longer needed for livestock through the fort north of the Wall and it was decided to remove the modern farm gate and excavate the fort curtain to create a stock-proof barrier. Much of the north-east quarter of the fort was excavated by Newcastle University and the Department of the Environment in successive seasons between 1974 and 1981 under the direction of Messrs. J. P. Gillam and C. M. Daniels and latterly by the writer, and the opportunity to examine the outer face of the north curtain was seen as an important supplement to this research. The publication of the 1974–81 excavations is currently in preparation, but since the 1984 excavation was carried out as part of the programme of work undertaken by the National Trust's excavation team, funded by English Heritage, it was decided to publish the results separately in advance of the main report. In a number of ways the findings were different from those within the fort; in particular many of the deposits were well stratified and the bone, wood and leather was much better preserved than similar material recovered within the fort.

The same system of area and trench numbering was used as for the excavations

of barracks XIII, XIV and the rampart areas. The rampart between the north gate and the north-east angle tower is given the area code H20 and was divided into 9 trenches, numbered from east to west. This excavation north of the curtain wall was numbered H20/10 in the same sequence. Contexts are identified by the trench number and context number divided by a colon, thus context 33 (10:33). All are area H20 unless specified otherwise.

When the excavation began in July 1984 work was carried out by students from Newcastle University as part of the second-year training excavation, and was then carried on by volunteers from the National Trust's excavation programme in the Hadrian's Wall Estate. There are too many to name individually but their labours, freely given, were greatly appreciated. Later in the season a number of excavators from the National Trust excavation team continued the work in less favourable conditions and I wish to thank the following: D. Crawford, K. Chadwick, T. Lawrence, A. Peat, N. Skeels, N. Stanley, J. Towell, J. Wood, K. Wicks, S. Wallis and A. Woodger. My special thanks are due to Roger Oram for site planning and publication drawings and particular thanks to Nicholas Hodgson, who was assistant supervisor for the whole period of the excavation and has read and commented on part of this report. I am grateful for the encouragement and support of Stephen Johnson, HBMC Inspector of

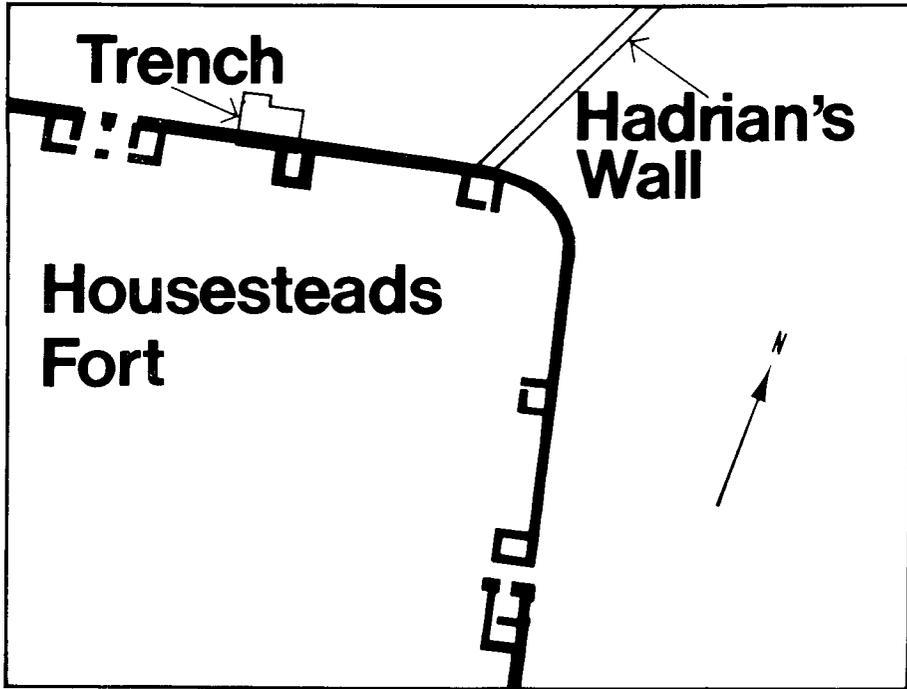


Fig. 1. Location plan of 1984 excavations.

Ancient Monuments and Oliver Maurice, National Trust Regional Director.

I am very grateful to the following for supplying specialist reports: Lindsay Allason-Jones (small finds), Denise Allen (glass), John Casey (coins), John Dore (pottery), Richard Grove (animal bones), Quita Mould (leather), Kim Whittaker and Alan Clapham (wood identification). Illustrations were by Clare Thorn, Norma Skeels, Margaret Finch and Karen Griffiths. I am grateful for information about specific details and discussions with Paul Bidwell, Charles Daniels, Helen Keeley, Ralph Mills and Alan Whitworth.

Working at Housesteads, one is constantly aware of the long tradition of archaeological inquiry stretching back before John Hodgson to the present day. As I was completing this report I learnt of the sad news of John Gillam's death; many will

mourn his passing but all will celebrate his achievements and contributions to the study of Hadrian's Wall; as one who was privileged to work with him at Housesteads for a number of seasons I wish to dedicate this paper to his memory.

#### *Previous Work*

Throughout the middle decades of the nineteenth century John Clayton's estate staff cleared the fort walls to reveal them for public view. MacLauchlan's fort plan of the mid-1850s shows the outline of the curtain wall very clearly, but the only internal buildings he indicates are the granaries. There was some digging in the fort in Clayton's time, and Bosanquet's workmen used to complain that "There's nae dout auld Antony's been here before us" (1904, 231), referring to Clayton's foreman Anthony Place and "the houkings" he had left be-

hind. But there is only a brief record of this work and the main objective of Clayton's diggings was to clear the curtain wall and gates, especially the massive remains of the west and north gates (Bosanquet, 1904, 201-3). Bruce wrote of these excavations that "The reader may conceive what an enormous mass of matter has been removed in order to display the buildings which meet his eye. Eight hundred cart loads of loose and broken stones were used in draining the bog at the bottom of the station, but this enormous quantity is but a small fraction of the whole that has been removed. As many or more were put into the bog on the north" (1867, 144).

The surviving points of vehicle access in the south and north walls date from this period and were left to allow the removal of excavation spoil. Until that time passage from the north side of the fort had been through the north gate (Hodgson, 1840, 187), but when Clayton cleared the gate and its foundations in 1852 the modern farm gate must have replaced it. Later farmers at Housesteads used it to reach a hay field to the north of the fort (pers. comm. Thomas Carr). Bruce records that "When this gateway was discovered a road was found leading up to it by a somewhat steep gradient; the sloping bank was removed to display the masonry of the foundation" (1867, 144). A contemporary watercolour by H. B. Richardson, now in the Laing Art Gallery collection (no. 21), shows the cleared gateway (reproduced in Brewis 1929, 169-171, pl. 43).

No further work is reported on the fort wall before restoration and excavation by Simpson between 1909-12 (1976, 125-40). This was principally concerned with the south-east angle and latrines, and the towers at the north-east and north-west angles. During further work in 1930, Simpson noted that the threshold of the east portal of the north gate was unworn, hence unused; no further work is reported from the north curtain.

In the later 1950s and 1960s the fort wall

was consolidated by the Ministry of Works and the only record of this work is a series of photographs taken by the foreman, C. Anderson; none are known of the north face of the north curtain probably because photography on this side is made difficult by the steep slope to the north. Ample evidence of disturbance during this consolidation work was found in the 1984 excavations, and during excavation south of the north farm gate the traces of earlier stone gate posts were found relating to the stone dyke which ran from the north gate to the north-east angle. This was removed when the north curtain was consolidated in the 1960s. Before the 1984 excavation the ramps up to the field gates in the south and north curtains were the only undisturbed parts of the outer face of the fort wall. After the excavation described here only the south ramp remains.

#### *The Excavations*

Excavation was limited to the north face of the curtain wall covered by the fieldgate and modern track, together with a short length of consolidated wall on either side. The excavation was restricted on the north side by the steep hillside beyond the terrace for the farm track. The total area excavated was 8 m by 5 m and only the west half of the trench was fully excavated down to natural. The central section was recorded as a cumulative section (fig. 4A-B), but the section on the west only partially represents the stratigraphic record of the trench since the face collapsed after heavy rain and it could only be drawn after it had been cut back by 0.5 m (fig. 4C-D). The east section is not illustrated. Work began in July and was completed by early November and consolidation of the wall followed. The archive of site records and all finds will be deposited in the Corbridge Site Museum.

#### *Wall I*

The earliest phase of the fort curtain consisted of whinstone foundations (10:47) with two courses of sandstone footings (10:54)

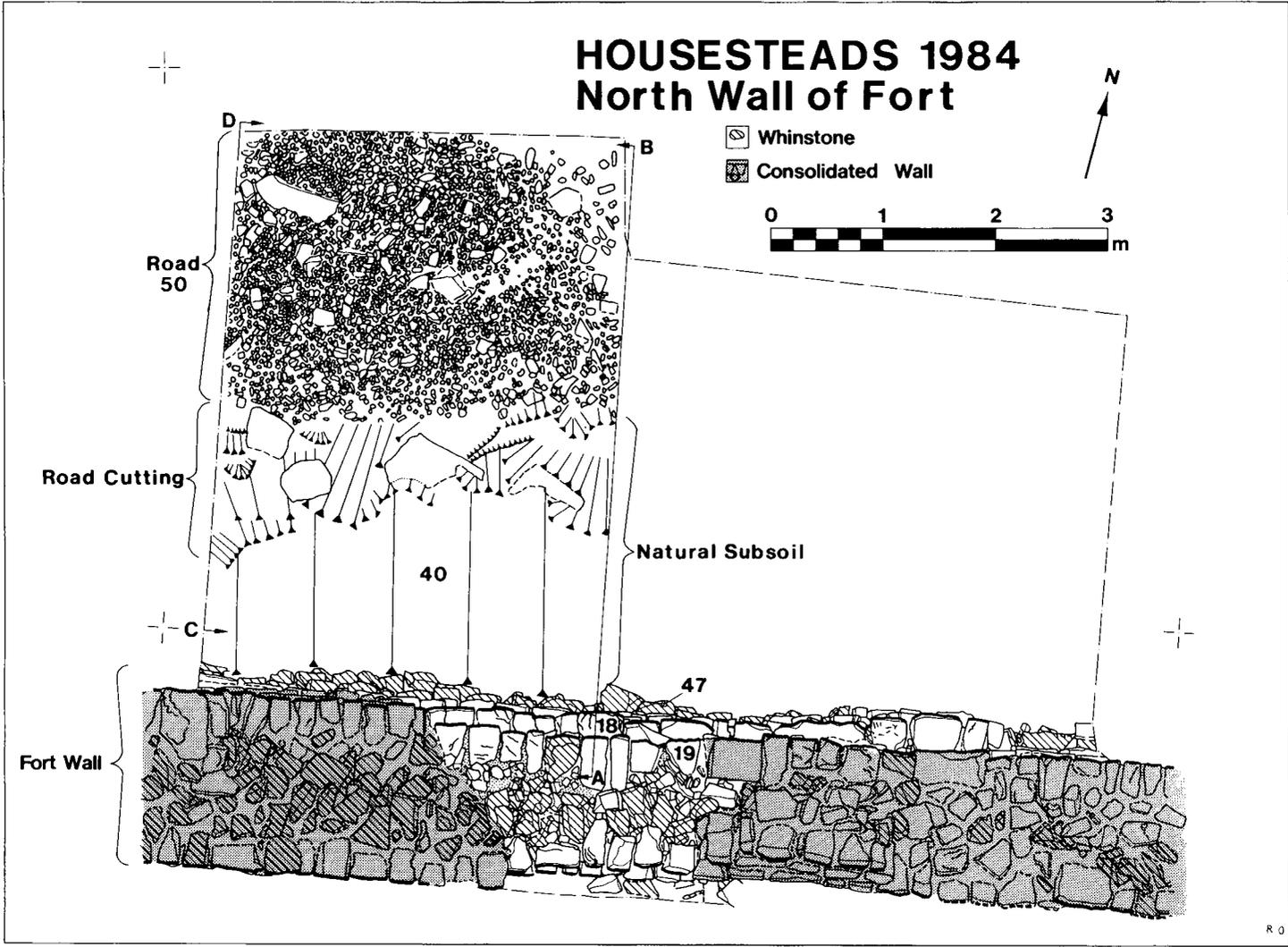


Fig. 2.

(figs. 2, 3). The upper course of the foundations was of regularly shaped whinstones, offset by 0.10 m from the sandstone footings above. Below this were one or two courses of irregular shaped stones, in places inset by up to 0.13 m. These lower courses would appear to have been constructed within a trench cut into the natural clay (10:40) of the hillside, but much of this had been cut away so that later material abutted the footings (cf. 10:26, 29, 34).

This construction trench was set back from the steep north slope to leave an open space north of the wall, similar in function to the berm of a ditch (fig. 4, sections A–B, C–D). The term berm is used to describe this area, although it does not imply that there was ever a ditch along the north curtain. The early foundations were bonded with yellow clay and the surviving construction material was a narrow band of grey-brown clay (10:41) mixed with fragments of mortar and charcoal.

The two sandstone courses of the wall sloped downwards from west to east, following the line of the ridge. The blocks are of a standard square faced type found in the coursed rubble walls of the fort and curtain (Hill, 1981). The stones of the lower course are significantly larger than those above, with blocks normally 0.30 m square, some up to 0.40–0.50 m square. The lower course projects between 0.07–0.10 m. At the extreme east end, two blocks had been disturbed by consolidation.

North of the fort curtain was a single cobbled surface (10:50) terraced into the natural clay of the hillside and at its deepest point 2.50 m below the modern ground surface. Only part of this cobbled surface was exposed and the south edge was 2.40 m from the wall footings (fig. 2). This was the only edge that could be defined, but it was clear that it was not parallel to the fort wall and it veered slightly towards the south-west so that its projected line would bring it up to the north gate. The cobbles sloped towards the north to allow run off and it rose steeply uphill with a gradient of 1 in 6. This is

perhaps the same roadway noted by Bruce at the north gate which was removed by John Clayton (Bruce, 1867, 144).

Over the cobbled surface a deep layer of waterlogged debris had accumulated (10:42, 48) with organic material, bone and leather (fig. 4, sections A–B, C–D). This sloped down from south to north and had remained waterlogged as water seeped out of the hillside and down the slope. A thick iron pan (10:39) had developed over the natural clay (10:40) and the upper waterlogged deposit (10:42).

#### *Finds*

Berm and road deposits

Copper alloy—fastening 23 (10:48)

Glass—71, 72, (10:42) 53 (10:48)

Leather—see report (10:42, 48)

Wood—see report (10:42, 48)

Stone—sugar loaf shaped finial

Pottery—10:39 160+; 10:42 180+; 10:48 160+

#### *Dating Evidence*

No datable material was found in the limited construction levels associated with Wall I. However, there was a quantity of material from associated contexts above the primary road surface (10:39, 42, 48) dating later than 160. Sealed below a later deposit (10:34) of late second and early third century pottery was a denarius of Hadrian (no. 20) issued between 136–138, lying on the natural boulder clay. This gives no more than a *terminus post quem* for this layer so cannot be used to refine the chronology of the construction of the fort wall.

#### *Discussion*

Nothing from the evidence found contradicts that the first curtain wall was constructed during the reign of the Emperor Hadrian, although it is not possible to be any more precise. Rubbish and waste material were dumped over the road in the late Antonine period after the reoccupation of Hadrian's Wall. Among the botanical remains have been identified bracken and

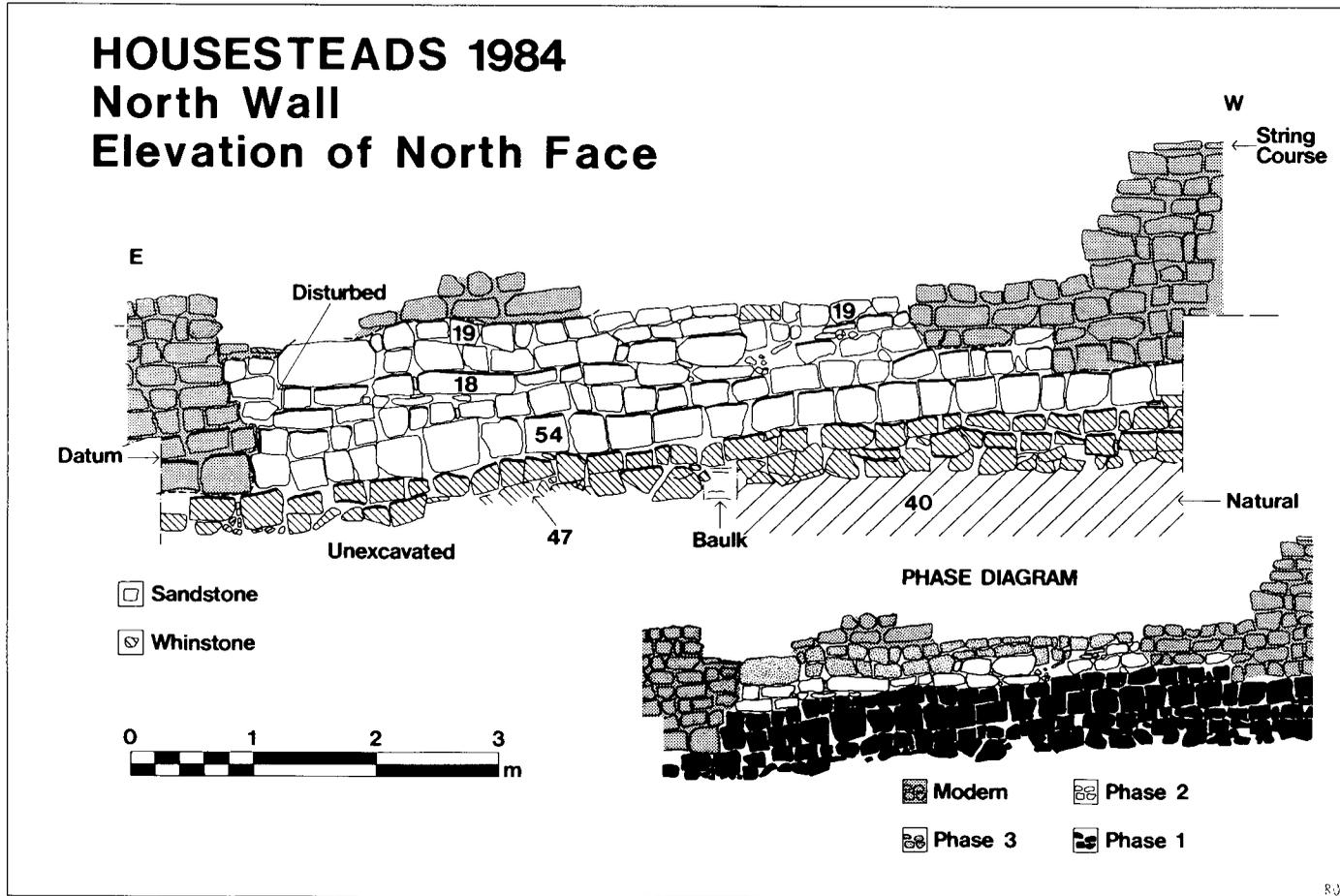


Fig. 3.

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bran, typical of cess deposits. It would seem that the north slope was a squalid and unwholesome area and that the route from the east was abandoned so that either the gate ceased to be of importance, or that an alternative approach was preferred.

### *Wall II*

A layer of mortar and sandstone blocks was seen immediately above the waterlogged deposit (10:42) and also in the limited section at the east end of the trench, where a thick layer of crushed sandstone and mortar was observed (10:52) over the lowest rubbish deposit against the wall footing (10:53) (not illustrated). This construction material may be associated with the second phase in the wall face (10:18), characterized by the use of long rectangular blocks over 0.40 m long, but only 0.15 m high; one block is 0.75 m long by 0.17 m high. Up to two courses of this work survive, but towards the west and east edges it has been consolidated, although similar features appear in the repaired work. Another feature distinguishing Wall II from Wall I is the narrow levelling-up course towards the east (fig. 3).

Both Walls I and II have bulged outwards and where the curtain has not been consolidated the upper course leans out. This bulging can be associated with two drains which merge just within the rampart back (8:24, 26) and run below the expansion Wall from unit 1. No trace of the drain outlet survives in the outer face of the Wall since the top of Wall II is now 0.63 m below the level of the drain under the expansion wall (see North Rampart Report forthcoming). The berm was covered with a yellow-grey clay (10:37) which sealed the construction debris and across the whole area was a deposit of rubbish (10:33) comprising much bone, pottery, charcoal and crushed sandstone. Against the Wall footings was a different layer of rubbish and red clay (10:34). The rubbish deposits were deeper north of the fort wall as if there was a deliberate attempt to leave the footings exposed and create an

apron for the berm up to 2–2.50 m from the wall.

### *Demolition of Wall II*

Over these berm deposits was a deep layer of decayed mortar and sandstone rubble (10:30) 0.25 m deep. In one place the facings remained articulated from the collapse, but compared with the quantity of fallen stone in the collapse of Wall II (see below) it would appear that the remains had been picked over and most of the reusable stones taken for rebuilding. Four irregular pits had been cut into the surface (10:31, 32, 35, 36) probably to remove facing stones from the tumble. Above this demolition deposit was a layer of mixed soil with many finds (10:26, 29) (fig. 4, section A–B).

### *Finds*

#### *Berm Deposits*

Copper alloy—15 scabbard runner, 16 triangular plate, 17 binding, 19 scabbard runner, 99 pin, 101 disc fragment, 102 vineleaf stud, 103 knee brooch, 133 strap end (10:33), 41 curved sheet, 42 strip (10:43).

Iron—111 escutcheon, 115 double-spiked loop, 117 bar, 119 penannular collars, 120 rectangular plate, 135 loop frag. (10:33), 39 chain, 157 strip frag., 159 irregular plate (10:43), 162 stud (10:33).

Lead—Waste 132 (10:33).

Glass—68, 69, 70, 90, 91, 92, 93, 104, 105, 107, 108, 130 (10:33); 149, 150, 151, 152, 153, 154, 155, 156 (10:37).

Intaglio—18 (10:33).

Coin—Denarius—Hadrian (136–138) 20 (10:34).

