

**THE ROMAN FORT AT BAINBRIDGE, WENSLEYDALE: EXCAVATIONS BY B. R. HARTLEY ON  
THE *PRINCIPIA* AND A SUMMARY ACCOUNT OF OTHER EXCAVATIONS AND SURVEYS**

**THE SUPPLEMENTARY MATERIAL**

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## SECTION 1: SURVEY OF THE ROMAN FORT AT BAINBRIDGE BY THE ROYAL COMMISSION ON THE HISTORICAL MONUMENTS OF ENGLAND

### INTRODUCTION

The survey was carried out by the Newcastle office of the RCHME in 1994, at the request of the Yorkshire Dales National Park, in order to facilitate the formation of a management plan for the site. Specifically, the National Park required identification of the numerous excavation trenches and spoilheaps that are visible within the fort. A secondary consideration was to distinguish any part of the site which might be suited to further investigation by means of geophysical survey. In order to satisfy these needs two plans were produced. The fort and its defences were surveyed at 1:500 scale in order to allow detailed recording of all the excavation trenches (Fig. 31). Secondly, the promontory on which the site lies was surveyed at 1:1000 scale to show the fort in its landscape (Fig. 32). The depiction of the fort on the 1:1000 plan is derived from the larger scale plan. The survey was carried out between January and April 1994. The control was established using a total station (Wild TC1610) and the detail was added using plane table and self-reducing alidade (Wild RK-1) and occasionally graphical methods.

The fort is situated on a hog-backed hill, composed of glacial clay and gravel, on the east side of the present village. The hill, known as Brough Hill or The Brough, is oriented east–west and is 248 m above OD at its highest point. The west edge of the hill has been truncated by the River Bain and thus has the steepest approach, while to the east the sides of the hill gradually become gentler and lower until they level out.

Along the north side of the hill, and to a lesser extent on the south side, are a series of springs and former springs. The curve of the top of the hill creates an area of dead ground to the west of the fort but apart from this there are extensive views up and down Wensleydale. South of Brough Hill the fells begin to rise immediately but to the north the flood plain of the River Ure lies between the fort and the hills. From the south gate of the fort the River Bain is only 250 m away. It flows into the River Ure 700 m downstream from this point.

The site consists of the earthwork remains of the fort and an annexe adjoining its east side. On the north slopes of Brough Hill are the remains of several lynchets and around the base of the hill are the remains of a field system. A number of ruined stone field walls also cross the hill. The Roman remains are divided between two farms; the large field containing the west half of Brough Hill and the fort itself are farmed from Cravenholme while the smaller fields to the east, including the one that contains the annexe, are part of Brough Hill Farm. Both fields containing fort and annexe are under pasture and have not been ploughed this century. The other surrounding fields have been ploughed intermittently in recent years.

### THE FORT (FIG. 31)

The fort measures about 91 m north–south between the crests of the rampart and 111 m transversely, giving an internal area of about 1.01 ha. The ramparts are slightly askew, each corner being approximately 6 degrees out from a right angle, so that the fort is rhomboidal. This shape is probably due to the restricted area on top of Brough Hill; the fact that both pairs of opposite sides are parallel suggests that the fort was deliberately laid out in this way rather than being the result of a surveying error.

#### **The ramparts**

Despite the fact that stone robbing has left almost no stonework visible, the rampart survives to a maximum height of 3.9 m at the north-west corner. The west half of the north rampart is an unbroken, slightly stony scarp approximately 2.9 m high maximum. Cutting the top of the rampart are the remains of the trial trench (1) excavated by Wade in 1950.<sup>1</sup> It measures 2.0 m wide overall and is 0.2 m deep. The east half of the north rampart is much more ragged in appearance and this is probably caused by the amount of excavation in this area. In fact only one trial trench (2) is identifiable, adjacent to the gate. Measuring 1.5 m wide and 0.2 m deep, it is almost certainly a remnant of the 1928 excavations.<sup>2</sup> Excavation plans suggest that in most places the course of the fort wall is represented on the surface by a narrow terrace breaking the principal external scarp of the rampart. Along this section of rampart, 3.65 m high, the terrace is discontinuous and measures between 1.7 m and 1.0 m. This irregularity of width is probably also due to the 1928 excavations.

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<sup>1</sup> Wade 1952, 3.

<sup>2</sup> Droop 1929, 78.

Cutting the north-east angle of the fort and extending beyond the defences are the remains of a trial trench (3) dug by Droop in 1928<sup>3</sup> that may have been dug along the course of a trench apparently not completed by Collingwood.<sup>4</sup> Neither excavator found evidence of a corner tower. Towards the top of the rampart and in the interior the trench is 0.2 m deep and 2.0 m wide. The rest of the trench survives as a flat-topped bank 2.4 m wide maximum and 0.3 m high – an appearance presumably caused by back-filling too much earth after excavation had finished. Along the east perimeter the course of the robbed out fort wall survives as a break of slope. Cutting across the north half are the remains of two adjacent trenches (4), one of which must be the section cut by Collingwood in 1926.<sup>5</sup> The more northerly trench is 0.9 m wide and 0.25 m deep; the other is 1.7 m wide and 0.25 m deep. The height of the rampart here is 2.2 m. South of the east gate is another excavation trench (5), 2.1 m wide and 0.1 m deep, that is part of the excavation by Hartley in 1957.<sup>6</sup> A small scoop on the top of the rampart, 2.5 m wide, has been caused by livestock. A stone-filled cut (6), 1.3 m wide and 0.3 m deep, on the south-east angle is the remains of Collingwood's 1926 excavation.<sup>7</sup> He believed he had found the floor of a corner tower but did not find any walling; this lack of any conclusive evidence for late corner towers on the east side of the fort suggests that they may have been dismantled when the annexe was built. Immediately to the west is a grassy scoop (7), 3.5m wide overall and 0.3 m deep; a small spread of grassed-over spoil beneath it indicates that this is probably an excavation trench rather than a sheep scrape, although it cannot be identified from the available literature. The height of the rampart is 3.4 m. The robber trench of the fort wall survives partly as a break of slope and partly as a terrace up to 1.8 m wide. A small part of the west half of the rampart has been mutilated where the end of a dry stone wall crosses it; the wall was originally part of a larger field wall which has mostly disappeared but two lengths at the top of the hill have been maintained to provide shelter from the prevailing west wind. Damage to the rampart has occurred due to livestock walking around the north end of the wall. Despite this, the line of the robbed-out wall is easily visible here as an unbroken terrace up to 1.2 m wide. A little to the west of the gate is a small trench (8), 1.4 m wide and 0.2 m deep, the remains of one of Collingwood's trenches of 1926. A ground photograph of the excavations shows that (8) extended right across the rampart and ditch although the ditch is not fully described in the report.<sup>8</sup>

The robber trench of the fort wall begins again at the south-west angle where the rampart is 3.1 m high. At the top of the rampart is an indistinct feature (9) 1.5 m wide and 0.2 m deep, that runs into a sheep track and might itself have been caused by sheep. A few large, faced stones protrude from the rampart at the corner, together measuring 1.5 m in length. Another large faced stone lies at the base of the rampart; possibly these stones are evidence of more substantially built corner towers that could not easily be removed by stone robbers. Another small sheep track and a larger sheep scrape, 2.7 m in diameter, cut the top of the defences 10 m to the north. The remains of Wade's trench (10) of 1952 cut through the entire rampart and reappear discontinuously across the line of the ditches. It measures 1.2 m wide and 0.2 m deep. Two parallel sheep tracks lead away from the west gate (W). The robbing terrace is cut with a well-defined edge to a maximum width of 2.0 m. The spoil has been thrown up onto the top of the rampart creating a small scarp (11) 1 m wide. In the centre of the cut-back is an exposed stone 1.1 m long, possibly the *in situ* remains of the fort wall. These earthworks may be the result of undocumented attempts to find the wall; air photos suggest that it was part of the earliest excavations of 1925/6.<sup>9</sup> Immediately to the west of this is a section (12) dug by Kirk in the first season of excavations in 1925 which has never been backfilled. At the top of the defences the now very ragged trench is a minimum of 2.0 m wide. The accompanying heap of spoil on the north side of the trench is 3.4 m by 7.0 m and is 0.7 m high. The rest of the trench is very uneven in depth and width and is stony. Two further sheep tracks cross the rampart diagonally between this and the north-west angle. The course of the top of the rampart bends inward at the north-west angle. This profile and the break of slope below were also recorded on Collingwood's plan.<sup>10</sup> Both these features may be the result of the robbing of an angle tower.

The ditches of the fort have generally not survived to any great depth but their course is still readily discernible on the ground. To the north and south of the fort the number of potential ditches is limited by the sides of the hill. Excavation by Droop in 1928 along the east half of the north defences revealed the existence of two ditches; an inner ditch 5.2 m wide and an outer ditch 3 m wide.<sup>11</sup> Droop concluded that the inner ditch was kept open during the life of the fort but that the outer ditch was very short lived; large boulders in the subsoil appear to have made the digging operation difficult and clay had been added to the counterscarp in order to create the outer lip of the ditch. Subsequently the outer ditch was filled in and a metalled road or track built over it which Droop noted was visible on the surface as a low bank. This bank (13), only 0.3 m high, was recorded during the survey. Its flat top and inner scarp are a maximum of 3.7 m wide and its

<sup>3</sup> Droop 1929, 78.

<sup>4</sup> Collingwood 1928, 267.

<sup>5</sup> Collingwood 1928, 266.

<sup>6</sup> Hartley 1960.

<sup>7</sup> Collingwood 1928, 267.

<sup>8</sup> Collingwood 1928, 266.

<sup>9</sup> NMR Nos SD 9390/4/6092-100.

<sup>10</sup> Collingwood 1928, 262.

<sup>11</sup> Droop 1929, 78.

position corresponds to the position of the outer ditch in Droop's section drawings. The bank also crosses the position where Wade noted the outer ditch in 1950, although he does not mention any metalling which may indicate that the road entered the north gate and did not continue around the fort.<sup>12</sup>

Wade found the inner ditch to be of typical V-shape with a square-cut channel at the bottom, suggesting that Droop did not find the real bottom of the ditch during his excavations. Both excavators noted the same width of 5.2 m. Comparison of the earthworks and the section drawings shows that the inner ditch corresponds to a terrace (14) 3.4 m wide, the outer lip being defined by the outward facing scarp. Part of the ditch is now covered by the collapsed rampart as would be expected.

Collingwood dug trenches through the south, east and west ramparts and also through the ditches although he does not describe them fully in his report. From the surface remains there appears to have been only one ditch on the south side of the fort. To the west of the gate a terrace 3.4 m wide probably indicates the course of the ditch in the same way as at the north defences. At the far west end is a small counterscarp (15), truncated by a sheep track. The east section of the ditch, which measures between 3.5 m and 5.6 m in width from the bottom of the rampart to the top of the counterscarp, has been accentuated by use as a track for farm vehicles and probably also as a route from the site hut.

Neither excavation nor survey have revealed whether there was a more extensive system of ditches on the east side of the fort prior to the building of the annexe. Excavations have only partly touched the known east ditch which is 4.5 m wide from the base of the rampart along its southern half. The counterscarp is 0.75 m high and particularly well-defined. The modern field wall runs along the top of the counterscarp of the ditch's central section. There is a slight deposit of material in the bottom of the ditch, probably related to use of the site hut. The north end of the ditch is much less clear, only 0.2 m high maximum, and is narrower at 3.5 m. On the west side of the fort are the remains of five ditches, no doubt constructed because of the restricted view beyond this part of the hill. The results of Wade's 1952 excavation were interesting because they showed the four outermost ditches all to be of similar construction and fill.<sup>13</sup> All of them were V-shaped and relatively shallow (between 1.0 m and 0.9 m), none of the ditches had been allowed to silt, and they had been backfilled with clay and stones, which suggests that they had not been in use for very long and were contemporary. The inner ditch was V-shaped with a drainage channel cut into the bottom, as noted in the north defences. It was 5.5 m wide and 2.1 m deep. The remains of Wade's section can be seen cutting through the ditches in three places. None of the scarps are deeper than 0.2 m and only the most westerly trench (16) can be seen clearly; it has a definite end and is 1.5 m wide. The middle cut (17) is 0.95 m wide. The inner ditch, from the base of the rampart, is 3.5 m wide. The second ditch is 4.0 m wide overall and like all the ditches its position corresponds to Wade's section drawing. The east lip of the third ditch is visible only as a low scarp a maximum of 1 m wide for most of its length. Between the second and third ditches Wade discovered a palisade slot and above it a mound of clay and stone which he interpreted as packing; this ridge of material (18) is still visible for its entire length. The bottom of a broad curving scarp (19), 3.6 m wide, forms the other side of the middle ditch for a short distance. The ground between the third and fourth ditches is noticeably level; Wade noted that spoil was deliberately not deposited in this area. At its most well-defined the fourth ditch measures 7.3 m in width and is 0.5 m deep. Both this ditch and the outer ditch curve slightly while the other ditches remain completely parallel to the ramparts. The outer ditch is about 7.9 m wide and 0.4 m deep. Part of its spoil has been thrown outwards to form a low wide scarp up to 6 m wide. Given the absence of dating evidence for the four outer ditches Wade suggested that they could either belong to an earlier fort or were a short-term response to some threat, real or perceived. The relationship of two of the ditches to the rampart may be considered as evidence to support the latter suggestion.

Information relating to the ditches was not included in the report by Collingwood on the trench dug through the west defences in 1926 although its remains are visible (20) between the second and third ditches, 1.7 m wide and 0.2 m deep. A further small trench (21), of unknown date, cuts the north end of the outer ditch and measures 1.0 m wide and less than 0.2 m deep.

Two similar-looking oblong mounds overlie the west ditches. The larger of the two (22) is a grassy, flat-topped mound, 12.8 m by 4.0 m, surrounded by a ditch without a berm, about 1.5 m wide. Its maximum height is 0.5 m. It is situated close to the edge of the natural slope; its apparent alignment with the fort rampart is probably coincidental. The other mound (23) lies beside the west gate, in the inner ditch. Also flat-topped, it measures 8.2 m by 2.3 m and is 0.4 m high. The ditch surrounding it has cut into the base of the rampart and the counterscarp of the ditch. Collingwood included both mounds on his plan in 1926, showing that they are not a product of the known excavations. He postulated that the smaller mound was a titulus of an earlier camp but as the mound is clearly a later insertion this can be discounted. They may be pillow mounds; although the smaller of the pair is rather narrower than might be expected, this may be simply the result of the restricted location of the mound at the base of the rampart.

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<sup>12</sup> Wade 1952, 3.

<sup>13</sup> Wade 1955, 153–6, figs 1, 5–6.

### The gateways

The four entranceways are opposite each other on a line parallel to the ramparts. There is no stonework visible at any of the gates, nor is there any surface indication of gate towers. The present earthworks around the east gate presumably owe most of their appearance to the excavations in 1926, 1931 and in 1960–61. The gate is visible as a break in the rampart, 4.9 m wide, where the ends curve back to form a short back scarp. Both sides of the gate are marked by straight edged scarps less than 0.2 m high, probably resulting from recent excavations. In addition, there is a small trench immediately south of the gate, 2.0 m wide and 0.15 m deep, that cuts the top of the rampart. The excavations showed that there was a causeway across the ditches; the wide shallow scarp in front of the gate is most likely to be a remnant of a spoil heap.

The west gate is marked by a small break in the rampart. The point where a causeway should cross the inner ditch is obscured by the mound (23) described earlier; perhaps a more level area here suggested the best spot to build the mound. However, the nature of the topography outside the west gate means that the gate can have been little used or may even have been blocked; this may account for the lack of obvious remains.

The north and south gates, linked by the *via principalis*, are both clearly defined. The north gate measures 3.3 m wide internally. Collingwood's plan shows a small mound outside the gate, which he tentatively identified as a titulus, but this was not found during the survey. An outward-facing scarp takes the road down and to the east. Possibly this is a more recent embankment created during Droop's excavations beside this gate. The south gate is 4.2 m wide internally and is accompanied by a causeway across the ditch. The east side of the causeway may have been embanked relatively recently, producing a scarp 2.0 m wide.

### The interior of the fort

The *principia* were first investigated in 1926 when the course of the external walls was traced and the range of rooms at the rear was partially excavated. The trench (24), 2.0 m wide and 0.2 m deep, may be the remains of these early excavations. A scarp 0.3 m high adjoining the trench also defines the edge of the building. Just outside the *aedes* a statue base (25) was discovered; this is still visible *in situ* in a trench 1.5 m by 1.3 m, now lined with dry stone walling 0.45 m high; the centre of this stone was apparently used as a temporary bench mark during the excavations by Leeds University. Wade excavated the north-west corner of the *principia* in 1952 when it was revealed that the Severan phase overlay a granary wall to the north. There is nothing visible on the surface of this investigation. As a result of Hartley's excavations, several courses of the south wall of the *aedes* are exposed over a length of 4.0 m south of (25), and the general course of the west and north walls appears to be reflected in the adjacent scarps. To the west of this are a series of scarps which are almost certainly spoilheaps from these excavations.

To the south of the headquarters building lies the commanding officer's house. The earthworks recorded there during the survey correspond well with the robber trenches shown on Collingwood's plan. The west wall is represented by an intermittent scarp and a ditch (26) 2.2 m wide and 0.4 m deep. An uneven south-facing scarp (27), up to 1 m wide, marks the north wall. The low mounds inside the commanding officer's house suggest wall robbing of rooms around a central courtyard.

The north part of the central range was occupied by granaries; Collingwood first established this by putting a trial trench diagonally across the area. An angular scarp, set back from but parallel to the *via principalis*, is consistent with Collingwood's plan. A trench (28) at right angles to this scarp and measuring 2.7 m wide and 0.2 m deep is probably a robber trench. Another trench (29), just cutting this, 1.2 m wide and 0.2 m deep, is probably the end of Collingwood's trial trench. The only other conspicuous feature in the area is a long scarp (30), 0.3 m high, not obviously related to any underlying archaeology.

In the northern half of the *retentura* are a number of amorphous scarps, averaging 0.2 m high, that do not form any coherent pattern. The L-shaped scarp adjoining the north-west angle is probably a result of excavations of a latrine in 1969. In the south half is one of three lengths of a stone field-wall retained as a sheep shelter and beside it a wide scarp (31), not more than 0.3 m high, parallel to the ramparts. This scarp apparently overlies the intravallum road.

The earthworks in the north-east quarter of the fort appear to be the residue of Hartley's excavations. An L-shaped scarp (32), 6.0 m by 10.5 m, is very sharply defined although it is only 0.2 m deep. Extending from the longer scarp is a flat-topped rectangular mound 4.7 m by 2.2 m and 0.3 m high with possible stone facing protruding from its north-east corner. The mound forms one side of a T-shaped trench with maximum dimensions of 7.5 m by 6.5 m. Stones from the excavation form a stoneheap (33) 5.6 m long. There is a small cutting adjacent to the stoneheap, measuring 1.6 m by 1.0 m and 0.1 m deep. Other scarps in the vicinity are less than 0.3 m high and have not been identified with other excavation or building remains within the fort.

The south-east corner of the fort has been the focus of much excavation. The right-angled trench (34) adjacent to the *via principalis* is marked on Collingwood's survey as a robber trench. The longer side is an average of 2.1 m wide and 0.4 m deep. Towards its east end is a shallow rectangular cut across the whole trench 4.0 m by 3.5 m; the small mound adjacent may be the upcast from it. The shorter part of the trench is 2.3 m wide and 0.4 m deep. Collingwood cut a trial trench from the east gate to the south gate in 1926, a trace of which can be seen as a single scarp (35) 0.1 m high.

In 1931 Droop excavated buildings in the *praetentura*. He dug an irregularly shaped trench immediately south of the *via praetoria* that was a maximum of 13 m by 11.5 m. The site of these investigations is marked by a mass of trenches and spoilheaps; clearly the area was never backfilled. A long ridge of spoil (36) about 4.0 m wide and 0.3 m high covers the *via praetoria*. Another larger spoilheap (37) is 4.1 m wide and 0.7 m high. Between the two spoilheaps are a number of trenches, the most prominent of which is (38), a rectangular cut 3.5 m by 4.3 m, 0.6 m deep and stony. Immediately to the west of it is a small cut 1.0 m by 2.4 m and 0.35 m deep. The uneven scarp to the south of (38) is up to 0.75 m deep. However, apart from the general southern limit of the earthworks and the south edge of excavation given by Droop, it is impossible to find any detailed correspondence between the survey and Droop's report. In 1953 Wade opened an almost square trench in the south-east corner where he discovered a series of buildings of different phases, including early stone barracks. Hartley continued and extended these excavations in 1957. A trench (39), 2.3 m wide and 0.4 m deep, is part of these excavations. He also cut two narrow trenches parallel to the main dig: the east end of the longer of the two (5) has cut the rampart; the smaller of the two may be visible as a trench 1.0 m wide and 0.2 m deep (40). A linear depression (41) with non-parallel sides, 2.3 m wide and 0.3 m deep, may be the sunken remains of a drain discovered in the excavations.

### Internal roads

Only the course of the *via principalis* is properly discernible within the fort: it is defined on its west side by a number of disjointed scarps. A length of the *via praetoria* was excavated by Droop in 1929 but the area is now covered by spoil (36).

## THE ANNEXE

### The defences

The annexe measures a maximum of 99 m north–south between the crests of the ramparts and 73 m east–west between the lip of the ditch and the crest of the rampart, giving an internal area of about 0.75 ha. The area inside the ramparts slopes gently down towards the south-east. The outline of the annexe is of irregular shape, probably in part because of the topography. The southern perimeter appears to have been constructed with the aim of utilising as much of the natural slope as possible. The east rampart is perpendicular to the south rampart rather than being laid out parallel to the east rampart of the fort. The north rampart is aligned north-west–south-east but had to kink back at its west end in order to join up with the fort. It replaced an earlier wall and rampart, probably the Severan *bracchium*, which was aligned directly on the north-east corner of the fort.

As in the fort rampart, no stonework is visible but the level terrace of a robber trench marks the course of the annexe wall for almost all its length. Along the north rampart this terrace is 1.5 m wide. Parallel to the trench cutting the north-east angle of the fort (3) is a much smaller one (42), 1.0 m wide and 0.2 m deep, which is the remains of Droop's investigation of the end of the annexe wall in 1929.<sup>14</sup> A trench 1.3 m wide and 0.2 m deep (43) beside the turn of the rampart must also be from Droop's investigations, as must another trench (44) of identical dimensions. The square depression (45), 5.0 m wide, is probably also a relic of 1929. Hartley's trench (46) is visible partly as a depression 1.2 m wide and partly as a narrow mound.<sup>15</sup> The course of the east rampart is the least clear; between the north-east corner and the gate it disappears, although there is a hint of a backscarp 3.0 m wide beside the corner. One of Droop's excavation trenches (47), 1.3 m wide and 0.2 m deep, does survive, however. Reappearing south of the gate, the robbing trench is 2.0 m wide.

The south-east corner of the annexe turns a right-angle, and two raised rectangular features (48, 49), 4 m and 2.5 m wide respectively, may be infilled excavation trenches. No corner towers were found during the excavations. The south rampart is the highest, at 4.5 m, since it takes advantage of the natural slope. The robber trench is 1.2 m wide. Four sheep scrapes have caused minor mutilation of the top of the rampart. A narrow cut (50) is probably the remains of another of Droop's trenches. No ditch is visible to the north of the annexe. There are intermittent stretches of a ditch to the east of the fort; at its north end, where it is best preserved, it is 3.6 m wide and 0.45 m deep maximum. It is interrupted by a well-defined causeway (51) 7.0 m wide. There is no ditch on the south side, but this would not have been necessary given the steepness of the slope.

<sup>14</sup> Droop 1930, 234–7, figs 1, 3–5.

<sup>15</sup> Hartley 1960, 110–12, figs 1 and 4.

### The interior

Most of the interior is marked by low amorphous scarps although a number of possible building platforms can be discerned. An exception to this is the part of the annexe which lies north of the field wall that cuts across it from east to west. Here the ground appears almost completely flat, because livestock take shelter and feed in this area. At the south end of the annexe, the scarps form rectangular platforms; the most prominent of which (52) is 3.8 m by 10.6 m internally and has a backscarp 1.8 m wide. Two others to the east are 8.5 m by 5.5 m (53) and 2.9 m by 6.0 m (54) internally with a backscarp a maximum of 0.4 m high. In the south-east corner a prominent scarp (55) is 2.7 m wide and 0.5 m high before it broadens out to the north and then splits. Close to this is a trench (56) 2.6 m wide and 0.2 m deep. The remains of another trench (57) measure 1.7 m wide and 0.1 m deep. Parallel to this is a scarp (58) 1.5 m wide and 0.5 m high which has been mutilated by livestock. A long scarp (59) perpendicular to the road is up to 2.7 m wide and 0.4 m high. To the east of this scarp are a number of low scarps not more than 0.3 m high. The road (60) through the annexe is clearly visible. Its northern edge is an almost continuous scarp; its southern edge is more meandering and uneven.

