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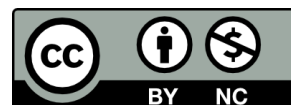
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Excavations outside the Roman fort on the Antonine Wall at Croy Hill, 1975–8

William S Hanson¹

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ABSTRACT

Large-scale rescue excavation beyond the guardianship area around the Roman fort on the Antonine Wall at Croy Hill was undertaken over four summers (1975–8), funded by a predecessor to Historic Environment Scotland. The aims of the excavation were to identify any potential civil settlement associated with the fort and to confirm the character and date of a pre-fort enclosure identified by Sir George Macdonald in the 1930s.

The latter proved to be a camp associated with the building of the Antonine Wall, not an earlier Flavian fort as previously postulated. A civil settlement was shown to lie within the guardianship area on a plateau immediately to the west of the fort, though only one timber structure extended into the excavated area. However, a curvilinear trackway wound its way down the hill from the settlement towards a southern road that bypassed the fort. The trackway was defined by substantial ditches that contained a large quantity and wide variety of artefactual material washed down from the settlement, predominantly after its abandonment. The bypass road, which showed signs of at least two phases of construction, was traced for a distance of some 275m. The area on either side of it to the east of the fort was divided up by a system of fence lines and ditches into fields or compounds, one of which contained a pottery kiln, another a cremation burial.

Field observation during the excavation led to the suggestion that a fortlet lay some 80m west of the fort. This was confirmed by limited excavation within the guardianship area. The construction of the fortlet was shown to have been contemporary with the Antonine Wall.

1. INTRODUCTION

1.1 Location

Situated on a whinstone (quartz-dolerite) ridge overlooking the Kelvin valley to the north at a height of *c* 126m above sea level, the Roman fort at Croy Hill occupies one of the highest points on the line of the Antonine Wall (Illus 1.1). During the course of the excavations the hillside was contour-surveyed at 1m intervals to provide topographical background for the mapping and interpretation of the site as a whole (Illus 1.2).¹ The fort is located at the eastern end of a small plateau on the east side of the summit of the hill (Illus 1.3 and 1.4). The natural attractiveness of this sheltered location is confirmed by the fact that the fort site is directly overlain by the ruins of a small farmstead, whose existence goes back at least to the early 18th century, as it is referred to by Gordon (1726: 56) and recorded on Roy's *Military Survey of Scotland 1747–1755*. An early medieval radiocarbon date from a fragment of bone in the fill of a pit suggests that post-Roman cultivation of the hillside goes back even further (see Section 7). This longevity of superimposed occupation and associated cultivation may account for the poor preservation of the fort, as no remains are now visible on the ground. Indeed, during the course of the excavations around it, the evidence of ploughing was readily apparent in the form of scarring on boulders and plough marks in the subsoil, which had resulted in the frequent truncation of archaeological remains. Thus, the fragile remains of the turf rampart of the Wall itself in the immediate vicinity of the fort have been lost to cultivation over the centuries. However, the line of the frontier is clearly demarcated by the well-preserved ditch and upcast mound to the north, the latter surviving well because it was formed primarily of hard quartz-dolerite won from digging the former.

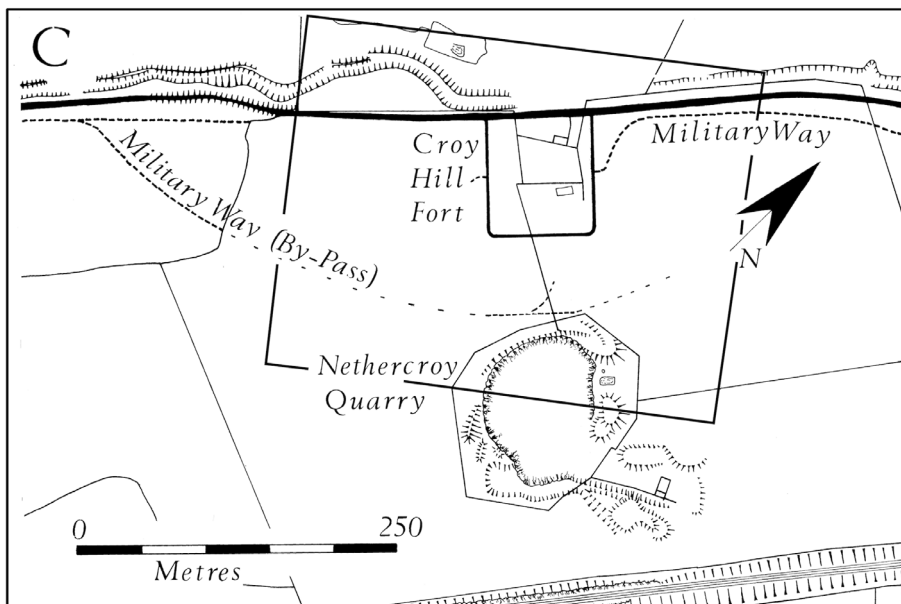
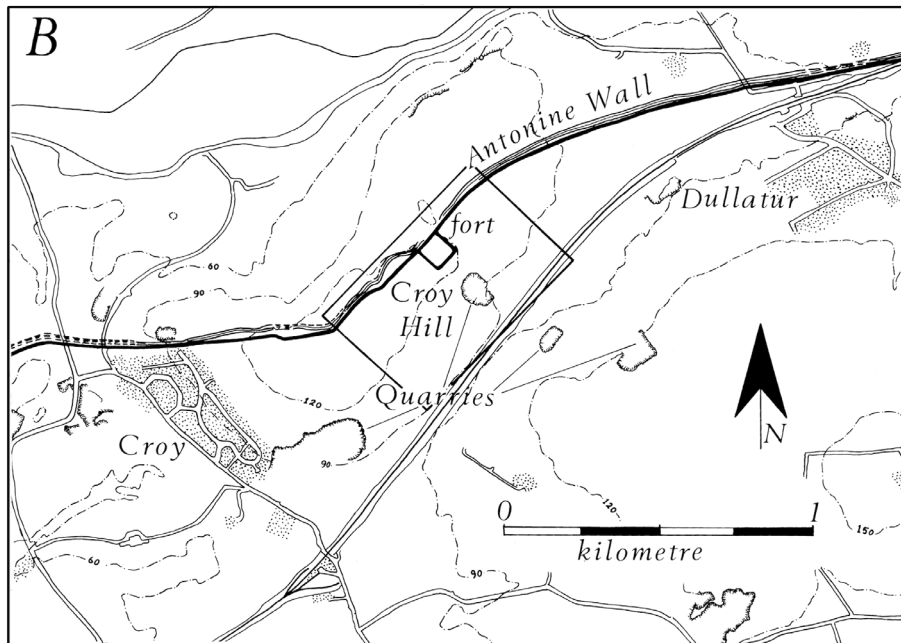
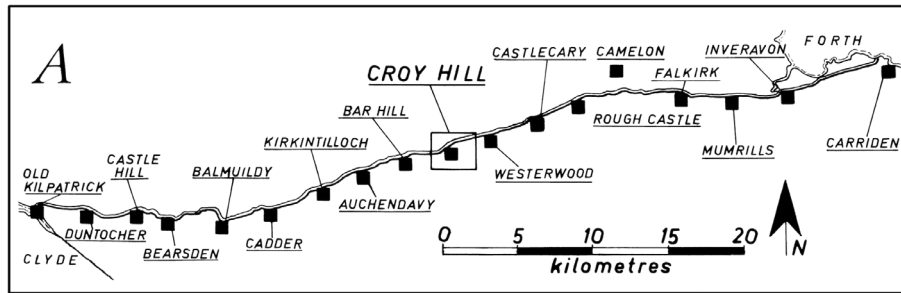
1.2 Previous archaeological records

Brief reference to the existence of a Roman fort on Croy Hill appears in various antiquarian accounts from the later 17th and early 18th centuries. Thus, Irvine notes a fort there, the relevant papers recorded by Sibbald (1707: 28, quoted in Keppie 2012: 43), as do both Stukeley, who places it on his map of the

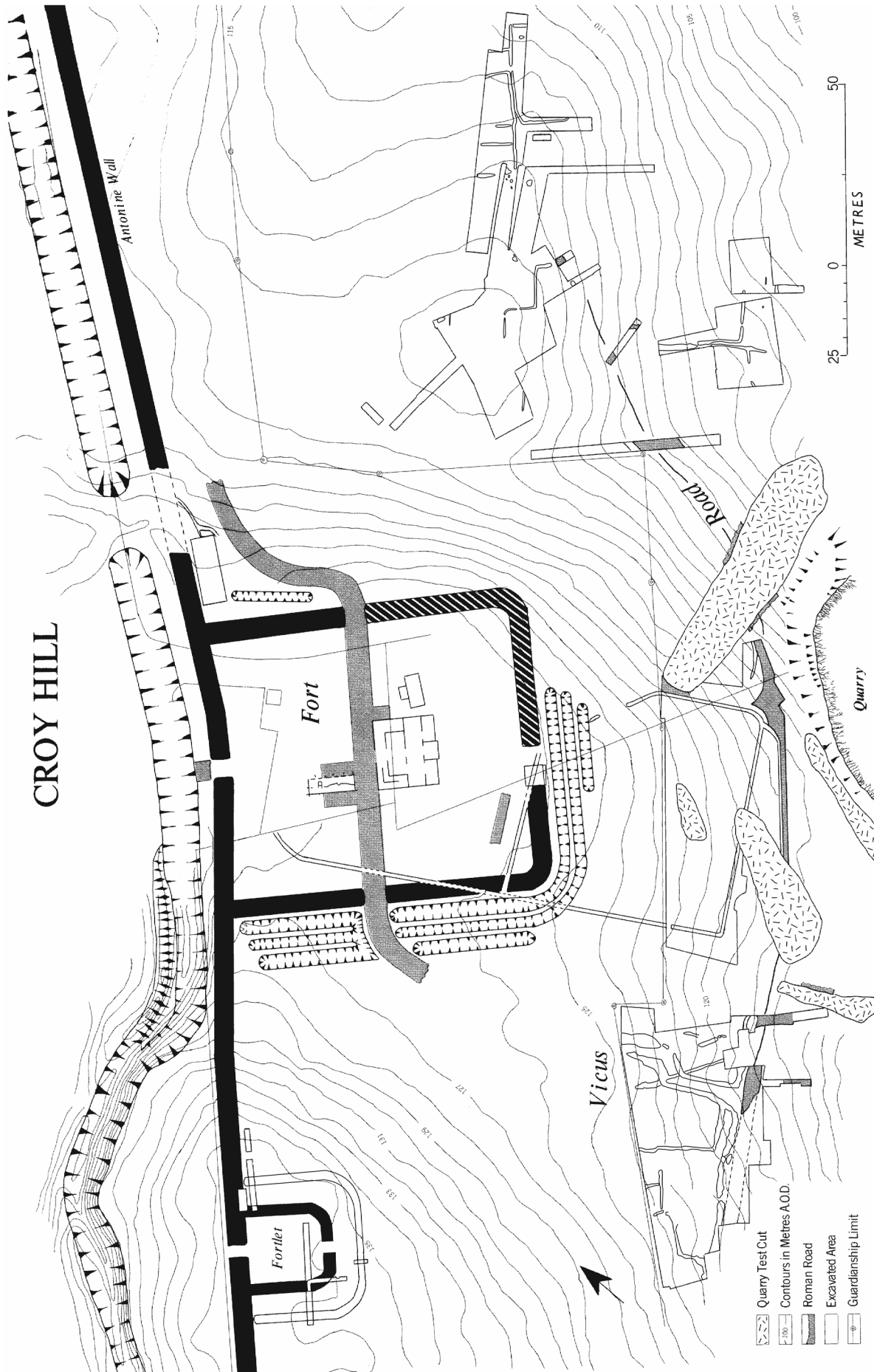
Wall (1720: 6 and frontispiece), and Gordon, who records finding a small Roman building inscription in the wall of a cottage on the site (1726: 56). However, he goes on to comment that the remains were already too denuded to plan, while Roy notes that they were totally levelled by the time of his detailed survey 32 years later (1793: 160).

These antiquarian references to a fort on Croy Hill were supported by records of a number of Roman stones recovered from the immediate vicinity. The most well-known is a sculptured relief illustrating three legionaries, almost certainly a tombstone, which had its inscription removed when it was taken from farm buildings on Croy Hill and built into the wall of nearby Nether Croy House at the beginning of the 19th century (*CSIR*: 90). Other inscribed stones from the area include three small building records of the sixth legion (*RIB I*: 2161–3), an altar dedicated to the nymphs by a detachment of the same legion (*RIB I*: 2160) and one dedicated to Mars (*RIB I*: 2159). The latter was found during quarrying in 1913 some 217m south of the Antonine Wall, along with a nearby plinth (Keppie 1998: 98), one of the few occasions for which the original location of discovery is recorded. In addition, many building stones tooled with broaching of typically Roman character were noted in the field walls and ruined parts of the farmstead by the Glasgow Archaeological Society's Antonine Wall Committee when cutting sections across the Wall and ditch on Croy Hill, and later by Sir George Macdonald (*GAS* 1899: 60–2; Macdonald 1925: 290; 1937: 32). By this time the farmstead was already abandoned, though a shepherd's cottage continued to occupy the site until it was demolished in 1935.

It was not until Macdonald's exploratory trenches in 1920 that the existence and location of the Roman fort was confirmed archaeologically (1925: 288–90). Between 1920 and 1935 he established sufficient of its outline to define its internal area, only 1.5 acres (0.6ha), and confirmed its secondary relationship with the Wall, demonstrating that the southern kerb of the Wall base continued unbroken past the butt ends of the fort wall (1925: 288–90; 1932: 243–68; 1937). These excavations also revealed the *via principalis* and two of the central range of stone buildings, the headquarters building and a granary. An unusual stone well or cistern



Illus 1.1 Site location



Illus 1.2 General plan of the excavated remains against their topographical background



Illus 1.3 Aerial photograph of the Antonine Wall (running from bottom left to top right) across Croy Hill from the south-west. The fort is situated between the trees (top right) and the fortlet on the higher point towards the centre. Nethercroy Quarry is just visible (middle right); Croy Quarry at the bottom. The bifurcation of the Military Way is readily apparent (bottom left)

was identified in the north-east corner of the fort. According to some, its primary relationship with the Wall appears to contradict the secondary character of the adjacent fort rampart (Graafstal et al 2015: 56–8), but Macdonald makes clear that the north-eastern side of the cistern had been demolished and filled with boulders to serve as the basis for the eastern rampart of the fort (1932: 251–61 and pl X). Finally, the site of an adjacent external bathhouse to the east was established, though only very slight details of its character were published.

Beneath and running at a slightly oblique angle to the fort, Macdonald discovered half of the outline of a small (*c* 0.3ha),² broadly rectangular enclosure, demarcated by a single ditch, and all four sides of a similarly sized but slightly irregular extension or annexe to that enclosure running beyond the fort to the south (1932: 262–6). The stratigraphic relationship with the fort and analogy with a similar example beneath the adjacent fort at Bar Hill (Macdonald & Park 1906: 11–15) led him to suggest that the enclosure represented one of

the 1st-century garrison posts (*praesidia*) across the Forth-Clyde isthmus which, according to Tacitus (*Agricola* 23), were built by Agricola during his fourth campaign.

1.3 Context and aims of the excavation

The stimulus for the rescue excavations reported upon here was the proposed development of Croy Quarry, located just over 0.5km to the south-west of the fort, to link up with and expand Nethercroy Quarry (Illus 1.1). The latter had been abandoned since the 1930s, by which time it had extended to within some 75m of the southern rampart of the fort. While both the site of the fort and the line of the Wall on either side of it, from Croy village to the fields surrounding Wester Dullatur Farm, are in the guardianship of the State, all of the area up to the fence line depicted on Illus 1.2, which encroached to within 50m of the rear of the line of the Antonine Wall on the east side of the fort, was subject to quarrying consent and potentially,



Illus 1.4 Aerial photograph of Croy Hill during the 1977 excavations from the north-west. The Antonine Wall runs at an angle from bottom right to mid-left. The fort lies on the flat plateau beneath the ruined farmstead in the centre, with the site of Nethercroy Quarry beyond it. The lower, damper ground to the east of the fort, beyond the unfinished section of ditch, is picked out by the change in vegetation cover. The site of the fortlet is indicated by the hand-dug excavation trench on higher ground towards the bottom right and the trenches over the southern part of the *vicus* are visible beyond it

therefore, under threat. Indeed, testing of the topsoil depth by the quarry company (Amalgamated Quarries, now Aggregate Industries) immediately to the south of the fort, mapped on Illus 1.2, had already destroyed some archaeological remains in the months immediately before the excavations began in August 1975. Over the years following the excavation, however, only the area immediately to the south and south-west of the fort came to be affected by the expansion of the quarry, whose operations were drawn to close in 2018.

Given the location of the threat anticipated in 1975, the focus of attention was on the extra-mural area to the south and east of the fort site, and the primary aims of the excavation were twofold:

1. To confirm the character and date of the pre-fort enclosure identified by Macdonald (above), whose annexe was known to extend into the area south of the fort.
2. To identify and reveal as much as possible about any associated civil settlement (*vicus*) which may have extended into the area under threat.

Accordingly, four seasons of excavation were undertaken between 1975 and 1978, totalling some 20 weeks in the field. This was funded by Historic Environment Scotland, then known as the Property Services Agency, Directorate of Scottish Services within the Department of the Environment.

1.4 Methodology and recording

A total of approximately 7,000m² was opened for investigation, with the topsoil stripped mechanically in order to maximise the area that might be examined. During the course of the primary excavation programme, additional specific research questions led to limited investigations within the guardianship area. In these cases the small trenches involved were dug entirely by hand and the features were excavated only sufficiently to answer the specific research questions posed.

Each excavation area was assigned one or more letter designators according to its size, each

designator signifying the responsibility of an individual site supervisor. Thus, Area L was located in the eastern half of the southern part of the *vicus* to the south-west of the fort and was investigated in 1977 (Illus 1.4) and 1978. Within each of these areas, excavated features were given a three-letter code beginning with the letter corresponding to the assigned area designation. Multiple layers within larger features were identified by the addition of a layer number. Thus, LAB 2 is the second layer recorded in the fill of an excavated segment of a large drainage ditch on the east side of the curvilinear trackway in Area L to the south-west of the fort.

2. PRE-FORT ENCLOSURE

In the first season of excavation in 1975 an area of approximately 2,800m² was stripped by machine immediately outside the guardianship area to uncover the whole of the southern end of the annexe of the pre-fort enclosure (Areas B and C). This was revealed much as Macdonald had indicated (1932: 263); indeed, a number of his narrow trenches were identified, particularly on the east and west sides, indicating how he had chased the outline of the enclosure (Illus 2.1).

The subsoil in the area was boulder clay with occasional areas of protruding dolerite bedrock. This tended to make the recognition of smaller negative features quite difficult. Furthermore, archaeological preservation in the excavated area had been badly affected by centuries of ploughing, evidenced by occasional scouring of larger protruding stones, and was further undermined by three large scars that had been excavated by the quarry company only a few months earlier to check the depth of overburden (Illus 1.2). On the other hand, the process of soil creep on the sloping ground had served to cover and protect remains towards the southern limit of the excavated area, with some additional protection to underlying remains on the east side provided by a partially extant, collapsed dry-stone field dyke.

The excavation cut across the southern part of the rectangular enclosure at a slight angle, exposing its full width of 61m, but extending into the interior for only 15m on its west side, increasing to 28m on its east side. It was defined by a single ditch, without readily identifiable remains of an internal rampart (but see 2.1, below). The south-east corner was rounded in the manner typical of Roman military installations, though that in the south-west corner was rather sharper (Illus 2.1 and 2.2). One side of an entrance was identified on the western side where the ditch came to a butt end (BBP) some 2m from the northern limit of the trench. The other side of the entrance gap lay outside the area available for excavation, so its precise width could not be determined. No post holes or other structural features which might define some form of gate structure were recorded by the entrance gap.

Subsequently, in order to test the relationship between the enclosure and the fort established by Macdonald (1932: 264), permission was sought in

the third season (1977) to open a small trench some 6.00m by 6.00m (Area P) in the guardianship area at the point of intersection between the two.

2.1 Enclosure ditch

Eleven longitudinal segments of the enclosure ditch were excavated at fairly regular intervals around the perimeter (Illus 2.1). The dimensions of the ditch varied considerably because of the differential preservation already alluded to: the smallest at the south-west corner (BBT) (Illus 2.2) only 1.25m wide and 0.65m deep, though the ditch was even shallower (0.55m) towards the butt end by the western entrance (BBP); the largest, 2.3m wide and 1.05m deep, in the section on the east side protected by the field dyke (CCA) (Illus 2.3). The ditch profiles varied similarly, approximating for the most part to a shallow V-shape, but with a more flattened bottom in sections on the east side and around the south-east corner (eg CCA; CAB) (Illus 2.3 and 2.4).

None of the ditch sections showed any sign of recutting, with the possible exception of the northernmost section on the east side (CAB) (Illus 2.4) (see 4.1, below). All the ditch fills examined included a substantial build-up of washed-in silt, whose depth (0.2–0.4m) suggested that the ditch had been open to the elements for some time. There was certainly no indication that it had contained a palisade (*contra* Macdonald 1932: 262–3). The small boulders in the base of the ditch which Macdonald interpreted as post-pads were seen in the longer sections excavated to be no more than occasional tumbled stones. Although there was no direct evidence of an internal rampart, tip lines in some sections included turves (eg BBT; BBF; CCA) (Illus 2.3), which may reflect rampart material being redeposited in the ditch. Burnt layers or small spreads of charcoal were also recorded within the middle fills of some of the excavated ditch segments on the east side of the enclosure, notably CAB, CCA and CCN, though these did not always extend into the drawn sections. These layers may relate to the demolition or removal of internal features, such as hearths and the deliberate infilling of the ditch.

The small hand-dug excavation (Area P) opened in the guardianship area revealed the badly disturbed remains of the rubble base of the fort rampart (PAB/



Illus 2.2 South-west corner of pre-fort enclosure after excavation

PAD) interspersed with orange-brown silty loam and natural bedrock across the whole trench. Running at an oblique angle across the northern half of the trench underlying this rampart base was the broad V-shaped cut of the pre-fort enclosure ditch (PAE), measuring 1.85m wide and 0.7m deep (Illus 2.5 and 2.6). It had silted up to a depth of *c* 0.4m prior to being sealed by the stones and silty loam of the rampart.

2.2 Interior

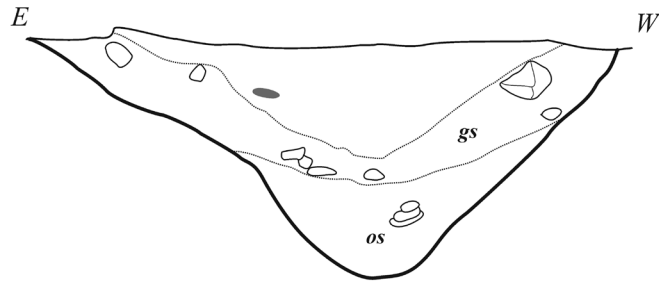
The interior of the enclosure was almost entirely devoid of archaeological features, presumably at least in part the result of intensive ploughing since the 18th century. Only three internal features were identified, clustered together in the south-west corner (Illus 2.1 and 2.2). A roughly circular feature (BBL) (Illus 2.7) some 1.95m in diameter and up to 0.5m deep, with heat-reddened sides and a fill of stones and orange-brown loam containing thick lenses of charcoal, was almost certainly a hearth. Within the

hearth two opposing stake-holes, 60mm in diameter and 1.5m apart, presumably provided bracing supports for cooking over a central fire. A small post hole (BBM), 0.7m in diameter and 0.23m deep, some 0.35m to the west was partly cut through an outcropping boulder and may have been associated. Some 3.5m away, less than 1m from the southern ditch of the enclosure, an oval spread of charcoal and dark soil mixed with a few large stones (BBK) may represent the bottom of another, larger hearth or oven (Illus 2.8). It measured approximately 2.8m by 1.05m and was not more than 0.10m in depth.

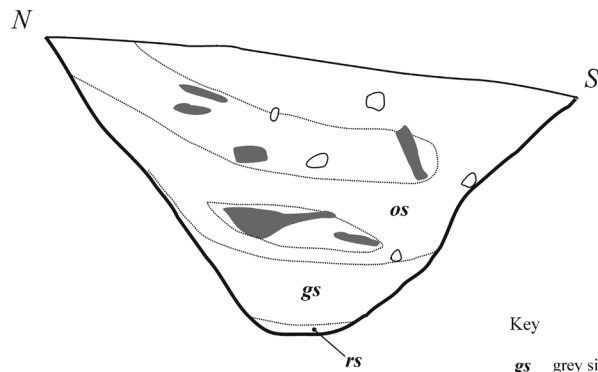
2.3 Associated finds

BBP/BBT, upper fills of pre-fort enclosure ditch on west side: 3 sherds of coarse ware; calcined bone
 BBQ/CCQ, pre-fort enclosure ditch on south side: sherd of plain samian (conjoins sherd from recut trackway drainage ditch, LAB); 2 sherds of coarse ware; burnt daub

BBP



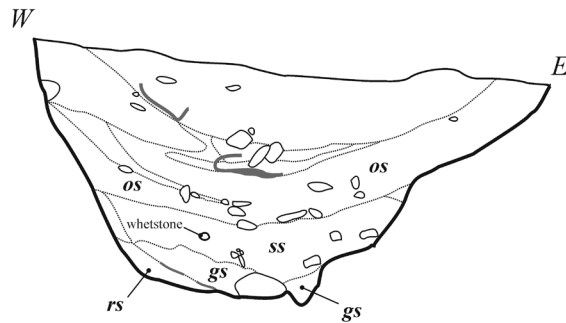
BBT



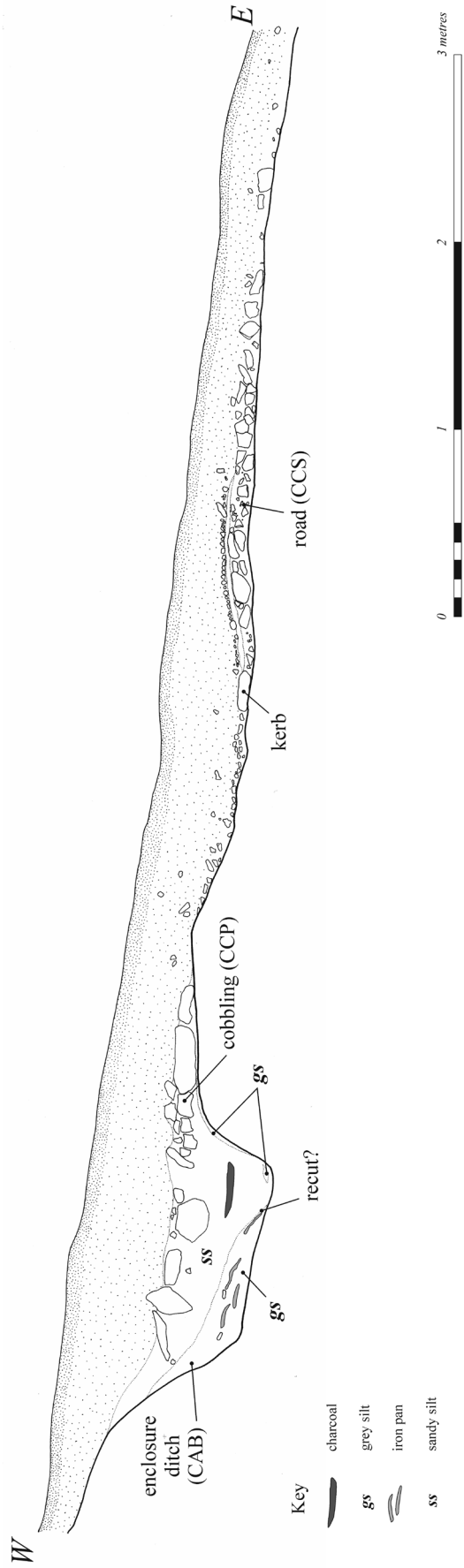
Key

- gs* grey silt
- os* orange/brown sandy silt
- rs* rapid silt
- ss* sandy silt
- turf

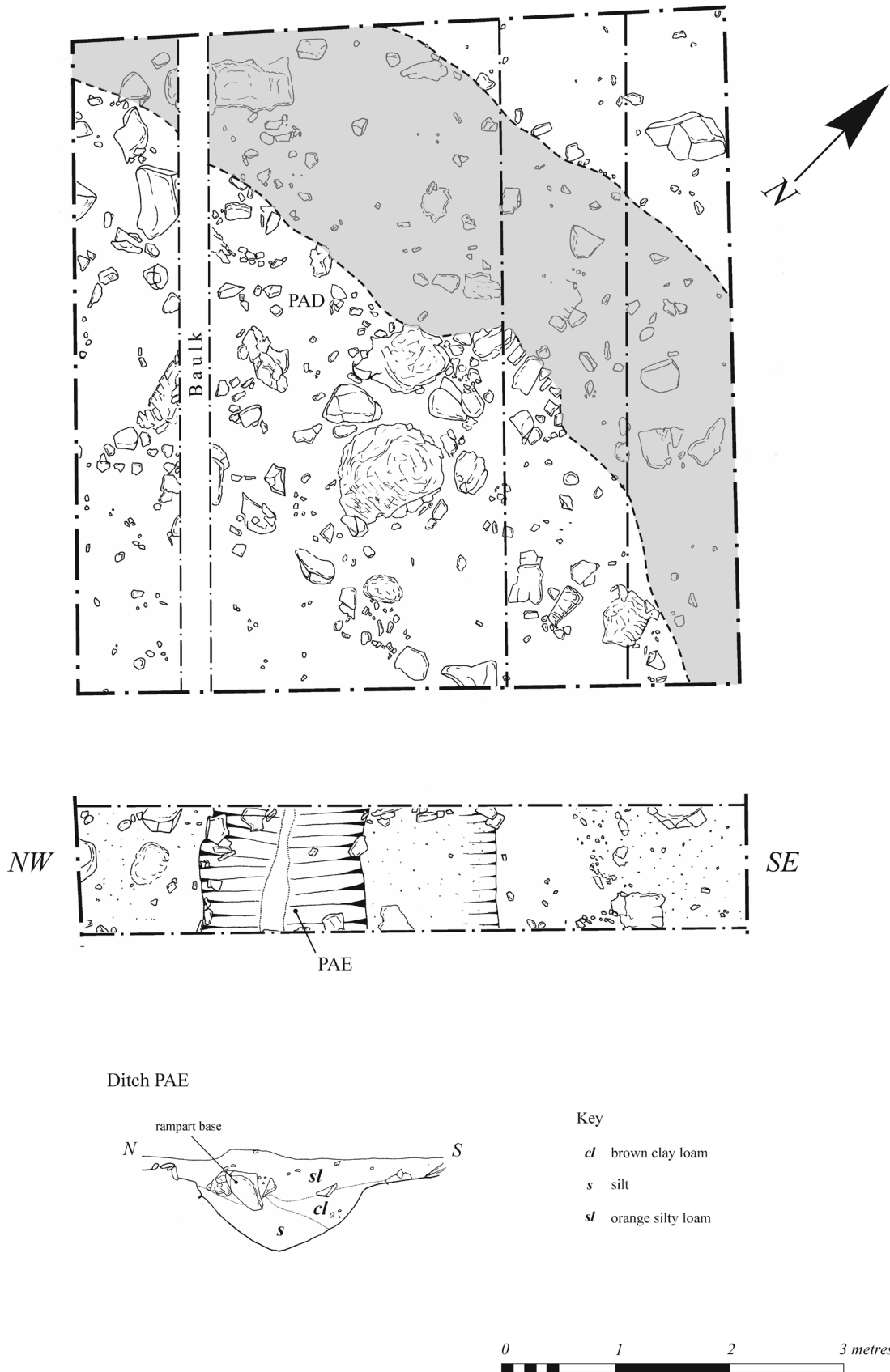
CCA



Illus 2.3 Enclosure ditch sections (BBP, BBT and CCA)



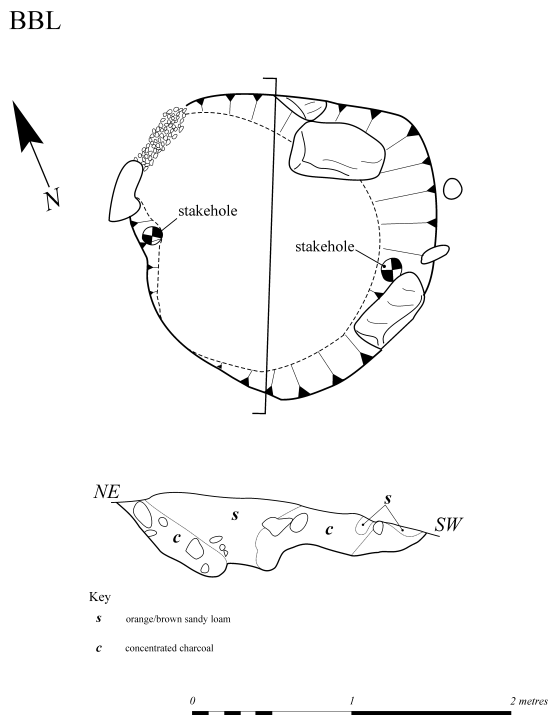
Illus 2.4 Section across ditch (CAB) on the west side of the enclosure, overlying cobbling (CCP) and adjacent road (CCS)



Illus 2.5 Plan and section of Trench P showing rampart base (PAD) and underlying ditch (PAE)



Illus 2.6 Area P showing rampart base overlying enclosure ditch from north-east



Illus 2.7 Plan and section of hearth (BBL) within pre-fort enclosure

CAB/CCA/CCH/CCN, pre-fort enclosure ditch on east side: fragment of enamelled bronze disc stud (Illus 9.5, B5; Illus 9.6); L-shaped iron rod; sandstone whetstone (Illus 9.4, S15); sherd of plain samian; 80 sherds of coarse ware; 2 nails; flake from a Neolithic polished stone axe (Illus 17.1 no. 6); fragments of bone; burnt daub

2.4 Interpretation and analogies

By chasing the line of the ditch with a series of very narrow trenches, Macdonald was able to determine two sides of the northern part of a bipartite enclosure, which lay beneath the fort, and all four sides of its southern extension or annexe, most of which lay outside the fort to the south. He identified only one entrance gap, located about a third of the way along the east side of the annexe. The excavations recorded here indicate two amendments to this general descriptive outline. Firstly, there was also an entrance gap on the western side of the annexe about a quarter of the way north of its south-west



Illus 2.8 Section through possible hearth (BBK) from west

corner; and, secondly, the eastern side followed a rather straighter alignment (Illus 2.1).

Macdonald was correct in concluding that the bipartite enclosure did indeed pre-date the fort. However, his assumption that it related to the Agricolan halt on the Forth-Clyde isthmus is incorrect (*contra* Macdonald 1932: 262–6). The spatial relationship between the east ditch of the enclosure and the link road heading for the south gate of the fort (see 4.1, below) was sufficient to indicate that at some point they were in use contemporaneously (Hanson 1977: 6–7). This was confirmed by the recovery of only early Antonine pottery, including black burnished and colour-coated wares, in the fills of the enclosure ditch (Gillam 1975: 54). An early Antonine date for the broadly similar enclosure beneath the fort at Bar Hill is also now generally accepted. Though no artefactual dating evidence was recovered from the ditches of the latter, other than a leather shoe, those on its south side had clearly been deliberately backfilled immediately prior to the construction of the Antonine fort (Macdonald & Park 1906: 11–15 and 38), while Antonine pottery was recovered from an associated hearth within the enclosure (Keppie 1985: 54–8).

The limited features in the interior of the annexe would be entirely in keeping with the function of the enclosure at Croy Hill as a temporary camp. The larger of the two hearths in particular is reminiscent of the base of one of the field ovens

that have been identified at a number of temporary camps in recent years (eg Cook & Dunbar 2008: 133–49). However, Macdonald records a stretch of roadway that runs parallel to the ditch on the south side of the main, northern part of the enclosure, which suggests a longer period of occupation than is normally presumed for such temporary works. Hearths and shallow drainage gullies were the main features recorded within the enclosure at Bar Hill, though possible shallow construction trenches and cobble footings for timber structures were also noted (Keppie 1985: 54–8), again suggesting something more than temporary occupation. Nonetheless, given the date, location and small size of the Croy Hill enclosure (0.64ha in total), some association with the construction of the Antonine Wall is difficult to gainsay. It was previously suggested that it might relate to the construction of the primary fortlet to the west of the fort (Hanson & Maxwell 1986: 120). An alternative hypothesis, in light of its position adjacent to one of the highest points on the Wall line, is that it could have housed troops involved in the surveying and laying out of that line (Jones 2005: 553–4; 2011: 330).

How long the enclosure was in use is difficult to estimate on the basis of ditch silting, but perhaps months rather than years. The filling of the ditches thereafter, with traces of burning and turves, is suggestive of deliberate demolition. A similar fate was certainly met by the enclosure on Bar Hill, where the packing of the ditch with

turf and branches or rubble was clearly attested prior to the construction of the superimposed fort (Keppie 1985: 54–5; Macdonald & Park 1906: 38). However, the presence of a sherd of samian from the ditch on the south side of the Croy Hill enclosure that joins with one from the fill of the recutting of the ditch on the east side of the trackway leading down from the *vicus* may

indicate that the enclosure ditches remained at least partially open throughout much of the occupation of the site. Indeed, the ditches on the east side of the enclosure seem to have served a secondary function draining the west side of the link road up to the south gate of the fort for some time, before they too were deliberately infilled and partially cobbled over (see 4.1, below).

3. FORTLET

At a Scottish Archaeological Forum meeting in Edinburgh in March 1975, John Gillam postulated that, contrary to received opinion at that time, not only did the Antonine Wall go through major changes in the course of its construction, but that its original design broadly mirrored Hadrian's Wall in its more developed form, with widely spaced forts and a regular series of fortlets equivalent to the milecastles (Gillam 1975). Further, he suggested that one way in which his hypothesis might reasonably be tested would be by identifying additional fortlets. With this in mind, while walking around the area of the fort during the first excavation season, the author was struck by the potential of a small, roughly rectangular, raised plateau lying immediately behind the line of the Antonine Wall some 80m to the west of, and 10m higher than, the position of the fort (Illus 3.1). As this was located within the guardianship area, permission was sought to test the hypothesis that it was the site of a fortlet and the

resulting excavation two seasons later took the form of small-scale, hand-dug trenches (Area Q) in order to minimise any disturbance to archaeological levels. Having confirmed the existence of a fortlet, further trenches were opened in the final season (1978) to determine its dimensions and the structural relationship between it and the Antonine Wall.

3.1 Rampart and berm

In the first instance, a trench *c* 1.4m wide was opened across the plateau running parallel to and *c* 15m behind the line of the Antonine Wall rampart in search of the west side of the fortlet (Illus 1.4). Archaeological features became apparent after removing an overburden of 0.3m–0.4m of plough soil, though the fortlet proved to be located several metres further west than had been estimated. A second trench was then cut to the south, which was subsequently extended to join the first at right angles, to confirm the position of the south-west corner of the fortlet, and a further small trench cut



Illus 3.1 Topographic location of the fortlet (centre right) highlighted against the skyline from north of the Antonine Wall. The site of the fort lies between the trees to the left



Illus 3.2 Cobble base of the western rampart of the fortlet (QAD) from the north

to locate the line of the south ditch.

The rampart base (QAD) was 2.9m wide and made up of a rubble core, bounded on each side by a kerb of larger stones (Illus 3.2 and 3.3), surviving to a maximum height of 0.25m. No evidence of the turf superstructure remained and, indeed, part of the rampart base itself had been removed, presumably by agricultural activity, both on the north side of the first trench and on the outside of the south-west corner. Fortunately, the inner kerb of the base at the south-west corner did survive reasonably well and confirmed that it was rounded in the manner of a standard Roman fort rampart.

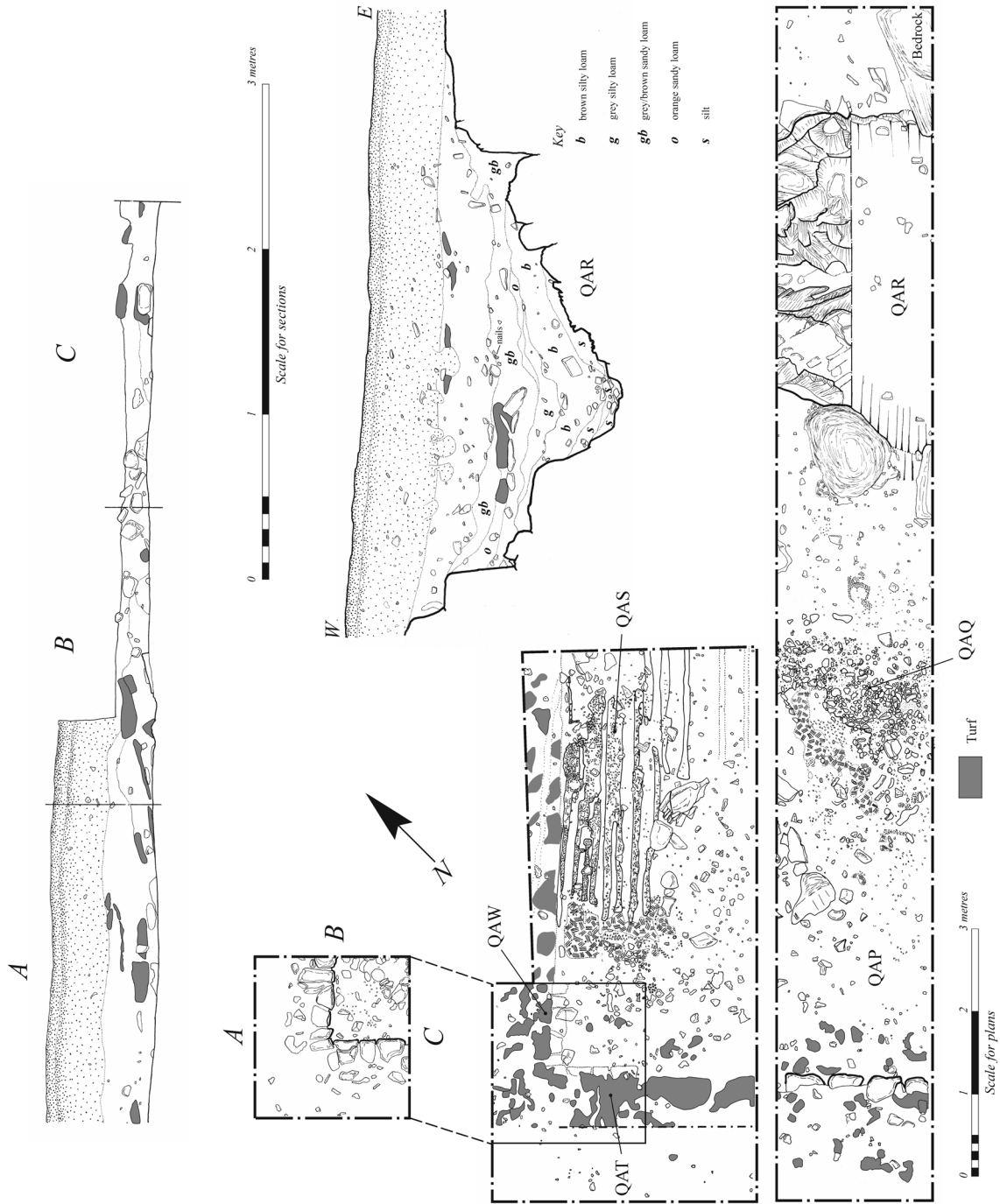
The following season a further *c* 1.9m-wide trench was cut just behind and parallel to the estimated line of the Antonine Wall extending out from the western side of the fortlet rampart to the ditch, with a second *c* 2.7m–3.2m-wide trench immediately to the north to check the relationship between the Antonine Wall and the fortlet at the point of intersection of the two ramparts. After removal of some 0.3m–0.35m of plough soil, a line of turves, visible as irregular grey-white blocks, clearly defined the southern edge of the Antonine Wall (QAW) and the eastern edge of the fortlet rampart (QAT). Each was exposed for a length of some 5m (Illus 3.4 and 3.5) and a width of up to 0.7m.

At this level the rear turf revetment of the Antonine Wall did not continue past the line of the fortlet rampart, but was clearly of one build with it. To further test this relationship, the turf

was removed down to the cobble base of both ramparts at the point of their intersection. This served to demonstrate two things: firstly, that the kerbstones at the rear of the Wall did not continue across the junction with the fortlet, but turned at right angles to merge with its kerb; and secondly, that the kerbstones of both fortlet and Wall were not originally completely covered by their respective turf ramparts, but exposed, projecting some 0.1m to the rear in the case of the former and 0.2m in the case of the latter (Illus 3.6). In the limited area examined the kerbstones in both ramparts proved to be similar in form and size to those recorded in the earlier section across the rampart on the west side of the fortlet.

Up to four layers of turf could be detected in the section through the rear of the Wall (Illus 3.4) in the surviving depth of 0.33m below the plough soil, though no more than two were visible in the fortlet rampart in its surviving 0.2m. Samples were taken from both ramparts and analysis confirmed their identification as turf, while differences in their pollen content suggested that they originated from slightly different locations, that from the Wall being from slightly wetter ground (see 18.4, below). Beneath the leached organic surface, the core of both ramparts was made up of similar orange-brown sandy loam.

The berm between the fortlet rampart and its ditch was consistently wide, ranging from 5.7m on the east side to 7.7m on the west. Apart from a small



Illus 3.4 Plan of trenches across the eastern defences of the fortlet at the point of intersection with the Antonine Wall, with partial sections through the two ramparts and the east ditch of the fortlet



Illus 3.5 Intersection of the turf ramparts of the Antonine Wall (to the right) and the fortlet (at the top) from the east at an early stage of excavation, showing burnt timber duckboards in the foreground

patch of metalling (see QAQ, below) on the south side of the trench midway between the rampart and ditch on the west side of the fortlet, surviving features on the berm were concentrated outside the north-east corner immediately behind the Antonine Wall, where an area of burnt timber boards or planks (QAS) was revealed. At least ten timbers could be identified running parallel to the Wall for a distance of some 3.5m and extending beyond the east end of the trench (Illus 3.4 and 3.6). They came right up to the rear of the Wall, overlying the kerbstones at its edge and apparently even running into the turf at its base. The timbers were most clear where they had been burnt in situ, but the example within the rampart of the Wall was apparent as a pattern of soil discolouration, as were two more examples extending the width of this duckboarding to at least 2.5m south of the Wall. The best-preserved burnt examples recorded in the early stages of cleaning suggested that the timbers were up to 0.14m wide and 0.1m apart, though some were clearly more closely spaced (Illus 3.5).³ Analysis of a charcoal sample indicated the timber was almost exclusively oak (see 18.3.4, below, Sample QAS). The timbers

did not extend as far west as the small box cutting designed to examine the intersection of the two ramparts. The precise position of their western ends was not established as it was overlain by a discrete patch of clean orange clay loam, presumably derived from the partial collapse of the adjacent ramparts.

An extensive area of mixed orange-brown sandy loam (QAP), which extended out from the burnt timbers and across the more southerly trench, contained burnt material including occasional patches of reddened soil and much charcoal. A small test section was excavated approximately 1.5m in front of the fortlet rampart to examine the make-up of this layer and to obtain a sample of charcoal (QAX), which proved to be predominantly small twigs/branches of hazel and willow (see 18.3.4, below). The layer was between 80mm and 350mm in depth, though that irregularity suggests that the section may have accidentally cut across a gully or small pit whose extent was not defined. Situated approximately midway between the rampart and ditch and overlying this spread of burnt material was an irregular patch of metalling (QAQ) up to 1m wide that ran across the full width of the trench.



Illus 3.6 Intersection of the ramparts of the Antonine Wall (to the left) and the fortlet (at the bottom) from the west, showing the lower layers of turf, the merging of the kerb stones, the burnt timber duckboards and the rock-cut ditch in the background

3.2 Ditch

The fortlet ditch was located and sectioned at three points, one on each of its three sides, providing sufficient evidence to restore its full plan outline (Illus 3.7). A slightly irregular alignment was originally proposed on the north-east side, but this was based on an error in the early plotting of where the underlying quartz-dolerite rock came close to the surface. The possibility of a second, outer ditch was investigated by placing an additional small trench on the north-east side. This extended examination for a further 9m beyond the rock-cut ditch. No trace of an outer ditch was found.

The profile of the ditch on the west side (QAE) was a wide V-shape, measuring 2.6m across and 0.77m deep down to bedrock from below the plough soil (Illus 3.3). Primary silt lenses represented an early rapid silting, followed by a filling of washed-in sandy silt, gravel and small stones. The ditch on the south side (QAF) was of very similar dimensions and fill, but more U-shaped in profile. That on the east side (QAR) closest to the line of the Antonine Wall was of less regular profile as it was cut through bedrock. It approximated to a V-shape but was rather larger, being 3.5m wide and 1.12m deep (Illus 3.4). Given the preservation of original surface levels nearby, this is likely to represent its original dimensions. A succession of thin layers of washed-in silt filled the lowest 100–150mm, succeeded by layers of orange and grey/brown silty loam totalling around 0.6m in depth containing larger stones, recognisable turves and occasional charcoal flecks. A sample for analysis taken from one turf confirmed this identification, and the pollen content showed strong similarities with that from the two rampart samples (see 18.3, below). Apart from those recovered during removal of turf and topsoil, most of the limited number of finds from the excavation of the fortlet came from the ditch sections, see 3.4, below). Some are recorded on the section drawings (Illus 3.3 and 3.4) and all came from the central or uppermost fills, including a coin of Hadrian from the interface between those two fills in the east ditch (QAR). Sherds of coarse ware from the same vessel were recorded in the sections through the ditch on the west and south sides.

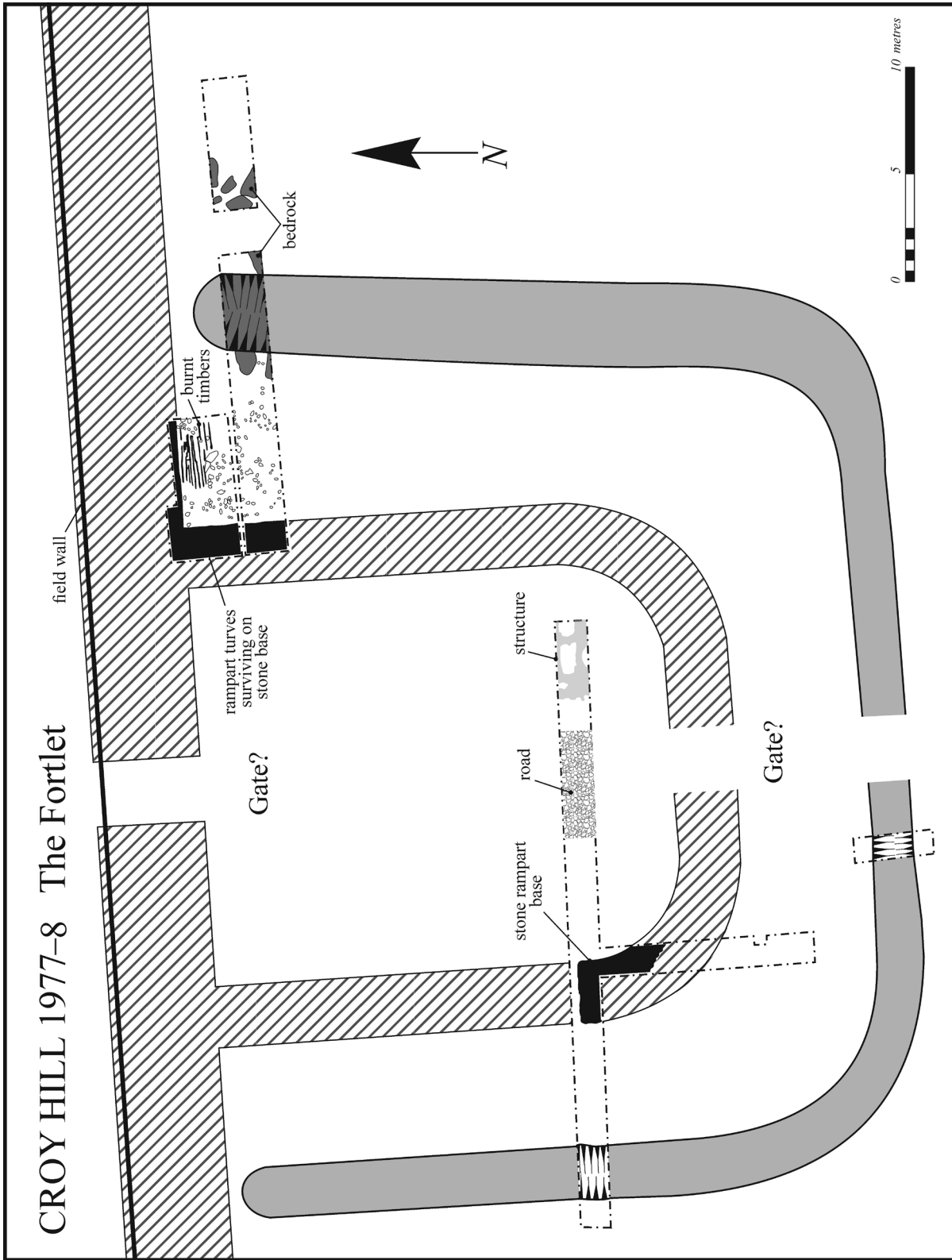
3.3 Interior

In order to adhere to the principle of minimum interference with the archaeological remains within the guardianship area, no features inside the fortlet were excavated. Indeed, trenching across the interior was undertaken only in the initial attempt to locate and define the extent of the fortlet when it was at first thought that it lay slightly further to the east. This resulted in a trench *c* 1.4m wide being cut across most of the interior in the centre of the southern half of the fortlet (Illus 3.3 and 3.7). Because of the constraints on full excavation, some of the feature identifications are more tentative here than elsewhere in the fortlet.

The central area of the interior was dominated by a surface made up of crushed stone and small cobbles across the full width of the trench for a distance of at least 6m (QAH). This presumably represented the general line of the central road metalling (Illus 3.3 and 3.8). It was partially overlain by an amorphous patch of burning (QAB) at the very eastern end and also by the fragmentary remains of a layer of small cobbles *c* 50mm thick (QAG) that survived towards the centre, predominantly on the south side of the trench, for a distance of *c* 2.2m. Further traces of cobbling (QAI) appeared partially to overlie one of the construction trenches (QAC) towards the eastern end of the trench.

Reasonably clear traces of timber structures were recorded on the east side of the metalling. A probable construction trench (QAN) some 0.3m–0.5m wide, filled with mid-brown clay loam, ran along the south side of the excavation trench for some 3.3m, culminating in a probable north/south construction trench (QAC) that was less clearly defined (Illus 3.3, 3.8 and 3.9). Immediately adjacent to the latter was another north/south construction trench containing a post setting (QBP) clearly demarcated by three small stone slabs set on edge. Parallel to this and 1.6m to the east was a further possible construction trench (QBQ). There were hints of a possible second east/west construction trench some 2.5m long parallel to, and *c* 0.8m north of, QAN at the very edge of the trench.

Other possible post holes (eg QAK and QAL), showing as sub-circular areas of mid-brown clay loam up to 0.5m in diameter, were postulated cutting through the metalling further to the west,



Illus 3.7 Overall restored plan of the fortlet



Illus 3.8 General view of the interior of the fortlet from the east showing the probable central road (QAH) with traces of the upper layer of slightly larger cobbling (QAG) still visible protruding from the section on the left-hand (south) side. The cobble base of the rampart on the western side (QAD) is visible towards the top, while probable construction trench QAC is in the foreground



Illus 3.9 Interior of the fortlet from the east showing the probable construction trenches QAN and QAC; post setting QBP and possible construction trench QBQ are in the foreground. Road metalling (QAH) is visible at the top and additional light cobbling (QAI) centre left

but none were very convincing. Structural remains to the west of the metalling, where the mid-brown clay loam was undifferentiated except for bedrock outcrops, were even less well defined, though one post hole (QBO) was potentially identified cutting through the edge of the metalling (Illus 3.3).

3.4 Associated finds

QAC, probable construction trench: sherd of coarse ware

QAE, west ditch: part of hipposandal; 9 sherds of coarse ware, including amphora; sherd of mortarium (Illus 12.1, no. 2)

QAF, south ditch: iron buckle (Illus 9.9, F15); 6 sherds of coarse ware; fragments of animal bone

QAP, area of burning, west berm: 9 sherds of coarse ware; 2 nails; 14 hobnails

QAQ, metalling, west berm: 2 sherds of coarse ware

QAR, east ditch: coin of Hadrian; iron spike (Illus 9.9, F27); iron strip; nail; 26 sherds of coarse ware; fragments of burnt bone

QAT, degraded upper level of fortlet rampart, east side: fragment of vessel glass; flint flake; 10 sherds of coarse ware, including amphora

In addition, an Andernach quernstone was found in a cutting through the Wall by the Glasgow Archaeological Society (GAS 1899: 62–3) some 84m west of the field dyke around Croy Houses, which would place it 5m–6m east of the fortlet's east ditch.