### *Wall III (10:19)*

This is the third and final construction of the fort curtain in stone. Only a short section 5.20 m long survived undisturbed by consolidation and nineteenth century restoration. The face of this wall was set back between 0.20–0.30 m from the surviving face of Wall II and at the east end where the earlier walls had bulged because of seepage

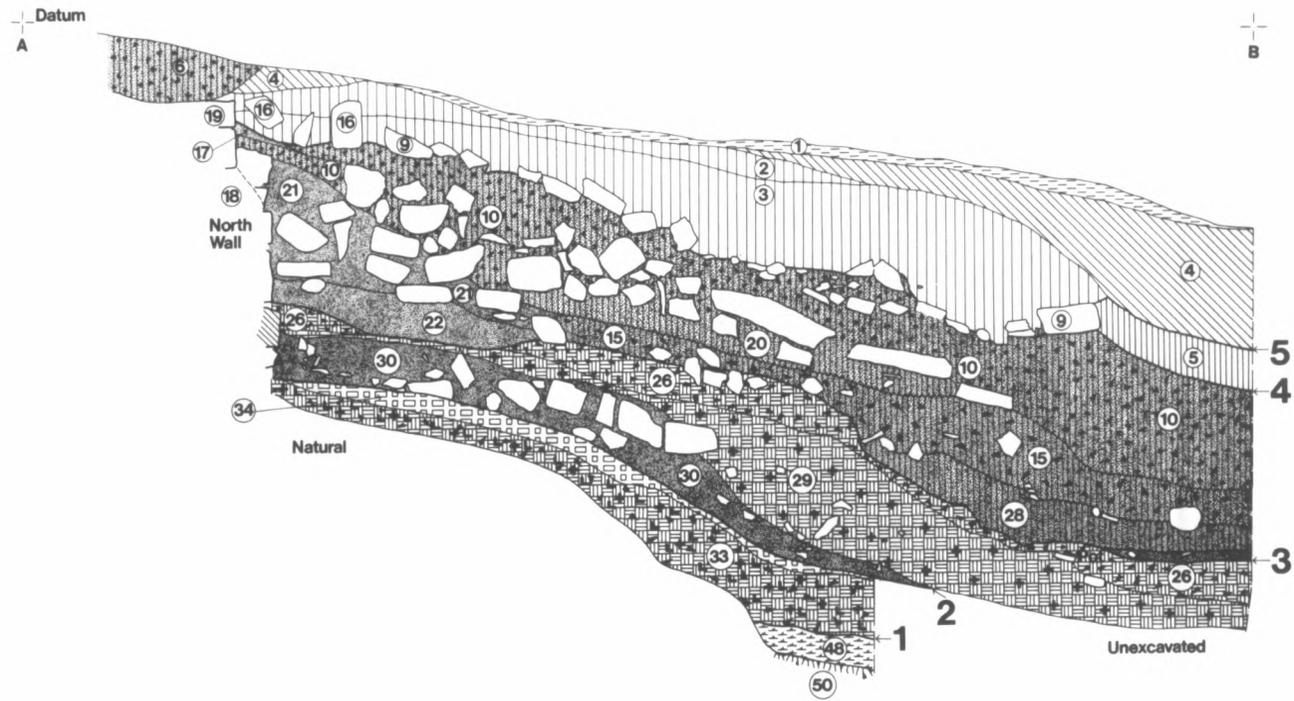


Fig. 4. Section A-B.

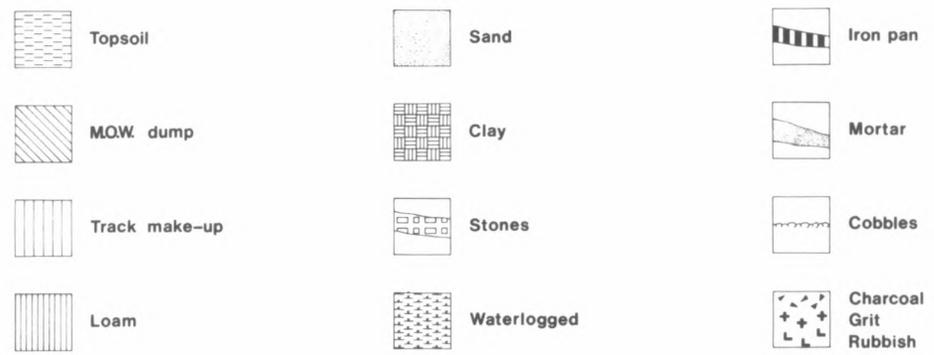
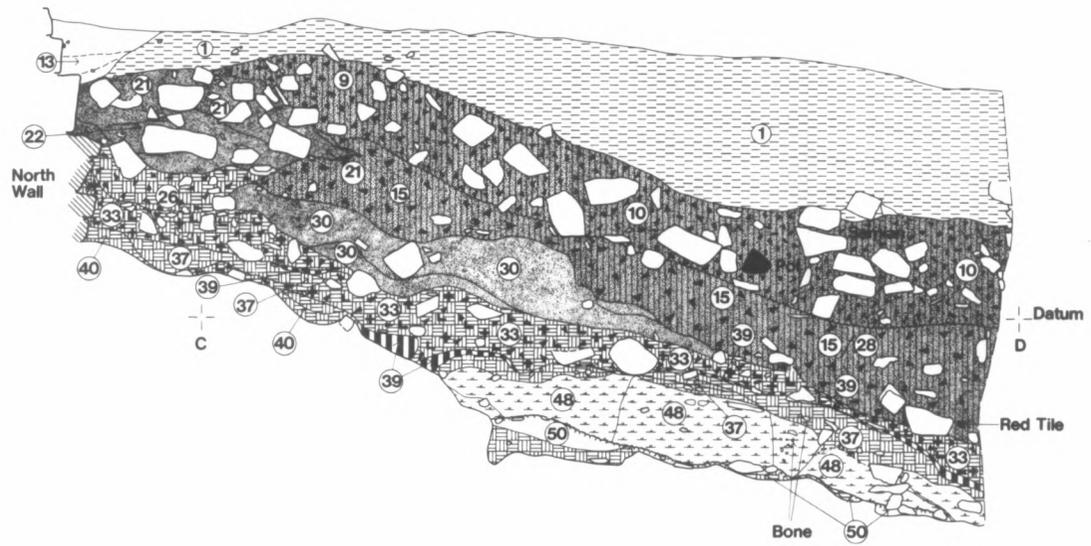


Fig. 5. Section C-D.



a) The North Curtain Wall during excavations in 1979. From the east.



b) Glass intaglio, length: 12 mm, width: 9 mm.  
(Photographed by Hazelle Page).

from internal drains, there was a ledge 0.36 m wide. This was the only phase of the curtain where the width could be measured, a surprisingly narrow 1.22 m (4 ft) when compared with the adjacent consolidated wall 1.36 (4 ft 6 in). The facings were of various sizes and some were set with an oblong and others with a square face. At the east end was a large oblong block 0.80 by 0.35 m. Two courses survived undisturbed and at one point, where three courses were exposed in 1979 and later consolidated, the face tipped out towards the north and there was a pronounced batter on the south side (plate IVa).

Against the first offset of Wall I a narrow trench 1 m wide and up to 0.30 m deep cut into the berm deposits (10:26, 29). This was filled with fine mortar and sandy clay (10:22) and may be associated with the construction of Wall III. Over this and earlier deposits (10:26, 29) a layer of small stones and loam formed a distinct surface (10:15) which to the north was deeper and less stony (10:28). Against the wall footings a layer of small rubble and decayed mortar with patches of dark loam (10:21) represented weathering and decay of the wall face.

### *Collapse of Wall III*

The inner face of the curtain uncovered in 1978-9 survived three to four courses above the outer face and showed a clear collapse towards the north (plate IVa). Much of this collapse survived on the north side (10:10, 20) as a deep layer of facing stones, including broad flat slabs and sandstone rubble. In the west half of the trench part of this collapse remained articulated with a string course slab and five courses of facings below it. If this were restored, it corresponds with the string course seen in the consolidated wall immediately to the west. Similar fallen flat slabs were found east of this point at a distance of 2.60 to 3 m from the base of the curtain. The hillside sloped more steeply to the east and fallen masonry will have spread further down the slope beyond the northern limit of the excavations. The stringcourse

can be estimated at 13 courses or 2.10 m above the footings. Evidence for the repair was seen in a narrow band of mortar (10:17) sealed below the last collapse of the stone wall (10:16) which survived in only a limited area because of modern disturbance to the wall face by consolidation and repairs to the farm gate. The quantity of sandstone rubble and facings demonstrates that there was no further attempt to rebuild the north curtain in stone, particularly when it is contrasted with the demolition debris from Wall II, where relatively little stone survives. Over the collapsed stone work was a layer of small sandstone rubble and loam which is probably the slump of the earth rampart behind Wall III (10:9).

### *Late Roman Defences IV*

The slump of the rampart back was mostly covered in the west half of the trench by make-up deposits for the farm track, however, within 0.80 m of the north edge of the trench there was a distinct spread of dark silt (10:5), quite different from the make-up of the modern track or the collapses and berm deposits associated with the north curtain. The silt seems to have been washed out from a later earth bank constructed over the line of the curtain, and the spread of material has been truncated on the south side by construction of the modern track (fig. 4, section C-D).

### *Finds*

#### *Construction*

Iron—75, 76, 77, 78 (10:22).  
Pottery—(10:22) 200+.

#### *Berm Deposits*

Copper alloy—disc brooch 10, ligula 12 (10:28), wire 178 (10:15).  
Iron—arrowhead 168 (10:28).  
Glass—48-52, 59-63 (10:15); 45, 46 (10:28).  
Coin—Julia Domna 6 (10:15); "Tetricus I" 8 (10:28).  
Beads—9 (10:28).  
Shale—7 (10:15).  
Pottery—(10:15/28) 350+.

## Wall collapse

Stones—moulded string course 12 (10:10); whetstone 125 (10:20).

Iron—arrowhead 186 (10:20).

Glass—174–177 (10:20).

Pottery—(10:20) 350+.

## Rampart collapse

Coin—Severus 3, Elegabalus 4, Tetricus 5 (10:9).

Glass—9 (10:9).

Pottery—(10:9) 350+.

## Silt

Glass—47, 54–58, 97 (10:5).

Pottery—(10:5) 250+.

*Dating Evidence*

A *terminus post quem* of 250 is supplied by pottery in the soil dump (10:29) cut into by the construction deposit for Wall III (10:22). The latest berm deposits (10:15, 28) produced material with a *terminus post quem* of 350, and both the berm deposit and wall collapse (10:20) produced examples of arrowheads of the same type as found in fourth century levels within the *principia* (Bosanquet, 1904, 224–5, 290, see below, small finds report). The date for the collapse of Wall III cannot be given with any more precision, but it is likely that the wall fell late in the fourth century, as both the rampart slump (10:9) and the wall collapse contained pottery dateable to or after 350 (see coarse pottery catalogue nos. 33, 60). The rampart slump also establishes a *terminus post quem* for the spread of silt from the later earth rampart which in sequence may date to the close of the fourth or perhaps the early fifth century.

*Discussion*

The excavation of the north curtain wall revealed three main structural phases in the wall elevation (fig. 3), and three major construction levels were recognized in the stratified deposits north of the wall. Only the collapse of Wall III can be directly linked with the final masonry phase of the defences, but by working back from this point,

it is possible to integrate the structural phases with the construction levels. The dating of the pottery and small finds from these deposits is consistent with the stratigraphic record, so that in summary the three stone wall phases may be dated as follows: I, Hadrianic construction of the fort wall; II, Rebuilding of the north curtain towards the end of the second century, before or contemporary with the construction of rampart-back buildings against the north and south walls of the fort (Daniels, 1980, 187; Tait, 1963, 40); III, Building of a narrowed curtain about a century later, with limited repairs during the fourth century. This wall collapsed after the mid-fourth century and was replaced by an earthbank probably associated with a timber interval tower, located in 1979 (Welsby, 1982, 113).

The rebuilding of the final stone and earth phases of the north rampart will be discussed more fully in the context of the major alterations to the rampart and the multiple revetting walls (Grew, 1980, 359), but the unusual way it was narrowed and inset may be paralleled with later stone phases in the curtain wall of Birdoswald. Late repairs there may be seen in the consolidated wall between the Main East Gate and the East Quintan Gate. There is a clear straight joint limiting the work to the south and the upper part of the curtain is inset from the curtain wall to north and south. Excavations in 1932 north and west of the south-east angle found traces of a late bank over much of the rampart with a retaining wall on the outer side (Simpson *et al.*, 1933: 261). A similar wall survives near the south-west angle where a narrow wall, barely 1 m wide, is inset from the curtain wall and this provides a very close parallel with the last stone phase at Housesteads, Wall III. At Vindolanda work has recently been carried out clearing the east curtain, but little has been learnt concerning the chronology of the defences (Birley quoted by Bidwell, 1985, 44); although a more careful investigation might have been more fruitful, see the discussion by Bidwell (1985, 46).

Two aspects remain with wide implications for the archaeology of the fort at Housesteads: the use of long blocks in repairs to the curtain wall and the approach to the North Gate. These aspects are considered in the following sections.

#### *Repairs to the Curtain Wall*

Previous studies of Housesteads have noted repairs to the curtain wall (Daniels, 1976, 137–42; Simpson, 1976, 125–40). A brief survey of the consolidated walls shows that long blocks are found in varying densities in almost all lengths of the outer face of the curtain. The sections most extensively repaired in this way are the north-west angle, south-west angle (Bruce, 1867, 142), the south-east angle (Simpson, 1976, fig. 62) and the north quoins of the *Porta Praetoria*. Long blocks are used intermittently elsewhere on the curtains as evidence for repairs and even on the inner face of Hadrian's Wall leading down towards the Knag Burn. The variety of stones used make it very unlikely that these repairs are contemporary.

The most carefully selected and laid blocks are confined to the angles and gateway noted above. The long blocks seen in the later two phases of the north curtain excavations do not conform with these clearly defined repairs and so cannot be used to provide a comparative date for this work. Long blocks are characteristic of the later construction of the *principia*, *praetorium* and building XV as well as quoins of the vicus building south of the south gate. The long blocks used in the curtain probably derive from the demolition of these buildings, so that repairs to the curtain are unlikely to date before the mid-third century.

#### *The Approach to the North Gateway*

An unexpected discovery of the 1984 excavation was the traces of the metallated roadway leading up to the north gate. No earlier accounts, nor surface features suggested that a road approached from this direction, and it is clear from the excavation

that the modern terraced track leading towards the north-west is very largely the product of nineteenth and twentieth century excavation spoil dumps. The only details of the ramp in front of the north gate are from Bruce's description (quoted above p. 63). The eastern roadway up to the gate had a limited life, since there are no signs of repairs to the cobbling; furthermore the dumping of rubbish, dating from 160, is inconsistent with its continued use as an approach to the north gate. If the gate continued to be used as before, an alternative approach must have been constructed.

Simpson observed in 1930 that the east portal of the north gateway was unworn and never used, which suggests less frequent passage through this gateway than the other gates. In practice there may well have been an overprovision of gates in the Hadrianic design of Wall-forts (Breeze and Dobson, 1987, 227), particularly in the standard primary fort plan where three of the main gates lay north of Hadrian's Wall. A good example of this is from Haltonchesters where it is doubtful whether the west gate was ever used (Simpson and Richmond, 1937, 157–8). At Housesteads, however, where there is only one gate north of the Wall more frequent use might be expected. Bruce noted that "The angles of the basement stones of the western aperture are much more worn by the tread, apparently of the feet of passengers" (1867, 144); but this could reflect only a postern gate in the west portal, known from a nineteenth century watercolour (see above p. 63). Narrowing of gates is commonly observed at milecastles from the third century onwards, but has more rarely been observed at Wall-forts. A possible example is the west portal of the north gateway at Haltonchesters, although the evidence like that from many milecastles was fragmentary (Simpson and Richmond, 1937, 162–3).

An alternative approach to the fort from beyond the Wall was the Knag Burn Gate; and this allows an easier ascent to the main east gate than the steep climb on the north

side. Mann suggested that the Knag Burn Gate was intended to replace the north gate "when the ramp outwards became inconveniently steep in consequence of raising the threshold" (quoted by Salway, 1965, 89 n. 1). The conventional explanation regards this gateway as a specifically civilian access point (*cf.* Daniels, 1978, 137), although it may be questioned how far there was a need for traffic in the wastes beyond Housesteads. A more specifically military function replacing the fort's north gate should be preferred. The date of the Knag Burn Gate remains uncertain; it lies next to the point where the Military Way crosses the Knag Burn, so may be considered to date with or later than that road. However, recent air-photography and survey have shown that along the west side of the plantation the Military Way follows the line of another road coming in from the south-east, which may be traced at least as far as Moss Kennels; and perhaps led towards Grindon Hill and the Stanegate (RCHM Survey forthcoming). Access through Hadrian's Wall at the Knag Burn Gate may be earlier than is generally considered, and was probably dictated by the practical requirements of the garrison, rather than the vaguer needs of civilian traders.

*Context List*

	<i>Period</i>		
1. Topsoil		12. Gatepost pit	modern
2. Upper road surface	modern	13. Consolidation trench	modern
3. Lower road surface	modern	14. Consolidation pit	modern
4. Ministry of Works tip	modern	15. Berm deposit	3
5. Silt	4	16. Late collapse of Wall III	3
6. Modern backfill	modern	17. Repair mortar	3
7. Consolidated wall	modern	18. Wall II	2
8. Make up below road 3	modern	19. Wall III	3
9. Late rampart slump	3	20. Collapse of Wall III	3 (cf. 10)
10. Collapse of Wall III	3 (cf. 20)	21. Decayed mortar	2
11. Gatepost pit	modern	22. Construction deposit	3
		23. Collapse of Wall	2
		24. Berm deposit	3
		25. Berm deposit	2
		26. Soil over demolition	2
		27. Berm deposit	2
		28. Berm deposit	3
		29. Soil over demolition	2
		30. Demolition of Wall II	2
		31. Pit	2
		32. Pit	2
		33. Berm deposit	2
		34. Berm deposit	2
		35. Pit	2
		36. Pit	2
		37. Clay spread	2
		38. Mixed clay	
		39. Iron pan	1
		40. Natural clay with whinstone	
		41. Foundation clay	1
		42. Organic deposit	1
		43. Clay deposit	2
		44. Berm deposit	2
		45. Silty-clay layer	1
		46. Clay layer	2
		47. Whinstone foundations	1
		48. Organic deposit	1
		49. Iron pan	1
		50. Cobbled road	1
		51. Clay deposit	1
		52. Mortar layer	2
		53. Rubbish layer	1
		54. Wall I	1

## COINS

by P. J. Casey

<i>No.</i>	<i>Context</i>	<i>Issuer</i>	<i>Denomination</i>	<i>Type</i>	<i>Reference</i>	<i>Date</i>	<i>Condition</i>
2	10:U/S	Crispus	—	Obv. DNCRISPONOB CAES Rev. VICTORIAE LAETAE PRINC PERP	RIC VII (Lyons)74	319-20	SW/SW
3	10:9	Septimius Severus	Denarius	Obv. SEVERVS PIVS AVG Rev. PM/TRP/XV COS III PP	RIC 211	207	SW/SW
4	10:9	Elagabalus	Denarius	Obv. IMP ANTONIVS PIVS AVG Rev. SVMMVS SACERDOS AVG	RIC 146	218-22	SW/SW
5	10:9	"Tetricus I"	Antoninianus	Obv. — Rev. —	Copy of RIC—	273+	Corroded
6	10:15	Julia Domna	Denarius	Obv. IVLIA AVGVSTA Rev. (VENVS)FELIX	RIC 580	196-211	W/W
8	10:28	"Tetricus I"	—	Obv. — Rev. —	Copy of RIC—	273+	UW/UW
20	10:34	Aelius	Denarius	Obv. L AELIVS CAESAR Rev. TRIB POT COS II/ CONCORD	RIC 436	136-8	UW/UW

Note: For discussion see Casey in Housesteads Main Report (forthcoming).

## THE POTTERY

*J. N. Dore*

## The Samian

*The forms* (dia.=diameter in cms., R%=rim percentage)

Unidentified: Total sherds: 178.

Dr. 33: Total sherds: 12 including 4 rim sherds (dia. 14, 15, 16; R% 33).

Dr. 18: Total sherds: 1 rim sherd (dia. 18; R% 3).

Dr. 18/31: Total sherds: 8 including 5 rim sherds (dia. 17(2), 18(2); R% 40 minimum vessels: 4).

Dr. 18/31R: Total sherds: 1 rim sherd (dia. 30; R% 8).

Dr. 31: Total sherds: 39 including 12 rim sherds (dia. 18(5), 19, 20(2); R% 63) and 1 base sherd stamped TITV[RONIS OF] ? (Lezoux A.D. 160–190.) Context 15.

Dr. 31R: Total sherds: 29 including 10 rim sherds (dia. 21, 23(2), 24, 25(2), 27, 28; R% 58).

Dr. 31 or 31R: Total sherds: 13.

Dr. 35/36: Total sherds: 1 wall sherd.

? Curle 11: Total sherds: 2 wall sherds (same vessel).

Curle 20: Total sherds: 2 rim sherds (dia. 20; R% 12).

Walters 79: Total sherds: 3 rim sherds (dia. 28; R% 15).

?Ludowici Tg: Total sherds: 1 (as *Oswald and Pryce* pl. LX, no. 1).

*Closed Forms*

Total sherds: 11 comprising the following vessels:

Dechelette 72: 3 sherds from 2 vessels, 1 with "cut glass" decoration. Contexts 15, 29.

Small fragment showing crude *appliqué* figure of partly draped male; probably ultimately derived from a central Gaulish figure type (?Hercules). Context 15. Illustrated (no. 76).

1 rim sherd, 4 wall sherds and 1 base sherd from a beaker with decoration *en barbotine*; restored as *Oswald and Pryce* pl.

LXXX, no. 10. Contexts 15, 22. Illustrated (no. 77).

## Mortaria:

Unidentified: Total sherds: 2 (?both east Gaulish).

Dr. 38: Total sherds: 4 including 1 rim sherd (dia. 14; R% 8).

Dr. 45: Total sherds: 3 rim sherds (all different vessels dia. 22, 23, 29; R% 26).

Dr. 37: Total sherds: 32 including 11 rim sherds (dia. 13, 17, 20(2), 25; R% 63) and the following decorated sherds:

1. Small fragment with Cinnamus ovolo 1 (*Stanfield and Simpson* fig. 47, no. 1). Context 5.

2. Small fragment with Cinnamus ovolo 2 (*Stanfield and Simpson* fig. 47, no. 2). Context 5.

3. Small fragment with part of two corded pillars. The style and finish suggests Rheinzabern. Context 21.

4. Small fragment with part of a bead row of alternate long and short beads. Possibly the work of Albusius or Censorinus. Context 29.

5. Small fragment with part of a large leaf, possibly that used by Sacer; the fabric of the piece would support a Hadrianic/early Antonine date. Context 35.

6. Fragment showing an ovolo used by Albusius, Paternus Censorinus and Lactucissa among others (=Rogers B105) A.D. 150–190. Context 29.

7. Fragment showing double bordered ovolo with tongue with rosette tip; possibly by Arcanus (*Stanfield and Simpson* fig. 20, no. 1). A.D. 120–140. Context 42.

8. Fragment showing small double bordered ovolo with thin tongue with enlarged tip; below is part of arcade. Ovolo=*Ricken and Fischer* E17; semicircles of arcade=*ibid.* KB100. For closely similar example see *Ricken and Ludowici* taf. 204 (Julius II–Julianus I).

CONTEXTS Figures in brackets after the form number are Total number of sherds followed by rim percentage.