### FEATURES OUTSIDE THE FORT AND ANNEXE (FIG. 32)

#### The roads

The roads from the east and south gates, the only two which would have been approachable by wheeled traffic, are still traceable. From the east gate, via the annexe, the road (a) bends slightly as it crosses the causeway and then continues in an easterly direction to the field wall. The edges of the road are quite mutilated by large scoops, probably the result of later quarrying for building material but it still reaches a maximum width of 5.0 m. The field to the east has a very smoothed appearance and has obviously been ploughed. However, a slight break in the north-facing scarp (b) seems to indicate that the road followed the same course, along a natural ridge. It seems likely that a second road led from the east gate of the annexe, although whether the two roads might have been contemporary is not clear. In the field adjacent to the easternmost part of the annexe field is a flat-topped ridge of material (c), riding the crest of the hill that fades out further to the east; according to Mr Lambert of Brough Hill Farm, a road surface was found in this field when it was ploughed. In the annexe field there is an apparent continuation of this feature as a south-facing scarp (d). Material thrown out from rabbit burrows in the east end of this scarp shows it to be composed of relatively recent household debris, but it is possible that the recent material is covering an earlier feature. A break in the annexe ditch occurs where this possible road would cross into the fort. It seems highly unlikely that the annexe would have two causeways and thus two entranceways; since there is no break in the rampart, it is probable that this part of the track is of relatively recent origin.

The road from the south gate extends in a south-westerly direction forming a terrace an average of 1.5 m wide along the slope for much of its length. Towards the base of the hill it forms a deep hollow way. Beyond this point the road must have forked though its actual route across the river and through Bainbridge is conjectural. The outcropping rock in the river bed at this point would have provided a very suitable crossing for the road to join the Cam High Road which follows the course of the modern road, heading towards Ingleton.<sup>16</sup> A modern farm track joins the road to the south gate near the foot of the slope. The start of the road to Buckden is clearly visible as a terrace going up the east side of the main river valley before disappearing, probably under the present road.<sup>17</sup>

#### Field systems

Apart from the fort itself, the most noticeable feature of the site is the series of strip lynchets that occur on the north-facing slopes of Brough Hill. There are no lynchets on the other side of the hill. The steepness of the hillside makes the lynchets narrow in comparison to the risers. The lynchets follow the contours of the hill but are not at all evenly-spaced or of regular proportions; some of the lynchets begin from between the ends of two others. None of them show any obvious curving of the ends. One of the lynchets at the base of the hill continues its course to the east as a small scarp (e). A feature associated with the lynchets is a low bank (f) extending across the top of the west end of the hill and down the north side perpendicular to the terraces. Some of the lynchets appear to stop at this cross lynchet. The bank is difficult to see on the ground but is clearly visible on air photos.<sup>18</sup> The lynchets are overlain by a field boundary that was in ruins by 1850. There are however no other physical clues to the date of the lynchets but given their irregularity and the other early fields in the vicinity, they may have been in use during the occupation of the fort. On the south side of the fort are a number of low banks and lynchets forming the remains of a field system. The arrangement of the scarps suggests that a droveway or track (g) may have run through the middle of the enclosures, along the lowest ground. This is clearest at the east end where there are two curving banks on either side but it is also hinted at in the field to the west by two short scarps parallel to the main east–west scarp (h).

<sup>16</sup> Route 73: Margary 1967, 383.

<sup>17</sup> Route 730: Margary 1967, 384.

<sup>18</sup> NMR No. SD 9390/6; YDNP 217/01.



**Field walls**

The First Edition 6" map published in 1856 depicts the pattern of field walls as they are now, including the three upstanding remnants of wall. The footings of the rest of this wall (j) do not continue in a straight line as might be expected but kink out to the west. Another part of the wall (k) continues as a stony scarp and terrace extending along the flank of the hill. A break in the east end marks the site of a gateway. The remains of a stone wall (l) enclose the rest of the relatively flat area on the top of the hill west of the fort. Immediately to the west of it a circular structure (m) is probably the remains of a sheep shelter.

**Springs**

The presence of a number of natural springs along the hillside has already been mentioned; two of these (n, p) have been tapped and run into stone-lined troughs. Field drains lead excess water away from them.

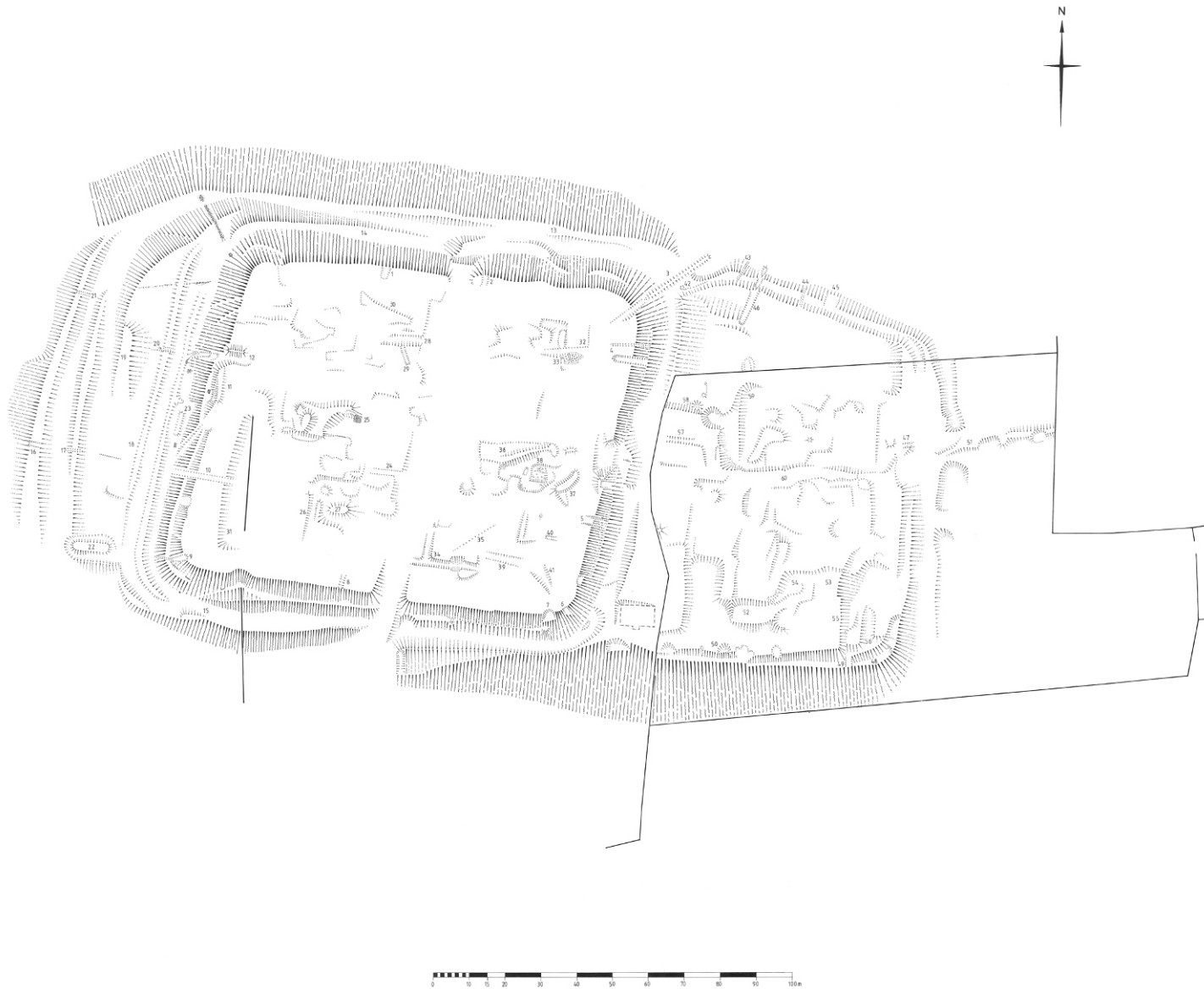


Figure 31: Surface remains of the fort and annexe. Plan by RCHME. Reproduced by permission of the National Monument Record.

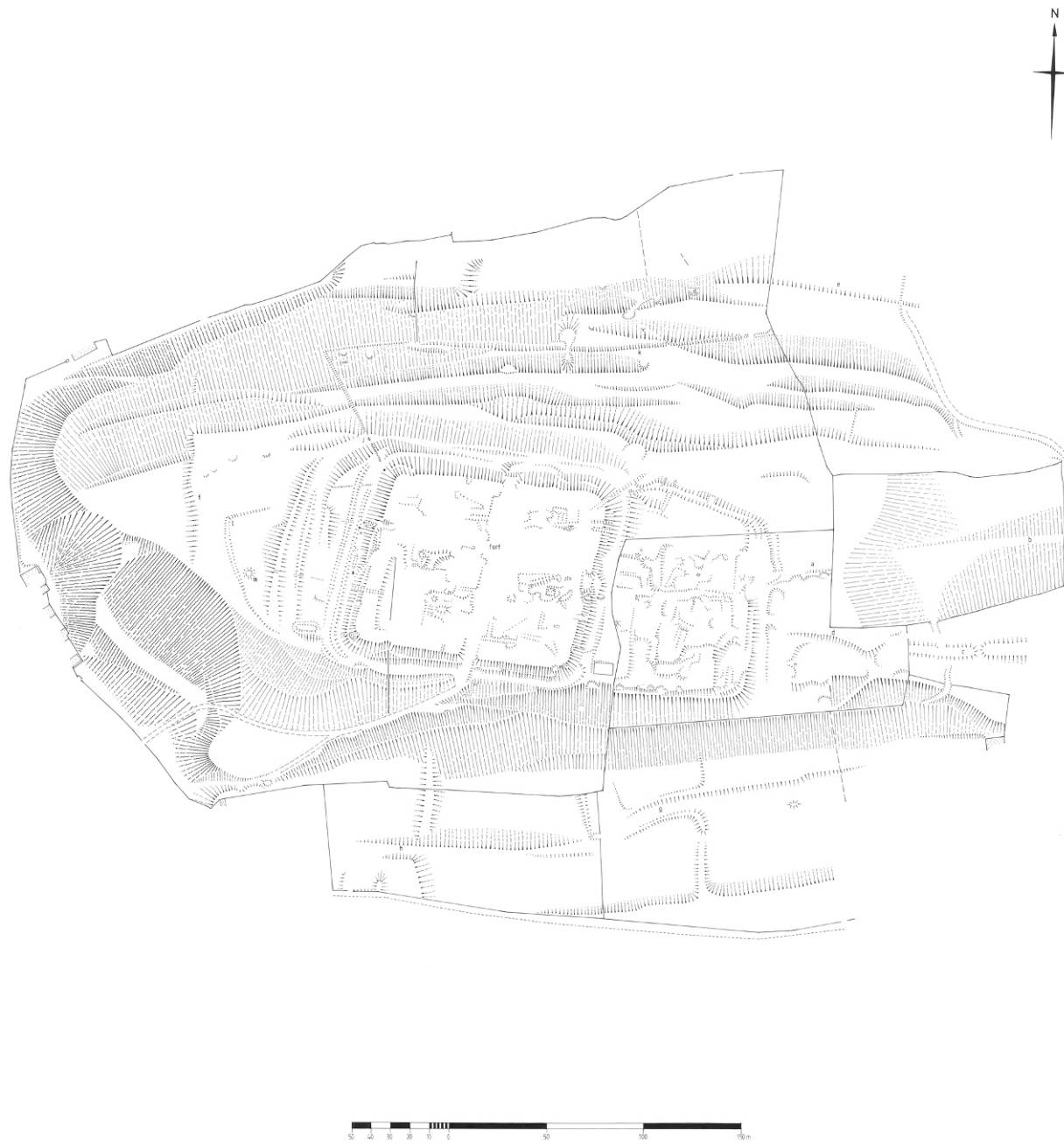


Figure 32: The setting of the fort. Plan by RCHME. Reproduced by permission of the National Monument Record.

## SECTION 2: PRE-ROMAN OCCUPATION AND THE FLAVIAN-TRAJANIC FORTS

by B. R. Hartley<sup>19</sup>

### PRE-ROMAN OCCUPATION

Since 1950 Bainbridge has consistently produced finds which are, or should be, pre-Roman. These include a fragment of a polished stone axe of Neolithic-type and several scrapers of flint or chert, as well as many flakes, often utilised. There are, however, no signs of pre-Roman pottery or structures, and the implements probably derive from casual use of the hill during hunting expeditions rather than any permanent occupation. The Roman habit of collecting and re-using prehistoric implements, well attested in potteries, should also be kept in mind.

### THE EARLY ROMAN OCCUPATION

It is normally assumed that an Agricolan auxiliary fort existed at Bainbridge. This is open to doubt, though there is no doubt that the site was occupied from about A.D. 80 in view of the evidence of the samian ware. Interpretation of the first occupation must await further information about the structures, and also some evidence of the date of the fort in Wensley parish near Castle Bolton.

The only structures assignable to the primary occupation with certainty are post-pits under the *praetentura*,<sup>20</sup> the *principia* (Fig. 7) and the west rampart of the visible fort, and an unfinished stone structure outside its east gate.<sup>21</sup> Under the *principia* and in the *praetentura*, the alignments of the posts are curious, being at angles of approximately 45 and 110 degrees to the later buildings. Two possibilities emerge: either an irregular Agricolan fort existed, or the posts belonged to civilian buildings outside a military site. Since two posts were under the west rampart of the Flavian-Trajanic fort, it is clear that the initial occupation extended further west, and it now seems likely that some of the multiple ditches on that side of the fort belonged to it.<sup>22</sup> At the east end of the site, a stone structure is too near to the defences of the Flavian-Trajanic fort to be contemporary with it. The associated pottery is definitely early-rather than late-Flavian, too. It should perhaps be interpreted as part of an unfinished bath-house or *mansio* outside the Agricolan post, but more cannot be said.<sup>23</sup> Assessment of the earliest Roman occupation obviously depends on the date of the fort at Wensley. If that is Agricolan, then Bainbridge must have been an Agricolan fortlet rather than a fort, and the present evidence would not be inconsistent with that. If, however, the Wensley site is Cerialian only, the first occupation at Bainbridge could have involved a cohort-fort, even if irregular.

### THE SUCCEEDING FLAVIAN-TRAJANIC FORT

#### Defences

The prominently visible platform of the fort coincides with the turf rampart of the Flavian-Trajanic fort. Proof of its secondary nature comes from the presence in the rampart, apparently in all the sections cut, of occupation material in such quantity that it cannot be attributed to its builders. This includes samian ware which can scarcely be earlier than A.D. 85. The presence of post-pits under the west rampart, noted above, clinches the matter. Since the front of the turf rampart has everywhere, except at the late east gate, been cut away by later alterations, it is difficult to determine its original width, but a minimum of 5.0 m is shown by Wade,<sup>24</sup> and the full width cannot have been much more. It was laid on a complete bottoming of flat stones,<sup>25</sup> and consideration of the line of its front at the east gate suggests an original width of about 5.30 m, thus closely comparable to Ilkley locally<sup>26</sup> and close to the average figure for first-century turf ramparts in Britain in general.<sup>27</sup> The back appears to have been vertical to a height of some 0.9–1.0 m.<sup>28</sup> The rampart enclosed an area of about 1.1 ha (2.8 acres), measured over its front. No details are

<sup>19</sup> References and comments have been added by PB in the footnotes. A section on the *principia* is incorporated in the main text, and the discussion of the granaries has been rewritten by PB to take account of Wade's early stone granary which was not mentioned by Hartley.

<sup>20</sup> Hartley 1960, 112.

<sup>21</sup> The post-trench of a Flavian-Trajanic building in the north-west corner of the fort cut earlier paving.

<sup>22</sup> Wade 1955, fig. 1.

<sup>23</sup> At this date, baths only seem to have been built for the auxiliaries at cavalry forts or at forts with a large contingent of cavalry (Bidwell 2009). A stone *mansio* this early cannot be paralleled in northern Britain.

<sup>24</sup> Wade 1955, 154.

<sup>25</sup> Hartley 1960, pl. IIa.

<sup>26</sup> Hartley 1966–8, 25.

<sup>27</sup> Jones 1975, 70.

<sup>28</sup> Hartley 1960, fig. 2.

known of the gates, except that the eastern one was in the axial position, south of the visible gate.<sup>29</sup> Little is known of the contemporary ditches, since the large ditch visible everywhere around the circuit seems to have cut away the earlier ones, except on the west side,<sup>30</sup> but the four smaller ditches there west of the large one are undated and, as has been remarked above, some probably relate to the Agricolan site. However, on the east side of the fort a palisade trench existed 11.0 m in advance of the front of the rampart, presumably to hold a thorn entanglement or the like. This was partly cut away by a small Antonine ditch, perhaps a recutting of an earlier one, and the likely arrangement would be two small ditches with the palisade embedded in the counterscarp mound of the outer one.

### Internal buildings

All the internal buildings of the Flavian-Trajanic fort which are known so far were built in timber and have post-trenches rather than sleeper-beams. Everywhere in the demolition layers are chunks of burnt daub, showing that a clay filling over wattles was used for their framework. There is, however, a major difficulty in attempting to assess the buildings, namely that their post-trenches have often been cut away by later foundations of second- to fourth-century date.

*The principia and praetorium:* the *principia* are described in the main text. Nothing is known of the Flavian-Trajanic *praetorium*, though it undoubtedly lay to the south of the *principia*, since the *horrea* occupied the area north of it.

*The granaries (PB):* beneath the northern mid-Antonine granary, the 1974 excavations found a timber building with a frontage on the *via principalis*. Possible traces of a timber granary were found to the south, and there was burnt grain in the layers above all these features.<sup>31</sup> In 1951, under the north wall of the Severan *principia*, Wade found the south side of a stone building; it had two buttresses at its south-west corner and can be identified as a granary (Fig. 7).<sup>32</sup> Its south wall would have almost touched the north wall of the mid-Antonine *principia* but was *c.* 4.5 m north of the earlier *principia*. The granary was thus part of the Flavian-Trajanic fort, though not one of the original buildings. Wade stated that ‘wherever a cut was made through the deep foundation, a considerable amount of carbonised wheat and barley was found both among the cobbles and on the sides and bottom of the foundation trench’: presumably the stone granary had replaced a timber predecessor, the combustible contents of which had caught fire. Hartley, in his section on the granaries superseded here, also noted that ‘the layer immediately over the subsoil to the north of the Flavian-Trajanic *principia* yielded scattered grain, all heavily charred’. In the original plan of the fort, it thus seems that there were two granaries immediately north of the *principia* with another building of uncertain purpose beyond them and at the angle of the *via principalis* and north *intervallum* road. The southern granary was consumed by fire and rebuilt in stone; its neighbour was perhaps also destroyed by fire but not rebuilt.

*The praetentura:* nothing can yet be added to the evidence already published of the post-trenches for the timber structures of the southern half of the *praetentura* (Fig. 3).<sup>33</sup> If these are of one period, and there is nothing suggesting otherwise, then the arrangement of the barracks must be unusual. One possible interpretation is that there was a set of three barracks, not more than 26.0 m long and just over 6.0 m wide, between the east rampart and the *via principalis*. This would be only just over half the length of conventional auxiliary barracks, and below the normal width, the implication being that there would have been balancing blocks in the northern half of the *praetentura*.<sup>34</sup> However, it would also mean that six comparable buildings would have been needed in the *retentura*, and there is not room for them. Alternatively, it might just be possible to restore two longitudinal barracks 40.0 m long south of the *via praetoria*, provided they do not have wider centurions’ ends. If so, then FA and FB of Fig. 3 would have to be explained as stores or stabling for baggage animals. A comparable pair of longitudinal blocks north of the *via praetoria* would then have to be conjectured. This would account for four of the six blocks needed and it should have been possible to fit in the rest of the accommodation behind the central range.<sup>35</sup>

*External buildings:* virtually nothing is known of buildings outside the Flavian-Trajanic fort, though it may be presumed that the contemporary *vicus* lay to the east.

<sup>29</sup> This sentence might be taken to imply that Hartley saw some traces of the original east gate when he excavated its stone successor, but there is no reference to a timber gate in the excavation records.

<sup>30</sup> Wade 1955, 153–4, figs 1–2.

<sup>31</sup> The only surviving plan of these structures is a sketch, not to scale, in the 1974 context book.

<sup>32</sup> Wade 1952, 12–13, figs 3, 12–13.

<sup>33</sup> Hartley 1960, 112–13, fig. 5.

<sup>34</sup> In other words, three centuries would have been accommodated in the *praetentura* with the accommodation for each century split between two buildings: either two facing pairs with one century in two buildings divided by the *via praetoria* or each century in two buildings so divided.

<sup>35</sup> Post-trenches of a Flavian-Trajanic building of uncertain type were found in the north-west corner of the fort.

## HISTORY AND DEDUCTIONS

The dating evidence makes it clear that the fort was built after A.D. 85. This might, historically, be taken to go with the redistribution of garrisons after the retrenchment in Scotland about A.D. 87.<sup>36</sup> Alternatively, if one must seek a general historical context, the Trajanic withdrawal from Scotland might offer another possibility. However, if we are right in suggesting above an unfinished bath-house or *mansio* outside the Agricola site, the earlier date would make better sense. That the fort housed a *cohors quingenaria peditata* may reasonably be assumed from its size. Before the Roman troops pulled out, they demolished the internal buildings, burning the rubbish, and no doubt they pushed down most of the rampart into the inner ditch. This abandonment came early in Hadrian's reign at the latest. The pottery from the fort includes no black-burnished ware, and the samian is largely South Gaulish, though pieces from Les Martres-de-Veyre are not uncommon. Lezoux ware has never been recorded. In view of this, the latest possible date for withdrawal would be A.D. 125 and a connection with the building of Hadrian's Wall is evident. This puts Bainbridge in the same category as, for instance, Ebchester, Ilkley or Brough-on-Noe.

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<sup>36</sup> Hartley 1972, 12–15.

**SECTION 3: THE DEFENCES AND INTERIOR BUILDINGS (MID-ANTONINE, SEVERAN AND LATER)**  
by Paul Bidwell, incorporating a description of the granaries by B.R. Hartley

THE VISIBLE REMAINS OF THE FORT

The sites of the south, west and north gates, which have never been excavated, are indicated by gaps in the rampart mound (Fig. 31). Single ditches are visible on the north and south sides of the fort. In 1928 Droop found an outer ditch on the north side.<sup>37</sup> It was sealed by a road running parallel to the defences which presumably led to the north gate; the course of the road is indicated by a slight mound. Beyond the western rampart traces of five ditches are visible, extending for a distance of 38 m beyond the fort wall; they were examined in 1952 by Wade, who found that the outer four ditches had a uniform filling of boulder clay, while the inner ditch, which was deeper than the others, had a lower filling of silt sealed beneath debris from the fort wall.<sup>38</sup> Wade's trench was dug to test whether any of the outer ditches belonged to a period, presumably Flavian-Trajanic, when the fort might have continued further to the west. He thought that they could have been associated with an earlier fort, perhaps the Agricolan fort, the existence of which Hartley adduced from other evidence. Much of the interior of the fort is obscured by spoil-heaps and excavation trenches. The only visible Roman feature is the statue-base in the cross-hall of the Severan *principia*.

THE MID-ANTONINE DEFENCES

The relationship of the fort wall to the rampart has been examined as follows:

1926: sections through the south, east and west defences<sup>39</sup>

1928: sections through north-east corner and north defences<sup>40</sup>

1950: section through the north defences<sup>41</sup>

1952: section through the west defences<sup>42</sup>

1958: section through the east defences<sup>43</sup>

1970: section through the west defences.<sup>44</sup>

When the fort was re-occupied, the ramparts of its Flavian-Trajanic predecessor, or at least their lower portions, were still visible. They were widened to their rear over a distance of *c.* 2.75 m by the addition of a clay bank over a stone foundation and then reused as the bases of the new ramparts, which were built of turf and clay. This widening was visible in the sections dug in 1925 through the south and east ramparts, in the 1950 and 1952 sections through the northern and western ramparts (though less clearly in the latter section), and in the 1957–59 section through the east defences (Fig. 33). The back of the widened rampart was revetted in stone, visible more clearly in the section through the north defences than in that through the east defences.<sup>45</sup> Describing the 1950 section, Wade distinguished three stages in the enlargement of the original rampart which he regarded as part of the same building programme. First came the rear extension which was inserted at the same time as the stone revetment, standing to a height of 0.85 m, then the heightening, and finally the material which abutted the back of the fort wall and filled the space in front of the original Flavian-Trajanic rampart which had presumably been cut back to accommodate the wall foundations. In the 1958 section through the east defences (Fig. 33), Hartley illustrated the same sequence but interpreted the slope at the front of the rampart as a later cut ('construction trench') for the fort wall which continued through the subsoil to a depth of *c.* 0.30 m. Wade regarded the wall as part of the mid-Antonine rebuilding of the fort, while Hartley argued that it was a later insertion, probably dating to 'Antonine II'.<sup>46</sup> It is impossible to be certain which of these two interpretations is correct solely on the basis of the section drawings, but a stone rear

<sup>37</sup> Droop 1929, 80–1, fig. 1. The ditch filling contained a samian-ware sherd of Hadrianic-Antonine date.

<sup>38</sup> Wade 1955, 153–4, fig. 1.

<sup>39</sup> Collingwood 1928, 264–7, fig. 2.

<sup>40</sup> Droop 1929, 78–84, figs 1, 3–4, 7–8.

<sup>41</sup> Wade 1952, 3–7, fig. 2.

<sup>42</sup> Wade 1955, 153–6, figs 1, 5–6.

<sup>43</sup> Hartley 1960, 108–110, figs 1–2, pls I–II.

<sup>44</sup> 70 V: the trench was situated approximately 25.0 m south of the north-west corner of the fort and seems to have been abandoned, presumably because of lack of time to complete it. However, at least part of the trench exposed an area below the rampart where post-pits, probably of Agricolan date, were exposed.