3.5 Interpretation and analogies

This limited investigation established not only the existence of a fortlet on this raised plateau, but its general characteristics. Most importantly for our understanding of the sequence of development of the Antonine Wall, it confirmed that its construction was contemporary with the building of that frontier, as is the case for all the other examples known, with the exception of those that actually pre-date the completion of the linear barrier (Hanson & Maxwell 1986: 93–5; Hanson 2020a: 205–8 and 211). Recent attempts to cast doubt on the evidence for that contemporary structural relationship from two fortlets are simply clutching at straws (*contra* Graafstal et al 2015: 59; Symonds 2018: 139), as at both Kinneil and Wilderness Plantation the fortlet

ramparts were of one build with the Wall (Bailey & Cannell 1996: 308; Wilkes 1974: 53).

The fortlet at Croy Hill may be restored as a long-axis type, enclosing an area measuring approximately 18.5m east/west by 22.0m north/south internally, and is best paralleled at Seabegs Wood, Kinneil and Wilderness Plantation (Keppie & Walker 1981; Bailey & Cannell 1996; Wilkes 1974).⁴ Neither the north nor south gates were located, but they may be assumed to be central, as indicated by the location of the internal roadway. An earlier suggestion that the rear gate may have been offset was based on an error in plotting the areas where the underlying bedrock came up to the surface. Whether a north gate was provided at all may be questioned, as it would have opened onto a sharp drop down to the ditch, though an equivalent but more extreme position did not deter the builders of milecastle 37 on Hadrian's Wall.

The fortlet rampart was built on a cobble base 2.9m wide. This is consistent with widths of 2.8m at Seabegs and 3m at both Kinneil and Wilderness Plantation. Insufficient of the Croy fortlet rampart was excavated to confirm whether it was built entirely of turf or only with turf cheeks. The character of the rampart superstructure at other sites seems to have varied according to the availability of suitable material. Thus at both Seabegs and Wilderness Plantation it was entirely of turf, while at Kinneil it had an earthen core with a clay or turf revetment. Since the standard width of the base of the rampart of the Antonine Wall itself is 4.3–4.9m (Hanson & Maxwell 1986: 80), the lesser width of fortlet rampart base may indicate that it was lower in height⁵ or that it was not provided with a walkway.

The width of the berm around the fortlet at Croy Hill, varying from 5.7m to 7.7m, is broadly comparable with that from Seabegs (8m) and Wilderness Plantation (4.2m), but considerably less than at Kinneil (9m–13m). Compared to its closest parallels, however, the fortlet at Croy Hill is unusual in being provided with only a single ditch. Both Seabegs and Wilderness Plantation had two, though in the former case they apparently did not continue around the full circuit of the ramparts. Kinneil may also have been provided with two ditches, as was indicated when it was first discovered (Keppie & Walker 1981: 150–1), though only one was identified in the later, more

extensive excavations. The dimensions of the ditch at Croy Hill, 2.6m–3.5m wide and 0.77m–1.12m deep, may also reasonably be compared to those at Seabegs (2.5m wide and 1m deep) and Kinneil (up to 2m wide and 1m deep), the slightly smaller dimensions at the latter perhaps the result of heavy truncation by agricultural activity. Both the ditches at Wilderness Plantation, however, were much deeper (1.9m), though comparable in width (3.6m).

The limited evidence from Croy Hill for the arrangement of the interior of the fortlet complies with what little is known from other sites, with a central roadway dividing timber buildings on either side. In all other cases elsewhere, however, these buildings appear to have been constructed on individual post holes. While some possible post holes were recorded at Croy Hill, the best evidence seemed to indicate the use of construction trenches, one containing a clear post setting. There is a potential parallel at Duntocher, where some possible shallow construction trenches were recorded (Robertson 1957: 24–7). The structural remains at Croy Hill could be interpreted as defining part of a narrow rectangular building with internal subdivisions, though perhaps over-provided with the latter in terms of any anticipated barrack-type structure. The recovery of a fragment of window glass from the topsoil (QAO) over the north-east corner of the fortlet hints at the provision of glazed windows. Any identification of structural remains is, however, tentative given the limited area exposed and the lack of full excavation.

The provision of extensive timber duckboarding, covering an area of at least 3.5m by 2.5m immediately outside the north-east corner of the fortlet in the lee of the Antonine Wall, is unparalleled. However, spreads of cobbles in exactly the same position were recorded at both Seabegs and Kinneil. The former was neither completely uncovered nor examined in any detail. At the latter, however, cobbles and gravel formed a base 2.3m by 1.3m enclosed by an L-shaped ditch or gully 0.7m wide by 0.45m deep. The feature was tentatively interpreted as provision for an external latrine, though there was also evidence of a hearth immediately outside it (Bailey & Cannell 1996: 315–17 and 340–1). The timber duckboarding at Croy Hill was clearly a primary feature, since it was partly bonded into the rear of the Antonine Wall rampart. This in turn

would indicate that turf was stripped only from the line of the Wall, with its base and kerbstones effectively placed within a shallow cutting, leaving undisturbed the old ground surface onto which the duckboards were placed. The function of this platform was presumably to provide a levelled area of relatively dry, firm footing in the lee of the Wall at the base of the rampart. To what activity this relates is less certain, but given the clear indications of both intensive and extensive burning, assuming this was a primary rather than secondary association (see below), a function linked to cooking may be the most appropriate. So, too, at Kinneil, given the hearth attested nearby.

The projection of the basal kerbstones of the Wall beyond the rear face of its superimposed turf rampart is not a feature that has been widely noted, presumably because subsequent compression and collapse of the superstructure has made it difficult to observe the original line, as Robertson notes in relation to one of the better-preserved sections excavated in recent times at Tentfield (1964: 193). This phenomenon was, however, also recorded in a section on the west side of Croy Hill, where the sharp profile of the original rear face of the rampart had been preserved by the rapid addition of an expansion (GAS 1899: 76–8). To the east, however, where the use of narrow clay cheeks to revet the rampart was more common, these seem to have covered the rear kerbstones (Steer 1961: 94–95; Dunwell & Ralston 1995: 526 and *illus* 5).

The apparent outward collapse of the turf rampart, partially overlying the duckboards, and the presence of identifiable turves within the east ditch, may indicate that the fortlet had been deliberately demolished. Though the nature of the material identified in sample QAX (small twigs/branches) is more characteristic of fuel, the extensive burning at the rear of the Antonine Wall could possibly relate to demolition. Given the very limited sections that were excavated, the presence of a range of finds in the ditch fills, including pottery, shoes and various bits of ironwork, provides some further support for such an interpretation.

The ditches themselves show only one phase of use, with no signs of recutting, a situation paralleled at both Kinneil and Wilderness Plantation. Those two fortlets also provided clear evidence that the barrack buildings in their interiors had been cobbled

over, though two lean-to structures at Kinneil may have continued in use, suggesting that the fortlets changed their function or perhaps went out of use while the Wall was still occupied (Wilkes 1974: 57 and fig 2; Bailey & Cannell 1996: 315 and 342).

The presence of an upper phase of cobbling in the interior at Croy Hill (QAG/QAI) could support a similar interpretation, but it is insufficiently widely attested to confirm it and may simply represent a second phase of road surface.

4. ROAD SYSTEM

The road system to the south of the fort was investigated at various points during the four seasons of excavation, revealing at least two phases of bypass road and a connecting link to the south gate of the fort (Illus 1.2). The bypass road was traced for a total distance of some 275m, firstly immediately to the south of the pre-fort enclosure, then to the east of the fort as the road swung north-east to rejoin the Military Way, and finally to the south-west of the fort as it headed up the slope in the direction of the alignment established by Macdonald (1934: 144) and defined by the local topography (Illus 1.3).

4.1 Link road to the fort (Area C)

Traces of a cobble and metallised stone surface (CCS) were recorded at the northern limit of the excavation immediately to the east of the ditch that defined the east side of the pre-fort enclosure (CAB/CCN) (Illus 2.1 and 4.1) (see 2.1, above). A subsequent section at this point (Illus 2.4) confirmed that the surface continued north into the guardianship area and revealed that it constituted a quite well-preserved road 2.9m wide, assuming the section cut it approximately at right angles. The road was made up of a rubble core set between larger kerbstones and overlain in the better-

preserved western third by a thin layer of hard grey grit, above which a layer of small stones created a metallised surface. This road was located 2m east of the pre-fort enclosure ditch, but both on the excavated surface and in the section some metallising continued right up to the edge of the ditch (CCN/CAB), as if respecting its presence (Illus 2.4 and 4.1). This compacted light metallising (CCS) could be traced down the natural slope southwards for *c* 7m before it petered out, having presumably been removed by ploughing. Unfortunately, its eastern extent had been destroyed by one of the quarry company's larger test pits, so its precise alignment was difficult to estimate.

Slight traces were identified, however, some 17m further down the slope where they had been protected by soil creep and the proximity of a dry-stone dyke (Illus 4.2). Again, the remains appeared to skirt the eastern edge of the enclosure ditch and consisted of intermittent patches of compacted light metallising with occasional larger stones that merged into the bypass road (CCR) (see 4.2, below) a further 5m to the south. The remains were partly concealed beneath the stone dyke and too fragmentary to calculate the road width with any accuracy, but the gap between the south-eastern corner of the enclosure ditch and the start of a drainage ditch (CCT) on the north side of the bypass road to the east would have readily facilitated



Illus 4.1 Road surface (CCS) and overlying cobbling (CCP) from south. An excavated Macdonald trench confirms the line of the enclosure ditch (CAB) running beneath the cobbling

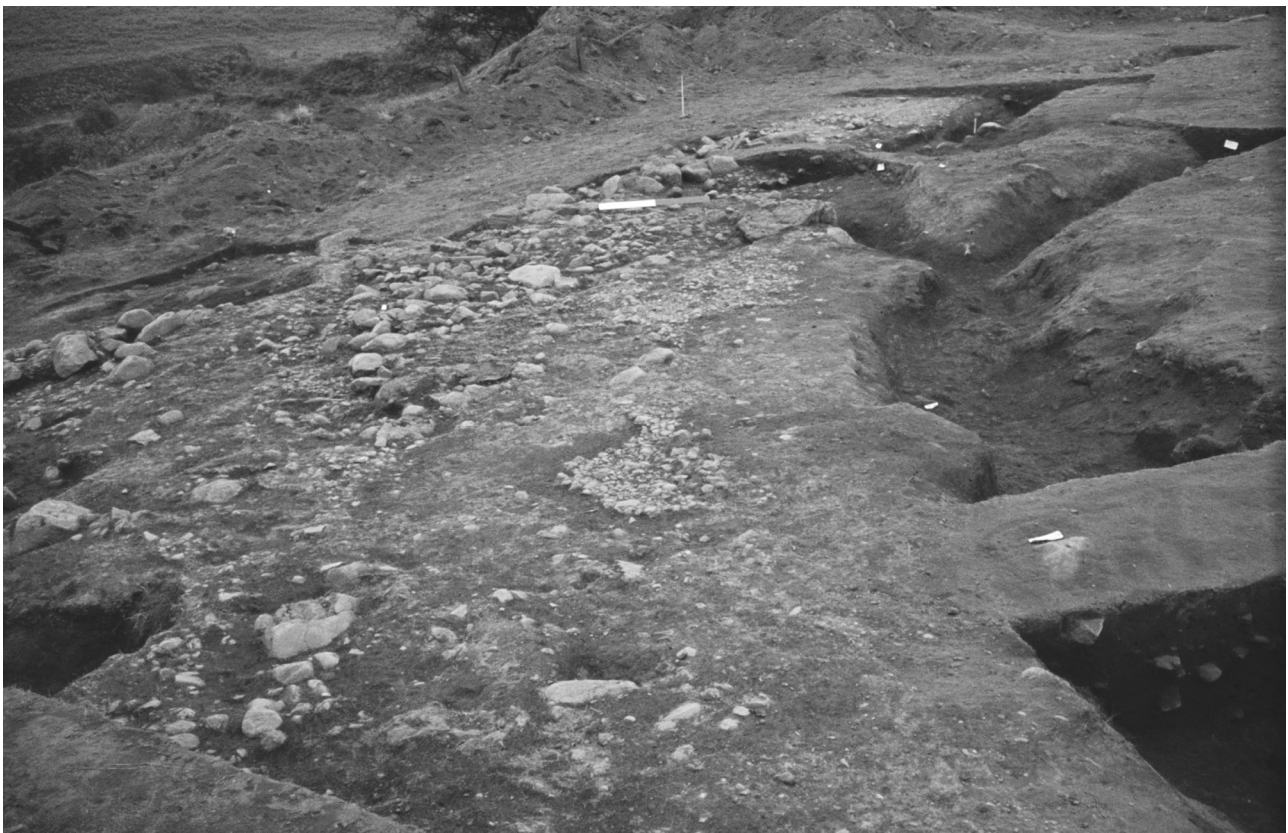
the passage of a road up to 5m wide. The end of the road drainage ditch (CCT) curved slightly in a north-westerly direction in acknowledgement of the T-junction in the road at this point (see 4.2, below). It was mirrored on the west side by another road drainage ditch (CCK) that curved upwards towards the north-east and merged with the south-east corner of the pre-fort enclosure (CCH/CCQ). Unfortunately, one of Macdonald's larger trenches had cut across their point of intersection, making it difficult to confirm the chronological relationship between them, but from the traces that did remain there was no suggestion that the two ditches had not been in use simultaneously.

At some point the ditch on the east side of the enclosure was deliberately backfilled (see 2.1 and 2.4, above), its northern limit within the excavated area sealed by an area of heavy cobbling (CCP) some 2m by 2.5m in extent (Illus 2.1, 2.4 and 4.1). This presumably is all that survives of the rubble core of a new, slightly more westerly road alignment whose upper metalling has been lost to the plough.

4.2 Bypass road and its ditches (Areas B, C, G, K, L)

The bypass road was first encountered down the slope running along the southern limits of the trench opened in the first season and was very well preserved in places, where it had been covered with hillwash (Illus 2.1, 4.4 and 4.5). A length of 27m was exposed (CCR) immediately outside, but running at a slight angle to, the south side of the enclosure and continuing beyond it to the east. The road came closest to the pre-fort enclosure ditch at the south-east corner, where it formed a T-junction with the link road to the fort (4.1, above). Its western continuation immediately south of the enclosure was tested by extending two sections through the enclosure ditch to the south and clearing the hillwash from an area at the south-west limit of the excavated trench.

At the eastern end of the area the road was uncovered to a maximum width of 3.2m without identifying its southern kerb, though it had probably



Illus 4.2 Intersection of south-east corner of enclosure ditch and road ditch from north. Patches of surviving metalling of the link road are apparent in the foreground with the surface of the bypass road in the background

started to widen at this point as it approached the T-junction with the link road to the fort. The road survived as a core of medium to large cobbles with a kerb of generally larger stones. It was soon clear, however, that this represented a secondary phase, as traces of metalling (CAE) were uncovered extending from beneath the kerb northwards for 0.5m–0.7m (Illus 4.3). This was confirmed in a section through both phases which took advantage of the quarry company's substantial 15m-wide test excavation trench located only 5m further east (Illus 1.2). This indicated that below the surviving upper cobble core, some 0.2m of sandy clay had been compacted on top of the fragmentary remains of the earlier surface, which comprised a spread of much smaller stones. This had served to shift the road *c* 0.9m to the south. Allowing for the oblique angle at which the quarry trench cut through it, a width of *c* 3.2m for the secondary phase of the road was indicated. The remains of the primary road were too fragmentary to allow the calculation of its original width. The raising and re-siting of the road may have been the

result of environmental factors, as a considerable build-up of silt was attested above the first phase road on the north side (CCY – see below).

Much of the surface of the bypass road at the T-junction with the link road to the fort was quite badly preserved. The later phase had been largely ploughed away, with only scattered large stones and small areas of disturbed metalling (Illus 2.1 and 4.2). However, preservation seemed to improve as the investigation moved westward, with larger areas of compacted metalling of the primary phase road surviving beneath patches of damaged metalling immediately west of the junction, though this primary phase also showed signs of possible filling of a pothole (Illus 4.4). In a small section of road uncovered some 17m further west, a well-preserved surface of compacted small stones was recorded with a neat kerb of larger stones and even signs of wheel ruts (Illus 2.1 and 4.5). This was not sectioned, but presumably represents the secondary phase of construction, as in another cut through the overlying silts slightly closer to the T-junction



Illus 4.3 East section of road (CCR) from west showing earlier surface (CAE) projecting beneath later stone kerb in the foreground and section through drainage ditch (CAA/CCZ) in the background



Illus 4.4 Well-preserved section of metalling of primary road surface and associated drainage ditch (CCK) immediately to the west of intersection with link road to the fort, from south-west. Some large displaced kerbstones and a patch of later damaged metalling are apparent (top centre), with a probable pothole repair to the primary surface (centre right)



Illus 4.5 Well-preserved surface of bypass road to south of the pre-fort enclosure in Area B/C showing wheel ruts and associated drainage ditch (CCW) to the north

the metalled surface partly overlay an adjacent road drainage ditch (CCV) (Illus 2.1).

A drainage ditch was recorded to the north of the road along the whole of its excavated length both east and west of the T-junction (Illus 2.1, 4.4 and 4.5). It was sectioned in several places on the west side (BBS, CCW, CCK, CCV) with varying widths and depths recorded, but was generally 1m–1.4m wide and only 0.25m–0.45m deep, filled with yellow-brown sandy silt. As already noted above, it ran into the south-east corner of the enclosure ditch on the west side of the T-junction (Illus 4.2). To the east of that junction the ditch showed similar dimensions and characteristics. The curving butt end (CCT) by the road junction and two further sections (CAC and CAA/CCZ) were excavated. Here the ground sloped away quite markedly to the

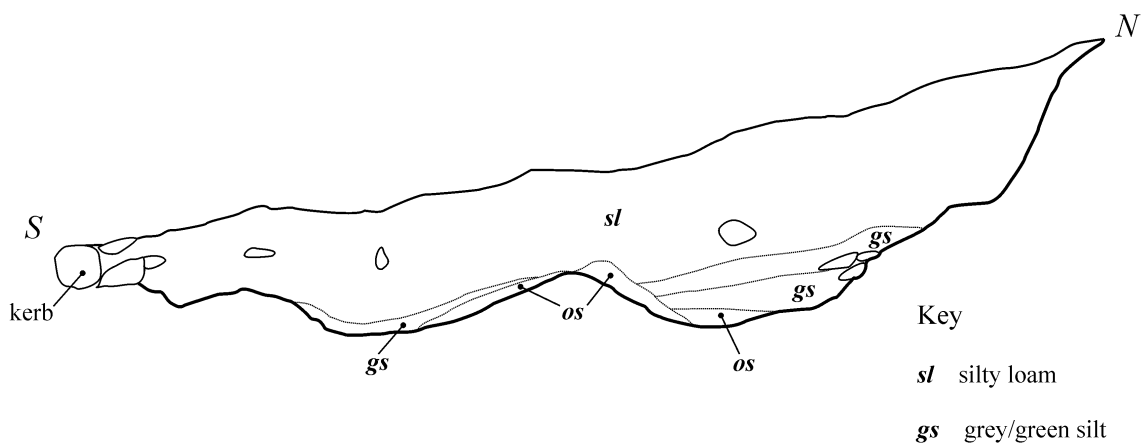
south and east, and drainage had probably been a problem as there was evidence both of the provision of a shallow double ditch (CAC/CCZ) (Illus 4.6) and a considerable build-up of silt, up to 0.2m deep, against the side of the road (CCY).

The following season the line of the bypass road was sought further to the east. Its alignment was picked up first of all in section on the north-east side of the large quarry test trench where two phases were again apparent, though by this point their relative spatial relationship had changed, with the primary phase starting some 0.75m further south (Illus 1.2 and 4.7). Allowing for the obliquity of the section and the state of preservation of the remains, the primary phase was *c* 2.5m wide and the secondary phase *c* 2.85m. This was the first occasion when drainage ditches were revealed on both sides of the road. Both were V-shaped and more substantial than those examined further to the west, *c* 1.2m wide and up to 0.66m deep. Successive layers of silting filled the bottom 0.25m of the north ditch (GAB), sealed by a more homogeneous layer of sandy silt. Quantities of coarse ware were recovered from the very bottom of this upper fill during cleaning.

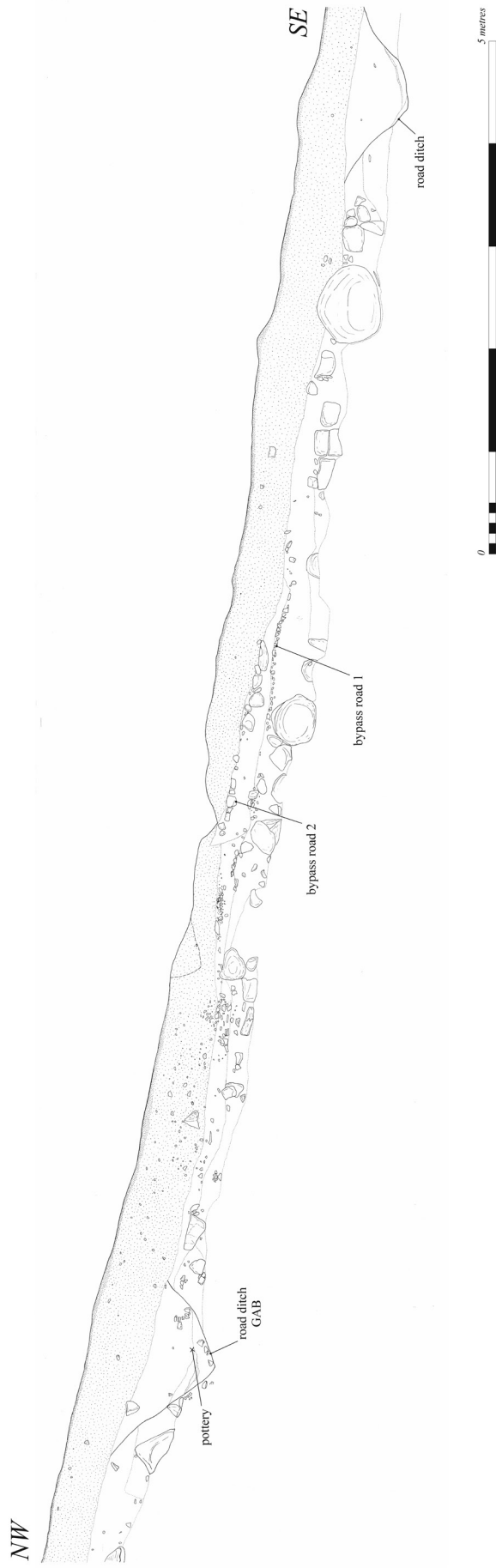
Some 30m north-east, a long 2.8m-wide trench (Area K), sited up against the modern fence line where it turned north, revealed the line of the road as it followed the 111m–112m contour (Illus 1.2). All that survived was a spread of large cobbles (KAE) which, allowing for the oblique angle of the trench relative to the road, would have been *c* 10m wide, with a very shallow (0.10m deep) ditch or depression just over 1m wide (KAH) on its north side. Although the remains had been damaged by

field drains and disturbed by ploughing, particularly on the southern, downslope side, this does not seem adequately to explain the excessive width compared to the better-preserved section of road further west. Either the two main phases of road were further separated at this point or, perhaps more likely since no upper road surface was recorded, the heavy cobbling represents a wider underpinning of the road as it traversed a gully, evident in the contours, and an associated area of damper, less stable ground, as was confirmed by the presence of 19th-century field drains.

A further 23m to the north-east, slightly upslope between the 112m and 113m contour, the southern side of a much better-preserved road surface was revealed at the north-western end of a small hand-dug trench opened specifically to check the road alignment. It consisted of compacted small pebbles interspersed with larger stones (GBF), and was uncovered for a width of 2.8m (Illus 4.8). Two parallel wheel ruts, 0.1m wide and 1.1m apart centre to centre, were apparent. A badly preserved, shallow ditch, 1.0–1.2m wide and 0.25m deep, was revealed 7.8m to the south (GBG). This road alignment was pursued further in two southerly extensions to the main area of excavation east of the fort, which confirmed that it continued up the slope to the north-east, following the 114m contour. In both these cases the associated drainage ditch on the north side was uncovered, with the road surface apparent only in the more northerly trench, the rest having been ploughed away (Illus 5.1). Only the north side of the road was well preserved, for a width of 1.2m, surviving as a surface of small compacted



Illus 4.6 Section through drainage ditch (CAC/CCZ) north of the bypass road in Area C



Illus 4.7 Section through two-phase bypass road and associated drainage ditches on north-east side of quarry test excavation trench



Illus 4.8 Well-preserved section of road surface (GBF) from the west

pebbles interspersed with a few larger stones (GBO) (Illus 4.9). The immediately adjacent roadside ditch, which varied between 0.75–1.6m wide and 0.2–0.38m deep, was not continuous but apparently segmented, coming to a butt end in both trenches (GBI and GBP/GBL). The short, very narrow gap created by one pair of the butt ends coincided with the beginning of a shallow gully or fence line (GAI/DAD) 1.8m to the north (see 5.1, below). Despite extensive excavation to the north and east, no further evidence was found for the continuation of the line of the road.

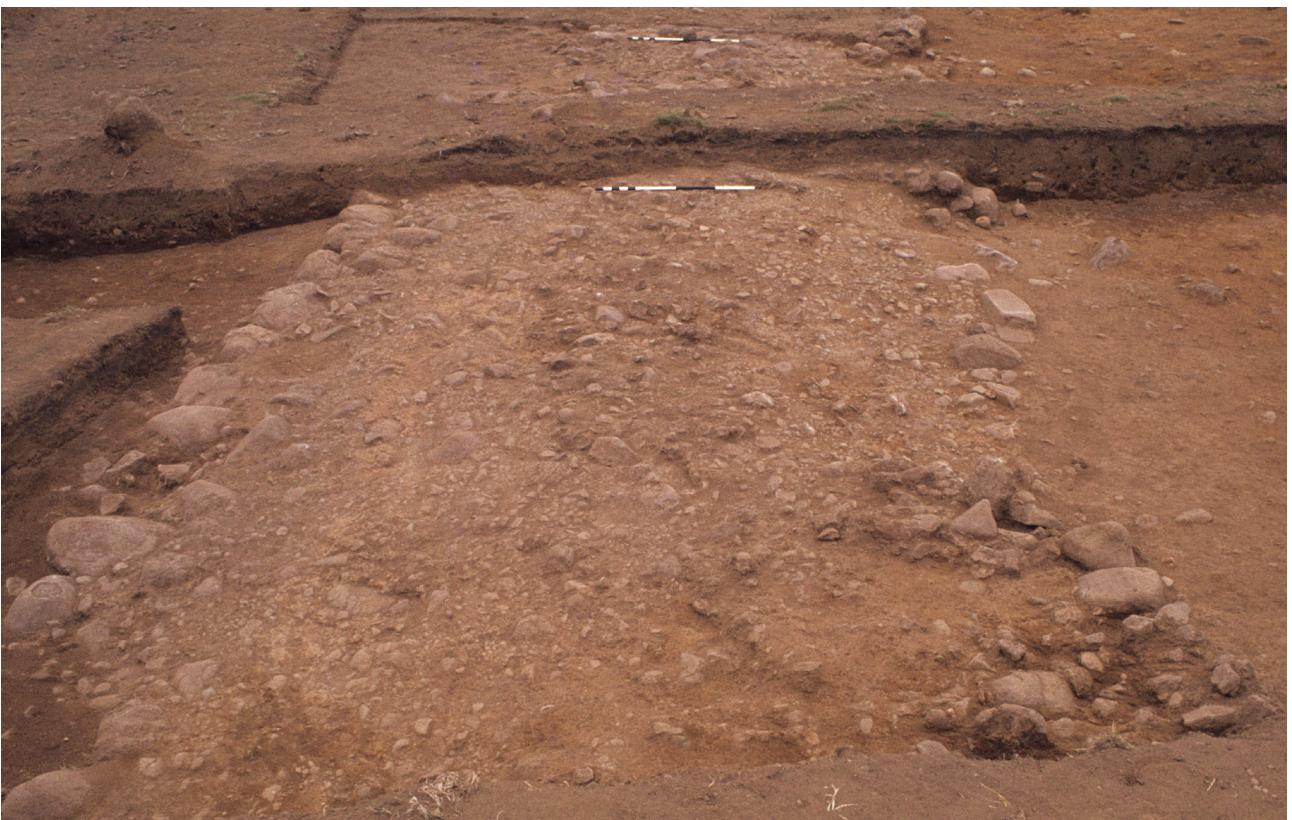
The best-preserved section of the bypass road (LBZ/LCC) was uncovered to the south-west of the fort (Illus 4.10 and 6.1), south of the postulated focus of the *vicus*, where it had been protected by a substantial build-up of hillwash (LBX). It was 4.2m wide and consisted of a slightly cambered surface of compacted small and medium-sized stones, set between a kerb of large, irregular stones (representing Phase 2/3 noted below). It had been preserved for a distance of some 28m before petering out where the plough had taken its toll as the ground rose to the west, its alignment confirmed by the

continuation of the associated northern drainage ditch (RCC/RCH – below). Sectioned in two places (Illus 4.11) the road revealed traces of two phases of resurfacing which survived primarily in a narrow strip on the north side. The earliest road, which lacked a kerb, projected 0.5m further north than the later alignment, as had been observed also on the east side of the pre-fort enclosure (CCR above). It consisted of a well-made surface of small, rammed, water-worn pebbles. Traces of wear in the form of a wheel rut were noted sealed beneath the secondary surface of similar character which butted against a kerb of large, irregular stones. This surface was in turn overlain by a further, less coherent layer of slightly larger stones.

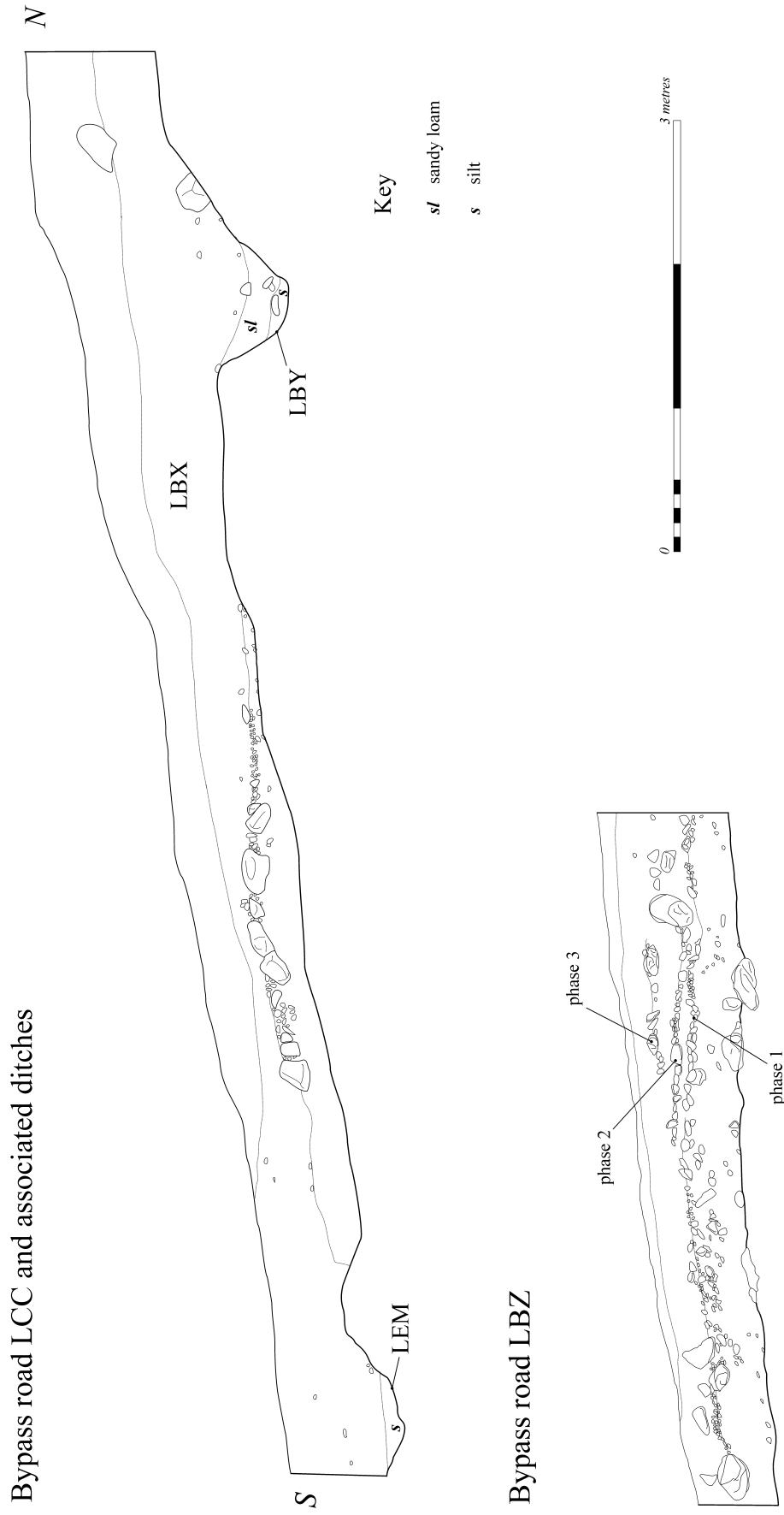
Associated with the road on its north side was a ditch (LBY/LCG) 1–1.3m wide and generally U-shaped, 0.5–0.73m deep (Illus 4.11). It was contiguous with a drainage ditch (LBR/LBT) running down the slope from the north (see 6.2, below) the two joining almost at right angles (LBW) (Illus 4.12 and 6.1). After a gap of *c* 6m the road ditch continued westwards and again linked into a ditch draining downslope (LDE), though this time



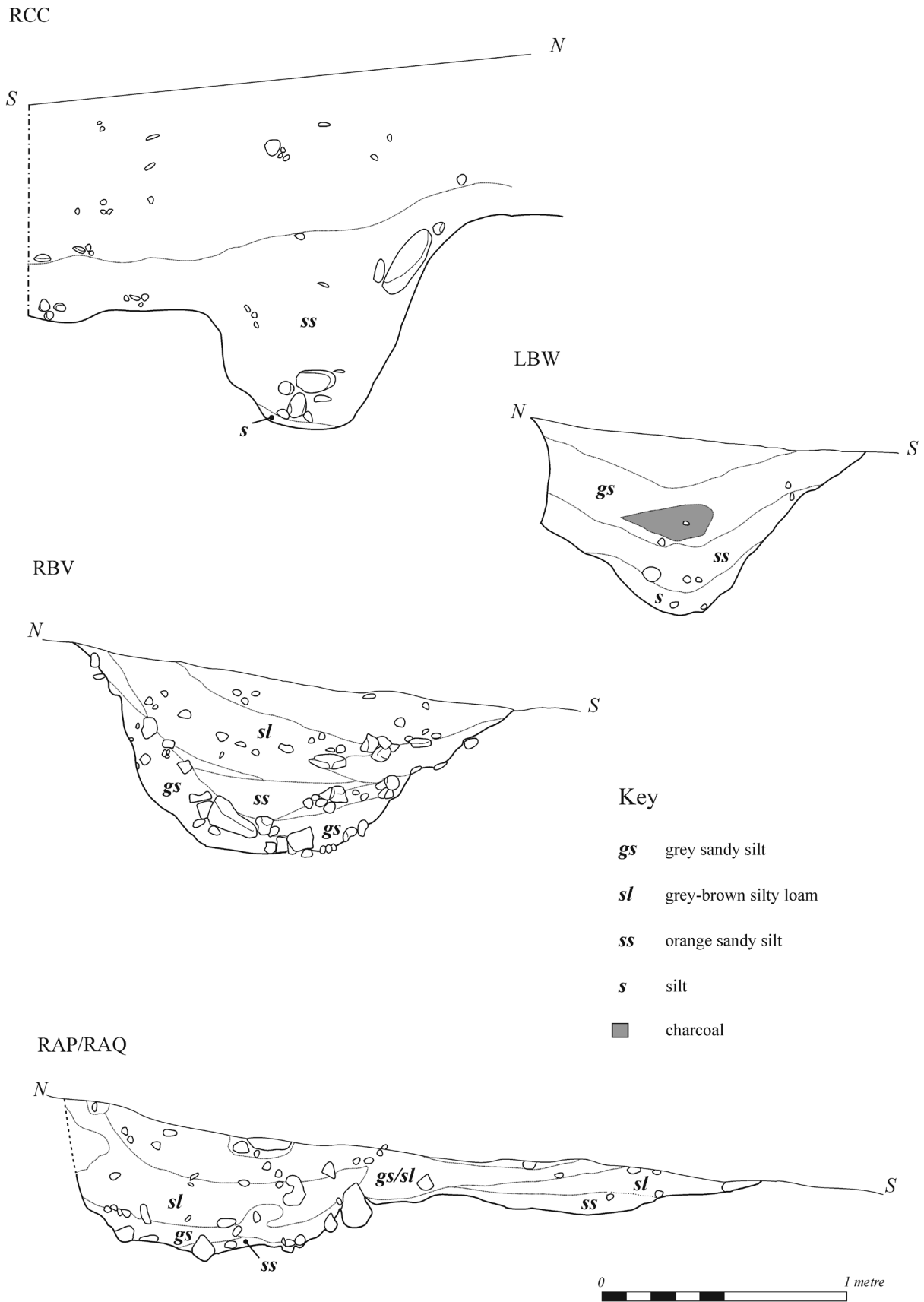
Illus 4.9 Well-preserved section of road surface (GBO) with segmented road ditch (GBP and GBL) to the left



Illus 4.10 Well-preserved section of bypass road (LBZ) in Area L from the east



Illus 4.11 Sections through the bypass road: top: LCC and associated ditches, LBY and LEM; bottom: LBZ, showing three phases



Illus 4.12 Sections of ditches on north side of the Phase 2 bypass road in Areas L and R



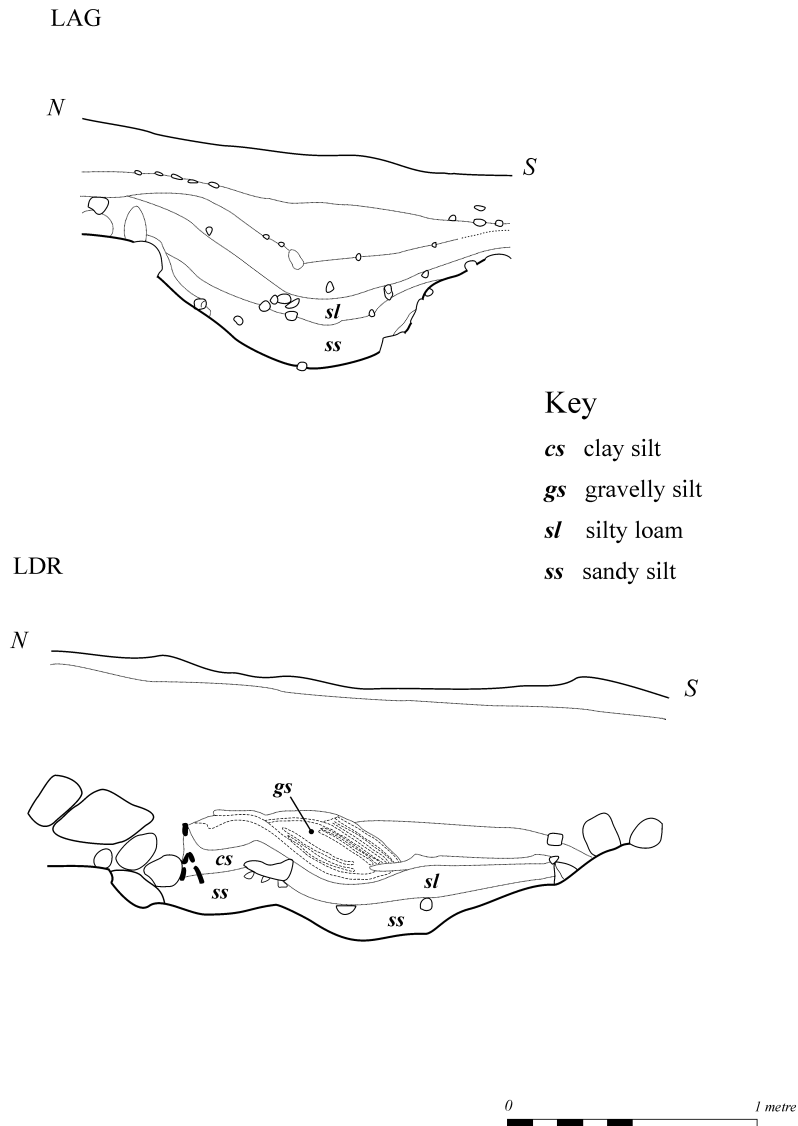
Illus 4.13 Intersection of road ditches (LEA and LBW/LCG) with curvilinear trackway drainage ditches (LDE/LCT and LBT/LBR) north of road (LBZ) from south

the intersection followed a more gentle curving alignment. The gap between the two ditches (LBR/LBT and LBS/LCT/LDE) is suggestive of a road junction leading north directly into the main area of the *vicus*, but no metalling was observed and there was no break in the kerb of the bypass road (see below) so it may have been just a ditch-defined path or trackway (Illus 4.13). The northern end of the proposed trackway aligns well with the curvature of the *via principalis* as it exits the west side of the fort (Illus 1.2).

This western continuation of the northern road ditch (LEA/LCX/RAO/RBV) came to a butt end after 11.5m (Illus 6.1 and 6.6). It was generally large, 1.6–2m wide and 0.65–0.75m deep, U-shaped with quite steep sides, and filled with layers of silty sand and loam with scattered stones (Illus 4.12). Beyond that it seemed to be made up of a series of conjoined delvings (RAP/RAR), including one that was offset to the south (RAQ), though this may be much earlier in date (see 7, below). This irregular stretch of road ditch ranged in width from 1.1m

to 1.9m and in depth from 0.5m to 1m, and again came to a butt end after 11.5m. Beyond that the line continued for a further 23m (RCH/RCC), but was sectioned in only three places (Illus 6.1). The ditch here was 1.4–2.3m wide and 0.7–0.85m deep, with a steep-sided U-shaped profile (Illus 4.12) filled with sandy silt. The corresponding ditch on the south side of the road was detected only in section at the east end of the excavated area (LEM) (Illus 4.11 and 6.1), where it was *c.* 1.2m wide and 0.35m deep, largely filled with and overlain by hillwash (LBX).

The existence of a further road (LDT) running approximately parallel to and some 5m south of the bypass line (LBZ/LCC) was identified in two hand-dug extensions to the main excavated area, one near its south-eastern corner and the second taking advantage of another quarry test cutting in order to examine a section further to the east (Illus 1.2 and 6.1). All that remained of the road was a concentration of medium to large water-worn pebbles with a ditch on either side. The north ditch (LAG) was 1.35m wide and 0.5m deep; the south



Illus 4.14 Sections of ditches associated with the Phase 1 bypass road in Area L

(LDR) 1.05–1.4m wide and 0.4–0.45m deep. Both ditches were filled with silty sand/loam, the southern ditch revealing a series of more gravelly lenses in section, which presumably reflect wash from the original road surface (Illus 4.14). There were also indications in one section of LDR of an earlier, smaller ditch, only *c* 0.6m wide and 0.25m deep, closer to the road on the south side. No stratigraphic relationship between the two parallel roads could be established, but all the other trenches draining down the slope (see 6.2, below) relate to the more northerly line, while the southerly example was less well preserved and showed no signs of more than a single phase, other than in its southern ditch, so may represent an earlier alignment that was abandoned.

4.3 Associated finds

- BBS/CCK: drainage ditch, north side of bypass road
- CCR, south of pre-fort enclosure: 1 sherd of plain samian; 23 sherds of coarse ware, including amphora; nail; fragment of iron
- CAC/CCT/CAA/CCZ, drainage ditch, north side of bypass road CCR, east of pre-fort enclosure: iron ferrule (Illus 9.10, F33); lump of iron; 5 sherds of plain, 1 of decorated samian; 59 sherds of coarse ware, including amphora; 2 nails; 2 hobnails; 2 fragments of glass bottle; fragment of window glass
- CCR, bypass road surface, south of pre-fort enclosure: 4 sherds of coarse ware; nail

CCS, link road surface, east of pre-fort enclosure: piece of worked sandstone; 2 sherds of coarse ware; nail

CCW, lower fill of drainage ditch, north side of bypass road CCR: sherd of coarse ware

CCY, silt build-up between bypass road (CCR) and its northern drainage ditch (CCT): 12 sherds of coarse ware; 5 sherds of mortarium; hobnail

GAB, lower fill of bypass road drainage ditch in quarry trench: 62 sherds of coarse ware, mainly from one vessel (13.4, no. 4, below)

GBL, silt build-up over bypass road ditch, GBP: 8 sherds of coarse ware

LCC, cleaning over surface of bypass road LBZ: fragment of samian.

LEE, secondary kerb of bypass road, LBZ/LDD: nail; 13 hobnails

LAG, drainage ditch, north side of primary bypass road, LDT: fragment of samian

LBW, junction of bypass road/trackway drainage ditch: fragment of twisted handle; nail; 18 sherds of coarse ware; sherd of mortarium; flint flake; fragments of burnt animal bone; charcoal fragments

LBX/LCO/LDO, hillwash over bypass road drainage ditches, LBY/LEM: iron ferrule (Illus 9.10, F34); iron strips; 2 hobnails; sherd of mortarium; 10 sherds of coarse ware, including amphora

LBY/LCG, drainage ditch, eastern section north side of bypass road LBZ: sherd of decorated samian; 12 sherds of coarse ware, including amphora; 3 sherds of mortarium; nail; 12 hobnails; fragments of animal bone.

LDD, primary surface of bypass road, LBZ: sherd of coarse ware

LDG, hillwash over bypass road, LBZ: sherd of amphora; hobnail

LDR, drainage ditch, south side of primary road LDT: fragment of samian; sherd of coarse ware

LEA/LCX/RAO/RBV, central section of drainage ditch, north side of bypass road LBZ: shale disc pendant; 5 sherds of coarse ware; 15 hobnails

RAP/RAR/RBS/RBT/RAH, central section of northern bypass road drainage ditch: piece of worked sandstone; 12 sherds of coarse ware;

4 small fragments of glass bottle; 2 hobnails; fragment of animal bone.

RAV/RAX/RBP, hillwash over bypass road drainage ditch RCC: bronze riveted strip; sherd of samian; 32 sherds of coarse ware; 2 sherds of mortarium; nail; 2 hobnails

RCC/RCH, western section of northern bypass road drainage ditch: 6 sherds of coarse ware; sherd of mortarium.

4.4 Interpretation and analogies

The implication of the spatial relationship between the link road to the fort and the pre-fort enclosure is that the east side of the latter continued in use as a drainage ditch on the west side of the link road. As a result this took a slightly circuitous route as it headed north towards the south gate of the fort. This would also serve to explain the different character of the ditch on this side of the enclosure and the hint of a recut in section CAB at the northern limit of the excavation (Illus 2.4). This arrangement, however, did not continue throughout the period of occupation of the fort, as the alignment of the link road was later shifted slightly to the west so that it partly overlay the enclosure ditch.

The existence of loop roads from the Military Way to allow long-distance traffic to bypass any of the forts along the Wall has long been postulated (eg Macdonald 1934: 92; Hanson & Maxwell 1986: 84). The point at which the bypass road branched off the Military Way some 300m to the west of the fort at Croy Hill was originally identified by the Glasgow Archaeological Society's Antonine Wall Committee when cutting sections across the Wall and ditch (GAS 1899: 67). The alignment of the bypass road is clearly defined by the natural topography as it follows a gap in the low hills to the south of the Wall (Illus 1.1C and 1.3) and was subsequently confirmed for a distance of some 130m by trenching undertaken by Macdonald (1934: 144–5). He went on to postulate that the road would have continued down the slope to follow the line of the modern railway and so avoid the steep ascent of Croy Hill. It is now clear, however, that it simply looped around the fort, passing some 65m to the south to it. Where it rejoined the Military Way to the east, however, could not be determined. There is a sufficient gap in the system of gullies in Areas G and H, between the

pottery kiln (GAM) and large pit (HAR), through which the road might have passed (Illus 1.2), but its side ditches might reasonably have been expected to survive the plough, even if the road surface did not.

Though it is not unreasonable to assume that such bypass roads would have been a common provision at all forts (Macdonald 1934: 92), this has been demonstrated in only three other cases. At Rough Castle the bypass road closely skirted the outer ditch of both fort and annexe, rejoining the Military Way on the west side of the Rowan Tree Burn (Buchanan et al 1905: 469 and fig 1); at Bar Hill the road benefited from the detached status of the fort, taking the shortest route to the north through the gap between it and the Wall (Macdonald & Park 1906: 4 and plates I and II); while at Cadder the bypass road again skirted the fort to the south, though the situation there is complicated by the fact that the Military Way itself did not appear to continue through the fort (Clarke 1933: 78 and end map). A fourth example may be indicated in seemingly contradictory antiquarian accounts of the line of the Military Way at Westerwood, supported by the identification of a section of road skirting the south-east corner of the fort (Macdonald 1934: 139 and 256); while a fifth is indicated by antiquarian references to, and mapping of, the line of the Military Way running around the fort at Duntocher

(Gordon 1726: pl. 16; Horsley 1732: 165 and 176 N2; Macdonald 1934: 176–7).

Clearly the bypass road across Croy Hill was well used. Not only was there evidence of wheel ruts and resurfacing in some of the better-preserved sections, but the whole road alignment was adjusted slightly along at least 200m of its length across the hillside and kerbs added. Furthermore, in one *c* 30m section on the south-west side of the hill a probably earlier, more southerly alignment was attested. Rather than the result of heavy wear, the need to rebuild and/or relocate the road line is more likely to have been caused by the detrimental impact of surface water drainage, as indicated by the heavy build-up of silt and hillwash against the north side of the better-preserved road line and the multiple provision of ditches on the west side of the hill draining water from the area of the *vicus* (see 6.2, below). That Roman authorities chose to replace the road more than once is clear testament to its perceived value and importance. Given these problems, it is not surprising that drainage ditches were provided on both sides of the road, though the southern example was less frequently exposed during the excavations described here. The irregular and segmented character of the northern ditch, particularly at the western end of the excavated area, may indicate its origins in the extraction of stone to build the road.

5. LAND DIVISIONS AND ASSOCIATED FEATURES

An extensive area to the east of the fort was stripped mechanically over two seasons (1976–7) in search of remains of the postulated civil settlement. The work focused on two main areas (Illus 1.2). The largest (excavation Areas D, G and H) extended for some 115m east/west and uncovered approximately 2,050m² across the top of a ridge of more level ground. The subsoil was very stony boulder clay and it immediately became apparent that the area had a long history of agricultural activity. This was evidenced by regular plough marks cutting into the exposed subsoil and the scouring of larger protruding stones, with consequent detrimental impact on archaeological preservation. Apart from the line of the bypass road (see 4.2, above), the main features recorded were land divisions interspersed with occasional remains of industrial activity. Some 40m downslope, on a slight terrace on the south side of the bypass road, a further 630m² was exposed in an area with slightly greater soil cover (excavation Areas E and M). Further land divisions were recorded here, along with a single cremation burial.

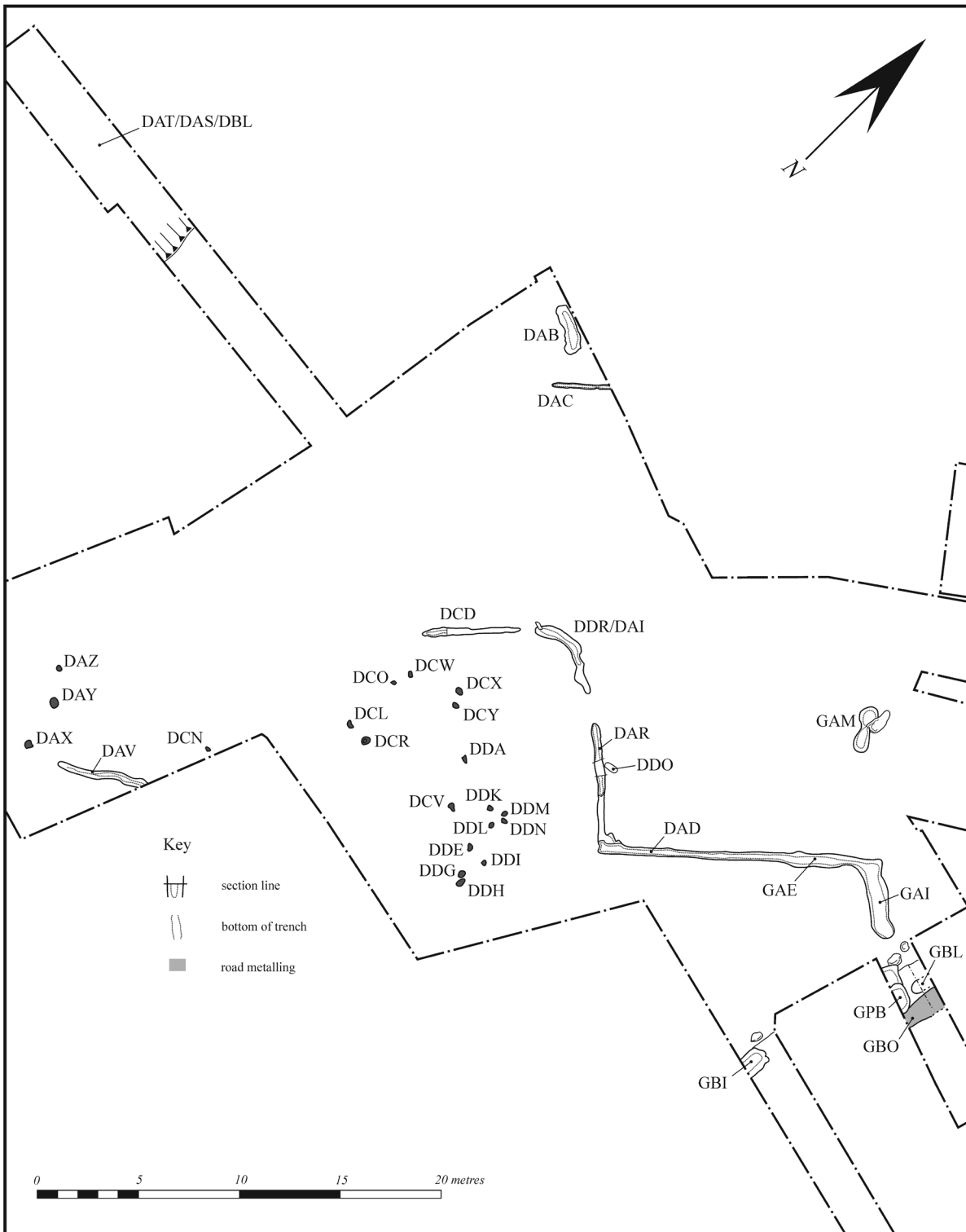
5.1 Land divisions

North of the bypass road at the western end of the excavated area the land divisions consisted of a series of linear features broadly aligned with the layout of the fort, but at an oblique angle to the bypass road (Illus 5.1). The various segments were discontinuous, but created a reasonably coherent pattern aligned broadly at right angles to each other. A 4.5m length of shallow gully some 0.25–0.4m wide and 0.16m deep (DAV) got progressively wider and deeper as it approached the edge of the excavated area (Illus 5.2 and 5.4). Some 9m north and 13.5m further east was a similar gully (DCD) running approximately parallel for 5m, while 12m further north was a third (DAC), slightly narrower (0.2m–0.3m), again on a similar alignment, which ran for 2.8m before disappearing into the side of the trench. Of the latter only the basal 20mm had survived. After a break of 0.7m, the central element of this parallel gully system (DCD), which was 0.35–0.65m wide and 0.05–0.65m deep, curved

through 90 degrees south (DAI/DDR) (Illus 5.1, 5.3 and 5.4). After a 1.5m gap, it continued for a further 6.5m (DAR), surviving to a depth of only 0.1–0.15m. Approximately one third of the way along DAR a sub-rectangular (0.74m by 0.32m) post hole (DDO) cut its eastern edge. The latter was straight-sided and flat-bottomed but only 0.24m deep with two large stones at one end. The gully then turned sharply eastwards through 90 degrees (DAD/GAE), on broadly the same alignment as the most westerly gully (DAV) (Illus 5.1 and 5.3). Though narrow (0.3–0.35m) and shallow (0.12m) at its western end, it got progressively wider (up to 0.8m) towards the east (GAE) (Illus 5.4), before again turning sharply through 90 degrees to the south after a length of some 14m. This final 4m-long segment (GAI) was of very different character, 1m wide and 0.4–0.5m deep, coming to a butt end immediately to the north of the bypass road (GBO) (Illus 5.1 and 5.4). The intersection with DAD/GAE had been badly damaged by burrowing animals, but gave the impression that GAI was structurally later.

With the exception of this last 4m immediately adjacent to the bypass road, the gullies were consistently narrow and shallow, and filled with silty sand. With their generally right-angled changes of direction, they were more reminiscent of construction trenches than drainage features. The overall impression created was of a structured layout of fences running parallel or at right angles to each other on the north side of the bypass road, though the survival of remains was insufficient to ascertain the size of the plots.