*Context Forms*

5	Dr. 33 (3, 7), Dr. 18/31R (2), Dr. 31 (2, 4), Dr. 31R (2), Dr. 37 (1, 3)
9	Dr. 33 (1), Dr. 31 or 31R (2), Dr. 38 (1, 8)
15	Dr. 18/31 (1, 7), Dr. 31 (12, 13), Dr. 31R (10, 34), Curle 20 (1, 6), Walters 79 (1, 5), Closed forms (7)
20	Dr. 31 (4), Dr. 31R (1)
21	Dr. 45 (1, 12), Dr. 37 (1)
22	Dr. 33 (2), Mortarium (1), Dr. 45 (1, 6), Closed form (1)
25	Dr. 31 (5), Dr. 31R (2)
26	Dr. 33 (2, 10), Dr. 31 (6), Dr. 31R (2), Walters 79 (1, 5), ?Ludowici Tg (1), Dr. 38 (2), Dr. 37 (2)
27	18/31 (1)
28	Dr. 31R (1), Walters 79 (1, 5), Dr. 37
29	Dr. 33 (2, 11), Dr. 18/31 (1), Dr. 31 (1, 5), Dr. 31R (2, 5), Dr. 31 or 31R (4), Curle 20 (1, 6), Dr. 45 (1, 8), Dech. 72 (2), Dr. 37 (2, 5)
30	Dr. 31R (1, 6)
33	Dr. 18 (1, 3), Dr. 18/31 (1, 7), Dr. 31 (4, 29), Dr. 38 (1), Dr. 37 (1, 13)
35	Dr. 37 (1)
37	Dr. 31 or 31R (4), Dr. 37 (1)
38	Dr. 31R (1), Curle 11 (2)
39	Dr. 31 (1, 5)
42	Dr. 31R (1, 13), Dr. 37 (2, 7)
43	Dr. 33 (2, 9), Dr. 18/31 (2, 9), Dr. 37 (1)
48	Dr. 18/31 (2, 17), Dr. 18/31R (1, 8), Dr. 35/36 (1), Dr. 37 (1)

## THE COARSEWARE

*Introduction*

Some 2000 sherds of coarseware were recovered from the excavation. The catalogue below contains details of 165 vessels, and this number can be regarded as a good approximation to the total number of vessels which the assemblage represents.

Within the catalogue, vessels have been grouped into vessel types on the basis of

combined similarities of form and fabric and these types have been arranged in a sequence beginning with closed forms and progressing towards open forms. The characteristics of certain vessel types have also enabled them to be subsumed into a broader classification of "wares".

Information on the size of the mineral inclusions in the fabric of each vessel is conveyed by a single estimation of overall inclusion texture. This is expressed as the maximum grain size of the main fraction of the inclusion suite. There are 5 texture categories, increasing in coarseness:

- texture: 1=not >0.1 mm  
 2=not >0.2 mm  
 3=not >0.5 mm  
 4=not >1 mm  
 5# >1 mm

The density of inclusions is categorized as either sparse or common. The majority of the fabrics fall into the latter category so only sparseness has been noted. Vessel sections were examined under a  $\times 20$  binocular microscope with an eyepiece graticule, 10 mm square, graduated in mm. Inclusion density was judged to be sparse when one or more of the squares superimposed on the section were seen to contain no inclusions. Inclusion types are listed in order of frequency.

Following the description of the vessel type in each entry are details of individual vessels. Each vessel is identified by a number prefixed by "P" and this number has been marked on the sherds; following this are the numbers of the context(s) it was found in, its diameter (in cm, measured at the *inside* of the rim), and the length of the rim (expressed as a % of the total circumference and abbreviated "R%") illustrated vessels are identified and the illustration number corresponds to the entry number.

The principal wares represented in the assemblage are set out below. Vessel types 5-8 and 56-59, whose form suggests that they might have been made in east Yorkshire ("Crambeck" Ware) and the Nene Valley respectively, have not been defined

here as wares because it was felt that there was too much variation in their attributes to justify this, particularly in such a small sample.

*Black Burnished Ware Category 1 (BB1)*

Hand made, body colour anything from pale grey to black but surface always intense black and burnished in narrow horizontal strips ("facet burnishing"). Inclusions: textures 2, 3 and 4 (1, 12 and 17 examples respectively); the sample was not sufficiently large to judge whether there was any significant association between particular forms and particular textures; inclusion type was almost without exception quartz or quartzlike.

*Black Burnished Ware Category 2 (BB2)*

A much less consistent and less well defined ware than BB1. Within the sample of ware from the excavation it is possible to distinguish two sub-groups on the basis of colour: sub-group 1: body colour is grey or reddish-grey with a core in a well defined, contrasting shade of grey; surface is grey or frequently a patchy reddish-grey, smooth rather than glossy.

sub-group 2: body colour a single shade of grey or black, across the whole section; surface frequently a darker shade of grey or black and with a glossy finish.

With a sample of only 41 vessels it is difficult to be certain of how meaningful these sub-groups are, especially when some of the forms include examples of both sub-groups (only 26, 41 and 49 are restricted to one or other of the groups) but there seems to be a certain correlation between sub-groups and inclusion texture. Apart from 1 vessel all the examples of sub-group 1 are restricted to texture 2 or 3 (7 and 15 egs. respectively) whereas the examples of sub-group 2 are spread more evenly over textures 1-4 (3, 2, 10 and 3 egs. respectively).

*Grey Burnished Ware*

Particularly well defined and extremely uniform in colour, and inclusion texture and

type, wheel made, body colour consistently mid grey with surface usually no darker; surface well burnished in narrow horizontal strips ("facet burnished"); inclusions: mostly sparse (in 11 out of the 18 catalogued examples) and mostly in texture category 3 (in 16 out of 18); inclusion type was quartz with some dark grey grains (?iron); probably corresponds to the second (harder) fabric of the two which *Bidwell* (1985, 178, section 7) associates with Gillam types 115-7 at Vindolanda.

*Grey Gritty Ware (Dales Type)*

Body colour anything from pale grey to black, surface same shade or darker, mostly left rough; inclusions: textures 4 or 5 (2 egs. of each), sparse in 1 eg., mostly quartz but with some dark grey grains (?iron) or rock fragments.

*Laminar Gritty Ware (Dales Type)*

Orange yellow to orange red, well defined dark grey core, dark grey to black surface smoothed over the grits; inclusions: texture 4, mostly quartz but with some black grains and rock fragments.

*Calcite Gritted Ware (Huntcliff Ware)*

Hand made, black, smoothed surface now pitted with voids; inclusions: texture 5, mostly quite angular voids but also some quartz, rounded rock fragments (?limestone), calcite and black grains.

*Fine Beaker Fabric ("Rhenish" ware or "Moselkeramik")*

Pale orange-yellow to orange-pink with grey core and glossy black colour coat; inclusions: texture 2, lime with occasional dark grey and red grains (?iron).

*Mortaria Fabric 1 (Hartshill-Mancetter)*

Body colour very slightly yellowish white; surface smooth pale yellow; inclusions: sparse in 12 out of 15 examples, mostly texture 2 or 3 (4 and 8 egs. respectively) also texture 1 (1 eg.) and 4 (2 egs.), red iron and quartz; trituration grits: sub-angular black grains up to 5 mm dia.

TABLE 1

Form	Number of vessels	Rim %
Amphorae	1	25
Flagons	2	200
Beakers Mosel	3	150
Others	5	66
Narrow Necked Jars	4	58
Jars/Cooking Pots BB1	16	316
BB1 (uncatalogued)		50
Grey Burnished Ware	15	355
GBW (uncatalogued)		135
BB2 sub-group 1	7	116
BB2 sub-group 2	5	73
BB2 (uncatalogued)		150
Grey Gritty Ware	4	38
Laminar Gritty Ware	2	42
Calcite Gritted Ware	3	42
Others	8	113
Bowls and Dishes BB1	14	142
BB2 sub-group 1	17	141
BB2 sub-group 2	14	116
Grey Burnished Ware	2	34
Others	20	246
Mortaria Fabric 1	14	179
Fabric 2	3	22
Others	4	43
Castor Box	1	17
Lid	1	17
	<i>Totals</i>	
	165	2896

*Mortaria Fabric 2 (?Nene Valley)*

Slightly yellowish-white with smooth pale yellow or orange yellow surface; inclusions: textures 2 and 3 (2 and 1 examples respectively), quartz and some red iron; no trituration grits visible.

*Dating and Chronology*

*Types of Coarse Pottery Vessels in Northern Britain* by J. P. Gillam (here the 1970 ed.) remains the most useful reference work and extensive use has also been made of the recent publication of evidence from Vindolanda (*Bidwell*, 1985). Certain of the wares have been dated by reference to the following publications: BB1: the basis is *Gillam*, 1976 supplemented by *Bidwell*, 1985 on the

question of the emergence of obtuse-angle cross-hatching and the "scored line" on cooking pots (cf. nos. 20 and 21 which have the former but not the latter); Grey burnished ware: *Gillam*, 1970 and *Bidwell*, 1985; Grey and Laminar Gritty Ware (Dales type): *Loughlin*, 1977; Calcite Gritted Ware: see *Dore*, 1984 for a very brief résumé of recent evidence; Fine Beaker Fabric: *Greene*, 1978; Other beakers: *Howe et al.*, 1980.

Table 2 shows the distribution of pottery types in the excavation contexts. The contexts are arranged approximately in sequence, with the earliest at the bottom of the page. The *terminus post quem* for each context is given in brackets immediately

TABLE 2. Occurrence of Pottery in Contexts

<i>Context</i>	<i>BB1</i>	<i>BB2</i>	<i>GBW</i>	<i>G/LGW</i>	<i>CGW</i>	<i>FBF</i>	<i>MF1</i>	<i>MF2</i>	<i>Others</i>
U/S									47, 66
5 (250)	44	53		27*			67 (2) 70		39, 57, 65
9 (350)	21, 44	52					70		14, 47, 58, 60*
20 (350)	20, 44 (3), 54	26, 42		30	32, 33*		69, 70		16, 34, 40, 42, 44 (3), 74
15/28 (350)	21 (2), 44 (2)	42 (2), 52,	22, 38	28, 29 (2),		4	69, 70	71 (2), 72	2, 8, 11, 13, 15, 16, 36, 50
	55 (5)	53 (2)		30, 33*					56, 57 (4), 59 (3), 74, 75
22 (200)	20*								
25 (150)		42*							
26 (200)	21, 44 (2)*	26	22				70		7, 9, 12, 74
29 (250)	18, 19,	42, 52 (2),		28*			69 (2),		38, 45, 47, 73*
	44 (3)	53					70 (3)		
32 (200)		52							4*
35 (180)		52*							
30 (200)	21*, 44	23, 52, 53							62
33 (200)	19, 21*, 43	23 (4), 26	22 (4), 37			3 (2)	68, 70		1, 5, 24, 25, 35, 47, 51
		31 (2), 41 (3)48							
		49 (2), 52 (4)							
		53 (4)							
34 (200)	21*	23, 52, 53	22						5, 24, 46
39 (160)			48*						6
43 (200)	21*	53	22 (3)						45, 61
37 (200)		23	22						1, 5*
38 (160)		53*							
42 (180)	17	23, 41, 49,	38, 48						11, 45
		52*							
48 (160)	17 (3), 37		22*, 38						10, 63, 64

BB1, BB2=Black Burnished Cat. 1 and 2; GBW=Grey Burnished Ware; G/LGW=Gritty/Laminar Grey Ware; CGW=Calcite Gritted Ware; FBF=Fine Beaker Fabric; MF1=Mortaria Fabric 1; MF2=Mortaria Fabric 2.

after its number. They have been given as dates A.D. rather than periods but they must be regarded as approximate rather than absolute. The pottery type responsible for each TPQ is marked with an asterisk.

## CATALOGUE

*Amphorae*

Fragments of amphora, all of form Dressel 20, were recovered from the following contexts: US (2), 5 (14 including a base knob), 15, (1 rim—R% 25, 1 handle frag.), 29 (9), 33, (6), 34 (3), 42 (3 including 1 handle frag.); minimum vessels represented: 1.

*Flagons*

1. Reddish-brown to dark grey with smooth grey surface; inclusions: texture 3, mostly quartz with some black and red grains (?iron): P135; contexts 33 and 37; dia. 3; R% 100 (illus.).

2. Orange-yellow to dark grey with yellowish cream slip on outside; inclusions: sparse, texture 3, dark grey grains (?iron) with some quartz and red grains: P136; context 28; dia. 1.5; R% 100 (illus.).

*Beakers*

3. Fine beaker ware:

	context	dia.	R%
P137	33	4	70 (illus.)
P138	33	5.5	50

4. Fine Beaker ware: P140; context 28; dia. 5.5; R% 30 (illus.). Pale orange yellow to very pale grey, glossy black surface; inclusions: texture 3, quartz and lime with occasional red grains (?iron): P139; context 32; dia. 7; R% 7.

*Greene* (1978) suggests that the main period of importation of "Rhenish" wares is late 2nd century to mid 3rd century A.D. The form of nos. 3 and 4 suggests that they are 3rd century.

5. Yellowish-cream, matt dull purple (inside) to black (outside) colour coat; inclusions: texture 2, quartz and some red iron: P134; contexts 33, 34, 37; dia. 9.5; R% 20 (illus.). Early 3rd century.

6. Cream white, matt orange brown colour coat; inclusions: texture 2, quartz: P141; context 39; dia. 5.5; R% 25 (illus.). Late 2nd-early 3rd century.

7. White, purple (inside) to brownish grey (outside) colour coat; inclusions: texture 3, quartz and red iron: P142; context 26; dia. 10; R% 10 (illus.). Early 3rd century.

8. Pale orange, matt orange colour coat; inclusions: texture 3, quartz with some red iron: P144; context 15; dia. ?; R% 4 (illus.). Mid 3rd century.

Also present were the following wall sherds:

9. ? beaker with globular body, possibly similar to no. 4; orange brown, pale grey margins, glossy black colour coat, white paint *en barbotine* over colour coat; inclusions: texture 2, lime; P146; context 26. Probably second half of 3rd century-4th century.

10. ? small, "bag shaped" beaker; mid grey, orange yellow margins, matt black colour coat over sand "rough casting"; inclusions: texture 2: lime, dark grey and some red grains (? iron): P147; context 48. Probably second half of 2nd century.

11. White, matt black colour coat over sand rough casting; inclusions: texture 1-2, quartz:

P148; context 42

P149; context 28

Probably second half of 2nd century.

12. Globular bodied beaker probably of the same form as nos. 3 and 4; mid grey, glossy grey burnished surface; inclusions: texture 2, quartz and some black grains: P150; context 26.

*Narrow Necked Jars*

13. Mid grey to dark grey, mid grey surface; inclusions: texture 3, quartz: P108; context 15; dia. 10.5; R% 20 (illus.).

14. Pale orange yellow, paler surface; inclusions: texture 2, red and black grains (?iron) and some lime: P106; context 9; dia. 11; R% 12 (illus.).

15. Mid brown, smoothed grey surface;

inclusions: texture 2, quartz and some black and red grains (?iron): P107; context 28; dia. 12; R% 16 (illus.).

16. Reddish mid brown, smooth dark grey surface; inclusions: texture 4, quartz with some black and red iron: P129; contexts 15, 20; dia. 12; R% 10 (illus.).

### *Jars and Cooking Pots*

#### 17. BB1

	context	dia.	R%
P67	48	13.5	20 (illus.)
P68	42	10	6
P69	48	13	18
P70	48	13	12

second half of 2nd century.

#### 18. BB1

	context	dia.	R%
P80	29	11.5	15 (illus.)

second half of second century.

#### 19. BB1

	context	dia.	R%
P71	29	11.5	13 (illus.)
P75	33	14	8

second half of second century.

#### 20. BB1

	context	dia.	R%
P72	22	13.5	23 (illus.)
P73	20	12	15

first half of 3rd century.

#### 21. BB1

	context	dia.	R%
P76	33	11	50
P77	9, 30, 34	13	50
P78	26	9	10 (illus.)
P79	28	13	5
P81	15	10	5
P82	43	11	60

first half of 3rd century.

None of the examples of nos. 20 and 21 showed a scored line at the top of the zone of cross-hatching.

There were 18 other rim sherds of BB1 too small for certain attribution to a particular form; total R% c. 50.

#### 22. GBW

	context	dia.	R%
P83	43	11	60 (illus.)
P84	43	10	40

P85	43	11	23
P86	15	10	11
P87	33	9	25
P88	37	10	16
P89	48	11.5	36
P90	34	11	20
P91	33	11	10
P93	33	10	24
P94	33	9	15
P103	26	13	11

Late 2nd century–early 3rd century A.D.

Probably not before c. A.D. 160.

Uncatalogued rim sherds of no. 22: contexts 9 (1), 15 (3), 28 (1), 29 (9), 30 (2), 33 (8), 48 (1); total R% c. 135.

#### 23. BB2 sub-group 1:

	context	dia.	R%
P95	30	15	20 (illus.)
P99	34	10	11
P101	42	15	7
P102	37	10	15

#### Sub-group 2:

	context	dia.	R%
P96	33	13	15
P97	33	12	12
P98	33	12	20
P100	33	12	16

second half 2nd–first half 3rd century.

Uncatalogued rim sherds of no. 23: contexts US (1), 5 (1), 20 (1), 22 (1), 28 (2), 29 (4), 30 (2), 33 (11), 37 (2), 42 (1); total R% c. 150.

24. ?Hand made, grey to black, surface smoothed over grits; inclusions: texture 5, angular rock fragments: P105; contexts 33, 34; dia. 13; R% 25 (illus.).

25. Orange brown, pale grey core, thin patchy dark grey outer surface; inclusions: texture 3, red grains (?iron) and some quartz: P104; context 33; dia. 14; R% 23 (illus.).

#### 26. BB2 sub-group 1:

	context	dia.	R%
P115	33	15.5	28
P116	20, 26	13	25 (illus.)

Probably similar date to no. 31

27. Grey gritty ware: P119; context 5; dia. c. 17; R% 4 (illus.). Second half of 3rd–early fourth century.

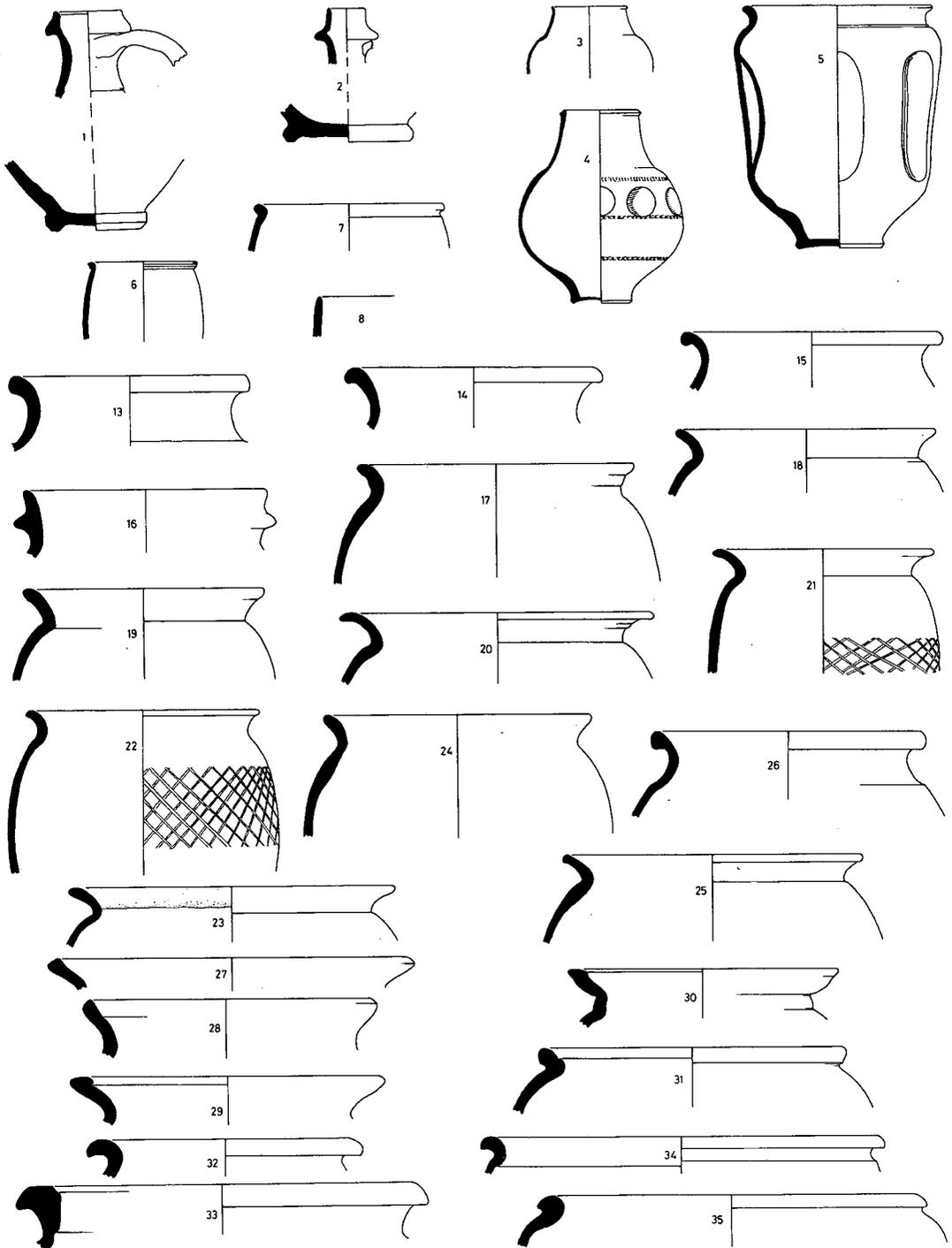


Fig. 6. Pottery from Housesteads (scale  $\frac{1}{4}$ ).

## 28. Grey gritty ware:

	context	dia.	R%
P117	29	c. 16	7
P118	15	13.5	12 (illus.)

Date as no. 27.

29. Grey gritty ware: P123; context 15; dia. 9; R% 15. Laminar gritty ware: P124; context 28; dia. 13; R% 7 (illus.). Date as no. 27.

30. Laminar gritty ware: P125; contexts 15, 20; dia. 11; R% 35 (illus.). Date as no. 27.

## 31. BB2 sub-group 1:

	context	dia.	R%
P120	33	15	10 (illus.)

sub-group 2:

	context	dia.	R%
P121	33	12.5	10

Gillam type 151; c. 180–250 A.D. See *Bidwell*, 1985, 177.

32. Calcite gritted ware: P126; context 20; dia. 12; R% 10 (illus.). Late 3rd–4th century.

## 33. Calcite gritted ware:

	context	dia.	R%
P127	15	19	17 (illus.)
P128	20	16	15

The accepted date of these Huntcliff Types has, for some time, been second half of 4th century, a date which tends to be confirmed by recent evidence (see *Dore*, 1984).

34. Mid grey, pale grey core, dark grey surface; inclusions: texture 3, angular dark grey grains and quartz.

	context	dia.	R%
P133	20	21	4 (illus.)

35. Reddish brown to black, pale grey core, rough dark grey to muddy brown surface; inclusions: texture 3, quartz (? related to BB2): P134; context 33; dia. 20; R% 7 (illus.).