<sup>45</sup> Wade 1952, 5, fig. 2.

<sup>46</sup> 'Antonine II' refers to the chronological scheme still current in 1960 which envisaged a second occupation of the Antonine Wall between *c.* A.D. 160 and 180; rebuilding at Bainbridge would have followed the second withdrawal from Scotland. It was of course Hartley's later paper on the dating of samian ware (Hartley 1972) which pushed the date of the final withdrawal from Scotland back to *c.* A.D. 160.

revetment would be unexpected in a clay rampart. Hartley makes no mention of a mid-Antonine timber gate beneath the stone east gate which he discovered in 1960, subsequent to his publication of the 1958 section, though an ambiguous sentence in his account of the original defences quoted above might be taken to imply that he saw the remains of a Flavian-Trajanic timber gate. However, these objections to Hartley's views are not conclusive.

The fort wall was only preserved above its foundations in the 1925 section through the southern defences, where it is shown sketchily at a small scale, and in the 1950 and 1952 sections. In the 1950 section, the width of the basal course was 1.50 m. It was offset from the next course over a width of *c.* 0.10 m. The core and rear of the wall, which was only roughly faced, seem to have sat directly on the pre-existing ground surface, as in the 1952 section, but under the masonry at the front there was a proper foundation, which might mean that at some stage the wall had been re-faced. In the 1958 section across the east fort wall, there was a foundation trench 1.40 m in width and 0.45 m in depth, which was necessary because the wall ran across an eastward slope. In the 1925 and 1928 sections the foundations are not shown clearly.

#### THE FIRST STONE-BUILT EAST GATE (*PORTA PRAETORIA*)

In 1960 the southern part of the original east gate of the mid-Antonine fort was uncovered. Unfortunately, the context book contains only two entries for the relevant trench,<sup>47</sup> and the only other record is a plan, very clear but with no annotations (Fig. 4). The plan shows two large blocks representing the south side of the gate passage and a projecting block at their west end which will have been the base of the south respond of the rear gate arch. Stippling to represent metalling fills in the rest of the trench north of the blocks. The eastern part of the trench is occupied by a later fort wall, built across the site of the gate; the wall, part of a complete rebuilding of the eastern defences of the fort, was wider (*c.* 1.90 m) than its continuation to the south, perhaps to provide stability and prevent subsidence where it crossed the site of the gate. A second trench, the only surviving record of which is a plan (Fig. 4), was excavated along the berm from the south side of the original gate almost as far as the north side of its replacement.<sup>48</sup> The original wall is shown projecting *c.* 1.0 m beyond the line of the later fort wall; the respond for the front gate arch seems to have been set back from the front of the original fort wall and was probably concealed by the foundations of its replacement. A layer of metalling *c.* 4.15 m in width was traced for a distance of *c.* 1.0 m beyond the gate.

The central axis of the fort is *c.* 2.0 m north of the south side of the gate which suggests that the gate passage was about 4.0 m in width, with arches 2.8 m in width, their position marked by the projecting responds. This is a little larger than the usual width of the passages in second- and earlier third-century fort gates, but the dimensions are only an estimate.<sup>49</sup> It nevertheless seems reasonably certain that the gate, which was the *porta praetoria*, had a single passage on the central axis of the fort.

#### THE LATER EAST FORT GATE AND WALL

The later east gate was excavated in 1926 and 1929 and was found to be poorly preserved.<sup>50</sup> It took the form of a single passage-way 3.80 m in width and 5.60 m in length with a rebate representing the front gate-arch surviving near its south-east end and a pivot socket for the southern leaf of the gate behind it. Another projecting block at the north-west end of the gate-passage marked the position of the rear arch. Hartley opened up the entire area of the gate in 1960–61, together with an area to its south and south-west. The context book for 1961 (Site B) contains the following summary of the trench:

‘This trench was dug into the [later] rampart filling in order to locate the north edge of the early road [through the original east gate] and to see if a corresponding feature to the respond found in 1960 on the south side [of the gate] existed. By clearing a larger area behind the gate and to the south, it was hoped to learn more about the early drain, etc., discovered in 1960,<sup>51</sup> to see how it related to the [later] roads and to see if anything remained of the earlier intervallum roads. The fourth-century ‘plug’ [i.e. later rampart filling] in the early gate was laid directly on the early road surfaces [illegible word] with a sticky grey (trampled?) layer at the bottom. The rampart [over the gate] had a carefully laid kerb – two rows of stones set together, the inner covered by the rampart. Behind [the rampart] was a contemporary, carefully cobbled road surface which covered (just) the drain. This went up to, but not under, the rampart kerb. Drain and road were almost certainly contemporary, since there is no earlier surface to which the drain

<sup>47</sup> 60 BV.

<sup>48</sup> 60 BIV.

<sup>49</sup> Bidwell forthcoming.

<sup>50</sup> Collingwood 1928, 268–70, fig. 3; Droop 1930, 238–40, figs 2, 7–8.

<sup>51</sup> No records survive of these discoveries in 1960.



could belong. [Note that there were] two layers of cover-slabs on top [and that the drain was] completely silted [with a] horizontal bottom [on] natural clay [with] no arch[aeology, i.e. finds or stratification] in the filling.

The north [*recte* south] passage wall of the [later] gate had a very deep and comparatively wide foundation trench with *pari-passu* packing up through the rampart plug [shown in a rough sketch]. It had cut away the original north edge of the early road, so there was no chance of noting responds and/or [the] foundation trench [on the north side of the earlier gate].<sup>7</sup>

In 1958 a section was dug across the defences 15.25 m south of the later east gate. The fort wall had been entirely rebuilt on a line *c.* 0.80 m west of the original, the new wall having a width of 1.20 m. 'It was built of large roughly trimmed blocks of fine sandstone set in mortar. The masonry of the existing [i. e. later] east gate is similar, and stones of the same kind were used in the second version of the east enclosure defences.'<sup>52</sup> In 1960 another trench across the eastern defences was excavated 4.40 m south of the earlier gate.<sup>53</sup> Only five contexts were recorded. The foundation of the Antonine fort wall was sealed by the later wall, which here took the form of two rows of stone blocks with an overall width of 1.40 m. At the west end of the trench what seems to be a timber raft appears on the plan (Fig. 4); this is probably the 'bottoming' under the turf rampart referred to in the context book.<sup>54</sup>

#### THE DATES OF THE REBUILT EAST GATE AND FORT WALL AND OF THE ANNEXE WALLS

As has been explained above, Hartley regarded the original fort wall as a replacement of the mid-Antonine turf rampart, which had been a refurbishment of the Flavian-Trajanic rampart. Wade thought otherwise, and two problems with Hartley's views are also set out above, but the matter can only be resolved by further excavation.<sup>55</sup> The east fort wall, Hartley suggested, was demolished when the *bracchium* was built in *c.* A.D. 205/7 (*RIB* 722), the latter enclosing an extension of the fort and not a separate annexe. The later fort wall and east gate, restoring the fort to its original size, were probably built in the Constantian period (shortly after A.D. 296). The north side of the *bracchium* had been rebuilt at some stage earlier in the third century (see below), but the whole of the enclosure was levelled when the eastern defences of the fort were restored. Alternatively, the later north wall, replacing the Severan *bracchium*, might have been built at the same time as the new fort wall and east gate, so that the extension now became an annexe. Hartley set out these two possible sequences in 1960, before his discovery of the original east gate, his re-examination of the later gate, and his excavations in what he termed the 'east enclosure' where a granary was uncovered.<sup>56</sup> He described the later east gate as fourth-century in a context book for 1962, but we have no record of his final thoughts on the sequence he proposed in 1960.

From the construction trench at the back of the second fort wall came 'a wall fragment from a colour-coated beaker with coarse rouletting which would be out of place before the middle of the third century.'<sup>57</sup> This sherd, presumably Nene-Valley colour-coated ware, has not been re-examined, but the coarseness of rouletting is not a sure indication of date. A Severan date seems possible. The dating of activities at the east gate has already been considered above.

There are two objections to Hartley's possible sequences in the evolution of the defences, both of which are decisive. First, the mid-Antonine east rampart still remains standing to a height of at least 1.80 m above the Roman ground surface beyond the fort wall (Fig. 33). If the fort had been extended, it would have been necessary to level the rampart, as at Halton Chesters.<sup>58</sup> The east wall, which was built across ground sloping towards the east, might have been rebuilt because of subsidence and slippage affecting the original foundations. Secondly, Hartley connected the second stone *principia* with the general rebuilding in A.D. 205/7 which is amply attested by three building inscriptions. The curious arrangement of this building can only be explained by its alignment on the later stone east gate, as is demonstrated in the main text; the gate was therefore built at the same time as (or, much less probably, before) the *principia*. The following sequence of construction is proposed for the defences:

1. The fort rampart, refurbished in the mid-Antonine period, was supplied with a stone fort wall and gates either at that time or later in the second century.

<sup>52</sup> Hartley 1960, 110.

<sup>53</sup> 60 BII.

<sup>54</sup> 60 BII, 4.

<sup>55</sup> Ilkley was re-occupied in the mid-Antonine period and had turf ramparts; Ravenglass, Ribchester and Derby were probably or certainly occupied in the early-Antonine period and apparently did not receive stone defences until the late second century (Bidwell and Hodgson 2009, 38).

<sup>56</sup> Hartley 1960, 110, 117–9.

<sup>57</sup> Hartley 1960, 110.

<sup>58</sup> Jarrett 1959, 178–83, figs 2–3.

2. The later east fort wall and gate are Severan. There was never a stage when the east fort wall was removed, and the enclosure to the east served as an annexe to the fort. The *bracchium* referred to in *RIB* 722 is probably the original wall of the annexe; the rampart of the replacement wall incorporated a vessel which seems to be later than the Severan period (see dating evidence for annexe, below).

#### THE AREA OUTSIDE THE EAST GATE

Droop investigated the area outside the east gate in 1929, where he found a causeway with two layers of metalling corresponding to those in the gate passage.<sup>59</sup> Beneath the causeway was a length of substantial clay-bonded walling which ran north–south and was 4.80 m in length and between 0.90 m and 1.15 m in width; this is the fragment of a masonry building which appears to have been associated with the Flavian-Trajanic fort. There were also two east–west lengths of wall *c.* 6.50 m apart and equidistant from the Severan gate; they might have been the revetments or kerbs of an earlier causeway. The butt ends of two ditches were found 4.0 m east of the fort wall and 10.5 m apart. They were sealed beneath a cobbled area which extended up to the fort wall and for 6.0 m on either side of the causeway; fourth-century pottery was said to have been found beneath the cobbling. In 1961 this area was opened up again, the excavation being carried down to the natural clay in at least some areas.<sup>60</sup> An east–west gully curving north at its west end and with another gully joining it from the south-west cut some earlier deposits; it contained rusticated ware, a South Gaulish Dr. 37 and a hypocaust tile 30 mm thick. There was another gully with a similar fill to the south. The relationship of these features to the wall found by Droop was not established. In the north-west corner of the trench was a possible foundation filled with pitched stone. All these features presumably belonged to the Flavian-Trajanic occupation and were sealed by black earth and charcoal. Beneath the two roads traced in earlier excavations, there were areas of gravel which might have represented an earlier road surface.

From the lower road came the third building inscription from Bainbridge (*RIB* 3215) to name L. Vinicius Pius, prefect of *cohors VI Nerviorum* during the successive governorships of G. Valerius Pudens and L. Alfenus Senecio. The slab was face down and had been uncovered, but not turned over, by Collingwood in 1926, who assumed that it represented the stop-block of an earlier gate.<sup>61</sup> An unpublished and incomplete draft of a note on the stone by Hartley states that ‘it had been re-used at least once before, since the inscribed face was partly covered by mortar’. A centurial building stone of the same unit (*RIB* 3216) came from the upper road surface, in stone packing in the north-west corner of the trench.

#### THE FORT DITCHES

The earliest ditch that formed part of the eastern fort defences was seen in several trenches dug in 1960–62. It was sited *c.* 10.0 m east of the fort wall and was earlier than the granary in the annexe (see below). The ditch was not excavated to its base, but it was described as Antonine because there was pottery of that date from its upper filling. However, it is possible that the ditch was associated with the Flavian-Trajanic fort and that the upper filling is levelling of the partly-filled ditch in preparation for the Antonine buildings. A ditch that was certainly associated with the Antonine fort was found at its north-east corner; it had been filled with boulders where the later north wall of the annexe passed over it.<sup>62</sup> The latest ditch on the east side of the fort is still visible on the ground and clearly cuts across the line of the later north annexe wall; it has been described as follows: ‘[the ditch] is 4.50 m wide from the base of the rampart along its southern half ... [where] the counterscarp is 0.75 m high and is particularly well defined ... the north end of the ditch is much less clear, only 0.20 m high maximum, and is narrower at 3.50 m.’<sup>63</sup> The western lip of the ditch was recorded by Hartley in 1958 (Fig. 33). The area in front of the east gate has been obscured by excavations, but as has already been noted, single ditches ended on either side of the causeway *c.* 4.0 m east of the gate. They might well have been continuations of the visible lengths of ditch, swinging outwards as they approached the gate.

#### LATER ROMAN ACTIVITIES AT THE EAST GATE

The earlier excavations found two layers of metalling in the gate. From the lower metalling Collingwood recorded three coins, of Trajan, Hadrian and Tetricus I (catalogue in Section 7: nos 12, 16, 58). The last he regarded as possibly belonging to a later road, but Droop subsequently found four coins (nos 50, 73–4, 88) of ‘about the year

<sup>59</sup> Droop 1930, 237–8, figs 1–2, 7.

<sup>60</sup> 61 Site C. Five pages detached from a small notebook give details not in the context book.

<sup>61</sup> Collingwood 1928, 269, fig. 3.

<sup>62</sup> Droop 1930, 235.

<sup>63</sup> RCHME 1994, 7.

270' under the lower metalling on the causeway outside the east gate. Droop believed that before a deposit was sealed a coin contained within it could be 'easily carried downwards a certain distance between stones by rain and worms to levels where it has no right to be' and that the four coins had originally been dropped on the lower surface and had ended up under it. This is scarcely credible, though it can be accepted that wheeled traffic could push coins from the surface into the body of the metalling. In a deposit between the two layers of metalling, Collingwood found seven coins, four of fourth-century date, the latest an issue of the House of Theodosius dating to before A.D. 395 (nos 49, 110, 114, 127 and three illegible). Droop recorded a further 18 coins 'just below the upper surface' (nos 14, 37-8, 48-9, 61, 80, 84, 96, 104, 107, 112, 117, 124, 152-3, and two illegible), the latest an issue of Valens of A.D. 364-75, another coin in soil tipped from the east gate (no. 85), and three more coins on the cobbled area south of the causeway (nos 46, 115-6), while Collingwood found four coins on the upper surface (nos 48, 68-9, 126), three of late third-century date and one an issue of Gratian (367-83). Seven more coins were recorded from Hartley's re-excavation of the gate, all of late third- or fourth-century date (nos 86-7, 99, 140, 143-4, 147).<sup>64</sup>

The earlier road surface in the gate passage seems to be of late third-century date but this cannot be taken to indicate the date when the gate was actually built. Earlier road surfaces could have been removed so as to avoid a build-up of levels within the gate, which would have required the raising of the pivot-stones and the re-hanging of the gate leaves.<sup>65</sup> The second road surface sealed a coin of the House of Theodosius. Collingwood was well aware of the importance of this find, describing it as '... [if] taken literally ... something of an event in the archaeology of Roman Britain ...', but adding that the idea that there was activity in the fort after A.D. 390 was 'too important to rest on a single coin'.<sup>66</sup> There is now widespread acceptance that there were activities of this date in the forts of northern England, even though stratified sequences of occupation which include Theodosian coins are still rare.

The coins certainly demonstrate that the east gate remained in use until the very end of the Roman period, if not beyond, but that is not their only importance. The 46 coins from this relatively small area make up 24.7% of the total number (186) from all the excavations at Bainbridge. A high level of coin-loss also occurred in the same period in and around the Minor West Gate at Wallsend, where it was seen as the result of trading between the fort garrison and itinerant traders or pedlars at a time when there was no longer a military *vicus* outside the fort.<sup>67</sup> The *porta praetoria* at Bainbridge, the most accessible of the four gates, seems also to have been used as a trading area in the later Roman period.

#### THE PLAN OF THE MID-ANTONINE FORT

The central axis of the mid-Antonine *principia* was 2.0 m farther north than that of the earlier *principia*, and the front wall of the later forecourt was just beyond that of the original. The positions of the main streets within the fort and of the four gates were therefore roughly the same as in the earlier fort, and the new fort-plan was in outline probably a replication of the original. This suggests that the mid-Antonine unit for which the new fort was built was of the same type, presumably a *cohors quingenaria peditata*, as that which occupied the original fort. None of the gates has yet been seen, and the only area of the principal streets that has been exposed is directly in front of the *principia*.

#### THE BARRACKS IN THE SOUTH-EASTERN PART OF THE *PRAETENTURA*

In 1931 parts of buildings of several periods were excavated in the southern part of the *praetentura* next to the *via praetoria*.<sup>68</sup> In 1953 Wade opened an area which contained what were probably the southern ends of some of these buildings, and in 1957 this area was re-opened and enlarged by Hartley.<sup>69</sup> The Flavian-Trajanic barracks were sealed by a deposit of clay mixed with burnt daub and other building materials which was up to 0.40 m thick. Through this deposit were inserted the foundations of three north-south buildings which were described by Hartley as follows (Fig. 3):

"...each about 27 to 30 feet [8.23-9.14 m] wide, separated by narrow eavesdrips. There would have been enough room for one east of the *via principalis*. The walls were of local sandstone with clay bonding. None of the buildings, presumably barracks, could have had more than five, or just possibly six, *contubernia*. It is obvious that AB, and probably AC, could not have been entered from doors in the long sides, though AA had at least one such door in its

<sup>64</sup> See Section 7 for a consolidated list of the coins from the gate.

<sup>65</sup> In the south-west gate at South Shields, built in c. A.D. 160, the earliest surviving metalling in the gate passages was no earlier than the mid-fourth century (Bidwell and Speak 1994, 126).

<sup>66</sup> Collingwood 1928, 269.

<sup>67</sup> Hodgson 2003, 166-7.

<sup>68</sup> Droop 1932.

<sup>69</sup> Wade 1955, 156-60, figs 2-3, pls 7-8; Hartley 1960, 112-6, figs 1 and 5, pls IVb, V-VI.

east walls. [A note then adds that “a through passage was therefore needed, and this explains why the partition walls stop short of the outer wall on one side of each building. Timber partitions should perhaps be sought across the front of each *contubernium*”.] It will be clear that if they were barracks, each century of the unit must have been divided between two buildings. Stables are not in question, since the area of the fort was only 2.8 acres [1.1 ha] over the ramparts – barely enough for a *cohors quingenaria peditata*. Apart from that, the buildings show signs of use as living-quarters, including a hearth on the primary floor of AAi.<sup>70</sup>

Since 1957 many barracks in Britain, Germany and Austria have been excavated in large-scale area excavations, and knowledge of this building-type and its many variations, while far from complete, has increased enormously. Nothing remotely similar to the arrangements described above, where the barracks were entered from their narrow ends and the *contubernia* opened off an internal passage, is known elsewhere. The excavations were carefully recorded, their description is lucid and consistent with the section drawings, and there is nothing to suggest an alternative interpretation. The Bainbridge barracks have to be accepted as an anomaly.

In the next period of construction, which Hartley termed ‘Antonine II’ but which may equate with the reduced occupation indicated by the alterations to the *principia*, the western building was demolished and the middle building was either split along its length by a spine wall or reduced in width. The remaining Antonine barracks were removed at a later stage, apart from the south-east room of AA which seems to have been reused as a latrine. The clay-bonded walls of the Severan barracks were built directly on the demolition levels over the preceding barracks. The survival of their walls was patchy, and the plan recovered is not intelligible. However, the arrangement of the walls recorded in 1931, shown as SB, SC and SD on Figure 3, hints at free-standing *contubernia* (the so-called chalet barracks), perhaps belonging to two barracks built back-to-back and aligned north–south.<sup>71</sup> There were two further periods of rebuilding which probably represented barracks aligned east–west.

## THE GRANARIES

The Severan and earlier granaries were situated north of the *principia* (Fig. 2). A single trench was dug across their site in 1926, and in 1950 the northern Severan granary was identified by Wade.<sup>72</sup> A wall of Antonine date, found in the 1950 excavations, was abutted by the same northern *intervallum* road which was laid up against the stone revetment at the back of the rampart following its extension.<sup>73</sup> In 1974 it was shown to have been the north wall of an Antonine granary with an overall width of *c.* 6.7 m. One buttress survived on its south wall, but its site appeared to have been partly terraced, removing all traces of its sleeper walls, when it was replaced by the northern Severan granary. A north–south wall abutted the south-east corner of the earlier granary; Hartley suggested this was the front of a walled yard, linking two granaries, that to the south being situated south of the excavated area. An east–west drain was found in the possible yard.<sup>74</sup>

The Severan double granary, which measured 19.5 m by 17.5 m, was excavated by Hartley in 1972, when its western end was located, and in 1974, when its eastern end was completely exposed together with part of the *via principalis*.<sup>75</sup> The results are summarised in the context book for 1974:

‘The Severan building raises no complications. It was a double granary with six longitudinal sleeper walls which had survived in the northern part of the northern section but had been robbed out in the southern part. There were transverse ventilator slots. The main walls had been virtually entirely robbed out, apart from the footings on the south edge of the dividing wall, the central buttress, and the north-east buttress on the north side (the corresponding buttress on the east side had been robbed out), and a few odd patches of walling elsewhere. The foundations were of large cobbles set in clay (with some voids) in a trench 0.60 m deep, and they therefore differed somewhat from the north wall described by Wade.<sup>76</sup> Everywhere the top of the foundations had been levelled off with small pebbles set in brown clay.

<sup>70</sup> Hartley 1960, 113.

<sup>71</sup> Hodgson and Bidwell 2004.

<sup>72</sup> Collingwood 1928, 274; Wade 1952, 8–9, fig. 2.

<sup>73</sup> Wade 1952, 8, fig. 2.

<sup>74</sup> Summary in 1974 context book and plan and section (TWM 31).

<sup>75</sup> 72 XVII; 74 XXI.

<sup>76</sup> Wade 1952, 8–9, fig. 2: the foundations of the north wall of the granary were ‘of small cobbles laid upon thin sandstone slabs set on edge’.

‘In the northern half of the double granary the spaces between the sleeper walls and the robbed area south of them were filled with broken floor slabs and mortar debris with late fourth-century pottery.<sup>77</sup> It therefore seems that the building is likely to have been in use to the end of the Roman period. The robber trenches of the external walls all produced the normal mortary filling with stone and bone and much late-Roman pottery. The robber debris internally yielded a medieval green-glazed sherd. In the south half of the building the story was quite other: the sleeper walls had all been robbed out down to their bases, and the main wall had been robbed down to its foundation. However, in place of the normal robber debris the area contained a thick layer of cobbles (predominantly) which were tightly packed in clayey earth and served as a foundation for a floor of large slabs (cf. those of the late-Roman period in the *principia*). They survived only in the south-west corner of the trench. The robber trench of the front wall had a clean, unmortary filling;<sup>78</sup> it was also sealed by the layer of small stones which capped the cobbles.<sup>79</sup>

‘It is therefore evident that the south half of the building was totally demolished at some date in the fourth century, probably not before its middle [in fact, in c. A.D. 360 or later]. That this was so is confirmed by the insertion of a buttress on the outside of the new south wall of the single granary, which was formerly the dividing wall of the double granary.

‘As usual, a large, late pit 3.0 m in diameter and filled with black earth, stones and bones was found cut from the latest road surface. The road stones were replaced very roughly, and unless a gravelled or cobbled surface has been eroded by post-Roman traffic, it would have been very difficult for wheeled traffic to use it.’

#### THE *PRAETORIUM* (?)

In 1926 a trench was cut through a building south of the *principia*.<sup>80</sup> Paved areas were encountered, and also ‘a gutter, such as might have run round a courtyard’, and a room with a clay floor in which the base of an amphora had been set. An illegible fragment of an inscription (*RIB* 724) was found near the gutter. Collingwood thought that the building was the *praetorium*. In 1966 a foundation which probably represented the north wall of the *praetorium* was found 2.7 m south of the Severan *principia*.<sup>81</sup>

#### EXCAVATIONS IN THE NORTH-WEST CORNER OF THE FORT

In 1969–72 and in 1977 a grid of trenches was excavated in the north-west corner of the fort. The results of the first season were described by Hartley as follows: ‘... post trenches of a Flavian-Trajanic building of uncertain type were found to cut earlier (presumably Agricola) paving. Only one Antonine stone building, aligned north-south, occurred between the west intervallum and the central range, and this had been destroyed by fire. Two successive timber buildings replaced it, in turn followed by a building of the late fourth century. Internal drains in some structures may suggest stables rather than barracks. Close behind the north rampart was a stone-lined rectangular pit, not filled before the late fourth century, apparently a latrine.’<sup>82</sup> There are context books and some plans from the later seasons, but unfortunately summaries of the results are missing. An incomplete overall plan shows the buildings on Figure 2 and a few other details.