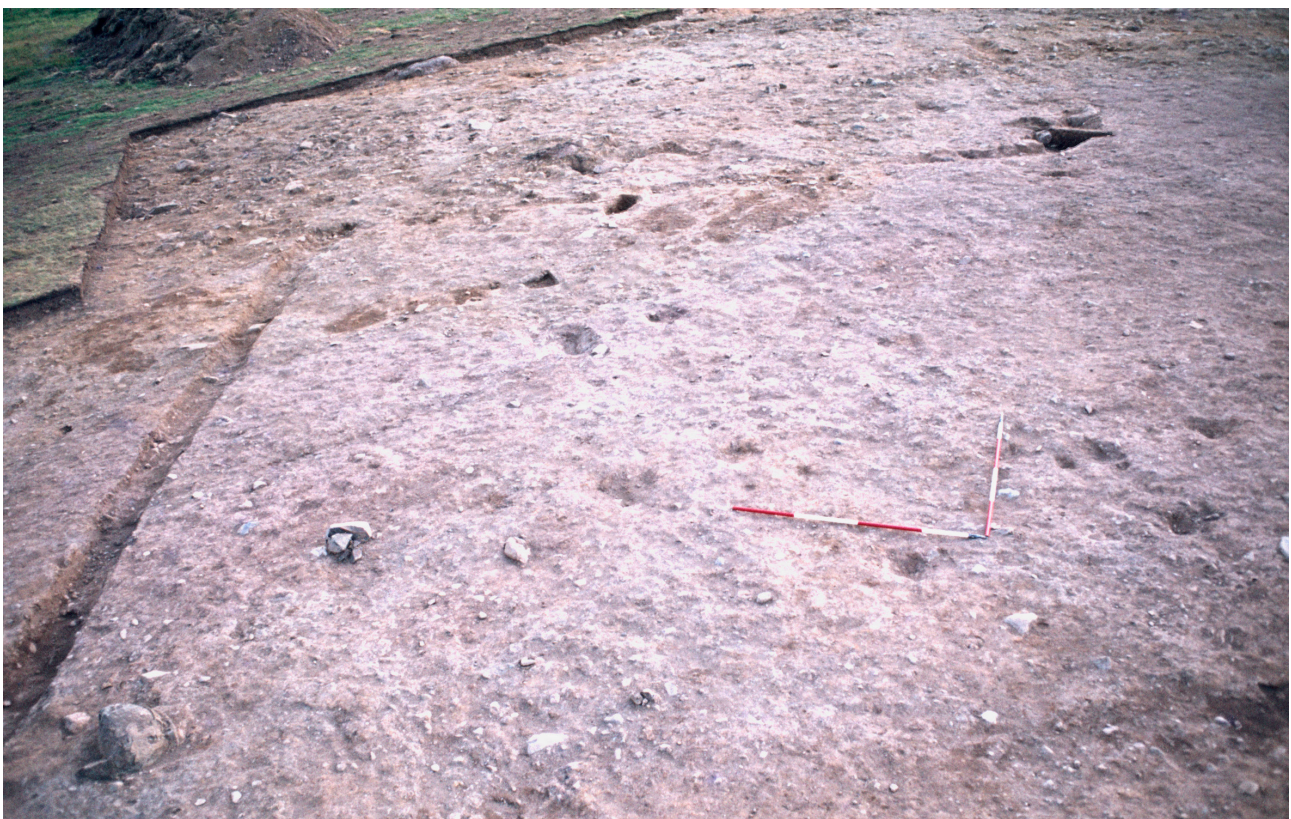
After a gap of *c* 26m, which contained a large pit (HAR) and adjacent post holes (see 5.3, below), and through which it is suggested the bypass road probably passed (see 4.4, above), the land divisions continued (Illus 5.5), though here the preservation was better and the pattern of plots clearer. The main east/west alignment was maintained for 27m by a gully (GAL/HAK) following a slightly irregular line through outcropping rocks (Illus 5.6 and 5.7) before turning at right angles to head north (see HAG, below). It was 0.5–0.7m wide, but only 0.05–0.23m deep, with a very stony fill in places (Illus 5.4). One possible post hole (GBC) was noted, revealed as a rectangular 0.1m-deep depression measuring 0.3 by 0.2m in the bottom of Gully GAL near its western end (Illus 5.1 and 5.6). The 11.5m-long western



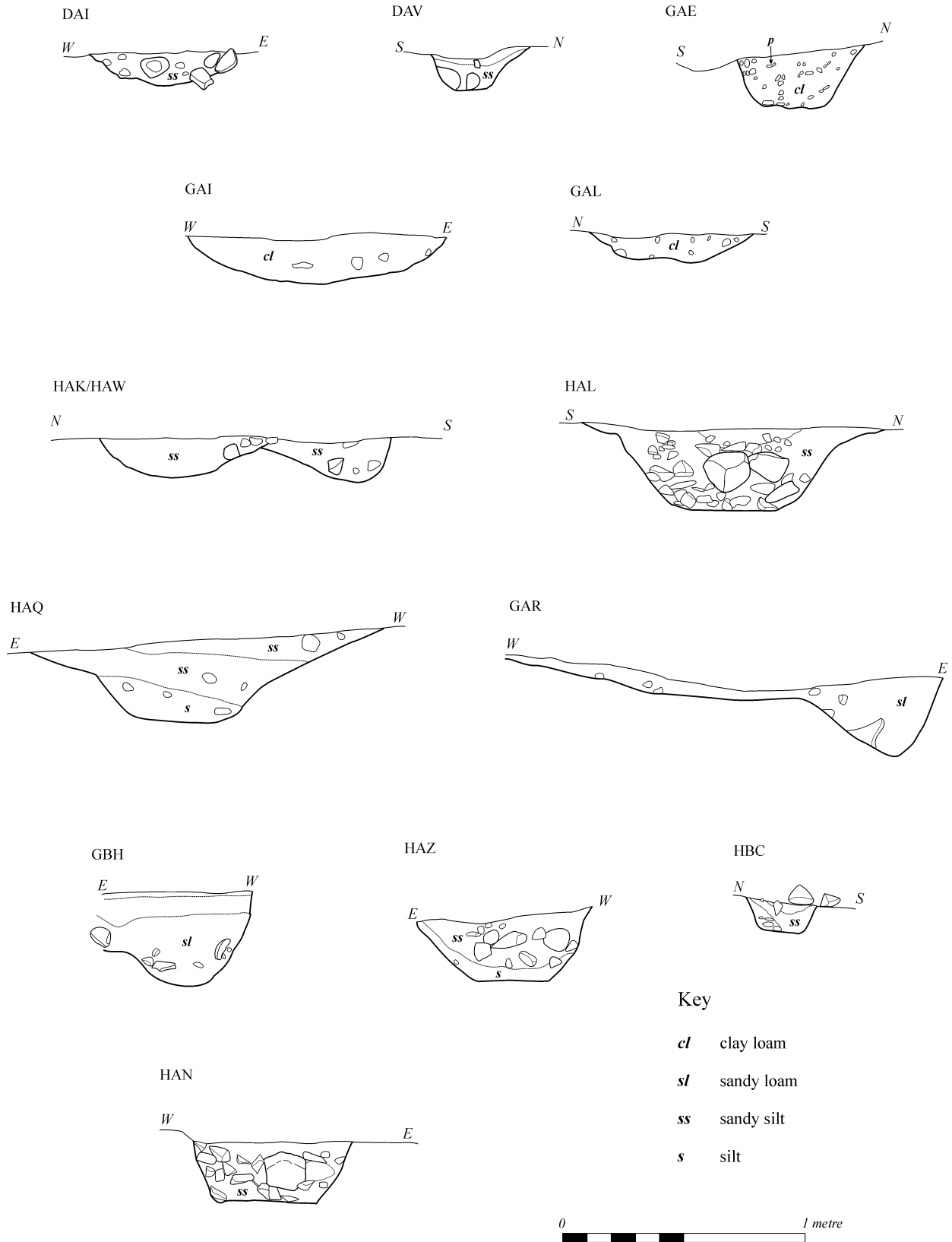
Illus 5.1 Overall plan of Area D/G east of the fort



Illus 5.2 Gully DAV and Post holes DAX/DAY/DAZ after excavation from the east



Illus 5.3 Line of Gully DDR/DAR/DAD/GAE after excavation from north-east



Illus 5.4 Sections through gullies in Area D/G/H

sector (HAK) was duplicated by an immediately adjacent parallel gully (HAW) to the south, which was similar both in its dimensions and sandy silt fill. It is possible that one line replaced the other, as in one section the northerly alignment (HAK) cut the southerly (HAW) (Illus 5.4), but their close spatial association indicated that they were part of the same broadly contemporary system. At its western end HAW turned at right angles to head south (see HBC, below) and came to a butt end to the east at the point where HAK turned north. After a gap of *c* 1m another gully (HAL) with more regular dimensions, 0.7–1m wide and up to 0.4m deep (Illus 5.4, 5.5 and 5.7), continued the main east/west alignment for a further 10.5m before it too came to a butt end.

A further series of gullies running at right angles to this alignment divided up the area on the north side into plots of varying size (Illus 5.5). Dealing with these linear features from west to east, the first (HAQ) was 0.3–0.4m deep and *c* 0.4m wide at its base, widening to 1.4m at the surface (Illus 5.4). It ran for 5.5m, narrowing and finally disappearing to the south. It was probably continued by a very similar feature (GAR) on the south side of the baulk, which came to a butt end 1.2m north of the west end of east/west Gully GAL (Illus 5.6). Though considerably larger than other gullies described below in terms of surface dimensions, it did not have the characteristics of a pit, while both its location and alignment fitted the layout of the land divisions across the area.

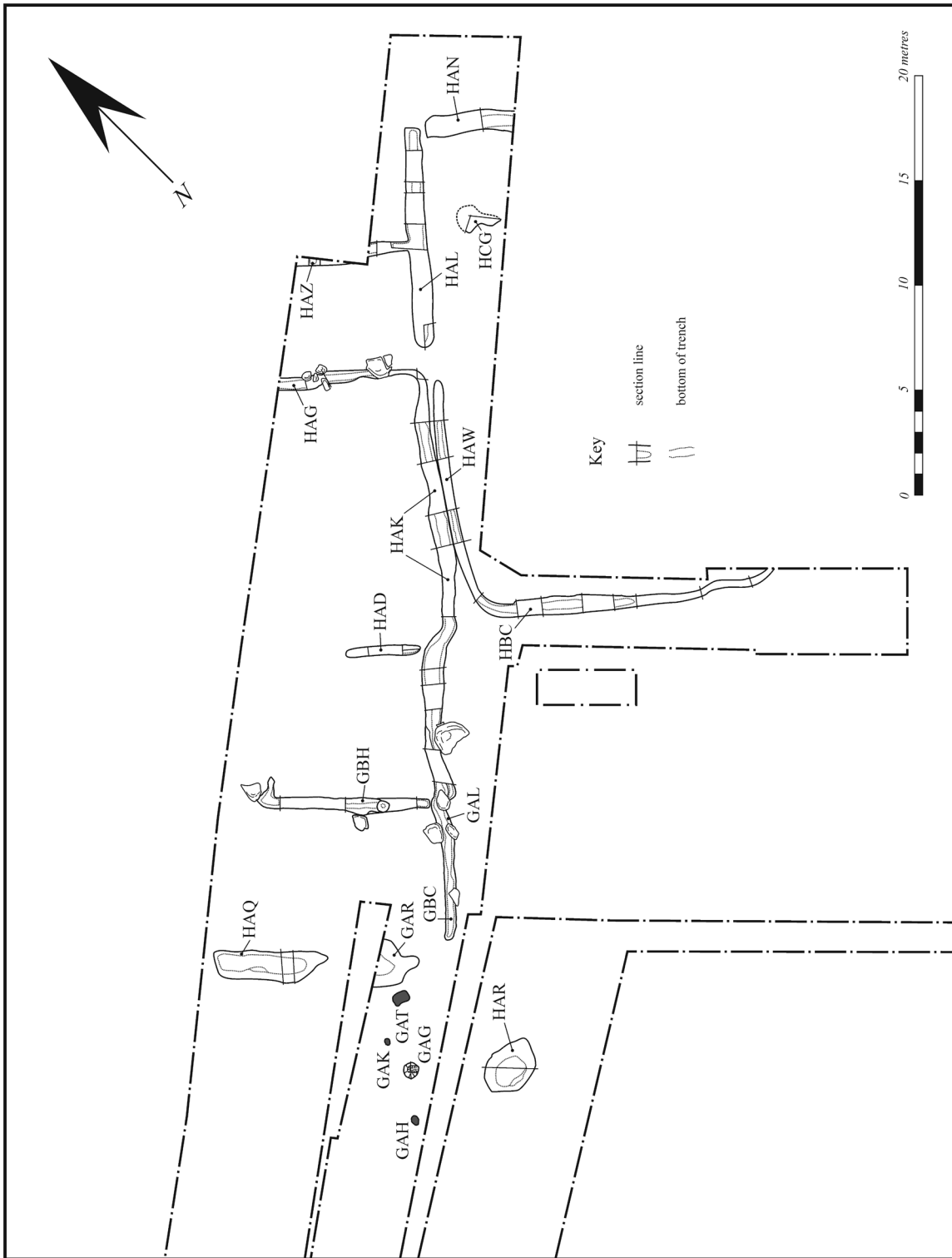
Almost 7m to the east a further gully (GBH) abutted GAL running north for 8m before turning east, parallel with GAL, and coming to an almost immediate butt end. It was 0.35–0.7m wide and 0.2–0.25m deep, mainly flat-bottomed, and contained large numbers of stones in its fill (Illus 5.4 and 5.6). Parallel to it *c* 7.5m to the east was a short stretch of gully (HAD) only 3.5m long, which also abutted GAL. It was 0.4–0.45m wide, but survived to a depth of not more than 0.1m. After a slightly wider gap of *c* 12.5m another north/south gully (HAG) was contiguous with HAK, running for *c* 6.5m before disappearing beyond the limit of the excavation. Its dimensions varied somewhat as it navigated a line between larger rocks, but was generally 0.5–0.8m wide and rather shallow, only 0.06–0.25m deep. The last of the north/south gullies

(HAZ) on the north side lay a further 5.5m to the east. It was contiguous with HAL and ran for *c* 5.5m before disappearing into the side of the trench. It was generally 0.5–0.6m wide and 0.17–0.25m deep, with a flat bottom and very stony fill (Illus 5.4).

Similar, but much less frequently occurring, gullies running at right angles to the main east/west alignment (HAW/HAL) were also recorded on its south side (Illus 5.5). As noted above, one (HBC) was a southerly continuation of the east/west line of HAW. It followed a slightly irregular course for *c* 14m and may have been starting to turn eastwards as it disappeared into the side of the excavation trench. It varied considerably in its dimensions (0.3–0.8m wide), but was generally shallow, only 0.1m deep, with a slightly stony fill, though with traces of silt at the bottom (Illus 5.4). A second gully (HAN) was located 22.5m to the east. At its northern end it abutted HAL at the east end of the main east/west alignment, but was recorded for a length of only 4m within the excavated area (Illus 5.7). Its remains were more regular and slightly more substantial than many of the other gullies. It had steep sides and a flat bottom, with dimensions 0.65–0.8m wide and 0.24–0.4m deep, and was filled with stony rubble (Illus 5.4).

Though generally slightly wider than the examples located closer to the fort (Area D), the gullies in the eastern half of the excavated trench (Areas G and H) were generally flat-bottomed and their sandy silt fills often contained a high proportion of stones. Once again the layout is more suggestive of construction trenches than drainage features, with right-angled corners and north/south gullies frequently abutting rather than connecting into the main east/west line. This is further reinforced by the occasional hints of possible post locations (eg GBC). Accordingly, the gullies are interpreted as fence lines defining a series of rectangular plots of various sizes adjacent to the bypass road.

Two areas (E and M) were opened south of the fort bypass road, where the land divisions were seen to continue (Illus 5.8 and 5.9). A shallow ditch (EAB/EAJ) ran south down the slope for *c* 12m. It was 1.1–1.3m wide and up to 0.2–0.4m deep, with an almost flat bottom (Illus 5.10). Its fill of silt and clay-silt with numbers of stones suggested that it may have served a drainage function and remained open for some time. The line of EAB was



Illus 5.5 Overall plan of Area G/H east of the fort



Illus 5.6 Intersection of Gullies GAL and GBH from the north-east, with post-impresion GBC. The southern end of Gully GAR is visible in the background

interrupted by a large boulder, beyond which it continued for 1.5m before its character changed to a narrow gully (EBR) 0.2–0.5m wide, but not more than 0.27m deep, with similar fill. This continued south for 11.5m before turning through a right angle to run east/west (EAK/EBI) for 4.5m. The dimensions and character of the latter gully (Illus 5.10), narrow with steep sides, a flat bottom and a high stone content, suggests that it was structural rather than for drainage, forming a fence line similar to those north of the bypass road (above). This

interpretation is given some support by the recovery of one nail fragment and some daub in one section. After a further interruption by two large boulders, the line of the gully continued east (EAI) for 5m disappearing into the side of the trench, coming to a butt end in the adjacent trench (Area M). However, its character and dimensions, 1.00–1.15m wide and up to 0.46m deep (Illus 5.10), were more consistent with a return to a drainage function. A 2.5m stretch of similar ditch (MAD) 0.8–0.95m wide on the same alignment \approx 9m to the south was identified



Illus 5.7 The right-angled junction of Gullies HAL and HAN prior to excavation from the north-east. The continuation of the line of Gully HAW/HAK is visible beyond the post-medieval field drain that cuts across the trench

in the adjacent trench (M) (Illus 5.8), but did not continue sufficiently far west to appear at the south end of Area E.

At the point where the north/south ditch EAB/EAJ changed to a narrow gully (EBR), the same alignment was continued by a second gully (EBU) broadly parallel to, and 0.6–0.9m to the west of EBR (Illus 5.8 and 5.9). This was 0.4–0.55m wide, up to 0.38m deep and ran for 4.8m before reaching a short, very shallow, cross gully (EBF) that linked

it to EBR. The steep sides of Gully EBU (Illus 5.10) and presence of a possible post hole (measuring 0.2 by 0.15m) within it towards its northern end suggests that this may again be a fence line, but the fill was very silty. The short cross gully (EBF) continued beyond the line of EBU for 0.4m, as if starting another east/west alignment, but no trace of it was identified further to the west. Both north/south gullies appeared to cut EBF, implying that they had been recut. Indeed, the more westerly gully



Illus 5.9 Ditch and gullies in Area E from south after excavation

seemed to widen at this point (EAY), maintaining surface dimensions of between 0.4m and 0.9m for the most part, with occasional irregularities, and a depth of 0.2–0.35m (Illus 5.10). The line of Gully EBU/EAY continued south for a further 11m before coming to a butt end (Illus 5.8). Some 5m before that end point, it widened to 1.3m and deviated slightly from its line where a further, slightly narrower (0.4–0.6m-wide) gully (EAR) branched off at right angles. This ran east/west for only 2.6m before ending at a possible post hole (EAE) cut into its base. A further independent post hole (EBA) was located immediately adjacent to the most southerly section of EAY. After a gap of 5.7m, the east/west alignment of EAR was continued by a further gully (EAC), which ran for 1.7m before disappearing into the side of the trench. It was 0.45–0.7m wide, 0.22m deep, with a flat bottom (Illus 5.10). A shallow (0.08m-deep) post hole (EAD), 0.45m in diameter, abutted it on its southern side.

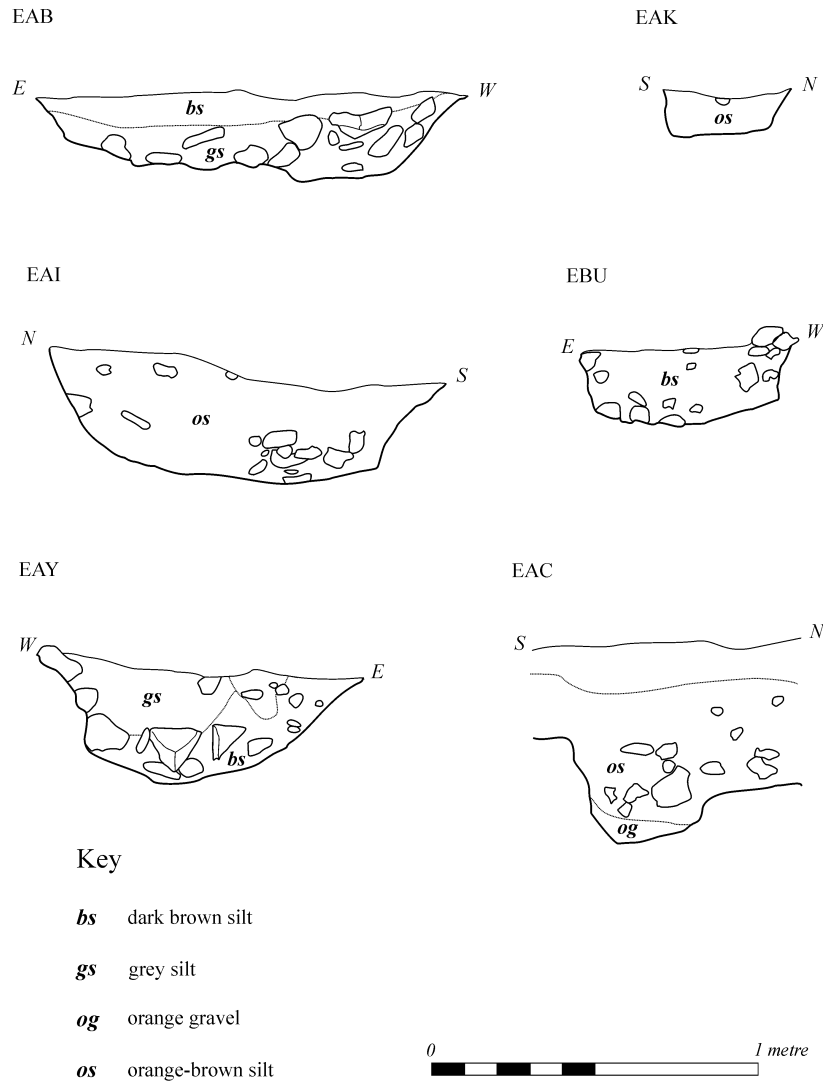
It proved consistently difficult to determine whether these linear features were drains or fence lines, but where they displayed right-angled turns, steep-sided profiles with flat bottoms and occasional

associated post holes, the latter has been assumed. In essence, however, the various features were performing a similar function as a means of dividing up the area into smaller plots.

5.2 Possible structural remains

Given the character of the boulder clay subsoil across much of the area and the truncation of the surface by ploughing, differentiating possible small post holes from stone holes was extremely difficult. However, three clusters of probable post holes were identified within the areas subdivided by the land divisions discussed above: one at the extreme west end of the excavated area closest to the fort; one much larger cluster some 15m to the east, both in Area D to the north of the bypass road; and a third just to the north of the large pit HAR (see below) in Area H, immediately to the east of the probable bypass road line.

At the far west end of the excavated area three small post holes (DAZ, DAX, DAY) formed an approximately straight line *c* 4m in length to the north-west of Gully DAV (Illus 5.1 and 5.2).



Illus 5.10 Ditch and gully sections in Area E

However, on the basis of the limited evidence recovered they seem more likely to have formed a continuation of the fence line at right angles to DAV rather than an independent structure. All were shallow with varying dimensions (Table 5.1) and uneven spacing. In addition, some 3.5m to the north-east of Gully DAV was a single post hole (DCN).

A line of seven posts holes (from north to south: DCX, DCY, DDA, DCV, DDE, DDG, DDH), the last two almost contiguous and the first two only 0.4m apart, formed an approximately straight line 9.5m long running parallel to, and 6.5m to the west of, Gully DAR, suggesting they formed a subdivision of the plot defined on two sides by Gullies DCD, DDR and DAR (Illus 5.1 and 5.11).

All the post holes were small and shallow where the dimensions were adequately recorded (Table 5.1). Two (DDH and DDE) had traces of daub in their fill. A small group of four (DDK, DDL, DDM, DDN), located 1.6m to the east of the subdividing line of post holes, defined an almost trapezoidal shape narrowing in width from 1m to 0.45m and 0.8–1m long, which may represent a temporary structure. A fragment of window glass was recovered from one of the post holes (DDM). Two pairs of post holes (DCL/DCR and DCO/DCW) of uncertain function, located 1.3m and 0.8m apart respectively, were also identified c 4.5m and 2.5m west of the subdividing line of post holes.

Some 4m north of the large pit (HAR) (see 5.3, below) were three post holes (GAG, GAH, GAT)

Table 5.1 Post hole dimensions, Areas D and G

Context	Shape	Length (m)	Width (m)	Depth
DAZ	circular	0.26 diameter	–	
DAX	sub-rectangular	0.36	0.42	
DAY	sub-rectangular	0.34	0.4	
DCN	sub-rectangular	0.22	0.18	
DCX	oval	0.32	0.28	0.16
DCY	circular	0.24 diameter	–	0.13
DDA	sub-rectangular	0.46	0.24	
DCV	pear-shaped	0.48	0.24/0.2	
DDE	sub-rectangular	0.44	0.3	
DDG	oval	0.2	0.18	
DDH	sub-rectangular	0.48	0.26	
DDK	oval	0.34	0.26	
DDL	circular	0.28 diameter	–	
DDM	circular	0.2 diameter	–	
DDN	oval	0.38	0.18	
DCL	oval	0.4	0.14	0.13
DCR	circular	0.3 diameter	–	
DCO	oval	0.44	0.24	
DCW	sub-rectangular	0.4	0.24	
GAG	circular	0.8 diameter	–	0.5
GAH	sub-circular	0.44	0.34	0.15
GAK	oval	0.5	0.4	0.28
GAT	sub-rectangular	0.8	0.5	0.1

2.4m and 3.5m apart from centre to centre, forming a line at right angles to Gully GAR (Illus 5.5 and Table 5.1). Accordingly, they seem more likely to be linked to the land divisions in the area than to form an independent structure. A fourth possible post hole (GAK) was offset 1m to the north of this line. The central post hole (GAG) contained a disturbed post-impression (0.54m by 0.3m) (Illus 5.12), whose fill contained traces of charcoal, while the offset example (GAK) contained what appeared to be stone chocking at the bottom (Illus 5.13).

5.3 Industrial features

Scattered traces of industrial activity were identified across much of the area examined to the east of the fort. Most significantly, situated within the

middle of one of the fenced enclosures, some 5m north of the east end of Gully GAE and 13m from the bypass road (Illus 5.1), was a figure-of-eight-shaped pit 2.46m in overall length which had clearly functioned as a kiln or furnace (GAM). Its Roman date was readily confirmed by the recovery of pieces of broken architectural sandstone (see below and 9.4, S2–3) in its upper fill (Illus 5.14).

The furnace bowl, located at the northern end, had a maximum diameter of 1.0m, but was slightly irregular in shape as one side was set against, and marginally undercut, a large and slightly crumbling natural boulder. The bowl was steep-sided and had been sunk into the ground to a depth of 0.45m. Its sides had been reddened by fairly intensive burning, particularly in the vicinity of the flue, and its lower



Illus 5.11 Cluster of possible post holes after excavation in Area D from the south-west. Gullies DAD and DDR/DAI are visible top centre and top left respectively

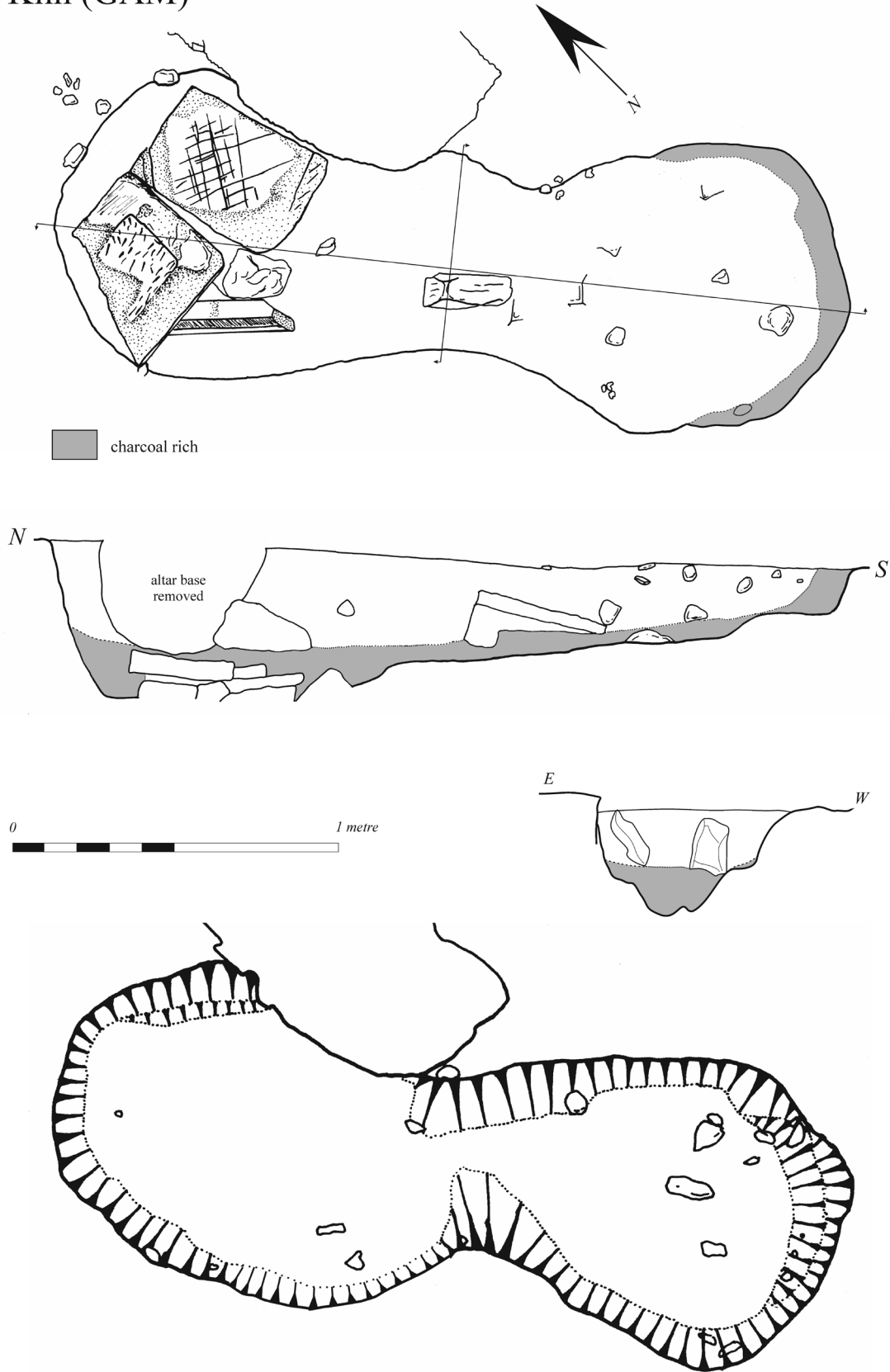


Illus 5.12 Post hole GAG showing disturbed post-impression



Illus 5.13 Post hole GAK showing stone chocking

Kiln (GAM)



Illus 5.14 Detailed plans and sections of pottery kiln (GAM)



Illus 5.15 Pottery kiln GAM during excavation showing basal sandstone slabs

fill contained a high percentage of charcoal with some burnt clay (Illus 5.14 and 5.15). The centre of its flat base had been covered with several small sandstone slabs, two courses deep in places (Illus 5.16). The floor rose slightly through the flue, which splayed out from a width of *c* 0.2m at the bottom. Beyond that the floor continued to rise gently along the length of a rake-out pit, which was also 0.95m in diameter, to a minimum depth of 0.14m at the south end. Again the lower fill contained a high percentage of charcoal, which spread slightly up the sides, reaching the surface only at the south end of the rake-out pit (Illus 5.14). The upper filling of the latter contained much lower concentrations of charcoal and occasional larger stones. The placing of the broken architectural fragments of stone in the upper filling of the furnace bowl was clearly deliberate and indicated that it had gone out of use in the Roman period.

There was no direct evidence for the function of the furnace. However, its structural features are not really reminiscent of a military oven, so an industrial function seems more likely. There was no associated slag and the burning of the inside did not seem sufficiently intensive to be linked to metalworking. The best structural parallels are provided by pottery kilns, and the Croy Hill example was accepted as such by Dr Vivien Swan in her gazetteer of Roman pottery kilns (1984: 151 and fiche 6.723).⁶ Such kilns are not infrequently set into the subsoil and in such circumstances are not necessarily clay-lined, while the layers of stone slabs at the bottom of the furnace bowl may have provided the equivalent of the prefabricated clay kiln furniture commonly attested in pottery kilns. Some support for this interpretation is provided by the examination of the coarse ware and mortaria fabrics and mortaria forms, which strongly suggests that local pottery manufacture was taking place at Croy Hill (see 12.2–12.4; 13.2; 14.7, below).

Some 20m to the east of the probable pottery kiln (GAM) was a large pit (HAR) cut into the natural clay (Illus 5.5). It was an irregular oval in plan, measuring 3m by 2.15m, with almost vertical sides and a flat base at a depth of 1.45m (Illus 5.17 and 5.18).⁷ The backfill can be characterised in three broad zones: a fairly homogeneous lower fill of grey or orange silty sand with gravel and some charcoal flecks, which appeared to have been deliberately

deposited when the pit had ceased to serve its primary function; a central fill of fairly thin layers of grey/brown silty clay mixed with gravel, suggestive of more gradual infilling from natural weathering; and an upper fill of loamy soil and larger stones accumulated from later agricultural infilling of the surviving hollow.

Apart from the upturned sandstone column base visible on the surface, the very few finds recovered came from the bottom fill. The paucity of finds, given that the pit was completely excavated, and the character of the infilling, indicates that it had not served as a rubbish pit. There were no associated features to indicate that it had any industrial function, so given its location adjacent to a probable pottery kiln it may have been dug to extract clay and/or used to store clay while it was weathering.⁸

No further features were identified in this central area. However, near the eastern limit of the excavation in Area H, 2m south of the intersection between Gullies HAL and HAZ, several patches of soil containing traces of charcoal coalesced into an amorphous spread (HCG) (Illus 5.5). This was up to 0.17m deep, but its limits were difficult to define and its significance uncertain.

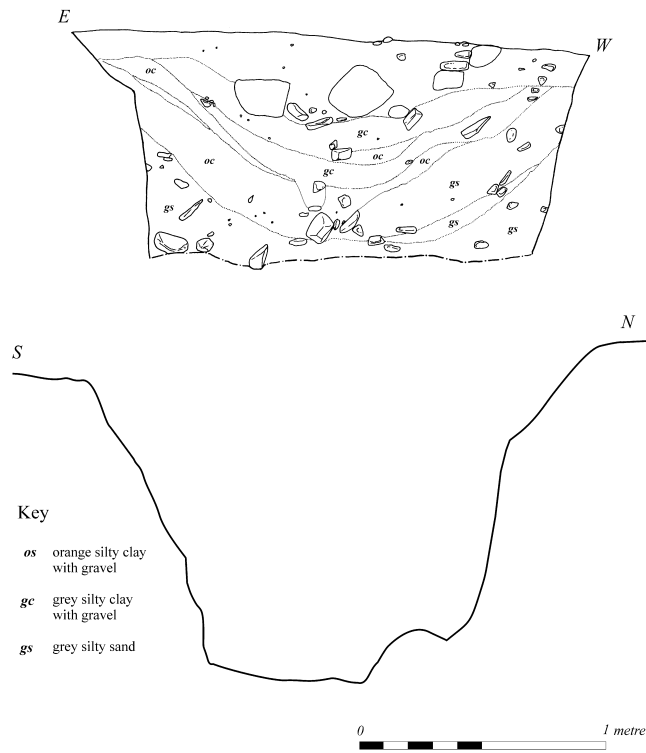
Towards the northern limit of excavation in Area D (Illus 5.1) a further possible elongated pit (DAB) was located. It measured 2.50m by 0.81m and was 0.30m deep, with steep sides and a flat bottom (Illus 5.19). It was filled with sandy silt, with signs of root disturbance, but provided no clues as to its function or antiquity, other than a piece of coal at the bottom.

Finally, a narrow, largely hand-dug trial trench which extended the excavation downslope towards the northern limit of the area threatened (Illus 1.2 and 5.1), revealed a range of occupation debris, including patches of burning, with burnt brick and slag-like material (DAS), suggestive of rakings from a furnace. This material spread across the whole of the northern end of the trench (DAS, DAT, DBL) and into the adjacent extension (DBO). The failure to identify discrete limits to the deposits and their location in an area of damper, lower-lying ground suggests that the area may have served as a midden. It lay almost exactly equidistant (some 60m) from known sources of furnace rakings, the probable pottery kiln and the site of the fort bathhouse.



Illus 5.16 Pottery kiln GAM after excavation

HAR

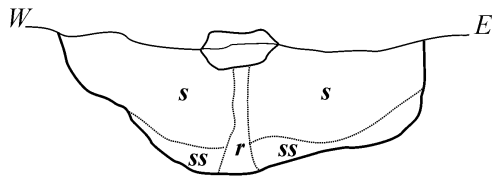


Illus 5.17 Section and profile of large pit (HAR)



Illus 5.18 Pit HAR during excavation. The large stone in the upper fill of the unexcavated section is a damaged altar plinth

DAB



Key

- s* orange brown silt
- ss* grey brown sandy silt
- r* root disturbance

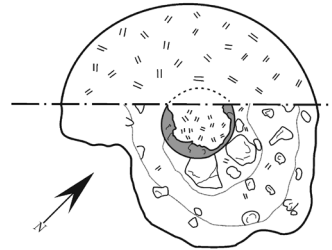


Illus 5.19 Section of elongated pit (DAB)

5.4 Cremation

A single cremation pit (EAN) was found within the land divisions investigated on the south side of the bypass road in the south-east corner of the trench (Area E) (Illus 5.8). It was roughly circular, measuring 0.4–0.45m in diameter, and survived to a depth of 0.19m (Illus 5.20 and 5.21). Centrally

located within the pit was a single upright, grey-ware jar filled with cremated bones (see 19.1, below). The top of the jar had been truncated by ploughing, but the greater part remained intact. Flat, burnt stones supported the base of the pot at the bottom of the



Key

- charcoal
- sc* orange silty clay
- contour lines at 0.5m intervals



Illus 5.20 Detailed plan and section of cremation pit (EAN)



Illus 5.21 Cremation pit (EAN) during excavation

pit, which was filled with charcoal mixed with dark brown loam and a few smaller stones. The density of the charcoal content decreased towards the top of the pit. Twenty-three hobnails were recovered from its fill.

No other cremations were identified. However, *c* 5.5m to the east a narrow curvilinear feature (MAE) may have been associated in some way with the cremation process as it contained much charcoal, a sherd of burnt coarse ware, a hobnail and other unidentified fragments of iron. It was 1.5m long, up to 0.3m wide and 0.15m deep (Illus 5.8).

5.5 Associated finds

DAD/DAR/GAD/GAE/GAO, shallow linear gully/fence line: 4 sherds of decorated samian from the same vessel; 113 sherds of coarse ware, including large quantities of amphora and half of a BB1 cooking pot; 36 sherds of mortarium, constituting almost a complete stamped vessel (Illus 12.1, no. 3 and 12.2) (12.3.2, below)

DAI/DDR, shallow curving gully: 16 sherds of coarse ware

DAV, shallow linear gully: 2 sherds of coarse ware

DAS/DAT/DBL/DBO/DBR, occupation debris/midden material in northern extension of Area D: hobnail; scrap of samian; sherd of mortarium; 108 sherds of coarse ware, including quantities of amphora; glass counter (Illus 15.1, no. 13); fragment of glass bottle; burnt clay/daub; several fragments of animal bone, some burnt

DDM, post hole: fragments of animal bone; fragment of window glass

EAB/EAJ, shallow north/south ditch: scrap of samian; hobnail

EAN, cremation pit: complete body of grey-ware jar; 23 hobnails

EAR, narrow east/west gully: sherd of coarse ware

EAY/EBY, north/south drainage gully: 2 sherds of coarse ware; hobnail

EBI, narrow east/west gully: nail; piece of daub

GAI, short stretch of drainage gully between Gully DAD and Road GBO: sherd of decorated samian (probably part of the same vessel in GAE, above)

GAM, furnace/kiln: broken sandstone altar plinth (Illus 9.2); unfinished sandstone architectural block (Illus 9.4, S3; Illus 9.3)

HAR, large oval pit: damaged sandstone altar plinth (Illus 9.4, S1; Illus 9.1); sherd of coarse ware; shale counter (Illus 9.4, S22); fragment of glass bottle

HBA, section of deep north/south gully, HAN: sherd of coarse ware

HBD, section of east/west gully, HAK: sherd of coarse ware

HBN, butt end of shallow, east/west linear gully, HAL: 2 sherds of coarse ware

HCX, section of shallow, north/south linear gully, HAZ: sherd of coarse ware

MAE, shallow strip of burning: charcoal; burnt sherd of coarse ware; hobnail

5.6 Interpretation and analogies

Extensive investigation of the area to the east of the fort revealed a combination of fences and ditches on both sides of the bypass road. Occasional sherds of Roman pottery recovered from their fills (5.5, above) were consistent with an Antonine date for the use of the system. These fence lines and occasional short stretches of ditch followed a consistent north/south or east/west orientation and respected, but were not aligned with, the bypass road. They served to divide up the area into small rectangular plots of varying size, though none of the plots were sufficiently defined to provide complete dimensions. These enclosures may reasonably be interpreted as for agricultural or industrial purposes, the former an assumption based on the potential need to house livestock near the fort, the latter attested by a range of evidence (see below).

Field systems are attested outside four other forts on or directly associated with the Antonine Wall: at Auchendavy, Westerwood, Rough Castle and Carriden. Excavation some 200m north of the fort at Auchendavy revealed elements of a rectilinear arrangement of fields defined by a main ditch and two smaller linear 'ditches' at right angles. At least one of the latter is more likely to have been structural as it stopped short of the main ditch, was of much smaller dimensions (only *c* 0.3m wide) and had been rapidly infilled (Dunwell et al 2002: 274–9). Two of these features contained quantities

of Roman coarse ware of Antonine date and two contained non-ferrous metallurgical ceramics. Excavation to the west of the fort at Westerwood located a few short sections of ditch and gully overlain by burning associated with quantities of Roman material (Keppie 1995: 90–1 and 97–8), while at Rough Castle a group of some 12 small, conjoined sub-rectangular enclosures, defined by extant slight banks and ditches, are located between 60m and 100m to the south-east of the Roman fort. Sample excavation recovered no associated Roman material, so the excavators offered only a cautious endorsement of a possible Roman date, though the system is aligned on what is identified as a probable Roman road, suggesting the enclosures may have been used as garden plots (Máté 1995). Finally, at Carriden a system of ditch-defined rectilinear fields or plots aligned on the Roman road leading east from the fort has been recorded from the air and confirmed by geophysical survey (Keppie et al 1995: 602–6; Hanson et al forthcoming).

Similar field systems are attested at other Antonine forts in Scotland. At Castledykes the ditches of a temporary camp immediately to the north of the fort seem to have been enhanced to create a system of small rectangular fields, though when this occurred is unclear and may have post-dated the Roman period (Jones 2011: 93 and 168–9); while at Inveresk extensive rectilinear field systems have been recorded over a number of years to the east of the fort (Brown 2002: 12–13 and figs 5–9). Such excavation as has taken place has been very small scale, but has provided confirmation that the fields were ditch-defined and in use in the Roman period (eg Cook 2004: 138–9 and 149–50; Leslie 2002).

The closest structural and functional parallels for the enclosures at Croy Hill are provided by the features excavated at Auchendavy, as the enclosures there seem to have been defined by both ditches and fences, and industrial activity is also attested in the vicinity. The other sites confirm that that contemporary agricultural activity in the immediate vicinity of forts in Scotland in the Antonine period was not unusual.

Scatters of post holes at the western end of the system of land divisions nearest to the fort at Croy Hill indicated the presence of what were probably rather ephemeral structures. However, the remains were not sufficiently clear or well preserved to

allow confident identification of the character of any buildings, apart from a single piece of window glass that hints at some level of sophistication. None of the other field systems along the Antonine Wall have been examined in sufficient detail to confirm whether similar structures were associated, though scattered post holes of probable Roman date were recorded at Westerwood (Keppie 1995: 87–8). A spread of occupation debris was identified less than 20m to the north of the land divisions, but was not examined sufficiently extensively to determine its full extent or character. Indeed, given its location on the edge of a more low-lying area (Illus 1.2 and 1.4) and the absence of any defined features, it probably served as a midden.

At least two different forms of industrial activity can be shown to have taken place within the enclosed plots of land. Firstly, within one to the north of the bypass road was a small figure-of-eight-shaped furnace, probably a pottery kiln (GAM), which had clearly gone out of use in the Roman period as its furnace bowl had been backfilled with broken stone architectural fragments. Very few finds were recovered from the gullies that defined the plots, but the greatest concentration by far came from those immediately to the west and south of the kiln, indicating considerable activity taking place in the vicinity. These finds included five sherds of a decorated samian bowl (11.1, GAE/GAI, below), an almost complete Colchester mortarium (12.3.2, no. 1, below) and half of a BB1 cooking pot/jar. The fact that substantial parts of individual vessels were recovered together suggests that they were probably found close to where they were originally broken. However, no wasters were recorded from either the furnace itself or the gullies. A large pit (HAR) nearby may also have been associated with the production of pottery.

Evidence for the local manufacture of pottery in Roman Scotland has been accruing for some time, based on a combination of fabric analysis, restricted distribution of particular products, the recognition of wasters and, least commonly, the identification of kilns (eg Hartley 1976; 2016; Breeze 1986). Detailed examination of the character and fabrics of the mortaria from the site indicates that several vessels are of local manufacture, most probably made at Croy Hill itself (12.2, below). Similarly, examination of both the oxidised and grey wares

is strongly suggestive of quite a high proportion of local production (13.5.3, below). In addition, though unable to identify a single, distinctive local ware group, chemical and petrographic analysis of a number of samples of coarse ware and daub from the site did indicate a core group of samples that were distinct from wares produced at other sites in the Wall zone with a chemical overlap with local clays (14.7, below).

There are at least five other kilns identified along the Antonine Wall, one from the adjacent fort at Bar Hill and at least four from Duntocher. At the former the kiln was built into the north side of the *prae-furnium* of the internal bathhouse, taking advantage of the existing stoke hole (Keppie 1985: 59–60 and 76–8; Swan 1999: 426–7 and 456–7). It was formed from the same small sandstone blocks as the bathhouse, of which four layers survived, and was *c.* 0.82m in internal diameter with a splayed mouth or flue 0.12m–0.18m wide.⁹ Its function was confirmed by the recovery from its backfill of kiln bars and of over 900 sherds of pottery in the same fabric from the immediate vicinity. At Duntocher, a series of kilns was located in 1977 during house building to the south-west of the fort, of which four were excavated (Newall 1998: 25–8). They provide better parallels for the Croy Hill example as they consisted of shallow, clay-lined pits, oval or circular in shape and of varying internal diameter (*c.* 0.75–1.85m), with adjacent, shallow flues. One was apparently double, with a central stone pad, and two were provided with central clay pillars. Associated pottery included both oxidised and reduced wares, the latter not dissimilar to BB1 (Swan 1999: 460–1).

The presence of broken or damaged architectural stonework in the backfill of both the kiln (GAM) and the adjacent large pit (HAR) (see 9.4, S1–3, below) indicates the activities of a stonemason in the immediate vicinity, since they are clearly pieces that were not completed and/or had broken during manufacture. This is the first time that evidence of a possible mason's yard has been identified from excavations along the Wall, though a mason's pick was recovered from excavations in the fort in the 1930s (see 9. 1, below) and probable stonemasons' tools have been identified from various sites along Hadrian's Wall (Manning 1976: 25–7).

Down the slope at the southern limit of the excavation, but apparently still within the system of

land divisions, was a single cremation in a grey-ware jar, hinting at the presence of a cemetery nearby. Indeed, one of the most memorable antiquarian discoveries from the site is the tombstone of three legionaries (*CSIR*: 90; Coulston 1988), presumably found as a result of agricultural activity on the hill, though the location of its original discovery is unrecorded. However, an extension of the excavation to the east (Area M) failed to uncover any further burials. There have been no cemeteries identified along the line of the Wall to provide parallels, though a cluster of tombstones, both military (*RIB* I: 2179; 2181) and civilian (*RIB* I: 2182; 2183), along with funerary sculpture (Keppie 1998: 113–18), has been recorded at or near Auchendavy. This ought to suggest the location of a cemetery, probably to the east of that fort.¹⁰ Cemeteries were usually located beyond any civil settlement associated with the fort, and so could be some slight distance away. Thus, at Birdoswald on Hadrian's Wall the cemetery is some 400m west of the fort. Indeed, Sommer has argued that the location of cemeteries was planned *de novo* to be sufficiently far away from the fort to allow adequate space for the construction of the *vicus*, with recorded examples in Germany as much as 650m away (1989: 472).

Some other religious activity is located to the south of the fort with the discovery in 1913 of an altar to Mars and a separate altar base (Keppie 1998: 98–9) near the northern limit of Nethercroy Quarry, while in the early 19th century an altar to the nymphs was recorded from the foot of the hill (*RIB* I: 2160). The potential presence of a shrine linked to a natural spring was considered during the excavation and some time was devoted to the examination of a waterlogged area on the slope to the east of the old quarry. Though fed by groundwater, this proved to be a stone-lined water tank of no great antiquity, probably linked to the working of the quarry or possibly to post-medieval farming activity on the hill. Nonetheless, the recovery of altars in apparently primary contexts some slight distance removed from forts, as recorded at Westerwood, Castlecary, Bar Hill, Castle Hill and Duntocher (*RIB* I:II 3504; *RIB* I: 2149; 2167; 2195; and 2201), suggests that the location of small shrines in the immediate vicinity of forts on the Wall was not uncommon (Hanson 2020b: 341).

6. CIVIL SETTLEMENT (*VICUS*)

An area approximately 2,200m² in extent to the south-west of the fort (Areas L and R) was stripped mechanically over two seasons (1977–8) to continue the search for remains of the postulated civil settlement. The northern limit of the excavation followed the southern limit of the guardianship area near the break of slope on the southern edge of a flat plateau to the west of the fort (Illus 1.2 and 1.4). The subsoil was, as elsewhere across the hillside, very stony boulder clay, but with a covering of silty soil in places where it had been washed down the slope. Though this had enhanced the preservation of some remains, for example in the south-east corners of Areas B and L (see 4.1, above), elsewhere they had suffered no less from agricultural activity over the centuries. The intensity of that activity was confirmed by the identification of a series of three parallel, post-medieval, dry-stone field dykes approximately 15m apart running down the slope across Area R, none of which were visible on the ground prior to excavation, or appear on the Ordnance Survey 1st edition 25-inch map of the area. It is no coincidence, therefore, that no trace survives of the surface of the bypass road in Area R (Illus 6.1).

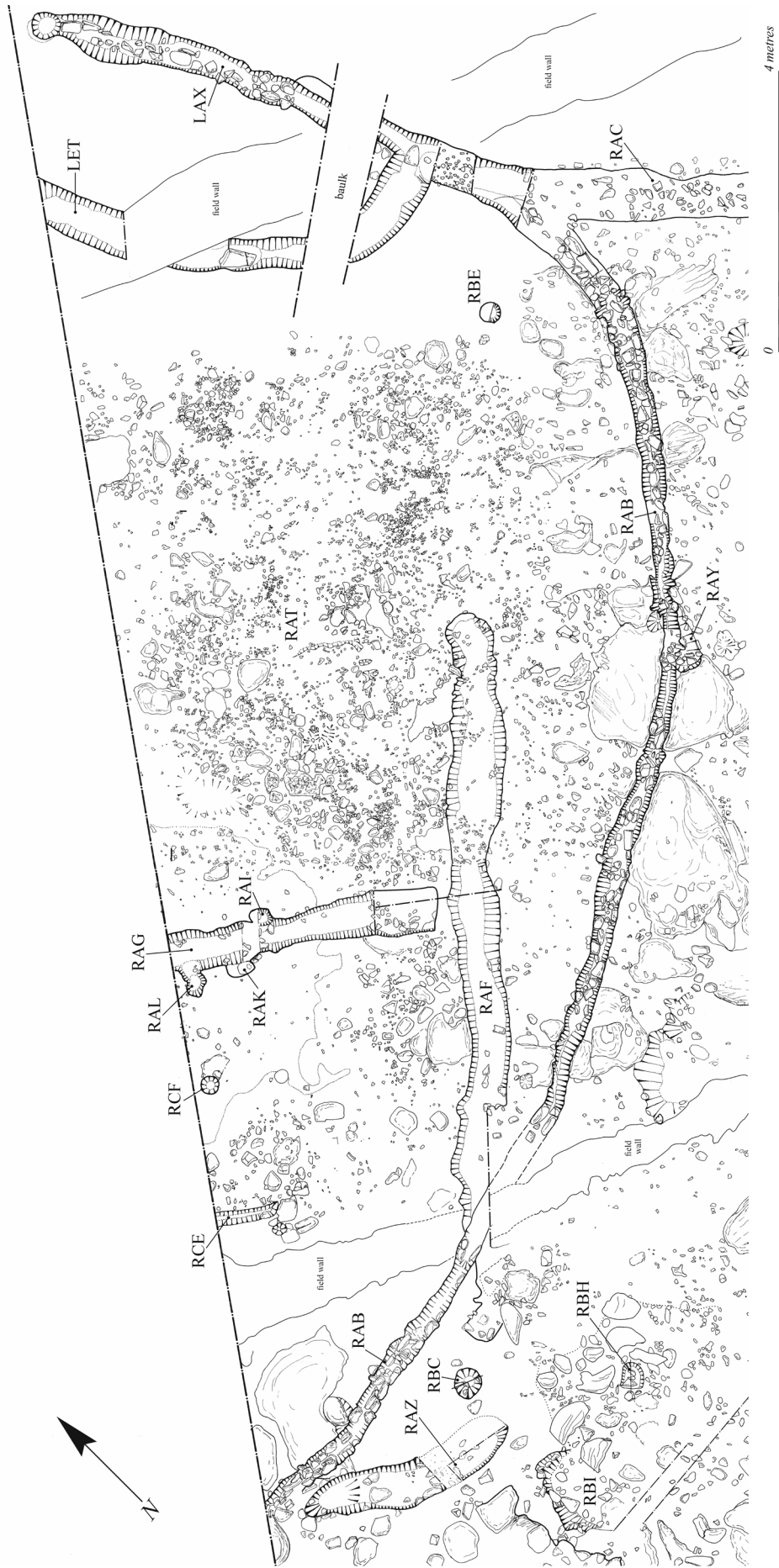
The excavation revealed only very limited structural remains, but uncovered a complex of multiphase drainage ditches and gullies running downslope to link into those on the north side of the bypass road (4.2, above). The abundance of various categories of Roman artefactual material recovered from the drainage ditches strongly suggests that they had come from an area of intensive occupation further up the slope.

6.1 Structural remains

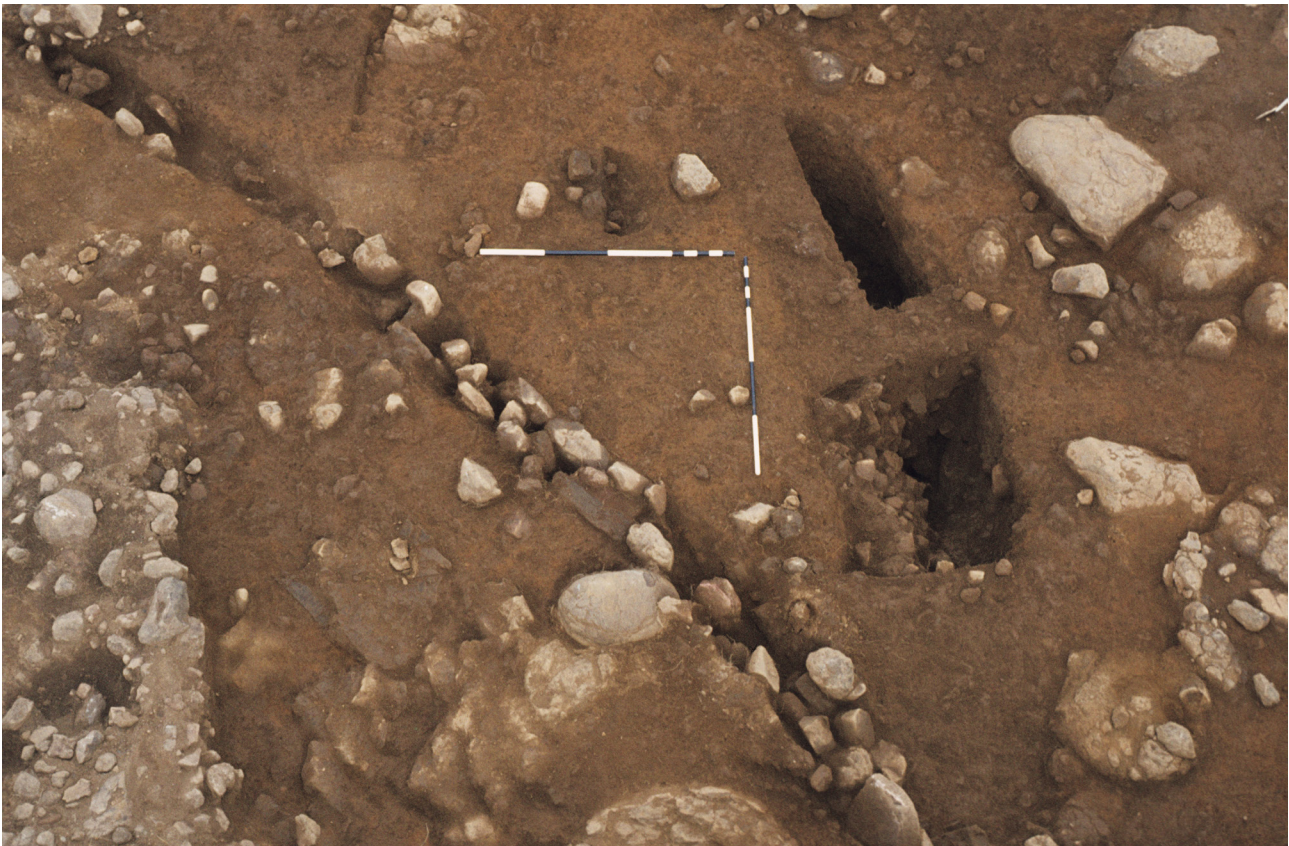
At the northern limit of Area R, overlapping the Iron Age palisaded enclosure (7.1, below), were remains of a rectangular, subdivided and apparently open-ended structure aligned east/west (Illus 6.2). Its maximum recovered dimensions were 12.5m by 4.6m, assuming all the different structural elements described below are related. The east/west alignment of a 10.15m-long slot (RAF) may have been continued by a single post hole (RBC) some 0.6m from its western end. The fill of RBC contained

a number of medium-sized stones, perhaps the remains of packing (Illus 6.3 and 6.4; Table 6.1). Slot RAF was slightly irregular, quite wide (0.5–0.8m) and shallow (0.1–0.2m), with fairly straight sides and a flat bottom, containing a high proportion of small stones in its fill (Illus 6.4 and 6.5). Abutting it at right angles, 3.8m from its eastern end, was another slot (RAG) with very similar characteristics, though slightly less wide (0.4–0.65m). It ran for 3.85m before disappearing into the northern edge of the excavated area. Three contemporary post holes (RAL, RAK, RAI), similarly packed with small stones, were appended to it, two on the west side and one on the east (Illus 6.4 and 6.5; Table 6.1). The north/south distance between the post holes varied between 0.35m and 0.8m centre to centre. A narrow slot (RCE) with a very stony fill, 0.15m wide and only 60mm deep, emerged from the baulk and ran parallel to RAG for 0.9m and seems likely to relate to the structure. It was situated 3.5m west of RAG, the distance between them split equally by a small post hole (RCF) (Table 6.1) (Illus 6.2 and 6.5). A further 4m to the west a discrete 3m-long, slightly curving trench (RAZ) may have formed part of the western wall of the structure. It was 0.6m wide, though tapering towards its northern end, and 0.55m deep with vertical sides (Illus 6.3 and 6.4). Both the latter characteristic and its fairly homogeneous sandy-silty-loam fill, differentiated only by slight variations in colour and the varying proportion of small stones, suggested it had been deliberately backfilled.