36. Pale grey, mid grey surface; inclusions: texture 4, quartz and some black grains: P109; context 15; dia. 15; R% 15 (illus.).

37. BB1: P110; context 48; dia. 13; R% 6. Grey burnished ware: P111; context 33; dia. 9; R% 10 (illus.). 2nd century.

## 38. Grey burnished ware:

	context	dia.	R%
P112	28	6.5	10
P113	42, 48	9.5	44 (illus.)

Dark brown to black, smooth dark grey surface; inclusions: texture 3, quartz: P114; context 29; dia. 10; R% 9. 2nd century.

39. Dark grey, pale grey core, mid grey surface; inclusions: texture 3, sparse, quartz with a little iron and lime: P131; context 5; dia. 7.5; R% 19 (illus.).

40. Pale brownish grey, smooth mid grey surface; inclusions: texture 3, quartz and some iron: P132; context 20; dia. 9.5; R% 11 (illus.).

*Bowls and Dishes*

## 41. BB2 sub-group 1:

	context	dia.	R%
P2	33	19	8
P3	33	19	3
P4	42	18	6
P5	33	15	14 (illus.)

second half of 2nd century.

## 42. BB2 sub-group 1:

	context	dia.	R%
P11	25, 29	25	14 (illus.)

sub-group 2:

	context	dia.	R%
P10	20, 28	18	14
P12	15	20	15

second half of 2nd century.

43. BB1: P6; context 33; dia. ?; R% 3 (illus.). Probably 2nd century.

## 44. BB1:

	context	dia.	R%
P13	29	25	7 (illus.)
P14	15, 29	18	17
P15	26, 29	20	14
P16	5, 9, 15	17	19
P17	20, 30	20	12
P18	20	21	3
P19	26	18	5
P20	20	16	5

Intersecting arc decoration on 5 eggs. Probably 3rd century.

45. Medium to dark grey, smoothed surface; inclusions: textures 3 (2 eggs.) and 4 (1 egg.), quartz.

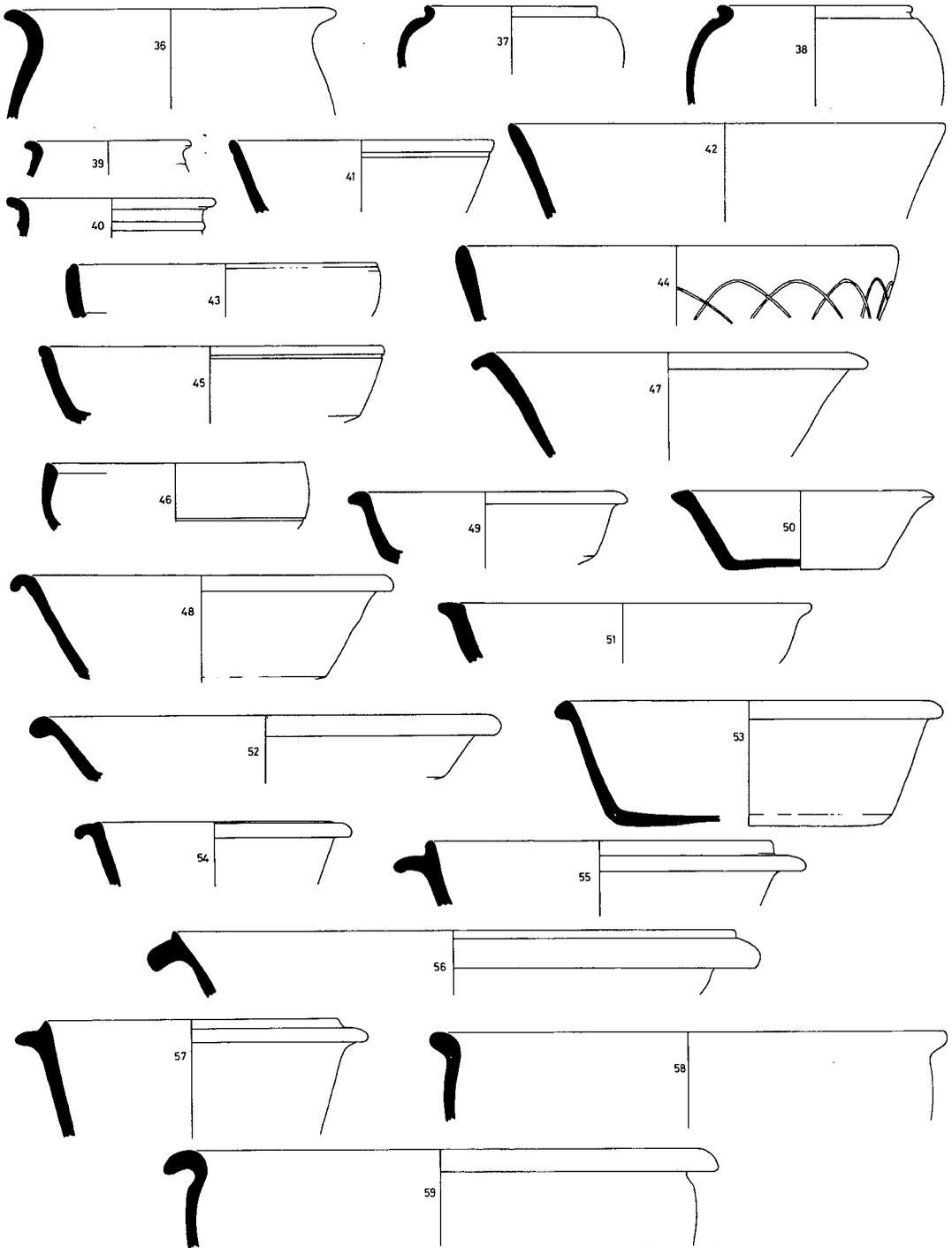


Fig. 7. Pottery from Housesteads (scale  $\frac{1}{4}$ ).

	context	dia.	R%
P7	42	18	10
P8	29	19	9 (illus.)
P9	43	?	3

46. Medium grey; inclusions: texture 4, quartz: P1; context 34; dia. 14; R% 15 (illus.).

47. Red brown or mid grey, smooth mid to dark grey surface; inclusions: textures 3 and 4 (1 eg. each), quartz

	context	dia.	R%
P21	29, 33	21	28 (illus.)
P22	US, 9	17	18

second half of 2nd century.

48. Grey burnished ware:

	context	dia.	R%
P23	39, 42	20	23 (illus.)
P24	33	19	11

second half of 2nd century.

49. BB2 sub-group 2:

	context	dia.	R%
P25	33	20	12
P26	42	?	3
P27	33	14	10 (illus.)

second half of 2nd century—early 3rd century.

50. Mid grey, darker grey surface; inclusions: texture 2, quartz: P62; context 28; dia. 13; R% 25 (illus.).

51. Dirty white; inclusions: texture 4, quartz and some red iron: P61; context 33; dia. 19; R% 15 (illus.).

52. BB2 sub-group 1:

	context	dia.	R%
P28	33	15	8
P30	33	26	7 (illus.)
P31	33	28	5
P34	15	23	8
P36	29	18	6

sub-group 2:

	context	dia.	R%
P29	42	16	6
P32	33	22	11
P33	29	22	5
P35	9	23	7

Late 2nd century—mid 3rd century.

53. BB2 sub-group 1:

	context	dia.	R%
P37	43	19	10

P39	29	12	8
P40	33	21	8
P43	33, 38	17	20
P44	33	18	7
P46	34	?	3
P47	33	13	6 (illus.)

sub-group 2:

	context	dia.	R%
P38	15	19	6
P41	30	22	6
P42	15	25	6
P45	5	16	8

Late 2nd century—early 3rd century.

54. BB1: P48; context 20; dia. 13; R% 6 (illus.). *Gillam* (1976, 70) considers the emergence of this type on to the northern market to date from the closing years of the 2nd century or the earliest years of the 3rd century but the earliest contexts in which it appeared at Vindolanda dated to the mid 3rd century (*Bidwell*, 1985, 176).

55. BB1:

	context	dia.	R%
P50	28	20	17 (illus.)
P51	28	26	7
P52	15	23	15
P55	15, 28	23	12

Late 3rd century—4th century.

56. Pale grey, smooth lead grey surface; inclusions: texture 2, quartz and some black iron; this is one of the most easily recognizable of the Yorkshire fabrics and the one most often referred to as "Crambeck". P56; contexts 15, 28; dia. 33; R% 7 (illus.). Late 3rd—4th century.

57. Pale or mid grey with a darker grey surface; inclusions: textures 1 (1 eg.) 3 (3 egs., 1 sparse) and 4 (1 eg.), mostly quartz with a little lime in 2 egs.

	context	dia.	R%
P49	15	17	11 (illus.)
P53	15	15	15
P54	28	?	3
P57	15	20	10
P58	5	17	8

Date as no. 56.

58. Very pale grey, smooth surface; inclusions: texture 3, quartz: P64; context 9; dia. 27; R% 10 (illus.). Almost certainly an

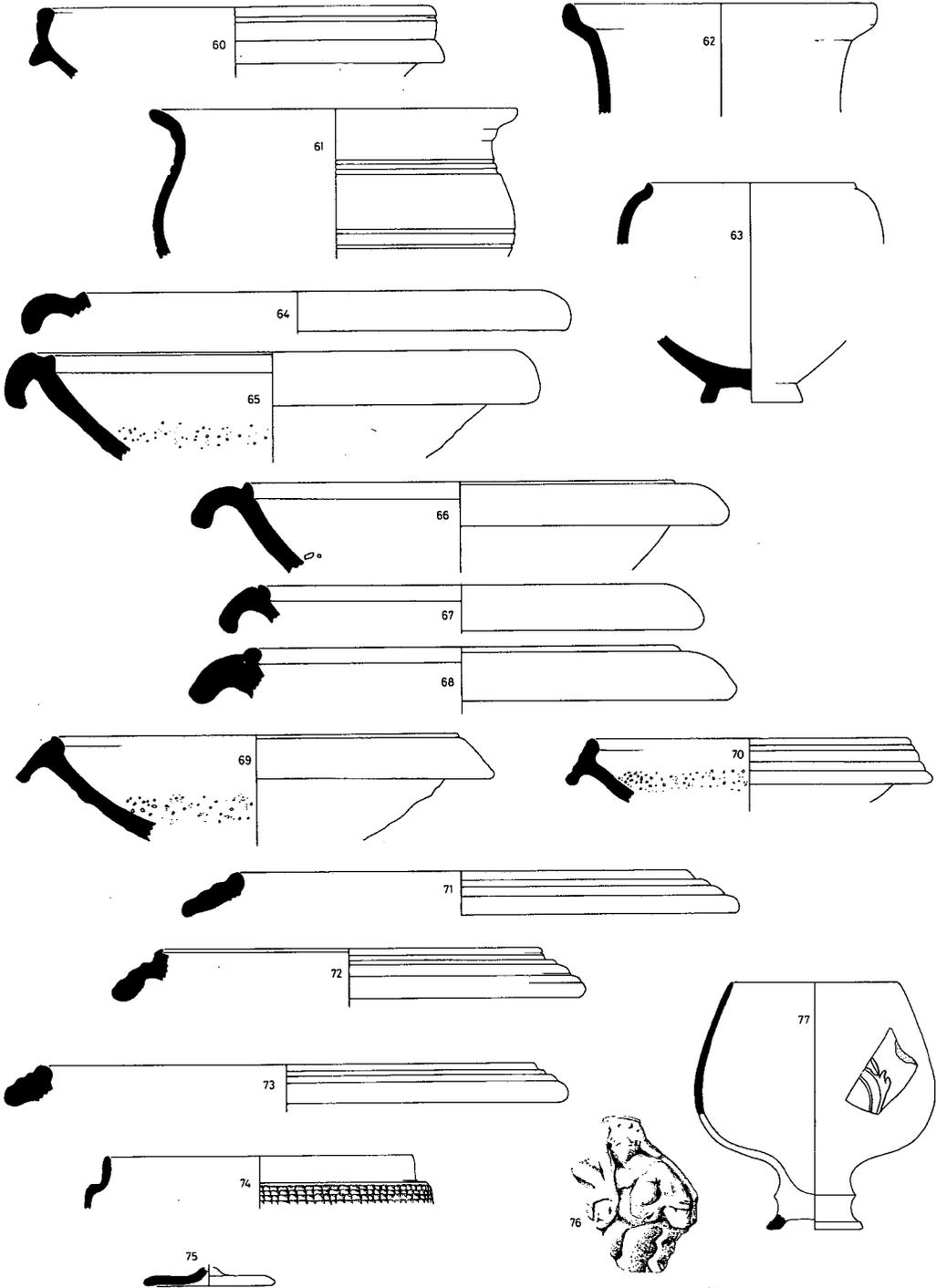


Fig. 8. Pottery from Housesteads (scale  $\frac{1}{4}$ ).

east Yorkshire product (see *Corder*, 1928, pl. II). Late 3rd century–4th century.

59. Pale grey, thick dark grey core, smooth lead grey outer surface; inclusions: texture 2, quartz: P63; contexts 15, 28; dia. 28; R% 24 (illus.).

Mid grey, dark grey surface; inclusions: texture 4, quartz with a little lime and black grains: P65; context 28; dia. 25; R% 5. Date and origin as no. 58.

60. Pale cream, yellowish-cream surface, hook and "S" shaped motifs in orange-brown paint; inclusions: texture 2, quartz and some red and black iron: P66; context 9; dia. 23; R% 10 (illus.). "Painted Crambeck Ware" or "Crambeck Parchment Ware"; second half of 4th century.

61. Dull orange brown, mid grey core, rough dark grey surface; inclusions: texture 4 well rounded quartz, iron and a little angular flint: P59; context 43; dia. 19; R% 13.

62. Orange; inclusions: texture 3, quartz and some red iron and lime: P60; context 30; dia. 18; R% 18 (illus.).

63. Pale pink, yellowish-white burnished surface; inclusions: texture 3 red iron, lime and a few black grains (?iron): P130; context 48; dia. 11; R% 12 (illus.). Both the form and the fabric of this vessel suggest that it is one of the earliest in the assemblage; probably first half of 2nd century though possibly earlier.

#### *Mortaria*

64. Very slightly creamy white, mid grey core, smooth orange-yellow outer surface (?slip); inclusions: texture 3, quartz and some red iron: P151; context 48; dia. 24; R% 10 (illus.). Early–mid 2nd century.

65. Very pale yellow, rough surface; inclusions: texture 3, quartz and some lime and red iron; trituration grits: up to 3 mm dia., mostly rounded quartz: P152; context 5; dia. 25; R% 13 (illus.). Early–mid 2nd century.

66. Slightly off-white, mid grey core, surface originally smoothed; inclusions: texture 3, quartz and dark grey grains; trituration

grits; dark rounded rock fragments up to 10 mm dia.: P153; context US; dia. 24; R% 10 (illus.). This vessel is very similar in both form and fabric to ones from Corbridge stamped Cudre(nus); mid 2nd century.

#### 67. Mortaria Fabric 1:

	context	dia.	R%
P154	5	22	13
P155	5	22	10 (illus.)

Mid–late 2nd century.

68. Mortaria Fabric 1: P156; context 33; dia. 23; R% 10 (illus.). Mid–late 2nd century.

#### 69. Mortaria Fabric 1:

	context	dia.	R%
P157	29	23	10
P158	15	22	15
P159	20	22	3 (illus.)
P161	29	27	15

Late 2nd–early 3rd century.

#### 70. Mortaria Fabric 1:

	context	dia.	R%
P166	5, 9	17	30 (illus.)
P167	28	23	13
P168	33	23	17
P169	20	23	5
P170	29	23	10
P171	29	19	5
P173	26, 29	23	23

3rd century.

#### 71. Mortaria Fabric 2:

	context	dia.	R%
P162	15	24	10
P163	15	25	7 (illus.)

3rd–4th century.

72. Mortaria Fabric 2: P164; context 28; dia. 21; R% 5 (illus.). Date as no. 71.

73. Pale pinkish brown, thick yellowish-white core, pale yellow surface; inclusions: texture 3, mostly quartz: P165; context 29; dia. 27; R% 10 (illus.). Possibly a Crambeck product; late 3rd–4th century.

#### "Castor-Ware" Box

74. Pale orange-yellow, matt black colour coat; inclusions: texture 2, sparse, red iron and a little lime: P145; contexts 15, 20, 26, 28; dia. 17; R% 17 (illus.). Probably 3rd century.

*Lid*

75. Pale yellow; inclusions: texture 3, sparse, red iron and quartz: P174; context 28; dia. 8; R% 17 (illus.).

OBJECTS OF COPPER ALLOY, IRON AND  
OTHER MATERIALS

*L. Allason-Jones*

*Copper Alloy*

10:28 no. 10

Circular disc brooch with a raised edge surrounding a wide channel decorated with raised dots. In the centre five buttresses flank a waisted knob which has been riveted into position. The whole face has been gilded by the mercury amalgam method including the marginal channel and the spaces between the buttresses, suggesting that the brooch was never enamelled. The back of the disc is heavily tinned with part of the catchplate and the single hinge plate surviving.

Five examples of this unusual type of brooch are known so far. All are very similar in their general appearance but vary slightly in detail (inf. per. M. Snape):

Vindolanda: Vindolanda Museum Acc. No. 788; Birley, 1977, Pl. 44; D: 24 mm, five buttresses and stamped circle decoration in the marginal channel.

Chesters: Chesters Museum Acc. No. 1372; unpublished; D: 24 mm, six buttresses but the rest of the decoration is obliterated with corrosion products.

Woodcuts: Pitt-Rivers, 1887, p. 41, No. 5, Pl. X; D: 28 mm, six buttresses and stamped crosses in the marginal channel.

Caerwent: Barnett, 1954, Pl. between pp. 22 and 23; D: 28 mm, six buttresses and stamped scallops in the marginal channel.

Lakenheath: British Museum Acc. No. 834.46; D: 22 mm, six buttresses and stamped scallops in the marginal channel.

The distribution of the type is well spread although there is a small concentration in

the Hadrian's Wall area. Only the Housesteads example comes from a securely dated context suggesting a date about the mid 4th century A.D. It is likely that all the examples are the product of the same workshop. D: 24 mm, H: 11 mm, L of catchplate: 7 mm.

10:33 no. 103

Knee brooch with a faceted hollow bow. The flat fan-shaped head has lost its face through corrosion but appears to have been undecorated whilst the fan-tail is decorated with an incised marginal line along the three edges. Two lugs hold the spring in position. The spring-pin is of iron. The sheet catchplate survives with a curled turn-over.

Early 3rd century A.D. Cf. South Shields: Allason-Jones in Miket, 1983, p. 118, No. 163. L: 42 mm, W of head: 21 mm, W of bow: 8 mm, L of catchplate turn-over: 8 mm.

10:33 no. 19

Complete scabbard runner with a tapering shank with chamfered edges. One terminal is tapering and chip-carved to suggest a zoomorphic head whilst the other end has an open peltate loop with an iron pin through the block below. Two broken shanks project from the back.

Cf. Allason-Jones and Miket for parallels to scabbard runners although the zoomorphic terminal is unusual suggesting a late date. See also Oldenstein, 1976, Taf. 13, No. 56. L: 128 mm, Max. W: 19 mm. Early 3rd century.

10:33 no. 15

Incomplete shank of a scabbard runner similar to above. L: 25 mm, W: 33 mm. Early 3rd century.

10:29 no. 13

Strap end with a simple openwork design giving a stylized zoomorphic appearance. The back is flat with the moulding confined to the front. Through the rectangular loop a copper alloy strip has been folded with panels cut out of the edge to ensure a fit. A

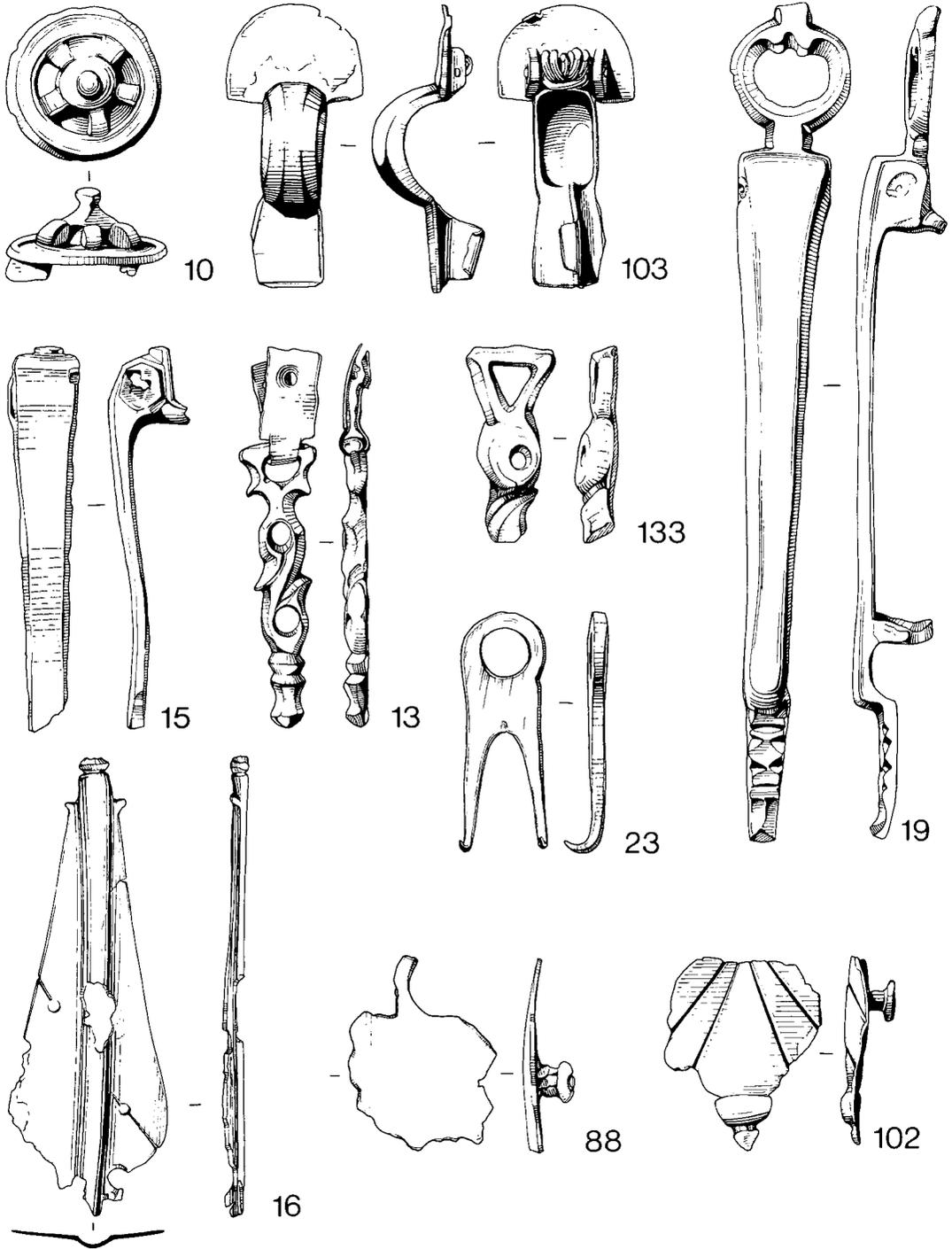


Fig. 9. Bronze objects from Housesteads (scale 1:1).

circular-sectioned rivet, now missing, has been punched through both ends of the strip from the front. The roughness of the folded strip is in contrast to the care with which the strap end has been made and may be a repair. Cf. Oldenstein, 1976, Taf. 41, No. 394–397. A similar strap end is known from Site 21 at Housesteads, unpubl. Total L: 55 mm, W of strap end: 11 mm, T of strap end: 2.75 mm. Mid 3rd century.