The Flavian-Trajanic timber building was 11.4 m in width and was traced for a distance of 15.4 m from its north end; no internal dividing walls were recorded, but they might well have been destroyed or concealed by later walls. The Antonine stone building covered most of the area of its predecessor but was situated slightly farther to its east and north. It was also 11.40 m in width; no internal divisions were recorded. Whether excavations in the following years proved the existence of the two timber buildings which in 1969 were supposed to have succeeded the stone building is uncertain: there are no plans of the buildings and no clear references to them in the later context books. The later stone building was 11.0 m in width and was divided into at least six rooms with widths varying between 2.20 m and 3.40 m. Hartley described it as of late fourth-century date in his interim report, and it is referred to as Theodosian in some of the context books, but there is no record of his final assessment of its date. At first sight, the

<sup>77</sup> Not much pottery has survived from these contexts, but it includes a colour-coated flanged bowl from the Lower Nene Valley, indicating that the filling dates to c. A.D. 370 or later (74 XXI, 13).

<sup>78</sup> The text includes the phrase ‘with (no? late-Roman pottery)’, presumably a note by Hartley to himself to check the pottery. 74 XXI 8, which is the robber trench of the front wall of the south granary, contained the rim of a Huntcliff-type jar, so the robbing dated to c. A.D. 360 or later.

<sup>79</sup> ‘The layer of small stones’ is not noted in the context book, but presumably it was levelling to receive the paving slabs over the cobble base, which was also found over the filling of the robber trench.

<sup>80</sup> Collingwood 1928, 274.

<sup>81</sup> 66 HI, 18.

<sup>82</sup> Radley 1970, 387.

building looks like a barrack, but most of the rooms are too narrow to be *contubernia*. A possible explanation for its plan is that the dividing walls are of different periods, and that the building originated as a barrack much earlier than the Theodosian period. The two earlier buildings were probably also barracks. There are few records in the context books of the drains referred to in the interim statement, and none to urine collection-pits now familiar from stable-barracks.<sup>83</sup>

The full extent of the latrine north-west of the possible barracks was established in 1970. It had been filled with boulders, but there are no records of its fabric other than that it was stone-lined and connected with a drain that seems to have run under the north-west corner of the fort wall. Its filling was probably not removed. The area west of the possible barracks and south of the latrine was paved over in the second half of the fourth century; the paving sealed Huntcliff-type and Crambeck wares as well as a *Gloria Exercitus* coin (A.D. 330–335). There were no signs of earlier buildings in this area.

#### DATING EVIDENCE

A large amount of pottery from the Antonine barracks was illustrated by Hartley: much of it dated to the second half of the second century and there were no vessels which were necessarily of third-century date.<sup>84</sup> Three vessels were illustrated by Wade from the brown soil which covered the demolished wall of the Antonine granary alongside the north *intervallum* street.<sup>85</sup> No. 7 is of early third-century date. From the channel of a drain above the brown soil, there was a small group of cooking-pots which date to the first half of the third century.<sup>86</sup> Pottery dating the demolition of the Severan granary is noted above. Finds from the buildings in the north-west corner of the fort have not been examined in detail.

#### THE ANNEXE

##### **The annexe walls**

The line of the later northern wall of the annexe is visible as a slight mound but seems to have escaped recognition until 1928 (Figs 5 and 31). On the penultimate day of that season's work, Droop dug a trench which was intended to trace the course of the outer ditch and the road above its filling outside the north-east corner of the fort.<sup>87</sup> The road seemed to be heading towards 'a raised line in the turf' which on excavation proved to be a mortared wall with an estimated width of 1.57 m. Much of the following season was spent on examining this wall.<sup>88</sup> Seven trenches traced it for a distance of 70 m to the east of the fort where it turned southwards. The length found in 1928, which was at an angle of about 40 degrees to the length explored by trenching to the east, was followed back towards the fort to a point *c.* 11.0 m from the north-east corner where it terminated in 'a well-built end'. At this point seven courses of the wall were preserved, giving it a height of 1.28 m above a projecting course of footings (Fig. 34). At a distance of only 1.45 m from the end of the wall, there was a gateway 2.93 m wide. There is no detailed plan, but photographs illustrate the remains clearly. Droop's description is hard to follow, even when it is realised that he has confused east with west in the captions. A wall blocking the gate is clearly visible; it incorporated a vertical slab which was perhaps the original sill of the gate (Fig. 35). Droop also mentions a possible pivot-stone for the gate. On the west side of the gate, '... there was a projection of 0.25 m extending a distance of 0.70 m from the north face' of the wall. What is visible in the photographs is possibly the stump of a wall extending north beyond the gateway on its west side. It is possibly the east side of a projecting gate tower, which had a door immediately behind the gateway. However, there was certainly not a corresponding tower on the east side of the gateway: the photographs show that the wall continued uninterrupted for a distance of 3.0–4.0 m to the east end of the trench. The only other explanation that can be proposed for the termination of the wall just to the west of the gateway is that there was a double gateway, common in fort defences up until the mid-second century but rarer thereafter.

In 1958–59 Hartley dug a section across the wall *c.* 10.0 m east of Droop's gate. Behind it was 'a rampart of mixed occupation earth and clay ... curbed at the back by a row of large stones like those used for the wall'.<sup>89</sup> The section cut across another, earlier wall of uncoursed stone bonded with clay 7.6 m south of the wall first found by Droop. It was 1.3 m in width with a clay rampart at its back; 3.35 m north of the wall was a V-shaped ditch 3.65 m wide and 1.2 m deep, the northern edge of which was cut by Droop's wall. In 1962 a north–south trench 12.5 m in length was dug from the earlier wall southwards. Possible remains of the rampart were seen, and a stone-packed post-hole to the

<sup>83</sup> Hodgson and Bidwell 2004.

<sup>84</sup> Hartley 1960, fig. 6, nos 21–30, fig. 7, nos 31–43.

<sup>85</sup> Wade 1952, fig. 4, nos 7–9; cf. pp. 8–9 for the context of the pottery.

<sup>86</sup> Wade 1952, fig. 4, nos 1–6.

<sup>87</sup> Droop 1929, 82–3, fig. 1.

<sup>88</sup> Droop 1930, 234–7, figs 1, 3–5.

<sup>89</sup> Hartley 1960, 110–12, figs 1 and 4, pl. IIIa–b.

south might have represented a timber revetment at its back and would indicate a width of *c.* 6.0 m for the rampart.<sup>90</sup> Hartley argued that this early wall and the rampart backing it represented the Severan *bracchium*.

In the trenches to the east of the later gate, the associated fort wall was poorly preserved with facing-stones preserved only on its inner face. No ditch was found beyond the wall. In 1931 the wall was traced on the east and south sides of the annexe.<sup>91</sup> It was again poorly preserved and could only be traced as far as a point *c.* 20.0 m east of the south-east corner of the fort. In the eastern length of the wall there was a gateway very approximately 3.0 m in width. The foundations of the wall ended on either side of it. The road which ran through the eastern gateway had two surfaces. Resting on the lower surface was a fallen portion of wall-facing with the tails of facing-stones upwards. It was incorporated in the foundations of the upper surface, which thus seems to have been laid down after the annexe wall was in disrepair or had been demolished. The 1994 RCHME survey recorded ‘intermittent traces of a ditch to the east of the [annexe]; at its north end where it is best preserved it is 3.6 m wide and 0.45 m deep maximum. It is interrupted [in front of the east gate of the annexe] by a well-defined causeway 7.0 m wide (Supplementary Material, Section 1).’ Droop found two stones in the south wall which he thought might have represented one side of an opening with a ‘floor of small stones set in concrete’. The position of the trench was not marked on plan but was described as ‘close to the south-east corner’: it is probably the narrow cut (50) shown on Figure 31.

In 1960 and 1961 three trenches were dug to examine the south-west part of the annexe wall and its junction with the south-east corner of the fort. One trench has no surviving records,<sup>92</sup> but a second trench, 24.0 m east of the junction with the fort wall, uncovered the foundation of the annexe wall, which was 0.94 m in width and consisted of ‘split boulders with a few flat sandstones, set in yellow clay’.<sup>93</sup> The third trench investigated the junction of the annexe and fort walls.<sup>94</sup> The former had been levelled leaving only part of its foundation, which was of ‘rough stone set in brownish clay’. The fort wall was rebuilt at this point when the annexe wall was demolished, the original core being clay-bonded and the later core mortar-bonded. A sketch shows a layer containing ‘much pottery’ above the foundation of the annexe wall which was in turn sealed by a layer of mortar which Hartley associated with the rebuilding of the fort wall.

### The buildings within the annexe

Just inside the eastern gateway, there was a rectangular building measuring 14.0 m by 6.0 m with its narrow end fronting onto the road. Much of its lowest course was constructed of large, roughly-worked blocks, as at several civilian settlements in the Hadrian’s Wall zone.<sup>95</sup> In 1962 the north-east corner of a building was seen immediately south of the earlier northern wall and rampart in trench I. Its eastern wall was interrupted by a flue with heavily-burnt sides, presumably serving a hypocaust, and to its east was a pit filled with ash. North of the room and cutting through the levelled remains of the rampart was a large drain lined with vertical slabs. The fillings of the flue and ash-filled pit produced third-century pottery and a lead sealing of *cohors II Asturum* (RIB 2411.97).

Over the Antonine ditch (see p. D15) in Area II (excavated in 1960–2) was the north-west corner of a granary; its west wall was *c.* 1.0 m wide and 0.8 m to the south was a sleeper wall (Fig. 36). Hartley described its remains as follows:

‘Its buttresses were treated differently: [the southern example] was bonded with big stones but only its eastern half survived; [the middle buttress] had been bonded as the protrusion of the core and interruption of the facing stones showed; [the northern buttress] was not bonded in its lower part, but some of the upper stones projected over the wall at its east end. The whole structure stood three courses high but had subsided after the consolidation of the Antonine [?, see p. D15] ditch filling. [The west wall] was heavily packed in its foundations over [a Flavian-Trajanic pit]. [The sleeper wall] was not so deeply founded and had only one squared course surviving. It had subsided both to the east and the south over the pit filling. The granary was completely demolished; stones and a few hypocaust tiles were packed into the space between [the west wall and sleeper wall] and east of [the sleeper wall]’.<sup>96</sup>

The length of the granary is uncertain. There was no trace of it in Trench 62 BIV, which was 4.60 m to the north and which was dug down as far as the ditch filling. A buttress was seen in 62 BIII, 6.0 m to the south, but the remainder of the granary was sealed by later paving which was not removed. The granary was therefore at least 14.5 m in

<sup>90</sup> 62 BI, 33.

<sup>91</sup> Droop 1932, 22–5, figs 6–8.

<sup>92</sup> 60 XIII.

<sup>93</sup> 61 D.

<sup>94</sup> B60 IX/B61 A, see Field Notes 1961, 1962, and Site Book 1957, 1958, 1961.

<sup>95</sup> Discussed in Hodgson 2008, 71.

<sup>96</sup> 1962 context book, trench II.

length; it could not have been much more than 20.0 m in length without cutting into the rampart which presumably lay behind the south annexe wall, as to the north. The granary was sealed by the north-west corner of another stone building with a flagged floor. Two walls joining at the north-west were also seen in 62 BIII to the south. Unfortunately, the north side of their junction lay outside the trench, so it is uncertain whether they were part of a room in the building found to the north or formed the corner of a separate building. From under flagging associated with these walls came sherds of Nene-Valley colour-coated ware and of Dales Ware, the latter providing a *terminus post quem* of c. A.D. 250 for the building.

The 1994 RCHME survey traced a number of building platforms in the southern part of the annexe (Fig. 31). Droop's excavations in 1929 outside the south-east corner of the fort 'succeeded in striking some very roughly built walls, apparently of dwellings, occupied, to judge from the pottery, during the second and third centuries. There was no observable stratification and very little depth of soil'.<sup>97</sup> An aerial photo taken in 1979 apparently shows a strip building on the north side of the road leading to the east gate, directly opposite that excavated by Droop (Fig. 2).<sup>98</sup> Also on the north side of the road, closer to the fort, are the remains of a large building which has been tentatively identified as a set of baths.<sup>99</sup> Trench 62 BIII was to the north-west of this structure, and the room with a hypocaust found in that trench probably belongs to a separate building.

#### DATING EVIDENCE

The crucial evidence comes from the excavations in 1958–59 over the northern part of the annexe wall. The rampart of the earlier wall sealed Flavian and Antonine pottery.<sup>100</sup> The filling of the ditch associated with that wall contained a small group of pottery, probably no earlier than the beginning of the third century; the latest sherd was from a colour-coated beaker in Nene-Valley ware, which is still scarce in Severan deposits on Hadrian's Wall.<sup>101</sup> The rampart associated with the later wall contained a large group of pottery. Hartley regarded sherds from two BB1 bowls with flat grooved rims as the latest pieces, dating to not much before the middle of the third century; however, this type is now known to have emerged in the late-Antonine period, at least in south-west England, and it is present at the Severan fortress of Carpow.<sup>102</sup> A carinated or bi-conical bowl with an out-turned rim in 'hard grey ware' from the rampart is a type which might be later than the two BB1 bowls.<sup>103</sup> It was made in the Norton kilns, and at other third-century kilns in East Yorkshire.<sup>104</sup> The date at which the type first appeared in these industries is uncertain; all that can be said is that it is not present in Severan deposits on the northern frontier.

The scarcity of fourth-century pottery in the area of the annexe has been noted several times.<sup>105</sup>

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<sup>97</sup> Droop 1930, 236.

<sup>98</sup> Frere and St Joseph 1983, ill. 65.

<sup>99</sup> Frere and St Joseph 1983, 114.

<sup>100</sup> Hartley 1960, 111.

<sup>101</sup> Hartley 1960, fig. 7, nos 44–8.

<sup>102</sup> Holbrook and Bidwell 1991, 98; Dore and Wilkes 1999, ill. 45, nos 38–40.

<sup>103</sup> Hartley 1960, fig. 7, no. 53.

<sup>104</sup> Hayes and Whitley 1950, fig. 11, types 10–10a.

<sup>105</sup> Droop 1930, 237; Droop 1932, 25; Hartley 1960, 112.



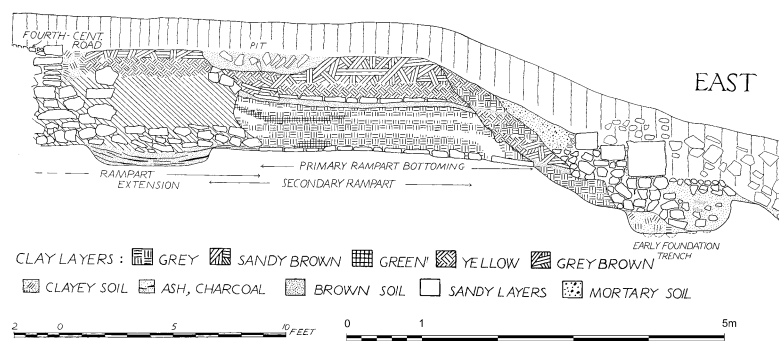


Figure 33: Section through the east defences, 1957 (after Hartley 1960, fig. 2).  
Scale 1:100.



Figure 34: Later north wall of annexe, 1929 (after Droop 1930, fig. 5); view eastwards, showing the apparent termination of the wall with stub projecting to north.



Figure 35: Blocked gateway in later north wall of the annexe, looking north-west, with upright slab incorporated in blocking wall (after Droop 1930, fig. 6); the apparent eastern end of the wall (to left) with projecting stub to north.

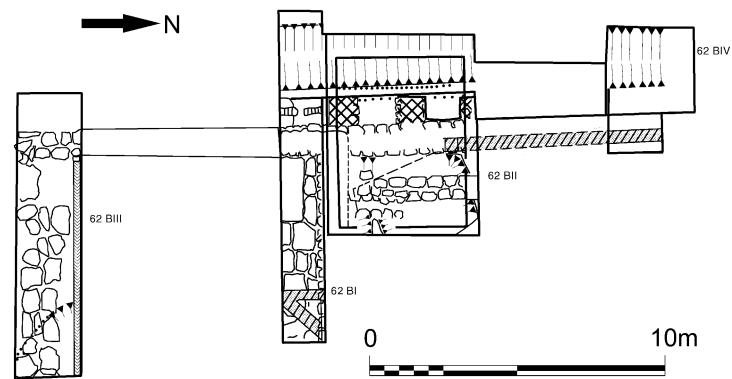


Figure 36: Ditch east of the fort, probably Flavian-Trajanic, and possible post-trenches of the same period (grey tone). West wall of stone granary with two sleeper walls to the east, with walls and flagged floor of one or more later buildings above. Scale 1:250. For location, see Fig. 2.

#### SECTION 4: THE MILITARY UNITS AT BAINBRIDGE

by Paul Bidwell

The three Severan building inscriptions erected by *cohors VI Nerviorum* are discussed in the main text. A building stone of the same cohort (*RIB* 3216) is undated. In the *Notitia Dignitatum* the unit is placed at *Virosidum*, which is almost certainly Bainbridge.<sup>106</sup> If so, it was still at the fort in the late fourth century. The earlier locations of the unit have been discussed elsewhere.<sup>107</sup> It was at Rough Castle on the Antonine Wall, but there is nothing to indicate where it was from c. A.D. 160 to 205. It is thus a candidate for the occupation of the mid- to late-Antonine fort at Bainbridge. Another candidate is *cohors II Asturum*, a lead sealing of which came from the northern part of the annexe in a context with third-century pottery (*RIB* 2411.97).<sup>108</sup> It is as likely as not that the find-spot of a lead sealing naming a unit will have been where it was located,<sup>109</sup> perhaps because sealings were used for internal stock control or were attached elsewhere to consignments sent to the units in question. The cohort was in Britain by A.D. 105, when its presence is attested by a diploma and was probably at the fort of Llanio which was abandoned early in Hadrian's reign.<sup>110</sup> In A.D. 225 it was rebuilding a granary at Great Chesters (*RIB* 1738), but its whereabouts between its postings at Llanio and Great Chesters are unknown. An inscription from Cyrene describing the highly-decorated career of a prefect of the unit describes it as equitate.<sup>111</sup> Llanio has an area of c.1.55 ha, perhaps adequate for an equitate unit, whereas Bainbridge could not have contained a unit larger than a *cohors quingenaria peditata*. However, Great Chesters, with an area of 1.2 ha, is much closer in size to Bainbridge (1.1 ha), and it would seem that at some stage the mounted part of the unit was removed.

<sup>106</sup> *ND* XL<sub>56</sub>; for the place-name, see Rivet and Smith 1979, 506–7.

<sup>107</sup> Jarrett 1994, 64–5.

<sup>108</sup> 62 I, 20. The context was a burnt clay layer which seemed to be associated with the stoke-hole of the hypocausted room south of the annexe wall.

<sup>109</sup> Holder 2004, 58.

<sup>110</sup> *RIB* 2401.2. There are two building stones of the unit at Llanio (*RIB* 407–8) which Jarrett (1994, 53) thought might relate to the building of the fort in c. A.D. 75. Stone construction this early is unlikely and the building stones are probably Trajanic.

<sup>111</sup> *AE* 1951, 88. The decorations were won in a war that took place in Britain; Jarrett (1994, 53) suggested that the fighting was at *mons Graupius*, but this is far from certain.

## SECTION 5: ANGLIAN AND VIKING-PERIOD SETTLEMENT IN WENSLEYDALE, AND LATER MEDIEVAL OCCUPATION AT BAINBRIDGE

by Paul Bidwell

Anglian settlement in Wensleydale is represented by a bone comb from a burial at Askrigg, 2 km north-east of Bainbridge, and an inlaid knife at Grinton, which lies 12 km further down the dale.<sup>112</sup> To the west, beyond Wensleydale, a Viking gold ring probably of late ninth- to tenth-century date is known from Sedbergh.<sup>113</sup> At Wensley and elsewhere to its east, examples of sculpture dating to the eighth or ninth centuries suggest that by then churches had been established in the lower parts of Wensleydale. The churchyard at Wensley has also produced a Viking burial containing an Anglo-Saxon sword of ninth- to early tenth-century date, together with a spear, knife and sickle.<sup>114</sup> The only excavated settlement possibly of this period is at Gayle Lane, near Hawes, 6 km west of Bainbridge, where the ditch of a rectangular enclosure produced material radiocarbon-dated to 1100±70 BP or AD 850±70 (HAR 3748).<sup>115</sup> Knowledge of how post-Roman settlement in Wensleydale developed is still rudimentary, but by the later ninth or tenth century there was certainly a population to support a small and perhaps short-lived church in the fort at Bainbridge.

On the site of the cross-hall, near its south-west corner, was a stone-lined pit (a) with an internal diameter of 2.90 m and a maximum depth of 0.75 m (Fig. 17); it was cut through the debris layers. On its base was a layer of lime 0.05 m thick.<sup>116</sup> A construction trench for the pit was recorded on its north-east side but did not cut through the stump of the adjacent rear wall of the cross-hall. The filling contained burnt stone and charcoal, and burnt stone was also found in the topsoil nearby. The pit represents a lime kiln, where limestone from the site, most commonly found in the late-Roman structures, was burnt. Figure 17 also shows a hearth (16) cut into the east face of the rear wall of the cross-hall, just north of the entry into the former *aedes* and immediately behind the statue base. A photo shows its base at a level which is a few centimetres above the statue base (Fig. 20).<sup>117</sup> It was probably cut from above the debris layer, but it is impossible to be certain whether it was associated with the possible reuse of the *aedes* as a church or with some other post-Roman activity. The size of the lime-kiln certainly signals preparations for a large-scale building project, and it is doubtful whether possible repairs to the former *aedes*, if it had been converted into a church, would have required production of lime in large quantities.

The exploitation of the site for the recovery of building materials by the monks of Fors Abbey is a more plausible context for the construction of the lime kiln. The abbey was situated 1.5 km west of Askrigg on the north side of the Ure and immediately to the east of the Grangegill Beck. The Roman fort lay 0.65 km due north, on the other side of the Ure. Originally called the Abbey de Caritate, and then Fors after the force or water-fall on the Meer Beck nearby, the abbey was founded in A.D. 1145 by Peter de Quincey and two companions.<sup>118</sup> The original buildings were of wood. In A.D. 1150 the monks of Byland Abbey took over Fors, and in A.D. 1156, because of the privations suffered by the monks, it was abandoned in favour of East Witton, where the Cistercian abbey of Jervaulx was built. Fors continued as a grange of Jervaulx Abbey and was known as *Vallis Grangia*. The monks had the right to work iron and lead in the Forest of Wensleydale (or of Bainbridge as it was sometimes known), which extended to the west of Fors.<sup>119</sup> The only visible remains at Fors are of a window, apparently reset, in the back wall of Chantry Cottage; it is of thirteenth- or fourteenth-century date and must have been associated with the grange. In the field to the north are earthworks; beyond the field is Grange Farm, the buildings of which are post-medieval. It is likely that, even though the abbey at Fors was only in existence for eleven years and its first buildings were of wood, a start was made on renewing the buildings in stone, which would have been when the fort was used as a source of building materials. Alternatively, or additionally, materials from the fort could have been used for building the grange.

<sup>112</sup> Manby 1965.

<sup>113</sup> [www.finds.org.uk/database/artefacts/record/id/211836](http://www.finds.org.uk/database/artefacts/record/id/211836).

<sup>114</sup> Bolton 1915–16, 228–30; Wilson 1965, 41–2, 51, pl. VIIA.

<sup>115</sup> Turnbull 1986. The enclosure was once thought to have been a Roman fortlet.

<sup>116</sup> GII, GIII and GV.

<sup>117</sup> HVI, Photo 192.

<sup>118</sup> See *VCH County of York III*, 138–42 for Jervaulx. A detailed account of Fors and the foundation of Jervaulx appears in the lost register of Byland Abbey, for which see Dugdale, *Mon. Angl.*, 5, 569–74.

<sup>119</sup> *VCH Yorks N Riding I*, 201.

**SECTION 6: THE COINS FROM THE *PRINCIPIA***

by R. J. Brickstock

Some 186 Roman coins are known to have been recovered by excavation from in and around Bainbridge fort, 27 from within the *principia*. Two of the coins (now lost) were recovered during Kirk and Collingwood's 1926 excavation season; a further six were found in 1951, and the remaining 19, all thus far unpublished, were produced by Brian Hartley's excavations between 1963 and 1968.<sup>120</sup> Full finds details of all these coins are included in the numismatic catalogue appended to this report; but they are also briefly summarized below (Table 2) for the purposes of the immediate discussion.

Vespasian (2)	Den	VW-EW
Titus (1)	Den	EW
Trajan (1)	Dp	?SW
Antoninus Pius (1)	Den	W
Septimius Severus (1)	Den	UW
Geta, Caesar (1)	Den	W
Postumus (1)		
Victorinus/Tetricus (1)		
Tetricus I (3)		
Tetricus II (2)		
Constantine I 330s (1; and 1 copy)		
Constans/Constantius II 346–48 (4); 348–50 (1)		
Magnentius (1)		
Constantius II 353–58 (1)		
Valentinian I (1)		
Valens (1)		
Valentinian/Valens (1)		
Modern (1)		

We have, therefore, 26 Roman coins and one modern. Of these, only five belong to the first two centuries A.D.:

- three Flavian *denarii* all exhibit very considerable circulation wear and thus are likely to have been deposited a century or more after first passing into circulation, i.e. perhaps in the A.D. 170s or even later;
- an Antonine *denarius*, minted in A.D. 151–52, is also worn (though much less so than the Flavian issues), suggesting deposition perhaps a generation later, i.e. c. A.D. 175–80;
- and a Trajanic *dupondius*, by contrast only slightly worn, which may well have been deposited within 10 or 15 years of its production (i.e. c. A.D. 110–15 or thereabouts).