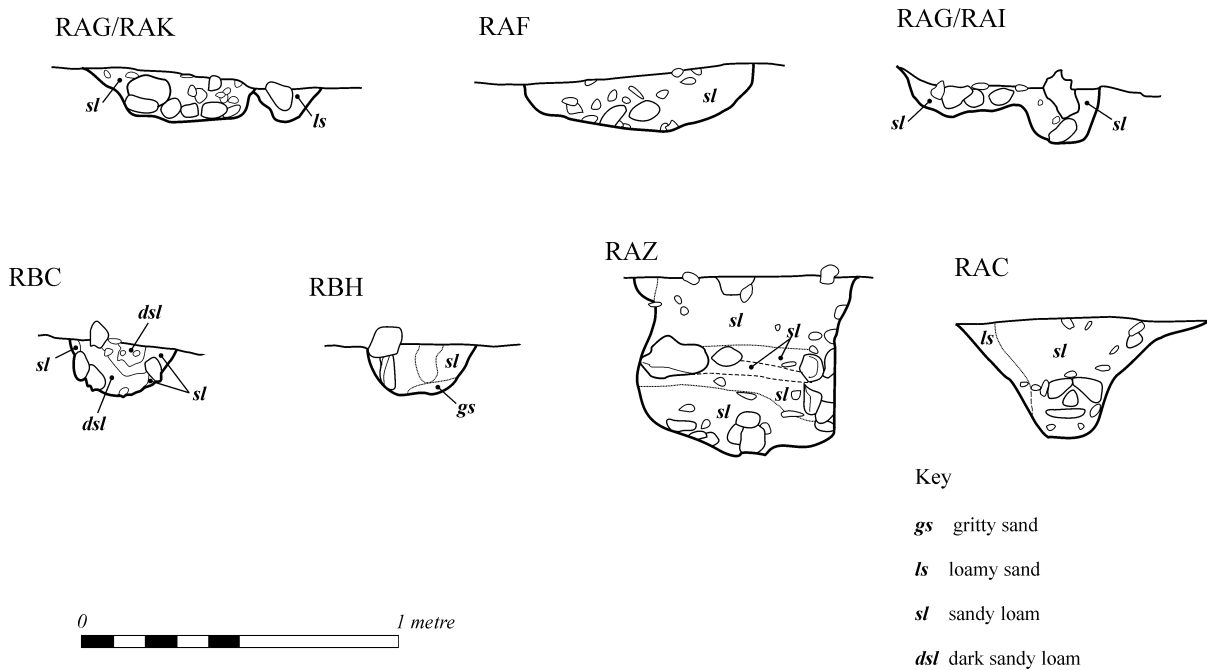
An imprecisely defined surface of light metalling with some heavier cobbles (RAT) to the east of RAG extended beyond the eastern end of RAF and may have been an associated floor or area of hard-standing (Illus 6.2 and 6.5). In places the surface overlay the slots RAG and RAF. The latter slot intersected with the palisade trench (RAB) at the point where both underlay the denuded remains of the post-medieval field wall (Illus 6.2 and 6.3), making it difficult, given the shallowness of RAF, to establish their relationship. However, some 7m to the east a Roman period gully/fence line (LET/RAC) clearly cut the palisade trench (7.1, below and Illus 7.3) and several finds from the three construction slots (RAF, RAG and RAZ), including nails, sherds of coarse ware and a fragment of a pottery lamp, attest to the Roman date of the structure.



Illus 6.2 Detailed plan of Iron Age palisade, rectangular structure and associated post holes



Illus 6.3 Western end of rectangular structure from the north-west, showing intersection of its south wall slot (RAF) with the palisade trench (RAB); post hole (RBC) and probable west wall slot (RAZ). The post-medieval field dyke, here partly removed, runs up the left-hand side



Illus 6.4 Sections through Roman structural features, Area R



Illus 6.5 Central part (RAF/RAG) of rectangular structure and associated post holes (RAI/RAK/RAL) from the north. Part of the palisade runs obliquely across the top of the photograph and the base of a post-medieval field dyke (partly removed) is visible to the right. Post hole RCF and Slot RCE are visible as unexcavated features (bottom right), while traces of a metallised surface (RAT) are apparent (centre left)

Table 6.1 Post hole dimensions, Area R

Feature code	Length/diameter	Width	Depth
RAI	0.3	0.2	0.17
RAK	0.4	0.19	0.1
RAL	0.3	0.25	0.18
RBC	0.4–0.45	–	0.23
RCF	0.32	–	0.10
RBE	0.6	0.3	0.16
RBG	0.4	–	0.15
RBH	0.36	0.32	0.21

A further post hole (RBE) located at the edge of the metallising (RAT) may relate to the building, but lies slightly to the south of the alignment of RAF. Similarly, 2.3m south of Post hole RBC was another (RBH), which preserved evidence of packing stones and a rectangular post-pipe

approximately 140mm by 60mm in cross-section (Illus 6.2 and 6.4; Table 6.1). If the latter two post holes were associated, they would have maintained the same north/south alignment as the building.

Finally, some 5m further to the south of RBE, another otherwise isolated post hole (RBG)

was recorded (Illus 6.1 and Table 6.1). It lay immediately adjacent to Gully LET/RAC, whose characteristics are reminiscent of several of the gullies interpreted as fence lines in Areas D, G and H (see 5.1, above). The gully was consistently 0.3–0.5m wide, V-shaped in section, its lower fill often packed with small stones (Illus 6.4 and 6.7). It ran north/south from the northern limit of excavation towards the bypass road, diverging

from a straight line only where it cut into and briefly followed the line of the palisade trench (7.1, below and Illus 6.1 and 6.6), and then turned a right angle (RBA), shortly after which it changed character, widening and deepening (see 6.2, below). While it could be a drainage feature, the stone packing serving a function similar to post-medieval field drains, its right-angled turn is more likely to indicate that it was a fence line.



Illus 6.6 Line of Gully/fence RAC with its right-angled turn into RBA after excavation from the south. Excavated sections of road ditch (RAO and RBV) are visible in the foreground

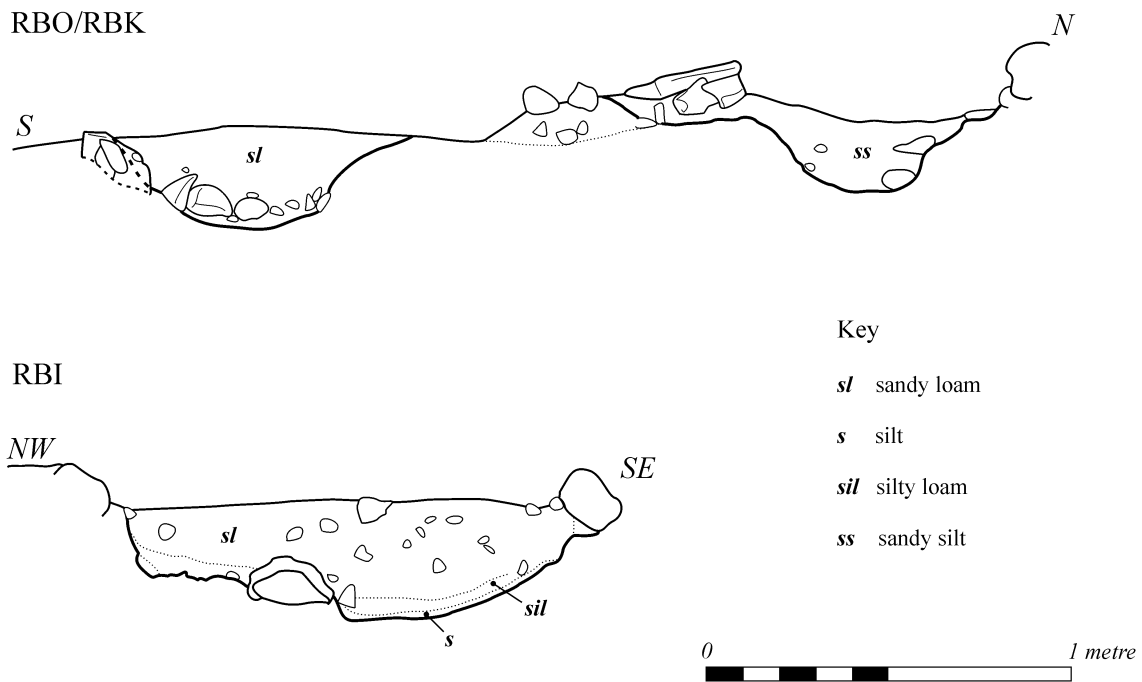


Illus 6.7 Excavated section of Gully RAC showing the extent of its stone packing

6.2 Drainage ditches and gullies

The dominant features in Areas R and, particularly, L were numerous multiphase drainage ditches and gullies, often following sinuous and sometimes interrupted courses down the slope until they joined the ditches draining the north side of the bypass road (Illus 6.1). As is clear from 6.3 below, they often contained large quantities of Roman artefactual material.

Starting from the south-west corner of the rectangular structure described above (6.1), a shallow gully (RBK/RBW) (0.25–0.4m deep) ran west for *c* 13m before turning south (RBX) to join the drainage ditch on the north side of the bypass road (RCC/RCH). Except at its northern end (RBI), which was rather broader, it was 0.55–1m wide with a fairly uniform steep-sided, U-shaped profile, filled with silty loam (Illus 6.8). It may have been a further



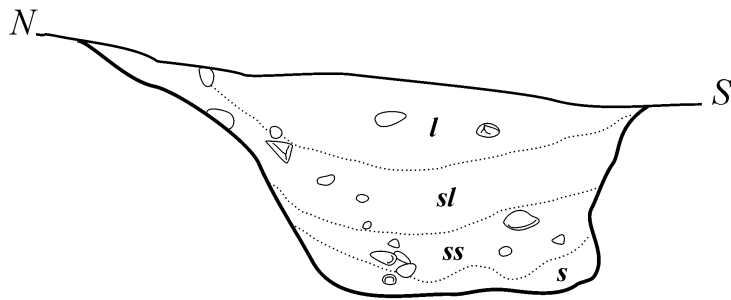
Illus 6.8 Sections through drainage features (RBI and RBK) and pit/stone hole (RBO), Area

fence line, but seems more likely in terms of its fill to have been a drainage feature.

Moving east, the fence line LET/RAC/RBA morphed into an irregular, segmental ditch (LDS) to the east of a narrow excavation baulk (Illus 6.1 and 6.6). This ditch varied in width from 0.8m to 1.4m; in depth from 0.32m to 0.48m; and in profile from sharply V-shaped to flat-bottomed U-shaped (Illus 6.9). It continued east for a further 8.5m before intersecting the line of a ditch (LDX/LBS/LCT/LDE) that defined the lower part of the west side of a probable trackway (see 4.2, above). The latter ditch was secondary as it was cut by LDE (Illus 6.9), and had itself been recut. This was evident in plan (Illus 6.10), though the fact was not recognised until excavation of the relevant segment was almost complete. In its final form the ditch (LDX/LBS/LCT/LDE) ran approximately north/south for some 20m from a butt end immediately adjacent to Ditch LAC/LBM/LCQ (Illus 6.1) until it joined the northern road ditch (LEA/LCX) (Illus 4.13). It was 1–1.5m wide and 0.4–0.5m deep with a generally very silty fill (Illus 6.9), and produced a range of finds, including possible fragments of human bone. A quite extensive layer of ash and burning was noted in the lower fill in section LCT (Illus 6.10).

The upper part of the west side of the trackway was defined by Ditch LAC/LBM/LCQ, which was 13m long and followed a slightly curving line from near the northern limit of the excavation to the start of Ditch LDX. Its northern end (LAC) was narrow (0.7–1.05m), steep-sided and quite deep (0.48m), but rapidly widened and deepened slightly (LBM), showing traces of collapse and slumping on its western side (Illus 6.11). As it curved to the west it appeared on the surface to have widened to 3.25m, but this was the result of major remodelling. The original ditch (LCQ) was broadly V-shaped, *c* 2m wide and 0.71m deep. It was recut and replaced by another V-shaped ditch (LBK), 2.1–2.45m wide and 0.75m deep, which was supported on its north side by the insertion up against the fill of the earlier ditch of a revetment of large cobbles (LDY) (Illus 6.11 and 6.12). Clearly this part of the ditch had suffered from severe water scouring. Indeed, it appears also to have served as a sump where the force of the water draining down the slope was diverted and partly contained by the change of course of the ditch. As a result, the predominantly silty lower fills and more loamy upper fills were extremely rich in finds of all kinds (6.3, below), including occasional

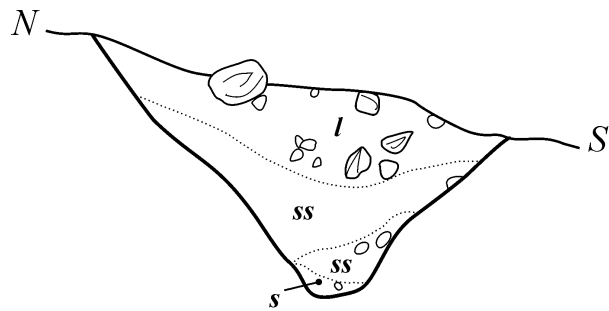
LDS



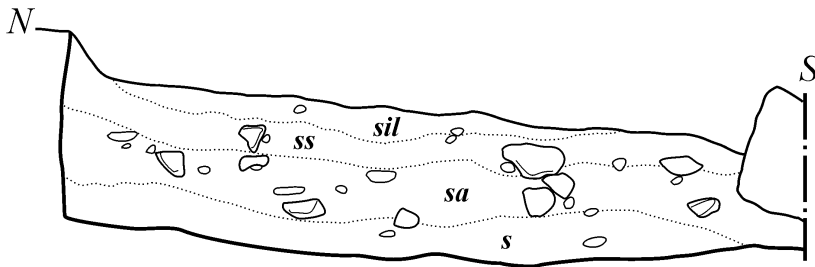
Key

- l* loam
- sl* sandy loam
- ss* silty sand
- s* silt
- sil* silty loam
- sa* sand

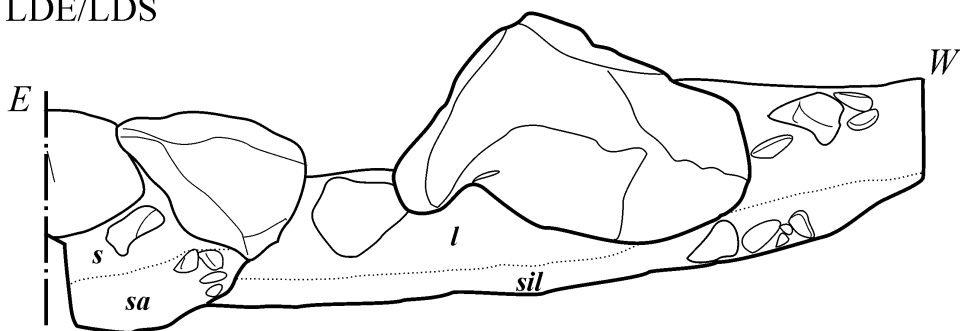
LDS



LDE



LDE/LDS



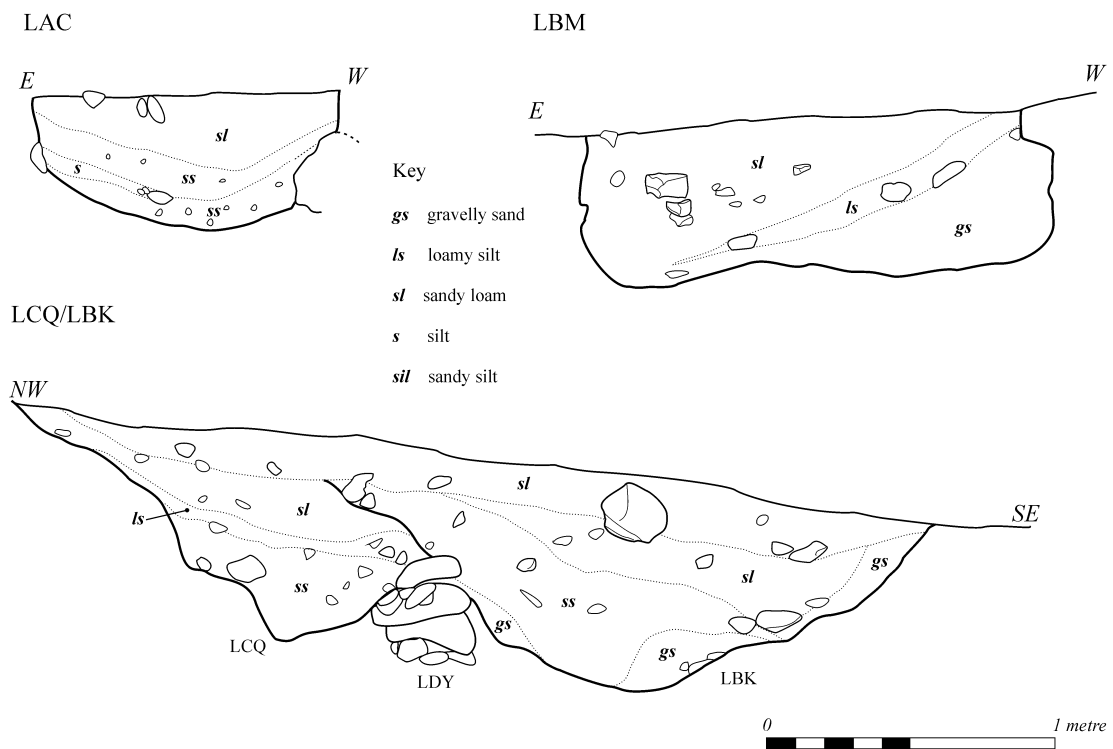
Illus 6.9 Sections through drainage ditch LDS/LDE to the west of the trackway, Area L



Illus 6.10 Segment of drainage ditch (LCT) on the west side of the trackway from the north, showing the original line to right and burning within secondary fill in section

rare artefacts, such as a bronze arm-purse. The ditch seems to have silted up completely and overflowed into the butt end of Ditch LDX, so that the upper fill of both (LBO) was contiguous.

This multiphase, curving, interrupted ditch line was mirrored some 2.5m to the east by another (LAB/LBB/LAK) defining the eastern side of the trackway which led north into the main area of the *vicus* (see 4.2, above) (Illus 6.1). At the point where it disappeared north beyond the limit of the excavated area (LAB), the ditch was 2.5m wide and 0.93m deep (Illus 6.13). Superficially it appeared to have straight sides and a relatively flat bottom, but this represents the impact of recutting, which was not detected until a section had been partially removed. The first phase seems to have been U-shaped and *c* 1.5m wide. Its replacement was almost vertical on its eastern side, sloping gently up to the fully recorded width to the west. The two phases of the ditch were more spatially separated in the southerly sections (LBB/LAK), indicating a slight easterly shift in alignment and a reduction of *c* 1.5m in the overall length of 11m, as is evident in both plan and section



Illus 6.11 Sections through drainage ditch (LAC/LBM/LCQ/LBK), west side of trackway, Area L

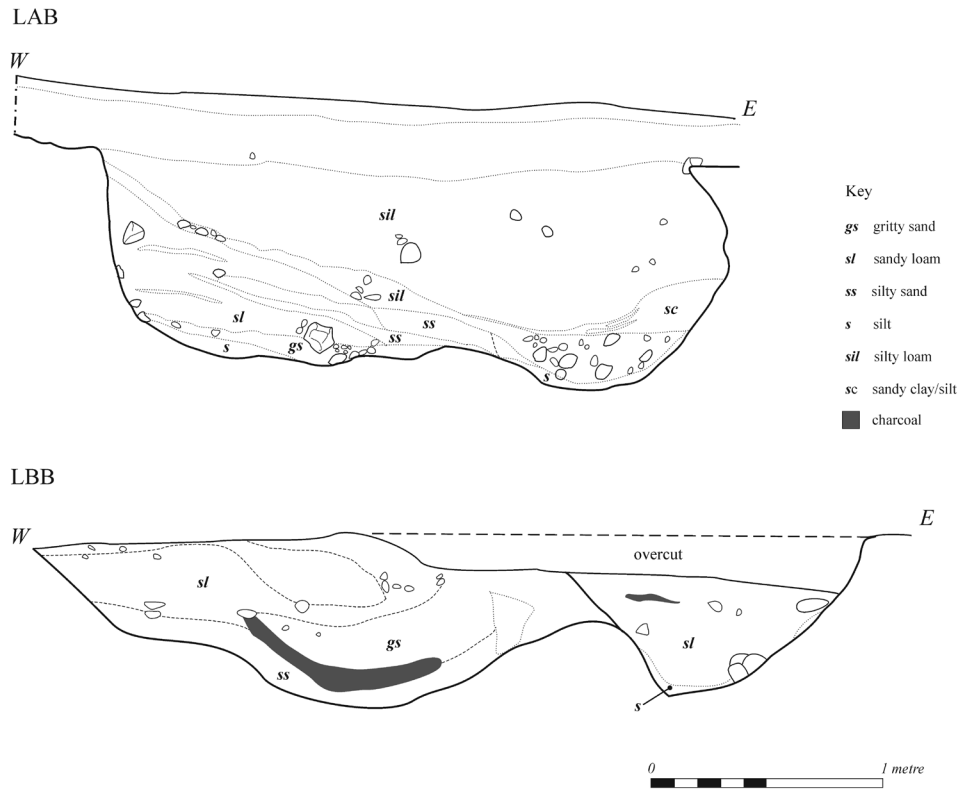


Illus 6.12 Excavated section through secondary drainage Ditch LBK from the south, with stone revetment (LDY) on the south side of primary Ditch LCQ

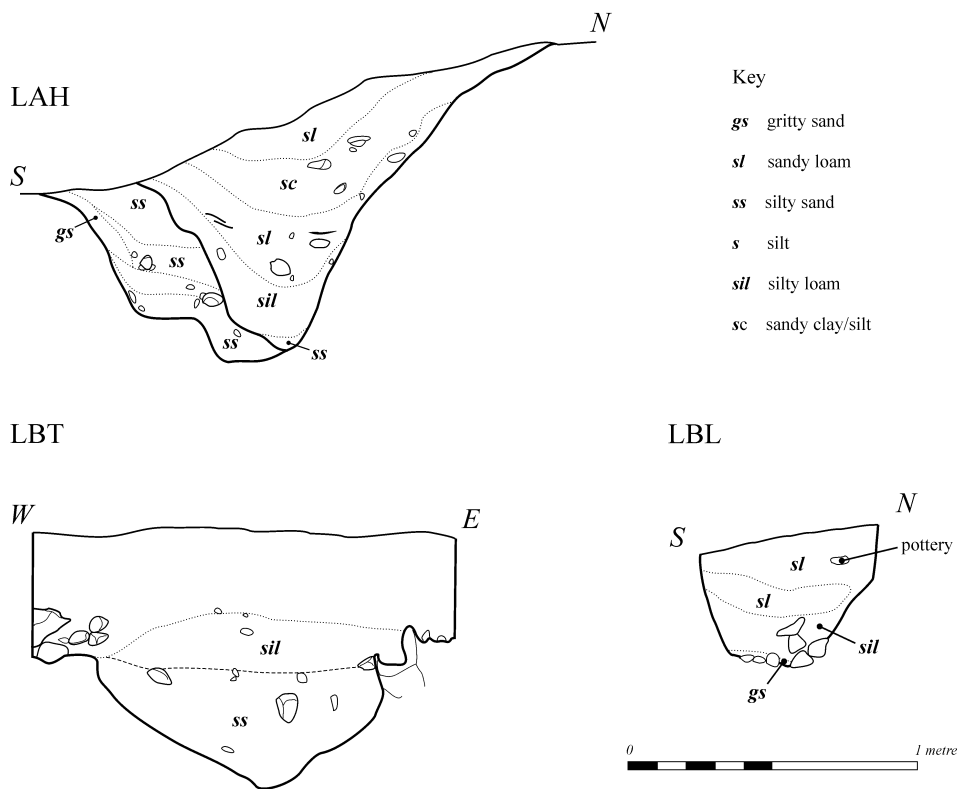
(Illus 6.1 and 6.13). The primary ditch widened slightly to 2m before reducing back to 1.6m, and maintained a depth of 0.65m; the recut ditch narrowed to 1.3m and reduced in depth to 0.58m as it reached a butt end. The primary ditch maintained its width but reduced in depth to 0.7m. The upper fills of both ditches were consistently loamy in character above silty lower fills containing occasional charcoal lenses and areas of sand and gravel from slumping of the sides. Like Ditch LAC/LBM/LCQ on the other side of the trackway, these fills contained a large number and variety of finds, with greater quantities coming from the fill of the recut ditch, including a denarius of Trajan and a number of hobnail groups still maintaining the shape of shoes (Illus 9.11).

A 3.75m-wide gap in the continuation of the ditch defining the east side of the trackway (LBL) was partly filled by a shallow 1.75m-long and 0.75m-wide gully (LBH) (Illus 6.1). It had a U-shaped profile and was *c* 0.4m deep with a number of small stones on the bottom at each end. It is unclear whether this feature was structural, as the relevant context record was insufficiently detailed, but the general character and more limited depth make this a strong possibility.

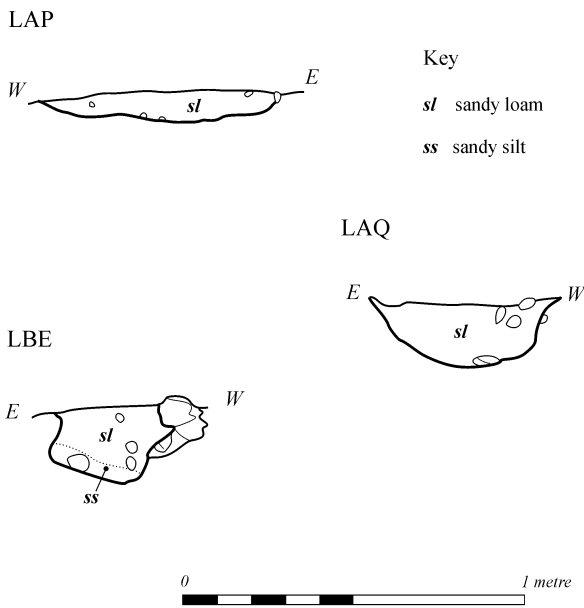
After this break, the line of the ditch (LBL/LAH) continued west for 6m before turning south to run down the slope to join the ditch (LBW/LCG) on the north side of the bypass road (Illus 6.1 and 6.16). Near its northern butt end, Ditch LBL was 0.62m wide and 0.45m deep with a steep-sided, U-shaped profile (Illus 6.14). It appeared to widen to 1.6m as it approached the southern bend (LAH), where it cut through Gully LDL (see below), but a section revealed that it had been recut (Illus 6.14). The surface dimensions of the first phase could not be determined, but it was 0.65m deep and replaced by a ditch 1.4m wide and 0.8m deep with a steep-sided, V-shaped profile. Further down the slope after the bend the ditch dimensions decreased, particularly as it approached the road ditch where it was cut through outcropping rocks and reduced to *c* 1m wide and 0.6m deep (LBT) (Illus 4.13 and 6.14). Upper fills were consistently more loamy in character, though with occasional lenses of charcoal or ash, sometimes containing burnt daub, with increasing proportions of silt in lower fills intermixed with sand as a result of slumping of the ditch sides. Once again, the ditch was rich in finds, particularly in the segments further up the slope, including fragments of a rare



Illus 6.13 Sections through drainage ditch (LAB/LBB) east side of trackway, Area L



Illus 6.14 Sections through drainage ditch (LBL/LAH/LBT), east side of trackway, Area L



Illus 6.15 Sections through gullies (LAP/LAQ/LBE), Area L

terracotta face mask, a sherd from a head pot and a sestertius of Trajan. Only one find was recorded from the first phase of Ditch LAH, whose sandy fills may have consisted largely of slumped material.

In the south-east corner of Area L, north of the bypass road, a number of disconnected, shallow gullies of uncertain function were recorded (Illus 6.1 and 6.15). A 4.5m length of straight-sided, flat-bottomed gully (LBE), 0.3m wide and 0.12–0.22m deep, could have been structural, but had no other associated features and a layer of sandy silt at the bottom of its fill, so probably served as a drain. To its west, a very shallow, sandy loam-filled gully 0.7m wide (LAP) was traced for 5.7m. It may be contemporary with an earlier fence line (LCR/LDL/LAL – see below), which runs parallel to it, but lacks the characteristics of a structural feature. It in turn abuts a discontinuous gully (LAQ), which runs for 2m on a slightly different alignment before being lost under hillwash. LAQ was narrower (0.55m) but slightly deeper (0.18m) with fairly straight sides, so may have been structural. No finds were recovered from either LAP or LAQ.

A shallow, generally narrow linear gully (LCR/LDL/LAL) ran slightly obliquely down the slope and was clearly earlier than the main sequences

of Roman ditches described above (Illus 6.1 and 6.16). Despite the presence of a sherd of cordoned urn in its fill (16.2, below), quantities of Roman material, including a samian sherd from the same vessel as sherds recovered from the ditches on both sides of the trackway that cut across it, confirm its Roman date. It commenced 1.7m from the northern limit of excavation and continued for 25.5m before disappearing into the southern limit. The most northerly section spread to a width of 1.9m, but south of the intersection with LCQ it was more consistent in width (0.5–0.7m) and 0.25–0.4m deep, filled mainly with sandy loam. It is unclear whether this was a drainage feature or a fence line.

6.3 Associated finds

LAB/LBB/LAK/LCH, northern section of drainage ditch, east side of trackway: Primary ditch: enamelled bronze stud (Illus 9.5, B6; Illus 9.7); fragments of bronze disc; bronze fragments; fragmentary iron knife; 2 iron bucket handle mounts/T-staples (Illus 9.9, F13); iron pin; iron lynch pin; iron rod; 5 nails; 64 hobnails; 4 hobnail shoe groups (eg Illus 9.12); 4 sherds of decorated samian; 4 sherds of mortarium (one conjoining a sherd from the recutting of the ditch and coming from the same vessel as sherds from LAH, LDH and LBR); 117 sherds of coarse ware; 16 fragments of glass from at least 3 vessels (eg Illus 15.1, no. 11); several fragments of animal bone/teeth, some burnt; burnt daub. Recut ditch: denarius of Trajan; fragments of Hod Hill-derivative bronze brooch (Illus 9.5, B4); bronze loop from button-and-loop fastener (Illus 9.5, B1); 2 fragmentary iron/bronze disc studs; fragment of worked sandstone; iron knife (Illus 9.9, F9); iron key (Illus 9.10, F38); part of iron hipposandal; iron U-staple (Illus 9.10, F45); hooked iron rod (Illus 9.10, F46); 2 iron L-shaped strips (eg Illus 9.10, F47); iron ferrule binding (Illus 9.10, F30); fragmentary iron plate; 12 nails; 64 hobnails; 7 sherds of decorated samian, 1 plain conjoining with a sherd from pre-fort enclosure ditch, BBQ; 404 sherds of coarse ware; 10 sherds of mortarium, 2 stamped (Illus 12.1, nos 7 and 12), and joins indicated with the primary ditch and LAH/



Illus 6.16 Line of the northern half of Gully LCR/LDL partially excavated, cut by trackway ditches LCQ/LDX and LAH, from the south

LDH/LBR; several fragments of animal bone, some burnt; burnt daub

LAC/LBD/LBM/LCK/LCQ/LCS/LDY, northern section of drainage ditch, west side of trackway: denarius of Domitian; bronze arm-purse with associated leather and wood fragments (Illus 9.5, B21; 9.8); copper alloy tie-ring from *lorica segmentata* (Illus 9.5, B2); catchplate of bow brooch; fragment of bronze pin; part of rim of bronze vessel; part of iron hipposandal (Illus 9.9, F21); 3 fragments of iron knife blades (eg Illus 9.10, F4 and F5); socketed iron spearhead (Illus 9.9, F1); iron circular collar; 2 fragments of iron punch (eg Illus 9.9, F18); iron split pin (Illus 9.10, F36); 2 iron hooks (eg Illus 9.10, F42); 8 fragments of iron strip (eg Illus 9.10, F56 and F76); spiral iron rod (Illus 9.9, F26); hooked iron strip (Illus 9.10, F49); iron hinge strap (Illus 9.10, F37); 3 fragments of iron plate; 2 fragments of iron bars; 4 amorphous lumps of iron; 122 nails; 328 hobnails; 4 hobnail shoe groups; fragment of pierced sandstone slab (Illus 9.4, S11); 2 flint scrapers (eg Illus 17.1, no. 10); 16 sherds of samian, including 2 decorated (eg Illus 11.1); 380 sherds of coarse ware, including amphora, half of a grey-ware flanged bowl and part of a Hunt cup; 10 sherds of mortarium, including a stamp of Sarrus (Illus. 12.1, no. 1); 29 fragments and many small chips of glass from at least 4 vessels (eg Illus 15.1, no. 1); 4 fragments of window glass; numerous fragments of animal bone/teeth, some burnt; burnt daub, one piece with plaster attached; charcoal fragments

LAH/LAS/LBF/LBL/LBR/LBT/LDB/LDH, central and southern section of drainage ditch, east side of trackway: Primary ditch: sherd of coarse ware
Recut ditch: sestertius of Trajan; fragments of 2 bronze studs; fragment of bronze knee brooch (Illus 9.5, B3); iron ring (Illus 9.9, F28); iron missile head (Illus 9.9, F2); iron L-shaped strip; fragment of iron strip; iron split pin (Illus 9.10, F35); fragments of iron knife or strip; iron knife; fragment of iron plate; iron ferrule binding; 32 nails; 204 hobnails; 2 hobnail shoe groups; flint flake and core fragment; 3 conjoining fragments of terracotta face mask and small fragment of face mask or figurine (Illus 10.1; 10.2); fragment of possible terracotta statuette base;

fragment of pottery lamp; fragment of head pot (Illus 13.5; 13.6); 8 sherds of samian, 2 decorated (1 conjoining with sherds from LAL and LBK – Illus 11.1), and 2 scraps; 10 sherds of mortarium, 1 with joins indicated with LAK (Illus 12.1, no. 9); 446 sherds of coarse ware, including amphora and a body sherd with graffito (Illus 13.7); some 34 fragments of glass and many chips from at least 5 vessels (eg Illus 15.1, nos 1 and 9); a fragment of window glass; numerous fragments of animal bone, some burnt; charcoal fragments; burnt daub, several pieces with plaster attached

LAL/LCR/LDL/LDQ, early linear gully: flint knife/scrapper (Illus 17.1, no. 5); iron bar nail; 75 hobnails; sherd of decorated samian (conjoins with sherds from LAH, LBL and LBK); 73 sherds of coarse ware, including amphora; sherd of Bronze Age pottery; piece of burnt daub with plaster attached

LBE/LAM, narrow gully, south-east corner of Area L: 3 sherds of coarse ware

LBH, short stretch of gully on east side of trackway: 23 hobnails; 11 sherds of coarse ware, including amphora; sherd of mortarium; fragment of animal bone

LBK/LBN, recutting of drainage ditch, LAC/LCQ, west side of trackway: fragment of terracotta figured plaque (Illus 9.13, P7); fragment of iron knife (Illus 9.9, F11); iron knife tang (Illus 9.9, F8); small iron hook; iron stylus (Illus 9.9, F19); 4 nails; 180 hobnails; pottery lamp (Illus 9.13, P2; 9.14); glass counter (Illus 15.1, no. 13); 5 sherds of samian, one decorated (conjoining with sherds from LAH, LAL and LBL); 7 sherds of mortarium; 108 sherds of coarse ware, including amphora; a fragment of vessel glass and 5 chips; 2 fragments of window glass; fragments of animal bone/teeth, some burnt; burnt daub

LBO, upper fill at conjunction of drainage ditches LDX and LCQ, west side of trackway: unfinished sandstone architectural block (Illus 9.4, S4); 2 iron strips with plaster (Illus 9.10, F66); 6 nails; 36 hobnails; 2 sherds of decorated samian; 3 sherds of mortarium (eg Illus 12.1, no. 8); 66 sherds of coarse ware, including amphora; a fragment of window glass; fragments of animal bone; charcoal fragments; burnt daub

LBS/LCT/LDE/LDX/LDC, drainage ditch, west side of trackway: Primary ditch (LDC): fragments of burnt animal bone. Some finds attributed to LCT may have come from the primary phase of use which was not recognised until the excavation of this segment of ditch was almost complete. Secondary ditch (LBS/LCT/LDE/LDX): small bronze terminal; 2 iron strips; iron T-staple (Illus 9.10, F43); 15 nails; 54 hobnails; sherd of samian; sherd of mortarium; 166 sherds of coarse ware, including amphora; 1 small fragment of vessel glass; 4 fragments of window glass; several fragments of animal bone, some burnt; possible fragments of human bone; several fragments of leather; burnt daub

LDK, shallow natural depression west of LCR: iron strip; possible iron ox goad (Illus 9.9, F29); sherd of coarse ware; animal bone; burnt daub

LDS, drainage ditch abutting gully/fence RAC/RBA: hobnail; 3 sherds of coarse ware

LET/RAC/RBA, gully/fence line: sandstone ?rubber; sherd of plain samian; 4 sherds of coarse ware; 2 sherds of later prehistoric pottery (Illus 16.3); glass bangle (Illus 15.1, no. 11)

RAF, construction trench: 2 nails; 16 hobnails; fragment of pottery lamp; 2 sherds of coarse ware; scraps of calcined bone

RAG, construction trench: 2 hobnails; sherd of coarse ware

RAX, hillwash over ditch RBK/RBW: enamelled iron/bronze disc stud; hobnail; sherd of mortarium; sherd of coarse ware

RAZ, possible construction trench: nail; 12 sherds of coarse ware; sherd of herringbone-stamped mortarium (Illus 12.1, no. 4)

RBI/RBK/RBW, drainage ditch/gully: nail; hobnail; 4 sherds of coarse ware

RBX, area of burning within hillwash: 4 hobnails; sherd of samian

6.4 Interpretation and analogies

Because it preceded the main multiphase trackway drainage ditches, it is tempting to associate the earliest gully (LCR/LDL/LAL) with the early Iron Age settlement on the site represented by the adjacent palisaded enclosure (7.1, below). However, it produced too many Roman artefacts to allow this and it may, therefore, be associated with

the earlier, more southerly road alignment. All of the other features recorded are clearly associated with the later and better-preserved bypass road.

The character of the construction of the putative rectangular building is most unusual. Firstly, the combination of a range of different structural techniques adds an element of doubt to their association. Secondly, the provision of post holes attached to the side of, rather than incorporated within, a shallow slot is difficult to parallel. However, assuming that all these various elements have been both correctly identified and are rightly associated together, the putative building would have been *c.* 12.5m long by at least 4.6m wide and partially provided with a metalled floor. The eastern third was open-ended, but the remainder was partially subdivided into two equal-sized rooms, with a possible rear entrance in the south-west corner. Such a building would not have been out of place in a military *vicus*, where narrow rectangular buildings, often with open ends fronting onto a road, were common. For example, such buildings have been attested along the Hadrian's Wall corridor from the air at Corbridge and Chesters (Salway 1967: figs 5 and 8); by geophysical survey at Birdoswald and Maryport (Biggins & Taylor 2004a and b); and by excavation at Vindolanda and Housesteads (Birley 2009: fig 85 and 162–7; Crow 2004).

At Croy Hill the building appears to be located within a compound, defined by a combination of fences and ditches, situated immediately north of the bypass road. A break in the ditch on the north side of that road (between ditch sections RAR and RCH) may have facilitated direct access into the compound (Illus 6.1). A second compound to the east may have been similarly defined, with a shared fenced boundary (LET/RAC). Access to this compound would have been from the trackway to its east, where a break in the ditch defining its west side (LAC) fell just within the excavated area. A similar break in the ditch on the east side of the track at the point where it curved west may have been provided with a gateway, assuming Gully LBH was intended to support posts at each end, and would have facilitated access to a further compound on the eastern side of the trackway. Various short lengths of shallow gully within that compound did not form any structural pattern, so

may have been minor drainage features. Despite the surveyors' reservations, at least one analogy may be provided at Halton Chesters on Hadrian's Wall, where buildings apparently set within their own enclosures are visible in the geophysical survey to the south of the fort (Taylor et al 2000).

The only other evidence of civilian buildings at Croy Hill comes in the form of structural debris from their demolition. Quantities of nails and burnt daub, some fragments with plaster adhering to them, were recovered from drainage ditches, predominantly on the east side of the curvilinear trackway. Significantly, there were also several fragments of window glass, representing at least three panes, indicating that the buildings from which they derived had been sufficiently sophisticated to have had glazed windows. The area beyond the limit of the excavation to the north is the westerly continuation of the flat plateau on which the fort stood. The area also benefits from shelter provided by rising ground to the north and west (Illus 1.2 and 1.3), and would seem to provide the most favourable location for the main buildings of the postulated civil settlement. However, recent attempts to test this hypothesis using resistivity survey were not successful (Hanson et al forthcoming). None of the features recorded disappearing into the guardianship area at the northern limit of the excavations were picked up, not even the large drainage ditch on the east side of the trackway. It would seem that the electrical responses from the archaeological remains were too weak to register by comparison with those of the later farming activity.

Clearly drainage was a major issue across the whole of Areas L and R, which resulted in the accumulation of considerable depths of hillwash down the slope over the bypass road. The curvilinear ditch systems on either side of the trackway leading north from the bypass road had been recut and enlarged. Neither the character of the ditches nor their orientation lends support to any suggestion that they might have formed part of an annexe enclosure. Significantly, however, in addition to structural debris they contained very large quantities of artefacts. Like the structural debris, this material must have derived from the area immediately to the north, both through

a process of rubbish disposal directly into the drainage ditches and, mostly, from demolition deposits being washed down the slope after the end of the Roman occupation.

The quantity and range of this material, which makes up some 75% of all the finds from the four seasons of excavation across the whole site, attests to both the variety and vigour of domestic activities in the area that they drained (6.3, above and 9.2 below). Pottery is abundant in all its forms: samian and coarse ware, including both mortaria and amphorae. The large number of amphora lids suggests the presence nearby of an area where the contents of the amphorae were being decanted into smaller containers (13.2, below). It is tempting to suggest a tavern, precisely the type of building one might expect to find in a military *vicus*, but the vast majority of the amphorae sherds recovered were from olive oil rather than wine amphorae. The recovery of a considerable number of animal bone and teeth fragments, many of them burnt, attests to the consumption nearby of meat products. Unfortunately, the small size of the fragments and their relatively poor state of survival, particularly of the bones, means that they were rarely confidently identifiable to species, but suggests the local diet included pig, sheep, beef and, possibly, roe and red deer (19 and 20, below). The relatively small quantity of vessel glass recovered derives mainly from a range of drinking vessels with some bottles. Given the poor preservation of metals, there are reasonable quantities of structural ironwork (nails, staples, bars, rods, strips etc), two hipposandals and a wide range of domestic and personal artefacts, though only in small numbers. The latter include brooches, studs, pins, lamps, knives and bucket mounts, as well as a key, a punch and a stylus, giving some indication of the range of domestic activities taking place. There are also very large numbers of hobnails, some 13 of which were recorded in shoe groups, suggesting the disposal of worn-out footwear, something usually attested only where waterlogged conditions favour the survival of leather. Finally, there is a small but significant number of rare finds, including an arm-purse, a terracotta figured plaque, a head pot and a terracotta face mask. Face masks were used primarily as decorative elements in Roman dwellings (Rose 2006: 53–6; see 10, below),

providing further support for the presence of domestic structures nearby and indicating the high level of Roman cultural assimilation which seems to have been on display even in a settlement outside a small fort on the most northerly frontier of the Roman Empire.

7. PREHISTORIC OCCUPATION

A small scatter of prehistoric artefacts indicated occupation of the hillside from the Neolithic period onwards, confirming the indication from the pollen analysis that there had been a human population in the vicinity for a considerable period prior to the construction of the Antonine Wall (18.5, below). Most finds came from the area to the south-west of the fort, which was dominated by ditches draining away from the main focus of the Roman civil settlement (*vicus*) on the plateau immediately to the west of the fort (see 6.2–6.3, above). Various worked flints and a flake from a Great Langdale polished stone axe point to Neolithic activity, while a sherd of cordoned urn, a convex scraper and a barbed and tanged arrowhead from Area L indicate a Bronze Age presence (see 16 and 17.7, below). The latter may relate to a burial, for some 16m south of the palisaded enclosure (7.1, below), situated between the bypass road and its associated northern

ditch (see 4.2, above), was a shallow (0.3m deep) sub-rectangular scoop (RAQ) (Illus 4.12 and 6.1), measuring 3m by 0.7m–1.2m. Within its loamy fill were two sherds of beaker pottery,¹¹ with two further small sherds recovered nearby, one from topsoil, the second from a shallow pit or stone hole (RBO), 0.75m wide and 0.28m deep, located 7m south-east of the palisaded enclosure (Illus 6.1 and 6.8). Finally, two more sherds of beaker pottery came from topsoil in Areas B and E to the east (see 16, below). The possibility that a small piece of unidentifiable bone, also recovered from the shallow scoop (RAQ), might provide further corroborative evidence was investigated, but the relevant radiocarbon sample indicated an early medieval date of 888–1016 cal AD (95.4% probability; SUERC-100000).

7.1 Palisaded enclosure

At the northern limit of the excavation area to the south-west of the fort, on the east side of Area R,



Illus 7.1 Palisaded enclosure from east, with rectangular structure visible top centre

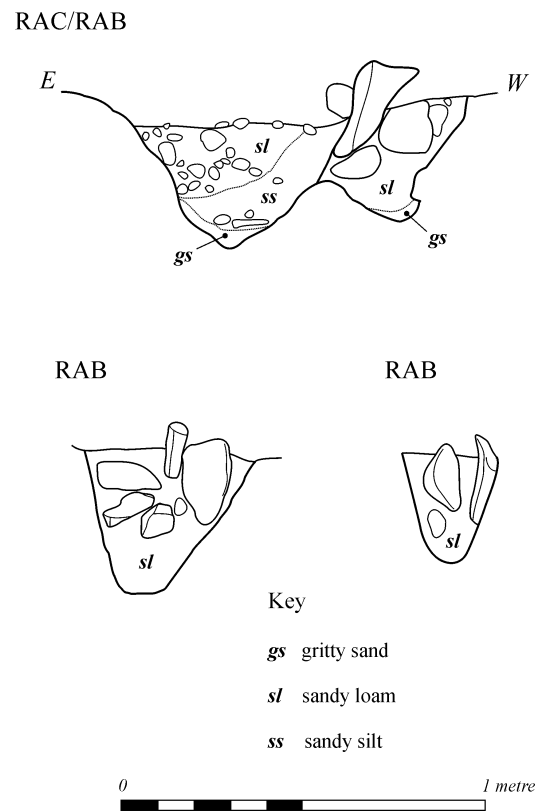
approximately one third of a palisaded enclosure was revealed (Illus 6.2 and 7.1). It consisted of an arc of an irregular circle at least 21m in diameter defined by a construction trench (RAB/LAX) averaging 0.25m–0.4m in width and up to 0.45m deep, though it was much shallower in places, especially where it was cut through bedrock (Illus 7.2). The trench was a truncated V-shape with a flat bottom (Illus 7.3) and was generally packed with stones, often with their longer axes aligned along its length. In some cases probable post settings could be identified (Illus 6.3, 7.4 and 7.5), suggesting that the posts were only *c* 0.2m apart centre to centre and of varying dimensions up to 0.12m across. A terminal marking one side of an entrance gap fell just within the trench on the east side of the enclosure, defined by a post hole 0.35m in diameter and 0.31m deep (Illus 7.5).

Near the mid-point of its arc, the palisade trench was partly overlain by a shallow sub-circular depression (RAY) (Illus 6.2 and 7.2), *c* 1m by 0.45m, packed with stones on a different alignment to those in the palisade trench. This may indicate a later repair or, given the recovery of Roman nails from the interstices, an unrelated later feature. No internal features likely to have been contemporary with the palisade were identified, though a small number of post holes were recorded, some of which could relate to the palisade rather than to the rectangular Roman building (above, 6.1).

The only finds from the palisade trench were three small fragments of Roman pottery. A Roman date for the structure, however, is highly improbable (see 7.3, below), and this is confirmed by its relationship with an intersecting Roman gully on the east side. As the gully (LET/RAC) curves slightly to the east,



Illus 7.2 Central sector of palisade RAB cut through bedrock viewed from the west. Shallow depression RAY, filled with stones, is visible at the top



Illus 7.3 Sections through palisade trench (RAB) and its intersection with gully (LET/RAC)



Illus 7.4 Detail of palisade trench (RAB/LAX), showing stone chocking near western end



Illus 7.5 North-eastern terminal of palisade trench showing stone packing and post hole at the end, from the north

it cuts into the palisade trench (LAX/RAB) (Illus 7.3), taking advantage of the pre-existing line for some 1.5m, from which all the packing stones were removed, before continuing south down the slope. The three sherds of Roman pottery in the palisade trench (RAB/LAX) may then reasonably be explained as the result of disturbance of the upper levels in the Antonine period. This same area of disturbance (LET/RAC) also produced two sherds of late prehistoric domestic pottery (16.3 and 16.4, below) (Illus 16.3).

The second point of intersection, this time with a Roman construction trench (RAF), is stratigraphically less clear-cut. Indeed, superficially the deeper palisade trench (RAB) appears to cut the shallow linear slot (RAF), which continues beyond it to the west for *c* 1m. However, the intersection

coincided with the cobble base of a relict post-medieval field boundary (Illus 6.2 and 6.3) making the relationship between the two features more difficult to discern on the surface. It would be unjustified, therefore, to argue for a post-Roman date on the basis of this apparent relationship.

7.2 Associated finds

RAB/LAX, palisade trench: 3 sherds of Roman coarse ware

RAQ, shallow scoop adjacent to northern road drainage ditch: 2 sherds of beaker pottery (now missing); fragment of early medieval bone

RAY, shallow, stone-packed pit: nail; hobnail

RBO, shallow pit or stone hole adjacent to palisade: sherd of beaker pottery (Illus 16.1, no. 1)

See also LET/RAC, gully/fence line cutting palisade trench (6.3, above).

7.3 Interpretation and analogies

The combination of four beaker sherds and a barbed and tanged arrowhead, all from the same area of the excavation, are suggestive of a disturbed beaker burial (see 17.7, below). Inhumation was the norm in the Early Bronze Age in Scotland and beaker burials occur in pits or, more commonly, in cists, though considerable regional diversity is apparent (Downes 2012: 131–7). The pit (RAQ) adjacent to the bypass road at Croy Hill would not be out of place in the limited cannon of non-cist inhumations in Scotland, its relatively poor preservation being the result of a combination of disturbance by Roman road-building and intensive agricultural denudation in the medieval and post-medieval periods, as confirmed by the complete disappearance of the immediately adjacent Roman road.

Palisaded enclosures are particularly well attested on the eastern side of northern Britain and are generally identified as settlement enclosures of Iron Age date (Ritchie 1970; Harding 2004: 66–9). They are usually curvilinear in outline, though rectilinear examples are known, and vary considerably in size, the larger examples often provided with a double palisade (eg Atkinson 2000). Where they have been investigated, they usually contain one or more round timber houses, but produce very limited finds. Harding is at pains to emphasise that a palisade is

simply a constructional technique without cultural or chronological implications (2004: 55). Indeed, some can be shown to have continued in use for a long period of time, the palisades augmented or superseded by ditches, even into the Roman Iron Age (eg Proudfoot 1978; Ellis 2007). However, those palisades which define a free-standing, single stockaded enclosure are quite distinctive and are generally ascribed an early Iron Age date (Ritchie 1970: 53; Harding 2004: 66–8). It is unlikely, therefore, that this site was still in use at the time of the Antonine conquest and occupation of the area.

The palisade at Croy Hill is well paralleled, both structurally and morphologically, by these Iron Age examples. The two sherds of later prehistoric domestic pottery from Roman disturbance of one section of the palisade (RAC) are consistent with this identification and suggested date. Assuming that the arc of the palisade represents approximately one quarter to one third of the full enclosure, this would have had a diameter of 24–26m. This compares, for example, with Glenachan Rigg, Peeblesshire (Feachem 1959), which is *c* 33m by 25m, and Knapps, Renfrewshire, which is *c* 25m by 21m (Newall 1965). There has been debate about the function of such palisades, some preferring to see them as temporary stock enclosures rather than settlements (eg Topping 1989). There was no evidence from the Croy Hill example which might directly contribute to this debate, but its sheltered location on a flat plateau with a good water supply would be highly appropriate for a small domestic settlement.

8. THE COINS

Donal Bateson and Anne S Robertson

8.1 Catalogue

► **1. DAA topsoil over land divisions, Area D**

Bronze of Constantine I (AD 306–37)

AE Wt 1.952g Size 18mm Axis ↑

Obverse: CONSTANTI NVS MAX AVG
Bust of Constantine I, diademed, draped, cuirassed, r

Reverse: GLOR IA EXER CITVS
Two soldiers standing facing one another; between them two standards, mint mark SMNT (Nicomedia)

Cp: LRBC (I) 1117

Condition Very worn
of coin:

It does not seem very likely that the coin was lost in Scotland in ancient times.

► **2. LAB 3 drainage ditch, east side of trackway, vicus**

Denarius of Trajan (AD 98–117), with COS V (c AD 104–11)

AR Wt 2.819g Size Axis ↓
(usual wt 19mm
of Trajanic denarii is over 3g)

Obverse: (IMP TRAIANO AVS GER)
DAC P M TR P (l to r)
(Bust of Trajan, laureate, r)

Reverse: COS V P P (S P Q R O)PTIMO (PRINC) (l to r)
Figure standing or seated l

Cp: RIC 109 ff, BMC 265 ff, HCC 86 ff

Condition Too corroded for an estimate of
of coin: wear, but does not seem excessively worn

► **3. LAH 4 drainage ditch, east side of trackway, vicus**

Sestertius of Trajan (AD 98–117)

AE Wt 20.067g Size 32mm Axis ↓

Obverse: (IMP CAES NERVAE TRAIANO AVG GER DAC P M TR P COS V P P)

Bust of Trajan, laureate, r, slight drapery on l shoulder.

Reverse: (S P Q R OPTIMO PRINCIPI) S C in exergue

Trajan in military dress, on horse prancing r, with javelin in raised r hand about to pierce Dacian kneeling below horse.

Cp: C 508, RIC 543, BMC 839, HCC 304.