10:33 no. 133

Part of a strap end similar to above with an openwork shank moulded at the front and plain at the back but with a triangular loop. L: 28 mm, Max. W of loop: 14 mm. Early 3rd century.

10:33 no. 23

Cloak fastening(?) consisting of a circular loop with two diverging hooks. When found this piece was in pristine condition with no patination. L: 37 mm, W: 13 mm, T: 2 mm. Mid 2nd century.

10:33 no. 16

Triangular plate with a hollow central rib leading to a biconical terminal. Two small circular holes (D: 1.5 mm) have been drilled on either side of the rib, one placed higher than the other and joined by an incised diagonal line. There are indications of another, larger, hole on the dexter side where there is much corrosion.

Cf. Oldenstein, 1976, Taf. 39, Nos. 366–378; Taf. 40, Nos. 380–381. Allason-Jones and Miket, 1984, 3.740. Early 3rd century A.D. L: 70 mm, Max. W: 24 mm, T: 3 mm. Mid 2nd century.

10:38 no. 88

Vine-leaf stud complete with stalk but lacking any delineation of veins. One shank projects from the back with a separate oval washer at the end. L: 29 mm. Mid 2nd century.

10:33 no. 102

Incomplete stud in the form of a vine-leaf with the veins depicted by incised lines. One disc-headed stud projects from the back. L: 30 mm, W: 24 mm. Early 3rd century.

10:29 no. 11

Incomplete tapering shank of a *ligula* with baluster-and-rib moulding around the neck. The head is missing but appears to have been an angled disc similar to below.

Cf. Künzl, 1982, Pl. 16, No. 32. L: 110 mm, Max. W: 5 mm. Mid 3rd century.

10:28 no. 12

*Ligula* with a long tapering circular-sectioned shank broken at the tip. The head is an angled disc on a grooved neck. L: 121 mm, W of head: 5 mm. Later 3rd century.

10:33 no. 17\*

Length of U-sectioned scabbard or shield binding now squashed and bent in half. Original length: 78 mm. Early 3rd century.

10:43 no. 41\*

Curved sheet, roughly rectangular but incomplete. A wide central groove is flanked by shallow ribs. Helmet decoration? L: 43 mm, W: 21 mm, T: 0.5 mm. Mid 2nd century.

10:29 no. 14

Stud with a solid domed head and a wide rectangular-sectioned shank pierced by a circular hole (D: 3 mm) at the end. L: 28 mm, D of head: 17 mm, Shank: 10 × 3 mm. Mid 3rd century.

10:37 no. 162

Stud with a solid domed head similar to above with a wide rectangular-sectioned shank pierced by a double hole at the end. L: 30 mm, D of head: 17 mm, Shank 10 × 3 mm. Mid 2nd century.

\*Not illustrated.

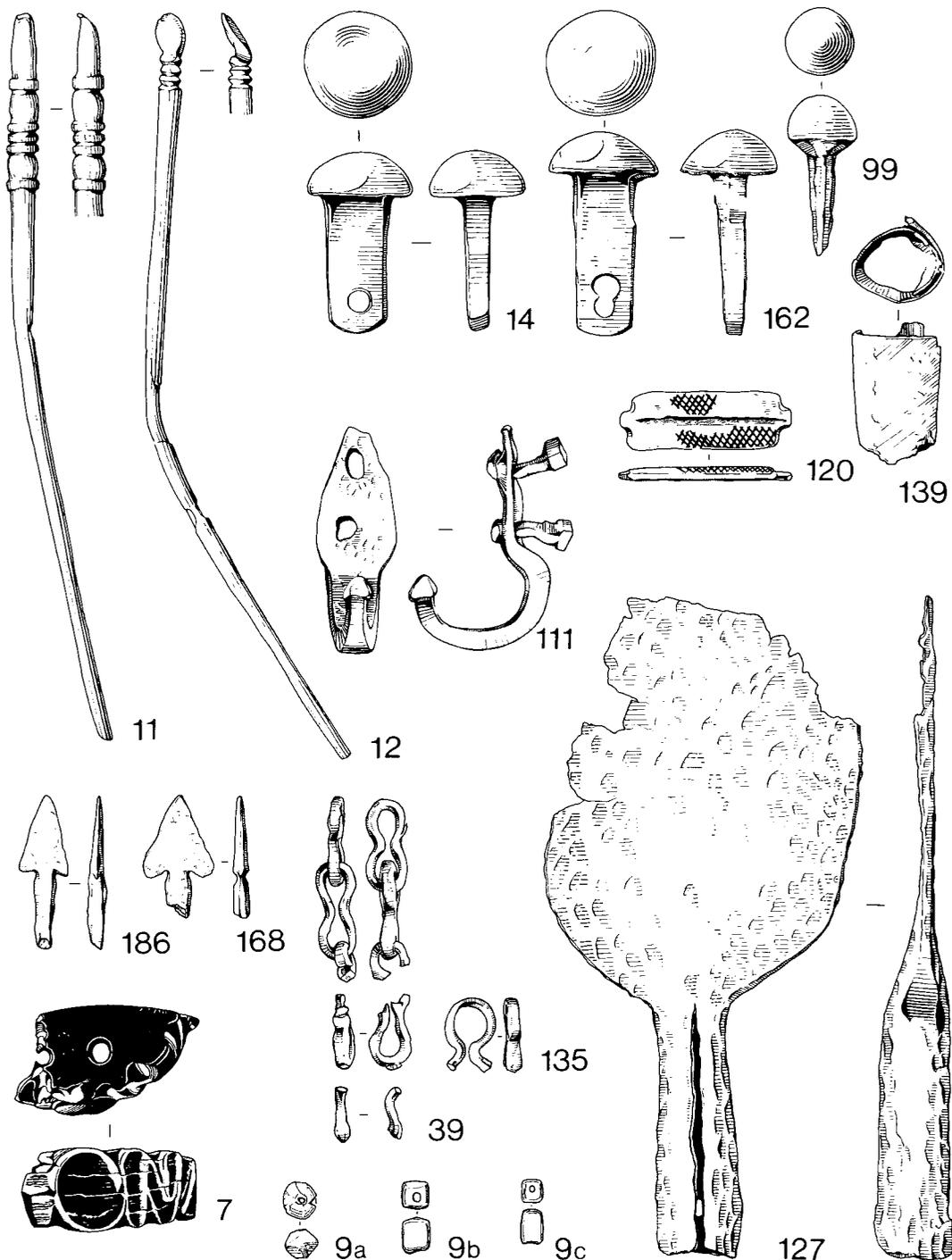


Fig. 10. Bronze, iron and other objects from Housesteads. Nos. 11, 12, 14, 162, 99, 139, 7, 9a, b, c, 120, 111 (scale 1:1); Nos. 168, 186, 39, 135, 127 (scale 1/2).

10:33 no. 99

Pin with a globular head and an incomplete tapering oval-sectioned shank. L: 23 mm, D of head: 11 mm. Early 3rd century.

10:33 no. 140\*

Curved rod of circular section. L: 33 mm, D: 3 mm. Mid 3rd century.

10:26 no. 139

Fragment of a tube formed by curling a copper alloy sheet. L: 20 mm, D: 12 mm, T of sheet: 0.75 mm. Mid 3rd century.

10:26 no. 178

Length of oval-sectioned wire with one end rounded, the other snapped off, curled to form a rough ring. D: 18 mm, W: 1.5 mm, T: 3 mm. Mid 4th century.

10:43 no. 42\*

Strip cut from a sheet with one straight edge. L: 45 mm, W: 5.5 mm, T: 0.5 mm. Early 3rd century.

10:48 no. 48\*

Fragment of copper alloy waste. L: 64 mm. Mid 2nd century.

10:1 no. 21\*

Modern disc button of brass with a loop attachment at the back. D: 27 mm. Modern.

### Iron

10:35 no. 127

Incomplete spearhead with a very large head with low curved shoulders. Much of the flat blade is missing. The socketed shank is very short and split and pierced by a square hole.

Scott (1980, p. 339) following Manning (1976, p. 19) suggests that a similar blade from Chesters is not a weapon but more probably a standard. A similar, more complete, example is known from Sewingshields (Allason-Jones in Haigh and Savage, 1984, fig. 13, no. 39). Surviving L: 190 mm, W of blade: 85 mm, L of socket: 70 mm, D of socket: 21 mm. Later 2nd century.

10:28 no. 168

Large flat triangular arrowhead with slight barbs. The rectangular-sectioned tang is incomplete but bulges slightly just below the barbs.

Coulston (1985, p. 265) describes this type of arrowhead as "improvised". The largest group known (800) was found in a 4th century context in the *principia* at Housesteads and it is possible that this example and that described below were part of the same group: see Manning, 1976, pp. 22-3. L: 36 mm, W across barbs: 21 mm, L of head: 24 mm. Later 3rd century.

10:20 no. 186

Arrowhead with a triangular blade with very short barbs and a rectangular-sectioned short tang which bulges slightly just below the barbs. L: 44 mm, L of blade: 22 mm, W across barbs: 14 mm. Later 3rd century.

10:33 no. 120

Rectangular plate with a central projection at each end. The back is flat but the front rises slightly to the central groove. The face, including the groove, is inlaid with a lattice of fine brass lines. L: 50 mm, W: 16 mm, T: 3 mm. Early 3rd century.

10:33 no. 111

Leaf-shaped bucket or bowl escutcheon with a thick rectangular-sectioned hook ending in a pyramidal terminal. Two large square-headed rivets are still in position through the plate. Total L: 44 mm, W of plate: 22 mm, L of rivets: 22 mm. Early 3rd century.

10:33 no. 115

Double-spiked loop. See Manning, 1985, p. 130. L: 47 mm. Early 3rd century.

10:33 no. 119

Two small penannular collars. D: 21 mm, H: 17 mm. Early 3rd century.

10:43 no. 39

Three links of a chain. Each link is a nipped

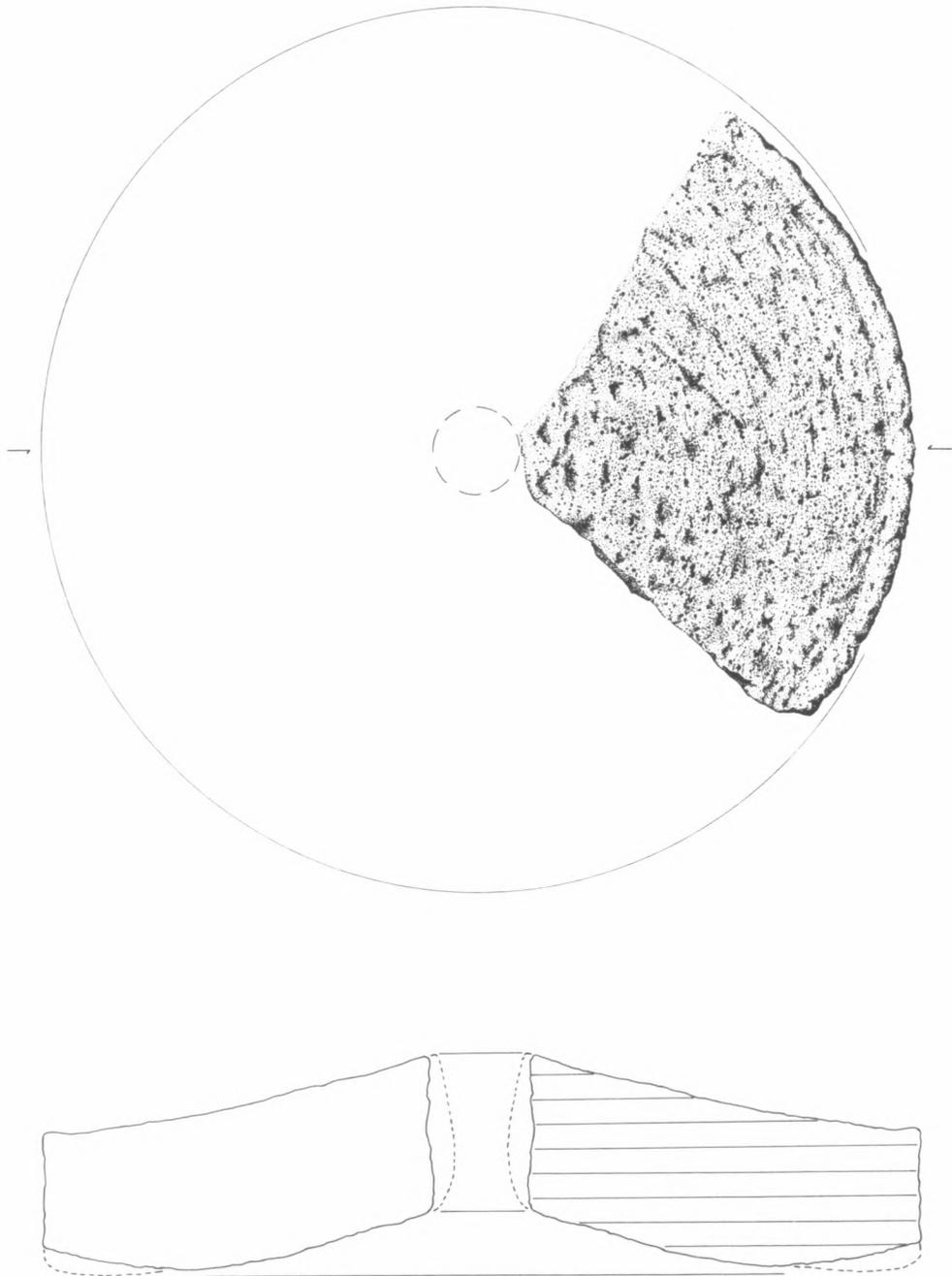


Fig. 11. Quernstone fragment, no. 100 (scale  $\frac{1}{3}$ ).

oval. L of each link: 26 mm, W of each link: 11 mm, T of each link: 4 mm. Mid 2nd century.

10:33 no. 135

Fragment of a loop in two pieces, possibly a chain link. L: 20 mm, Max. W: 15 mm, T: 4 mm. Early 3rd century.

10:33 no. 116

Rectangular strip. L: 69 mm, W: 18 mm, T: 1.5 mm. Early 3rd century.

10:33 no. 117

Rectangular bar tapering towards one end. L: 55 mm, W: 10-16 mm. Early 3rd century.

10:43 no. 157

Four fragments of a strip pierced by a circular-sectioned rivet. L: 62, 42, 44, 43 mm, W: 25 mm. Mid 2nd century.

10:43 no. 159

Plate of irregular shape with one edge bent back. L: 39 mm, W: 28 mm, T: 0.5 mm. Mid 2nd century.

#### *Lead*

10:33 no. 132

Length of lead waste. L: 46 mm. Early 3rd century.

#### *Shale*

10:15 no. 7

Incomplete semi-oval shale bead of rectangular section tapering to both ends. One thick edge is decorated with a central circular boss with a raised zig-zag motif on either side. The bead has been pierced latitudinally by two circular holes (D: 2 mm) and has broken across one of them. See Allason-Jones and Miket, 1984, 7.28 for parallels. L: 25 mm, W: 10 mm, H: 14 mm. Mid 4th century.

#### *Bone*

10:43 no. 40

Fragment of an oval-sectioned needle

broken across the oval or circular eye. L: 35 mm, W: 4 mm, T: 3.5 mm. Mid 2nd century.

10:26 no. 138

Fowl bone roughly worked to form an oval-sectioned pin with a slightly splayed head. Cf. South Shields: Allason-Jones and Miket 2.639. L: 71 mm, W: 6 mm. Mid 3rd century.

#### *Stone*

10:30 no. 86

Incomplete whetstone of rectangular shape and section tapering to the surviving end. Whin. L: 79 mm, W: 29 mm, T: 23 mm. Late 2nd century.

10:21 no. 131

Whetstone of roughly rectangular shape and section, well worn with deep striations on one face. Whin pebble. L: 82 mm, W: 41 mm, T: 20 mm. Late 2nd century.

10:20 no. 125

Incomplete rubber made from a natural whin pebble. Very well worn on two faces. L: 110 mm, T: 31 mm. Late 3rd century.

10:33 no. 100

Fragment of quernstone. D: 361 mm, W: 62 mm.

#### *Wood*

10:42 (851428A)

Fragment of a bung, originally circular with sloping sides and one flat face. A circular hole is bored through the centre. Silver Fir (*Abies alba* Mill.). D: 58 mm, Surviving T: 5 mm, D of hole: 8 mm.

10:48 (831431A)

Wooden bung? with one flat face and straight sides. Sweet Chestnut (*Castanea sativa* Mill.). D: 71 mm, Surviving T: 25 mm.

10:42 (851429B)

Wedge of wood with parallel sides. One face

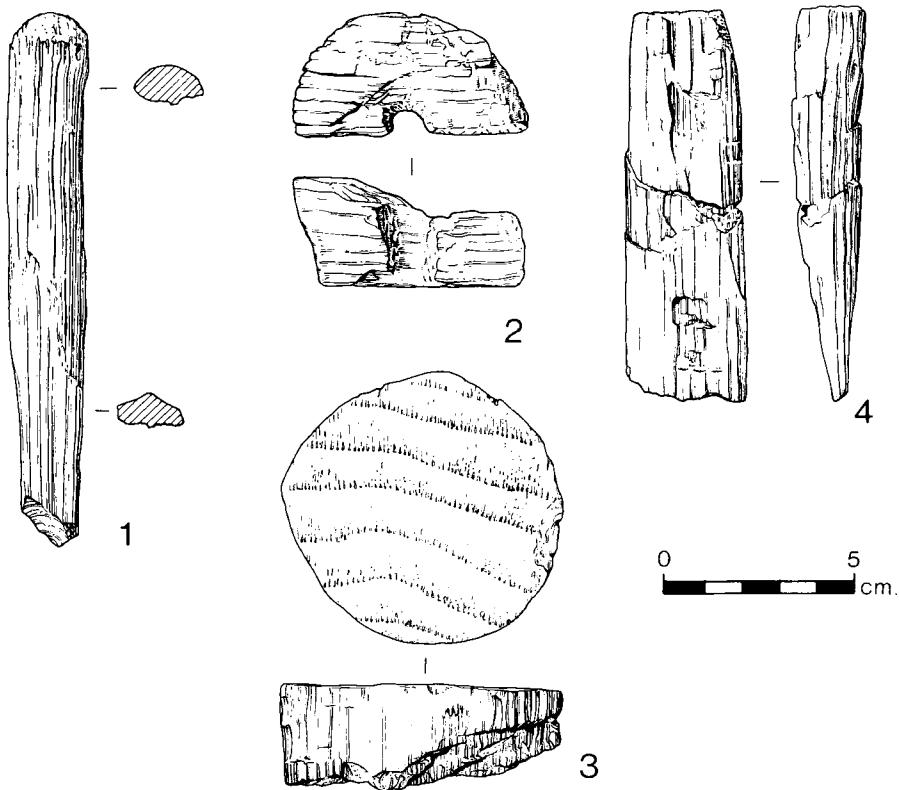


Fig. 12. Wooden objects from Housesteads (scale  $\frac{1}{2}$ ).

near the straight "blade" has two small roughly cut rectangular depressions. The other end has a long channel running into it which may have been a socket hole for a metal tang. Hazel (*Corylus avellana* L.). L: 101 mm, Max. W: 30 mm, Max. T: 14 mm.

10:48 (831429A)

Length of wood which has been trimmed down the surviving face. Hazel (*Corylus avellana* L.). L: 133 mm, W: 17.5 mm.

#### Glass

10:33 no. 18

An oval intaglio of glass with a light blue opaque upper face on a dark (Black?) ground. The face is flat with a bevelled edge and the back is convex (Henig, 1978, F8). A figure facing to its left is cut through the

upper layer to the dark layer. The figure appears to have its legs crossed and is holding a bow(?). L: 12 mm, W: 9 mm, T: 2.5 mm. (Plate IVb)

10:28 no. 9

a. Four small biconical beads of clear white glass. See Guido, 1978, Fig. 37, No. 13, pp. 97-8. 4th century A.D. D: 5.5 mm, H: 5 mm.

b. Nine rectangular-sectioned opaque green glass cylinder beads. See Guido, 1978, Fig. 37, No. 7, pp. 96, 212-5. Late 3rd-late 4th century A.D. L: 5 mm, W: 3.5 mm, T: 3 mm.

c. One square-sectioned opaque royal blue cylinder bead. See Guido, 1978, Fig. 37, No. 7, pp. 96, 212-5. Late 3rd-late 4th century A.D. L: 4.5 mm, W: 3 mm, T: 3 mm.

## THE ROMAN GLASS

*Denise Allen*

This small assemblage contains 69 fragments of vessel glass, of which 63 are blue-green in colour and five are colourless. Only one very small deep turquoise fragment (H20 10 15 59) may represent the brightly coloured vessels popular until the beginning of the Flavian period. After this date, and particularly during the second half of the second and third centuries, blue-green and colourless glass predominated.

Most of the blue-green glass (39 fragments) is from bottles, and this high percentage is usual on first and second century sites. Another type of container, the bath-flask, is probably represented by fragment no. 2. The remaining catalogued fragments belong to a variety of tableware items, and the colourless facet-cut piece, no. 7, reaffirms evidence from previous excavations that good-quality glassware had been in use on the site.

Seventeen fragments of blue-green cast window glass were also found. This type was used until about A.D. 300.

## CATALOGUE

*Blue-green vessel glass*

## 1. 10:5 54

Rim of a bowl of blue-green glass. Rim folded outward and downward twice, forming hollow tube, dia. c. 120 mm.

Bowls with tubular rims were made throughout the Roman period, but a particularly popular form occurred during the later first and earlier second centuries. This had a roughly cylindrical body, often decorated with vertical or diagonal ribs, and an applied footring (Isings, 1957, 59–60, form 44a–b). Many examples are known from southern British sites, such as Richborough, from contexts dated between A.D. 60 and 100 (Radford, 1932, 85–6, no. 63, PL. XV; Henderson, 1949, 158, nos. 369 and 372, PL. LXVIII) and Verulamium, in the main

dated to the second half of the first and first half of the second centuries (Charlesworth, 1972, 199–200, v, fig. 74, 6–11). Finds have also come from the north (e.g. Charlesworth, 1959, 49, fig. 7, no. 4, from Torwoodlee Broch, Selkirks).

## 2. 10:20 176

Base fragment, probably of a bath-flask, of blue-green glass. Rounded base with central pontil mark.