If we take into account my (admittedly very subjective) conclusions based on the circulation wear, the coins therefore do not contradict Brian Hartley's assertion (based on the samian pottery) that the site was unoccupied between c. A.D. 120/25 and 160, although the sample from the *principia* is far too small to merit a more positive conclusion than that.

In the third and fourth centuries the range of coin types is fairly typical of a small site assemblage: a selection of the more common types and an absence of normally-uncommon issues. Thus we have a couple of Severan *denarii* followed by a gap of several decades; a number of the common Gallic Empire issues of A.D. 259–73 (though no copies) followed by another gap until the arrival of the more plentiful issues of the A.D. 330s; a selection of Constantinian coins from A.D. 330–60; and, finally, three Valentinianic coins of A.D. 364–78. With a coin list of this size it is not possible, or sensible, to suggest that any of the gaps in the sequence are of any archaeological significance, other than perhaps the lack of "Radiate copies" of the A.D. 270s, since coins of all the other missing periods are relatively uncommon on virtually all Romano-British sites. There is certainly one Theodosian coin from elsewhere on the site<sup>121</sup> as well as several of the late A.D. 370s/early 380s; and my preliminary trawl through the "illegible" coins has already revealed a Tetrarchic coin of A.D. 294–305.

<sup>120</sup> 1926 season: Collingwood 1928. 1951 season: Wade 1952.

<sup>121</sup> Collingwood 1928, no.18.

Table 2: Catalogue of Coins from the *Principia*.

1	SEPTIMIUS SEVERUS		date: 208		Obv	SEVERUS PIVS AVG head of Severus, r.
	denom: DEN	mint: RM	off: -	cat: RIC 278a, COHEN2 298	Rev	IIBERALITAS AVG VI Lib. stdg. l. hldg. tessera + corn.
	wear: UW/UW	axis:	diam: mm	wt: g		
2	VALENTINIAN I		date: 367-75		Obv	DN VALENTINIANVS PF AVG
	denom: -	mint: LG	off: S	cat: CK 317, COHEN2 12	Rev	GLORIA ROMANORVM O/F II//LVGS
	wear: -	axis:	diam: mm	wt: g		
3	TETRICUS I		date: 270-73		Obv	[IMP(C) TETRI]CVS PF AVG
	denom: ANT	mint: -	off: -	cat: RIC 56/57	Rev	COM[ES AVG] Victory stdg. l.
	wear: W/W	axis: 6	diam: 18 mm	wt: 1.9 g		
4	TETRICUS I		date: 270-73		Obv	IMP C TETRICVS PF AVG
	denom: ANT	mint: -	off: -	cat: RIC 100	Rev	P[AX] AVG
	wear: W/W	axis: 1	diam: 18 mm	wt: 1.3 g		
5	CONSTANTIUS II		date: 353-55		Obv	[DN CONSTAN]-TIVS PF
	denom: -	mint: -	off: -	cat: as RIC8 TR 350, as CK 72	Rev	AVG A behind head
	wear: W/W	axis: 6	diam: 21.5 mm	wt: 4.4 g		[FEL TEMP REP]ARATIO FH3
6	VALENS		date: 364-75		Obv	DN VALEN-S PF AVG
	denom: -	mint: LG/AR	off: I	cat: as CK 483	Rev	SECVRITAS REIPVBLICAE OF/I/-
	wear: W/W	axis: 6	diam: 18 mm	wt: 1.8 g		
7	TETRICUS II CAESAR		date: 270-73		Obv	[C PIV ESV TETRICVS CAES]
	denom: ANT	mint: -	off: -	cat: RIC 272	Rev	[SP]ES [PVBLICA]
	wear: W/W	axis: 6	diam: 14 mm	wt: 1.2 g		
8	POSTUMUS		date: 259-68		Obv	IMP C POSTVMVS PF AVG
	denom: ANT	mint: LG	off: -	cat: RIC 64 var.	Rev	HERC DIVS-ONI[ENSI] [var. for DEVS..]
	wear: SW/W	axis: 6	diam: 21.5 mm	wt: 2.9 g		
9	VESPASIAN		date: 70-72		Obv	IMP CAES VES[-P AVG PM]
	denom: DEN	mint: RM	off: -	cat: RIC 39	Rev	[TRI POT II] COS III [PP] Pax seatd l. hldg. br.+caduc.
	wear: VW/VW	axis: 6	diam: 17 mm	wt: 2.4 g		
10	TETRICUS I		date: 270-73		Obv	[IMP(C) T]ETRI[CVS (PF) AVG]
	denom: ANT	mint: -	off: -	cat: RIC 141/2	Rev	[VICTORIA AVG]
	wear: ?W/W	axis: 6	diam: 17 mm	wt: 1.4 g		

CAT NO	SF NO	YEAR	CONTEXT	REFERENCE
1	-	B26	<i>Sacellum</i> , foot S of cellar, on (or above) cement floor	Collingwood 1928, no. 4
2	-	B26	cellar, among debris of the fallen west wall	Collingwood 1928, no. 22
3	502	B51		Wade 1952, no. 2
4	503	B51		Wade 1952, no. 3
5	504	B51		Wade 1952, no. 6
6	505	B51		Wade 1952, no. 8
7	506	B51		Wade 1952, no. 5
8	507	B51		Wade 1952, no. 1
9	560	B63	I 4, resting on slab	
10	561	B64	EI 3	

11	TRAJAN			date: 98–99	Obv	[IMP NERVA CA]ES TRAIAN
	denom: DP	mint: RM	off: -	cat: RIC 386	Rev	AV[G GERM]
	wear: ?SW/SW	axis: 6	diam: 28 mm	wt: 10.8 g		TR POT [COS II] in ex. SC
						Abundantia seated l.
12	VESPASIAN			date: 70–72	Obv	IMP CAES VESP AVG PM
	denom: DEN	mint: RM	off: -	cat: RIC 29	Rev	AVGVR PON MAX sacrificial
	wear: VW/VW-EW	axis: 5	diam: 17 mm	wt: 2.8 g		implements
13	CONSTANS			date: 348–50	Obv	DN CONSTA-NS PF AVG A
	denom: -	mint: TR	off: P	cat: RIC8 TR 243	Rev	behind head
	wear: W/SW	axis: 1	diam: 24 mm	wt: 3.8 g		FEL TEMP REPARATIO
						Galley-victory A//TRP
14	TETRICUS II CAESAR			date: 270–73	Obv	C PIV ESV TETRICVS
	denom: ANT	mint: -	off: -	cat: RIC 258	Rev	CAES
	wear: ?W/W	axis: 5	diam: 17.5 mm	wt: 1.6 g		[PIE]TAS AVG[VSTOR]
15	TITUS			date: 80	Obv	IMP TITVS CAES
	denom: DEN	mint: RM	off: -	cat: RIC 22	Rev	VESPASIAN AVG PM
	wear: EW/EW	axis: 6	diam: 17 mm	wt: 3.1 g		TRP [IX IMP XV COS] VIII PP
						Elephant l.
16	MAGNENTIUS			date: 350–51	Obv	[DN MAGNEN]-TIVS PF
	denom: -	mint: AR	off: S	cat: RIC8 AR 150, CK 421	Rev	AVG A behind head
	wear: SW/W	axis: 6	diam: 22.5 mm	wt: 6.4 g		GLORIA ROMANO[RVM] (4)
						Emperor riding /*//SAR
17	CONSTANS			date: 346–48	Obv	[CONSTAN]-S PF AVG
	denom: -	mint: TR	off: -	cat: RIC8 TR 195, HK 148	Rev	[VI]CTORIAE DD AVGG
	wear: SW/SW	axis: 12	diam: 15 mm	wt: 1.3 g		[QNN] D//[TRP]
18	CONSTANS			date: 346–48	Obv	[CONSTAN]-S P[F AVG]
	denom: -	mint: TR	off: S	cat: RIC8 TR 185, HK 140	Rev	VIC[TORIAE DD AVGG QNN]
	wear: SW/SW	axis: 6	diam: 15 mm	wt: 1 g		Heart//TRS
19	CONSTANTIUS II			date: 346–48	Obv	[CON]STANTI-VS [PF AVG]
	denom: -	mint: LG	off: S	cat: RIC8 LG 38, HK 256	Rev	VIC[TORIAE DD AVGG QNN]
	wear: SW/SW	axis: 6	diam: 15.5 mm	wt: 0.8 g		//SLG
20	ANTONINUS PIUS			date: 151–52	Obv	ANTONINVS AVG PI-VS PP
	denom: DEN	mint: RM	off: -	cat: RIC 204	Rev	TRP XV
	wear: W/W	axis: 6	diam: 17 mm	wt: 2 g		CO[S] IIII Annona stdg. l.
						hldg. corn ears etc.

CAT NO	SF NO	YEAR	CONTEXT	REFERENCE
11	562	B64	EII 10	
12	563	B64	EII 1	
13	564	B66	HI 1	
14	565	B66	HIV 5	
15	566	B66	GV at junction of 2 and 7	
16	567	B66	HIV 1	
17	568	B67	HV 8	
18	569	B67	HV 13	
19	570	B67	HVI 2	
20	571	B67	HVI 6	



21	CONSTANS			date: 346–48	Obv	[CONSTAN]-S PF AVG
	denom: -	mint: TR	off: P	cat: RIC8 TR 206, HK 159	Rev	[VICTORIA]E DD AVGG QNN
	wear: UW/UW	axis: 6	diam: 14 mm	wt: 1.6 g		branch//TRP
22	'CONSTANTINE I'			date: '330–35'	Obv	[CONSTANTIN]OPOLIS
	denom: -	mint: -	off: -	cat: c.as RIC7 TR 523, HK 52	Rev	Victory on prow
	wear: SW/W	axis: 6	diam: 12.5 mm	wt: 1 g		
23	GETA CAESAR			date: 200–02	Obv	P SEPT GETA CAES PONT
	denom: DEN	mint: RM	off: -	cat: RIC 18	Rev	PRINC IVVENTVTIS Geta
	wear: W/W	axis: 12	diam: 19.5 mm	wt: 3 g		stdg. l. hldg. branch + spear etc
24	GEORGE VI			date: 1944	Obv	GEORGIUS VI D: G: BR:
	denom: HALF	mint: -	off: -	cat: -	Rev	OMN: REX: F: D: IND: IMP
	PENNY					HALF PENNY 1944
	wear: W/W	axis: 12	diam: 25 mm	wt: 5.8 g		
25	VICTORINUS/TETRICUS I			date: 268–73	Obv	IMP [....] Rad. head r.
	denom: ANT	mint: -	off: -	cat: as RIC Tetricus 100	Rev	[PAX ....] or sim. Stdg. fig. l.
	wear: ?SW/SW	axis: 6	diam: 17.5 mm	wt: 1.8 g		hldg. ?branch + ?
26	HOUSE OF VALENTINIAN			date: 364–78	Obv	[DN VALEN... PF AVG]
	denom: -	mint: SS?	off: -	cat: as CK 1414	Rev	Diad. head r.
	wear: ?W/W	axis: 12	diam: 17 mm	wt: 1.6 g		[SECVRITAS REIPVBLICAE]
						A?/-/-
27	CONSTANTINE I			date: 330–35	Obv	[VRBS ROMA]
	denom: -	mint: LG	off: P	cat: RIC7 LG 257, HK 200	Rev	Wolf and Twins //U.PLG
	wear: ?W/W	axis: 12	diam: 13 mm	wt: 0.8 g		

CAT NO	SF NO	YEAR	CONTEXT	REFERENCE
21	572	B67	HVI 10	
22	573	B68	X IX 13	
23	574	B68	HXI on flat stone N of forge (not sealed)	
24	575	B68	HIX 2	
25	576	B68	HX 2	
26	577	B68	HX 2, in joint of tribunal front wall	
27	578	B68	HVIII 2	

**SECTION 7: COINS FROM ELSEWHERE IN FORT AND ANNEXE**

by A. T. Croom

This list contains details of the coins from elsewhere in the fort and annexe. The information is taken solely from previously published reports or from the initial site identifications. Eight illegible coins are excluded.<sup>122</sup> The entries include, where relevant, year codes, trench and context number, small finds number and publication details.

- |   |  |
|---|--|
| 1. Republican   | 62 II, 26, SF 556  |
| 2. Vespasian  | 72 XVI, 9, SF 606  |
| 3. Vespasian  | 62 II, 31, SF 554  |
| 4. Vespasian?   | <i>sestertius</i> , 62 II, 28, SF 557  |
| 5. <i>vacat</i>   |  |
| 6. Domitian, 73   | Droop 1930, no. 26   |
| 7. Domitian?, 81–96   | Droop 1932, no. 1  |
| 8. Domitian, prob., 81–96   | 58, CO, SF 532. Hartley 1960, no. 1  |
| 9. Trajan   | <i>sestertius</i> , 71 XIV, 8, SF 595  |
| 10. Trajan  | <i>denarius</i> , 70 VII, 10, SF 591   |
| 11. Trajan  | 61, E1, 6, SF 547  |
| 12. Trajan, 98–99   | Collingwood 1928, no. 1  |
| 13. Trajan, 98–117  | <i>denarius</i> , 53, Building I; clay in core of E wall, SF 518, Wade 1955, no. 1                 |
| 14. Trajan, 116–17  | Droop 1930, no. 1  |
| 15. Trajan?   | <i>sestertius</i> , 61 C, 2, filling of Droop's trench on surface of early wall, SF 549            |
| 16. Hadrian   | Collingwood 1928, no. 2  |
| 17. Hadrian? 118–20   | Droop 1932, no. 2  |
| 18. Hadrian?  | very worn, 54, 10, in or under penultimate flagged floor in building in S E corner of fort, SF 530 |
| 19. Antoninus Pius Caesar, struck under Hadrian, 138, <i>denarius</i> , 53, 8, over S room of building in SE corner of fort, unstratified, SF 512, Wade 1955, no. 2 |  |
| 20. Antoninus Pius  | <i>denarius</i> , 70 VIII, 37, SF 584  |
| 21. Antoninus Pius prob., 138–61, possibly pierced through centre, but corroded, 59.79, SF 536. Hartley 1960, no. 2   |  |
| 22. Antoninus Pius, 145–61  | <i>sestertius</i> , mint of Rome, 53, 11, in black dirt on cement layer, SF 519. Wade 1955, no. 3  |
| 23. Antoninus Pius  | 60 III, 3–4, between lower cobble layer and clay/daub layer, SF 546                                |
| 24. Antoninus Pius, struck under Marcus Aurelius 161+ 53, 7, from clay on stone of top of E wall, SF 511, Wade 1955, no. 4  |  |
| 25. Marcus Aurelius, struck under Antoninus Pius, 145–6, Droop 1932, no. 3  |  |
| 26. Lucius Verus, 162–63  | <i>denarius</i> , 59.15, SF 537. Hartley 1960, no. 3.  |
| 27. Faustina  | Collingwood 1928, no. 3  |
| 28. Diva Faustina   | 61 E, 11, SF 548   |
| 29. Septimius Severus, 193–211  | Hartley 1960, no. 4  |
| 30. Septimius Severus, 199  | <i>denarius</i> fragment, Droop 1929, no. 1  |
| 31. Caracalla   | <i>denarius</i> , 69 III, 18, SF 583   |
| 32. Geta, 200–11  | 53, TI, u/s, SF 510, Wade 1955, no. 5  |
| 33. Elagabalus, 221   | Droop 1930, no. 32   |
| 34. Julia Soemias   | 72 XVI, 8, SF 596  |
| 35. Severus Alexander   | 72 XVI, 17, SF 608   |
| 36. Gallienus, 253–68   | mint of Rome, B53, u/s, SF 515, Wade 1955, no. 6   |
| 37. Gallienus, 253–68   | Droop 1930, no. 2  |
| 38. Gallienus, 265–68   | Droop 1930, no. 3  |
| 39. Gallienus, 259–68   | 58, AK, SF 533, Hartley 1960, no. 5  |
| 40. Gallienus   | 54, 4, dirt & stones immediately outside NW corner of room with flagged floor, SF 531              |
| 41. Gallienus?  | Collingwood 1928, no. 5  |
| 42. Claudius II, 268–70   | Droop 1929, no. 2  |
| 43. Claudius II, 268–70   | Droop 1932, no. 4  |
| 44. Claudius II, 268–70   | 53, 9, Building I 9 in dirt 5/6" below layer of flat stones, SF 509, Wade 1955, no. 7              |
| 45. Claudius II   | 54, u/s, 12, found on dump, SF 527   |

<sup>122</sup> Collingwood 1928, 280, nos 25–32.

46. Claudius II, *c.*270 Droop 1930, no. 28  
47. Claudius II, 270+ Collingwood 1928, no. 7  
48. Claudius II, 270+ Droop 1930, no. 6  
49. Claudius II, 270+ Droop 1930, no. 7  
50. Claudius II, 270+ Droop 1930, no. 22  
51. Claudius II Collingwood 1928, no. 6  
52. Postumus 54, u/s?, 2, from dirt immediately on flagged floor of building in SE corner of fort, SF 521  
53. Postumus 54, 9, under latest flagged floor in building in SE corner of fort, SF 529  
54. Victorinus, 268–70 53, 10, SF 516, Wade 1955, no. 8  
55. Victorinus, 268–70 Droop 1929, no. 3  
56. Tetricus 62 III, 7, SF 553  
57. Tetricus I 50, SF 500, Wade 1952, no. 4  
58. Tetricus I Collingwood 1928, no. 8  
59. Tetricus I, 270–73 Droop 1929, no. 4  
60. Tetricus I, prob., 270–73 Droop 1930, no. 8  
61. Tetricus I?, 270–73 Droop 1930, no. 19  
62. Tetricus I?, 270–73 Droop 1930, no. 27  
63. Tetricus I?, 270–73 Droop 1930, no. 31  
64. Tetricus I?, 270–73 Droop 1930, no. 34  
65. Tetricus I (or just possibly Tetricus II), 270–73 59.7, SF 535, Hartley 1960, no. 6  
66. Tetricus I/II, 270–73 53, TI, u/s, SF 517, Wade 1955, no. 9  
67. Tetricus II 54, u/s?, 3, from dirt immediately over flagged floor in building in SE corner of fort, SF 520  
68. Tetricus II Collingwood 1928, no. 10  
69. Tetricus II Collingwood 1928, no. 11  
70. Quintillus, 270 Droop 1932, no. 5  
71. Radiate, *c.*270 fragment, Droop 1930, no. 4  
72. Radiate, *c.*270 fragment, Droop 1930, no. 5  
73. Radiate, *c.*270 Droop 1930, no. 23  
74. Radiate, *c.*270 scrap, Droop 1930, no. 24  
75. Radiate, *c.*273 fragment, Droop 1932, no. 6  
76. Radiate 61 C, 2, Droop A B, SF 550  
77. Radiate 60 III, 8, SF 538  
78. Radiate very, very poor condition, 70 VIII, 1, SF 586  
79. Radiate 61 E, 1, SF 551  
80. Radiate 70 IV, 3, SF 592  
81. Radiate 69 II, 2, NE corner in debris below 1, below paving slabs, SF 580  
82. Radiate poor condition, 69 III, 1, SF 579  
83. Radiate 74, FXXI, 6, SF 609  
84. Barbarous radiate, 270–73 Droop 1930, no. 20  
85. Barbarous radiate Droop 1930, no. 34  
86. Barbarous radiate 60, E gate, found corroded to SF 541 and SF 542  
87. Barbarous radiate 60, u/s, E gate Droop backfill outside gate found with SF 542 and SF 541  
88. Barbarous radiate Droop 1930, no. 25  
89. Probus, *c.*280 Droop 1930, no. 33  
90. Carausius 54, u/s, 6, found on dump, SF 524  
91. Carausius Collingwood 1928, no. 12  
92. Carausius Collingwood 1928, no. 13  
93. Diocletian, 296–305 Droop 1932, no. 7  
94. Diocletian 72 XVII, 2, SF 598  
95. Crispus Collingwood 1928, no. 19  
96. Constantine I, 312–15 Droop 1930, no. 9  
97. Constantine I 54, 7, among flags of floor, not sealed, SF 523  
98. Constantine 54, under latest flagged floor in building in SE corner of the fort, 11, SF 526  
99. Constantine 60 I, 1, u/s, E gate, Droop backfilling, SF 545  
100. Constantine Collingwood 1928, no. 14  
101. Constantine Collingwood 1928, no. 15  
102. Constantine, 320 Droop 1932, no. 9  
103. Constantine, 330–35 Droop 1932, no. 8

104. Constantine II, 330–35 Droop 1930, no. 11  
 105. Constantine II 54, 8, outside NE corner of room with flagged floor, building in SE corner of the fort, SF 528
106. Constan[ 70 IV, 2, SF 587  
 107. H of Constantine, 320–24 Droop 1930, no. 10  
 108. H of Constantine, 330–35 72 XV, 7, SF 599  
 109. Constantinopolis 72 XVII, 4, SF 602  
 110. Constantinopolis, c.330 Collingwood 1928, no. 16  
 111. Constantinopolis Collingwood 1928, no. 17  
 112. Constantinopolis, 330–37 Droop 1930, no. 12  
 113. Constantius II or Constans, 337–40 Droop 1930, no. 35  
 114. Constantius II or Constans Collingwood 1928, no. 20  
 115. Constans, 337–40 Droop 1930, no. 29  
 116. Constans, 345 Droop 1930, no. 30  
 117. Helena? Droop 1930, no. 13  
 118. Theodora Collingwood 1928, no. 18  
 119. Magnentius 62, IV 1, SF 559  
 120. Magnentius Collingwood 1928, no. 21  
 121. Valentinian I, 364–67 50, SF 501, Wade 1952, no. 7  
 122. Valentinian I?, 367–75 mint of Arelate, 53, TI 3, TI extension in S E corner, u/s, SF 514, Wade 1955, no. 12
123. Valentinian? 72 XVII, 6, SF 600  
 124. Valens, 364–75 Droop 1930, no. 14  
 125. Valens, 364–78 58, AN, SF 534, Hartley 1960, no. 7  
 126. Gratian Collingwood 1928, no. 23  
 127. H of Theodosius, 390 Collingwood 1928, no. 24  
 128. Urbs Roma, 330–37 Droop 1930, no. 21  
 129. Urbs Roma 53, TI, us, SF 513, Wade 1955, no. 11  
 130. Urbs Roma broken, 72 XVI, 1, topsoil, SF 603  
 131. Urbs Roma 52, TI, topsoil over fort wall, SF 508, Wade 1955, no. 10  
 132. Urbs Roma 70 IV, 1, SF 594  
 133. Gloria Romanorum 70 IV, 4, debris layer, SF 589  
 134. Gloria Romanorum 72 XVI, 7, SF 607  
 135. FEL TEMP REP 54, u/s?, 1, from dirt immediately on flag floor of building in SE corner of fort, SF 522
136. VOTIS X MVLTIS X silver, 70 X, 3, on intervallum road, top surface below 1, SF 593  
 137. VOT V MVT 54, u/s?, dirt & stones immediately outside N wall of room with flags, SF 525  
 138. C1/C2 *sestertius*, corroded, 70 IV, 6, SF 588  
 139. C1-C3 *denarius*, corroded, 62 I, 10, SF 555  
 140. C2 *denarius*, 60, E gate, latest road surface immediately inside gate, SF 540  
 141. C2/C3 70 VII, 6, SF 585  
 142. C3/C4 62 III, 4, SF 552  
 143. C3/C4 little detail surviving, 60, surface of I.2 E gate on surface of packing, SF 543  
 144. C3/C4 little detail surviving, 60 I, 14, E gate, packing below Via P inside fort, SF 544  
 145. C3/C4 illegible, 72 XV, 1, SF 597  
 146. C3/C4 illegible fragment, 62 IA, 1, SF 558  
 147. C4 60, u/s, E gate topsoil, immediately outside gate, SF 539  
 148. C4 69 I, 4, pit, SF 582  
 149. C4 worn and without edges, 70 VIII, 6, SF 590  
 150. C4 edges of coin (and legend) lost, 72 XVI, 1, SF 604  
 151. C4 illegible, 72 XV, 4a, SF 605  
 152. C4 fragment, Droop 1930, no. 15  
 153. C4 fragment, Droop 1930, no. 16

## LIST OF COINS FROM THE SEVERAN EAST GATE

The following list gives the catalogue numbers as above for all the coins found at the east gate and in or on the road surfaces extending to the east beyond the gate.

Trajanic (A.D. 96–117)	12,14
Hadrianic (A.D. 117–38)	16
Gallic Empire (A.D. 260–73)	37–8, 46, 48–50, 58, 61, 68–9
Radiates/barbarous radiates	73–4, 80, 84–8
Diocletianic (A.D. 296–317)	96
Constantinian I (A.D. 317–30)	99, 107
Constantinian II (A.D. 330–48)	104, 110, 112, 114–6, 117
Valentinianic (A.D. 364–78)	124, 126
Theodosian II (A.D. 388–402)	127
Fourth century	152–3
Illegible (later third- or fourth-century)	140, 143–4, 147, 6 not catalogued

## SECTION 8: THE PAINTED PLASTER

by A.T. Croom

The plaster assemblage from the *principia* consists of over 800 fragments, weighing over 50 kg. Most of the pieces are painted, and although highly fragmented, the number of elements from different schemes suggests quite complex schemes of decoration. The catalogue entries include location, dating, site date (e.g. 68 for 1968), trench and context number (e.g. HIX, 1) and small finds number (e.g. SF 460).