Date of AD 103–11
coin:

Condition Worn
of coin:

► **4. LCQ 1 drainage ditch west side of trackway, vicus (in layer above arm-purse)**

Denarius of Domitian (AD 81–96)

AR Size 20mm Axis ↓

Obverse: IMP CAES DOMIT AVG GERM P M TR P XI

Head of Domitian, laureate, r, possibly with aegis

Reverse: IM)P. XXI (C)(O, badly made, looks like V)(S) XV(I?) CENS P P P

Minerva, helmeted, draped, standing l, holding spear, l elbow bent

Cp: C 267, RIC 150, BMC 186 (TR P XI, IMP XXI, COS XV = AD 91)
C 271, RIC 169, BMC 194 f, HCC 1/8f (TR P XI, IMP XXI, COS XVI = AD 92)

Condition Very badly corroded. Fairly worn
of coin:

► 5. QAR 1 upper fill of the fortlet ditch

Large fragment of small copper coin, Dupondius or As of Hadrian (AD 117–38)

AE	Wt 1.58g	Axis ↓
Obverse:	Bust of Hadrian, bareheaded, draped, r	
Reverse:	Female figure seated l holding patera (and sceptre) Justitia?	
Cp:	C 890, <i>RIC</i> 727f, <i>BMC</i> 1465–6, <i>HCC</i> 490	
Condition of coin:	Very corroded (wear uncertain)	

9. THE SMALL FINDS

Lindsay Allason-Jones (based on an original catalogue by Ruth Leary)

9.1 Catalogue

9.1.1 Stone

Sandstones and shales are available within the immediate vicinity and in the Kilsyth Hills. The unfinished architectural pieces and the mason's pick from the 1933 excavation (National Museums of Scotland code FR 461) testify to stone working being carried out on site.

► **S1: HAR 1 upper fill of large pit within land divisions, Area H (Illus 9.1 and 9.4)**

Damaged sandstone altar plinth (Keppie 1998: 29). Smooth shoulders contrast with chisel-scored sides. L: 515mm, W: 425mm, H: 145mm



Illus 9.1 Damaged altar plinth from fill of pit, HAR

► **S2: GAM 1 upper fill of furnace/pottery kiln within land divisions, Area G (Illus 9.2)**

Sandstone altar plinth in two pieces, similar to S1. The larger piece (found facing upwards at the top of the fill) was the more damaged. L: c 510mm, W: c 450mm, H: 190mm



Illus 9.2 Broken altar plinth from fill of furnace, GAM

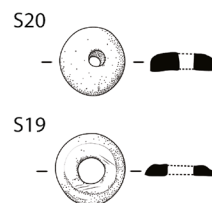
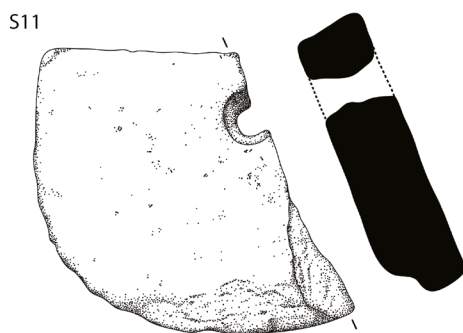
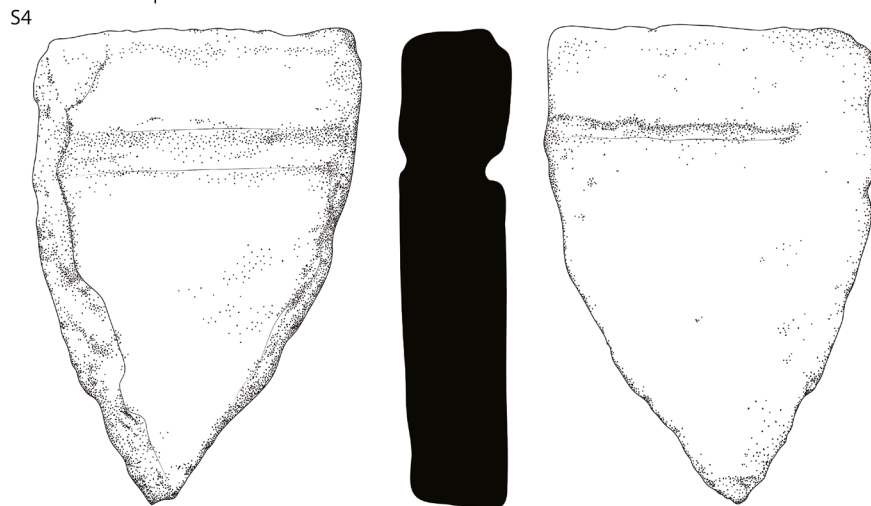
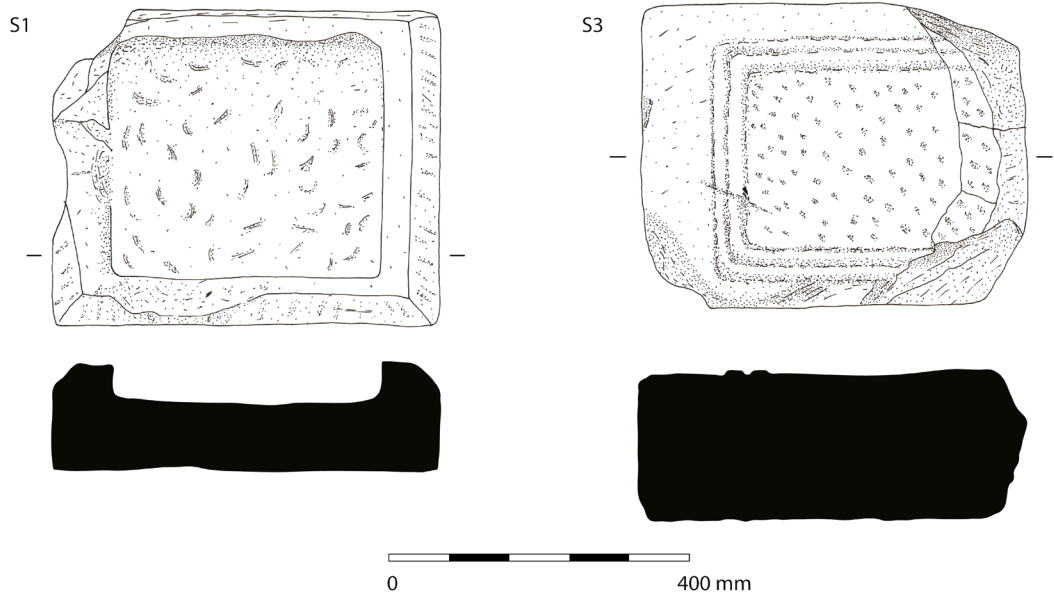
► **S3: GAM fill of furnace/pottery kiln within land divisions, Area G (Illus 9.3 and 9.4)**

Damaged, rectangular sandstone block. The panel is plainly dressed but with a double cable border, so possibly intended to bear an inscription. A score across the left-hand cable border may be the reason for its apparently unfinished state, or it may simply be plough damage.

L: 510mm, W: 410mm, H: 195mm



Illus 9.3 Broken inscription blank from fill of furnace, GAM



Illus 9.4 Stone artefacts

► **S4: LBO 1 upper fill of drainage ditch, west side of trackway, *vicus* (Illus 9.4)**

Unfinished, buff, micaceous sandstone block. Tool marks indicate an attempt to fashion a chamfered edge. The partially chiselled border channel on one face is replicated by another attempt on the reverse side. The appearance of both channels and chamfer suggest the piece was never finished or was a practice piece.

L: 155mm, W: 107mm, Th: 34mm

► **S11: LBM drainage ditch, west side of trackway, *vicus* (Illus 9.4)**

Fragment of a sandstone slab pierced by a circular hole, drilled from both sides. The surviving edge has been trimmed to a rounded corner but the slab appears to have been rectangular rather than circular. Not enough survives to ascertain whether the hole was in the centre.

L: 91mm, W: *c* 106mm, Diam of hole (min): 9mm

► **S12: Topsoil, *vicus***

Fragment of a quern of Mayan-Niedermendig lava from the Eifel Hills in Germany. This type of stone is particularly hard and querns cut from it were imported into Britain by the Roman army throughout their occupation. Several examples have been found on sites in Scotland, eg Newstead (Curle 1911: 145).

No measurements possible.

► **S14: RBA gully/fence line, *vicus***

Fragment of a sandstone pebble with one rounded end and two longitudinal striations on one face. The material precludes use as an efficient whetstone but may have been a rubber.

L: 90mm, W: 44mm, Th: 15mm

► **S15: CCA 5 pre-fort enclosure ditch (Illus 9.4)**

Brown grey sandstone whetstone of rectangular section with metallic traces and score marks at the edges.

L: 79mm, W: 26mm, Th: 18mm

► **S16: LAA topsoil, *vicus***

Fragment of buff, micaceous sandstone whetstone with no surviving edges.

L: 78mm, W: 80mm, Th: 21mm

► **S17: LBB 1 upper fill of recut drainage ditch, east side of trackway, *vicus***

Buff sandstone fragment with two parallel lines scored across one of the well-dressed faces.

L: 56mm, W: 45mm, Th: 22mm

► **S18: PAA topsoil over south rampart of fort (Illus 9.4)**

Two joining slate fragments with chamfered edges. On one face there are lines scored to form a fine chequerboard; on the other face there is one line scored parallel to and 25mm from the edge.

The chamfered edges suggest that this was a palette with the chamfered edge intended to slide into a metal frame (Milne 1970: 171; Crummy 1983: 57). It would, however, be unusual for a palette to have score designs on its surface so it is possible that it was a very small gaming board of the sort used to play *ludus latruncularum*; the gaming counters found on the site are too big to have been used on such a small board (Bell 1960).

L: 52mm, Th: 3mm

► **S19: BBB topsoil over pre-fort enclosure (Illus 9.4)**

Disc of slate with rounded edges and a central circular hole. The hole is too small for this to be a spindlewhorl; possibly a lid.

D: 23mm, Th: 4mm, Diam of hole: 8mm

► **S20: RAA topsoil immediately south of bypass road ditch, RAH, south of *vicus* (Illus 9.4)**

Disc of slate of varying thickness with a circular central hole drilled through at a slight angle.

D: 21mm, Th: 6mm, Diam of hole: 5mm

► **S21: RBV 1 bypass road ditch, south of *vicus***

?Shale bead or pendant roughout. Thin, flat, irregular, incomplete disc with central biconical perforation. Edges and faces abraded; double marking-out line on one face (Hunter 2014: fig 19.4, 154 and 164).

D: 23mm, Th: 5mm

► **S22: HAR 10 bottom fill of large pit within land divisions, Area H (Illus 9.4)**

Disc of shale. Gaming counter?

D: 25.5mm, Th: 2mm

► **S23: RAA topsoil, *vicus*, Area R**

Fragment of a buff micaceous sandstone with five parallel lines scored across one face. There are faint

traces of other lines crossing at right angles. Possibly a gaming counter.

W: 95mm, L: 82mm, Th: 15mm

► **S24: RBT bypass road ditch, south of vicus**

Rectangle of buff, micaceous sandstone with oblique chisel marks along one edge, suggesting an attempt at chamfering. One face is well-dressed.

L: 92mm, W: 110mm, Th: 27mm

► **S25: CCS road surface, east of pre-fort enclosure**

Rectangular slab of buff, micaceous sandstone with a shallow channel chipped along one broken edge.

L: 122mm, W: 115mm, Th: 28mm

► **S26: LAB 2, drainage ditch, east side of trackway, vicus**

Fragment of very hard, micaceous yellow sandstone with one surviving edge. This is not local stone and too little survives to suggest why it was imported.

L: 78mm, W: 65mm, Th: 7mm

9.1.2 Bronze

► **B1: LBB recut drainage ditch, east side of trackway, vicus (Illus 9.5)**

Triangular loop from a button-and-loop fastener. Such loops can be found on fasteners of Wild's Type III, IV, V, VI and VII (1970: figs 1 and 2) but with no trace of the 'button' it is not possible to assign this example more precisely; all the possible types have produced examples in 2nd-century AD contexts.

L: 20mm, W: 16mm

► **B2: LBM 1 drainage ditch, west side of trackway, vicus (Illus 9.5)**

Copper alloy tie-ring, with three small square-sectioned projections, from *lorica segmentata*. There are traces of gilding. Such ties plates were in use from the Antonine period (Bishop & Coulston 2006: fig 85, nos 7, 8, 10) to the 3rd century AD (ibid: fig 110, nos 5–8).

L: 22mm, W: 18mm, Th: 3.0mm

► **B3: LBL 1 drainage ditch, east side of trackway, vicus (Illus 9.5)**

Fragments of a 'knee brooch', consisting of a tubular head, upper hollow bow, narrow splayed foot and

very small catchplate. The copper alloy spring is coiled around an iron pin.

Knee brooches are known on the German *limes* as *soldatenfibeln* but can be found in more diverse contexts in Britain. The type with a cylindrical head is common on the *limes* in the period AD 150–200. As well as examples from Newstead (Curle 1911: pl LXXXVII, nos 28, 30–1), there are also several examples from Scottish sites, eg Camelon (Anderson 1901: fig 40; Maxfield forthcoming), Traprain Law (Burley 1956: 159–60, nos 37, 39, 40, 41) and Strageath (Frere & Wilkes 1989: fig 76, no. 54)

L: 30mm, W: 15mm

► **B4: LAK 1 drainage ditch, east side of trackway, vicus (Illus 9.5)**

Two fragments of a possible Hod Hill-derivative brooch with incised vertical lines on the head. The hollow bow tapers markedly to the broken end and has two vertical ribs on the face. There is no trace of tinning.

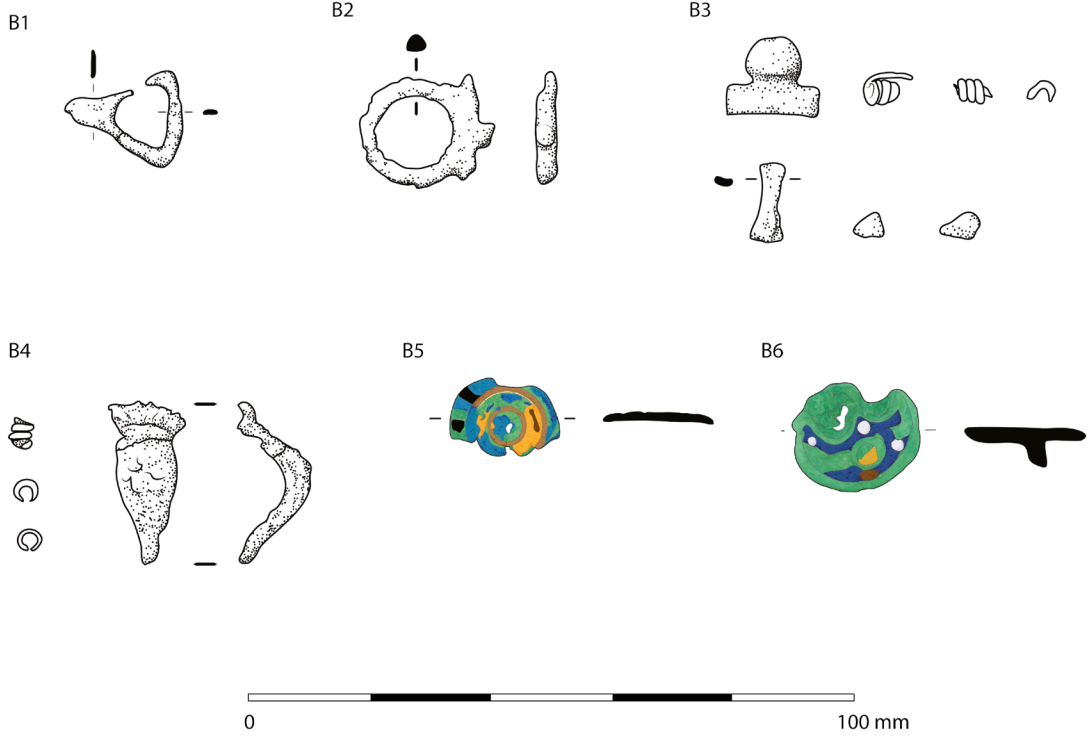
The Hod Hill brooch was introduced to Britain from the continent at the time of the conquest and is 'unlikely to have remained in general use after about AD 70' (Bayley & Butcher 2004: 153). However, examples have been found on sites along the Tyne–Solway frontier so clearly they continued to be worn as personal ornaments long after they were fashionable (Snape 1993: 13, Type 1.8). Cf Bayley & Butcher 2004: fig 55, nos 118 and 120.

H: 28mm, W: 16mm

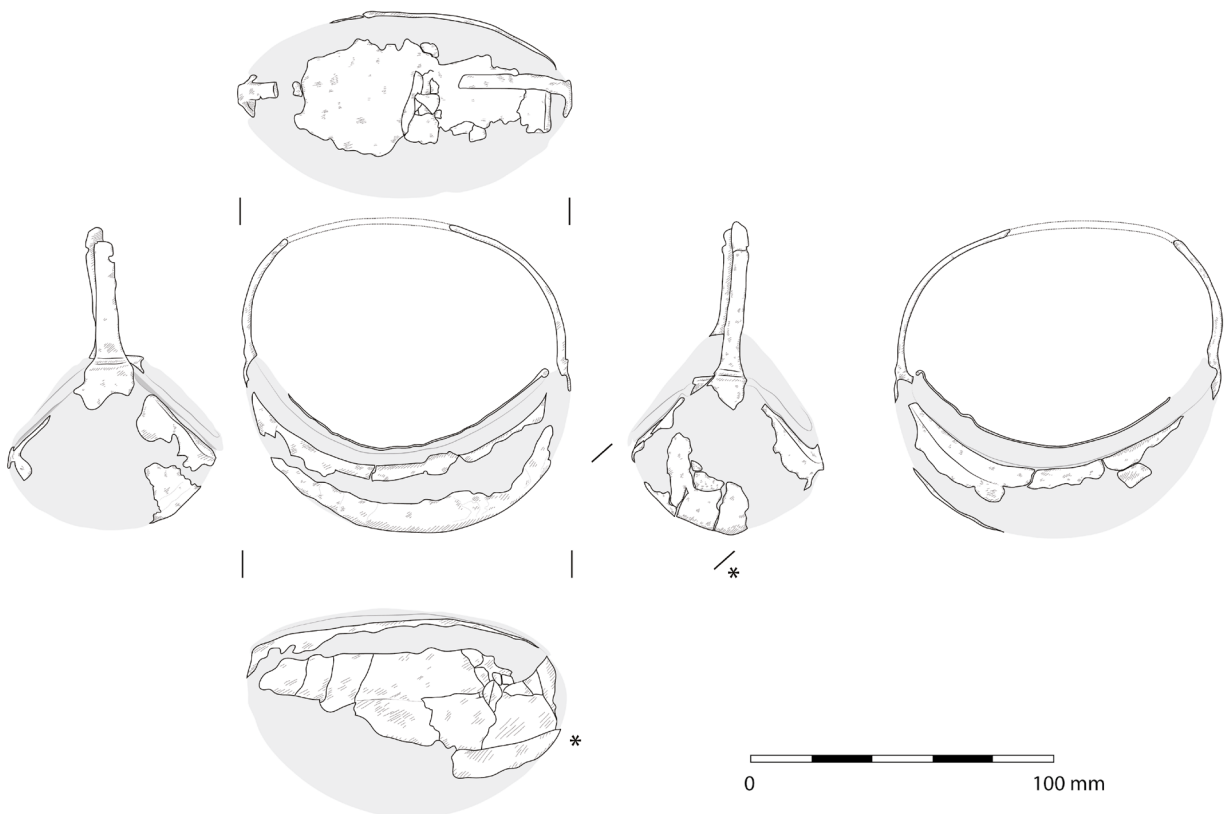
► **B5: CCH 2 pre-fort enclosure ditch (Illus 9.5 and 9.6)**

Fragment of a disc stud with concentric circles of reserved metal containing enamel. The colour of the enamel in the central disc is unidentifiable; the surrounding ring has orange enamel; the outer ring contains alternately black and white or green wedges of enamel. There is no trace of a shank or other attachment. Found with a fragment of leather. This type is common on sites in the Military Zone in the 2nd century AD, eg Barburgh Mill (Breeze 1974: 162, fig 8, no. 41), Camelon (Anderson 1901: pl A.3 and fig 38), Mumrills (Macdonald & Curle 1929: 555, fig 115, 9) and Newstead (Curle 1911: 331, pl LXXXIX, no. 4).

Est diam: 19mm



B21



Illus 9.5 Bronze artefacts



Illus 9.6 Enamelled bronze disc stud from pre-fort enclosure ditch (CCH) (© Amanda Clydesdale)

► **B6: LAB 4 drainage ditch, east side of trackway, vicus (Illus 9.5 and 9.7)**

Peltate enamelled stud with traces of fibre, probably leather, encircling the shank. The main field of blue enamel has four spots of white arranged around a central orange cell. A comparable stud is known from Kenninghall, Norfolk (Portable Antiquities Scheme NMS-EOFB22), while Bateson illustrates a similarly

shaped and decorated pendant from an apron strap or horse harness (1981: fig C iii; no provenance given). Mackreth refers to similarly shaped and decorated brooches from Northumberland and Cumbria (2011: 167) and suggests a mid to late 2nd-century AD date which is compatible with the few studs which are known.

W: 20mm, L: 17mm

► **B7: LBD drainage ditch, west side of trackway, vicus**

Fragment of the catchplate of bow brooch.

L: 10mm, W: 5mm

► **B8: LBB 4 recut drainage ditch, east side of trackway, vicus**

Fragments of bronze disc.

D: 16mm

► **B9: LCK 1 drainage ditch, west side of trackway, vicus**

Fragment of a circular-sectioned bronze pin or needle shank.

L: 11mm, Th: 2mm

► **B10: LDH 1 drainage ditch, east side of trackway, vicus**

Terminal or stud with a solid conical head and a thick, circular-sectioned shank.

Diam of head: 14mm, Total H: 25mm, T of shank: 4.5mm



Illus 9.7 Bronze peltate stud from trackway ditch (LAB 4): left: front; right: back (© Amanda Clydesdale)

► **B11: LCK 1 drainage ditch, west side of trackway, vicus**

Flattened rim of a bronze vessel. Not enough survives to attribute this to a particular form but it may come from a late 1st-century *patera* (cf den Boesterd 1956: pl II, no. 32).

L: 42mm. No diameter measurement possible

► **B12: LCT 2 drainage ditch, west side of trackway, vicus**

Small oval terminal with a central circular hole and a rectangular shank whose edges are at a right angle to the face of the terminal.

L: 25mm, W: 12mm

► **B13: LDH 1 drainage ditch, east side of trackway, vicus**

Fragment of a stud with a flat disc head and a short shank.

No measurements possible.

► **B14: RAV 2 hillwash over bypass road ditch RCC, south of vicus**

Strip pierced by two bronze rivets. No original edges survive but it appears to have been rectangular with a slight taper to one end. There are a number of incised lines on one face that may have been decorative.

L: 40mm, W: 17mm, Th: 1mm

► **B15: LAA topsoil over hillwash, vicus**

Iron disc stud with traces of a bronze head, which has been attached using a lead-tin alloy. Square-sectioned shank.

D: 28mm

► **B16: RAX hillwash, Area R**

Iron disc stud with traces of a bronze head which has been attached using a lead-tin alloy. Square-sectioned shank. Similar to B15 above.

D: 27mm

► **B17: LAK 4 drainage ditch, east side of trackway, vicus**

Fragments of iron with bronze adhering, probably from a disc stud such as B15/B16 above.

No measurements possible.

► **B18: LAK 4 drainage ditch, east side of trackway, vicus**

Fragmentary iron disc stud with fragments surviving of its bronze head. Cf B15/B16/B17 above.

No measurements possible.

► **B19: BBB topsoil over pre-fort enclosure**

Fragments of bronze.

No measurements possible.

► **B20: LAB 4 drainage ditch, east side of trackway, vicus**

Fragments of bronze.

No measurements possible.

► **B21: LCQ 2 drainage ditch, west side of trackway, vicus (Illus 9.5 and 9.8)**

Fragments of the lid and body of a bronze arm-purse; the hinge and spring tongue do not survive but the catch loop is still in situ. There is a decorative double rib across the handle as it merges with the body at each end. Arm-purses divide into those with a rigid handle, such as this example, and those with an expanding handle (Birley 1963: 8). Most arm-purses from Britain and the *limes* have been found in military contexts and are presumed to have been worn by soldiers, particularly legionaries. Four examples have been found on the Tyne–Solway frontier: two at Birdoswald, one from Thorngrifton and one at Corbridge; the example from South Shields consists only of the lid. Two are believed to come from Lowland Scotland, both from Dumfriesshire (Birley 1963); this is the first to be identified on the Antonine Wall.

L: 110mm, H: 116mm, Max W: 66mm



Illus 9.8 Bronze arm-purse from drainage ditch, LCQ (© Hunterian Museum)

9.1.3 Ironwork

Ironwork from the site was quite fragile and heavily corroded. As a result most of the drawings provide only outlines and some estimation of the original shape.

9.1.3.1 Weapons

► **F1: LBD 8 drainage ditch, west side of trackway, vicus (Illus 9.9)**

Socketed spearhead Manning Type II. Probably a throwing spear (Manning 1976: 18–19; Curle 1911: 188).

► **F2: LBL 1 drainage ditch, east side of trackway, vicus (Illus 9.9)**

Missile head? Probably an arrowhead with a simple triangular blade and square-sectioned tang (Manning 1976: 22–3, fig 14, nos 37–45).

► **F3: MAF 1 hillwash, Area M**

Missile tip? Form obscured by corrosion activity, leaving shell.

9.1.3.2 Domestic items

► **Knives**

Classified according to Manning (1976: 37):

I – Tanged knife with the back of the blade slightly arched, the edge straight or convex, the tip pointed or rounded and the tang set on the mid-line of the blade. This type varies in size and is the commonest of all Romano-British forms.

II – The back of the blade of this type is straight and continuous. The line of the tang or socket subdivisions can be made on the grounds of edge form.

a) Convex curve

b) Straight

But this division is blurred since constant whetting can wear away the convexity of IIa.

► **F4: LBD drainage ditch, west side of trackway, vicus (Illus 9.9)**

Knife blade of Type IIa.

► **F5: LBD drainage ditch, west side of trackway, vicus (Illus 9.9)**

Pointed tip of knife.

► **F6: LAB 4 drainage ditch, east side of trackway, vicus**

Fragmentary blade and tang of knife. Tang is similar to Type II, but blade more like Type I.

► **F7: LAH 3 drainage ditch, east side of trackway, vicus**

Blade and part of tang of Type IIa.

► **F8: LBK 4 recut drainage ditch, west side of trackway, vicus (Illus 9.9)**

?Tang of Type II knife.

► **F9: LAB 1 drainage ditch, east side of trackway, vicus (Illus 9.9)**

Blade and tang of knife Type I.

► **F10: LBL 1 drainage ditch, east side of trackway, vicus**

Two fragments of knife or strip.

► **F11: LBK 1 recut drainage ditch, west side of trackway, vicus (Illus 9.9)**

Fragment of knife with tip bent back.

► **F12: LCK 1 drainage ditch, west side of trackway, vicus**

Knife tip or strip.

► **F13: LAB 7 drainage ditch, east side of trackway, vicus (Illus 9.9)**

Broken bucket handle mount or a T-staple (cf Frere 1972: 178, fig 66, nos 53–4 and 184, fig 68, no. 83).

► **F14: LAK 2 drainage ditch, east side of trackway, vicus**

As F13 above.

► **F15: QAF 1 south ditch of fortlet (Illus 9.9)**

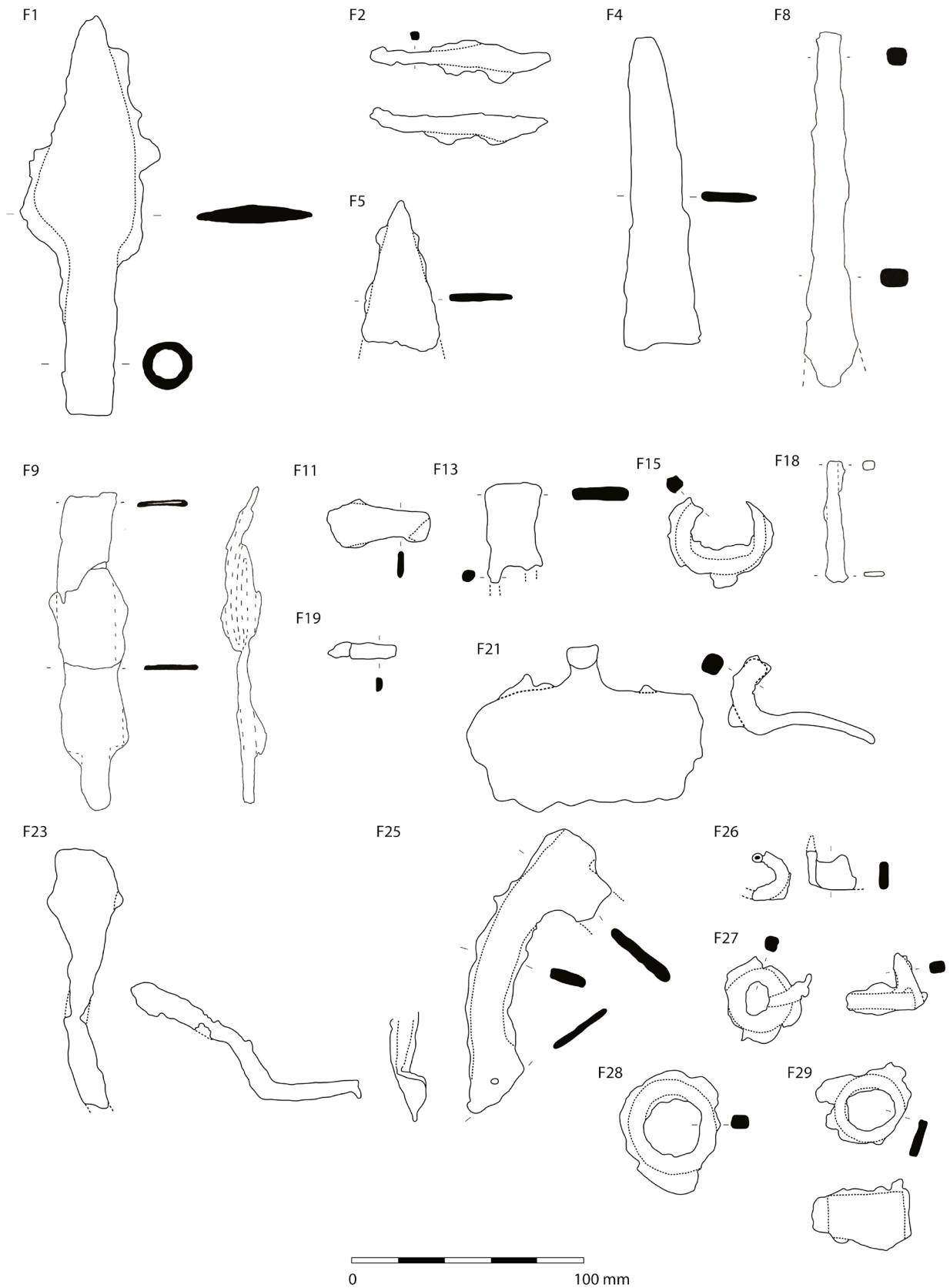
Small simple buckle (cf Cunliffe 1975: 247, fig 131, no. 254).

► **F16: LAA topsoil, vicus**

?Broken buckle similar to above or small staple (cf Cunliffe 1975: 242, fig 129, no. 229).

► **F 17: LBB 2 recut drainage ditch, east side of trackway, vicus**

Fine iron pin or needle, broken at tip. Iron pins were used to secure fibula springs (Smythe 1938)



Illus 9.9 Iron artefacts (F1-29)

or as hairpins or clothes fasteners (Manning 1976: 36, fig 21, no. 118).

9.1.3.3 Tools

► **F18: LCQ 1 drainage ditch, west side of trackway, vicus (Illus 9.9)**

Fragment of iron punch for delicate work, or part of a stylus (cf Frere 1972: 176, no. 49) or ligula (cf Richmond 1968: fig 59 B4).

► **F19: LBN 2 recut drainage ditch, west side of trackway, vicus (Illus 9.9)**

Iron stylus with collar (cf iron stylus from Traprain Law (Curle 1920: 74)). Collar decoration is closely paralleled at Aldborough (Bishop 1996: 34, fig 19).

► **F20: LCQ 1 drainage ditch, west side of trackway, vicus**

Tip of punch or bit (cf Frere 1972: 164; Richmond 1968: 115, fig 59).

9.1.3.4 Transport

► **F21: LBD 2 drainage ditch, west side of trackway, vicus (Illus 9.9)**

Rear section of hipposandal: heel with base of rear hook. Similar fragments of dissociated heels have been found at Verulamium (Frere 1972: 172, fig 63, no. 29), London (Guildhall Museum) and in the Blackburn Mill Hoard (Piggott 1953: 45, fig 12, nos B20 and B21), and their frequency seems to be due to the weakness introduced by the bent form of the heel.

The definitive study of hipposandals was published by Aubert (1929) and his classification is widely accepted (for a description of types, see Frere 1972). Since all types include a hooked heel, it is impossible to classify this piece.

► **F22: QAE 1 ditch of fortlet**

Base of front hook of hipposandal (?) Type 1 (cf Frere 1972: 171, fig 63, no. 25–6) with long hooked or looped vertical rod at front, wings at side and a hooked heel.

► **F23: LAB 1 drainage ditch, east side of trackway, vicus**

Part of frontal loop of a hipposandal Type 1.

► **F24: LAL 1 early linear gully, vicus**

Iron bar in ‘half horseshoe’ shape splayed, upturned and perforated at one end. Possibly a

half-finished ?ox shoe, two of which would be used to shoe a cloven hoof (cf Boon 1957: 210). The fragmentary nature of the piece advises against certain interpretation.

► **F25: LBB 2 recut drainage ditch, east side of trackway, vicus (Illus 9.9)**

?Small lynch pin (cf Boon 1957: 184, fig 36, no. 2).

► **F26: LBD 1 drainage ditch, west side of trackway, vicus (Illus 9.9)**

Spiral of iron rod. Similar artefacts have been identified as ox goads and this example could be attributed to Type II (Rees 1979: 179). However, Rees has expressed doubt as to whether farmers would go to the trouble of making an iron goad point when a sharply pointed stick would be equally effective (Rees 2011: 96). An alternative identification of pen nibs has been offered for the many examples found at Vindolanda (Birley 1999: 17–27); this has been doubted by Bowman and Thomas (2003: 13) and Tomlin (2001: 148) on the grounds that the Vindolanda writing tablets were clearly written with a split nib.

► **F27: QAR ditch of fortlet (Illus 9.9)**

Ring with wire twisted round to form a spike, similar to F26 above.

► **F28: LBL 2 drainage ditch, east side of trackway, vicus (Illus 9.9)**

Ring. Part of a bit? (cf Robertson et al 1975: 111, fig 38, nos 61–2) or simply one of the group of rings common in most collections used for multitudinous purposes (Manning 1976: 43, fig 28, nos 184–5).

► **F29: LDK shallow natural depression, vicus (Illus 9.9)**

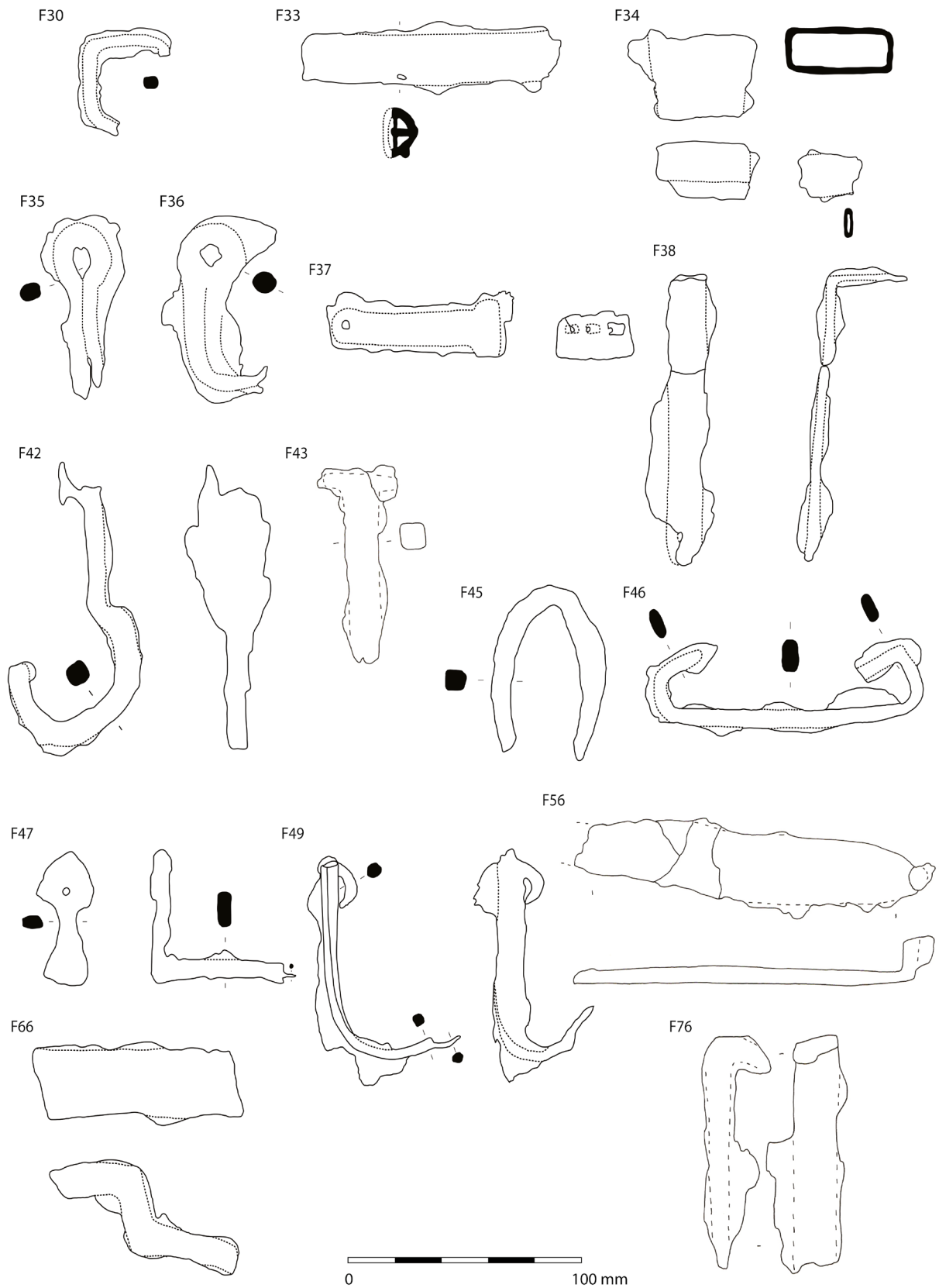
Ring with protrusion. ?Ox goad with broken spike.

► **F30: LAB 1 drainage ditch, east side of trackway, vicus (Illus 9.10)**

Half of ferrule binding (cf Frere 1972: 188, fig 69, no. 123). A ubiquitous class of binding used to prevent the ends of wooden sticks, spear shafts, pitchforks and so on from splitting.

► **F31: LAH 1 drainage ditch, east side of trackway, vicus**

Half of ferrule binding.



Illus 9.10 Iron artefacts (F30–76)

► **F32: LBD 6 drainage ditch, west side of trackway, vicus**

Part of circular collar or binding (cf Frere 1972: 188, fig 69, nos 125–6; Robertson et al 1975: 108, fig 37, no. 46).

► **F33: CCT bypass road ditch east of pre-fort enclosure (Illus 9.10)**

?Ferrule with remains of wood shaft within, secured by rivet. Probably intended to protect the end of a shaft. However, if it is incomplete it was probably originally of the same type as those from Verulamium (cf Frere 1972: 188, fig 69, nos 120–2).

► **F34: LBX hillwash over bypass road ditch, LBY, south of vicus (Illus 9.10)**

Rectangular sectioned ferrule to protect the end of wooden poles etc. Normally such ferrules have perforations for attachment. An alternative interpretation is a plough share tip (cf Rees 1979: fig 55, no. 160), but these normally taper.

9.1.3.5 Structural fittings

► **F35: LBL 1 drainage ditch, east side of trackway, vicus (Illus 9.10)**

Split pin broken at the end (cf Robertson et al 1975: 96, fig 31, no. 1).

► **F36: LBD 9 drainage ditch, west side of trackway, vicus (Illus 9.10)**

Split pin.

► **F37: LBD 1 drainage ditch, west side of trackway, vicus (Illus 9.10)**

Small loop hinge strap? Such hinges consist of two straps ending in interlinking loops (cf Frere 1972: 180, fig 66, nos 60 and 62).

► **F38: LAB 2 drainage ditch, east side of trackway, vicus (Illus 9.10)**

Tumbler lock slide key with toothed bit and pierced handle. Similar forms known from Verulamium (Frere 1972: 182, fig 68, no. 77).

► **F40: LBD 1 drainage ditch, west side of trackway, vicus**

Fragment of hook (cf Manning 1976: 43, fig 26, nos 187–9).

F41: LBK 2 recut drainage ditch, west side of trackway, vicus

Small hook.

► **F42: LBD 1 drainage ditch, west side of trackway, vicus (Illus 9.10)**

Hook ending in flat plate fragment for attachment to wood (cf Manning 1976: 43, fig 26, no. 187).

► **F43: LCT 1 drainage ditch, vicus (Illus 9.10)**

Small T-staple (cf Manning 1976: 41, fig 25, no. 163).

► **F44: LAA topsoil, vicus**

?T-staple (cf Frere 1972: fig 68, no. 83).

► **F45: LBB 1 recut drainage ditch, east side of trackway, vicus (Illus 9.10)**

U-staple.

9.1.3.6 Strips and bars

These pieces are usually interpreted as bindings of various types used in structures, from barracks to carts. The junction is rarely certain and some may be simply scrap.

► **F46: LAK 1 drainage ditch, east side of trackway, vicus (Illus 9.10)**

Rectangular-sectioned rod hooked at either end as if binding two elements together or functioning as a collar.

► **F47: LAK 1 drainage ditch, east side of trackway, vicus (Illus 9.10)**

L-shaped strip with a rivet hole broken at one end.

► **F48: LAH 4 drainage ditch, east side of trackway, vicus**

L-shaped strip.

► **F49: LBD 9 drainage ditch, west side of trackway, vicus (Illus 9.10)**

Hooked strip terminating in spike at either end.

► **F50: LBD 1 drainage ditch, west side of trackway, vicus**

D-sectioned curved bar. A similar bar with a rivet from Hod Hill was interpreted as a shield binding (Richmond 1968: 115, fig 58, A4).

► **F51: LCQ 3 drainage ditch, west side of trackway, vicus**

Two fragments of D-sectioned strip widening at the rounded end, pierced by rivet hole. The size of the rivet hole suggests the strip had a protective rather than binding function (cf Frere 1972: 188).

► **F52: LBR 2 drainage ditch, east side of trackway, vicus**

Fragment of D-sectioned strip hammered round at either end. ?Joiner's dog (cf Frere 1972: 184, fig 68, nos 84–5).

► **F53: QAR 1/2 ditch of fortlet**

Fragment of D-sectioned strip. ?Joiner's dog.

► **F54: LDK natural depression, vicus**

D-sectioned strip. Wood replacement corrosion suggests structural function.

► **F55: LCT 2 drainage ditch, west side of trackway, vicus**

As F54 above.

► **F56: LBD 1 drainage ditch, west side of trackway, vicus (Illus 9.10)**

?Protective strip with broken spike set at right angles at one end.

► **F57: LBD 2 drainage ditch, west side of trackway, vicus**

Fragment of plate or binding.

► **F58: LBD 1 drainage ditch, west side of trackway, vicus**

As F57 above.

► **F59: LAH 3, drainage ditch, east side of trackway, vicus**

As F57 above.

► **F60: LBD 6 drainage ditch, west side of trackway, vicus**

As F57 above.

► **F61: LCE hillwash, Area L**

As F57 above.

► **F62: LCS 3 drainage ditch, west side of trackway, vicus**

Two fragments of strip with wood replacement corrosion product suggesting structural function.

► **F63: LCQ 1 drainage ditch, west side of trackway, vicus**

As F62 above.

► **F64: LCK 1 drainage ditch, west side of trackway, vicus**

As F62 above, with burnt wood.

► **F65: LBS 2 drainage ditch, west side of trackway, vicus**

Strip.

► **F66: LBO 2 drainage ditch, west side of trackway, vicus (Illus 9.10)**

Two shaped strips with wood replacement corrosion and associated plaster, indicating a structural function.

9.1.3.7 Scrap

► **F67: LCO bypass road ditch, south of vicus**

Four fragments of strips.

► **F68: LAA topsoil, vicus**

Two fragments of badly corroded strip.

► **F69: LAK 4 drainage ditch, east side of trackway, vicus**

L-shaped strip.

► **F70: LAB 1 drainage ditch, east side of trackway, vicus**

Fragmentary plate.

► **F71: LBB 2 recut drainage ditch, east side of trackway, vicus**

Circular-sectioned rod splitting into two prongs adhering to a piece of orange coarse pottery.

► **F72: CCN 3 pre-fort enclosure ditch**

L-shaped rod, possibly part of a door hinge.

► **F73: CCC topsoil over pre-fort enclosure**

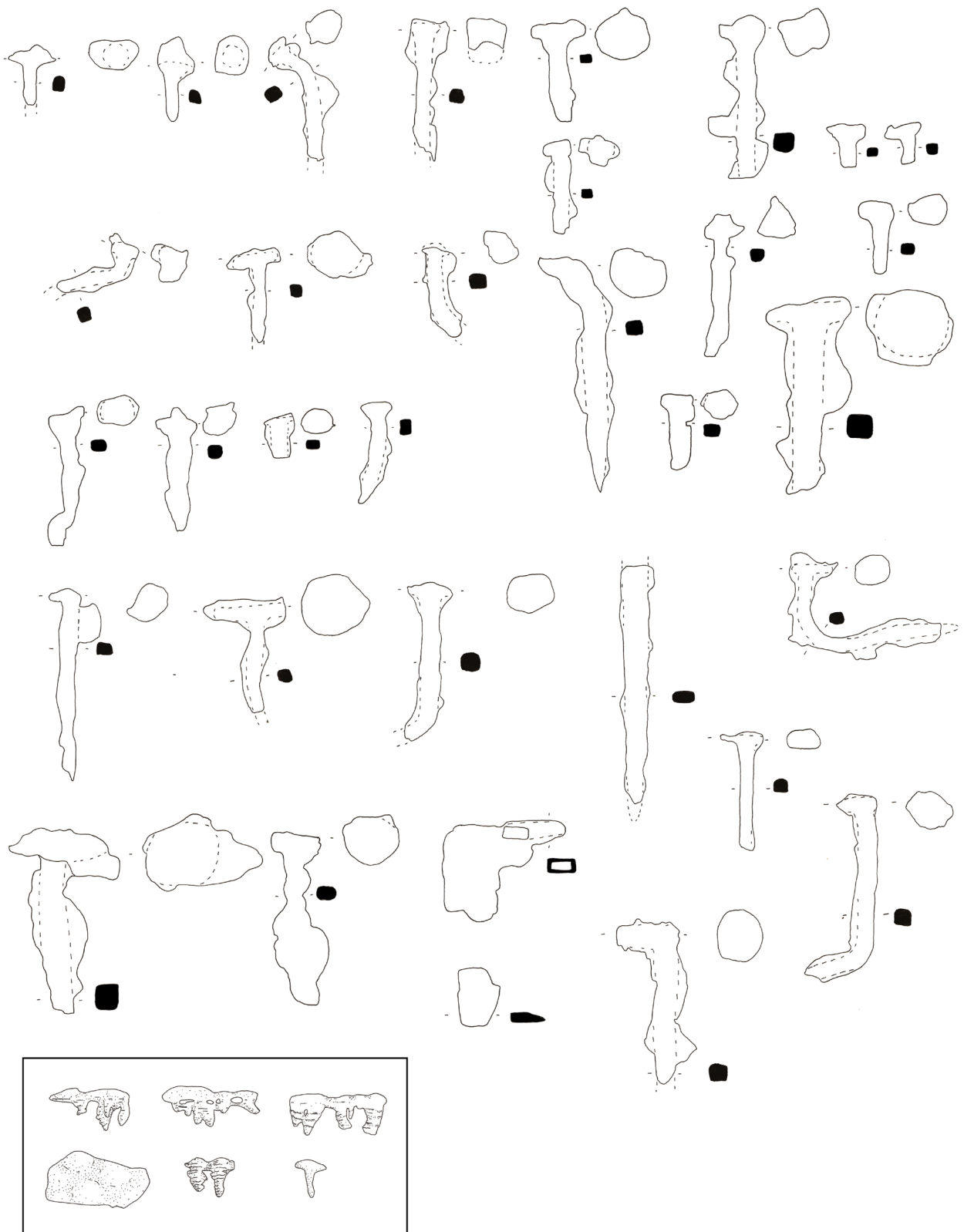
Amorphous lump.

► **F74: LCQ 1 drainage ditch, west side of trackway, vicus**

Amorphous lump.

► **F75: LAA topsoil, vicus**

Bar of varying thickness folded into a squashed C-shape.



0 100 mm

Illus 9.11 Miscellaneous nails and hobnails

► **F76: LBD drainage ditch, west side of trackway, vicus (Illus 9.10)**

L-shaped strip.

► **F77: CCT bypass road ditch, east of pre-fort enclosure**

Amorphous lump.

► **F78: LBM 1 drainage ditch, west side of trackway, vicus**

Amorphous lump.

► **F79: LBD 1 drainage ditch, west side of trackway, vicus**

Amorphous lump.

► **F80: LBD 2 drainage ditch, west side of trackway, vicus**

Amorphous lump.

► **F81: LBD 1 drainage ditch, west side of trackway, vicus**

Fragments of blade or bar.

► **F82: LBD 1 drainage ditch, west side of trackway, vicus**

Fragment of iron bar.

9.1.3.8 Nails

The nails from Croy Hill can be divided into two main types: dome or flathead structural nails and hobnails. Manning has noted the standardisation of Roman nails (Manning 1976: 41) and outlines a widely applicable classification adopted here. All the Croy Hill nails are of Type I, with no certain



Illus 9.12 Hobnails in shoe group from trackway ditch section, LAB

examples of Type Ia recognised, although some heavier shanks may have belonged here. The numbers and findspots are tabulated below (Table 9.1) and complete examples illustrated (Illus 9.11).

Around 1,500 hobnails and 50 fragments of ghost soles (ie layers of corrosion product with associated hobnails) were found on site, some in situ (eg Illus 9.12). If each cluster of hobnails represents one shoe, a total of 50 or 60 would be a conservative estimate.

9.1.4 Lead

Lead sheeting was found at:

DBL spread of occupation/midden material north of land divisions, Area D.

PAA, topsoil over south rampart of fort.

9.1.5 Pottery

► **P2: LBK 1 recut drainage ditch, west side of trackway, vicus (Illus 9.13 and 9.14)**

Mould-made lamp with broken nozzle and handle. The profile is carinated with a central flat, sunken, circular discus with five short decorative lugs projecting from the discus' outer edge. The filling hole is off-centre, next to the nozzle. There is a shallow ribbed channel along the nozzle from the discus to the wick hole. The orange clay is blackened by smoke or heat. Similar lamps are known from Balmuildy (Miller 1922: pl LII) and Mumrills (Macdonald & Curle 1929: 546, fig 111).

L: 80mm, W: 51mm, Th: 20mm

► **P3: LAH 4 drainage ditch, east side of trackway, vicus**

Plain lamp discus fragment of blue-grey clay with orange slip and signs of soot and burning. No measurements possible.

► **P4: RAF construction trench, vicus**

Fragment of lamp of fire orange clay, possibly wheel thrown.

No measurements possible.

► **P7: LBK 5 drainage ditch, east side of trackway, vicus (Illus 9.13)**

Fragment of a clay plaque with a brown slip on both faces. The front is moulded to represent the lower part of a female figure with one naked right leg projecting from flowing drapery; the left leg is

Table 9.1 Nails and hobnails

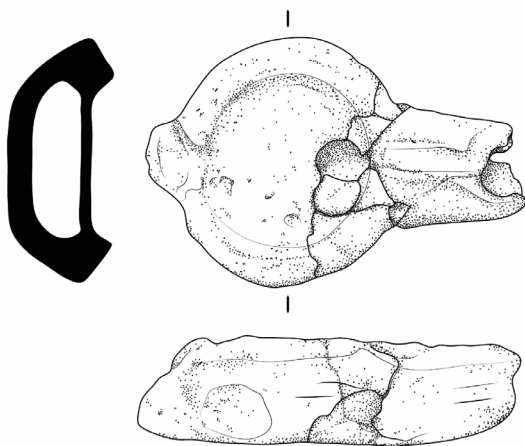
Context	Type I nails	Hobnails
AAA		7
BBB	2	1
BBP	1	1
BBQ	1	
BBS		2
CAC	1	7
CCC		2
CCH		3
CCN 1		5
CCN 3		2
CCR		1
CCS		1
CCT +		2
CCY 1		1
CCZ 1		1
DBL 1		1
EAB		1
EAN		23
EAY		1
GAB		3
HAA		2
LAA	5	6
LAB	2	3
LAB 1	6	
LAB 4	2	shoe group
LAB 5		shoe group
LAB 6		shoe group
LAH		2
LAH 1	4	24
LAH 2		4
LAH 3	1	4 + shoe group
LAH 4	7	shoe group
LAH 5		8
LAK	2	16
LAK 1		4
LAK 2		20
LAK 3		27
LAK 4	1	22

Context	Type I nails	Hobnails
LAK 5	1	3
LAK 6		2
LAL 1	1	
LBB		8
LBB 1	1	7
LBB 2	1	shoe group
LBB 3		2
LBB 4		13
LBD		3
LBD 1		shoe group
LBD 2	1	2
LBD 3	1	shoe group
LBD 4		8
LBD 5	1	5
LBD 6	4	shoe group
LBD 7		3
LBD 8		2
LBD 9		1
LBF		4
LBF 1		5
LBH 1		23
LBK		1
LBK 1	2	6
LBK 2		22
LBK 3		11
LBK 4		68
LBK 5		43
LBK 6		13
LBK 7	1	9
LBL		1
LBL 1	11	27
LBL 2	1	5
LBM 1	1	42
LBM 2	3	9
LBN 1	1	7
LBO 1	4	16
LBO 2	2	20
LBR 1	1	15
LBR 2	2	30

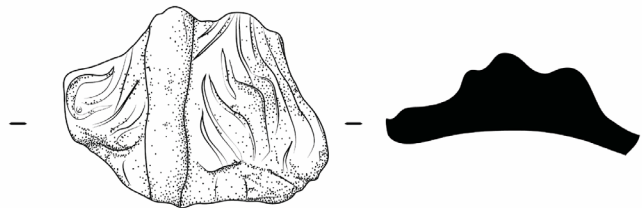
Context	Type I nails	Hobnails
LBR 3		4
LBS		11
LBT 1	2	49
LBW 1	1	
LBX		2
LCG	1	12
LBB 1	1	
LCK 1	2	89
LCK 5		50
LCQ 1	5	shoe group
LCQ 2		26
LCQ 3	1	20
LCQ 4		8
LCQ 5		3
LCQ 6	1	1
LCQ 7		1
LCR 1		67
LCR 2		7
LCS		17
LCS 3	1	1
LCT 1	1	3
LCT 2	8	37
LDB 1	1	9
LDE 1	4	
LDE 2		1
LDG 1		1
LDH		14
LDH 1		3
LDH 2	1	
LDQ		1
LDS 1		1
LDX 2	2	2
LDY 2	2	38
LEA		2
LEA 1		13
LEE	1	13
MAE 1		1
QAA		2
QAP 1	2	14

Context	Type I nails	Hobnails
QAR	1	
RAA	1	2
RAF	2	16
RAG		2
RAO		4
RAX		1
RAY	1	1
RAZ	1	
RBK	1	1
RBP	1	1
RBT		2
RBX		4

P2



P7



Illus 9.13 Pottery artefacts (P2-9)

covered to the knee. The back is hollowed and was clearly not intended to be seen while in use. The figure may represent a maenad (cf the Mildenhall silver dish) (Strong & Brown 1976: col pl 1) or a deity, such as Aphrodite *pudica* as depicted on a Roman copy of a Greek statue in the National Museum in Athens (Havelock 1995).

H: 42mm, W: 60mm

► **P10: LDB 1 drainage ditch, east side of trackway, vicus**

Projecting base of an object made from a very fine pale orange clay. Possibly the base of a small statuette.

H: 20mm, W: 25mm

9.1.6 Leather

► **L1: LCQ 2 drainage ditch, west side of trackway, vicus**

Fragments of leather and wood associated with the arm-purse (B21).

No measurements possible.

► **L2: LCT 2 drainage ditch, west side of trackway, vicus**

Several fragments of very fine leather.

No measurements possible.

9.2 Discussion

There is much diversity in the quantity and quality of the small finds from Scottish forts. While the average fort in England will produce a predictable range of objects in reasonably predictable amounts, those in Scotland produce either large assemblages or hardly anything at all. This makes it difficult to put the assemblage from Croy Hill into a context, although a loose pattern seems to be emerging of the forts on the Antonine Wall producing limited numbers of artefacts while those set away from the Wall tend to larger and more diverse assemblages. This may reflect the length of occupation of the sites; it appears to have little to do with the scale or timing of the excavations.

Among the sites producing large assemblages are Elginhaugh, Camelon, Strageath and Newstead, while those that have produced little include Duntocher, Old Kilpatrick, Balmuildy, Carpow and

Inchtuthil. The assemblage at Croy Hill falls into the larger category but is biased towards ironwork, although the ironwork has not survived well. While the acid conditions on the site would account for the complete lack of bone objects, the paucity of copper alloy artefacts is worthy of remark.