This is perhaps most likely to be the base of globular bath-flask. These small globular-bodied vessels had two 'dolphin' handles to which was originally attached a chain or solid handle for suspension from the wrist, and, filled with oil, was thus carried to the bath-house. The form was long-lived, and was common from the later first century to probably the middle of the third century. Many examples, most of them dated A.D. 160–230, were found at the legionary bath-house at Caerleon (Allen, 1986, 99ff., nos. 3, 11, 32–42, 79, fig. 41), and a substantially complete vessel, with some bronze fittings surviving, came from an Antonine pit at Corbridge (Richmond and Gillam, 1952, 259, Pl. VIII).

## 3. 10:5 47

Small handle fragment of blue-green glass. Small curved section extant, probably from rim attachment. Width 8 mm.

## 4. 10:15 51

Small handle fragment of blue-green glass. Curved, fiat-sectioned with rib running along extant edge.

## 5. 10:5 55

Handle fragment of blue-green glass. Oval-sectioned, broadening into shoulder attachment. Width c. 8 mm.

None of these handle fragments is sufficiently diagnostic to allow close identification.

*Bottles*

## 6. 10:33 89

Side and base fragment of a square bottle of

blue-green glass. Blown into a square-sectioned body mould; design in relief on base, comprising a central diagonal cross surrounded by two squares. Width of sides 93 mm.

Fragments not illustrated:

10:33?	69	1 body fr., square bottle
	29	32 1 base fr., prismatic bottle
	37	156 1 indeterminate bottle fr.
	15	62 1 shoulder fr.
	29	27 1 handle fr.
	15	50 1 rim fr., pale green
	28	45 1 shoulder fr.
	5	57 1 body fr., prismatic bottle
	43	24 1 neck fr.
	29	33 1 body fr., prismatic bottle
	29	64 1 body fr., prismatic bottle
	29	65 1 shoulder fr., square bottle
	37	155 1 base fr., prismatic bottle
	37	154 1 base fr., prismatic bottle
	37	87 1 body fr., prismatic bottle
	37	153 1 base fragment, prismatic bottle
	20	175 1 neck fr.
	29	26 1 body fr., square bottle
	29	29 1 body fr., prismatic bottle
	33	104 1 shoulder fr., prismatic bottle
	29	66 1 body fr., prismatic bottle
	33	92 3 body fr., prismatic bottle
	33	130 1 body fr., prismatic bottle
	33	105 10 body fr., prismatic bottle
	37	149 1 (shattered) body fr., prismatic bottle, pale green

Over half the vessel glass in this assemblage (39 fragments from a total of 69) comes from blue-green bottles of a type very commonly used as containers during the first two centuries A.D. This high percentage is quite normal for sites in Britain occupied during this period. The form was made with different body shapes, cylinders and squares being the most common, with hexagonal, rectangular, octagonal and very occasionally triangular variations also occurring. The square was the longest-lived shape, surviving from the mid first century to the end of the second century and possibly beyond. All the fragments here which have firm indications of body shape belong to this group.

The production of cylinders and hexagons seems to have been confined to the first century and the first quarter of the second, and two-handled rectangular and octagonal bottles were made only in the second century.

Prismatic bottles always had trade-marks on their bases. These occur in great variety, and the diagonal cross, as on no. 6, is a recurring symbol. Several examples have been discussed by Charlesworth (1966, 33-4), and there is a bottle base very similar to this one, with two squares surrounding the cross, from Chichester (Charlesworth, 1974, 134, no. 1, fig. 8, 13).

#### *Colourless Vessel Glass*

7. 10:15 49

Body fragment of a bowl or cup of colourless glass; surfaces dulled. Outer surface rotary-cut and polished: part of two oval facets extant, and part of two horizontal lines.

Glass vessels decorated with facet-cutting were popular from the Flavian period to the fourth century. This fragment is too small to assign it to any one vessel type with certainty.

8. 10:29 28

Base fragment of a vessel of colourless glass. Pushed-in tubular base-ring, dia. *c.* 5 mm.

This fragment is not sufficiently diagnostic to allow close identification.

#### *Window Glass*

Seventeen fragments of window glass were found, all of the blue-green, cast matt-glossy variety in use to about A.D. 300 (Boon, 1966). Two characteristically rounded "thumb" edges are included.

10:29	36	1 fragment
	15	63 1 fragment
	48	53 1 fragment (edge)
	43	25 1 fragment
	29	35 1 fragment
	15	60 1 fragment
	29	37 1 fragment
	33?	70 1 fragment

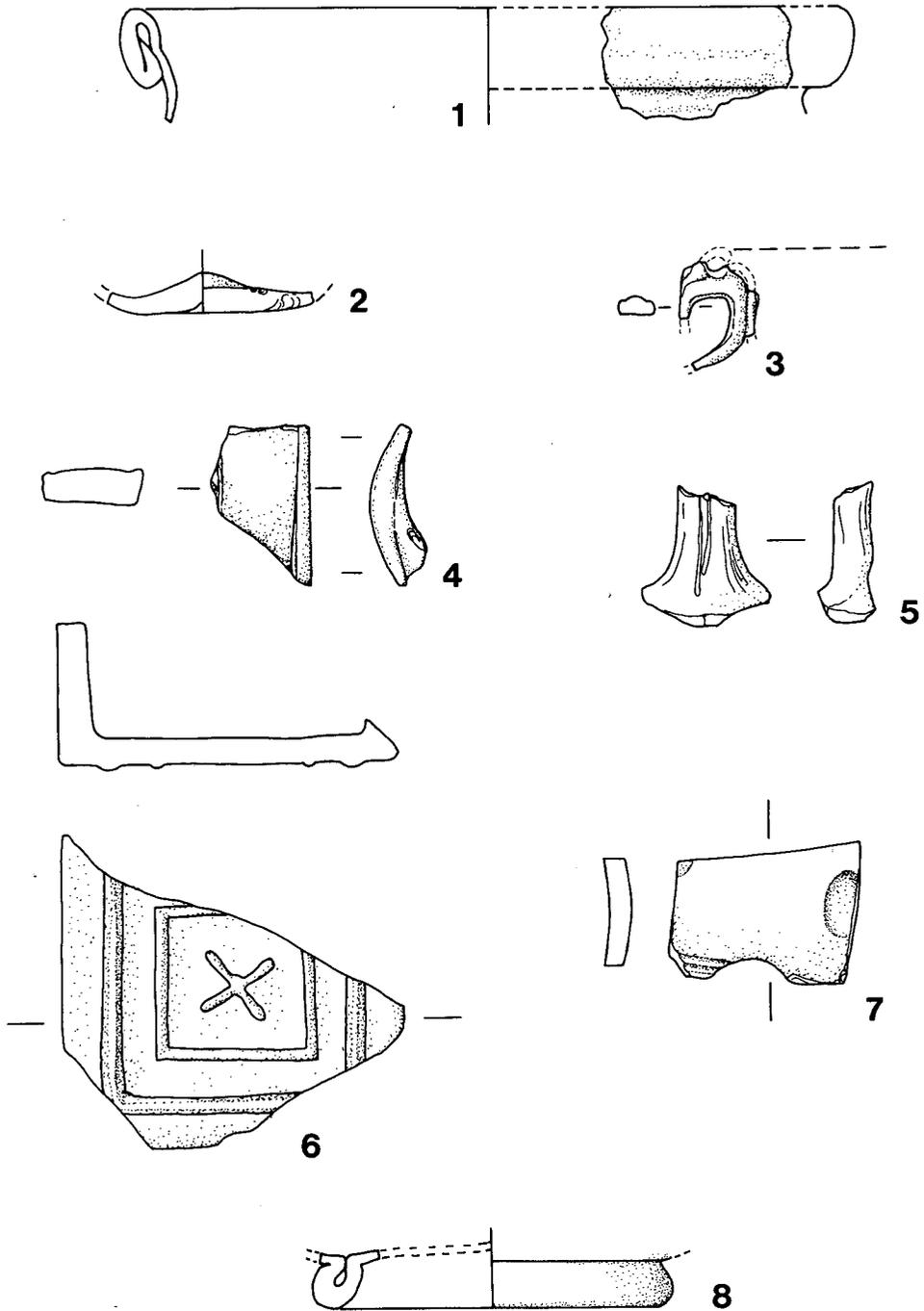


Fig. 13. Glass from Housesteads (scale  $\frac{1}{2}$ ).

33	91	1 fragment
42	71	1 fragment
20	174	2 fragments (one edge)
37	152	1 fragment
26	129	1 fragment
33	105	3 fragments

## THE BONE REPORT

*R. Grove**The Archaeological Context*

The faunal remains discussed below are from the excavated area, some 8 × 5 mm located outside the fort on the berm adjacent to the north wall close to the North Gate. It would appear from the abundant finds that the area was used for the disposal of rubbish from the second to the fourth centuries. Three periods, relating to the construction and demolition phases of the wall have been identified: I (2nd century), II (2nd to mid 3rd centuries) and III (late 3rd to mid 4th centuries) (cf. main excavation report). The contexts containing bone are mainly a series of berm deposits, but are occasionally related to the destruction of the walls. Two pits (Period II; 32 and 35) contained bone remains but the disposal of rubbish was not their original purpose (page 67). The numbers of bones are in fact fewer in these contexts than in the general spread of layers.

*The Bone Assemblage*

A total of 4147 bones were recovered from 20 contexts: 1576 (38%) could be identified to species and skeletal part.\* No attempt was made to identify vertebrae (other than atlas and axis), or rib fragments to species, although they were, where possible, placed within the two general categories of large or small ungulates. Of the 2578 unidentified bones 30% are rib, 26% longbone and 9%

vertebral fragments. Table 1 gives the numbers identified to species from all contexts. Details of bones according to individual contexts within each period are given in Appendix 1. Appendix 2 lists the skeletal distribution of bones from each of the domesticated species.

TABLE 1. Bones identified to species

Species	Nos.	MNI	Percentage of fragments
Cattle	1253	16	80
Sheep/goat	128	4	8
Pig	94	5	6
Horse	16		1
Dog	40		2.5
Cat	3		0.24
Red deer	19		1.2
Roe deer	1		0.06
Fox	2		0.12
Hedgehog	2		0.12
Dom. fowl	3		0.2
Goose	3		0.2
Duck	1		0.06

It would appear to be safe to assume that the sum of bones is, in the main, a sample of the rubbish disposed of outside the fort. A number of factors may, however, have had some influence on the survival and recovery of bones and therefore altered the characteristics of the sample since their deposition. The contexts were not sieved which may, in part, be responsible for the recovery of large numbers of cattle bones, only a few bones from small mammals and birds and the absence of fishbones. It is not unusual, however, to find a high percentage of cattle bones from Roman military sites (Hodgson, 1977; King, 1978). In this particular sample the cattle bones are usually fragmented and small so that the argument that size alone

\* The identification of bone fragments was based upon a modern sample. I would like to thank the National Museum of Scotland, Chambers St., Edinburgh for access to their collection.

could have favoured the recovery of larger bones in comparison, for example with sheep and pig need not necessarily apply.

The condition of the bones themselves was usually very good and few were abraded. This is in contrast to the bone found within the fort during previous excavations (J. Crow, pers. comm.). Their good preservation may be due to the high lime content of many of the levels which was a consequence of the collapse or demolition of the walls containing lime mortar and perhaps in the case of two levels (10:42 and 10:48) because of the anaerobic conditions due to waterlogging. Despite these conditions there remains the possibility that some natural and selective decay has taken place. It is commonly thought, in particular, that pig bones can decay at a much more rapid rate than others of the major domestic animals because of the thinness of the cortex of the majority of bones. One possible method of assessing to what extent this had occurred is by comparing the number of the robust bones of the mandibles to the number of limb bones of both pig and sheep on the assumption that both species are butchered (and therefore disposed of) in the same fashion (King, 1978, 210). The ratio of pig mandibles to articular fragments of long bones is 9:14; that of sheep is 1:20. One consideration possibly influencing this is that pig skulls have much more meat attached, but despite this the figures would indicate that pig limb bones are under represented. The pig also have fewer bones per individual (18) than sheep (32). There is, however, a general tendency for the number of bones per animal to increase with the size

of the sample (Higham, 1968). There are for example 80 bones per individual in the case of cattle although the practice of breaking up bone (cf. below) has an obvious relevance. One final indication of the selection of bones in the case of all species is the better survival of the more robust bones (pig mandibles are one example), which are usually those bones which fuse earlier. These, in cattle and sheep, are the proximal radius and the distal humerus and tibia. This appears to have occurred to some extent (cf. Appendix 2). Although the above discussion may suggest some selective retrieval and preservation of bone in the sample there remains the problem in distinguishing this from deliberate human or indeed animal activity.

84.5% of the identified fragments from the three major domesticated species used primarily for food come from cattle; 8.6% are from sheep and 6.9% from pig. The minimum number of individuals (MNI) for these three species has been calculated using the computerised method of Klein and Cruz-Urbe (1984, 1986). They are 16:4:5 respectively. Given the reservations described above comparison between all three species may be misleading particularly when the frequency of species is considered by period when the samples are small (Table 2). Nevertheless cattle are the most commonly represented species in all periods. Although there is an overall greater number of sheep than of pig fragments this is not true for the first two periods. Calculation of the MNI also emphasizes the importance of pig. In the third period the numbers are the same. The slightly higher proportion

TABLE 2. Number of fragments, percentage and MNI of major domestic species according to period.

Period	Cattle			Sheep			Pig		
	No.	%	MNI	No.	%	MNI	No.	%	MNI
I	120	78	3	14	9	1	20	13	2
II	618	86	7	42	5.8	3	59	8.2	5
III	515	84.4	9	72	11.8	2	23	3.8	2

of sheep may reflect a change in the vegetation in the area around the fort from wooded to more open countryside. This conclusion must, however, be regarded as tentative because of the small size of the sample and the fact that cattle, which (as well as pig) are more suited to a woodland habitat than sheep (King, 1978, 212), still predominate.

Another method of comparing the relative importance of these species as part of the diet can be given by comparing the estimated total meat weight of the animals by multiplying the weight of each animal by the MNI (estimated meat weights are taken from Cram, 1967 and Maltby, 1979): cattle 500 lb, sheep 60 lb and pig 100 lb). Such calculations only emphasize the importance of cattle as part of the diet which forms 91.5% of the weight (sheep, 2.8% and pig, 5.7%). These proportions are similar to those calculated by Hodgson (1977) for the sites of Vindolanda (91.7%: 4.1%: 4.3%) and Corstopitum (96.5%: 2.1%: 1.5%). Such a high proportion of cattle, however, presented is not unusual from Roman military sites. The cattle:sheep:pig numbers from Vindolanda (Hodgson, 1977) are 2599, 461 and 428 respectively; from Turret 33b (Hodgson, 1972) they are 74, 12 and 3. The MNI calculated from the faunal remains from Corbridge (Meek and Grey, 1911) are 195, 26 and 20.

#### Age

The two main methods of estimating the age at death for domestic animals is the eruption and wear of teeth (Grant, 1982; Bull and Payne, 1982) and the fusion of the epiphyses (Silver, 1969). Estimation of the age at death is hampered by the quality of the sample. Very few mandibles of either sheep or cattle were recovered sufficiently intact to allow an accurate assessment of tooth wear to be made. Only one cattle mandible (context 30) had all the molars *in situ* which gave a mandibular wear stage (mws) of 47 (Grant, *ibid.*) another incomplete bone (context 15) gave a similar estimated degree

of wear. It has been suggested that this wear stage indicates an age of at least 4.5 years (Maltby, 1979, 31). One remaining mandibular fragment (context 23) is from an immature animal (mws 16).

The data from the fusion of the epiphyses suggests that the majority of animals were slaughtered when mature. Almost all the epiphyses are fused (Appendix 3) but a small number of immature animals were killed. However approximately 69% of bone fragments from late fusing epiphyses have fused and are therefore from animals at least 3.5 years old. The data from the fusion of long bones cannot unfortunately indicate how old these mature animals were.

Only one sheep mandible has survived (context 33). This is from an immature animal (mws >6). The limited data from the fusion of the epiphyses suggests that the majority of bones which fuse at an early age have done so but the epiphyses relevant to older animals are too few to demonstrate any pattern of slaughter. There is more evidence for the age at death for pigs because of the good survival of the maxillary and mandibular fragments (Appendix 3). Ten adequate fragments were recovered; three have dentitions similar to those of Group 1 (7–11 months) identified by Bull and Payne (1982). One has a deciduous fourth molar not in wear and was slaughtered (or died) at a younger age. Three mandibles are from Group 2 (19–23 months) and two can be placed somewhere in between Groups 1 and 2. Finally one mandibular fragment has a tooth wear somewhere between Group 2 and 3 (31–35 months). In common with the slaughter pattern from many sites the above evidence suggests that the majority of pigs were slaughtered when immature. The data from the epiphyseal fragments is limited.

#### Butchery Practice

The vast majority of cattle bones are fragmentary. Apart from phalanges and the carpals and smaller tarsals only one bone—a metacarpal—is complete. The condition of

the fragments has precluded any attempt to distinguish between the sexes or to give a clear idea of the size of the animals. (All measurements follow Von den Driesch, 1976, in archive). An attempt has been made to assess the relative frequency of individual parts of the skeleton by adding all fragments of individual bones and then dividing the sum by the number of times that bone occurs in the skeleton (O'Connor, 1982, 18). Thus the total fragments of the proximal humerus will be divided by 2, those of the 1st phalange by 3 and so on. The method is necessarily crude, particularly in view of the degree of fragmentation of the bones and with the additional problem of judging the frequency of skull and innominate bones. One means of overcoming this in the former instance is by applying the same method to the maxillary and mandibular molars. Given these drawbacks and the potential differential survival of individual bones it would appear (Appendix 4) that all parts of the cattle skeleton have been thrown into this particular area of the fort including skulls (which may be butchered for brains, tongue, etc.) and distal extremities of the limbs (although there is some reduction in the number of mid and distal phalanges). Areas of the carcass which are under-represented are those, with the exception of the femur, which fuse later—the distal radius and the proximal humerus and tibia. (These are probably also less easily recognizable in fragmentary form). One area which is under-represented is horncores. Only three relatively complete horncores were recovered although there are 10 smaller fragments. It is possible therefore that they were usually removed from the carcass before butchery and used for hornworking. The three well preserved specimens are 195 (estimated), 135 and 115 mm, in their outer curve. The horns of the longest and shortest curved slightly forward and upward and the tip of the better preserved is blunt. The core 135 mm long is thinner and has a more pointed tip and greater torsion of the body. It is possible

that the variation is due to differences of sex (Armitage and Clutton-Brock, 1976).

The degree of fragmentation of bones testifies to the systematic and apparently frequently crude butchery of the cattle carcass. In the layer containing the most and best preserved cattle bones (33) 47% of those identified have some evidence of butchery which is also visible on the large number of rib fragments. It would appear that, with a small number of exceptions including two atlas and one axis, the majority of vertebral bodies (34 out of a total of 47) were not split along the sagittal plane which would involve the hoisting up of the carcass but were chopped crosswise. The limb bones have been jointed crosswise by chopping. This includes chopping through the neck of the femur to separate the bone from the acetabulum although there are a few instances of the femoral head having a sliver of bone removed by a knife. The scapula has often been separated from the humerus by a crude chop across the glenoid cavity. The meat of this bone has also been removed by a cut/chop which has also removed the spine. It would appear that the bones were frequently split (all the long bones including the metapodials) and often chopped into fragments. The innominate bones are chopped through the neck of the ilium and through the ischial and pubic rami. Mandibular fragments occasionally show signs of having been separated from the skull by cut marks around the articular surface.

The extent of the apparently deliberate breaking up of bones deserves some comment. The sum of contexts produced 106 long bone fragments identified to specific bones and a further 568 fragments which are probably from cattle. This forms approximately 36% of all cattle bones. It is not an unusual feature for some Roman Military sites to contain vast quantities of long bone fragments (Askew, 1961) which are thought to have been boiled to produce broth and then fat either for cooking or possibly for elementary waterproofing (King, 1978, 225).

The butchery techniques and the areas of skeleton disposed of in these contexts in the case of sheep and pig are hampered firstly by the small sample and secondly by the possibility, particularly in the latter case, of the selective preservation of bone. Any conclusions must therefore be regarded as tentative. The same method of analysis described for cattle has been applied to the sheep bones. Most areas of the skeleton are represented but the majority are from the limb bones and scapulae which produce the most meat. There is a possibility that the initial butchery had taken place elsewhere and that the extremities of the limbs, including the astragalus and metapodials had been disposed of in another place. The evidence of the pig bones is possibly less reliable: the preponderance of mandibular fragments suggests that much has been lost. Again, however, the major meat producing bones are represented. In both cases there are, however, few butchery marks. Two sheep tibiae have been cut through mid shaft but presumably, in part, because of their smaller size there is no evidence of the deliberate smashing of bone.

#### *Horse*

Only 16 horse bones were recovered from all contexts, half were teeth, 1 mandible fragment, 4 phalanges, 1 calcaneum and two radius fragments. The height of 4 teeth could be measured; 2 are from animal(s) possibly just under 10 years and the other 2 from animal(s) c. 12–15 years (Levine, 1982). A single incisor has worn so that the infundibulum is no longer visible. All teeth are from animals too old to be bred solely for meat. There was no evidence of butchery.

#### *Dog*

A total of 40 bones from 8 contexts were recovered. Almost all the 19 bones from context 22 are probably from the same individual and include the articulating calcanea and astragali, the left cuboid and the distal right tibia. Apart from the smaller bones the bones from all contexts are frag-

mentary. Two halves of a right femur make a complete bone with a total length of 207 mm. This would give a calculated shoulder height of 63.1 cm (Harcourt, 1974) and is therefore a large dog or possibly a wolf. The distinction between the two species is, however, not possible from the long bones alone. The largest dog from Vindolanda measured 70.1 cm at the shoulder (Hodgson, 1977). Details of dog bones given in Appendix 2. All the bones with one exception (the proximal end of the left tibia) are fused.

#### *Cat*

Only 3 bones, two of which were the paired mandibles (context 28) both with 3 teeth P3–P4 and M1. Both P4s have associated peridental abscesses. The remaining bone—a fragment of the superior right orbit—comes from the same layer.

#### *Red Deer*

A total of 19 red deer remains were found from 3 contexts. Only one, a possible fragment of the proximal end of the left shaft of a radius, is from the post cranial skeleton (context 15). The remaining 18 are all antler fragments. Such a distribution is not unusual. At Corstopitum there were 92 antler fragments but only 18 bones (Hodgson, 1972). Only red deer tines were recovered from South Shields (Hodgson, 1971). A large number of red deer bones have been found at Vindolanda (Hodgson, 1977); the proportion of bones to antler remains is, however, not stated. There is the possibility that this distribution of bones from Housesteads, given that the bone had an equal chance of surviving, is due to shed antlers being collected which, in one case at least would appear to be the case. This same antler has been chopped through between the bez-tine and trez-tine. The same context produced a fragment of beam which had been sawn through. The two remaining fragments from 22 and 33 had respectively a beam chopped through diagonally and an end tine sawn through.