### Catalogue

#### *Fabric 1*

Plaster with a grey fabric and plentiful soft white inclusions. It was not always possible to distinguish different layers in the plaster, as the upper layer (c. 15 mm thick) appears to be as coarse as the backing layer, and is covered only by a c.1 mm thick painted surface or layer.

#### 1. White background (Figs 37–8)

1.1 Two large fragments, and numerous smaller pieces. Zone with thin black, thicker red, thin black, thin black, thicker red and thin black lines on white. To one side of this is one corner of a diamond drawn as an orange stripe flanked on both sides by green, with an extra black line on one arm.

1.2 Further fragments of the green-bordered orange stripe, including two other corners.

1.3 There are also fragments of a wide white zone with a thin (5 mm) black line running down it that are likely to come from the same scheme. One fragment has three red dots to one side.

1.4 There are a number of fragments of a white zone, sometimes wide, with combinations of thin black lines (5 mm) and thicker red lines (10 mm) at varying distances apart which presumably come from this scheme. At least five different combinations survive.

Mainly from 66 GV, 11 (Room 2) and 66(?) no context, but there are also small quantities from 64 GIII, 6 (Room 1); 64 GIII, no context (Room 1); 64 GI, 5 (Room 2); 66 GV, 14 (Rooms 1/2).

#### 2. White background (Figs 38–9)

A large number of fragments with wide, pale-green curved bands, with red zigzag scribbled decoration usually beside the green band rather than on it. There are also a few fragments with straight red lines with the green bands. Imitation marble. 64 GI, 5 (Room 2); 64 GIII, 6 (Room 1); one piece from 64 GIII, 13 (Room 1).

#### 3. White background (Fig. 39)

3.1 A pattern made up of thin black lines, intersecting and perhaps ending in open circles. 64 GIII, no context.

3.2 Thin black line in a V pattern. 64 GIII, 7 (Room 1).

3.3 Two lines of pale black line zigzag. 64 GIII, 6 (Room 1).

The zigzag suggests imitation marble, but the other two fragments are likely to come from a motif in the centre of a geometric design.

#### 4. White background, probably from a ceiling or upper wall (Fig. 40)

4.1 Circle of green, with a central green dot over an incised compass point. The green circle has an outer thinner red circle painted over an incised line. 66 GV, 11 (Room 2).

4.2 A red circle painted over an incised line, without an inner green circle but with a green decorative element within it. 66 GV, 11 (Room 2).

4.3 Numerous fragments with a fine incised line painted over with a wider red line, although sometimes only the paint within the line survives, from the same elements as nos 4.1 and 4.2 above. The red circle sometimes has smaller, roughly circular flourishes at intervals on the outside edge. There are a few examples of straight incised lines over-painted in red, but most are curved. 64 GIII, 6 (Room 1); 64 GIII, no context; 66 GV, 11 (Room 2).

4.4 A few fragments of rough white plaster, with a long, wide incised line over-painted in red running parallel with a thin black line. There is another possible incised line on the other side of the black line. The first incised line has possible finer incised lines at right angles. 64 GI, 5 (Room 2).

#### 5. Yellow-orange background (Figs 41 and 42A)

A large number of fragments with a yellow-orange background with brown and red scribbles over the top. Some fragments have an edge to the yellow/orange paint, with a curved edge against a white background, suggesting circular elements within the decoration. Some of the scribbled decoration follows the curves; other decoration consists of straight lines. Some fragments have a cream line painted over the yellow-orange background as part of the original design, as if to indicate shading. Imitation marble.

Border 1: red line (10 mm) followed by a black line (5 mm), then probably white.

Border 2: the yellow-orange background is over-painted by a brown line (5 mm) a little distance away from a red line (15 mm). There is then a white zone split by a narrow black line (5 mm).

Border 3: red line/zone.

Mainly from 64 GIII, 6 (Room 1), but some pieces from 64 GI, 5 (Room 2) and 64 GIII, no context.

#### 6. Yellow-orange background (Figs 41 and 42B)

Three fragments of a yellow-orange zone, without the scribbled decoration or suggestions of shading on no. 5 above. Border: red line (10 mm) and a white zone with a narrow black line (5 mm) that does not extend the full length of the panel. The surface finish and plaster suggests this could possibly be part of the same scheme as no. 1 above, but at least one fragment appears to have been pecked to provide keying for a later re-plastering, and none of the larger fragments in no. 1 has similar marks.

64 GI, 5 (Room 2); 66 GV, 11 (Room 2); 66(?), no context.

#### 7. Pale green background (Fig. 42C)

There are only a few fragments, but they possibly come from more elaborate designs.

7.1 Green edge with a black stripe, possibly curved, and then a red stripe or zone. 64 GII, 13 (Room 1).

7.2 A red stripe or zone, followed by a yellow stripe with a line of cream shading on one side bound by a curved, incised line. On the other side of the incised line there is a green zone. 64 GIII, 6 (Room 1).

7.3 Green against a red stripe(?) edged in black on either side and decorated with diagonal white lines. 64 GIII, 7 (Room 1).

#### 8. Pink-orange background (Fig. 43A)

Poorly preserved surface. A zone of pink fading into orange, bordered by a wide green stripe (35 mm) edged with a thin black line (5 mm) on either side. Other fragments of the pink background have yellow-orange patches and a little red splatter. Imitation marble. There are traces of a thick white over-painting that has survived very badly. 66 GV 17 (cross-hall).

#### 9. Possible flower (Fig. 41)

One fragment with a possible flower of yellow petals outlined in red on a white background. 64 GI, 5 (Room 2).

#### 10. Corner fragment from window or door reveal (Figs 41 and 43B)

Red on one face, white with an orange lattice design on the other. 64 GIII, 7 (Room 1); 66 GV, 12 (Room 1).

#### 11. Corner fragment from window or door reveal

Red on both faces. 66 GV 26 (Room 1).

#### 12. White background

This piece may come from an image rather than the geometric patterns and mock marbles of the other fragments. The painting seems to have been carried out in a confident, swift manner. There is a curved area of red with a highlight in white, a streaked grey and white V-shaped brush-stroke and a thin pink line next to a curved black line. However, the fragment is too small for the original image to be identified. 66 GV, 11 (Room 2).

#### *Re-plastering*

#### 13. White background (Fig. 43C)

This is a re-plastering layer, with a flat lower surface with small projections that filled the peck-holes in the original surface that provided keying for the new plaster layer. The only decoration is in red, in bold stripes, zones and curved edges, although no pattern can be reconstructed. 66 HI, 3 (cross-hall).

#### *Fabric 2*

Plaster with plentiful small, multi-coloured pebble inclusions. Painted layer c. 1–2 mm thick over the coarse plaster.

14. (Fig. 43D). The largest fragment has a small white area with a curved outer edge marked by a thin yellow line and surrounded by a large red zone (70 mm+). A second fragment has a small green diamond(?) edged in yellow on a white background. 67 GVII, 3 (*aedes*).

## Discussion

The majority of the plaster came from the two rooms south of the strongroom, and in particular Room 1. Fragments of the same designs were found in both rooms, but most fragments of nos 2 (green bands and red zigzag) and 5 (yellow-orange scribbled) were found in Room 1, and most of no. 1 (dado) were found in Room 2. In 1926 'buff' painted plaster was found *in situ* on the walls of the shrine along with fragments of 'white, with red and yellow streaks', while the walls of the strongroom had also been plastered, apparently in plain white.<sup>123</sup>

### Room 1

Most of the plaster came from the north-west quadrant of the room and along the west wall. This included large quantities of the mock-marble yellow-orange with scribbled decoration (no. 5) and the white background with pale green bands and red zigzag (no. 2). The small number of fragments that included part of a coloured border suggests these may have come from large panels in the middle zone, rather than from the dado where the smaller panels would result in a higher proportion of borders. The use of panels with a white background in the same scheme as panels with a coloured ground was found at Catterick, where a panel of green circles containing vertical strokes on a white background was used next to a predominantly orange and yellow 'fried egg' panel.<sup>124</sup>

There was also a small number of fragments with pale green and deep red bands or grounds, but they were very fragmentary (no. 7). If they belonged to the same wall scheme, they may have been from panels in the dado. The room also produced a fragment with an angled surface, probably from the internal splayed surface of a window reveal, with red paint on both faces (no. 11). The use of broad red bands to mark corners and door and window openings was a very common feature in Roman wall painting. Other fragments from a splayed window were more unusual, with red on one face, but a yellow-orange lattice over white on the other (no. 10). Not enough of the piece survives to see if this was a decorative border just for the opening, or part of a larger wall design interrupted by the window.

A number of fragments of red circles likely to have come from a ceiling design were also found in this room, but more pieces of the same design were found in Room 2. The fragments of plaster with a black decorative element on a white ground (nos 3.1–2) may also have come from a ceiling design. A similar device, with intersecting lines and Vs came from a design in the centre of a square field in the ceiling decoration from Witcombe.<sup>125</sup> The third black element (no. 3.3) had paler, scribbled decoration, and may possibly have come from an imitation-marble panel, but only a single fragment was recovered. A quantity of plain white plaster was also found.

### Room 2

The plaster was found in the eastern half of the room, and the excavation records mention plaster still *in situ* on the northern wall. All the largest fragments with design no. 1 came from this room. The use of a diamond suggests the plaster was from the dado, as lozenges and diamonds were a popular design in this region (cf. Catterick, York, Aldborough and Winterton).<sup>126</sup> The use of multiple thin lines on a white background to divide the dado and main section, as seen here, was also found at Winterton villa.<sup>127</sup> Possibly part of the same design were fragments of a zone, perhaps part of a panel, of yellow-orange with a narrow red border and a white interval with a narrow black line (no. 6). This room also produced a possible flower (no. 9).

A number of fragments found near the doorway came from a pattern containing green circles with a thinner outer circle of red, and red circles with a green motif in the centre (no. 4). The red circles were compass-drawn and incised into the plaster before painting. Similar, if larger, circles are known from ceiling designs. The third- or fourth-century villa at Witcombe, Lincolnshire had circles of purple and green with at least two different central ornaments, and a third-century building in Avenches, France had a range of flower motifs within circles with a thin inner line and thicker outer.<sup>128</sup> In both these designs the circles were set in a square lattice design, but a different design may have been used at Bainbridge, since few straight lines suitable for the lattice were recovered. At the possibly third-century villa at Wiggington, Oxon., a roundel of green and purplish red, with a thin outer circle of pale green, was probably part of a radiating design, but the circle was much larger than that used at Bainbridge.<sup>129</sup> Closer in size to the Bainbridge pieces are the lines of roundels used on the third- or fourth-century frieze of the

<sup>123</sup> Collingwood 1928, 270, 272–3.

<sup>124</sup> Davey and Ling 1982, pl. XXXIII.

<sup>125</sup> Davey and Ling 1982, no. 50.

<sup>126</sup> Davey and Ling 1982, nos 5, 52, appendix no. 1; Liversidge 1976, fig. 143.

<sup>127</sup> Liversidge 1976, fig. 144.

<sup>128</sup> Witcombe: Davey and Ling 1982, no. 50; Avenches: Ling 1991, fig. 210.

<sup>129</sup> Davey and Ling 1982, no. 46A.



villa's bath-house at Dalton Parlours.<sup>130</sup> A few fragments of plaster left with a rough finish and with incised guidelines might also have come from a ceiling design (no. 4.4).

#### *The aedes (Room 3)*

A small quantity of plaster from the north-east corner of the room above the strongroom was of interest because the composition of the plaster was slightly different to that found in the other rooms, and suggests a different episode of decoration (no. 14). Although too little survives to indicate the intended design, it was apparently geometric rather than imitation-marble.

#### *Cross-hall*

A small quantity of plaster was found in the south-west corner of the cross-hall, consisting of some white plaster along the wall and not far from the doorway into Room 2 (no. 8). The surface of the painted plaster was very worn, but enough survives to show this was another panel of imitation marble, with bands and patches of shades of pink and orange with a splattering of red, and a green border. This may have been covered by thick white paint at a later stage.

A second group of plaster fragments in the cross-hall came from near the south wall. They represent a re-plastering of an existing plaster surface that had been pecked to receive the new layer (no. 13). The new plaster was painted with red bands or zones and motifs, although it is too fragmentary to reconstruct any design. It is possible that this was the layer added to some of the plaster found in Room 2, which produced the only possible examples of a surface prepared for re-plastering by pecking.

#### *Parallels*

This assemblage provides the best evidence for the use of painted wall plaster within the *principia* of auxiliary forts, and for the elaborate nature of the decoration. Other forts have produced very little painted plaster, and most have produced none at all. The Antonine *principia* at Corbridge produced yellow plaster, while the demolition material filling the strongroom of the *principia* at Bewcastle contained fragments of wall plaster 'bearing panelling of red, blue and brown'.<sup>131</sup> The *principia* at Carrawburgh produced three fragments of plaster from the silt in the strongroom, and further unstratified examples from the southern range (the offices and *aedes*) in white, red and yellow, all too small for any design to be apparent.<sup>132</sup> The rear range of the *principia* at Wallsend produced plaster fragments in white, red, black and grey, although only minute fragments have survived (unpublished). Most of a large number of fragments from the *aedes* at Reculver were plain white, but the remainder were from panels outlined in various colours.<sup>133</sup>

The Bainbridge fragments indicate a varied, very colourful set of schemes, including a dado of diamonds set in squares, three large central zone panels of green and white, yellow/orange and brown, orange and pink, and a frieze or ceiling design of green and red circles. The use of designs imitating marble to create pseudo-veneers became hugely fashionable in the very late third century to early fourth century and continued throughout the fourth century.<sup>134</sup>

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<sup>130</sup> *Ibid.*, no. 12B–C.

<sup>131</sup> Richmond *et al.* 1938, 208.

<sup>132</sup> Breeze 1972, 133.

<sup>133</sup> Philp 2005, fig. 66.

<sup>134</sup> Ling 1991, 192.

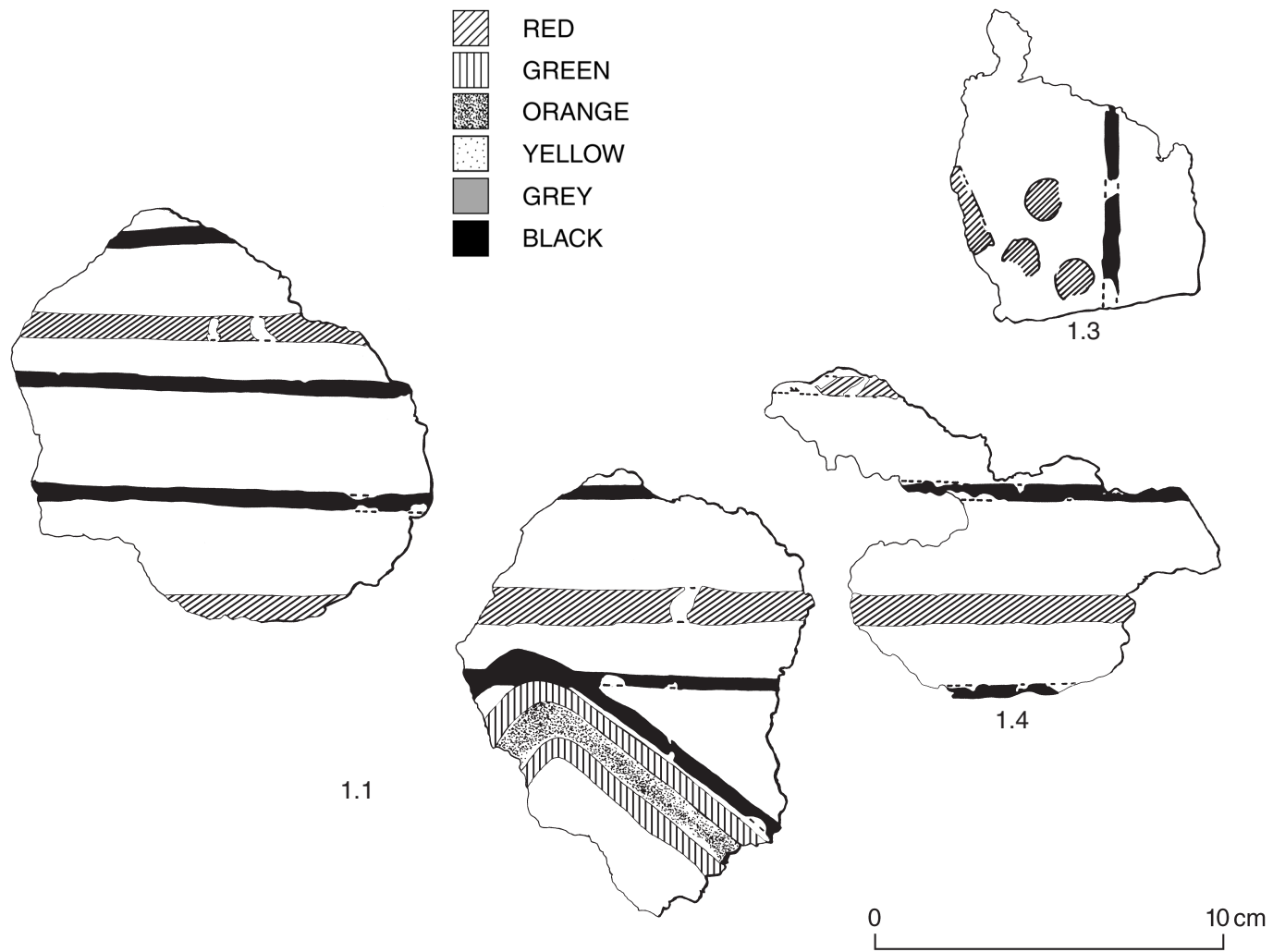


Figure 37: Painted plaster, no. 1. Scale 1:2.



Figure 38: Painted plaster, no. 1.





Figure 38: Painted Plaster no. 2.

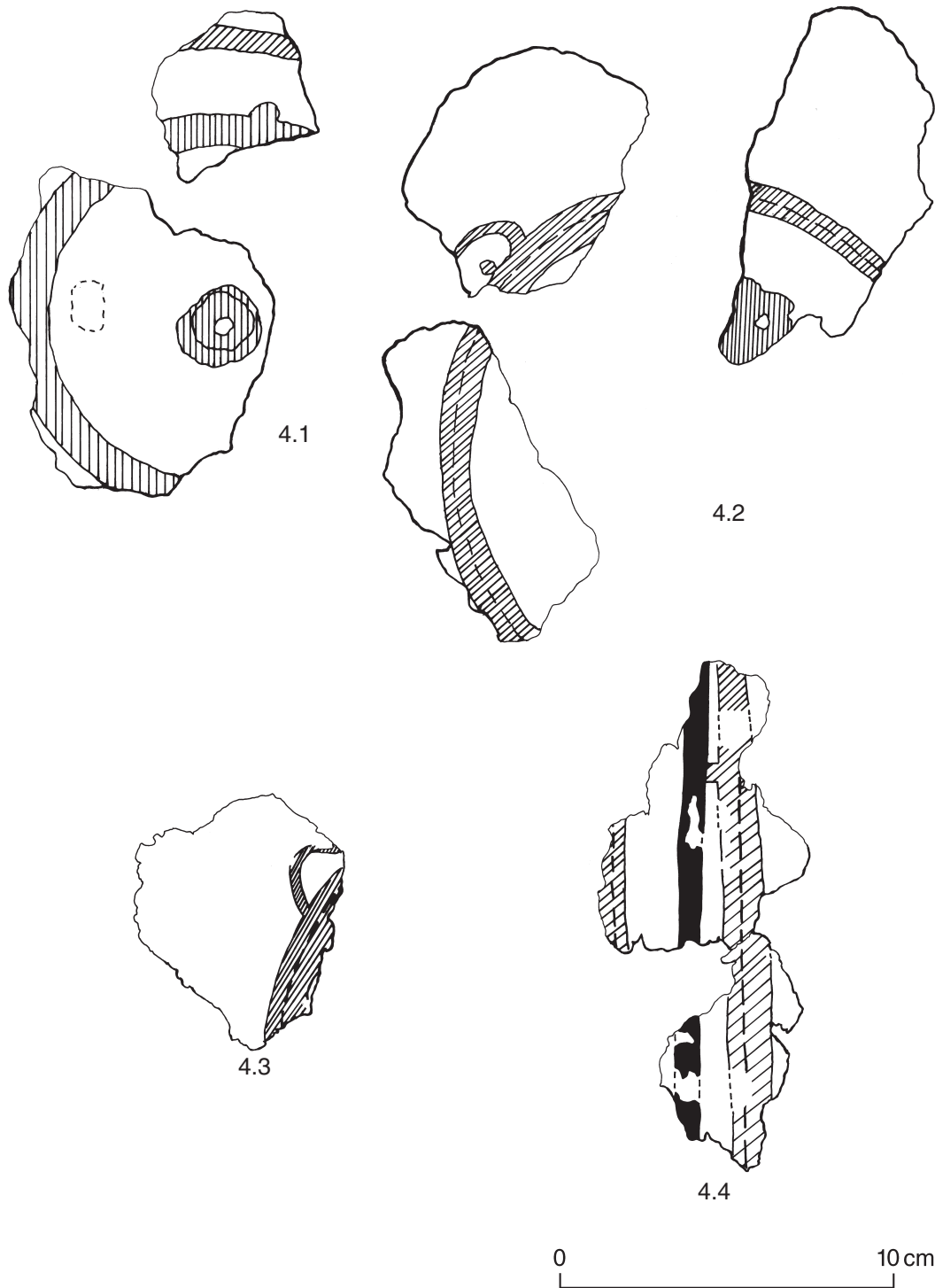


Figure 40: Painted plaster, no. 4. Scale 1:2.

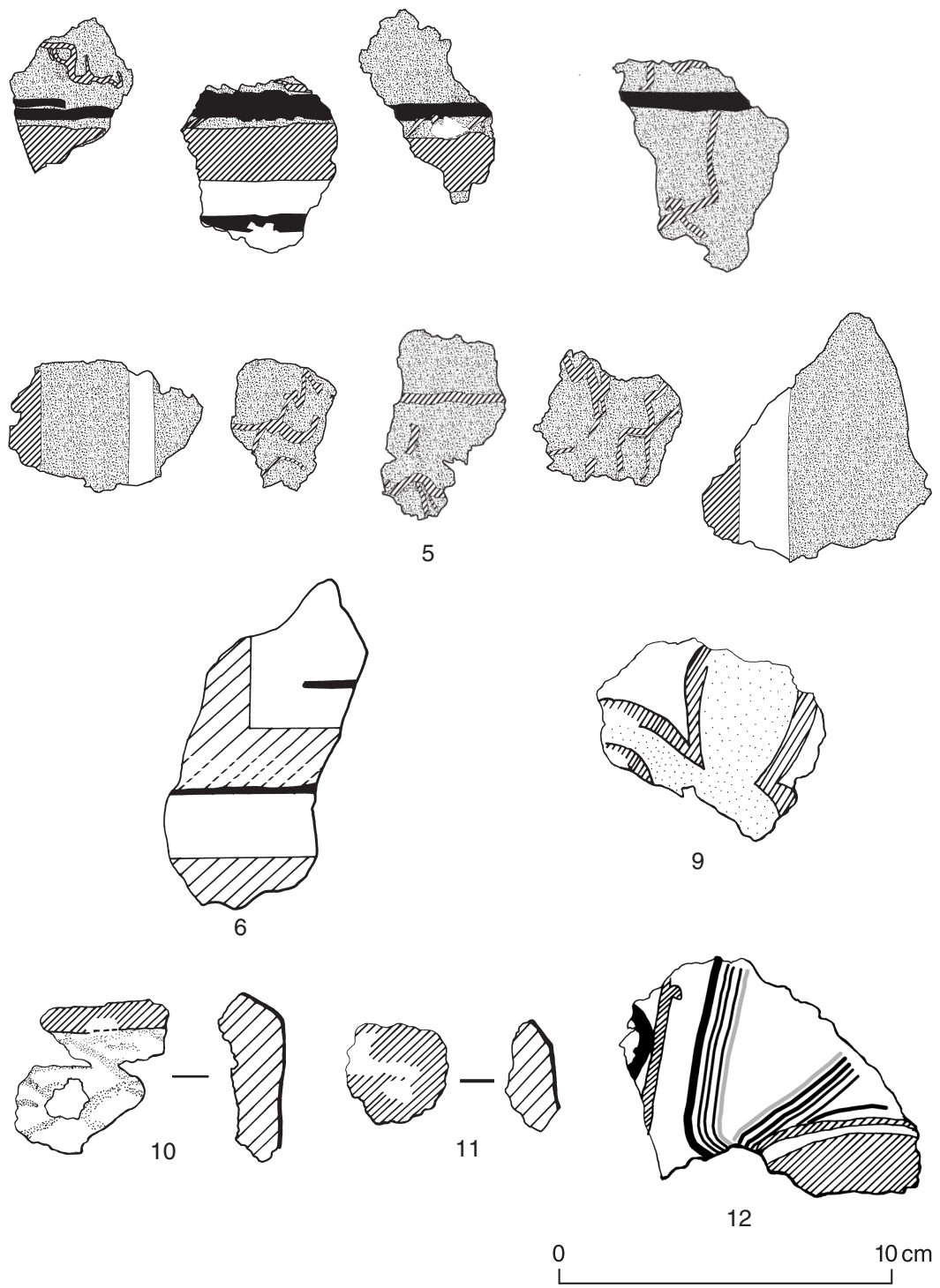


Figure 41: Painted plaster, nos 5-12. Scale 1:2.