Extensive assemblages, such as those from Camelon and Strageath, tend to include a large number of vessel fragments or vessel fittings. Croy Hill has produced only a single fragment of a bronze vessel rim (B11) and two iron bucket mounts (F13, F14). The Camelon and Elginhaugh assemblages also include appreciable amounts of jewellery, particularly finger rings and brooches as one might expect of a military establishment, but there are only two brooches from Croy Hill (B3 and B4) and no other items of jewellery, although there are two enamelled studs (B5 and B6). This interest in enamelled work can also be seen at Strageath and Camelon and may indicate a native element amongst the troops or reflect the flashy taste of the military.

Few of the Scottish fort sites produce much weaponry, the Strageath spears and the ballista fittings at Elginhaugh being the exception. In this regard, Croy Hill is notable as it has produced a spearhead (F1), two projectile heads that may be ballista bolts (F2, F3) and a fragment of shield binding (F50), as well as a number of ferrules which may have come from spears (F30–4). While it might be presumed that excavations at a Roman fort would produce weapons and armour, in practice very few military items are usually to be found, probably because soldiers were accountable for their kit or because the artefacts represented useful amounts of recyclable metal (Allason-Jones 2011; Bishop 2011).

At Camelon, Strageath and Elginhaugh there is a bias towards exotic items: with panthers, openwork chapes and scalpels from Camelon, griffin mounts from Strageath and furniture mounts, candelabra and large cavalry pendants from Elginhaugh. At Croy Hill the clay mask (P6–8) and the terracotta plaque (P7) are very unusual finds on a military site and the significance of their presence is open to debate. The bronze arm-purse (B21) would also be an unusual find at any Roman site in Britain. The discovery of three hipposandals (F21–3), used as temporary protection for the feet of draught animals while on metalled roads, is also unusual.

There are examples from Mumrills (Macdonald & Curle 1929: fig 120), Newstead (Manning 1985: 65) as well as in the Blackburn Mill Hoard (Piggott 1953: 45, fig 12, B21) but they are not common finds in the north of Britain, being more usually found on town sites and at villas (Manning 1985: 63). The large numbers of hobnails and ‘ghost soles’ may suggest footwear was being discarded when no longer of use. The quantity of building and furniture nails, on the other hand, is not extensive and does not suggest the regular use of wooden partitions, although mortice-and-tenon joints or the use of wooden pegs may have been preferred.

The area in which Croy Hill stands out amongst Scottish sites, indeed amongst sites anywhere

in Britain, is in the instances of unfinished stonework, which suggests that there was a stone mason working on the site, preparing altar bases and inscription panels. Unfortunately, not enough of his work survives to indicate authorship of the inscriptions already known from the site. However, they may indicate the presence of religious activity which is not otherwise noticeable through the small finds, although the face mask and terracotta plaque may both fall into this category.

On the whole, the date range of the assemblage fits firmly into the Antonine date of the site with only a few artefacts, such as the possible Hod Hill-derivative brooch (B4), being of any great age when they arrived there.



Illus 9.14 Pottery lamp from recut trackway ditch section, LBK

10. THE TERRACOTTA FACE MASK

Hannelore Rose, with comments on the fabric by David Williams

10.1 Description

Three conjoining pottery fragments were recovered from the northern end of a section of drainage ditch (LBL 1) on the east side of a trackway leading down from the *vicus* to the road that bypasses the fort (above, 6.2 and Illus 6.1, 10.1 and 10.2). The pottery fabric (10.2, below) is medium hard orange clay with a fine texture and some grit inclusions and particles of mica. A fourth fragment (LBR 4) in the same fabric from further down the same drainage ditch probably belongs to the same mask because of the texture of the surface and the treatment of the rim. If so, however, its position relative to the larger fragments is not clear because it is small and its features insufficiently specific, though it would most likely have been part of the hair or of a hairband. Alternatively, it could be part of a terracotta figurine as it can be difficult to distinguish between masks and figurines if the fragments are as small as this (see 9.1.5: P7 and P10, above).

The position of the three larger conjoining fragments within the mask is discernible only upon careful and close observation. The outer surface is mostly covered by a representation of hair, the inner form of the strand scored with a sharp instrument when the clay was leather-hard (Illus 10.3, 10.4 and 10.5). The rim or edge of the mask is preserved on two of the fragments and has been crudely scored with a sharp instrument. Some 20mm from the edge of the largest fragment is a hole with a diameter of 6mm, tapering to 8mm on the outer surface. A further defined edge on the second largest fragment is very helpful in identifying its position within the mask. Because of its shape and location it can only be the left part of the lower lip, as seen from the spectator's point of view. Thus, the three conjoining fragments can be identified as the lower left part of a bearded face. A portion of the chin, the lower lip and the cheek are preserved, and the ear would have been located not far above the hole. Indeed, there is an oval raised area with a roughened interior just above the hole that might be part of the ear, the surface of which has partly flaked off. The representation

of the beard comes to an end on the upper part of the right broken edge and the skin then bulges slightly towards where the nose would have been. The proportions indicate that the complete mask would probably have been life-sized (Illus 10.2).

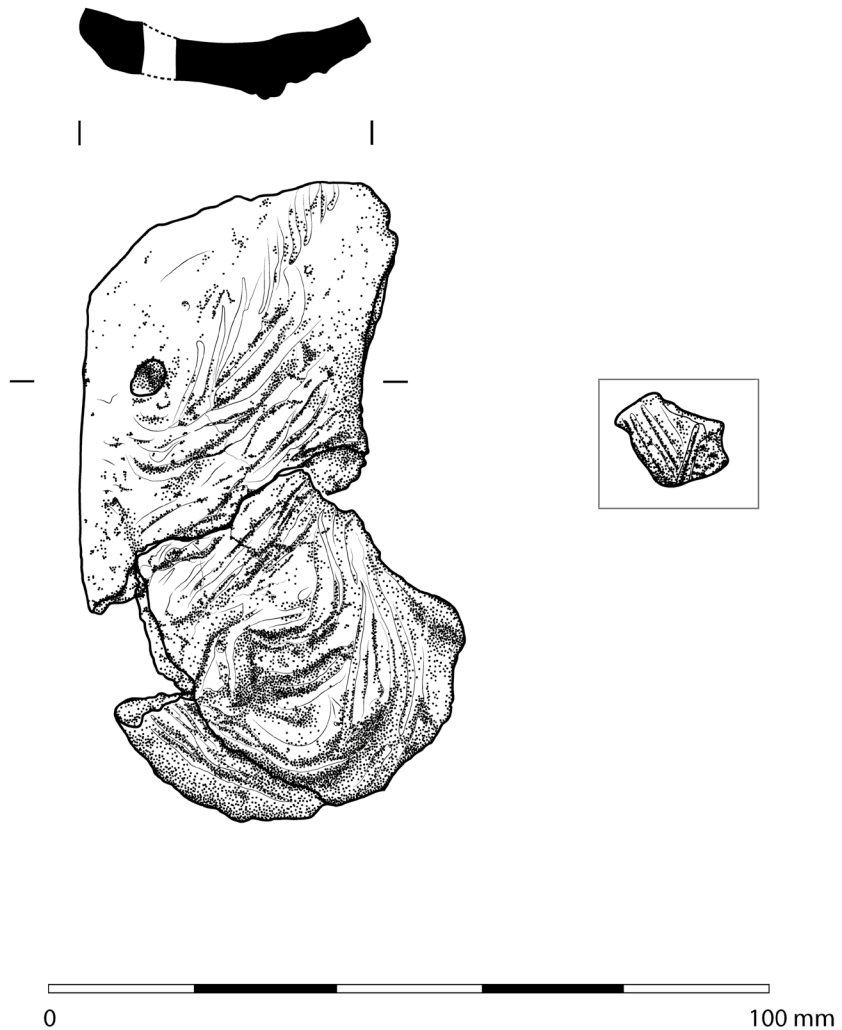
The structure of the inner surface (Illus 10.5) and the texture of the clay layers on the edges reveal that the mask was made in a mould. There are no explicit indications, such as small clay beads located especially in gaps and fissures, that a plaster mould was used, but in the north-western provinces life-size terracotta masks were regularly made in such moulds. The extensive reworking of the surface in particular and the subsequent treatment of the beard strands suggests a flawed and worn-out mould that is typical of plaster moulds after long use.¹² There are no traces of paint visible, but normally such terracotta masks were painted, especially those of red or orange clay which mostly had a white or beige cover of paint. Structures like wrinkles, eyelids and lips were then accentuated by a contrasting dark colour (black or red-brown) (eg Rose 2006: 74f fig 29, cat 172, pl 12; <https://arachne.dainst.org/entity/1092092>). Thus, it is likely that the surface of the mask was originally also variously coloured.

10.2 The fabric

The face mask was submitted to Dr David Williams, University of Southampton, for comment on its fabric and how it compared with mortarium Fabrics 5–7, which were considered to be locally produced (12.3, below). He comments: ‘The fabric is reddish-buff in colour and the fabric is noticeably “soapy” to the touch, which is usually characteristic of “grog-tempered” pottery. However, on this occasion the “grog” is in fact naturally occurring reddish-brown argillaceous inclusions in the clay, one or two of them really quite large. Also present are quartz grains, some mica and a little quartz sandstone. By eye, I thought originally that the argillaceous inclusions were mudstones, but Gillings has identified “shale” as being a major component of some of his fabrics [14, below], and so, following the local pottery, these argillaceous inclusions could also be shale. Both mudstones and shale (sandstone too) are commonly found in the local Ballagan Beds of the region. The latter generally underlie the volcanic Campsie Fells formations, but here and there they



Illus 10.1 Face mask elements (© H Rose)



Illus 10.2 Face mask elements conjoined

are exposed at the surface. There is then no reason on the basis of the fabric to suspect anything other than a fairly local origin for the mask. The fabric also has similarities with some of the mortarium fabrics, as some of them too contain argillaceous inclusions. The same “soapy feel” is particularly noticeable with Fabric 6.

“The mask and the mortarium Fabrics 5 and 6 all have argillaceous inclusions in the clay matrix, plus quartz and a little quartz sandstone, all of which are probably in the local Croy Hill clays, though as Bar Hill is very close by, this would probably apply there as well. The fabric of the mask and mortarium Fabric 6 are especially similar.’

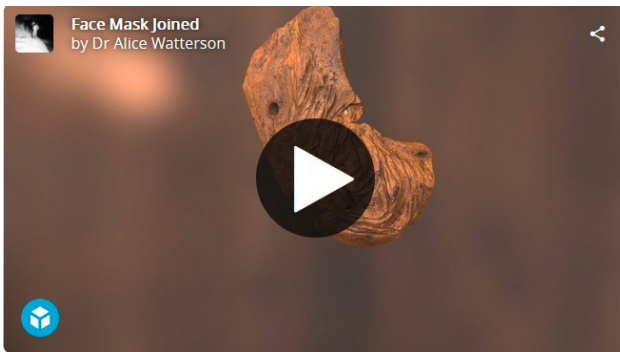
10.3 Discussion

Representations of masks are very common in Roman art, and terracotta masks are a widespread

phenomenon across the whole Roman Empire.¹³ More than 600 examples are currently known from the north-western provinces alone (Germania inferior and superior, Gallia Belgica and Britannia) (van Boekel 1986; Rose 2006; 2012: 55). Like oil lamps or terracotta figurines, the masks were made in a hollow form or model (for a detailed description of the process, see Rose 2006: 14–19) and so were produced in series. This kind of production allows us to draw conclusions about the manufacturing sites. Currently, mask production can be proven only in major potter’s workshops that were producing other sorts of mould-ware as well. Masks were a niche product in the repertoire of these potters, whose primary interest was in the production of lamps, terracotta figurines or terra sigillata. In only four potteries in the north-western provinces (Nijmegen, Cologne, Frankfurt-Nied and Trier) is mask



Illus 10.3 Face mask with fragments conjoined: front view (© H Rose)



Illus 10.4 Face mask fragments conjoined in a 3D model; available by clicking the image or this link: <https://skfb.ly/6oQqY> (© Alice Watterson)



Illus 10.5 Face mask with fragments conjoined: rear view (© Amanda Clydesdale)

production attested by discoveries in production contexts, though Rheinzabern may be added to that list with some degree of probability. The large potter's workshops in Cologne-Rudolfplatz and Trier-Süd represent two important production

centres that fabricated masks in large numbers and in different series for supra-regional export. The other potter's workshops mentioned above supplied only a local or at most a regional market. It can be assumed with some certainty that there would have been more production places that have not yet been identified.

Accordingly, it is highly significant that, because of its close similarity to one of the mortarium fabrics in which distinctive and unparalleled forms were being produced (10.2, 12.3 and 12.4, below), the fabric of the mask is highly suggestive of local production. It is somewhat surprising that masks were apparently being made in a local pottery producing mortaria, as mask production can usually be proven only in major pottery workshops specialising in other sorts of mould-ware, as noted above. It seems possible, therefore, that an imported mould or prototype was being used because its production was an elaborate process and a great challenge for the artist, and there are indications of moulds being traded elsewhere (Weidner 2009).

All of the masks that were produced in the north-western provinces are almost life-sized.¹⁴ Production started at the end of the 1st century AD and was at its peak during the 2nd century, though most of the potteries had given up manufacturing by the end of the 2nd century. Only in Trier can fabrication be traced until the 3rd century AD (Rose 2006: 72–3). The moulds used were one-piece hollow moulds of plaster that show the mask in negative form. Clay of very high quality that was very plastic and had a very good dimensional stability was pressed into these moulds and left to dry until it was leather-hard. After that the masks were removed, reworked and smoothed with a sharp instrument, for example a knife or cutting wire. Often, this was not done very carefully. In the next step several holes were drilled through the mask: normally two suspension holes were placed at the top and two more on each side in the ears or nearby. Pupils, nostrils and often the corners of the mouth were also perforated, and almost all masks had a cut-out mouth. The final step before firing was to paint the surface.

It is possible to group the masks into series based on the process of their production. More than 20 individual masks may be allocated to some of these series. From others, however, only a single

example is known, as is the case for the mask from Croy Hill, since no comparative pieces are known. Indeed, only a few bearded masks are known from the north-western provinces and none of these are even close to being complete (eg Rose 2006: cat 253–263b.286, pl 18–20). For this reason it is not possible to assign the Croy Hill example to a particular type of mask. The dominating type in the north-western provinces are farce masks, which are typically represented by bald and beardless male masks with grotesque or caricatured facial features. Masks that are orientated towards types from the new comedy or tragedy are also common. Only a small number of masks that are related to the god Dionysos or his companions, like satyrs or maenads, are known today.

A few masks do not fit into the pattern described above, but have their own very specific and unique characteristics. This is the case, for example, with the masks from Xanten,¹⁵ the nearly complete mask from Regensburg-Kumpfmühl or the one from Catterick (Rose 2006: cat 225 and 224, pl 16 (arachne.dainst.org/entity/1092235 and arachne.dainst.org/entity/1092101); Hartley & Fitts 1988: 58–9). All of these examples were handmade, rather than fabricated using moulds, or, in the case of Catterick and Xanten, produced from a vessel shaped on a potter's wheel and then halved and reworked further.

Face masks are rare in Roman Britain. A total of eight¹⁶ examples have been found in the following locations: Baldock (Stead 1975; Rose 2006: cat 53, pl 4; arachne.dainst.org/entity/1092097); London (three different examples) (Marsh 1979; Rose 2006: cat 80, pl 6; cat 264, pl 19; cat 424, pl 29; arachne.dainst.org/entity/1092098; arachne.dainst.org/entity/1092099; arachne.dainst.org/entity/1092100); Dover (Jenkins 1981: 146, 149 and fig 30; Rose 2006: cat 193, pl 14; arachne.dainst.org/entity/1092191); Wilderspool (Kendrick 1874: 11–13; Thompson 1965: 85 and fig 2; Rose 2006: cat 223, pl 16; arachne.dainst.org/entity/1092025); Catterick (Rose 2006: cat 224, pl 16; arachne.dainst.org/entity/1092101); and Harlow (Rankov 1982: 371–2; Rose 2006, cat 163, pl 12; arachne.dainst.org/entity/1092102). Those from London, Dover, Harlow and Baldock were imported from Germania inferior. It is even possible to assign the fragment from Dover and

the first two of the fragments from London to the pottery production centre at Cologne-Rudolfplatz on the basis of their fine white fabric and the series to which they belong. The mask from Baldock may be assumed to have been produced in the potter's workshops at Nijmegen.¹⁷ The Cologne potteries as well as those of Nijmegen are characterised by an excellent connection to the River Rhine, which was the most important transportation route for the trade in masks. The mask from Catterick and probably the one from Wilderspool are, however, of local or indigenous character.¹⁸

The mask from Croy Hill, however, is in more of a Roman than an indigenous tradition. Admittedly, the piece is unique and does not much correspond with the masks of the classical theatre genres, but it is preserved only fragmentarily and, therefore, the general impression might originally have been different. In particular, the way the mask was produced and the manufacturing technique executed are clear characteristics of a Roman product. The production in a mould is a typical Roman method for various objects (terra sigillata, oil lamps, terracotta figurines) and requires a shop that is familiar with this technique. Until now the production of masks, as noted above, is verified only for those potter's workshops that were producing other kind of goods using that specific technique. Furthermore, it must be kept in mind that mould-made products are always produced in series. It was possible to obtain up to 100 impressions from one mould and usually several moulds were made from one prototype. Even if there are as yet no analogies for the mask from Croy Hill, it would originally have been part of a series. The manufacturing details such as the design of the rim, the position, nature and size of the holes, and the additional reworking of the surface with a sharp instrument when the clay was leather-hard, are readily comparable with other masks from the north-western provinces. On the basis of these technical indications, a design that is characterised by Roman or provincial Roman traditions can be assumed. Its direct association with the Antonine Wall confirms a date in the period *c.* AD 140–60 for the Croy Hill mask, which fits excellently into the main period of mask production during the 2nd century AD.

One important aspect to consider is the use or purpose of such face masks. Although they represent

various types of actor's masks, they were not used in that way. The contexts of the discoveries provide the main information about their function, but contexts that are really significant in this respect are rare. An analysis of all relevant contexts reveals that terracotta face masks were used as an element of decoration in different kinds of houses (Rose 2006: 53–6). This function can be proven by technical features as well as representations in wall paintings and analogies from other regions of the Roman Empire. From some contexts one can draw the conclusion that there was a strong connection between masks and porticos or peristyles, where the masks were suspended like *oscilla* between the columns.

Thus, masks belonged to the inventory of different kinds of houses: from simple strip houses or large town houses to villas and even military barracks. Two relatively recent discoveries are a nearly complete mask from a strip-house in the *vicus* at Groß-Gerau (Schallmayer 2010) and a very similar and also nearly complete example from the south-western part of the town of *Ulpia Noviomagus* (Heirbaut 2009: 20, fig 2). A perfect example of a mask in a Roman villa is from the 'Villa am Silberberg' in Ahrweiler (Fehr 1993: 15–32; Rose 2012: 60), which provides very good evidence of context. Fragments of two masks were found in this large villa with a central entrance portico and corner projections. Both can be dated to the second phase of utilisation of the building, so in the period between the first half of the 2nd century and AD 256/260. The first mask (Rose 2006: cat 103; arachne.dainst.org/entity/1092115) was found directly on the south wall of the portico next to the entrance staircase. Four fragments of a second mask (Rose 2006: cat 204; arachne.dainst.org/entity/1092114) were found in the northern courtyard. All of these fragments were found in a layer of debris that contained a lot of roof tiles. So it is probable that originally the masks were hanging between pilasters in the courtyard and between the columns in the entrance portico. Masks have been found mainly in civil contexts but also remarkably frequently in forts, for example at Straubing, Stockstadt, Wiesbaden, Frankfurt-Heddernheim, Zugmantel, Saalburg, Bad Ems, Bonn, Cologne-Alteburg, Aardenburg, Dover and probably also at Vechten, Vleuten-De Meern, Valkenburg and Leiden Roomburg (Rose 2006: 62).

Sometimes masks have also been found in sanctuaries: the temple district of the Altbachtal near Trier has a particularly large number of examples (Gose 1972: 10 and 107–8; Rose 2006: 56–7). However, even there the contexts usually indicate use as a decorative element in connection with the buildings, which might be the temples themselves, the portico surrounding the sanctuary, or a building interpreted as priest's residence. A few finds, especially from Britain, suggest a connection with votive deposits, so their use as votive offerings also seems possible. Thus, in Harlow three fragments of a mask were found in the filling of a well in proximity to a temple (Grew 1981: 350; Rankov 1982: 371–2; Rose 2006: cat 163, pl 12 arachne.dainst.org/entity/1092102); the mask from Baldock comes from a pit in the neighbourhood of temples (Stead 1975: 397–8; Rose 2006: cat 53, pl 4 arachne.dainst.org/entity/1092097); while ritual deposition is suggested for the two fragments from the River Walbrook in London, given the large number of votive objects recovered from that river (Marsh 1979: 263–5; Rose 2006: cat 80, pl 6 arachne.dainst.org/entity/1092098 and cat 264, pl 19 arachne.dainst.org/entity/1092099). However, none of these associations is sufficiently strong to prove this assumption without any doubt and not a single fragment of a life-size terracotta mask in the north-western provinces has been found in a secure burial context.

A high degree of romanisation is characteristic of the contexts in which masks are found in the north-western provinces. Their appearance in elaborate houses, which are strongly Roman in both design and equipment, allows us to conclude that a typical Roman way of life could be expressed by means of such masks. First and foremost this holds true for masks that are based on models of tragedy and new comedy. However, it appears that farce masks had the same effect, because no difference can be observed in their use. An essential characteristic of Greek and Roman masks was their connection to the theatre and thereby also to the cult of Dionysus. Through this connection to the divine sphere, the masks had a positive connotation, in contrast to the Christian perspective that interprets masks as a symbol of the devil (eg Gutjahr 2012: 143). Given that theatre was one of the most important indicators of education in the ancient world, it is understandable that the use of terracotta masks

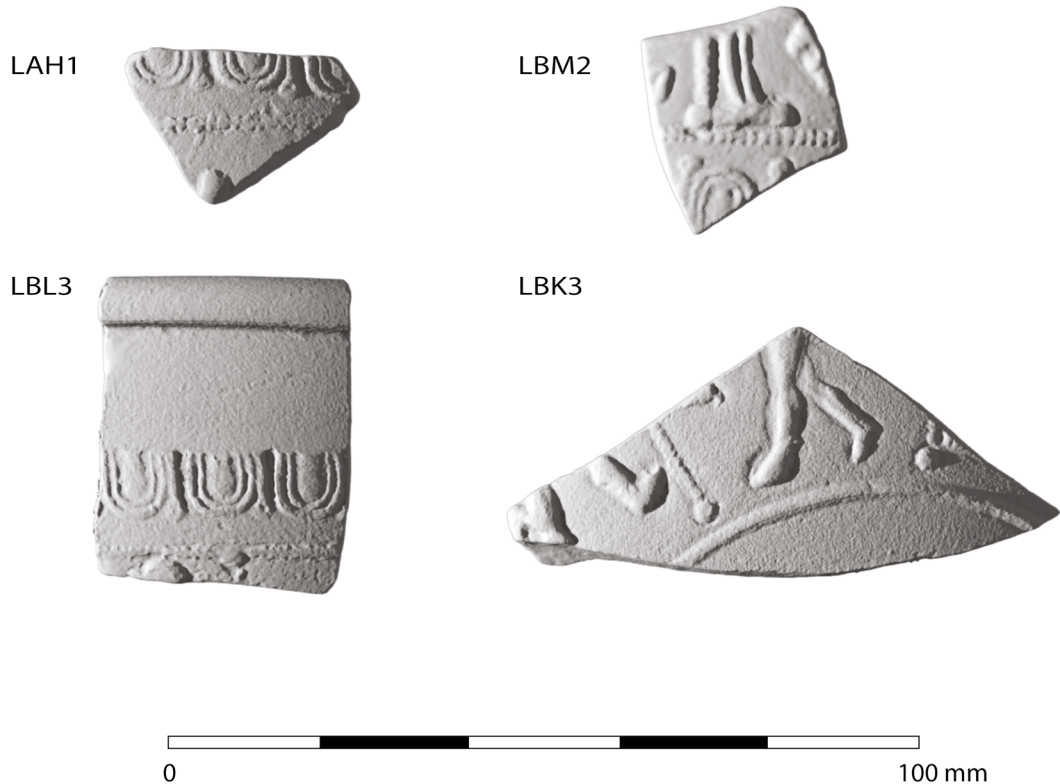
as an element of decoration should emphasise an affiliation to Roman culture. This demonstration of cultural affinity was an important aspect of self-representation, especially in the provinces in the area of tension between indigenous and Roman populations. Though the majority of masks come from civil contexts, the remarkably large number of masks found in frontier forts shows that the military was an important transmitter and motor for the development for the Roman culture in the north-western provinces (Hesberg 1999).

In this context the mask from Croy Hill, probably the most northerly example in the Roman

Empire, is of particular importance. Even if its discovery in a drainage ditch on the periphery of the civil settlement provides limited contextual information, the proximity to the adjacent Roman fort leaves open the possibility that it could have had an important function for the local soldiers. In any case, no matter whether it comes from a civil or military context, it was a decorative element that expressed the *romanitas* of its owner. Seen from this perspective, the terracotta mask from Croy Hill is an important example of how the army spread Roman culture to the outer frontiers of the Roman Empire.

11. THE SAMIAN WARE

Brian R Hartley and Brenda M Dickinson



Illus 11.1 Scans of decorated samian



Illus 11.2 Samian owner's mark

11.1 Catalogue¹⁹

► **AAA topsoil over pre-fort enclosure**

Forms 18/31 or 31, 30 or 37 rim (?) and a dish. All Central Gaulish and Hadrianic or Antonine.

► **BBB topsoil over pre-fort enclosure**

Form 31, Central Gaulish. Antonine.

► **BBQ (with LAB 4) pre-fort enclosure ditch**

Two large, joining fragments of Form 33, Central Gaulish. There is a faint external groove above the junction of the base and wall, as on some Hadrianic examples of the form, but it is probably accidental and this cup is certainly Antonine.

► **CAC 1 (with CCT) bypass road ditch**

Five fragments, two joining, of a small, medium-mouthed jar, with a rim resembling Derbyshire ware. Probably in Central Gaulish fabric, though origin at Montans cannot be entirely ruled out. No parallel has been noted for the form in samian ware. Presumably Antonine.

► **CCA 1 pre-fort enclosure ditch**

Form 18/31 or 31, Central Gaulish. Antonine.

► **CCC topsoil over pre-fort enclosure ditch**

Form 33, Central Gaulish, perhaps from Les Martres-de-Veyre. Late-Hadrianic or early Antonine.

► **CCT bypass road ditch east of pre-fort enclosure**

i) See CAC 1.

ii) Form 37, Central Gaulish, grooved for mending. A panelled bowl, with a double festoon containing a Cupid (D 254) and a leaf (?), attached to the festoon. The silky glaze suggests origin at Les Martres-de-Veyre, and the figure was used there by Cettus (cf a bowl from Corbridge: Stanfield & Simpson 1958: pl 141, 6). As on several of his other bowls (Stanfield & Simpson 1958: pl 141, 1, 10, 13, etc), careless spacing is shown, and the feet of the Cupid overlap the border of the festoon. Cettus' bowls are relatively common in Antonine Scotland, but rare at sites on Hadrian's Wall. For a discussion of his date, see Hartley 1972: 34. *c AD 135–60.*

► **CCK bypass road ditch south of pre-fort enclosure**

Footring fragment from a rouletted dish (18/31R?), Central Gaulish, just possibly from Les Martres-de-Veyre. An owner's mark, /X, is incised under the footring (Illus 11.2). Early Antonine.

► **DBL 1 occupation/midden material north of land divisions, Area D**

Central Gaulish scrap (?). Hadrianic or Antonine (?).

► **EAA topsoil over land divisions, Area E**

i) Form 38 or 44 base, Central Gaulish. Antonine.
ii) A tiny Central Gaulish flake. 2nd century.

► **EAJ shallow ditch, land divisions, Area E**

Central Gaulish scrap. 2nd century.

► **GAE linear gully/fence line, land divisions, Area G**

Four fragments, at least three joining, from the rim and plain band above the decoration of Form 30 or 37, Central Gaulish. Antonine (cf GAI).

► **GAI drainage gully, land divisions, Area G**

Form 37 rim, Central Gaulish, with a fragment of ovolo (eroded). Probably from the bowl in GAE. Antonine.

► **HAA topsoil over land divisions, Area H**

Central Gaulish flake (Form 31, etc?). Antonine (?).

► **LAA topsoil over vicus**

i) Form 33 base, Central Gaulish. Antonine

ii) Form 37, Central Gaulish, with an ovolo-replacement of eight-petalled rosettes. Various motifs were occasionally used at Lezoux instead of ovolos, usually in the Hadrianic period, but more rarely also in the early Antonine. A notable example is the unusual stamped bowl of Tittius from Alchester (Stanfield & Simpson 1958: pl 146, 1). The rosette on the Croy Hill piece is smaller, however, and matches one used on bowls in the Cerialis ii-Cinnamus ii style, though not attested as an ovolo-replacement. Hadrianic or early Antonine.

iii) A flake and a large fragment of a base from a dish with a relatively small footring. The vessel is considerably eroded, but the surviving glaze and the paleness of the fabric suggest that it comes from Montans. Second-century Montans ware is not uncommon in Antonine Scotland (Hartley 1972: 42–5). *c AD 100–45.*

iv) Forms 18/31 or 31 and 18/31R, both probably from Les Martres-de-Veyre. Hadrianic or early Antonine.

v) (With LBK 1 and RAA/RAE) Form Curle 15, in Central Gaulish or late-Montans fabric. The form is predominantly pre-Antonine, but examples are known from Antonine Scotland. Whether South or Central Gaulish, this piece should be Hadrianic or early Antonine.

vi) Forms 30 or 37 rim, 31 and three unidentified scraps, Central Gaulish. Antonine.

► **LCC surface of bypass road LBZ south of vicus**

Central Gaulish scrap. 2nd century.

► **LDR drainage ditch of primary bypass road, LDT, south of vicus**

Central Gaulish scrap, possibly from a jar. 2nd century.

► **LAA/RAA topsoil over *vicus***

Form 33 (?) and a small scrap (roughly shaped as a counter). Both Central Gaulish and Antonine.

► **LAB trackway drainage ditch, *vicus***

LAB 1: Form 37, Central Gaulish, with a panel with a hare (larger than D 950A) and another with a double medallion and a lozenge (Rogers 1974: U36). The hollow bead at the base of the panel-border and the lozenge are diagnostic for Cinnamus ii, and he also used the hare. *c.* AD 150–80 (cf LBM 2 ii, which may be from the same bowl).

LAB 4: i) Central Gaulish flake. Hadrianic or Antonine.

ii) Form 37, with ovolo (Rogers 1974: B223) and large, double medallion used at Lezoux by Cinnamus ii. *c.* AD 150–80.

iii) Form 30 or 37 rim, Central Gaulish. Antonine.

iv) See BBQ.

► **LAG drainage ditch of primary bypass road, south of *vicus***

A Central Gaulish scrap. Probably Antonine.

► **LAH 1 (with LAL 1, LBL 3 and LBK 3) trackway drainage ditch, *vicus***

Four fragments of Form 37, with one of the ring-tongued ovolos used at Lezoux by members of the Paternus v group (Rogers 1974: B107) (Illus 11.1). One panel has the warrior D 120, which appears, infrequently, on bowls by some members of the group. The figure in the other panel is probably the slave with amphora (D 365). This figure-type and the astragalus border below the ovolo suggest the work of Albucius ii. *c.* AD 150–80.

► **LAK 4 trackway drainage ditch, *vicus***

i) Form 37, Central Gaulish, with a fragment of (eroded) ovolo. Perhaps Hadrianic rather than Antonine.

ii) Form 27, Central Gaulish. Hadrianic-Antonine.

iii) Form 33, Central Gaulish. Antonine.

► **LAL 1 early linear gully, *vicus***

See LAH 1.

► **LBB trackway drainage ditch, *vicus***

A fragment of bead-lip, probably from Form 30 or 37. Central Gaulish. Probably Antonine.

► **LBD trackway drainage ditch, *vicus***

Form 18/31R, Central Gaulish. Hadrianic or early Antonine.

LBD 1: i) Form 18/31 or 31, Central Gaulish. Hadrianic-Antonine.

ii) Two fragments from Form 33, Central Gaulish. Antonine.

LBD 2: Form 33, Central Gaulish, perhaps from Les Martres-de-Veyre, in view of the fabric. This cup has a double central groove. Hadrianic-Antonine.

LBD 6: Form 18/31 or 31, Central Gaulish. Probably Antonine.

► **LBK trackway drainage ditch, *vicus***

LBK 1: i) See LAA v); ii) Form 18/31 or 31, Central Gaulish. The glaze has completely gone, probably through deliberate removal, rather than erosion. Hadrianic or Antonine.

LBK 2: Form 33, Central Gaulish. Hadrianic or Antonine.

LBK 3: See LAH 1.

LBK 6: Form Curle 15 or 23, burnt, Central Gaulish. Early- to mid-Antonine.

► **LBL trackway drainage ditch, *vicus***

LBL 1: Central Gaulish scrap. Hadrianic or Antonine.

LBL 3: See LAH 1.

► **LBM trackway drainage ditch, *vicus***

LBM 1: i) A large fragment and two joining flakes from Form 37, Central Gaulish. The rosette (Rogers 1974: C84) was used by Cettus of Les Martres-de-Veyre (Stanfield & Simpson 1958: pl 144, 61, from Corbridge). The piece may also have the double festoon used on the Corbridge bowl. *c.* AD 135–60.

ii) Form 31, Central Gaulish, stamped REBV[RRIXOFF] by Reburus ii of Lezoux (die 3a). Reburus had a long career and this stamp is likely to have been used in the central part of it, as it occurs on Form 27 and occasionally on Form 79. Confirmation comes from its presence in a large group of material of *c.* AD 155–65 at Lezoux. *c.* AD 150–70.

iii) Form 31, Central Gaulish. Antonine.

LBM 2: i) A Central Gaulish scrap. Hadrianic or Antonine.

ii) Two fragments, probably from the same bowl of Form 37, Central Gaulish. Panelled decoration with: a) a small, double festoon with a dolphin (D 1050); b) a lozenge (Rogers 1974: U36) (Illus 11.1). All these, together with the ovolo (Rogers 1974: B231) and (occasionally) vertical borders of astragali, were used at Lezoux by Cinnamus ii. *c* AD 150–80 (cf LAB 1, which may be from the same vessel).

► **LBO 2 trackway drainage ditch, vicus**

i) Form 37, perhaps with a winding scroll, and a cup or bowl fragment, Central Gaulish. Antonine.
 ii) Form 37, Central Gaulish, with an ovolo (Rogers 1974: B143) used at Lezoux principally by Cinnamus ii. The type of beaded border below the ovolo suggests that this is his work. *c* AD 150–80.

► **LBR trackway drainage ditch, vicus**

LBR 1: i) Form 18/31R, Central Gaulish. The piece has been grooved for a rivet. Hadrianic or early Antonine.
 ii) (with LBR 3) Two fragments from an enclosed vessel, one rouletted, Central Gaulish. The fabric is very light and the glaze dull and almost maroon. The pieces probably belong to one of the jars classified under Déchelette Form 72 (Oswald & Pryce 1920: pl LXXVII, 2). This form was introduced at Lezoux in the 2nd century, perhaps under Hadrian, but it is more characteristic of the second half of the century.

LBR 2: Form 31, Central Gaulish. Antonine, probably from the earlier half of the period.

LBR 3: See LBR 1 ii).

► **LBS 1 trackway drainage ditch, vicus**

A Central Gaulish scrap. Antonine.

► **LBT trackway drainage ditch, vicus**

A small, eroded flake, Central Gaulish. 2nd century.
 LBT 1: Form 31, Central Gaulish. Early- to mid-Antonine.

LBT 2: A small scrap, Central Gaulish, with ‘cut-glass’ decoration as on Form 72. This decoration on small, thin jars is not uncommon in Antonine Scotland. Finds at Lezoux in contexts of *c* AD 150–65 suggest that it came into use soon after the middle of the century.

► **LCG 1 bypass road drainage ditch, south of vicus**

A small, neat footing from Form 30 or 37, burnt, Central Gaulish. Hadrianic or early Antonine.

► **LCK 1 trackway drainage ditch, vicus**

i) Form 18/31–31, slightly burnt, Central Gaulish. Early Antonine.
 ii) Form 18/31R, Central Gaulish. Early- or mid-Antonine.
 iii) Form 33 (?), Central Gaulish. Antonine.

► **LCQ 1 trackway drainage ditch, vicus**

A Central Gaulish scrap. Hadrianic or Antonine.

► **LDY 1 trackway drainage ditch, vicus**

Form 33, Central Gaulish. Antonine.

► **PAA topsoil over fort rampart.**

Form 18/31 or 31 and a dish (perhaps Form 18/31R), Central Gaulish. Antonine.

► **QAA topsoil over fortlet**

Two joining fragments perhaps from Form Curle 15 or 23, Central Gaulish. Antonine.

► **RAA topsoil south of bypass road, south of vicus**

i) Form 18/31 (R?), heavily eroded, Central Gaulish. Hadrianic-Antonine.
 ii) Form 38, Central Gaulish. Antonine.

► **RAA/RAE topsoil/post-medieval stone dyke, vicus**

See LAA v).

► **RAC gully/fence line cutting Iron Age palisade, vicus**

Form 31, Central Gaulish. The stamp is almost illegible because of erosion, but the traces suggest the possible reading (VESTM). Stamps of this potter (Vest-) are on Hadrianic-Antonine forms and he presumably worked at Lezoux, to judge by his fabrics.

► **RAX hillwash, vicus, Area R**

Central Gaulish scrap. 2nd century.

► **RBP topsoil/hillwash over vicus, Area R**

Form 31, Central Gaulish. Early- or mid-Antonine.

► **RBX burning within hillwash over *vicus*, Area R**

A dish fragment, probably East Gaulish and from one of the Hadrianic-Antonine factories.

11.2 Summary

The samian discussed here is almost entirely Central Gaulish and comes mainly from Lezoux, with a small proportion of vessels from Les-Martres-de-Veyre. There are also two possible examples of late Montans ware from South Gaul, to add to the growing list from Antonine sites in Scotland. In addition, there is an East Gaulish sherd, unfortunately of unknown origin. The potters' stamps from these excavations are apparently the first ones to have been recorded from Croy Hill (Hartley 1972: 18).

The commonest vessel type in the finds is the dish with a basal kick, but only Drag 18/31R and Drag 31 can be identified with certainty. However, the sherds listed here as Drag 18/31 or 31 or as 'Dish' will almost certainly include examples of Drag 18/31, unless the supply to Croy Hill was untypical for Britain. The absence of Drag 31R, a form introduced *c.* AD 155–60, is consistent with

the finds from other sites on the Antonine Wall and the presence of its predecessor, Drag 18/31R, which ceased to be made in Central Gaul about AD 160, reinforces the impression that this is an early Antonine assemblage. It is also noticeable that there is only one example of the cup Drag 27, a form uncommon after AD 160. The rest of the samian includes single examples of Drag 38, Drag 38 or 44, Curle 15, Curle 15 or 23, Déchelette 72?, a jar and an enclosed vessel of uncertain form.

The decorated ware includes two bowls in the style of Cettus, a potter working at Les Martres-de Veyre in the Hadrianic-Antonine period, whose wares are well represented in Scotland (Hartley 1972: 33). The only other identifiable decoration is on bowls in the style of the *Cerialis ii-Cinnamus* group (one example), of *Cinnamus ii* (three examples) and *Albucius ii* (one example).

The quantity of samian from the excavation is too small to provide any useful statistics, but this is a typically early Antonine assemblage, *c.* AD 140–60, with a relatively restricted range of the commoner forms, all familiar on one or more of the Antonine Wall sites.

12. THE MORTARIA

Katharine F Hartley, with comments on the fabrics by David Williams

12.1 Introduction

One hundred and twenty-eight mortarium sherds were found during the excavations of 1975–8 at Croy Hill. In total they weigh 6,305g. They are from at least five identifiable, different sources and up to perhaps three unidentified ones. The sources include potteries at Mancetter-Hartshill in Warwickshire; Colchester (with one sherd possibly from Brampton in Norfolk); Corbridge; Bearsden or Balmuildy; an uncertain source in north-east Scotland or possibly north-east England; and one clearly local source which is likely to be Croy Hill itself. It is not possible to point to specific sources for sherds in Fabrics 9 and 10, but they are consistent with manufacture in Scotland. The notable increase of evidence for pottery production in Scotland since 1976 (Hartley 1976; 2016; Breeze 1986; Swan 1999; 2002; Gaunt 2016; Gillings 2016) makes this the preferred option, but macroscopic examination alone is not sufficient to claim this with complete certainty.

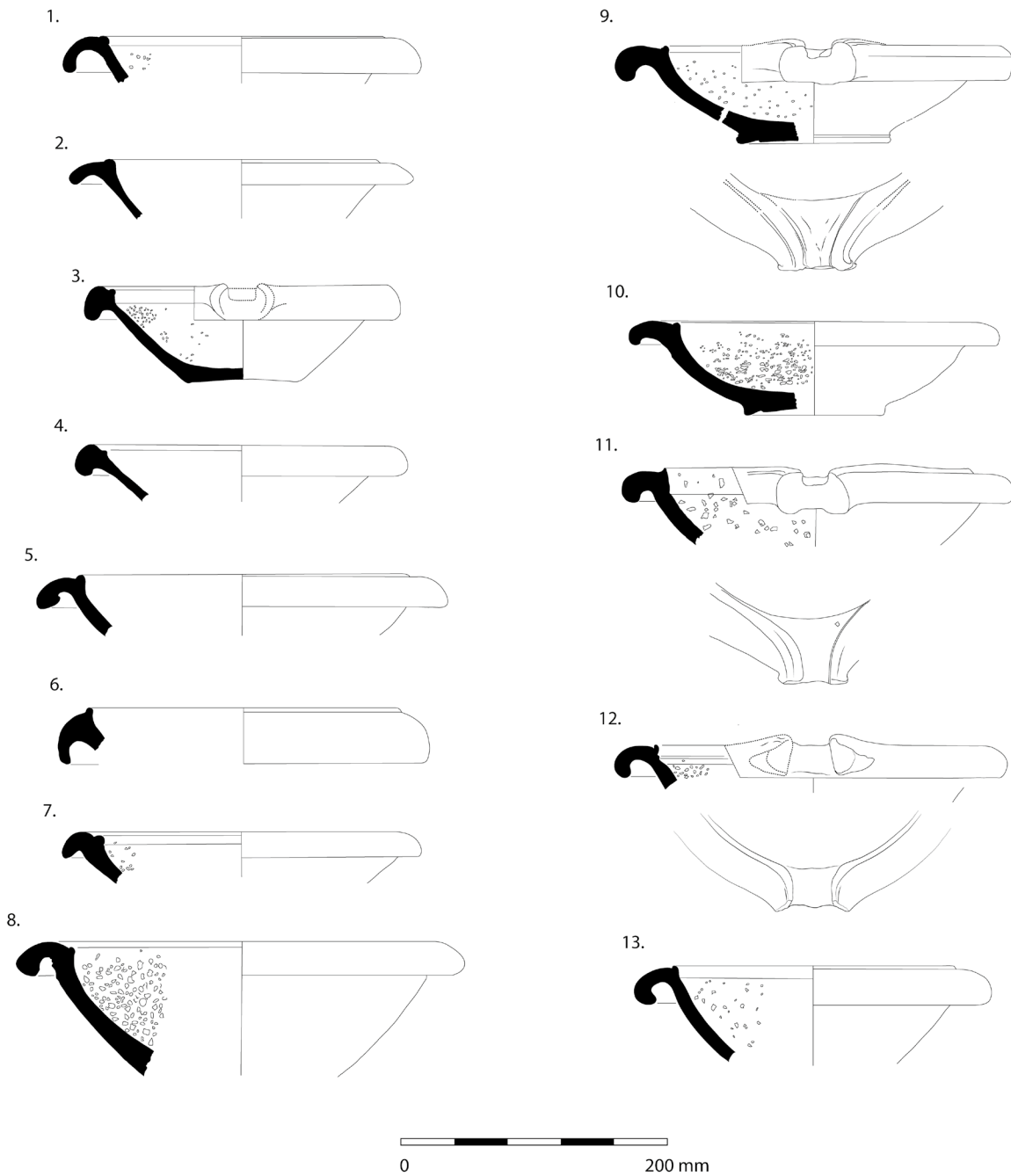
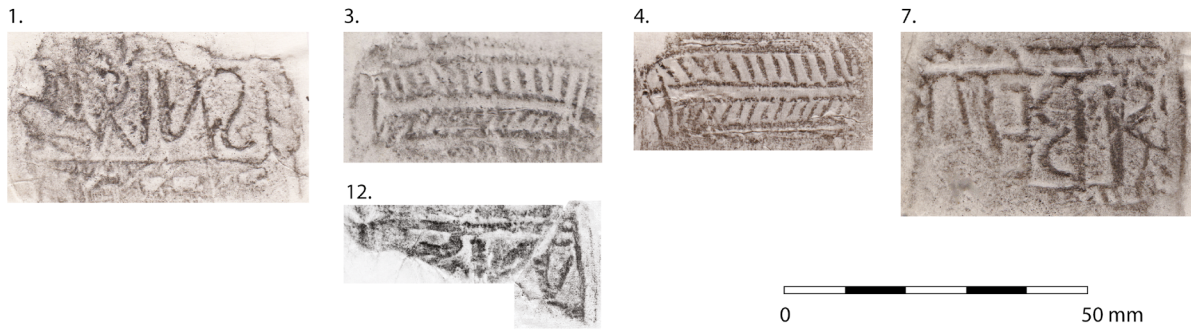
Table 12.1 lists mortarium totals from different sources and in different fabrics, giving totals for the

minimum numbers of vessels, the number of sherds, the weight and the surviving rim percentages. The spreadsheet (Table 12.2) provides tabulated details for individual sherds. Only illustrated mortaria are discussed in more detail (12.4, below). Some of the totals may appear surprising: the numbers for Colchester are high compared with those for Mancetter-Hartshill because more than three quarters of archive no. 1 (Illus 12.1, no. 3) survived.²⁰ The weight of the mortaria from Colchester would otherwise be low because, apart from possible differences in original clay weights, the Mancetter-Hartshill mortaria survived well in wet and acid conditions, while Colchester mortaria deteriorated and even disintegrated because of their high calcium content.

Because the total number of mortaria from these excavations is small and there are clear variations in rim profile and fabric, it is possible to indicate the minimum number of vessels from different sources with a fair degree of accuracy. They come from at least 38 vessels, but the true total will be somewhat larger. The 12 mortaria selected for illustration (Illus 12.1, nos 1–10, 12–13) are shown in their fabric groups and represent all the rim profiles present. The additional mortarium illustrated (Illus 12.1,

Table 12.1 Mortarium totals by fabric and source

Fabric	Fabric variant	Source	Minimum vessels	Sherds	Wt (g)	% rim
1		Mancetter-Hartshill after <i>c</i> AD 130	7	19	1,253	99
2		Colchester	11	48	1,685	180
2		Brampton, Norfolk?	1	1	85	12
3		Corbridge	1	1	220	21
4		N-E England or N-E Scotland	1	2	150	4
5		probably Croy Hill	2	4	630	19
5	variant	probably Croy Hill	1	4	115	0
6		probably Croy Hill	1	12	478	32
6	variant	probably Croy Hill	1	3	105	0
7		probably Croy Hill	1	13	485	36
8		probably Bearsden	7	13	775	38
9		probably Scotland	3	5	289	12
10		probably Scotland	1	1	35	10
			38	108	6,305	463



Illus 12.1 Mortaria stamps and rim profiles. The numbers on the stamps correspond with the profile drawings



Illus 12.2 Colchester mortarium (Archive no. 1) (© Amanda Clydesdale)

no. 11; Illus 12.3), which does not feature in Table 12.2, was presumably found by George Macdonald in his excavations in 1931 (see 1.2, above) and is now in the National Museums of Scotland (NMS), Edinburgh (FR469 1933.128). This has been included because it is technically a waster and is unlikely to have been used; it also falls within the same category as the mortaria in Fabrics 6 and 7 in rim profile and fabric, and can be attributed to the same workshop.

Other mortaria in NMS from earlier excavations at Croy Hill (not published here) include two made at Colchester (FR417 and FR854) and two from the Mancetter-Hartshill workshops, one with a stamp of the potter Figobateus (FR467), the other an unregistered fragment. The stamped mortarium is presumably that which Macdonald refers to in his report as not yet deciphered (1932: 266).

Table 12.2 Catalogue of mortaria (available to download here: <https://doi.org/10.9750/issn.2056-7421.98.1-199>)

12.2 The mortarium fabrics

12.2.1 Fabrics produced outside Scotland

► Fabric 1: Mancetter-Hartshill potteries in Warwickshire

No exploration has been made in neighbouring parts of Leicestershire on the other side of Watling Street. The full extent of the industry is unknown, but there is no evidence for any link with the 1st-century military site in Mancetter village that pre-dates the industry, or of any link with the late enclosure known as *Manduessedum* that straddles Watling Street (Tomber & Dore 1998: 189; Mahany 1971: 25–6 with a note by Graham Webster).

A usually fine-textured, cream fabric, varying from softish to very hard in texture and sometimes with a pink core. Inclusions are usually moderate, sub-angular, ill-sorted, but fairly small grains of transparent and translucent rose quartz along with sparse opaque orange-brown fragments. In fact, the range in fabric is quite wide, from that with scarcely



Illus 12.3 Waster from Macdonald's excavations at Croy Hill: top: interior; bottom: exterior (FR469, both © National Museums of Scotland)

any inclusions (often described as ‘pipeclay’, in pottery terms ‘parchment’) to fabrics with a fair quantity, and to fabrics with hard, ill-sorted black inclusions. There was a distinct difference between the trituration grit being used in these potteries before AD 130 and that being used *c* AD 140: the early 2nd-century mortaria have much more varied trituration grit, the norm being a mixture of quartz and sandstone; the trituration grit in the mortaria dating to *c* AD 140 and thereafter consisting of hard red-brown shale (Dr Roberta Tomber, pers comm) and/or hard blackish fragments (an odd quartz grit may be present, but this is very rare and never part of the ‘mixture’). The change occurred during the decade AD 130–40 and it seems likely that it had already occurred when the Antonine occupation of Scotland took place. Archive nos 5–9; 15–17; 73–4; ?71.

► **Fabric 2: potteries at Colchester, Canterbury or Norfolk (Tomber & Dore 1998: 133–4)**

The self-coloured fabric can range in colour through cream, yellowish-cream to pale brown; it occasionally has a pink core. It was presumably hard when made, but, due to its calcareous nature, it is especially subject to chemical weathering in acid and/or wet conditions. In Scotland, its condition varies considerably from often being slightly softish in texture to disintegrating, or it can have a completely crazed surface. Inclusions are of angular quartz and flint with sparse red-brown fragments. The trituration grit consists of flint and quartz with occasional red-brown fragments. These production centres use geologically similar clays; they are not readily distinguished by macroscopic examination alone and care needs to be taken even with scientific analyses. When mortaria are stamped an assessment can be made based on distribution, and the rim profile can be helpful. The fabric produced at Brampton, Norfolk tends to be more brownish, though Colchester did produce some brownish fabric. The Colchester potteries were by far the most important of these suppliers for the Antonine Wall; the Canterbury workshops were of some importance (see MacIvor et al 1980: 263, table 2, ‘K/C’, 1–4), but none of the Croy Hill examples can be attributed there; Norfolk mortaria are found in Scotland, but very rarely. Archive nos 1, 2, 13, 18–19, 20/21, 22/24, 23, 78–9.

► **Fabric 3: Corbridge (Tomber & Dore 1998: 172)**

Fine-textured, cream fabric with frequent inclusions, mostly quartz, with a few opaque red-brown; all are barely visible at $\times 20$ magnification except for a very few, slightly larger ones. The fabric of this sherd is an unusually fine-textured, smoothed version of the white fabric commonly produced at Corbridge. The surviving trituration grit consists of quartz and sandstone fragments (up to 3–4mm). Archive no. 3.

► **Fabric 4: north-east England or north-east Scotland**

A softish, brownish-pink fabric fired to pale brownish-cream at the surface; no slip survives. The moderate to fairly frequent, ill-sorted inclusions (tiny to medium-sized) are composed of quartz with very moderate red-brown and black fragments. One red-brown (?sandstone) and one quartz trituration grit survives. Archive nos 10 and 11.

12.2.2 Fabrics produced inside Scotland

► **Fabric 5: probably Croy Hill**

A hard, very fine-textured fabric, fired to cream at the surface, but otherwise a brownish-pink; with ill-sorted, sparse to very moderate inclusions, including quartz, red-brown haematite-like fragments and rare black fragments. The trituration grit is frequent and consists of medium to large (2–5mm across), opaque quartz, quartz sandstone, dark red-brown and red-brown sandstone. The surviving orange-brown slip varies from a completely matt orange-brown to one that is dense and almost approaching a glaze in quality and which was clearly the intended slip. This use of a thick orange-brown slip covering all surfaces is in keeping with the other fabrics attributed to Croy Hill – it is not the norm anywhere else on the Antonine Wall (raetian-type mortaria had such a slip but confined to the rims). Archive nos 41; 42; 45; 46 (nos 42 and 45 are likely to be from the same vessel because both sherds show frequent, tiny to small, trituration grit almost as a background to the larger grits).

Dr David Williams has examined no. 41 and comments that the trituration grit also includes ‘a little feldspar, reddish-brown mudstones/shale and quite a few pieces of dark volcanic material (presumably from the local Campsie Fells). At

Croy Hill, there is an exposed sill of hard volcanic dolerite, which could account for the latter, though this is the same for Bar Hill as well. Moreover, in one or two pieces of this volcanic material you can see small white elongated crystals of feldspar, which would point towards the dolerite. The trituration grits are all fairly well-rounded and quite mixed, perhaps suggesting that a handful of mixed gravel was being used.’

► **Fabric 5 variant:**

Archive nos 62–4 (1 vessel) are possibly in a variant of Fabric 5. All are in a fine-textured fabric, more reddish than Fabric 5; they are all base or near basal fragments and have the grey core which can be present at the thick area between side and base. They have traces of a thick, smooth red-brown slip, which appears to have been burnished. Archive nos 56, 57 and possibly 69 have some traces of the thick, smooth red-brown slip. Archive no. 25 is probably in this category, but is too burnt for any slip to have survived.

Dr Williams comments that ‘the trituration grits and fabric of the two small sherds, nos 56 and 63, look similar to no. 41. The large quartz grains in the trituration grits here are dull and opaque, in contrast to those in Fabric 6.’

► **Fabric 6: probably Croy Hill**

Slightly micaceous, hard, reddish-brown fabric (2.5YR, 5/8) with hackly fracture. There are fairly frequent, tiny to small inclusions in the matrix (quartz, red-brown with few black), and in the foreground there are fewer and larger, mostly quartz inclusions. The trituration grit is difficult to see because the surface slip is fairly intact, but probably consists of translucent quartz (3–6mm). The self-coloured, surface slip is fairly complete; the external surface and the upper surface of the rim are burnished; underneath the rim the surface has just the self-coloured slip with no burnishing. Most of the fragments in this fabric are from one mortarium. Archive nos 35 (three joining sherds); no. 33 joining nos 34, 39 and 29; nos 52–54; and no. 65 (base sherd) are all likely to be from the same mortarium.

Dr Williams comments: ‘In nos 35/65 I cannot see any ?dolerite present in the trituration grits. Instead, these are mostly made up of large angular,

fractured, translucent quartz, which also appears in the fabric of the sherd, together with smallish reddish-brown argillaceous material. The latter gives the two sherds a “soapy feel” similar to the face mask’ (10.2, above).

► **Fabric 6 variant:**

Archive nos 30, 58, 59 are in what may be a slight variant of Fabric 6, with some larger quartz inclusions and opaque quartz trituration grit (up to 5mm) with very occasional red-brown fragments. Archive no. 59 is unusual in that the inner half is fired to reddish-brown and the outer half to pinkish-cream. No rim fragments survive in this variant fabric and only the badly pitted trituration surface of the body/base fragment (archive no. 30) survives.

► **Fabric 7: probably Croy Hill**

Pale orange-brown, paler at inside surface; more open and more friable than Fabric 6, but perhaps from a similar clay source. The differences in colour and texture could be due to poor control of the firing conditions or to a slightly different clay being used. The only mortarium in Fabric 7 has a slip discoloured to various shades of matt brown, but in one small area the surviving slip is identical to that red to orange-brown slip which survives on archive nos 41 and 45, which are in Fabric 5. As in Fabric 6 there are tiny inclusions in the matrix with, in the foreground, moderate to fairly frequent random and very ill-sorted quartz (up to 2mm) with hackly fracture, again similar to those in Fabric 6; also very occasional red-brown sandstone and rare black fragments. The trituration grit consists mainly of black rock combined with small quartz particles. Many of the fragments in Fabric 7 join and one can be reasonably certain that all are from one vessel. Archive nos 27, 37, 38, 47, 79, 80.