*Roe Deer*

A single bone—a right mandibular fragment—of an immature roe deer was recovered. Two teeth, the deciduous 3rd and 4th molars, were still in place.

left mandible—were recovered from context 23.

*Hedgehog*

The femur of a hedgehog was found in context 20 and a mandible from 5.

*Fox*

Two fragments—one loose incisor and the

*Birdbones*

Table 3 lists the birdbones.

TABLE 3. Description of birdbones

Context	Species	Bone
26	Dom. Fowl	Femur, Left, distal epiphysis
	Goose	Carpo-metacarpus, Left
33	Duck (Mallard?)	Humerus, Right proximal end damaged
	Goose	Fragment of keel of breast bone
43	Goose	Fragment of keel of breast bone
	Dom. Fowl	Radius, Left
	Dom. Fowl	Ulna, Left

*Appendix 1: Bones identified to Species according to context*

Period	Level	Cattle	Sheep	Pig	Horse	Dog	Cat	Fox	Deer	Hedgehog
I	42	10		4						
	43	56		5	1					
	48	54	14	11						
		120	14	20	1					
	23(?)	13			1			2		
	25(?)	37	3	4		1				
	26	76	12	21		1				
	27	17	3	1						
	29	132		7	2	2				
	II	30	18							
	32	1		2	1					
	33	219	22	17	1	3			2	
	34	65		4						
	35	13	2	1						
	37	27	2	2						
		618	42	59	5	7		2	2	
	5	56	7	2						
	9	57		2					1	
III	15	231	30	12	3	11			17	
	20	47	14		2	2				1
	22	65	17	6	3	19			1	
	28	59	2	1	5	1	3			
			515	72	23	13	33	3		18
Grand Total		1253	128	102	19	40	3	2	20	2

(Context 38 produced 3 rib fragments only.)

*Birdbones*

Period	Level	Domestic Fowl	Goose	Duck (Mallard?)
I	43	2	1	
II	26	1	1	
	33		1	1
	Total	3	3	1

*Appendix 2: Distribution of bones according to skeletal part*

Species	Cattle			Sheep/goat		
	L	R	U	L	R	U
Horncore	1	1	10			1
Skull frags.			144			19
Maxilla	6	8				
Mandible	20	19	34	4		18
Max. teeth	38	46	8	2	1	3
Mand. teeth			194	9	7	3
Atlas			8			1
Axis			7			2
Scapula	16	17	63	5	6	29
Humerus prox.	2	5	1			
dist.	7	11	1	1	1	
shaft	3	7	22		1	
Radius prox.	6	6		2		
dist.	2	3		2	3	
shaft	3	2	4	2	2	
Ulna prox.	3	1	3			
dist.	2					
shaft	9	14	1			
Carpals	11	10	1	1		
Metacarpal prox.	9	6	1		2	
dist.		1	5			
1st Phalanx			48			1
2nd Phalanx			23			
3rd Phalanx			19			
Innominate	12	12	9	2	5	1
Femur prox.	5	9	9		1	
dist.	7	5	3	3		
shaft	2	4	10			
Patella	1	2				
Tibia prox.	2	4	1		1	
dist.	12	3	1	3		
shaft	1	7	17	1	2	1
Tarsals	5	8				
Calcaneum	7	6		1		
Astragalus	9	9	1			
Metatarsal prox.	7	4	10			
dist.	2	1				1

	Cattle			Sheep/goat		
	L	R	U	L	R	U
Metapodial			34			1
Sesamoids						
Rib frags.	(large)		613	(small)		154
Vertebral frags.	(large)		188	(small)		95
Longbone frags.	(large)		568	(small)		38
Species		Pig			Horse	
	L	R	U	L	R	U
Horncore						
Skull frags.			2			
Maxilla	6	3	1			
Mandible	7	6			1	
Max. teeth	1	1	2	1		1
Mand. teeth	3	1	8	3	2	1
Atlas			1			
Axis						
Scapula	2	1				
Humerus prox.	1	1				
dist.						
shaft	1	1				
Radius prox.	2	1				
dist.		1		1		
shaft						1
Ulna prox.						
dist.						
shaft	2	2				
Carpals		1				
Metacarpal prox.		1				
dist.						
1st Phalanx			1			2
2nd Phalanx						1
3rd Phalanx						1
Innominate	1	1	1			
Femur prox.		1				
dist.	1					
shaft	1	2				
Patella		1				
Tibia prox.	1					
dist.	3	1				
shaft	1					
Tarsals	1					
Cancaneum	1	2		1		
Astragalus						
Metatarsal prox.						
dist.		1	1			
Metapodial	2	2	1			
Sesamoids						

Species	L	Dog R	U	L	Cat R	U
Horncore						
Skull frags.						1
Maxilla						
Mandible		1		1	1	
Max. teeth						
Mand. teeth	3	1	2			
Atlas						
Axis						
Sacrum						
Scapula						
Humerus prox.						
dist.						
shaft		1				
Radius prox.						
dist.						
shaft						
Ulna prox.						
dist.		1				
shaft						
Carpals	1					
Metacarpals prox.						
dist.						
1st Phalanx			7			
2nd Phalanx			3			
3rd Phalanx						
Innominate		1				
Femur prox.		1				
dist.	1	1				
shaft						
Patella						
Tibia prox.	1	1				
dist.		1				
shaft						
Fibula prox.						
dist.						
shaft	1					
Tarsals						
Calcaneum	1	1				
Astragalus	1	1				
Metatarsal prox.	1					
dist.			1			
Metapodial			5			
Sesamoids						
Rib frags.						
Vertebral frags.						
Longbone frags.						

*Appendix 3a: Fusion data, Cattle*

	Bone		Fused	Unfused
7-18 months	Scapula	de	23	1
	Jumerus	de	16	2
	Radius	pe	12	
	1st Phalanx	pe	44	
	2nd Phalanx	pe	22	1
24-36 months	Metacarpal	de	6	
	Tibia	de	15	1
	Metatarsal	de	3	
36-42 months	Calcaneum	pe	6	3
	Humerus	pe	5	3
42-48 months	Radius	de	5	
	Ulna	pe	1	3
	Femur	pe	11	4
	Femur	de	7	3
	Tibia	pe	4	2

pe=proximal epiphysis

de=distal epiphysis

Ageing data after Silver, 1969.

*Appendix 3b: Age data from Pig Jaws*

Context	Max./Mand.	L/R	Group
25	Mand.	L	less than 7 months
	Mand.	R	2
	Mand.	R	1-2
26	Mand.	L	1
	Mand.	R	2
33	Mand.	R	2-3
	Max.	L	1
	Max.	R	1-2
	Max.	L	1
48	Max.	R	2

Ageing data after Bull and Payne, 1982.

*Appendix 4: The relative abundance (RA) of bones from Cattle and Sheep*

Bone	Cattle		Sheep	
	No.	RA	No.	RA
Horncore	3	1.5	1	0.5
Max. molars	85	14	3	0.37
Mand. molars	65	10.8	8	1.33
Atlas	8	8	1	1
Axis	7	7	2	2
Scapula (glen.)	25	12	7	3.5
Humerus prox.	7	3.5	—	—
dist.	18	9	2	1
Radius prox.	12	6	2	1
dist.	5	2.5	5	2.5
Ulna prox.	4	2	—	—
Metacarpal prox.	18	9	2	1
1st Phalange	48	6	1	0.125
2nd Phalange	23	2.8	—	—
3rd Phalange	19	2.4	—	—
Femur prox.	14	7	1	0.5
dist.	12	6	3	1.5
Patella	3	1.5	—	—
Tibia prox.	6	3	1	0.5
dist.	15	7.5	3	1.5
Calcaneum	13	6.5	1	0.5
Astragalus	18	9	—	—
Metatarsal prox.	11	5.5	—	—

THE IDENTIFICATION OF WATERLOGGED  
WOOD

*K. M. Whittaker*

*Summary*

Identifications are given of fragments of waterlogged wood recovered from excavations in 1984. The assemblage can be directly attributed to human activity. The bulk of the assemblage seems to be waste trimming from various tree species which were probably locally available. A number of exotics are present for which there may have been specific uses, in particular *Castanea sativa* (sweet chestnut) which is probably a Roman introduction to Britain.

The following tables are the results from the identification of waterlogged wood ex-

tracted from the samples submitted to the Ancient Monuments Laboratory (AML) for analysis.

*Preparation and techniques of analysis*

The samples were wet sieved to remove extraneous sediment adhering to the wood. The wood was then placed in labelled self-sealing polythene bags whilst still wet. Each individual fragment of wood was thin-sectioned along the tangential, transverse and radial sections, using a razor blade. The thin sections were then mounted on a microscopic slide, suspended in water, and examined under a high powered microscope at up to  $\times 100$  magnification. Identification was based on Schweingruber's "Microscopic Wood Anatomy" and checked with the AML wood reference collection. Each indi-

*10:48 AML No. 851429*

Name	Common Name	No. pieces id.
Picea/Larix ssp.	Spruce/Larch	1
Betula ssp.	Birch	4
Alnus glutinosa (L.) Gaertn.	Alder	5
Corylus avellana L.	Hazel	9
Quercus ssp.	Oak	20
Salix/Populus ssp.	Willow/Poplar	8
Sambucus ssp.	Elder	1

*10:48 AML No. 851431*

Name	Common Name	No. pieces id.
Picea/Larix ssp.	Spruce/Larch	2
Taxus baccata L.	Yew	2
Prunus ssp.	Blackthorn	1
Crataegus ssp.	Hawthorn	3
Hedera helix L.	Ivy	1
Betula ssp.	Birch	9
Alnus glutinosa (L.) Gaertn.	Alder	15
Corylus avellana L.	Hazel	21
Castanea sativa Mill.	Sweet Chestnut	2
Quercus ssp.	Oak	43
Salix/Populus ssp.	Willow/Poplar	23

*10:48 AML No. 851428*

Name	Common Name	No. pieces id.
Corylus ssp.	Hazel	4
Quercus ssp.	Oak	27

vidual fragment, once identified was placed in an individual polythene self-sealing bag and labelled.

*Discussion*

The wood displayed a high degree of preservation and consisted almost entirely of fine branch/twig aspects of the trees/shrubs from which they originated. A number of the fragments showed signs of having been cut deliberately, usually seen as roughly chopped ends, or shallow chips removed from the surface of the fragment. The overall impression therefore is that this assemblage of wood is waste trimmings discarded as rubbish.

The exact nature of the human activity/activities giving rise to this assemblage is difficult to establish. The woods present

display a wide variety of characteristics in terms of their properties and the uses to which they could be put. The overall impression is that this assemblage represents a casual collection of wood material to fulfil a function for which any type of wood material would suffice. If this assumption is correct, then this assemblage can be regarded as very generally reflecting the local woodland/scrub flora.

However, there are a number of types of wood which do not conform to this explanation, in particular *Taxus baccata* (Yew) and *Castanea sativa* (Sweet Chestnut). Therefore there must be two or more activities giving rise to this assemblage.

*Taxus baccata* (Yew) is a plant more at home in chalk/limestone situations. In addition, it is a species whose wood is often

preferred for the manufacture of weapons and tools, due to its close grained, flexible properties. It may therefore be an import to the site for the purpose of tool and/or weapon manufacture.

Not so easy to explain is the presence of *Castanea sativa* (Sweet Chestnut). A native of the Mediterranean, it is believed to have been introduced by the Romans. They were known to have thought highly of the nuts produced by *Castanea*, which they used for culinary and medicinal purposes (Wilkinson, 1981). Its properties as a wood however, they regarded as inferior to oak, so it is probably for the fruit that they brought the plant with them.

The presence of the wood of *Castanea* has been recorded within Roman levels at six sites in Southern England (Godwin, 1975). The climate of that area would be more in keeping with the requirements of *Castanea*, i.e. warm summers, however it is not inconceivable that attempts might have been made to plant it in the vicinity of Housesteads. Today *Castanea* can be found within plantations throughout most of Britain and the Roman climate would not have been so different from the present as to render growth impossible. Wilkinson (1981) doubts that the Romans would have appreciated the fruits that would ripen in Britain, however Rackham (1980), refers to the nuts produced in Britain as "they are abundant in some years, are of better flavour (especially when frosted) than imported chestnuts".

Therefore the presence of *Castanea* at Housesteads corroborates the view that *Castanea sativa* was a Roman introduction. Its presence so far north at such an early stage of its introduction is surprising, but not unexpected given the Roman fondness for the fruit, which given Rackham's experience may have been quite palatable to them.

## THE LEATHER

### *Quita Mould*

All the leather was examined after conservation by freeze-drying by the Guardianship Conservation Dept., AML, HBMC. Much of the leather was heavily worn but species identification was made by grain pattern, where possible, using low power magnification.

Seams, hems and stitch types used are those devised by Mrs. Groenman-van Waateringe when studying the Valkenburg material (1967, figs. 5 and 6, pp. 24-30) and subsequently expanded by Mrs. van Driel-Murray for the leather from Zwammerdam (1977, figs. 26 and 27) and Bonner Berg (1983, fig. 2, p. 7). Hobnailing patterns on nailed bottom units use the classification proposed by Rhodes (in Jones, 1980, pp. 105-7) and Mrs. van Driel-Murray (1983, fig. 3, p. 21) and hereafter referred to as Rhodes type and van Driel-Murray type respectively.

### *The Leather from the 1984 excavations at Housesteads*

Leather came from two contexts 10:42 and 10:48, lying directly above a cobbled surface (10:50) which was thought to be part of a road approaching the north gate. The deposits were sealed and the associated pottery suggests a date of mid to late second century.

A total of 211 pieces of leather were found during the 1984 excavations; of these 73 were worked pieces, 63 were waste pieces with knife cut edges and 75 were fragments of scrap with all edges torn.

### *The shoes*

37% of the worked leather came from shoes which comprised principally of heavily worn and discarded fragments. Only two fragments (fig. 14.5, fig. 15.9) had been cut to save reusable leather before being thrown away, although it is possible that the uppers

had been cut away from the nailed bottom units before they had been discarded.

Two types of shoe were represented: the nailed shoe and the one-piece or moccasin shoe. No examples of the sandal or the stitched shoe were found.

#### *Nailed shoes*

A sole (fig. 14.1) and two insoles of cattle hide (fig. 14.2, fig. 14.3) along with a number of small fragments came from shoes of nailed construction. Each had been heavily nailed with a Rhodes type C or van Driel-Murray type 3c nailing pattern. Type 3c nailing was the most frequently occurring nailing pattern on shoes from the Bonner Berg and Zwammerdam (van Driel-Murray, 1983, p. 21). The heavy nailing indicates a working shoe, however, without the upper surviving it is impossible to differentiate between a civilian working shoe and a shoe worn by the military if, indeed, such a distinction existed in the second century (van Driel-Murray, 1983, p. 17). The insoles had central thonging, a feature common to many nailed shoes (see Rhodes in Jones, 1980, pp. 107–9 for discussion of the occurrence and possible uses of thonging on the nailed shoes from Billingsgate Buildings, London). No impressions from the upper lasting margins or bracing threads could be seen on the flesh side of the insoles suggesting that the shoes had a one-piece/moccasin type upper originally or, more likely, that the uppers had been held in place between the middle and the sole, now missing.

#### *One-piece/moccasin shoes*

Fragments from four one-piece/moccasin shoes were found. The largest fragment (fig. 14.4), of cattle hide, had a straight back seam held by oversewn stitching originally, as noted on some examples from Billingsgate Buildings (ibid., p. 126 and fig. 70a). Small grain/flesh stitching was present around the surviving area of the seat. An elongated upper loop with a decorative lobe

remained, the smaller lower loops had been torn away.

Fragments from two similar shoes occurred (fig. 14.5, fig. 15.6) and a fragment likely to be the repaired seat area of a third (851426b). A one-piece/moccasin shoe of this type was found during the 1976 watching brief of the vicus at Housesteads (Main Report forthcoming 766396c), and many examples are known from the Antonine fort at Bar Hill (Robertson, Scott and Keppie, 1975, fig. 20, nos. 11–18, fig. 21, no. 28), the fort at Newstead (Curle, 1911, pl. XX, nos. 1 and 3) and amongst the first and second century assemblage from Billingsgate Buildings, London (ibid., figs. 636, 641, 656); whilst on the continent numerous examples have been found at the forts at Saalburg and Zugmantel (Busch, 1965 tafel 1–5 and 31). These one-piece shoes correspond to the Roman term *carbatina*, the term *gallica* has also been applied to an example from Bar Hill by Swann (in Doughty, 1973, fig. 3, p. 16). They represent light, probably indoor, shoes in contrast to the heavily nailed shoes mentioned above.

Two decorative double lobed strap or loop terminals (fig. 15.7, fig. 15.8 ?part c) come from shoe uppers, whilst small fragments of thin leather with whipped stitching are likely to come from internal linings of uppers.

A small fragment of cattle hide cut for reuse (fig. 15.9) has a line of small rouletted S motifs along one edge. Similar rouletting was often a decorative feature on shoe uppers (see Bar Hill, ibid., fig. 22, nos. 1 and 3, fig. 23, no. 20, fig. 25, no. 49 for example) as well as occurring around the perimeter of sandal insoles (van Driel-Murray, 1977, p. 271, and p. 261, no. 71 and fig. 34).

#### *Waste*

The waste, which represented some 30% of all the leather found during the 1984 excavations, indicated that shoes were being made in the vicinity. Two pieces of primary waste from the trimming away of unusable parts of

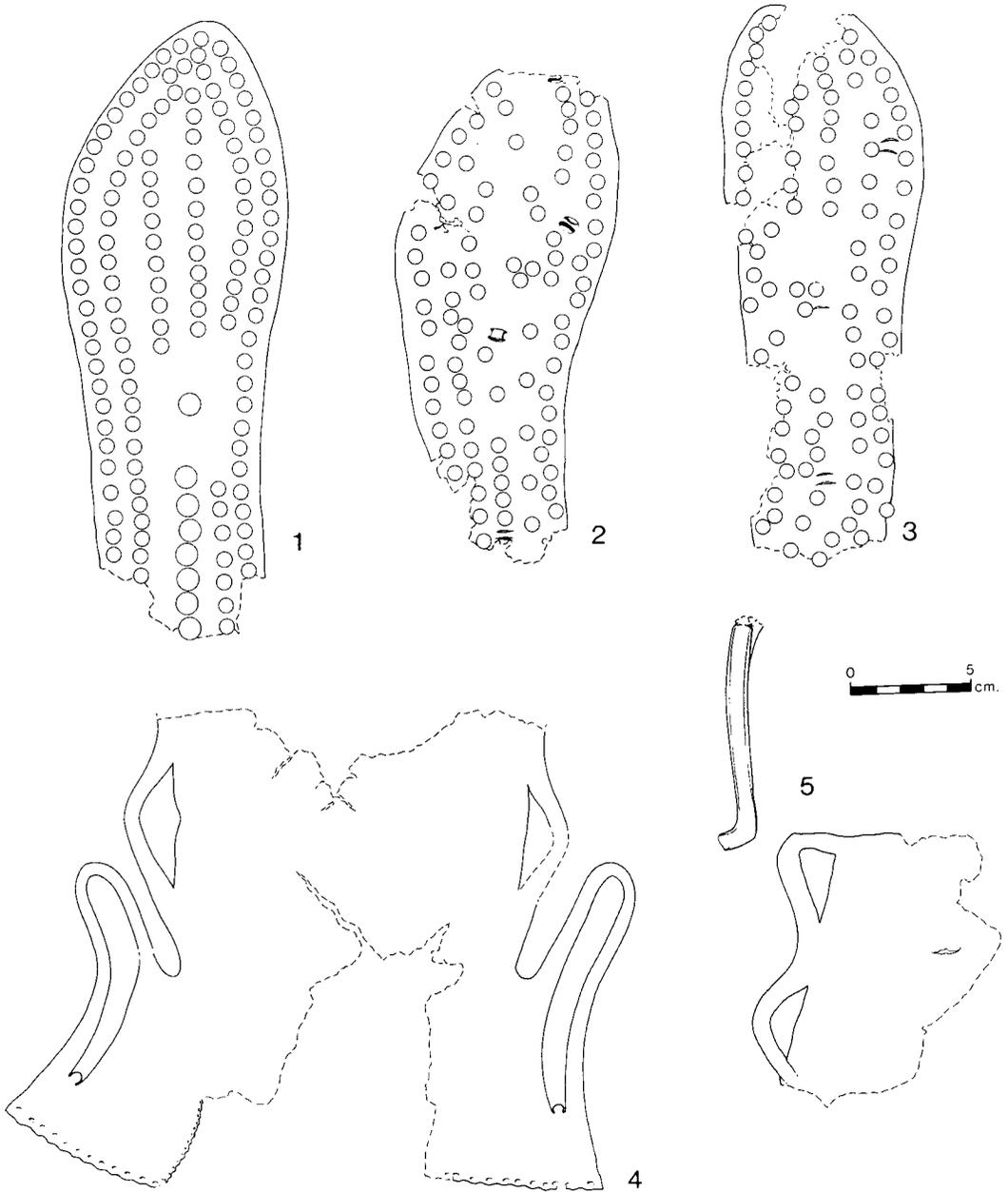


Fig. 14. Leather from Housesteads (scale  $\frac{1}{3}$ ).

the hide were recovered. 41% of the waste leather comprised secondary waste from the pattern cutting of looped uppers and bottom units during manufacture, the larger pieces with marking out lines visible on the grain surface. This secondary waste (such as fig. 15.10, fig. 15.11, fig. 15.12, fig. 16.13) is comparable with the shoe making waste found at Maastricht, Holland (Groenman-van Waateringe, 1967, fig. 53).

#### *Non-shoe leather*

63% of the worked leather came from non-shoe items. They comprise chiefly of discarded stitched fragments of worn sheep/goat skin. Eleven of the fragments had knife cut edges suggesting that the reusable leather had been salvaged. The non-shoe leather represents the discarded fragments from the repair of a number of items amongst which tentage and shield covers could be recognized.

#### *Tentage*

A length of type IIb seam found (fig. 16.14) changes to a type IIIb seam with felling (tunnel) stitches on the flesh side to hold a reinforcement strip. The change of seaming indicates that the fragment comes from a

corner of a tent panel where extra strengthening of the seam was needed at a point of stress. This reinforcement of a type II seam with a type III seam can be seen in tentage from the Valkenburg and Bonner Berg (van Driel-Murray, 1983, p. 6 and nos. 226, 227 and 297). Several lengths of type III seam reinforcement strip were found (figs. 16.15, 16; 851426g) with a line of back stitching, stitch type Ib, along each edge and along the centre, in one instance a double central line was noted (figs. 16.15, 16). The Housesteads seam III reinforcement strips can be paralleled at Bar Hill (*ibid.*, p. 86, fig. 26, no. 20) and differ from those from Valkenburg (Groenman-van Waateringe, 1967, fig. 6), Bonner Berg (van Driel-Murray, 1983, p. 48) and Birdoswald (McIntyre and Richmond, 1934, fig. 10, no. 25, p. 86) in being back stitched rather than whip stitched along each edge. The type III seam appears to be indicative of tentage as it has been found exclusively on tentage at Vindonissa, Valkenburg and Zwammerdam (van Driel-Murray, 1983, p. 44).