Figure 42A: Painted plaster, no. 5.





Figure 42B: Painted plaster, no. 6.





Figure 42C: Painted plaster, no. 7.





Figure 43A: Painted plaster, no. 8.





Figure 43B: Painted plaster, no. 10.





Figure 43C: Painted plaster, no. 13.





Figure 43D: Painted plaster, no. 14.

**SECTION 9: SELECTED SMALL FINDS, EXCLUDING THOSE FROM THE *PRINCIPIA***  
by A.T. Croom, with a contribution by B. Hoffmann

**PERSONAL EQUIPMENT (FIG. 44)**

(Numbering continued from Small Finds catalogue in main text)

32. Silver triangle (L:21 mm; W:17 mm; B:1 mm). North-west area of fort, topsoil, 70 VII, 1, SF 405. A small triangle with the remains of gilding on one surface, pierced by two holes. A similar, but decorated, silver triangle was found in a male grave at Winchester, dated to A.D. 350–70.<sup>135</sup> It was suggested that it might have been a fitting on a belt, as it was found near a belt buckle in the waist region, or on part of the clothing. Two other roughly triangular silver plates, connected by two rivets, were identified as a strap end.<sup>136</sup> However, analysis of the piece suggests it is more likely to be early-Roman in date (see comments by J.Bayley on Fig. 26, nos 17–18).

**JEWELLERY (FIG. 44)**

**Glass hairpins, by B. Hoffmann**

33. Hairpin (D:9 mm; L(ext):12.5 mm). North-west area of fort, topsoil, 69 I, 1, SF 427. Globular head in blue-green, transparent glass. Matt surface. Small bubbles.

34. Hairpin (D:3.4 mm; L(ext):30 mm). North-west area of fort, topsoil, 69 II, 1, SF 426. Fragment of shaft in blue-green glass, transparent. Twisted rod with internal thickening. Matt surface. No bubbles.

Hairpins have been identified because of their frequent association in graves with the skull of the (usually female) deceased. The round-headed variety exists in numerous materials, including bone, metal (both copper-alloy and silver) and jet.<sup>137</sup> They are particularly common from burial sites such as Lankhills grave 100, Colchester Butt Road (4 from the same grave), and Fordington, Dorchester (7 from the same grave).<sup>138</sup> But they can also be found on settlement sites, such as Castleford, Catterick and Frocester Court Villa.<sup>139</sup> Where the date of these finds can be determined, they belong to late-Roman levels, frequently the fourth century as at Lankhills and Butt Lane: the first-century find at Castleford has to be considered intrusive.

**Beads**

35. Jet bead (D:22 mm; B:5 mm; D(hole):1.5 mm). North-west area of fort, latest floor level under post-Roman debris, 72 XVI, 6, SF 471. Large bracelet bead, pierced by two holes. An unusually large example, although an unfinished example of similar size is known from Catterick.<sup>140</sup>

36. Jet bead (L:17 mm; W:13 mm; B:3 mm; D(hole):1 mm). North-west area of fort, brown earth containing Huntcliff-type ware, below post-Roman rubble, 69 I, 4, SF 430. Oval bracelet bead.<sup>141</sup>

The circular bead (no. 35) is the most common type of double-pierced bracelet bead in Britain, while the oval example is a much rarer form. The circular type has been dated from the second century onwards because of an example from Brough-on-Humber, but its context number would suggest it actually came from the topsoil, or at least the very latest Roman layer.<sup>142</sup> Although a few examples probably dating to the late third century have been found, it is clear the great majority date to the fourth century. In total there are 10 pieces of jet or shale jewellery from the site; two bracelet beads (nos 35–6), three necklace beads (no. 31, SF 374, SF 641), five armlets or bracelets (SF 128, 148, 457, 631 and one from the 1928 or 1929 excavations<sup>143</sup>) as well as a possible fragment of a trapezoidal pendant (SF 453). One of the bracelets is made of shale, and may be earlier in date, but the rest are all likely to belong to the very late-Roman period. The seven pieces with surviving context details all come from the very latest Roman layers on the site or from the topsoil. One of the bracelets (SF 128) was unfinished, and there was

<sup>135</sup> Clarke 1979, fig. 71, G81, no. 68; 320.

<sup>136</sup> *Ibid.*, 279; fig. 84, G322, no. G322 (A.D. 370–90).

<sup>137</sup> Clarke 1979, 315; Barber 2000, 216.

<sup>138</sup> Lankhills: Clarke 1979, 315; Colchester: Crummy 1983, 28, no. 461–4; Fordington: Roach Smith 1847.

<sup>139</sup> Castleford: Cool and Price 1998, 195, fig. 67, 307; Catterick: Cool *et al.* 2002, 242, fig. 341, 3–5; Frocester Court Villa: Price 1979, 49–52, fig. 18.

<sup>140</sup> Isaac and Thompson 2002, fig. 313, no. 25, c. A.D. 350 to sixth century.

<sup>141</sup> An example from Colchester comes from a grave dated c. A.D. 320–450: Crummy 1983, fig. 36, no. 1447.

<sup>142</sup> Wachter 1969, fig. 46, no. 12 (the trench/context number is: A V, 1).

<sup>143</sup> Droop 1932, 38 (not illustrated).

also an unworked piece of shale or cannel coal; the trading of raw material for working elsewhere is known from a number of sites, including York and the forts at South Shields and Binchester.<sup>144</sup>

#### ‘NATIVE’ EQUIPMENT (FIG. 44)

37. Pierced bone spoon (L:154 mm; W:22 mm; B:4 mm). B26, barracks. Published.<sup>145</sup> Pierced spoon with a square cross-section shaft with square head. Probably comes from the same workshop as an example from Victoria Cave (Fig. 1).<sup>146</sup> At least 74 complete or fragmentary examples of pierced spoons have now been found, almost all of which come from northern England. As none is known on the Continent they were not originally brought over with the army and therefore must have a native origin; their distribution within Britain suggests a Brigantian source. Almost two-thirds of all the examples are from the series of occupied caves in the area of Settle, Giggleswick and Wharfedale, which are only about 35 km from the fort.<sup>147</sup> Despite the large numbers known, very few come from securely dated contexts. An example in the *vicus* at Castleford dating to A.D. 71–86 and one from within the fort dating to A.D. 85–100 show that they were being made by the late first century. An end date is more difficult: at least 15 examples are known from Victoria Cave, which produced pottery from the second century up until the very late fourth,<sup>148</sup> and an example, possibly residual, is known from a fourth-century context at South Shields.<sup>149</sup> They were originally identified as brooches; other suggested uses include hair ornaments, toys, woollen thread workers, and ornamental or ritual gifts.

38. Long-toothed bone comb (L:85 mm; W:41 mm; B:7 mm). 74 RIV, 17, SF383.

Incomplete comb, decorated with a lightly incised X, and two bands of one deep groove with a thin groove on either side. There is the remains of a hole 4 mm in diameter in the handle. This type of comb was first made during the Iron Age, but continued to be used in the Roman period. Suggested uses are as a hair comb, for combing wool before spinning or as a weft-beater during weaving.

39. Pierced metatarsal (L:72 mm; W:12 mm; B:9 mm; D(hole):4 mm). Near west end of north granary, layer of roofing slates under post-Roman debris, 72 XVII, 5, SF 458. Incomplete. These are common site finds, although their function is unknown. Suggestions include bobbins for threads and spinning toys.

#### OTHER (FIG. 45)

40. Copper alloy foot-shaped terminal (L:43 mm; W:10 mm; B:14 mm). North-west area of fort, no records, 70 VIII, 4, SF 360. Human leg set on a triangular base with a 9 mm long shank projecting from underneath, with a split, cupped upper terminal; examples in better condition suggest this shows a foot wearing a sock and sandal rather than a boot. A number of these objects are now known. Some have possible lead-solder within the socket and some have iron corrosion. They have been identified as small handles for a knife or razor or as terminals for the legs of candlesticks or other small items of furniture. The shank on the Bainbridge example suggests it was part of a larger object, such as a candlestick or stand of some type. An example from Canterbury also has this shank; the rest do not.<sup>150</sup> Where stratified, examples seem to be fourth-century in date. Parallels: Caerleon (mid-fourth-century context); Housesteads (two examples: modern context, and a context containing pottery dating to after A.D. 360); Piercebridge (two examples: mid-fourth century, and river find); and examples found through metal detecting from West Wratting, Cambridgeshire; Weston Colville, Cambridgeshire; Whitchurch, Hampshire; Mildenhall, Wiltshire.<sup>151</sup>

41. Copper-alloy cruciform fitting (L:39 mm; W:34 mm; B:6 mm). Flavian-Trajanic?, 62 III, 12, SF 209. Fitting decorated with dot-and-ring, with two broken arms. The ends of the other two are deliberately bent down. A similar

<sup>144</sup> Allason-Jones 1996, fig. 11, 50–1; Allason-Jones and Miket 1984, nos 7.155–7.162; Bevan 2010, 395.

<sup>145</sup> Collingwood 1928, fig. 8, e.

<sup>146</sup> Dearne and Thomas 1998, fig. 25, no. 26.

<sup>147</sup> Dearne and Thomas 1998, 97.

<sup>148</sup> Castleford: Greep 1998, fig. 120, nos 134–5. Victoria Cave: Dearne and Thomas 1998, figs 25–7.

<sup>149</sup> Unpublished, South Shields Fort, SF no. B245.

<sup>150</sup> Garrard 1995, fig. 439, no. 439, context c. A.D. 360–70.

<sup>151</sup> Caerleon: Lloyd-Morgan 2000, fig. 89, no. 119 (with references to three other examples); Housesteads: Allason-Jones 2009, fig. 14.7, nos 65–6; Piercebridge: Cool 2008, fig. 11.11, no. 253 (also refers to an unstratified example from Alcester); Walton 2008, fig. 13.7, find from the river, originally with traces of iron (PAS NCL-920745); Portable Antiquities Scheme: West Wratting, Cambridgeshire (CAM-DDFE12); Weston Colville, Cambridgeshire (CAM-413166); Whitchurch, Hampshire (SOMDOR-4F6FB3), with traces of iron; Mildenhall, Wiltshire (WAW-4A9746).

object, with less decoration, comes from the upper disturbed levels at the Jewry Wall Baths, Leicester.<sup>152</sup> The heavy use of dot-and-ring is more suggestive of a late date, but the context is apparently early.

42. Copper-alloy button-and-loop fastener (L:39 mm; W:29 mm; B:9 mm). Annexe, bottom of stokehole in possible baths, third-century, 63 BI, 13, SF245. Published.<sup>153</sup>

Unusual fastener with an asymmetrical head and triangular attachment loop. This could be either part of a soldier's equipment or part of a horse harness, although its size favours the latter.

#### ANGLO-SAXON FIND (FIG. 45)

43. Glass bead (D:12 mm; W:5 mm). 'Found in backfilling 1972[?]', SF 635. Short barrel-shaped bead with a slightly oval hole (D:4 mm). Opaque white glass with translucent green decoration. Part of the marvered trail is a wavy line, but it grows irregular and turns back on itself. The perforated sides have been marvered flat, creating edges, and the wavy line peters out (and has perhaps been removed), as it reaches the edge: Guido's opaque white bead type 3iv, a type probably dating to the sixth and seventh centuries.<sup>154</sup> The use of green decoration on a white ground is not common. Examples with irregular green trails that reach the perforated side are known in Norfolk, where they are seen as a variant of the more common blue on white beads (dated *c.* A.D. 480–580), and a couple were also found at Mucking.<sup>155</sup> In the north, a small white bead with an 'encircling green line' was found at Thirlings, Northumberland (second half of the fifth to the late sixth century).<sup>156</sup> The parallels suggest a probable sixth-century date for the Bainbridge bead.

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<sup>152</sup> Kenyon 1948, fig. 84, no. 8.

<sup>153</sup> Wild 1970, 155, no.147.

<sup>154</sup> Guido 1999, 33.

<sup>155</sup> Brugmann 2004, figs 56, 148; Hirst and Clark 2009, fig. 189q; 785; 787.

<sup>156</sup> O'Brien and Miket 1991, 87, no. 3, not illustrated.



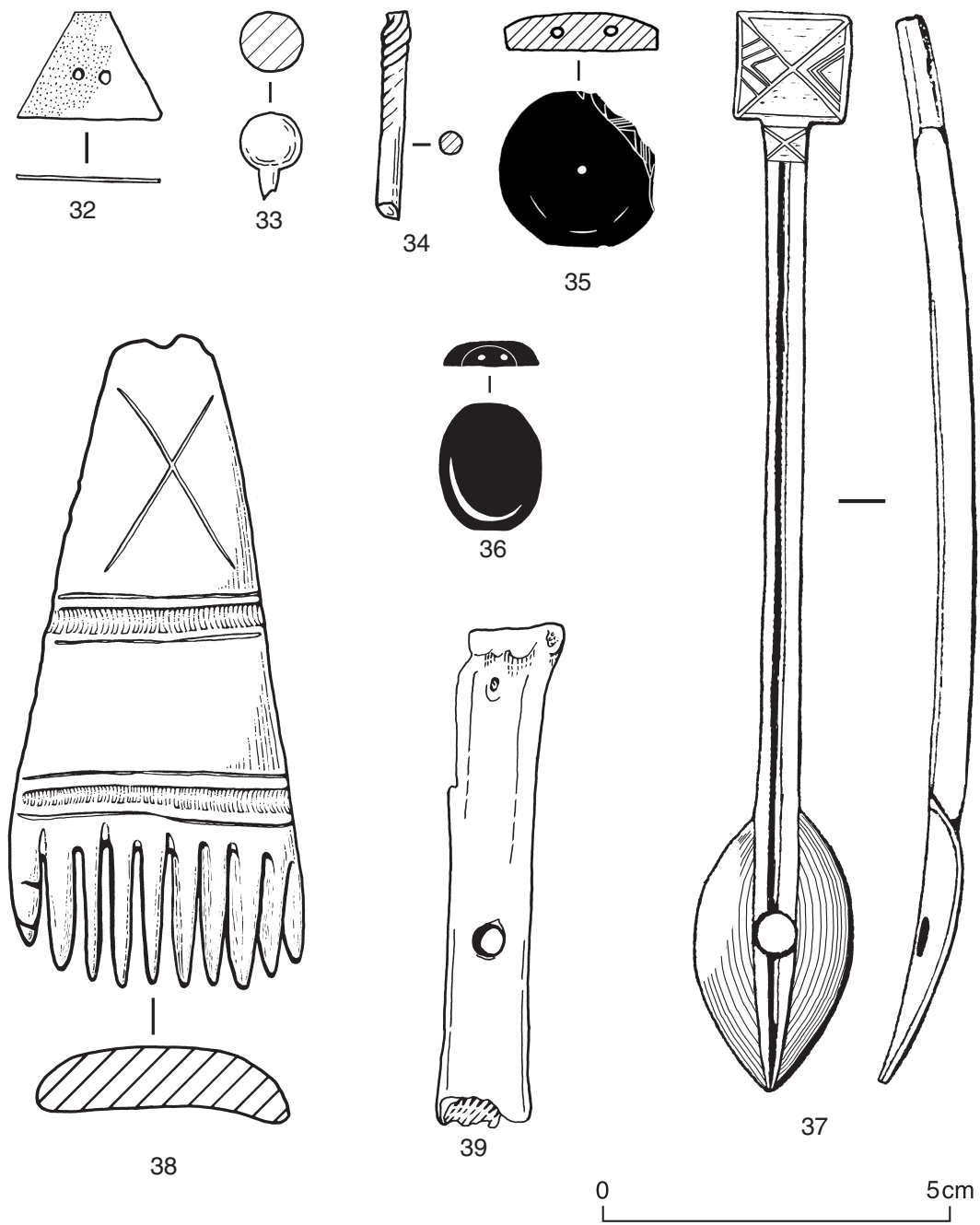


Figure 44: Small finds from areas other than the *principia* (no. 37 after Collingwood 1928). Scale 1:1.

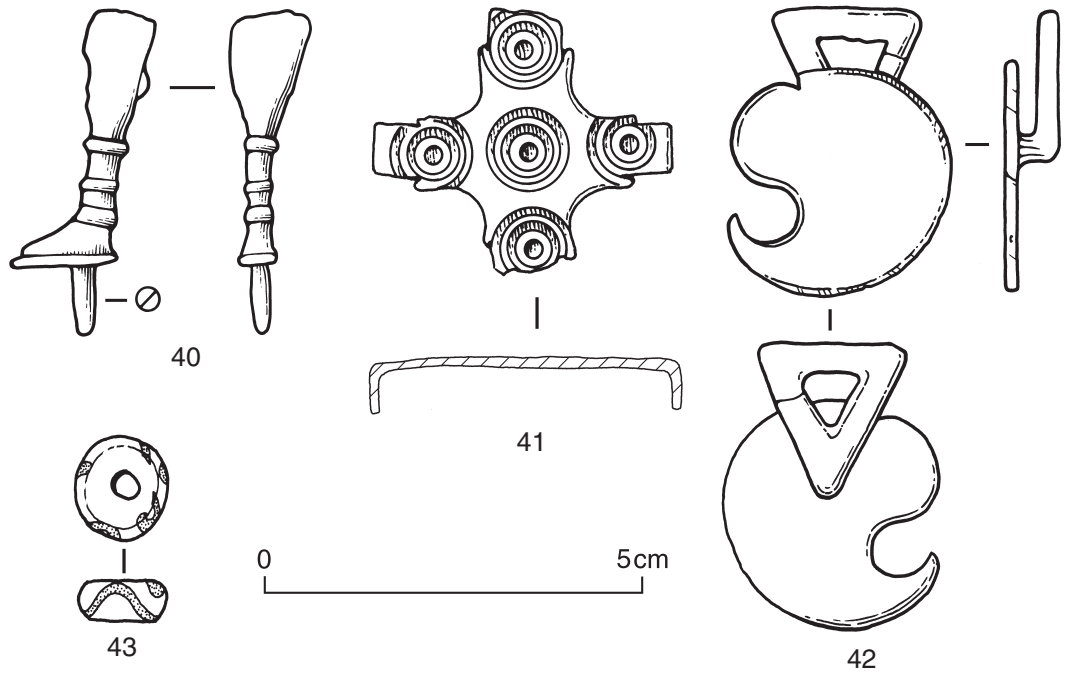


Figure 45: Small finds from areas other than the *principia*. Scale 1:1.

## SECTION 10: METAL WORKING DEBRIS

by C. Gardner

### METHOD

The metal working debris was first analysed visually after it had been cleaned. A number of different materials were identified in the assemblage, the most abundant materials being undiagnostic slag, smithing hearth bottoms, fuel ash slag, vitrified stone and hearth lining; these materials are discussed in detail in the archaeometallurgy guidelines.<sup>157</sup> Once identified the material was weighed and recorded in a spread sheet along with a reference number, context description when provided, context number, year of excavation and the trench where the material came from. Where their identification was unclear, samples were qualitatively analysed using X-Ray Fluorescence (XRF) to determine their composition. This was particularly important for identifying the use of some of the small finds; for example, the heating tray. The heating tray required further examination using scanning electron microscopy with energy dispersive spectrometry (SEM-EDS) to identify elements such as silver and lead, which helped to confirm its function.

### RESULTS

The metal working debris consisted of a wide range of materials; three metal working processes are evident. The majority of the material shows evidence for ferrous metal working, in particular smithing. The second, and less obvious, process is assaying of silver and finally the third process: casting of copper alloys.

#### Smithing

Smithing produces a wide range of different residues; the characteristic residues are smithing hearth bottoms, smithing pan and hammer scale. Other residues associated with smithing, but that are also produced by other processes, are undiagnostic slag, fuel ash slag, vitrified stone and hearth lining.<sup>158</sup> Iron smelting also produced characteristic residues, but none were present at Bainbridge. Hartley's excavations produced just over 20 kg of debris, excluding small finds, and Table 3 is a summary of the amounts of different residues found. The process that can be positively identified from these quantities of residues is smithing. The fuel used was coal, evident from the individual pieces recovered (SF 189, 220, 248) and from the presence of small pieces in some of the smithing hearth bottoms. Tylecote states that coal is further evidence for smithing taking place on a site as it was not a fuel that could be used for smelting.<sup>159</sup> The hearths used during this process were most likely made of clay; evidence for this is the numerous pieces of fired clay attached to the fuel ash slag, undiagnostic slag and smithing hearth bottoms. Some of these pieces show where the air would have entered the hearth through a blowing hole.

It is clear from Table 4 that much of the debris is from contexts that have not been phased. Nevertheless, it is likely that the majority of metal working was taking place in the fourth century as nearly two-thirds of the dated debris is from this period. The debris could be residual from previous phases however; this is unlikely due to the lack of material found from these earlier phases.

A similar assemblage of material, although less in quantity (7.744kg), was found at Bowes Roman fort, Durham,<sup>160</sup> with a peak in activity during the third century. Metal working debris is found at most Roman forts and settlements.<sup>161</sup>

#### Cupellation

Cupellation is the process in which precious metals, e.g. gold and silver, are separated from base metals. In order to refine the metal it would have been melted with an excess of lead under a blast of air which caused the lead to oxidise, forming litharge (PbO). The litharge oxidises other base metals like copper and tin under these conditions and they dissolve in the litharge, which is then raked off or absorbed by the dish or hearth leaving a prill of precious metal.<sup>162</sup> During the Roman period ceramic dishes were used for small-scale cupellation and the reaction between them and the litharge normally caused a glassy surface, often red in colour from the presence of copper, on the inner side of the tray.<sup>163</sup> Assaying, testing the purity of a precious metal, used the same method but on a smaller scale and often potsherds or purpose-made ceramic discs usually called heating trays were used.

<sup>157</sup> Bayley *et al.* 2001.

<sup>158</sup> McDonnell 1991.

<sup>159</sup> Tylecote 1986, 225.

<sup>160</sup> Hall, 2007.

<sup>161</sup> Bayley *et al.* 2001, 3.

<sup>162</sup> Bayley 1992a, 748; Bayley *et al.*, 2001.

<sup>163</sup> Bayley 1985; Bayley *et al.* 2001.

Ceramic dishes used for cupellation and assaying during the Roman period are found in the archaeological record and are often identified by the lead-rich glassy inner surface and by the central depression caused by the prill. At Bainbridge one fragment of a ceramic heating tray has been identified (unfortunately, its context is unknown). The tray is made of a fine clay fabric and has little visible temper.<sup>164</sup> The inner surface has a thick layer of glassy material ranging between dark grey, green and red in colour and has a clear depression where the prill solidified (Fig. 46). The XRF identified high levels of lead and copper in the glassy material and a very small silver peak which confirms that cupellation was taking place. The rim of the tray was affected by the heating, having a cracked surface, which might suggest that the tray was heated from above.<sup>165</sup> From the size of the heating tray (approximately 60 mm in diameter) it is possible to infer that assaying or small-scale cupellation of silver was taking place at Bainbridge.

To confirm the identification of the heating tray SEM-EDS was used. Using the backscattered electron (BSE) detector it was possible to identify metallic droplets of silver and copper in varying proportions, within the lead-rich glass (Fig. 47). In Table 5 the normalised average results of the area analysis of the glassy material and ceramic fabric are shown. These results confirm that the glassy material is a lead-rich silicate with small quantities of copper and smaller quantities of silver. These are the expected results for a heating tray and show that the process represented by the tray was successful as only a small amount of silver was trapped in the glassy material.

Evidence for cupellation is most commonly found on late Saxon and Anglo-Scandinavian sites in England but there are examples found on Roman sites across Britain. This process, but on a larger scale, has been identified at Silchester, Wroxeter and Hengistbury Head by the presence of cupellation hearths and litharge cakes.<sup>166</sup> Evidence for small-scale silver refining has been found at Verulamium, but the closest parallel to the Bainbridge heating tray is one from Piercebridge.<sup>167</sup>

### Casting

Two types of moulds have been found at Bainbridge; numerous fragments of clay piece moulds (Figs 28–9) and one ingot mould (Fig. 30). Two spillages of copper alloy have also been found (SF 2 and 239). The alloys were qualitatively analysed using XRF and both contained small quantities of lead and tin, and in one (SF 2), zinc. The composition of these alloys fits well with that of Roman copper alloys and it is likely that these pieces were waste from metal casting.

*Clay piece moulds:* these were commonly used in Roman Britain, being less labour intensive and providing the technology to produce more castings than investment moulds.<sup>168</sup> The inner parts of the moulds were made using fine clay; this was so that the details of the pattern would transfer when pressed into the clay. These moulds have an outer layer of clay added to them made of a slightly coarser fabric, to hold the two sections of the mould together. During casting the inner surfaces of the moulds would have been exposed to reducing conditions causing a dark appearance, while the outer surface would have been exposed to oxidising conditions, causing the mould to appear reddish (Fig. 48). XRF analysis of a mould fragment showed the presence of a small copper peak indicating that the spurs would have been of a copper alloy. The absence of zinc in the XRF spectra obtained from the moulds suggests that the alloy contained little or no zinc.<sup>169</sup> The analysis of a similar spur from Piercebridge showed it was made of a leaded bronze with low levels of zinc,<sup>170</sup> perhaps similar to the alloy used at Bainbridge. It is rare for clay piece moulds to survive this well in the archaeological record due to their friable nature, and it is more common to find the small fragments like those mentioned above.<sup>171</sup>

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<sup>164</sup> cf. Bayley 1989.

<sup>165</sup> Bayley 1989.

<sup>166</sup> Tylecote 1986, 60.