Dr Williams comments: ‘The trituration grits here seem to be almost solely made up of black ?dolerite. The shape of many of these is roughly angular, suggesting that the volcanic material was deliberately crushed before being used. There are plenty of quartz grains and some quartz sandstone scattered throughout in the fabric in all parts of the sherd to suggest that this was a natural component of the clay or was added as a temper and therefore probably not deliberately added as part of the trituration grits. The latter was essentially

the function of the ?dolerite, which in the hand-specimen does not seem to be present in the fabric of the clay – certainly not to the same size as in the trituration grit. This seems to tie up with the thin section results of the “local” pottery, which did not show any volcanic material present (14.2, below). I cannot see any obvious argillaceous material in the fabric of the sherd, which is quite sandy.’

Dr Williams makes the following general comments on Fabrics 5–7: ‘mortarium Fabrics 5 and 6 have argillaceous inclusions in the clay matrix, plus quartz and a little quartz sandstone, all of which are probably in the local Croy Hill clays, though as Bar Hill is very close by this would probably apply there as well. However, the trituration grits between Fabrics 5 and 6 are quite different. Fabric 7 seems different to Fabrics 5 and 6, both in the nature of the trituration grits and in the clay of the sherd.’

For details of mortarium waster FR469, an earlier find from Croy Hill which belongs in the same category as the mortaria in Fabrics 5–7, see 12.3.4, below.

► **Fabric 8: probably Bearsden, but Balmuildy not impossible (see Hartley 2016: 135, fabric 11)**

Soft, fine-textured, micaceous pinkish-brown fabric (7.5YR 6/6), sometimes with a drab core; sparse, ill-sorted inclusions, small quartz, red-brown and rare black, up to 2mm. Much of the trituration grit has fallen out, but what remains indicates that it consisted of mostly milky quartz with some quartz sandstone, red-brown fragments and sandstone. Small traces of cream slip survive. Surface powdery due to contextual conditions. Archive nos 4 (CICV), 28, 32, 36, 40, 48–50, 55, 61, 66, 70.

12.2.3 Other fabrics probably produced in Scotland

► **Fabric 9: may include more than one source. Probably Scotland**

Quite fine-textured, reddish-brown fabric with moderate to fairly frequent inclusions: mainly ill-sorted quartz, tiny and minute black, and rare red-brown. Trituration grit consists of a mixture of quartz, red-brown and other sandstones and ?haematite. Cream slip. Archive nos 31; 67 (perhaps with cream slip); 51 joining 60 (hard, dark red and probably overfired (2.5YR 5/8)).

► **Fabric 10: probably Scotland**

Pale, orange-brown fabric, fired to paler colour at the surface; no evidence of slip; frequent ill-sorted quartz inclusions with some black and red-brown particles; no trituration grit survives. Archive no. 43.

12.3 Illustrated mortaria arranged by fabric

12.3.1 Fabric 1: Mancetter-Hartshill potteries (Tomber & Dore 1998: 188–90)

► **Archive no. 5: LCQ 1, trackway drainage ditch, vicus (Illus 12.1, no. 1)**

Three joining rim sherds with red-brown and blackish trituration grit. Worn. Diam 270mm, with stamp of Sarrius.

The partial impression preserves the second half of a stamp from one of the seven dies of Sarrius used in these potteries. His six other dies produce straightforward stamps which present no difficulty in reading or interpretation, but the seventh, which was used for the Croy Hill stamp (Illus 12.1, no. 1), gives a semi-literate reading probably due to errors when making the die: the initial and final S are both retrograde, the A appears as a retrograde N with a dash in the A instead of a bar, the V also appears as retrograde N. Stamps like this represent a curious variant from some normal stamps, which are clearly the same die-type, but without the extra background strokes. These read SARIVS clearly, with just the initial and final S reversed and A with a dash. It was not abnormal for potters to vary between using one or two consonants, e.g. Bruc[c]ius. Many stamps of this die-type were found alongside stamps from his other dies in at least one kiln in the kiln area in Mancetter parish, located south-west of Watling Street and the possibly 4th-century enclosure, *Manduessedum*.

Up to 20 mortaria stamped with the same die are now known in England (excluding his kiln site) from: Aldborough, North Yorkshire (up to 7) (Snape et al 2002: 86–9, nos 1–6 and fig 27, no. 1); Alcester; Birdoswald (2; Richmond & Birley 1930: 187, no. 2, and fig 13, no. 2A, found in the ‘Alley’ and described as an ‘illegible stamp’); Carlisle (McCarthy 1990: 262, no. 14); Chester; Corbridge (2–3); Leicester (2–3; Clay & Pollard 1994: 66 and fig 48, no. 1, fig 56, no. 111); Ribchester (Edwards & Webster 1985: 79–80 and fig 22, no. 354, which

gives the clearest impression of the borders to this stamp); Willington, Derbyshire.

Eight mortaria with the same stamp are now recorded in Scotland, from: Bar Hill (Hartley 1975: fig 49, no. 6); Camelon (2); Carzield; Croy Hill; Strageath (2; Frere & Wilkes 1989: 240, no. 10); Wilderness Plantation (Wilkes 1974: fig 6, no. 12).

In total (including the above and excluding kiln sites), there are up to 108 mortaria stamped by Sarrus in England and up to 17 in Scotland, which are all attributable to his Warwickshire workshops. For details of his work elsewhere see Hartley 2016 and Buckland et al 2001.

Sarrus was perhaps the most important and prolific potter stamping mortaria in the mid-2nd century and is of especial interest because he was involved in production in at least four workshops: his major production was in the Mancetter-Hartshill potteries in Warwickshire, a second one at Rossington Bridge, Doncaster (Buckland et al 2001) a third at Bearsden (Hartley 2016), with the fourth in north-east England, probably at Corbridge; some are likely to have functioned concurrently at some point in his career. The Croy Hill mortarium is in the fabric used at his major workshop in Warwickshire (Mancetter-Hartshill) and stamps from the same die are recorded only on products of that workshop.

The date of his overall production is assessed from the abundance of his work at forts on the Antonine Wall (and his production at Bearsden), its absence from Pennine forts unoccupied *c* AD 140–60, his rim forms and his possible association with Iunius at one of his Mancetter kilns. A stamp at Verulamium is from a deposit dated *c* AD 155–60 (Frere 1972: no. 35), one from a Period 1a deposit at Birdoswald suggests that he was at work before AD 140 (Birley 1930: 187, no. 2, ‘with illegible stamp’). The evidence points to overall activity lying within the period AD 135–70, but it could have ended before AD 170.

Three other mortaria in Fabric 1 are of generally similar type: archive nos 15, 16 and 73.

► **Archive no. 17: QAE, fortlet ditch (Illus 12.1, no. 2)**

A mortarium with shorter, splayed flange, which can be matched in the work of Minomelus and other potters. Diam *c* 260mm; some wear.

12.3.2 Fabric 2. Colchester potteries (Tomber & Dore 1998: 133–4)

► **Archive no. 1: DAD, gully/fence line, land division (Illus 12.1, no. 3 and 12.2)**

Thirty-five joining fragments making up almost the whole of a mortarium with stubby rim of closely similar type to Maxfield forthcoming nos M43 and M44. Diameter 240mm with herringbone stamps. The fabric is powdery and there is dull, yellowish-brown accretion on all surfaces plus some abrasion. There is some wear in the basal area.

The left-facing and fragmentary right-facing stamps are both of herringbone-type from a die used in the potteries at Colchester in the period AD 140–70 (Hull 1963: fig 60, no. 37). Two mortaria with identical stamps have been recorded from other sites in Scotland, from Rough Castle (MacIvor et al 1980: 261 and 263, no. 224); and Camelon (Maxfield forthcoming); ten are known from sites in south and south-east England; two from north-eastern England, from Birdoswald (Period I, not published) and York (SM12 1990.21 2149).

► **Archive no. 2: RAZ, possible construction trench, *vicus* (Illus 12.1, no. 4)**

A mortarium with stubby profile, close to Hull 1963: fig 63, no. 1 and to Maxfield forthcoming no. M44. Diam 230mm with a right-facing herringbone stamp from the same die as archive no. 1 above, but it is a different vessel.

There is evidence for up to seven Colchester mortaria with the stubby rim forms of archive nos 1 and 2, which are all in the same category as Hull 1963: fig 63, no. 1.

► **Archive nos 24 and 22: LAB 1 and LBB 1, trackway drainage ditch, *vicus* (Illus 12.1, no. 5)**

Rim profile with wide, shallow flange turned sharply underneath and up to the body in same category as Hull 1963: fig 63, no. 8, and similar to Maxfield forthcoming, no. M29. Diam 310mm.

► **Archive no. 76: LCO, hillwash over bypass road drainage ditch, *vicus* (Illus 12.1, no. 6)**

A rounded but deep rim with high bead; it differs in form and in the brownish colour from all the

remaining mortaria in Fabric 2. This brownish version of the fabric fits better with production at Brampton in Norfolk than at Colchester, and mortaria made in Norfolk have been recorded in Scotland (eg Rae & Rae 1974: 208, no. 3). Diam 280mm.

12.3.3 Fabric 3: Corbridge potteries (Tomber & Dore 1998: 172)

► **Archive no. 3: LAK 4, trackway drainage ditch, *vicus* (Illus 12.1, no. 7)**

A notably fine-textured mortarium with smooth surface and a stamp of Bellicus. The small, stubby rim with small downturned distal end is one of his typical rim profiles. Diam 270mm.

The incompletely impressed, retrograde stamp with ansate ends is probably left-facing. It reads BE[retrograde followed by partial impressions of three upright strokes; when complete it reads BELLICVSF retrograde for Bellicus *fecit*, with *lambda* LL and with small S and F tucked into spaces next to the ansate end. It is from the single die known for Bellicus. Mortaria of his have now been noted in Scotland from Croy Hill; Mumrills (2); Newstead and Rough Castle; and in England, from Benwell, Chesters Museum (no. 2431/3742), Corbridge (up to 38), and Great Chesters. His distribution on both the Hadrianic frontier and in Antonine deposits in Scotland suggests that his activity overlapped a change in the frontier. Several of his mortaria were found in the Corbridge destruction deposit and some in the deposit immediately earlier (information from the late J P Gillam in 1978; see also Richmond & Gillam 1950: fig 10, no. 94). Bellicus used very distinctive rim profiles that are most unlikely to be earlier than AD 150/155. His workshop produced unstamped mortaria like one at Inveravon (Dunwell & Ralston 1995: illus 23, no. 80). In the past his products have been dated as late as AD 180–200 partly because of the rim profiles produced, but also because of the original late dating of the Corbridge destruction deposit. It is now clear that he was active within the period AD 150–180+. Distribution of his work leaves no reasonable doubt that the workshop was at Corbridge.

12.3.4 Fabrics 5–7: probably Croy Hill

► **Archive no. 41: LBO 1, trackway drainage ditch, *vicus* (Illus 12.1, no. 8)**

Fabric 5; Diam 340mm. All surfaces have some abrasion, but the inside is very badly pitted and even the upper surface of the flange is pitted. Traces of a fine red-brown slip survive under the flange, but the slip surviving on archive no. 45 suggests that it would have covered all surfaces. The body sherd, archive no. 42, shows the fine, polished or burnished quality that was intended. The rim profile is very distinctive and differs entirely from those associated with Fabrics 6 and 7. The trituration grit shows some wear.

► **Archive nos 35; 33, joining 34, 39 and 29; 52–4; and 65 (base): LAK 4 and 2; LAA; LAH 4; LDH 1; LBR 1 and 2, different segments of trackway drainage ditch, *vicus* (Illus 12.1, no. 9)**

Eleven sherds, many joining, which share exactly the same features and are likely to be from the same mortarium (see Table 12.2 for details). Unfortunately the basal fragment does not join, but it again shares all the same features and it is likely to belong to the same mortarium. Diam 300mm.

Fabric 6 with a matt red-brown slip surviving, which has been burnished or polished notably on the exterior, starting below the rim area; the lower limit of the burnishing is not preserved but it would be fairly near to the base. Burnishing in this area tends to occur on mortaria found on military sites.

The flange rises somewhat higher than the bead and then turns down vertically at the distal end, where there is a faint indication of a distal bead. The base has an external groove, but has a unique profile on the underside which has not previously been noted in Scotland or elsewhere in Britain. This type of basal profile will undoubtedly have been in use outside Britain, and one or more of the potters working at Croy Hill is likely to have come from such an area.

The mortarium appears to be unused and the surface on the underside of the base is unworn.

► **Archive nos 27 joining 37; 38; 47; 79; 80: LAH 1; LDB 1 and LAA, different segments of trackway drainage ditch, *vicus* (Illus 12.1, no. 10)**

A mortarium with wide shallow flange made vertical at the distal end in the same way as archive nos 33–5 etc above. Diam 270mm; Fabric 7, with an all-over slip, discoloured to brown except in one small area where it is orange-brown. Approximately half of the base survives and, although it is not identical, it is of the same unique type as archive nos 33–5 etc in Fabric 6 above. All the sherds in Fabric 7 are from the same mortarium. There is some abrasion and there are signs of possible use, but the slip underneath the base shows no indication of any wear.

► **FR469 1933.128 (Illus 12.1, no. 11; Illus 12.3)**

A find from Macdonald's excavations, now in NMS; Diam 300mm; Fabric 7, but with ill-sorted, angular milky quartz trituration grit similar to Fabric 6. Two joining sherds; the spout and enough of the rim survive to show that this mortarium was never stamped. The fabric is very hard and notably overfired, with many waster splits across the flange and the spout and on the exterior. There is a matt brown slip overfired to black in large areas. Slip survives amongst the trituration grit, which is consistent with lack of wear. It is unlikely to have been used and was certainly not suitable for sale. The stubby rim profile is downturned at the distal end and there are the remains of burnishing on the exterior, as with archive nos 33–5 and so on in Fabric 6 above.

12.3.5 Western sector of the Antonine Wall

► **Archive no. 4: LAK 4, trackway drainage ditch, *vicus* (Illus 12.1, no. 12)**

A mortarium with a small, rounded rim with small, neatly moulded spout and a fragmentary stamp of GICV, CICV[or GICA. Diam 240mm; Fabric 8. The fabric is softish and abraded and no trace of slip survives, but this potter normally used a cream slip; no trituration grit survives.

The broken stamp preserves the upper parts of the first three letters of a stamp, which when complete reads GICV, CICV[or GICA retrograde

between unusual upper and lower borders. GICV or GICA retrograde look better than the CICV reading which has usually been preferred. The clearest and most complete published examples of this stamp are from Balmuildy and Bar Hill (Miller 1922: pl xl, B, no. 7; Hartley 1975: fig 49, no. 9). His mortaria have been found only in Scotland at the following sites: Balmuildy (three stamps from two or three vessels); Bar Hill; Bearsden (at least two stamps); Croy Hill; Duntocher; and Old Kilpatrick (two stamps from one to two vessels). All of his stamps are from sites on the Antonine Wall and no stamps have been recorded east of Croy Hill. There is no reasonable doubt that he worked somewhere in the western sector of the Antonine Wall or that his activity lay entirely within the period of the Antonine occupation of Scotland (Hartley 1976: 84–5). On present evidence it is most likely that he worked at Bearsden within the period AD 140–65 (see Hartley 2016: 140–1, nos 32–3).

► **Archive nos 66 and 50: LCG 1 and LBG 3 (not joining), trackway and bypass road drainage ditches, *vicus* (Illus 12.1, no. 13)**

Diam 270mm; Fabric 8, with traces of cream slip. Soft and abraded and many of the trituration grits have fallen out. This notable rim profile with deeply incurved rim has a close parallel at Bearsden (Hartley 2016: 154, illus 7.22.61 and 157, no. 124). There are characteristic grooves below the bead on the inside and in the same area on the exterior, although weathering and the powdery nature of the fabric have reduced their crispness. Archive nos 40, 55, 36, 48 and 61 are from mortaria with a similar profile. They could be from the same mortarium, but a second one could be involved. Archive nos 48 and 61 are the most likely to be from the same vessel.

12.4 Discussion

The sources of mortaria from outside Scotland are very much what one could expect. The sources from within occupied Scotland are coming to be what one can expect. There is substantial and growing evidence that pottery was made at several sites in Antonine Scotland including sites on the Antonine Wall (Hartley 1976; 2016; Swan 1988; Breeze 1986). Similar local production was common at

sites in the north of England in the 2nd century down to and including the early to at least the mid-Antonine period, but it is interesting that production within the occupied area was clearly encouraged. It may have been intended that the area should become as self-sufficient as possible – this would explain the involvement at Bearsden of such a high-profile potter as Sarrus of the Mancetter-Hartshill potteries.

Fabrics 5–7 were undoubtedly produced locally and, although one would like more definitive proof, production at Croy Hill itself is the most fitting explanation. Any doubt could be removed by further work at Croy Hill and by more detailed study of all the pottery at Bar Hill, the only other feasible source. The only mortaria known with certainty to have been produced at Bar Hill are those identified by Hartley (1976: fig 2, nos 24–7) and confirmed by Swan (1999: 420). These are different in every way from the mortaria at Croy Hill.

12.4.1 Colchester

The most important of the suppliers from outside Scotland was the Colchester potteries. This was true for all sites on at least the eastern half of the Antonine Wall. This is reasonable enough since mortaria from Colchester, Canterbury and lesser sources like Brampton, Norfolk came up to the Forth, and to a lesser extent the Tyne, in what must have been very important coastal traffic. Sites in the east like Inveresk, which could have been the port of entry (Thomas 1988), have the largest quantities and the numbers tend to be smaller on sites at the western end of the Antonine Wall, though they are still present: at Bearsden, for example, they represent 4–5% of the total, about ten mortaria (Hartley 2016: illus 7.10–7.15).

12.4.2 Mancetter-Hartshill

The Mancetter-Hartshill potteries in Warwickshire were next in importance among external suppliers. It is probably true to say that they were never the most important suppliers to any site on the Antonine Wall, but their products are always present, usually in fair numbers. In this respect Croy Hill is unusual in having only two stamps (Sarrus and Figobateus, an old find (FR467)), but

there are many other fragments, whereas there is only one sherd (Bellicus) which can be attributed to Corbridge with confidence.

12.4.3 Corbridge

Mortaria from the workshops at Corbridge are relatively uncommon in Scotland, which is surprising given the fact that Corbridge was on the doorstep compared with either Colchester or the Mancetter-Hartshill potteries. The most important single production in north-east England within the period AD 115+ to AD 160+ was that associated with stamps of Anaus. He was involved in more than one workshop, consecutively or simultaneously; one of these was in the Tyne area where Paul Bidwell has now found evidence for extensive pottery production which can be assumed to have included Anaus (pers comm); it has always been accepted that Anaus worked at Corbridge and it is not unreasonable to believe that he was involved in the Tyne area too (Maxfield forthcoming, 'Mortarium Stamp M18'; Hartley 2012: 105–7, 'Discussion of Anaus'). One or more of his workshops, in the Tyne area or at Corbridge, must have been active during the Antonine occupation of Scotland. No stamps of Anaus have been found at any site on the Antonine Wall and only five have been recorded from anywhere in Scotland (Camelon (2); Cramond; Loudon Hill; Newstead). The reason is not clear, but it must be significant that all five are from only one of the at least 12 dies associated with him.

The real paucity of mortaria of Anaus in Antonine Scotland, their distribution, and the presence of stamps from only one die, cannot be explained, but the relative paucity of mortaria of Bellicus is readily understandable – his workshop was not in existence when the Antonine Wall was constructed. The workshop cannot have started before *c* AD 150 or even later, and other suppliers and probably local productions were already in place before this date. Nevertheless, Bellicus, who undoubtedly worked at Corbridge, has four mortaria at sites at the eastern end of the Antonine Wall and one at Newstead; there is also an unstamped mortarium at Inveravon that was made in his workshop. This means that his workshop did establish a foothold in the supply chain servicing sites in eastern Scotland and on the eastern half of the Antonine Wall.

12.4.4 Probably Croy Hill

The mortaria of outstanding interest are six in Fabrics 5–7 (36 sherds), plus an earlier find (FR469; 1933.128), which is technically a waster. This makes seven mortaria in all which can be attributed to a local workshop. These mortaria have unusual characteristics in common. They have traces of a substantial red-brown slip that appears to be misfired on the mortaria in Fabrics 6–7. Traces of burnishing survive on parts of the exterior; such burnishing is rarely found, and then possibly only at military sites. The most unusual feature is the treatment of the underside of the two surviving bases; these have a profile never recorded before on mortaria in Britain; no parallels elsewhere are immediately to hand (Illus 12.1, nos 9 and 10).

Fabric 5 may be a finer version of one of the coarser Fabrics 6 and 7, with coarser elements removed by filtration at the workshop. The mortaria in Fabrics 6–7 have unusual rim profiles. The slip on the mortarium in Fabric 7 (Illus 12.1, no. 10) is misfired and that on the mortarium in Fabric 6 (Illus 12.1, no. 9) may be. The slip on the earlier find (FR469) is clearly overfired, the fabric is very hard and there are many waster splits across the flange and the spout, and on the exterior. The vessel might be usable but would be unlikely to be ‘traded’.

Small patches on the mortaria show the type of thick orange-brown slip intended to cover all surfaces. This was not the norm anywhere else on the Antonine Wall (raetian-type mortaria had such slip only on the rim). We can be virtually certain that the mortaria in Fabrics 5–7 were never stamped. Only one of the mortaria (Illus 12.1, no. 8, archive no. 41) shows real signs of any use, and that very little.

Wherever they were made, other types of coarse ware in addition to mortaria would also have

been produced. Specialisation in the production of mortaria was probably beginning to take off in the Mancetter-Hartshill potteries in the late 2nd century and was certainly normal there in the 3rd century; there may have been some specialisation at Colchester in the Antonine period and to some extent at Corbridge, workshops whose mortaria were traded over a wide area, but it is most unlikely to have occurred at small workshops which served a limited area. Unusually for mortaria attributed to the same workshop in the same period, the trituration grit used is not consistent.

The sherds in Fabrics 5–7 from the recent excavations are thought to be from only six mortaria and the number of sherds (36) and the weight (1,813g) may appear disproportionate, but this results from the substantial nature of the vessels and from having initially large sherds which have suffered considerable fragmentation in antiquity.

Taking the similarities and unusual features into consideration plus the overfired condition of some of the vessels, the waster cracks and the lack of normal use, it is certain that these mortaria were made locally, probably at Croy Hill itself. Production at Croy Hill would not be out of place and a probable kiln (without pottery) has been identified (see 5.3 and 5.6, above).

12.4.5 Cicu[...] of Bearsden or possibly Balmuildy or perhaps starting at Balmuildy before working at Bearsden (see Hartley 2016)

The other prominent source of mortaria made in Scotland is the workshop at Bearsden or Balmuildy, which is well represented. For further details of these potters see Hartley 2016. It is worth noting that Cicu[...]’s stamps have so far been recorded only at sites on the Antonine Wall.

13. THE OTHER POTTERY

Paul Bidwell, Louisa Campbell, Alexandra Croom and Louise Hird

13.1 Introduction

The entire assemblage, including the samian and mortaria which are reported on separately, consisted of 3,628 sherds, weighing 51.621kg (Table 13.1). About three quarters of the total came from the ditches associated with the trackway, having been washed down the slope from occupation to the west when the site was abandoned (6.2–6.4, above). Because of the small quantities from other features, the pottery from all the excavated areas is treated here as a whole. It was quantified in its fabric categories by weight, sherd count and estimated vessel equivalents (EVEs, ie percentages of surviving rim diameters) in accordance with the recommendations of the Study Group for Roman Pottery (Darling 1999). For the fabrics of the common, widely traded wares, references are made to the National Roman Fabric Reference Collection (NRFRC = Tomber & Dore 1998).

The original catalogue and report were prepared by Louise Hird in 1988. There have been many subsequent developments in the study of Roman pottery, both in Britain generally and in early Antonine Scotland. Hird's report has therefore been updated. The work has taken place in two stages. In 2015 Louisa Campbell recorded the database digitally (in a Microsoft Excel file forming part of the archive), enlarged the description of the fabric series, also adding the NRFRC codes, and discussed the assemblage in greater detail. Finally, in 2020 Alexandra Croom reassessed some of

the illustrated vessels, quantified the samian and made minor corrections to the identification of fabrics and vessel types in the database. Tables 13.1–13.3 have been revised accordingly. Finally, Paul Bidwell and Alexandra Croom have revised the fabric descriptions and catalogue entries, taking full account of Gillings' petrological analyses (14, below), and supplied a more detailed consideration of the amphorae. PB has provided a new assessment of the assemblage, taking account of unpublished data from other sites, the recent publication of the Bearsden fort (Breeze 2016) and the late Vivien Swan's survey of early Antonine pottery in Scotland (1999). Comments and parallels in the earlier reports cited here are credited to their authors (LH and LC).

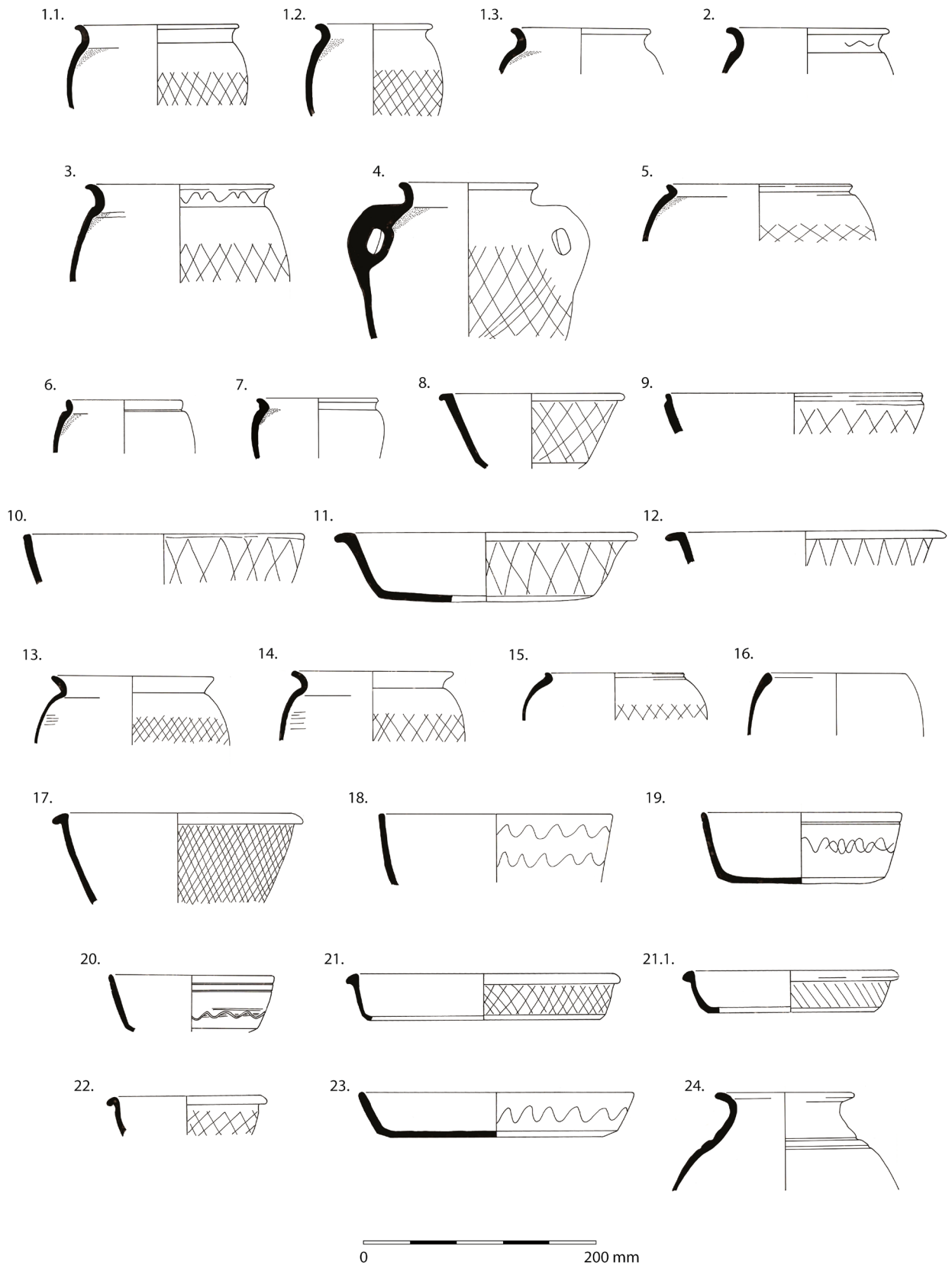
13.2 The amphorae (Illus 13.2, nos 37, 38, 46)

As usual the olive oil container Dressel 20 was the most common type of amphora recovered, including both thick-walled and thin sherds (14mm). There were also a number of sherds that probably came from Dressel 20 amphorae but in grey or pale cream fabrics. A few sherds in unclassified orange and gritty red/brown fabrics represent other, unidentifiable types of amphorae.

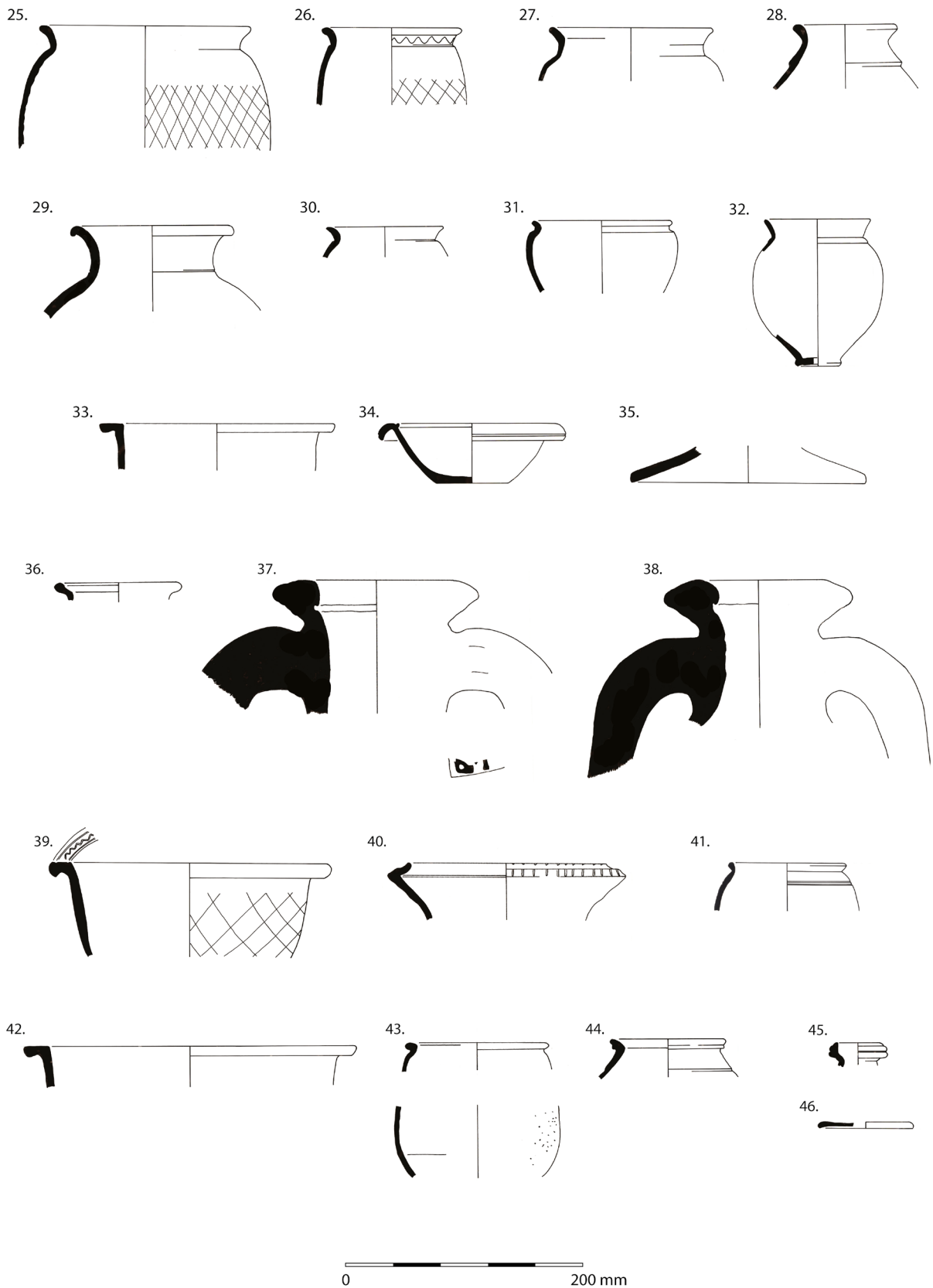
An unillustrated fragment (Fabric 35; from LAM, a narrow drainage gully, east of the trackway in the *vicus*) is from a base with a dimple, rather like the base of a modern wine bottle but with flaring sides. It is probably from a North Gaulish amphora, a type known in the 'Seine sableuse' fabric originating in the Seine basin, or 'rouge à pâte rouge' from Normandy (Laubenheimer & Marlière 2010: 75). The only other example

Table 13.1 Categories of pottery from the site, shown as percentages of the total weight, number of sherds and EVEs

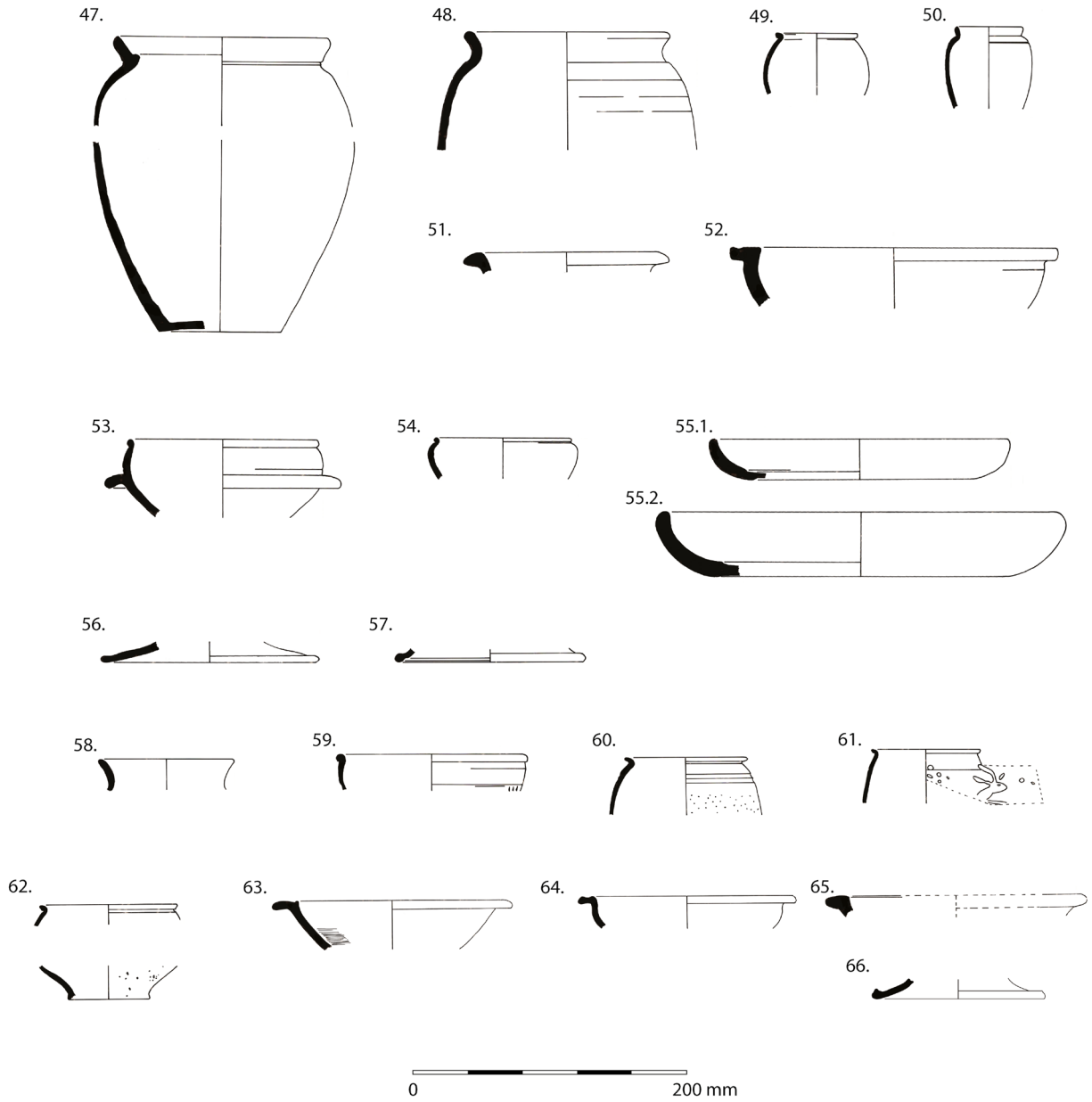
Type	Wt in kg	No. of sherds	EVE %
Amphorae	31.3	9.0	10.9
Samian	1.3	2.6	3.4
Mortaria	12.3	3.6	8.5
Fine wares	0.5	1.8	3.0
Coarse wares	54.7	83.0	74.2
Totals	51.621	3,628	5,429



Illus 13.1 Coarse wares, Types 1.1 to 24



Illus 13.2 Coarse wares and amphorae, Types 25 to 46



Illus 13.3 Coarse and fine wares, Types 47 to 66

Table 13.2 Amphorae by fabric, shown as percentages of the total weight, number of sherds and EVEs

Fabric	NRFRC	Wt in kg	No.	EVE (%)
Vessels				
Dressel 20 (Fabrics 13, 17, 18)	BAT AM	92.3	91.3	100
Dressel 20? grey (Fabric 16)		4.0	3.8	
Gaulish (Fabric 35)	GAL AM	0.6	3.1	
unclassified		3.1	1.7	
Totals		15.974	289	250
Lids				
buff/cream fabric (Fabrics 30, 35)		97.0	97.3	94.2
cream (Fabrics 28, 32)		3.0	2.7	5.8
Totals		0.165	37	344

of this type known in Britain (at least to PB and AC) is from a Neronian or early Flavian context at the St Loye's settlement near Exeter (Bidwell forthcoming; no. 4).

There were also 37 sherds (weight 0.148kg; EVEs 257%) from amphora lids, the majority in a powdery, very fine buff to cream fabric, but with one rim sherd in a sandy cream fabric with red inclusions. A central projection survived on another sherd. All but two of this exceptionally large number of sherds were from the drainage ditches alongside the trackway. The pottery in these ditches was probably washed down from the military *vicus* on higher ground to the west of the trackway, and the lids are likely to have originated from an area where the contents of amphorae were being decanted into small containers.

13.2.1 The stamp (Illus 13.2, no. 37)

Dressel 20, BAT AM. DBO 1, DBR 1 – occupation debris/midden material in northern extension of Area D, east of fort.

► Q·I[or QI[

Incomplete stamp from the estate using the stamp QIA (Callender: 1460). Cf CEIPAC 5644 and 17269 (and CEIPAC 7507 without the dot), c AD 149–61.

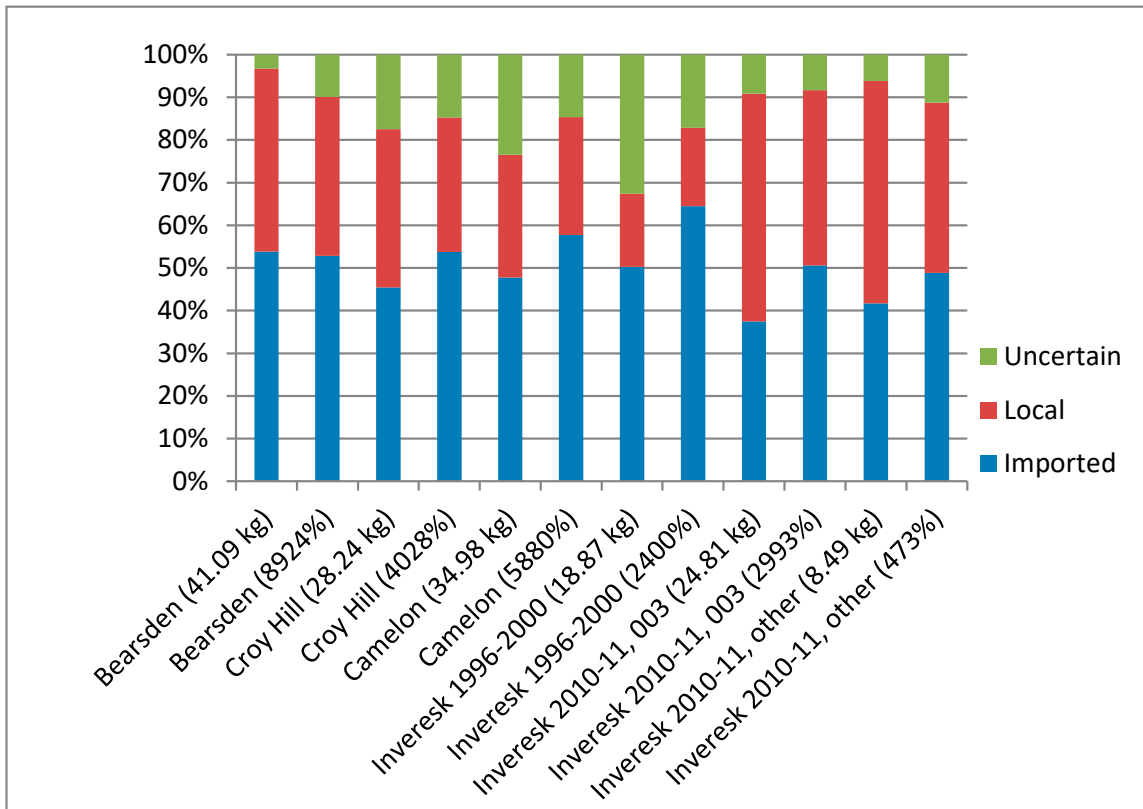
13.3 The coarse and fine wares

In the original report, Hird divided the pottery into 42 fabrics, excluding samian and mortaria but including amphorae (discussed above). Some of these classifications are now known to include pottery from a variety of sources. Fabric 35, for example, includes amphora lids, the base of a North Gaulish amphora, and a platter (Illus 13.3, no. 55.1) in an atypical fabric. Other examples of Fabric 35, however, were shown by Gillings' petrological analysis to be dissimilar (Table 14.1). These revised identifications can only now be made because of the great improvements in knowledge of local pottery on the Antonine Wall and of the imported wares since the original catalogue was compiled. As a consequence, Table 13.3 and Illus 13.4 might well slightly over-represent the local wares.

Another development has been the publication of the National Roman Fabric Reference Collection (Tomber & Dore 1998), which provides detailed descriptions and illustrations of most of the widely traded wares in Britain. In this report the common names of these wares and the NRFRC codes are used in preference to Croy Hill fabric numbers, though they are noted in the following fabric list. The fabric numbers are used for the local wares.

Table 13.3 Pottery assemblage by fabric, shown as percentages of the total weight, number of sherds and EVEs

Fabric	NRFC	Wt in kg	No.	EVE%
samian ware		1.9	2.8	3.8
mortaria		17.9	3.9	9.6
Fine wares				
Cologne colour-coated	KOL CC	0.3	1.5	1.1
Colchester colour-coated	COL CC 2	0.1	0.2	0.5
Argonne colour-coated	ARG CC	0.0	0.1	0
unclassified colour-coated		0.1	0.2	0.9
Upchurch fine reduced	UPC FR	0.1	0.2	0.8
Coarse wares				
unclassified flagon fabrics		0.1	0.2	0.4
flagon white ware		0.3	0.4	0.5
continental white ware		1.2	1.7	1.1
Severn Valley ware	SVW OX2	0.6	0.8	1.0
south-east Dorset black burnished 1	DOR BB1	14.8	16.8	15.5
south-western BB1	SOW BB1	2.0	2.1	3.5
BB1, other sources		0.1	0.1	0.1
BB2		25.0	23.8	31.3
highly micaceous grey		0.3	0.4	1.1
Derbyshire	DER CO	1.0	1.5	0.2
highly fired		0.4	0.3	1.1
local oxidised (Fabric 23)		2.3	2.1	1.7
local oxidised (Fabric 35)		6.7	10.8	7.5
local oxidised (Fabric 42)		2.9	3.5	1.4
oxidised (Fabric 27)		0.7	0.7	0.2
oxidised (Fabric 36)		2.8	4.6	2.1
local traditional ware		0.1	0.1	0.0
minor oxidised wares		0.5	0.8	0.5
minor reduced wares		0.3	0.4	0.1
unclassified oxidised wares		0.7	0.5	0.5
unclassified reduced ware		15.9	18.4	13.1
burnt or otherwise unclassified		0.7	1.5	0.1
Totals		35.482	3,302	4,835



Illus 13.4 Percentages of local, imported and unidentified wares at Bearsden, Croy Hill, Camelon and Inveresk. Sources as in the main text, except for Inveresk 1996–2000, for which see Dore 2004: tables 41–4. The percentage of local wares at Camelon might be over-estimated because of the inclusion of undiagnostic Flavian sherds occurring residually in early Antonine contexts. Drawn by Paul Bidwell

13.3.1. Fine wares

- Cologne (KOL CC; Fabric 39): Illus 13.3, no. 60.
- Colchester colour-coated? (COL CC 2; Fabrics 25, 40): Illus 13.2, no. 43 and 13.3, no. 62.
- Upchurch fine reduced (UPC FR; Fabrics 11, 37): Illus 13.2, no. 32 and 13.3, no. 58.
- Unclassified colour-coated ware: Illus 13.3, no. 61.

13.3.2 Coarse wares (not local)

- Flagon fabric (29): slightly micaceous fine white pipeclay fabric with occasional fine soft red inclusions (Illus 13.2, no. 45).
- North Gaulish white (26): Cream/white fabric, darker to the exterior so section is white fading into black. Patchy black or brown exterior (Illus 13.2, no. 44).
- Severn Valley ware (SVW OX2; Fabric 3): Illus 13.1, no. 24.
- South-east Dorset black burnished ware 1 (DOR BB1; Fabric 1): LH, commenting on the BB1 in general, stated that ‘there were 43 cooking

pot rims as compared with 20 rim fragments of all the other forms taken together. Many of the cooking pot rims had the wavy line decoration on the neck, a feature which declined as the 2nd century wore on. As seems to be usual on the Antonine Wall there was a great predominance of dishes over bowls – 17 dishes to one bowl’ (Illus 13.1, nos 1.1, 1.2, 3, 5–8, 10–12).

South-western black burnished ware 1 (SOW BB1; not distinguished from Fabric 1): Vessels in this fabric, now known to have been made on the border of south-east Devon (Bidwell 2021: 312–13, fig 12.1), are easily distinguishable from BB1 from south-east Dorset. They are thinly distributed in northern Britain from the Hadrianic period until the early 3rd century (Illus 13.1, nos 2, 4, 9).

Other BB1 (Fabric 1a): LH suggested Rossington Bridge as a source (Illus 13.2, no. 31).

BB2 (mostly or all COL BB2; Fabric 2): North Kent has been suggested as the source of some early

Antonine BB2 in Scotland, but the weight of the evidence favours Colchester as its main source at this period (Bidwell & Croom 2018: 201). LH commented: ‘The chamfered dish Type 21 was the commonest vessel form on the site with 41 rim fragments. All the examples except one had lattice decoration, the exception having diagonal line decoration. There were seven examples of the dish as no. 23. Both the common rim forms of BB2 cooking pots were present in roughly equal numbers. There were 18 examples of the everted-rim cooking pot (Gillam 1970: Type 137), as no. 13, and 23 examples of the cavetto rim cooking pot (ibid: Type 139), as no. 14. There seems to be no chronological significance to the different rim forms, which seem to have been in use contemporaneously. Bowls with triangular rims, as no. 17, were also fairly common, with 16 examples. Although there were comparatively more bowls in BB2 than in BB1 they were still well outnumbered by dishes (Illus 13.1, nos 13–23).’

Highly micaceous grey ware (Fabric 11): This category includes miscellaneous grey wares, including an example in fine sandy grey fabric with abundant fine silver mica, probably an East Anglian product (Illus 13.2, no. 30).

Derbyshire ware (DER CO; Fabric 31): Two or three examples of Derbyshire ware are known in Scotland (Tyers 1996: fig 239). As well as this example, there is a cooking pot with lid-seated rim from Balmuildy (Miller 1922: pl XLV, no. 29, ‘hard, gritty red’) (LH) and one with a slightly cupped rim from Carpow (Birley & Dodds 1962: fig 8, no. 6 ‘very hard, red fabric with grey pimply surface’). It is of note that all three are red or orange in colour. The ware was produced from the mid-2nd century but does not appear on Hadrian’s Wall until the 3rd century (Illus 13.3, no. 47).

13.3.3 Local wares

The local wares are discussed in a following section. The list below reproduces Hird’s original classification with some further comments. Fabrics 23, 35 and 42 were sampled by Gillings (14, below), and account is taken of his fabric descriptions.

Fabric 23 (oxidised): A number of fine-textured,

self-coloured orange fabrics, characterised by common shale inclusions up to 1mm across and rare sandstone and chert inclusions. There are silt-rich variations with very fine quartz inclusions and those with sand-grade quartz; some also have fine red inclusions (Illus 13.2, nos 40–2). Unillustrated sherds include a fragment from the base of a cheese press (DAA – topsoil over land divisions, Area D).

Fabric 35 (oxidised): Fine sand/silty buff or pinkish fabrics, with common shale inclusions up to 1mm across, and slightly paler surfaces (Illus 13.3, nos 48–54, 55.2, 56–7).

Fabric 42 (oxidised): Fine pale orange to cream fabric with low silt and quartz content, and soapy feel. Occasional fine red inclusions. Can have yellowish-pink or dark cream surfaces. It includes a bowl or platter base sherd with a poorly finished foot ring and individual lines still visible in burnished areas (not illustrated, LAH 4 – drainage ditch in *vicus*, east side of trackway). Mortarium Fabric 6 (see 12.2) and the face mask (10.2) have a similar soapy feel. For a bowl in Fabric 42, see Illus 13.3, no. 64.

Fabric 36 (oxidised): Hard, rough-textured orange fabric with abundant sand inclusions. Surviving rims come from cooking pots. None illustrated.

Fabric 27 (oxidised): Fairly hard, gritty, pinkish-buff fabric with blue-grey core. The single rim comes from a cooking pot. None illustrated.

Miscellaneous oxidised wares (Fabrics 6, 9, 12, 14, 22, 24, 27 and 38, and sherds included in Fabric 42): Fabrics with few distinguishing features which are probably of local manufacture. (Illus 13.3, nos 59 and 63). Unillustrated sherds include a fragment from the twisted, rope-like handle of a large flagon (LBW 2 – drainage/road ditch junction, south-west of the fort); this is a rare type, with a few parallels in southern Britain, as for example at Colchester (Symonds & Wade 1999: fig 6.28, no. 825).

Highly fired ware (included in Fabrics 15 and 35): These highly fired fabrics with quartz inclusions and a pimply surface are reminiscent of Derbyshire ware but do not represent types produced by the industry. Local sources are likely (Illus 13.2, no. 36 and 13.3, no. 55.1).

Miscellaneous grey wares (Fabrics 11 and 20–1): (Illus 13.2, nos 25–30, 32–5 and 39).

13.4 Catalogue (Illus 13.1–13.3)

The entries include vessel type, fabric (including the Hird fabric number where relevant or the NRFRC classification), petrological sample number where relevant (see Table 14.1) and the context code/descriptor.

► 1.1. Cooking pot

DOR BB1, Holbrook & Bidwell 1991: Type 15. LBD 1 – drainage ditch in *vicus*, west side of trackway.

► 1.2. Cooking pot

DOR BB1, Holbrook & Bidwell 1991: Type 16. BBB – topsoil over west side of pre-fort enclosure.

► 1.3. Cooking pot

DOR BB1, Holbrook & Bidwell 1991: Type 17. LBM 1 – drainage ditch in *vicus*, west side of trackway.

► 2. Cooking pot

Very faint trace of wavy line decoration on the rim. SOW BB1, Holbrook & Bidwell 1991: Type 26. LCQ 1 – drainage ditch in *vicus*, west side of trackway.

► 3. Cooking pot with wavy line decoration on the rim

DOR BB1, Holbrook & Bidwell 1991: Type 16. LAK 4 – drainage ditch in *vicus*, east side of trackway.

► 4. Jar with countersunk lug handles

Some sooting on exterior. DOR BB1, Holbrook & Bidwell 1991: Type 24. GAB – lower fill of bypass road drainage ditch in quarry trench.

► 5. Bead-rimmed cooking pot, partially burnt; exact rim diameter uncertain

DOR BB1, Holbrook & Bidwell 1991: Types 4/5. LAB/LAB 4 – drainage ditch in *vicus*, east side of trackway.

► 6. Beaker, probably with handle

Smooth burnish, fine fabric. Black deposits on exterior. SOW BB1, Holbrook & Bidwell 1991: Type 11. QAA – topsoil over fortlet.

► 7. Small jar or beaker

DOR BB1. CCK – drainage ditch north side of bypass road.

► 8. Flat-rimmed bowl

DOR BB1. CCN 3 – pre-fort enclosure ditch, east side, and adjacent topsoil.

► 9. Bead-rimmed bowl or dish, highly burnished

SOW BB1. CCT – bypass road drainage ditch, east of pre-fort enclosure.

► 10. Dish with lightly incised groove creating a small beaded rim

DOR BB1. BBB – topsoil over west side of pre-fort enclosure.

► 11. Flat-rimmed dish

DOR BB1. GAE – shallow linear gully forming land division east of fort.

► 12. Flat-rimmed bowl or dish

DOR BB1. LAH 1 – drainage ditch in *vicus*, east side of trackway.

► 13. Everted-rim cooking pot

BB2, Bidwell & Croom 2018: Type 5.1. LBD 2 – drainage ditch in *vicus*, west side of trackway.

► 14. Everted-rim cooking pot

BB2, Bidwell & Croom 2018: Type 5.1. LBB 2 – recut drainage ditch in *vicus*, east side of trackway.

► 15. ‘Neckless’ cooking pot

Patches of black residue on exterior. BB2, Bidwell & Croom 2018: Type 9. LBM 2 – drainage ditch in *vicus*, west side of trackway.

► 16. ‘Neckless’ cooking pot

Most of the original surface has been lost, apart from the slip round the rim. BB2, Bidwell & Croom 2018: Type 9. LBR 2 – drainage ditch in *vicus*, east side of trackway.

► 17. Triangular-rimmed bowl

BB2, Bidwell & Croom 2018: Type 14. CCN – pre-fort enclosure ditch.

► 18. Plain-rimmed bowl with two rows of wavy line decoration

BB2, Bidwell & Croom 2018: Types 12.1/12.3.
LBS – drainage ditch in *vicus*, west side of trackway.

► **19. Plain-rimmed bowl with groove**

BB2, Bidwell & Croom 2018: Type 12.2. LBR 2 – drainage ditch in *vicus*, east side of trackway.

► **20. Plain-rimmed bowl with two grooves**

BB2, Bidwell & Croom 2018: Type 12.2 variant.
LBK 1 – recutting of drainage ditch in *vicus*, west side of trackway.

► **21. Triangular-rimmed dish with very fine burnishing**

BB2, Bidwell & Croom 2018: Type 17.1. LAL 1 – early linear gully in *vicus*.

► **21.1. Triangular-rimmed dish**

BB2, Bidwell & Croom 2018: Type 17.1. CAC 1 – bypass road drainage ditch, east of pre-fort enclosure.

► **22. Dish with curled-under rim**

BB2. EBY – drainage gully forming part of land divisions, south-east of fort.

► **23. Plain-rimmed dish**

BB2, Bidwell & Croom 2018: Type 13.1. LBO 1 – drainage ditch in *vicus*, west side of trackway.

► **24. Storage jar in Severn Valley ware**

SVW OX 2. Webster 1977: fig 11, 1, Type 3 (LC).
LAL 2/LAH 2 – early linear gully and drainage ditch on east side of trackway in *vicus*.

► **25. Cooking pot (Fabric 11)**

Highly fired light grey highly micaceous fabric with pale grey core. Occasional black inclusions up to 1mm, sometimes leaving smeared lines within the clay on the surface.

LBK 1, LBK 5, LBV 1, LCQ 1, LCR 1 – early shallow gully and drainage ditch in *vicus*, west side of trackway.

► **26. Cooking pot with wavy line decoration on rim, imitating BB1 decoration (Fabric 11)**

Slightly gritty mid-grey fabric, burnished on shoulder and exterior of rim and halfway down interior of rim. Some silver mica plates and rounded grey inclusions.

LBD 4 – drainage ditch in *vicus*, west side of trackway.

► **27. Jar in sandy, very pale grey fabric, with the remains of dark grey surfaces, giving a mottled appearance (Fabric 11)**

Occasional soft black inclusions up to 1mm. Some burning on interior of rim.

LAB 1 – drainage ditch in *vicus*, east side of trackway.

► **28. Jar in sandy mid-grey fabric with darker surfaces and with heavy sooting on the exterior (Fabric 11)**

Burnished on body, and both exterior and interior of rim.

LCK 1 – drainage ditch in *vicus*, west side of trackway.

► **29. Narrow-mouthed jar in soft, light grey slightly gritty fabric, slightly micaceous, with slightly darker surfaces (Fabric 11)**

LAK 2, LAK 3 – drainage ditch in *vicus*, east side of trackway.

► **30. Small jar or cooking pot with everted rim (Fabric 11, but perhaps an East Anglian product)**

Fine hard sandy mid-grey fabric with occasional very fine mica and white inclusions.

CCT, CCY 1 – bypass road drainage ditch east of pre-fort enclosure and associated silt build-up.

► **31. Small jar (Fabric 1a)**

Grey BB1, burnt near rim, most of original surface lost.