A large fragment of sheet (fig. 16.17) with a type IIb seam and a type VI hem at right angles is likely to come from a tent, the folded hem suggesting it to be from a bot-

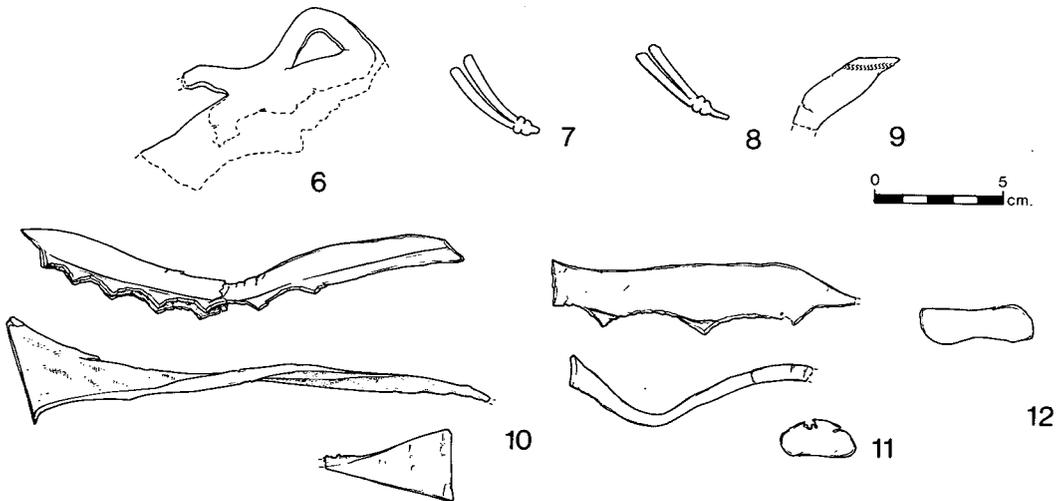


Fig. 15. Leather from Housesteads (scale  $\frac{1}{3}$ ).

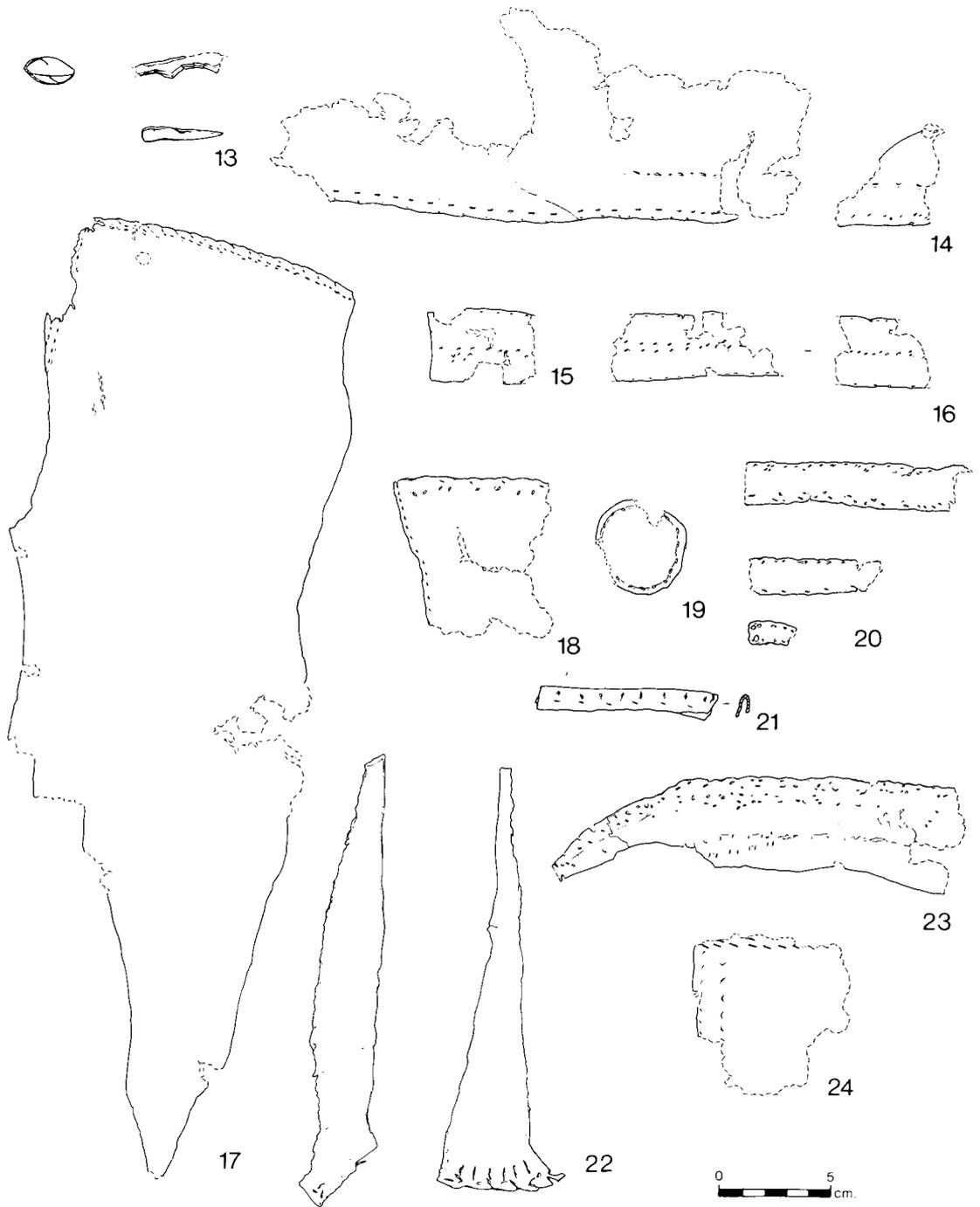


Fig. 16. Leather from Housesteads (scale  $\frac{1}{3}$ ).

tom panel. A square fragment with a type IIb seam and vertical stitching, possibly from a type Va hem, may be from tentage also (fig. 16.18).

The small circular patch (fig. 16.19) of sheep/goat skin was used to attach a guy rope, as illustrated in the reconstruction of tent fragments from Bonner Berg (*ibid.*, fig. 10, p. 43, nos. A and B). Fragments with curving grain/flesh stitched seams may come from larger patches (851426c, d).

Fragments of a narrow strip binding (fig. 16.20, 851426f, 851427f) occurred at Housesteads with back stitching, stitch type 1b, along one edge and whipped stitch, stitch type 5, along the other. Similar strips were found at Bar Hill (*ibid.*, fig. 26, no. 22, p. 86). These strips may represent a second type of seam reinforcement, they are unlikely to be type IVa, b hem bindings as none showed signs of having been folded.

#### *Shield covers*

A length of folded strip binding of sheep/goat skin (fig. 16.21) and fragments of irregularly cut sheet with remains of alternating horizontal and vertical grain/flesh stitching come from shield covers (fig. 16.22). The shape of the gently curving seam (fig. 16.23), possibly of type II/IIIa, suggests it may come from a shield cover, while a small torn square shaped fragment (fig. 16.24) with paired grain/flesh stitching running at right angles to a line of oblique stitches may belong to a shield cover also.

#### THE CATALOGUE

The leather finds are catalogued in Ancient Monuments Laboratory number order.

All measurements are given in millimetres (mm).

Items without figure numbers are not illustrated.

#### *Abbreviations*

e/f=edge/flesh  
g/f=grain/flesh  
Ht=height

inc=incomplete

L=length

sl=stitch length

ST=seat

st=stitch/es

Tr=tread

W=width

Wt=waist.

Nailing pattern refers to surviving hobnails and/or the holes they made.

AML 851424; Context 10:48; fig. 14.4; flesh  
*Leather one-piece shoe*

One-piece or moccasin shoe for right foot with toe, forepart and seat of sole and forepart of upper torn away. Straight back seam butted with g/f large awl made holes, leather laminated but seam apparently oversewn sl 6 mm. Small g/f st present around the seat on the left side, rest is torn away. Left upper has large elongated upper loop over the instep, with a lower loop remaining, rest torn away. Right upper loop and lower loop have been partly torn away. Both upper loops have a small decorative lobe at the junction with the quarters. Leather cattle. L 193 mm inc; Ht back seam 132 mm.

AML 851425a; Context 10:48; fig. 14.2; grain

*Leather nailed shoe insole*

Insole for left foot nailed shoe, worn/torn away at the toe, exterior toe joint and seat. Central thonging from seat to waist with double line of thonging at the forepart. Worn grain side upward to the foot. No impressions on the flesh side. Type C nailing (Rhodes) or van Driel-Murray type 3c. Leather cattle. L 205 mm inc; W Tr 89 mm; W Wt 63 mm; W ST 55 mm inc.

Also 9 small fragments with nail holes or thong slots from a nailed shoe bottom unit.

AML 851425b; Context 10:48; fig. 14.5; flesh

*Leather one-piece shoe*

Fragment of one-piece or moccasin shoe, cut for reuse, with a single cut edge the

remainder torn away. Two lower loops are present on one side. No stitches visible. Leather laminated cattle. L 116 mm inc; max W 110 mm inc.

Also length of top loop of strip with a right angle turn at one end. L 98 mm inc; W 9 mm.

AML 851425c; Context 10:48; fig. 14.1; grain

*Leather nailed shoe sole*

Complete sole for right foot nailed shoe, worn at the exterior toe joint and around the perimeter of the seat. Oval/gently pointed toe, medium tread, wide waist and seat. Rhodes type c or van Driel-Murray type 3c nailing, with a single nail only at the waist. Leather laminated cattle (from thickness). L 261 mm (almost complete); W Tr 95 mm; W Wt 75 mm; W ST 72 mm.

AML 851425d; Context 10:48; fig. 16.14; flesh

*Leather tentage*

Two joining fragments of type IIb seam other edges torn. The straight cut edge with type IIb seam has a line of widely spaced whipped st sl 12 mm along the edge with a line of g/f st type 1b sl 9 mm with thread impressions on the flesh side 4 mm below. For 107 mm of the seams length a line of felling/tunnel st are present 21 mm below the edge indicating that the seam changes from a type IIb to IIIb. Leather worn sheep/goat L 265 mm inc; max W 87 mm inc; thickness 1.5 mm.

Also a fragment from a type IIb seam with remains of a sloping cut edge, others are torn. Leather worn ?sheep/goat. L 42 mm; W 41 mm.

AML 851425e; Context 10:48; fig. 16.23; flesh

*Leather shield cover*

Fragment of gently curving type II/IIIa seam, cut for reuse. The curved edge is folded over and is slightly sinuous for part of its length. It is held with a series of g/f st at the edge with thread impressions on the

interior grain surface. The width of the fold increases after this point and is covered with 3 lines of g/f st which does not penetrate to the outer leather, occurring on the fold only. Below the fold some 16–20 mm is a line of g/f st with some felling/tunnel st below. Leather worn sheep/goat. L 160 mm inc; W 32 mm inc.

AML 851425f; Context 10:48; fig. 16.15 and 16; grain

*Leather seam III reinforcement strips*

3 fragments of seam type III reinforcement strip. 2 fragments have a double row of oblique g/f st running along the centre, one with thread impressions on the grain side, the other fragment has a single central line. All fragments have a line of g/f st type 1b with thread impressions on the grain side running along each edge. Leather sheep/goat. Double central line W 30 mm; W 33 mm. Single central line W 31 mm.

AML 851425g; Context 10:48; fig. 16.20; grain

*Leather reinforcement strip/binding*

Length of reinforcement strip or hem binding with a skived end, the other torn. Each edge has a line of g/f whipped st. There is a line of widely spaced g/f st below one edge and a line of widely spaced paired g/f st below the other. Leather sheep/goat, max W 21 mm. Length of reinforcement strip or hem binding with a skived end, the other torn. One edge has g/f whipped st, the other has a line of widely spaced g/f st sl 9 mm. Leather sheep/goat. max W 17 mm. Length of narrow binding with a straight end, the other torn. Straight end has a pair of large st holes in each corner. Line of g/f st whipped st along each edge. Leather cattle. max W 11 mm. None show indications of having been folded.

AML 851425h; Context 10:48; fig. 16.18; grain

*Leather tentage*

Square fragment with a horizontal and a vertical seam, other edges are torn. Length

of type IIb seam is slightly pleated with a line of small whipped st sl 14 mm along the edge and a line of vertical g/f st below. The other edge is slightly sinuous with a series of tiny g/f st close to the edge which is folded for a distance of 32 mm suggesting it to be a type Va hem. Leather sheep/goat. L 72 mm inc; W 68 mm inc.

AML 851425i; Context 10:48; fig. 16.24; grain

*Leather stitched fragment ?shield cover*

Square fragment with a small length of cut edge, the remainder torn. A line of small g/f st runs c. 4 mm below the edge with a line of paired obliquely sloping st sl 6 mm running 14 mm below the edge. Running vertically at right angles to this is a line of long oblique g/f st sl 7 mm, probably hem type IV, with the indication of a line of much smaller st alongside, the edge has been torn away. Possibly a fragment of shield cover. Leather sheep/goat. L 74 mm inc; W 72 mm inc.

AML 851425j; Context 10:48

*Leather stitched fragments ?tentage*

2 small fragments with 3 torn edges and remains of a seamed edge along the other. Probably from tentage. Leather worn ?. L 40 mm inc; W 26 mm inc; L 39 mm inc; W 27 mm inc.

AML 851425k; Context 10:48

*Leather stitched fragments*

3 fragments with 2 lines of g/f st and cut edges, cut for reuse. Leather sheep/goat. L 125 mm; W 24 mm; L 33 mm; W 23 mm. Leather worn ?. L 90 mm; W 13 mm.

AML 851425l; Context 10:48; fig. 16.22; flesh

*Leather shield cover*

2 fragments with irregular knife cut edges, cut for reuse. Each has a small length of alternate g/f st sl c. 5 mm close to the edge and a line of g/f vertical st sl 6-7 mm lying just below. Leather sheep/goat. L 192 mm inc; W 52 mm inc; L 208 mm inc; W 29 mm inc.

AML 851425m; Context 10:48

*Leather ?shield cover*

Fragment of fine, soft leather with very irregular to denticulated knife cut edges, cut for reuse. Widely spaced large oblique g/f st sl 10 mm and a single horizontal st are present along a fragment of straight edge. Possibly from a shield cover. Leather sheep/goat. L 285 mm inc; W 66 mm inc.

AML 851425n; Context 10:48; fig. 16.21; grain and section

*Leather shield binding*

Length of folded strip binding with knife cut edges, cut for reuse. On one side is a line of widely spaced vertical g/f st sl 8-10 mm with a line of small widely spaced horizontal g/f st sl 11 mm below. Leather worn ?sheep/goat. L 83 mm; W 16 mm, W folded 10 mm.

AML 851425o; Context 10:48; fig. 15.10; grain

*Leather waste*

1 fragment of primary waste leather cattle and 13 pieces of secondary waste with knife cut edges including 2 intersectional cutting pieces, 4 lengths of trimming and a length with scalloped edge and marking out lines. Leather various thicknesses cattle and 1 fragment sheep/goat.

AML 851425p; Context 10:48

*Leather waste*

19 fragments of waste with both knife cut and torn edges. Various hides.

AML 851425q; Context 10:48

*Leather scrap*

c. 20 fragments of scrap with all edges torn. Various hides, probably from the other items from this context.

AML 851426a; Context 10:42

*Leather nailed shoe fragments*

4 small fragments of bottom unit from a nailed shoe including a fragment of seat perimeter with a nailed margin and a single tunnel st close to the edge. Leather worn ?cattle.

AML 851426b; Context 10:42

*Leather one-piece shoe fragment*

Fragment of seat area of a one-piece/moccasin or possibly a stitched shoe sole. The four holes remaining around the right edge are semi-circular and come from the addition of a separate repair, probably nailed. Leather worn ?. L 63 mm inc; W 52 mm inc.

AML 851426c; Context 10:42

*Leather ?patch fragment*

Fragment with a curved cut edge, an irregular cut edge and torn areas, cut for reuse and discarded. The curved edge is followed by a line of widely spaced g/f st and an oblique line of vertical g/f st runs across the fragment. No thread impressions are visible. Possibly from a circular patch. Leather sheep/goat. L 106 mm inc; W 43 mm inc.

AML 851426d; Context 10:42

*Leather ?patch fragment*

Fragment of sheet with a short length of curving cut edge with g/f st, all other edges are irregularly torn. No thread impressions visible. Curvature suggests a fragment of patch. Leather worn sheep/goat. L 127 mm inc; W 58 mm inc.

AML 851426e; Context 10:42

*Leather seam III reinforcement strips*

4 fragments of seam III reinforcement strips with g/f back st, st type 1b, with thread impression on grain side, along each edge sl 7.5 mm and central line of oblique g/f back st, st type 1b, with thread impression on grain side. Leather worn ?. L 49 mm inc; W 32 mm; L 39 mm inc; W ?. Leather cattle. L 52 mm inc; W 31 mm. Leather sheep/goat. L 151 mm inc; W 29 mm.

AML 851426f; Context 10:42

*Leather reinforcement strip/binding*

Fragment of reinforcement strip or hem binding with g/f st along each edge, one with thread impressions on the grain side. No signs of folding visible. Leather worn ?. L 20 mm inc; W 17 mm.

AML 851426g; Context 10:42

*Leather stitched fragments*

Small fragment with curved whipped st edge, possibly from internal shoe lining. Leather worn ?. L 46 mm inc.

Rectangular fragment with a line of g/f st and another 13 mm below, possibly a fragment of reinforcement strip or hem binding. Leather sheep/goat. L 76 mm inc.

Fragment with a group of g/f st at one corner apparently from a folded hem type V. Leather worn ?sheep/goat. L 55 mm inc.

AML 851426h; Context 10:42; fig. 15.11; grain

*Leather waste*

Triangular fragment of primary waste with knife cut edges. Leather cattle. L 203 mm; W 58 mm.

4 fragments of secondary waste; trimming leather cattle, oval piece from openwork pattern cutting with marking out lines leather cattle. L 29 mm; W 13 mm, fragment from cutting out loops with marking out lines leather cattle. L 121 mm; W 27 mm and fragment of cattle hide. L 79 mm; W 16 mm.

AML 851426i; Context 10:42

*Leather scrap*

c. 17 fragments of scrap with all edges torn, likely to come from the other items from this context. Various hides.

AML 851427a; Context 10:48; fig. 16.19; grain

*Leather patch*

Small circular patch with a line of g/f back st, st type 1b, around the perimeter with thread impressions on the grain side. sl 5–6 mm. Leather worn sheep/goat. Diameter 45 mm.

AML 851427b; Context 10:48; fig. 15.6; flesh

*Leather one-piece shoe*

Fragment of laminated one-piece or moccasin shoe with 2 lower loops of the upper

remaining. Torn edges, no st visible. Leather worn ?. L 103 mm inc; W 39 mm inc.

AML 851427c; Context 10:48; fig. 15.7; grain

*Leather decorative loop terminal*

Loop from ?shoe upper with a decorative double lobe and pointed terminal. Leather worn ?. L 43 mm.

AML 851427d; Context 10:48; fig. 14.3; grain

*Leather nailed shoe insole*

Insole of ?left foot nailed shoe, torn away at the toe, exterior forepart and perimeter of the seat. Rhodes type C or van Driel-Murray type 3c nailing with a plain area at the waist with a group of 3 nails in the centre. Central thonging indicated by pairs of slits at the seat, waist and 2 pairs in the forepart. No impressions on the flesh side, worn grain side upward to the foot. Leather cattle. Also fragments from the sole. L 228 mm inc; W Tr ? inc; W Wt 65 mm; W ST 59 mm inc.

AML 851427e; Context 40:48; fig. 16.17; flesh

*Leather tentage*

Large fragment of sheet with knife cut and torn edges, cut for reuse. Length of type IIb seam comprising vertical whipped st at the edge and a double line of horizontal g/f st below, changing to a single line for half the length. At right angles to the seam is the remains of a type VI hem running vertically with a folded edge and a line of fine felling/tunnel st on the flesh side close to the fold. Also a fragment of similar leather with torn and cut edges likely to come from the above. Both have stretch/stress lines present. Leather worn sheep/goat. L 420 mm inc; W 145 mm inc; L 174 mm inc; W 90 mm inc.

AML 851427f; Context 10:48

*Leather reinforcement strip/binding*

2 lengths of reinforcement strip or hem binding with a line of widely spaced g/f back

st, st type 1b, along one edge with thread impressions on the grain side, and whipped st along the other. Leather sheep/goat. L 200 mm inc; W 17 mm; L 50 mm inc; W 18 mm.

Also length of strip or binding as the above but with no thread impressions visible. Both show no signs of folding. L 61 mm inc; W 16 mm.

AML 851427g; Context 10:48

*Leather stitched fragments*

1 fragment with a butted e/f seam sl 3 mm, possibly from a shoe upper.

1 fragment with a whipped seam possibly from an internal shoe lining.

3 fragments with a folded hem type Va.

4 fragments with g/f st along the edge.

4 fragments with g/f st present.

AML 851427h; Context 10:48; fig. 15.12; grain

*Leather waste*

8 pieces of secondary waste including 3 lengths of trimming and "figure-of-eight" shaped piece produced when cutting out shoe upper loop of cattle hide. L 43 mm; W 14 mm.

Marking out lines present on one piece. Various hides including cattle and worn flexible ?sheep/goat or calf.

AML 851427i; Context 10:48

*Leather waste*

6 fragments of waste with knife cut edges and torn edges. Various hides.

AML 851427j; Context 10:48

*Leather scrap*

c. 32 fragments of scrap with all edges torn.

AML 851429(part)a; Context 10:48

*Leather stitched fragment*

Fragment of seam with a straight and an irregular knife cut edge, cut for reuse and discarded. Seam has remains of widely spaced g/f t sl 13 mm with thread impressions on the grain side. Leather worn ?. L 55 mm inc; W 13 mm inc.

AML 851429(part)b; Context 10:48; fig. 15.9; grain

*Leather shoe fragment*

Small fragment with knife cut edges, one edge torn, cut for reuse and discarded. A line of small rouletted S motifs run along the oblique edge. From shoe upper or sandal insole. Leather worn cattle. L 48 mm inc; W 13 mm.

AML 851429(part)c; Context 10:48; fig. 15.8; grain

*Leather decorative loop terminal*

Loop from ?shoe upper with double strap and decorative double lobe with a pointed terminal. Leather worn cattle. L 44 mm inc; W 9 mm.

AML 851429(part)d; Context 10:48; fig. 16.13; grain

*Leather waste*

Secondary waste comprising 4 lengths of trimming and 4 pieces from pattern cutting openwork uppers and loops. Leather cattle. Oval piece L 22 mm; W 12 mm: Loop piece L 36 mm; W 6 mm.

AML 851429(part)e; Context 10:48

*Leather waste*

3 fragments with knife cut and torn edges. Leather worn ?cattle.

AML 851429(part)f; Context 10:48

*Leather scrap*

6 fragments of scrap with all edges torn, likely to come from the other items from this context.

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