<sup>167</sup> Bayley 1992b, 50; Bayley 2002.

<sup>168</sup> Bayley 1989.

<sup>169</sup> cf. Dungworth 2000.

<sup>170</sup> Dungworth 1995.

<sup>171</sup> Bayley 1990.

Table 3: Quantities of different materials identified from Bainbridge.

<b>Material</b>	<b>Weight (kg)</b>
Undiagnostic slag	10.19
Smithing hearth bottoms	5.23
Fuel ash slag	1.66
Vitrified stone	0.94
Hearth lining	1.49
Vitrified limestone	0.78
Iron ore	0.06
Smithing pan	0.05
Copper slag	0.04
Lead-tin alloy	0.03
Coal	0.05
<b>Total</b>	<b>20.52</b>

Table 4: Chronological distribution of metalworking debris.

		Period						Total
		Severan	3rd Century	4th Century	Late Roman	Post Roman	Unphased	
Weight (kg)	SHB	-	0.197	0.840	-	-	4.196	5.233
	HL	-	-	0.203	-	-	1.291	1.494
	FAS	-	0.107	0.058	0.012	-	1.481	1.658
	US	0.680	0.405	1.497	0.044	0.056	7.301	9.983
	FS	-	-	-	-	-	0.211	0.211
	VS	-	0.146	0.147	-	-	0.648	0.941
	VLS	-	-	-	-	-	0.781	0.781
	O	-	-	-	-	-	0.062	0.062
	Cu S	-	-	-	-	-	0.044	0.044
	SP	-	-	-	-	-	0.045	0.045
	PbSn	-	-	-	-	-	0.026	0.026
	Coal	-	-	-	-	-	0.050	0.050
	Total	0.68	0.855	2.745	0.056	0.056	16.136	20.528

Table 5: Normalised results of SEM-EDS analysis of heating tray (average of eleven analyses of the lead-rich glass and three analyses of the ceramic).

<b>Material</b>	<b>Glass</b>	<b>Ceramic</b>
Na <sub>2</sub> O	0.15	0.61
MgO	0.40	1.25
Al <sub>2</sub> O <sub>3</sub>	5.35	20.08
SiO <sub>2</sub>	18.99	62.75
P <sub>2</sub> O <sub>5</sub>	<0.12	0.46
SO <sub>3</sub>	<0.15	0.25
Cl	<0.10	0.20
K <sub>2</sub> O	1.03	3.42
CaO	2.05	1.26
TiO <sub>2</sub>	0.33	1.00
MnO	<0.05	<0.05
Fe <sub>2</sub> O <sub>3</sub>	1.79	6.91
CuO	8.15	<0.20
Ag <sub>2</sub> O	0.42	0.08
BaO	0.48	<0.10
PbO	60.52	1.31

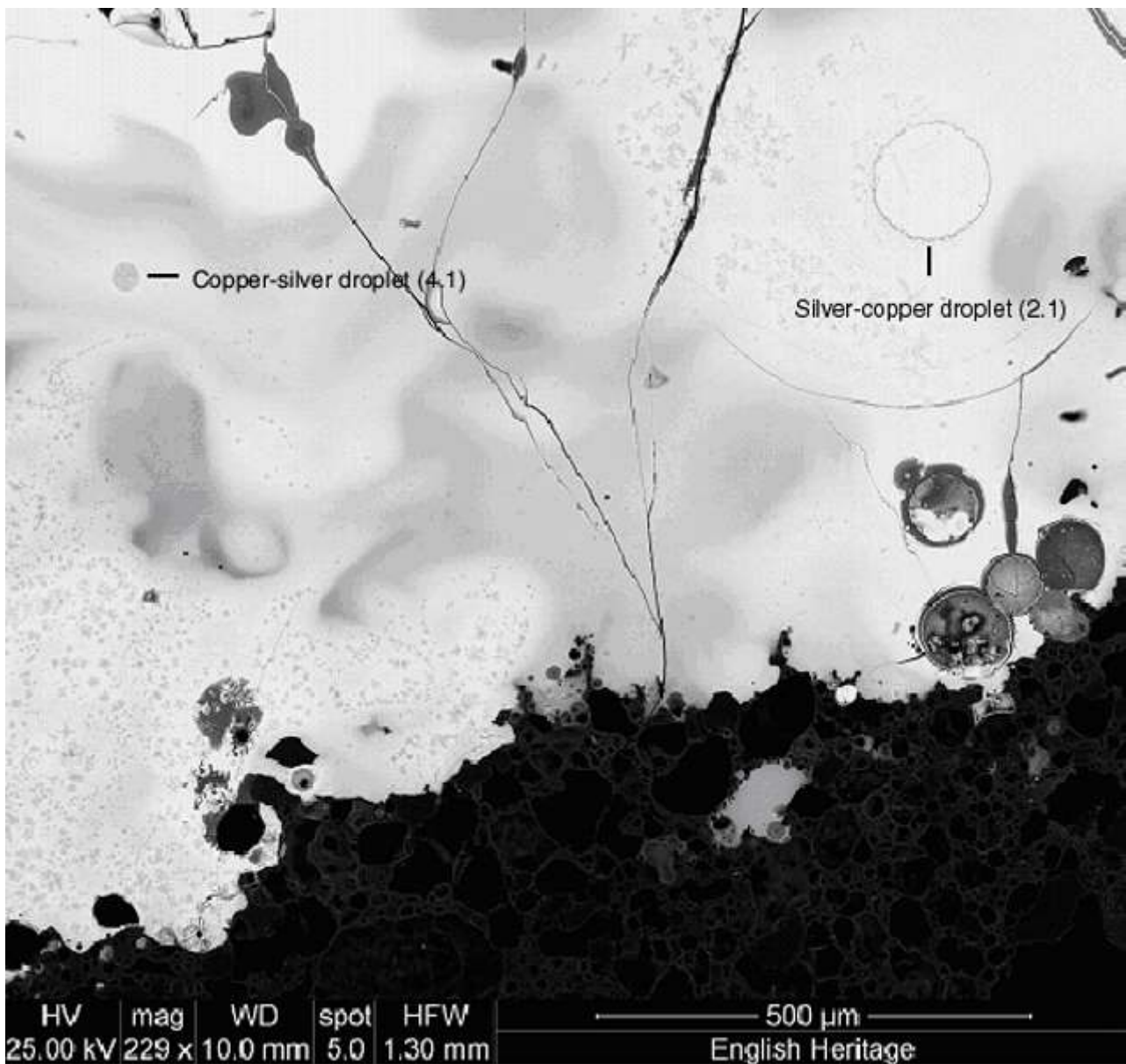
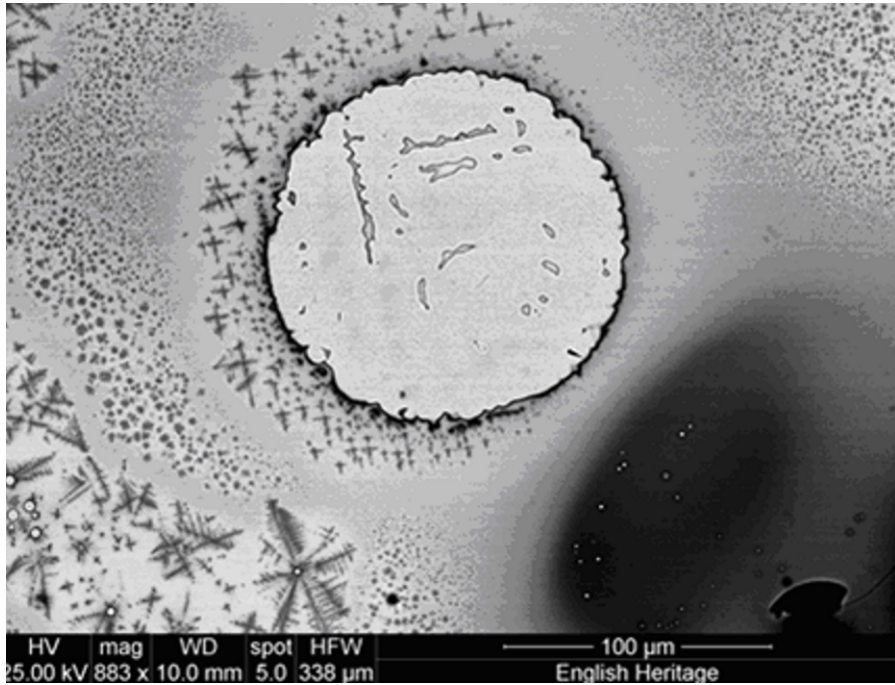
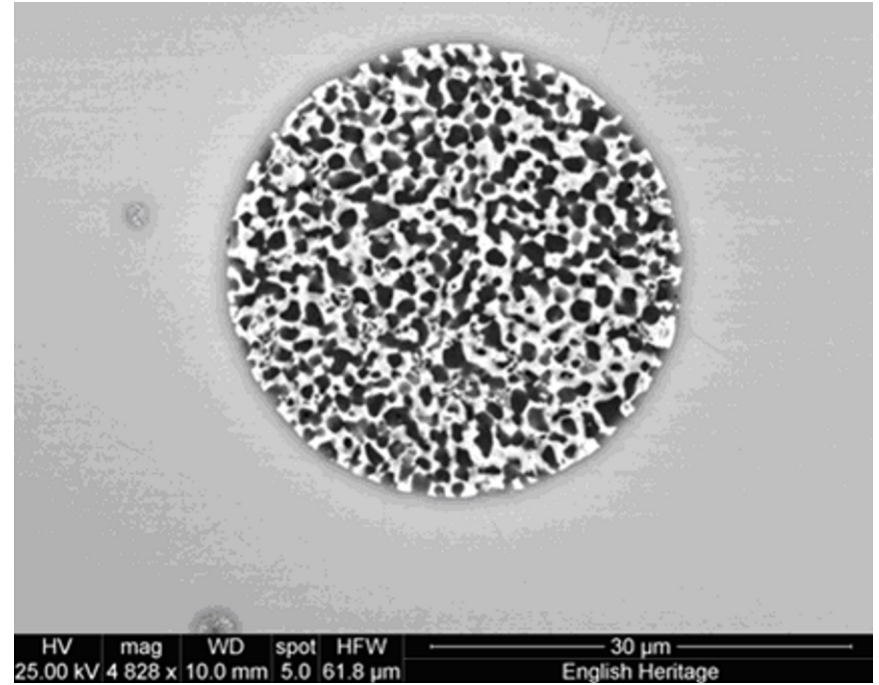


Figure 46: BSE image showing the ceramic tray (dark material at the bottom of the image), lead-rich glassy material (light coloured material in the upper part of the image) containing metallic droplets 4.1 and 2.1 (labelled). The circular features, close to the ceramic on the right-hand side of the image, are bubbles within the lead-rich glass and the lines running from the ceramic through the lead-rich glass are cracks in the glass.





2.1



4.1

Figure 47: Two BSE images of metallic droplets 2.1 (left) and 4.1 (right).



Figure 48: a) Fragment from a clay piece mould showing the coarser, oxidised clay used to hold the two sections of a mould together (cat. no. 3); b) the inner fine clay surface showing part of the impression and the colour after exposure to reducing conditions during casting (cat. no. 4); c) the coarser outer surface of the same fragment showing the colour after exposure to oxidising conditions.

**SECTION 11: THE ANIMAL BONE**<sup>172</sup>  
by C. Middleton

In total 72.5 kg (3,373 fragments) were studied, including material from 11 years of excavation. The largest group came from 1970, followed by 1962, 1967 and 1969. The faunal evidence from Bainbridge suggests that it is a consumer site, the recipient of good quality prime beef, young adult sheep/goat and young adult pigs. There is evidence of butchery but it is probably not a primary butchery site. There is also evidence, though in very small quantities, of some older beef, presumably the traction animals that have been identified in the assemblage through pathology traits, and some young cattle bones, possibly from veal. Overall the stock seems to have been well cared for: there are very few anomalies among either the bones or the teeth.

With regard to proportions of cattle: caprine: pig, Bainbridge is more in line with the forts in the north-west of the province, than those in the east. This may well be because different areas of the country were more, or less, suitable for the keeping of pigs as opposed to being of any cultural significance. Bainbridge only conforms to patterns seen at forts in the north-west with regard to proportions of species. If conformation, age at death and the treatment of bones, i.e. burning, are considered, Bainbridge has far more in common with sites on the east of the country. Moreover, the mean distal breadth of the cattle metacarpals from Bainbridge is 54.75 mm, with a range of around 44–69 mm (N=33). Both the range and the mean are significantly larger than those seen at sites in the west of the country, and much closer to those seen on the east. Perhaps even more fascinatingly, when wither heights were calculated it would appear that, as well as the larger 'improved' cattle, there is a significantly smaller animal: possibly a miniature. Such significantly smaller beasts do not appear to be present at any of the other forts with which Bainbridge was compared. The bones suggest that all the cattle were well managed and cared for and that some of them appear to have been of a larger or improved type. Unfortunately the lack of stratigraphic information means that it is not yet possible to date the different types, and determine their chronology. It is possible that the significantly smaller beast is the miniature progeny of standard sized cattle or a mutant, similar to the Ancon mutation seen in sheep.<sup>173</sup> As the height of animals present at Bainbridge is so great, a range of 0.753–1.275 m, it is possible that several distinctive types of animal are present. It is also possible that some of these animals may have been the result of a breeding programme designed to produce animals specifically for the military market.

The lack of woodland species found at Bainbridge suggests that the surrounding area had been deforested.

One remarkable find is an exceptionally large horn core, made up of four separate but refitting pieces and with a curvature that puts its overall size well outside that of domesticated cattle. Comparison with similar material from Preston Docks in Lancashire would suggest that it comes from the genus *Bos primigenius*: it is of very similar size to the larger horn cores from this excavation (measurements provided by A. Turner). At first sight this was a particularly interesting find as the large wild *Bos primigenius* is not known in Britain later than the Bronze Age,<sup>174</sup> although it was not until as late as the seventeenth century that the last known aurochs were killed in Poland. Radio Carbon 14 dating has shown that the horn core is Bronze Age in date (OxA-16204 3972± 31 BP, or 2580–2340 BC  $\delta^{13}$  -22.47). As Bronze Age aurochs were fairly common, it seems likely the horn core had been found and collected as a curiosity. Its presence in the *principia* (in the cross-hall or forecourt) might suggest it was there as decoration, as either a trophy or a curiosity.

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<sup>172</sup> Editor's note: this study was undertaken before, and independently of, the main Bainbridge post-excavation project, when no context information was available. More animal bone from the Hartley excavations came to light subsequently. It has not been possible to revise the report to take account of this additional material and the dating of the contexts. Nevertheless, some of the conclusions of the study are published here to provide an introduction to a major aspect of food supply at Bainbridge. The complete report, C. Middleton, *Supplying and Preparing Food to the Military. What Was Happening at Bainbridge Fort?*, unpublished dissertation, Liverpool University, 2007, is available for consultation.

<sup>173</sup> Gidney forthcoming.

<sup>174</sup> Noddle 1993.

## SECTION 12: HUMAN REMAINS<sup>175</sup>

by A. Caffell

### INTRODUCTION

The remains of two partial skeletons and two disarticulated fragments of cranial vault were discovered on the site of the *principia*. Both were extended and supine; Burial 1 (SF 614) was oriented west–east (head to west), and Burial 2 (SF 615) was oriented south–west–north–east, head to south–west (Table 6). No finds or grave goods associated with the skeletons were recorded in the excavation records. Fragments of animal bone (unidentified) were found with both skeletons, nine fragments with Burial 2 and eleven with Burial 1.

### OSTEOLOGICAL ANALYSIS

Osteological analysis concerns the determination of the age-at-death, sex, and stature of each individual, as well as recording the presence of minor skeletal variations and calculating various indices to describe the shape of certain bones, such as the cranium. A summary of the results is presented in Table 7.

### PRESERVATION

Preservation of human skeletal remains is assessed subjectively, depending upon the severity of bone surface erosion and post-mortem breaks, but disregarding completeness. Surface preservation was assessed using the seven-category grading system defined by McKinley, ranging from 0 (excellent) to 5+ (extremely poor).<sup>176</sup> Excellent preservation implied no bone surface erosion and a clear surface morphology, whereas extremely poor preservation indicated heavy and penetrating erosion of the bone surface resulting in complete loss of surface morphology and modification of the bone profile. The bone condition of both skeletons was reasonably good. The bone cortex was fairly solid and much of the detail was preserved, despite some surface erosion in the form of small chips and minimal flaking of the surface. However, the teeth were less well preserved, with the roots flaking and disintegrating.

Unfortunately, the bones from both skeletons were severely fragmented, and neither individual was particularly complete. Burial 2 was the more complete of the two, and was represented by parts of the skull, shoulders, both arms and a few hand bones, fragmented vertebrae and ribs, and a small part of the right side of the pelvis. The rest of the pelvis, legs and lower part of the left arm lay beyond the limits of the excavation. The fragmentation of the skeleton may be largely due to the rocks present in the grave, visible in the *in situ* photograph and described in the site records. Burial 1 was less complete, consisting of a partial skull, right shoulder and upper arm, and a few right ribs. Presumably the left arm and part of the right forearm, which are visible in the *in situ* photograph, had fragmented during excavation or post-excavation processing to the extent that the remains of these bones were no longer recognisable. The two fragments of disarticulated cranial vault (SF 613) were well preserved, although they represented just a small amount of the cranium.

The minimum number of individuals was two, based on the presence of two right mandibular condyles.

### ASSESSMENT OF AGE

Age was determined using standard ageing techniques.<sup>177</sup> Both skeletons were adults. Burial 2 was probably a mature adult (46+ years), based on the severity of the dental wear observed,<sup>178</sup> and the considerable degeneration of the auricular surface of the pelvis.<sup>179</sup> Burial 1 was possibly an old middle-adult (36–45 years), but age estimation in this case could only be based on dental attrition. One of the main limitations with this method is the relationship between the coarseness of the diet consumed and the amount of wear observed on the teeth, so variation in diet between individuals and populations introduces an unknown degree of error.<sup>180</sup> The two fragments of disarticulated cranial vault (SF 613) were probably from an adult, or possibly an adolescent.

<sup>175</sup> This is an abbreviated version of a longer report, copies of which are available from the author or TWM Archaeology, as the commissioning body.

<sup>176</sup> McKinley 2004.

<sup>177</sup> As specified in Scheuer and Black 2000a, 2000b; Cox 2000.

<sup>178</sup> Brothwell 1981; Miles 1962.

<sup>179</sup> Lovejoy *et al.* 1985.

<sup>180</sup> Walker *et al.* 1991.

## SEX DETERMINATION

Sex determination was carried out using standard osteological techniques.<sup>181</sup> It relies on examining variation in the shape of the pelvis and skull (cranium and mandible), supported by measurements taken of certain bones. The pelvis is the most reliable indicator of biological sex, since its shape is directly linked to the physiological requirements of childbirth.<sup>182</sup> Assessment of sex can only be carried out on adult remains, once sexual characteristics have developed during adolescence, and the success of sex estimation is heavily influenced by the preservation of the skeletal material.

Burial 2 was possibly female. Little of the pelvis survived, but what was present showed female traits (wide sciatic notch, and preauricular sulcus). The skull was missing parts useful in sex estimation, but many of those areas that were present tended to be female in appearance: the nuchal crest (a ridge at the back of the skull) was small, and the posterior part of the mandible (lower jaw) appeared female in shape. However, the temporal bone appeared more indeterminate, with moderate sized mastoid processes and a moderate supramastoid ridge. Only one measurement could be taken (of the right radius head), and this fell into the female range.

Unfortunately, none of the pelvis of Burial 1 survived, and the skull was incomplete and fragmented. The posterior mandible was of indeterminate shape, as was the mastoid process of the temporal bone. The supra-orbital (brow) ridge was pronounced, which tends to be a male trait. However, females can develop pronounced supra-orbital ridges with age.<sup>183</sup> Only one measurement could be taken (of the humeral head), and this fell into the 'indeterminate' range. Not enough survived of this skeleton for sex to be estimated. Likewise, it was not possible to estimate sex for the disarticulated vault fragments (SF 613).

## METRIC ANALYSIS

None of the surviving long bones were complete in either skeleton, which meant that stature could not be estimated. The crania were incomplete and severely fragmented, so none of the cranial indices could be calculated.

## NON-METRIC TRAITS

A total of thirty cranial (skull) and thirty post-cranial (bones of the rest of the body) non-metric traits were recorded. Burial 2 (mature adult female) had a parietal foramen on the right side (a small hole near the top of the head), an open right foramen spinosum (a variation in the shape of the base of the cranium), and a mandibular torus on the left side (nodules of bone close to the base of the teeth on the lower jaw). In the postcranial skeleton, this individual had a supracondyloid process on the right side (a small outgrowth of bone close to the elbow) and a septal aperture on the left side (a hole close to the elbow). No non-metric traits were present in Burial 1.

## SUMMARY

The two skeletons were incomplete and the bones were severely fragmented, although the condition of the bone cortex itself was relatively good. The remains consisted of a mature adult female, and an unsexed adult who was possibly around 35–45 years old at the time of death; the two fragments of disarticulated cranial vault were probably from an adult or adolescent of unknown sex. The bones were too fragmented and incomplete for stature or cranial indices to be calculated. A few cranial and post-cranial non-metric traits were observed in the female skeleton, but the incomplete nature of the skeletons and fragmentation of the bones prevented observation of most traits.

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<sup>181</sup> As described by Cox 2000.

<sup>182</sup> Schwartz 1995.

<sup>183</sup> Walker 1995.

Table 6: Summary of archaeological information of complete skeletons.

SF No	Year	Trench / context	Position	Hand Position	Orientation
613	1966	HIII/ 3	Disarticulated		
614 (B1)	1966	HIII/ 2a	Extended, supine	Arms extended by sides	West-east
615 (B2)	1968	HXI/ 3	Extended, supine	Right hand over pelvis(?), left arm extended by side	South-west-north-east

Table 7: Summary of osteological and palaeopathological results.<sup>1</sup>

Skeleton No	Preservation			Age	Sex	Stature (cm)	Pathology
	SP	F	C				
614 (Burial 1)	Good (Grade 2)	Severe	10-20%	35-45 years ?	?	-	Ossified rib cartilage  AMTL, caries, calculus, small enamel chip
615 (Burial 2)	Good (Grade 2)	Severe	20-30%	45+ years	Female	-	Degenerative joint disease & osteoarthritis of spine  Lytic lesion in left lunate  AMTL, caries, calculus

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<sup>1</sup> Key: SP = surface preservation, grades according to McKinley 2004; F = fragmentation; C = completeness.

**SECTION 13: THE STRONTIUM AND OXYGEN ISOTOPE COMPOSITION OF TOOTH ENAMEL FROM BURIALS 1 AND 2: SUMMARY OF RESULTS<sup>184</sup>**

by J.A. Evans and A.L. Lamb

The teeth from the two individuals are very different in composition (Table 8). Burial 1 has a radiogenic Sr isotope composition of 0.71255 which is a value that, in Britain, is associated with areas of Palaeozoic or older rocks. The oxygen isotope composition of 18.55‰ is relatively  $\delta^{18}\text{O}$  enriched and gives a drinking water value of -4.90. This value should be considered as maximum as the enamel was taken from a first molar; these teeth can retain the effect of breastfeeding. A drinking water value of -4.90 would be restricted to the extreme western coastal area of Britain or the Continent.<sup>185</sup> The combination of the “warm” oxygen isotope signature and the radiogenic strontium means that this individual did not spend their childhood in the area of Bainbridge and the restricted areas of Britain that can supply both the Sr and oxygen signature suggest that this individual could be non-UK origin. The strontium isotope composition of the dentine from Burial 1 shows that it was either completely equilibrated with soil formed over local Millstone Grit, or was partially re-equilibrated with Carboniferous limestone derived soil; both rocks types occur in this part of Yorkshire.

In contrast the sample from Burial 2 has a strontium isotope value consistent with nearby Carboniferous Limestone areas<sup>186</sup> and the  $\delta^{18}\text{O}$  value of 17.88‰ (drinking water -6.34) which, although slightly “warm” for the Bainbridge part of the UK (-7 to -8), is broadly consistent with west of central England.

We thus suggest that the sample from Burial 2 is consistent with a local origin but that of Burial 1 is not of local (Bainbridge area) origin and there are very limited options for deriving the combination of isotope signatures, that this individuals displays, in the UK. It is possible that this individual came from a warmer, possibly Mediterranean climate, in an area founded on granite or >350Ma old rocks. One of the most similar results came from a Roman burial at Gloucester, so parts of Wales or south-west England could also be possible.<sup>187</sup>

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<sup>184</sup> The full report is available for consultation on application to TWM Archaeology.

<sup>185</sup> Darling *et al.* 2003.

<sup>186</sup> Montgomery *et al.* 2006.

<sup>187</sup> Müldner *et al.* 2011.



Table 8: The strontium concentrations and isotope composition and oxygen isotope composition and  $\pm 1\sigma$  error for tooth enamel samples from Bainbridge individuals.

Sample	description	Sr ppm	$^{87}\text{Sr}/^{86}\text{Sr}_n$	$\delta^{18}\text{O}$	$\pm 1\sigma$	n	$\delta^{18}\text{O}_{\text{DW}}$	$\pm 1\sigma$
SF 614	M1 enamel	124	0.71255	18.55	0.10	3	-4.90	0.21
SF 615	M2 enamel	83	0.70994	17.88	0.04	2	-6.34	0.1
SF 614	M1 dentine	163	0.71128	18				

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