CCT – bypass road drainage ditch east of pre-fort enclosure.

► **32. Poppy-head beaker in fine-textured, smooth, mid-grey fabric with very light grey core; common soft black inclusions up to 2mm across**

This beaker and similar sherds from other contexts were included in Fabric 11 and were almost certainly from south-east England; their fabric is not typical of Upchurch, Kent (UPC FR), commonly a source of these beakers, and they are probably from elsewhere, perhaps Highgate Wood (HGW RE C). Bidwell & Croom 2018: Type 4.1. LAK, LBM 2 – drainage ditches in *vicus*, east and west sides of trackway.

Cf no. 58.

► **33. Flat-rimmed bowl in sandy, soft gritty grey fabric, and occasional pebble up to 5mm (Fabric 11). CCR – surface of bypass road, south of pre-fort enclosure**

Cf no. 42 in oxidised ware.

► **34. Segmental bowl with flanged rim in fine hard micaceous grey fabric (Fabric 11)**

Burnished in bands on the interior. Black deposits on both exterior and interior. Almost 50% of the vessel survives.

LAA, LAK 5, LBD 1, LBD 2, LBD 3, LBD 6, – drainage ditches in *vicus*, east and west side of trackway, and overlying topsoil.

Cf Bar Hill: Robertson et al 1975: fig 53, no. 18.

► **35. Lid in sandy, mid-grey fabric with patchy remains of a darker surface on exterior (Fabric 11)**

Occasional soft black inclusions. Burnt on interior of rim, and some sooting.

LCS 3 – drainage ditch in *vicus*, west side of trackway.

► **36. Lid-seated jar (Fabric 15)**

Hard gritty grey fabric with pimply surface, slight oxidised tinge to the interior of the rim.

LAA – topsoil over *vicus*, Area L.

► **37. Dressel 20 amphora with stamp (see 13.2 above)**

BAT AM. DBO 1, DBR 1 – occupation debris/midden material in northern extension of Area D, east of fort.

► **38. Dressel 20 amphora**

BAT AM. LAB – drainage ditch in *vicus*, east side of trackway.

► **39. Reeded-rimmed bowl with lattice decoration (Fabric 21)**

The rim has two shallow grooves with a wavy line between them. Wipe marks on interior, slightly faceted exterior. Hard, smooth grey fabric with a few small opaque white, hard black and quartz inclusions; mid-grey core, very thin white margins, pale grey interior surface, exterior surface black near base but with oxidised rim.

One other vessel, a flat-rimmed bowl, was found in this fabric.

LCT 3 – drainage ditch in *vicus*, west side of trackway.

Cf Miller 1928: pl XXII, no. 20 (LH).

► **40. Bowl with an in-turned rim**

There is a deep groove around the circumference of the rim which cuts closely spaced parallel lines cut across its width. Possibly a tazza, the treatment of the rim perhaps imitating the frilling typical of such vessels.

Fabric 23 (sample no. 5, core group): hard gritty pale orange fabric, with quartz inclusions, with patchy dark orange exterior surface.

LBL 1 – narrow drainage ditch in *vicus*, west side of trackway.

► **41. Beaker with beaded rim and groove on shoulder**

Fabric 23 (sample no. 6): fine, light orange fabric with fine red inclusions.

LAL 1 – early linear gully in *vicus*.

Cf Bar Hill: Robertson et al 1975: fig 53, no. 9.

► **42. Flat-rimmed bowl, probably a carinated form**

Fabric 23 (sample no. 4): soft orange fabric, paler on exterior, with quartz but no red inclusions.

LBB 1 – recut drainage ditch in *vicus*, east side of trackway.

Cf no. 33 in grey ware.

► **43. Rough-cast beaker**

Possibly COL CC 2 (Fabric 25).

LBB 1 – recut drainage ditch in *vicus*, east side of trackway.

► **44. Jar with grooved rim**

Soft cream fabric with plentiful fine quartz inclusions and common soft red inclusions up to 1mm, and rare soft opaque white and shiny black inclusions (Fabric 26). North Gaulish white ware.

DBL – occupation debris/midden material in northern extension of Area D.

Cf Bearsden: Bidwell & Croom 2016a: illus 7.8, no. 219; Mumrills: Gillam 1961: fig 15, no. 91.

Examples from other sites in north-east England and Antonine Scotland are listed in the report on the coarse wares from Bearsden (Bidwell & Croom 2016a: no. 219), to which can be added a jar from Catterick (Bell & Evans 2002: fig 197, J5.1, CD,

p265, from an apparently Hadrianic context). With the possible exception of the example from Catterick, these jars come from contexts ranging in date from the early Antonine period to the earlier 3rd century.

► **45. Flagon with grooved rim**

White ware (Fabric 29), possibly a North Gaulish import.

DAT 1 – occupation debris/midden material in northern extension of Area D east of fort.

Cf Balmuildy: Miller 1922: pl XLIII, 1, ‘white clay with a cream slip’ (Hird).

► **46. Amphora lid with plain rim**

Soft cream/buff fabric (Fabric 30). LBL 1 – narrow drainage ditch in *vicus*, east side of trackway.

See discussion in 13.2, above.

► **47. Cooking pot**

Highly fired oxidised fabric with pale grey core, slightly patchy brown exterior especially near base; some sooting.

Derbyshire ware (DER CO). CCA 1 – east side of pre-fort enclosure ditch.

► **48. Cooking pot with everted rim**

Fabric 35.

LAH 1 – drainage ditch in *vicus*, east side of trackway.

► **49. Beaker**

Fabric 35.

LBR 1 – drainage ditch in *vicus*, east side of trackway.

► **50. Beaker**

Fabric 35. Cf no. 41.

LBL 2 – narrow drainage ditch in *vicus*, east side of trackway.

► **51. Rounded rim bowl or dish**

Fabric 35.

CCR – surface of bypass road, south of pre-fort enclosure.

► **52. Reeded-rimmed bowl**

Fabric 35.

LBR 1, QAR – drainage ditch in *vicus*, east side of trackway, and ditch of fortlet.

Cf Bar Hill: Robertson et al 1975: fig 53, no. 21.

► **53. Flanged hemispherical bowl, imitating samian form 38**

Fabric 35.

LBT – lower section of drainage ditch in *vicus*, west side of trackway.

► **54. ‘Tulip-bowl’**

This vessel has previously been published by Swan (1999: 420, 465, illus 2, no. 6 and illus 11), who described it as ‘a form well attested in Mauretania’, a small, shallow bowl with a foot ring; only the upper part of the Croy Hill vessel survives.

Fabric 35 (sample no. 1, core group).

LBT – lower section of drainage ditch in *vicus*, west side of trackway.

► **55.1. Curved wall platter**

Very highly fired red fabric with large translucent quartz inclusions up to 2mm, with brown pimpled surfaces (Fabric 35, but atypical). The apparent groove on the interior is more like a drag mark and does not look intentional.

The platter was published by Swan (1999: illus 10, nos 4 and 62) alongside another from Old Kilpatrick with a very similar profile.

LBT – drainage ditch in *vicus*, east side of trackway.

► **55.2. Curved wall platter**

Slightly sandy pale orange fabric, with fine soft red and opaque white inclusions (Fabric 35; sample no. 9, core group).

LBL 1 – narrow drainage ditch in *vicus*, east side of trackway.

► **56. Lid with plain rim**

Fabric 35.

LDB 1 – drainage ditch in *vicus*, east side of trackway.

► **57. Lid with rounded rim and groove on interior**

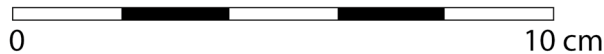
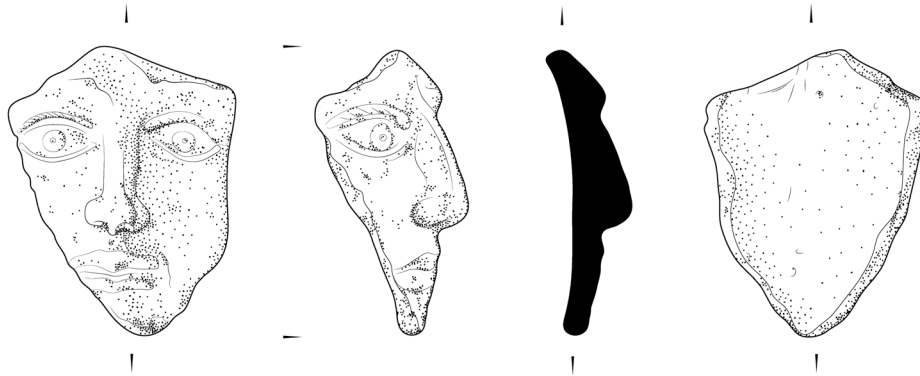
Fabric 35.

LBK 1 – recut drainage ditch in *vicus*, west side of trackway.

► **58. Poppy-head beaker**

Fabric 37, originally identified as Parisian ware, but probably Upchurch (UPC FR), Bidwell & Croom 2018: Type 4.1.

LAB – drainage ditch in *vicus*, east side of trackway. Cf no. 32.



Illus 13.5 Head pot sherd

► **59. Beaded-rimmed bowl, imitation of samian Form 37**

Sandy mid-orange fabric with grey core (Fabric 38). Possible rouletted decoration on body. LAH 4 – drainage ditch in *vicus*, east side of trackway.

► **60. Rough-cast beaker**

Cologne ware, KOL CC (Fabric 39). LCQ 1 – drainage ditch in *vicus*, west side of trackway.

► **61. ‘Hunt’ cup beaker**

Soft, slightly soapy cream fabric with red colour coat (Fabric 35, but apparently not Cologne ware). LBD 6 – drainage ditch in *vicus*, west side of trackway.

► **62. Rough-cast beaker**

COL CC 2 (Fabric 40). LBD 1, LBO 1 – drainage ditch in *vicus*, west side of trackway.

► **63. Segmental bowl**

Fine orange fabric, with slightly darker exterior with patchy burnishing and fine rilling on the interior. Fabric 42 (sample no. 7, outlier). LAH 1 – drainage ditch in *vicus*, east side of trackway. Cf no. 34.



Illus 13.6 Head pot sherd (© Hunterian Museum)

► **64. Flat-rimmed bowl with deep groove in top of rim**

Dark cream fabric with few visible inclusions but rare red inclusions up to 3mm across. Fabric 42 (sample no. 8, core group). This vessel was published by Swan (1999: 465, illus 2, no. 5), citing North African parallels. QAA: topsoil over fortlet.

► **65. Rounded rim bowl**

Fabric 42.

QAA: topsoil over fortlet.

► **66. Lid with triangular rim**

Fabric 42.

LBR 2 – drainage ditch in *vicus*, east side of trackway.

► **67. Head pot in fine mid-orange fabric with the remains of a darker burnished exterior surface (Illus 13.5; 13.6)**

Inclusions consist of occasional rounded colourless quartz up to 3mm across that break through the surface, brittle red inclusions up to 2mm and rare soft white pieces up to 1.5mm.

The vessel is likely to be a York product related to Ebor ware (Monaghan 1997: 916). The sherd as it survives suggests a vessel diameter of only about 60mm, and although the process of sculpting deforms the vessels, which can often end up oval (cf Swan & Monaghan 1993: fig 1, no. 5), its size shows it comes from a beaker-sized vessel.

The face is very finely sculpted by hand with tool marks still visible in places, especially round the nose. The interior surface also has some accidental incised lines in the area of the forehead. The brow ridges are modelled with a depression between the eyebrows, which are shown as diagonal incised lines. The eyes have an incised iris and pupil and the eyelashes are raised ribs with diagonal incised lines. The nostrils are depicted but there is no obvious philtrum. Elements such as the beaked upper lip, the nostrils, incised eyebrows and the dimple between them, and the use of burnishing, can be paralleled on York examples (Monaghan 1997: table 160, fig 344; Swan & Monaghan 1993: 22–3). For full discussion of its significance, see 13.5.4, below. LBF 1 – southern section of drainage ditch in *vicus*, east side of trackway.

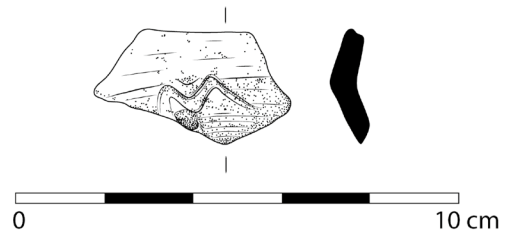
► **68. Cooking pot**

Fabric 11. Sandy mid-grey fabric, with some rounded colourless quartz, plus occasional rounded dark grey inclusions up to 2mm, ill-sorted angular black inclusions up to 3mm, and very small soft white inclusions apart from one fragment 9mm across. This vessel was used as a container for a cremation; the whole of the lower part of the vessel survives, but it has lost its shoulder and rim (Illus

5.21). EAN – cremation within land divisions, south-east of fort.

13.4.1 Graffito (Illus 13.7)

Oxidised body sherd reading ‘.]M’. LAH 3 – drainage ditch in *vicus*, east side of trackway.



Illus 13.7 Graffito

13.5 Discussion

13.5.1 Comparison of quantifications

13.5.1.1 Introduction

John Gillam quantified the coarse wares from the fort at Mumrills by estimating their minimum number (1961). He was ahead of his time, and many years elapsed before quantification came into general use in the publication of pottery in Roman Britain. In common with the rest of Britain, practice in studying Roman pottery in Scotland varies, but there are now a useful series of quantified assemblages from intra- and extra-mural sites at forts on the Antonine Wall and in its hinterland. Comparisons of assemblages from different sites can be hindered by the different methods of quantification and levels of detail. One particular difficulty has been the tendency to confine quantification to the coarse wares, which means that no estimate can be made of the relative occurrences of the other wares. The comprehensive approach adopted at Croy Hill has had one unexpected result: samian ware appears to be scarce and, as explained below, was similarly scarce at Bearsden. Other sites which have been studied comprehensively are Inveresk, Camelon and Cramond, but only Inveresk is exclusively early Antonine in date and directly comparable with Bearsden and Croy Hill. The presence of Flavian pottery at Camelon and of Severan and later pottery at Cramond can obscure some aspects of their supply in the early Antonine

period. For example, at Cramond it is often not possible to distinguish between black burnished ware sherds of early Antonine and Severan date.

Despite these difficulties, it is now possible to make detailed comparisons between some assemblages from early Antonine Scotland, but first an important question must be asked. How reliable are these sorts of figures as a valid representation of the overall pottery supply to a site? In their assessment of methods used to quantify Romano-British coarse wares, especially BB1, Allen & Fulford preferred EVEs or similar calculations based on rim diameters (1996: 226–36). When comparisons include other classes of pottery, such as amphorae and samian ware, weights also need to be considered: for example, it is quite possible for amphorae to be well represented in a group by body sherds without any rims. Whatever method is used for quantification, how much pottery is then needed to provide a reliable sample? An assemblage of, say, some 50kg would surely provide better evidence than a handful of sherds, but what is the minimum amount that is required? All that can be said is that comparisons suggest models for pottery supply; the larger the sample, the more reliable the model.

13.5.1.2 Samian ware

At 2nd-century military sites in northern England (intra- and extra-mural), Willis has recorded percentages of 6.6–21.4 by weight and 9.4–30.0 by EVEs for samian as a proportion of all the pottery excluding amphorae (2011: tables 1–2). The equivalent figures for Croy Hill are 1.9% and 3.8%. No data from the Antonine Wall were available to Willis, but a subsequent publication showed that, at 4.6% by weight and 4.7% by sherd numbers, samian was also scarce in the fort at Bearsden (Bidwell & Croom 2016a: 108, table 7.1). The figures for Camelon and Inveresk are very different: 13.7% by weight and 16.3% by EVEs from Camelon (Bidwell & Croom forthcoming), and from two separate series of contexts at Inveresk, 17.0% and 27.6% by weight and 16.2% and 36.9% by sherd count (all contexts excluding 003 and Context 003: Croom & Bidwell 2020). These variations occur in assemblages of large size and can be regarded as significant. It seems that samian ware was more readily available at the eastern end of the Antonine Wall, and especially

further east along the coast at Inveresk. Products from Central Gaul, the main source of samian ware in the early Antonine period, presumably reached eastern Scotland directly from the mouth of the Rhine or via London. The lesser amounts of the ware from the two forts in the central and western sectors are probably further signs of difficulties in supplying early Antonine Scotland (Bidwell 2020).

13.5.1.3 Coarse wares

The comparative amounts of imported coarse wares (that is, from beyond Scotland and predominantly from southern England) and of local products at Croy Hill, Bearsden, Camelon and Inveresk are much less variable than the occurrences of samian ware (Illus 13.4). At Croy Hill, as at the other sites, about half of the coarse wares are imports. The true figure at all these sites is likely to be a little higher, because the quantities shown as uncertain probably include some imported and oxidised wares, the remainder being local products. Almost all the imported wares were BB1, mainly shipped north by the west-coast route, and BB2, which travelled up the east coast. At Croy Hill the ratio of BB1 to BB2 is 1:1.47 by weight and 1:1.65 by EVEs. At Bearsden BB1 is much commoner, with ratios to BB2 of 1:1.07 by weight and 1:0.71 by EVEs. The suppliers of BB1 towards the western end of the Antonine Wall benefited from lower transport costs across country, as Gillam and Greene have demonstrated (1981: 9–24).

13.5.1.4 Mortaria and amphorae

At Croy Hill the mortaria comprise 17.9% by weight and 9.6% by EVEs. The equivalent figures from two series of contexts at Inveresk are 27.66% and 21.85% by weight and 12.87% by EVEs for the first series (Croom & Bidwell 2020; EVEs were not counted for the second series); at Bearsden the figure is 30.49% by weight and 14.83% by EVEs (Bidwell & Croom 2016a: 108, table 7.1; Bidwell & Croom 2016b: 176, table 7.18, but excluding samian as well as amphorae). These figures indicate that mortaria are somewhat scarcer at Croy Hill than at Inveresk and Bearsden. The high figure at Bearsden is probably explained by a dump of waste in the *intervallum* area from the kiln of Sarrus, the mortarium potter (Bidwell & Croom 2016b: 177).

The figure for amphorae at Croy Hill is 31.3% by weight and 10.9% by EVEs, figures which are similar to the large group from Context 003 at Inveresk (29.67% by weight and 5.27% by EVEs: Croom & Bidwell 2020). There were apparently many more amphorae from Bearsden, where they comprised 70.30% of the pottery by weight (Bidwell & Croom 2016a: 108, table 7.1; EVEs were not recorded). No explanation can be offered for this exceptional number.

13.5.2 Pottery usage

Table 13.4 compares the range and frequency of forms at Croy Hill, Inveresk (Context 003) and Bearsden. Samian vessels are not included in the figures for Croy Hill and Bearsden, but the quantities are so small that they would be unlikely to have altered significantly the overall picture of pottery usage. To begin with the commonest forms, there are roughly equal quantities of cooking pots/jars and bowls/dishes at Croy Hill and Bearsden. Inveresk has more than three times more of the

latter than the former, a pattern similar to three 2nd-century assemblages from within the forts of the Hadrian’s Wall system at Carlisle, Wallsend and South Shields (Bidwell & Croom 2016b: table 7.20). The small numbers of cooking pots/jars from these forts might well be accounted for by the preparation of food in restricted areas, probably large ovens in the *intervallum* areas, and a predominance of vessels for serving food in the barracks, which occupied much of the space within the forts. Indeed, most of the pottery in these assemblages came from the internal buildings and their immediate vicinity (the Wallsend and South Shields pottery was largely from alley deposits between barracks). The connection between large numbers of bowls/dishes and consumption rather than preparation of food is supported by the presence of very many more flagons (24.1% by EVEs at Wallsend), used for serving liquids, than in the Scottish assemblages and the relatively small number of mortaria (5.2–6.2%).

The pottery from Croy Hill therefore seems likely

Table 13.4 Pottery assemblages by form compared by percentages of EVEs, excluding samian at Croy Hill and Bearsden (EVEs were not available) and amphorae at all three sites. A tick records the presence of a type but with no measurable rim; a cross denotes the absence of a type. Inveresk, Context 003: Croom & Bidwell 2020; Bearsden: Bidwell & Croom 2016b, table 7.19. ‘Other’ at Bearsden comprises triple vases and a miniature vessel or crucible

Vessel form	Croy Hill	Inveresk Context 003	Bearsden
Flagon	1.4	4.1	2.8
Drinking vessel	9.7	7.6	3.2
Small jar	3.1	0.2	1.8
Bowl/dish	33.3	55.2	33.1
Cooking pot/jar	37.9	16.2	36.3
Storage jar	2.0	2.2	4.1
Mortarium	9.7	12.8	14.9
Lid	2.0	0.7	1.7
Cheese press	✓	0.3	X
Tazza	0.9	0.6	X
Unguentarium	✓	X	X
Brazier	X	X	0.4
Costrel	X	X	0.7
Other	X	X	0.9
Total EVEs %	4,783	5,987	10,270

to have been from an area of domestic occupation outside the fort where food was prepared and consumed in the same place. Bearsden, where the pottery came from inside the fort and annexe, had roughly equal numbers of cooking pots/jars and bowls/dishes. Its assemblage thus differs from those at the Hadrian's Wall forts, and, as Breeze (2016: 350) has noted, from the expectation that much of the cooking in forts took place in ovens in the *intervallum* area and that the food was then consumed in the barracks. Breeze suggested that at least part of the explanation for preparation of food in the internal buildings at Bearsden was the presence of pottery of North African style which was used with braziers. The Inveresk assemblage, from a midden (Context 003) in the military *vicus*, with its small number of cooking pots/jars, included an exceptionally large number of samian vessels (36.78% by EVEs) and was clearly associated with the consumption rather than the preparation of food. Also present in the assemblage was a large number of mortaria, vessels that sometimes appeared on the table; that is at least the implication of their inclusion in the range of forms made in samian ware.

13.5.3 The pottery probably made at Croy Hill

The report by Hartley (12.2.2 and 12.4, above) briefly summarises the evidence for the production of mortaria at forts on the Antonine Wall and makes a strong case for Croy Hill as the site of one of these kilns. In addition to these specialised manufactures, there was widespread production of other coarse wares: Swan listed eight forts on the Wall as well as Inveresk, far beyond the eastern end of the Wall, where there were almost certainly kilns (1999: 402). Swan included Croy Hill, though she questioned the identification of the possible kiln (5.3, above). She also mentioned Gillings' work on the petrology of the oxidised coarse wares from the site (14, below), which was intended to assess whether these fabrics, originally identified by LH as perhaps of local origin, formed a coherent group and could be shown to have been made at Croy Hill. The results were equivocal, although about half the samples 'formed a core group that was chemically and petrologically distinct from the wares produced at other sites in the Wall zone and identical to a small sample of daub

fragments from the site' (14.7, below).

Visual classification of coarse wares which have no particularly distinctive inclusions is always difficult, but if the core group defined by petrology is representative, about half of all the oxidised wares are likely to have been from the same source. One possibility that Gillings could exclude (14.6, below) was that any of the samples were from the fort at Bar Hill, only 2.5km to the west of Croy Hill, where the fabrics included clay pellets which were not present in any of the Croy Hill samples. Hartley has identified a mortarium type (12.3.4, above) which occurs only at Croy Hill and was thus almost certainly made at the site. It is equally probable that the oxidised wares of the core group were local products, perhaps fired in the same kiln as the mortaria. The grey wares at Croy Hill were not sampled, but some of their types are duplicated in the oxidised wares and will have been from the same source (cf 13.4 above, nos 33 and 39, also 34 and 63).

For antecedents to the Croy Hill mortaria, Hartley looked beyond Britain but was not able to specify the source of the type. There are no parallels amongst the mortaria at Bar Hill, but some significant resemblances between the other coarse wares at the two forts are recorded in the catalogue above (beakers, 13.4, nos 41 and 50; bowls, 13.4, nos 34, 52 and 63). More generally, the numbers of bowls with plain, reeded or mortarium-like rims in grey and oxidised wares are notable at both forts. By the early Antonine period imitations of BB1 bowls were becoming common in many parts of Britain, eclipsing the other types in oxidised and grey wares; the latest date of production that Gillam proposed for the latter was AD 130 (1970: Types 214–17). There is only one example of a bowl imitating BB1 at Croy Hill (above, 13.4, no. 39), though they are much commoner at Bar Hill (Robertson et al 1975: fig 54, nos 5–7, and at least 15 other examples). The large number of bowls not imitating BB1 at the two forts goes against a general trend in Britain. In the Rhineland such bowls were current in the 2nd and early 3rd centuries (Gose 1950: table 49, nos 502–3), and it is perhaps there or in Gallia Belgica, with its similar ceramic traditions, that we should seek the origins of one or more potters working at Croy Hill and Bar Hill.

The other strand of influence in the Croy Hill pottery is the North African tradition, which by the early Antonine period was widespread in all the parts of the Empire bordering the western Mediterranean. The local oxidised ware included at least five cooking dishes (as Illus 13.3, no. 55.2) and a small vessel of ‘tulip-bowl’ profile (Swan 1999: 456, illus 2, no. 6, cf illus 11, nos 111–13). Swan also mentioned beakers in the same tradition (presumably nos 41 and 50), but without citing any parallels; the type might well have another origin. Up to eight cooking dishes in other fabrics, oxidised and reduced, were also listed by Swan; not all are readily identifiable in the database, and some might have been from the earlier excavations. ‘Some [had] a small flange at the wall/base junction and others ... under-rilling; most were probably local to the Antonine Wall in general.’ In the Croy Hill pottery database, all the dishes described by Swan as of local or more distant origin are grouped in Fabrics 35 and 42, both of which include samples in Gillings’ core group, which is regarded here as local. One dish (13.4, no. 55.1, above) specified by Swan (1999: 465, illus 2, no. 4) as ‘Croy oxidised ware’ is in a fabric different from those that are now recognised as local. This is another illustration of the difficulties that occur in the visual identification of some coarse ware fabrics, but this misattribution by no means detracts from Swan’s more important observation that the North African-style pottery at Croy Hill includes vessels not only made on the spot but also from further afield.

Swan connected pottery in this style with the presence of North African soldiers and potters who had been sent to Scotland in the aftermath of the Mauretanian war (1999). They were thought to have arrived with the return of units sent from Britain to take part in the war. Participation of units from Britain was a conjecture when Swan published her study, but two serving in Mauretania in AD 152 or 153 are named in a diploma that was discovered subsequently (Eck et al 2016).²¹ One is *cohors I Baetasiorum*, which is attested at both Bar Hill (*RIB* I: 2169–70) and Old Kilpatrick (*RIB* I: 3509) on the Antonine Wall; the other, *cohors I Batavorum Marscacorum*, is not known to have been in early Antonine Scotland, but of course there are many forts where there is nothing to identify the units in occupation.

The present writers preferred to see the pottery of North African style as the product of artisans working in that tradition and travelling to Britain, perhaps from Gallia Narbonensis, to exploit new military markets – in effect, a civilian enterprise (Bidwell & Croom 2016b: 180–1). This view was adopted partly because of the lack of any evidence that units had been sent to Mauretania from Britain, and more generally because of the difficulties in linking ceramic styles to ethnic groups. The new diploma supplies the missing evidence for the movements of British units, and in the particular circumstances of *cohors I Baetasiorum*, the presence of one or more potters from Mauretania seems more plausible. Another unit, *cohors I Hamiorum*, is known at Bar Hill (*RIB* I: 2167 and 2172), and it might have been replaced by the *Baetasii* on their return from Mauretania after AD 152 or 153. In the stoking area of the baths at Bar Hill, there was a kiln where pottery of North African style was fired alongside a few Romano-British types (Keppie 1985; for the pottery, see Anderson 1985; Swan 1999: 426–7, 456–7). The kiln seems to have been built during a short period of abandonment, perhaps when there was a change of the units in occupation and after which the baths continued in use.

It is hard to see the likely link between the kiln and a unit that had served in Mauretania as coincidental, but does this mean that all the pottery of North African style on the Antonine Wall resulted from the return of units from Mauretania? Comparisons of the pottery at Bar Hill and Croy Hill are instructive. The kiln products at Bar Hill include types not seen elsewhere on the Antonine Wall (Anderson 1985: fig 14, nos 4–7), where platters with flat bases, sometimes recessed to fit on braziers, are predominant; the Croy Hill platters are of the latter type. Moreover, only three sherds of the kiln fabric have been recovered from the fort beyond the immediate vicinity of the kiln, where there were 900 sherds; indeed, it was suggested that all this material represented a single, failed firing (Anderson 1985: 77; cf Swan 1999: 457). At Croy Hill some of the platters are in the local fabric, while others seem to be from other sources, though not from Bar Hill. An instance of the wide distribution of North African-style pottery from an unknown source is the occurrence of Antonine Wall granular ware, as defined by Swan (1999: 462), with examples at Old

Kilpatrick, Bar Hill and Mumrills. Mortaria were also distributed widely. Croy Hill has a product of Cicu[.], working at Bearsden or possibly Balmuildy (12.3.5, above), and examples of stamped mortaria made by Sarrius at Bearsden are recorded from Balmuildy (3) and Camelon (1) (Hartley 2016: 139).

There is also some evidence for the movement of potters between forts. In the catalogue, it can be seen that some types in local fabrics have parallels at Bar Hill apparently in other fabrics: beakers (above, 13.4, nos 34 and 63), segmental bowls (above 13.4, nos 41 and 50) and a bowl with a reeded rim (above 13.4, no. 52). They are not of North African style nor are they amongst the other coarse ware types common in early Antonine Scotland. These vessels might have been made by a potter working at both sites. The close resemblances of a platter at Old Kilpatrick and some of those at Croy Hill (Swan 1999: 461; cf 13.4, no. 55.1, above) again suggest an itinerant potter or that perhaps there was a wide distribution of Croy Hill products. Some of the Croy Hill vessels also share potting techniques with other pottery made in Scotland, such as Inveresk ware. They are often relatively thick-walled (as Illus 13.3, no. 52) and carelessly finished: the burnishing can be patchy, and there are often drag lines on the exterior where inclusions have been caught when the pot was being wiped.

The picture that is emerging is of a complex system for the supply of coarse wares. Potters were working not only in Romano-British and North African traditions, but also in those of northern Gaul and the Rhineland, as indicated by the form of many of the bowls at Croy Hill and Bar Hill and perhaps by the typology of the Croy Hill mortaria. Some potters were probably itinerant, and local products could be distributed widely. New information probably supports the association of the kiln at Bar Hill with the return of a unit from Mauretania, but this might well be exceptional. A single explanation will probably not do for the presence in Britain of pottery of North African style, and some of it was probably made by immigrant potters working in that tradition, but not from North Africa, who were attracted by new and seemingly lucrative military markets.

13.5.4 The head pot

The shield-shaped sherd from the head pot preserves all of the facial features, although not the complete face; if this was done deliberately it was done with great care, as there is no evidence for the multiple chipping usually seen on deliberately-shaped pottery sherds (Illus 13.5 and 13.6). The sherd was found in the same drainage ditch on the east side of trackway leading down to the bypass road as the face mask (10, above), but at its southern end (LBF 1); both objects were presumably of ritual significance.

In Swan's survey of pottery from the Antonine Wall, the sherd was described as from a 'moulded head pot, possibly ... local' (1999: 456). This opinion explains the omission of the sherd from Swan and Monaghan's earlier survey of head pots of the York type (1993), all of which were modelled by hand rather than formed in a mould. However, in correspondence with the main author of the present volume in 2013, Maggi Darling and Franziska Dövenner doubted whether the pot was mould-made, and close examination of the surviving sherd has now confirmed these doubts. Dövenner also thought it unlikely that the sherd came from a figurine jug or the type of flagon where the face decorates an extension of the rim (a face flagon or *Gesichtskrug*). They were very varied in design and could have quite competently sculpted features, although none as fine as on the Croy Hill fragment (Braithwaite 2007: RB Type 41; cf fig J18, nos 1, 3).

In the 2013 correspondence, Darling compared the size of the Croy Hill vessel to two equally small head pots from York (presumably Swan & Monaghan 1993: fig 1, nos 2–3). The difficulty is that head pots in Britain, all of which were modelled by hand, have until now been thought to have first appeared in the earlier 3rd century (Swan & Monaghan 1993: 24–5; Braithwaite 2007: 440–51). There is not the slightest indication at Croy Hill of occupation extending beyond the early Antonine period, and if the sherd with the face is from a head pot, it would pull back the starting date in Britain of the general type. In retrospect this might have been expected, for the history of head pot production is not well established, most of the examples at York being from poorly dated graves or redeposited rubbish (Monaghan 1997: 914). An exception is one of the small head pots to which Darling was

probably referring. It was found complete together with a triple vase in a grave at the Trentholme Drive cemetery (Gillam 1968: fig 33, nos 9–10); the vase was in what was subsequently identified as white-slipped Ebor ware, production of which had probably ended by AD 200 (Swan & Monaghan 1993: 200; Monaghan 1997: 872). Although old vessels are sometimes included in Roman graves, it is likely that the Trentholme Drive burial was 2nd- rather than 3rd-century in date.

Swan and Monaghan's dating of head pots to the 3rd century also depended on a study of the hairstyles, which they allocated to the period *c* AD 205–25 (1993: 26). These hairstyles are depicted schematically, however, and second-century parallels can be found for some. The hairstyle on the small head pot from Trentholme Drive has a central parting with vertical strands of hair framing the face and is similar to that shown on coins of Faustina the Younger issued in AD 145–61 (such as *RIC* Antoninus Pius no. 495B). Her hair is slightly wavier but has a central parting; it covers her ears and is pulled into a small, circular coiled bun. Another small head pot, from Fishergate in York (Swan & Monaghan 1993: no. 2), has a different hairstyle: a wide raised band with horizontal strands in front of flatter hair at the back of the head and a very low, coiled circular bun. This can be compared to a hairstyle used by Faustina only after AD 161 (eg *RIC* Marcus Aurelius 1663; see Portable Antiquities Scheme SUR-98A12D), with a loose roll of hair with horizontal strands framing her face, and a low circular bun.

Dating simplified representations of hairstyles is not straightforward, and an added complication is that deities and mythical figures might be depicted with hairstyles based on Greek originals that bore no relation to contemporary Roman fashions. Head vases from elsewhere in the Empire, which were generally mould-made rather than hand-modelled like the British head pots, are thought to be connected to the cult of Bacchus or eastern mystery religions (Braithwaite 2007: 454–5). The York head pots were considered by Swan and Monaghan to have portrayed members of the Severan dynasty, mainly the females (1993: 25–8). This direct association cannot of course be made in the case of the Croy Hill vessel, but it is not necessary to see it as a portrayal of a member of the Antonine house. Braithwaite emphasised the cultic origins of the York head pots (2007: 450), while accepting that some were representations of the Severan dynasty, perhaps in the guise of deities that its members favoured. The small head pots discussed above probably represent an earlier stage in the York tradition when the vessels might have had a purely cultic function.

The Croy Hill head pot was probably a York product, as it is the only example of this vessel type known from Antonine Scotland; its fabric is not distinctive. Face pots, which probably served the same purposes as head pots, are commoner. There are examples with coffee-bean eyes in buff and red wares imported from southern England at Camelon and two with pellet eyes in a probably local orange-red fabric from Balmuirdy (Braithwaite 2007: 259, 267, pl J6; fig J8, no. 5; fig J16, nos 6–7).

14. ANALYSIS OF LOCAL COARSE WARE POTTERY

Mark Gillings

14.1 Introduction

The analysis of the suggested Croy Hill local ware was carried out using a combination of chemical analysis (in this case Neutron Activation Analysis) and petrography, and was structured around an initial intra-site study followed by a broader inter-site analysis. The former sought to test the veracity of the local groupings that had been defined on the basis of visual, macroscopic analysis, in effect testing the initial assumption that a coherent ware group existed in the first place. The latter examined the extent of chemical and petrological overlap between the Croy Hill local ware and similar groups from the sites of Bar Hill, Bearsden, Cramond, Duntocher and Inveresk (see Gillings 1990). In practice a total of 15 thin sections and 19 NAA samples were taken from the suggested local coarse ware fabrics originally defined by Hird, alongside possible local mortaria identified by Hartley.

14.2 The analytical results – intra-site analysis

Chemical analysis of the group of 15 sherds of suggested local coarse ware revealed little in the way of overall chemical homogeneity; while a single chemically distinct group of eight sherds could be identified it was accompanied by seven samples displaying very different elemental compositions from this main group and one another (Table 14.1). Petrologically the sherds analysed could be seen to split into five fabric groupings defined principally upon changes in the quartz fraction (ie the sand to silt ratio), this being the most abundant mineral inclusion present in the sections.

Fabric 1: Sand-grade Quartz (S9, S10, S13, S14)

Fabric 1a: Less Coarse/Medium Sand (S6)

Fabric 1b: Medium Sand (S2)

Fabric 2: Fine Sand/Silty Fabric (S5, S15)

Fabric 2a: Less Coarse/Medium Sand (S1)

Fabric 3: Very Sandy/Silty Fabric (S4,11)

Fabric 3a: More Medium Sand (S3)

Fabric 4: Low-Quartz Fabric (S7, S8)

Fabric 5: Shale-free Silty Fabric (S12)

This reliance upon the frequency and character of the quartz fraction is a direct result of the paucity of any more diagnostic or exotic mineral inclusions present in the samples, with the notable exception of shale. Shale inclusions are common in all of the fabric groups with the exception of Fabrics 1b and 5, which comprise a single sherd each. Although sandstone and chert are also present, they seldom appear at more than the rare to occasional occurrence level in any given sherd and therefore their absence in an otherwise identical sherd may simply be down to sampling rather than true mineral composition.

The fabric can thus be characterised as shale-rich with a varying quartz fraction. The absence of shale in Fabrics 1b and 5 suggests strongly that these samples derive from a different clay source to the remaining fabric groupings. Looking in more detail at the quartz fraction, the ware samples can be split into two broad groups on the basis of the silt content, with Fabrics 2 and 3 containing abundant fine sand/silt, and Fabrics 1 and 4 a low silt content. This difference is interesting insofar as it is unlikely that silt-grade quartz would have been added as a deliberate temper, nor is silt easily removed from clay through sieving and levigation. We could be seeing evidence here for the exploitation of two distinct clay sources or, given the common shale characteristic, two inhomogeneous outcrops from the same basic clay source.

To investigate the quartz fraction further, a grain size distributional (ie textural) analysis was undertaken on the sections. In practice, a minimum of 150 grains were randomly selected and their maximum diameters recorded using a Kontron MOP Videoplan semi-automatic Image Analysis system, to generate a set of data known as the Grain Size Distribution (GSD). The modality and overall shape of the resultant GSD can not only indicate whether the quartz is natural as opposed to added as a temper, but the size frequency data can be transformed through the Logratic transformation proposed by Aitchison (1986) and analysed through complex multivariate statistical techniques in the same way as the chemical data (for details see Gillings 1990). This enables subtle differences in the quartz fraction to be identified, which can then be related to such factors as specialist production (linked to form-functional considerations) and/or between batch or seasonal variations.

The GSD was plotted for each of the Croy Hill sherds with none of the resultant curves revealing evidence of the bimodal distribution form that might have been expected if sand had been added as a deliberate temper (Rye 1981: 52). Instead there was a notable skew towards the fine sand/silt grades which could be indicative of some form of clay preparation (with the removal of the majority of the coarser grades) or deliberate potter preference for fine quartz clays. The question of whether the shale could have been added as a temper is answered by the roundness of the observed grains and their broad size range, with maximum diameters not exceeding 1mm. Together these suggest strongly that the shale is natural to the source clay. The statistical analysis of the Aitchison-transformed frequency data identified three groupings on the basis of quartz GSD (main, X and Y in Table 14.1), though it is interesting to note that this showed no agreement or correlation with either the chemical or petrological groupings.

14.3 Discussion

The table of combined results (Table 14.1) summarises the complex nature of the site material analysed. It is clear that there are samples showing unique chemical, petrological and textural features (eg S2 and S12 – the shale-free fabrics). Alongside these outliers we have sherds that are both chemically and petrologically distinct (eg S3) and others displaying only petrological idiosyncrasies (eg S1 and S6). In an attempt to interpret these results the samples were compared to the original fabric classifications (see Table 14.1). Given the broad, shale-rich character of the petrological fabrics, the groupings below have been established on the basis of the chemical data. In each case the ‘F’ number designates the original macroscopic fabric code and ‘Misc’ attributed to sherds that had originally been labelled only as Miscellaneous ?Local:

Core group: (Misc, F6ii, F7, F23, F23, F23, F35, F42)

Outlying samples: (Misc, Misc, Misc, F6i, F35, F35, F42)

On the basis of this we can make the following refinements to the original assumption of three distinct coarse ware fabrics originating from a single local production site. First, the samples analysed do not form a single, homogeneous ware

group chemically, although petrologically there are broad similarities between the main fabric groups, principally due to an abundance of shale. Second, the samples do not respect the three identified fabric classifications originally established by Hird either chemically or petrologically.

What we have is a very mixed picture which serves to stress the complex nature of the data set; this is a problem that is further compounded by the small sample size, a reflection in turn of batch-size constraints imposed upon the chemical analysis element of the overall research programme.

Looking again at the quartz fraction, the textural changes could represent deliberate modifications to the basic source clay through: preparation; careful selection of specific clays for different purposes; casual, *ad hoc* or opportunist exploitation of whatever happened to be close to hand. Looking to vessel form, the clear outlier S2 and S12 correspond to a curved-wall platter (Type 55) and lid fragment respectively. The platter form in particular is interesting as this has been regarded as one of the most distinctively ‘local’ of suggested Scottish forms. Of the remaining chemically defined outliers the samples correspond to a segmental bowl (S7), upright-rimmed jar (3), large dish (10), plain jar (11) and a mortarium (13). Looking to the largest of the chemical groupings, the imitation samian vessel (1) along with an everted-rim beaker (6) and a platter (9) were marked by a subtle textural variation (textural group Y), and we might speculate as to whether this signature reflects the attempts of a potter to modify the clay mix so as to be better able to mimic mould-made forms with high surface detail. Crude samian imitation seems to be a notable feature of the local production at the sites of Bearsden and Inveresk with examples also being found at Cramond. The flat-rimmed bowls (S4 and S8) and the mortarium sample (S14) are of particular interest as they display texturally distinctive quartz fractions (textural group X) which suggests some form of modified production, though it should be countered that other samples of mortaria (eg S15) show no such modification despite mortaria production generally being assumed to have been a specialised branch of pot manufacture. Taking these results together we can propose two possible scenarios. The first sees a mortaria manufacturer diversifying the product range, hence the similarities

Table 14.1 Coarse ware pottery analysis: combined results

Sample code	Site context	Fabric code	Type code	Form	Chemical grouping	Petrological group	Textural group
1	LAA/LBT trackway ditch, <i>vicus</i>	F35	54	imitation samian (Drag 18)	main	2a	Y
2	LBR 2 trackway ditch, <i>vicus</i>	F35	55	Belgic platter	outlier	1b	X
3	LAH 4 trackway ditch, <i>vicus</i>	F35	48	upright-rimmed jar	outlier	3a	main
4	LBB 1 trackway ditch, <i>vicus</i>	F23	42	flat-rimmed bowl	main	3	X
5	LBL 1 trackway ditch, <i>vicus</i>	F23	40	in-turned rim jar	main	2	main
6	LAL 1 early linear gully, <i>vicus</i>	F23	41	everted-rim beaker	main	1a	Y
7	LAH 1 trackway ditch, <i>vicus</i>	F42	63	segmented bowl (Gillam 294)	outlier	4	X
8	QAA topsoil over fortlet	F42	64	flat-rimmed bowl with groove	main	4	X
9	LBL 1 trackway ditch, <i>vicus</i>	misc ?local	misc	platter	main	1	Y
10	QAA topsoil over fortlet	misc ?local	misc	large dish	outlier	1	main
11	LCQ trackway ditch, <i>vicus</i>	misc ?local	misc	plain jar	outlier	3	main
12	LBL 1 trackway ditch, <i>vicus</i>	misc ?local	misc	lid	outlier	5	X
13	BBB topsoil over pre-fort enclosure	F6i		mortarium	outlier	1	main
14	LBK 5 trackway ditch, <i>vicus</i>	F6ii		mortarium	main	1	X
15	L unstratified, Area L	F7		mortarium	main	2	main

between the mortarium and coarse ware fabric mix. The second scenario (and most plausible in light of the analytical results) is of potters aiming to provide the broadest possible spectrum of ceramic types – from mortaria through to fine ware copies with everything in between.

14.4 Were the samples locally produced?

In any provenance-based study, a comparative set of source material (eg kiln waste or an exhaustive set of clay samples) is required in order to ascertain the degree of similarity with the material under analysis. In the case of Croy Hill this was not available and as a result the decision was taken to use proxy material – in the form of a group of 12 excavated daub samples – on the assumption that they would be indicative of the kinds of clay being routinely exploited. The underlying assumption was that the daub is unlikely to have been imported over any considerable distance and thus is likely to be chemically and petrologically representative of the local clays exploited in antiquity. Further, the strength of using the daub in this way lies with the fact we know it came from a clay source that was exploited by the inhabitants of the fort and that had suffered the same groundwater post-depositional effects (at the macro or site level) as the pot sherds themselves. These effects are often ignored in raw clay analyses, though their importance in such work has long been known (Freeth 1967: 109–13).

In petrographic terms, the range of daub and pottery inclusions was essentially the same, with the exception of coarse angular fragments of rock in the former which appear to have been deliberately added to the material, and mica, which although moderately common in the pottery is often absent in the daubs. Chemically the daub samples split into two distinct groups, a low-sodium group comprising the samples without rock inclusions and a high-sodium group of samples with abundant rock inclusions. This could be the result of the exploitation of a single very inhomogeneous clay source, or could suggest that a number of clay sources around the site were being exploited. Looking with respect to the pottery, the low-sodium sample group fell neatly within the concentration range of the core group of pottery samples and would therefore support the assumption that the pottery was manufactured from

the same or a very similar clay to this daub and is, therefore, local to the site. However, it should be noted that, due to the loss of a batch of NAA samples during a reactor run, only six samples of daub were analysed; a very small sample.

14.5 Summary of intra-site analysis

To conclude the intra-site study, we have no evidence for a clearly defined, homogeneous ware group. With the exception of two samples, the petrological results reveal a shale-rich fabric with a varying quartz fraction that could be taken to represent the exploitation of different portions of a single source or series of closely related clay outcrops. This is not reflected in the chemical result set where there are a large number of discrete chemical outliers to the main group of samples, suggesting very different clays. This apparent disparity could be interpreted in terms of the exploitation of a single, chemically inhomogeneous clay outcrop, or a group of related outcrops. Only a programme of extensive clay sampling and analysis will shed light on this problem.

In textural terms the analysis revealed subtle levels of variation which are best interpreted as resulting from batch differences as opposed to deliberate (ie conscious) modifications. In saying this, there are hints of possible modifications in the manufacturing process in the case of the imitation samian, the flat-rimmed bowl and one mortarium, but the low number of samples makes any interpretation speculative at best. That the core chemical group and one of the daub groups showed strong levels of overlap can be argued to support the assumption that at least some of the material was made from locally occurring clays. However, to allow reliable conclusions to be drawn concerning the local (or otherwise) character of the coarse ware far more targeted analytical work is needed.

14.6 Inter-site analysis

In petrological terms, with the notable exceptions of Croy Hill with its characteristic shale inclusions and Bar Hill with its clay pellets, there was little in the way of diagnostic mineral inclusions to set the ware groups apart. In each case the range of mineral inclusions overlapped considerably between

the sites analysed. A textural analysis undertaken on the quartz fractions of the entire assemblage of site samples identified two main groups. The first comprised Bearsden and Cramond, the second Duntocher, Croy Hill and Inveresk, with samples from the site of Bar Hill spread evenly between them. There is clearly no single well-defined site grouping on the basis of the quartz GSD alone, though this is perhaps not surprising in that none of the site ware distributions showed any evidence for quartz having been added as a deliberate temper. This suggests that what we are seeing is the natural (or preparation-modified natural) quartz fraction of the source clays which should not perhaps be expected to show marked difference across the relatively tightly defined Wall zone.

Chemically the sites once again showed little evidence for autonomy, although Croy Hill and Duntocher were clearly defined with respect to the other site groups and each other. The Bearsden and Bar Hill samples were chemically indistinguishable, as were the Inveresk and Cramond samples. In the case of the Bearsden and Bar Hill material, the noted variations in the petrology (ie presence of clay pellets at Bar Hill) suggest that this should not be taken to indicate shared manufacture, reflecting instead the very homogeneous nature of much of the clay that appears to have been exploited across the Wall zone. The latter is a phenomenon that is argued by the generally homogeneous nature of the petrological result sets. This is in contrast to the Inveresk and Cramond situation, where strong chemical and petrographic overlap does support the argument for a shared manufacturing source. One last stage of the analysis was to look at the Croy Hill chemical outliers to see whether they could

be attributed to one of the other potential Scottish sources. The samples were treated as unknowns and were compared to all of the site wares through a Discriminant analysis procedure to see whether they showed a high probability of membership of any of the defined groupings, and thus evidence for a possible Scottish production source. The resulting probabilities were very low, suggesting that the sherds derived from an as yet undefined source.

14.7 Conclusions

The evidence for a distinct, locally produced coarse ware fabric is equivocal. There is no distinctive fabric, either chemically or petrologically, to support the visual sense that we are dealing with a single ware group. This may not be surprising if we are dealing essentially with piecemeal, *ad hoc* production dictated by lulls in the supply, unexpected short-term requirements or some combination of the two factors, that may well have involved different individuals at different times drawing upon different raw materials and traditions of making. Although some samples overlapped chemically with the local clay proxy data – supporting the assumption of local production – the number of samples was very small and a much larger programme of chemical analysis is needed.

In conclusion the analysis has shown that the samples comprising the ware group, while being petrologically homogeneous, are chemically very spread, and do not respect the initial visually assigned fabric classification. Approximately half of the samples formed a core group that was chemically and petrologically distinct from the wares produced at other sites in the Wall zone and identical to a small sample of daub fragments from the site.

15. THE ROMAN GLASS

Sally Cottam and Jennifer Price

15.1 Introduction

Although over 120 fragments and chips of glass were found, the actual number of vessels represented is small. The colourless tablewares in particular (nos 1–5), were shattered into tiny pieces, many of which joined together. Most of the glass came from the *vicus* (Areas L and R), and only 10 fragments came from other areas of the excavation (C – the bypass road/pre-fort enclosure; D and H – the land divisions; Q – the fortlet). Nearly all the fragments came from drainage ditches or topsoil and their final place of deposition may, therefore, have been at some distance from the area where the vessels were used.

All the recognised forms are consistent with 2nd-century occupation. There were at least two colourless cups, three blue/green jugs or flasks and five bottles. Seventeen fragments of window glass came from at least three panes. Four objects were found: a fragment of bangle, two glass counters and a bead.

15.2 Vessel glass

Nos 1–3, all from the *vicus* (Area L), are very similar in colour, diameter and decoration and may come from the same vessel, though no cross-joins between the groups were found. No. 1 has a curved rim with a cracked-off edge that has been carefully ground. The vessel has at least four pairs of horizontal wheel-cut lines: one pair at the rim, two on the upper body and another pair on the lower body. The upper body is straight, and the full vessel could have been cylindrical with a flat base (Price & Cottam 1998: 94–5). The form is known from a number of 2nd-century sites, including Antonine-period forts in Scotland at Castlecary (Charlesworth 1959: fig 7, no. 6) and Camelon (Price & Cottam forthcoming). Among recent finds, a closely-dated cylindrical wheel-cut cup came from a cremation burial containing samian dated to *c.* AD 125–45 at Elms Farm, Heybridge in Cambridgeshire (Compton et al 2015: no. 14, figs 420 and 428). Alternatively, there may have been a change of angle on the body, which may have tapered into an

applied foot. This biconical form is generally well documented in mid-2nd-century assemblages (Price & Cottam 1998: 91–2, fig 32a), though it has not often been identified in Scotland. Fragments from the body and applied base of one or two cups from Inveresk may be of this biconical form (Allen 2004: 168, nos 6–7, fig 115).

No. 4 is another colourless cup with horizontal wheel cutting. The rim is missing, but it is likely to have been cracked off and ground like no. 1. It too has a cylindrical body, though the wall is thinner than nos 1–3. There is a rounded change of angle on the lower body, suggesting that this was a cylindrical cup, but no further information about the lower body and base. No. 5, a collection of very small shattered fragments, can be identified as coming from the flat base of a colourless vessel, very possibly a cylindrical wheel-cut cup. Other 2nd-century colourless vessels also have similar flat bases, such as cylindrical bottles (Price & Cottam 1998: 202–4).

Whatever the exact shape of nos 1–4, they belong to a group of colourless cups and beakers which are generally well made and carefully decorated with precise horizontal wheel cutting. They are among the most popular good-quality drinking vessels of the early–mid-2nd century and are widely found in Britain and elsewhere in the Empire.

Evidence for cylindrical necks on the three blue/green fragments (nos 6–8) shows that they are all from serving vessels or containers. The neck diameter of no. 6 suggests a relatively large vessel such as a jug or flask. No. 7, which has a conical body, and no. 8, which is more convex, might come from one of many varieties of small jug, flask or unguent bottle current in the 2nd century (see for example Price & Cottam 1998: 155–61, 175–7).

The majority of the vessel glass fragments come from blue/green bottles. There are at least five bottles, two of which are very thin-walled. All the body fragments are from mould-blown prismatic bottles. At least one bottle is certainly square and the other four are very likely to be a similar shape.

Glass bottles are frequently found on 1st- and 2nd-century sites, but are particularly common on military sites, sometimes forming, as here, 50% or more of the vessel glass assemblage. Square bottles were always the most common form and they were produced in a range of sizes (Price & Cottam 1998:

194–8). Hexagonal bottles are occasionally noted in Antonine contexts, as at Bearsden (Price 2016: 189–90, no. 6), Falkirk (Keppie & Breeze 1981: 236), Camelon (Price & Cottam forthcoming: no. 63a) and Strageath (Price 1989; 199–200, no. 23), and a rectangular bottle came from Bearsden (Price 2016: 190–1, no. 7).

The folded rim (no. 9) is common to all bottle forms. Square and other prismatic bottles were blown into a mould which almost always had a design on the base. This then appeared in relief on the underside of the vessel. No. 10 shows part of a raised circle on the base, circles being the most common base design on mould-blown bottles.

15.3 Window glass

The 17 fragments of window glass fall into three groups, based on thickness and colour, and might come from just three panes, although the blue/green fragments were spread across four widely separated areas (C, D, L and Q), suggesting that they have probably come from several panes. All the fragments had one matt and one glossy side, typical of 2nd-century panes, and three had rounded edges. This combination of features suggests that during manufacture, one side of the pane had contact with a flat surface while the edges were manipulated into a square or rectangle, a theory supported by modern experiments (Taylor 2003). Window glass has been found at several forts on the Antonine Wall. Small quantities came from the neighbouring forts of Westerwood (Keppie 1995: 95) and Bar Hill (Robertson et al 1975: 118, nos 1–3), and other Antonine-period finds are noted in connection with the window glass found at Bearsden (Price 2016: 188–9).

15.4 Objects of glass

No. 11 is part of a narrow bangle made in pale blue/green glass and decorated with at least one narrow opaque white trail across the outside surface. Glass bangles are found on 1st- and 2nd-century sites on both Roman and non-Roman sites in Britain, and are most common in Scotland and northern England (Kilbride-Jones 1938; Stevenson 1956; 1976; Price 1988). They are usually described as bangles, although the function of these objects

is puzzling, as the internal diameters (as on this example) are often small, such that the object could only have been worn as a bangle by adults with very small hands or by children. Their use as hair accessories or horse ornaments has sometimes been proposed (Ivleva 2018: 3–4). Only very rarely do complete bangles survive, and most are recorded as small fragments.

Glass bangles are usually divided into groups based on style, colour and decoration, following the system devised by Kilbride-Jones (1938). Under this classification, no. 11 falls into group 3F, a natural blue/green bangle with an opaque white curved trail. Its discovery in the *vicus* of an Antonine-period fort provides further evidence that some bangles continued in circulation into the mid-2nd century, whether under their initial function, or as broken pieces, perhaps used as counters. No. 11 is scratched and worn on the inside surface, suggesting it was still in use after breakage. Fragments of other 3F bangles have been found on the Antonine Wall at Rough Castle (Charlesworth 1980: 269, 277) and Castlecary (Kilbride-Jones 1938: 386, fig 8, no. 3)

Two small glass counters were found, one opaque white (no. 12) and one in a very dark glass (perhaps dark yellow/brown) that appears black (no. 13). Glass counters are usually either black or white, though sometimes other monochrome colours occur, and rarely polychrome examples. Glass counters are frequently found on 1st-century and 2nd-century sites, mostly in small numbers but occasionally in larger sets. They are common on 1st-century sites in Scotland, such as Newstead (Curle 1911: 338–9) and Elginhaugh (Price & Worrell 2007: nos 95–101), and, though less frequent on Antonine-period sites, have been found elsewhere on the Antonine Wall at Bar Hill (Robertson et al 1975: 120, nos 22–3). The playing of games seems to have been a regular pastime for soldiers, though these objects may also have been used for tallying accounts. A fragment of stone with part of an incised grid found at Bearsden and now in the Hunterian Museum, Glasgow, has been interpreted as a board perhaps for the game *ludus latrunculi* (Keppie 2016: 93–4). A fragment of a possible gaming board was also found at Croy Hill, recovered from topsoil above the southern rampart of the fort (9.1.1, S18, above).

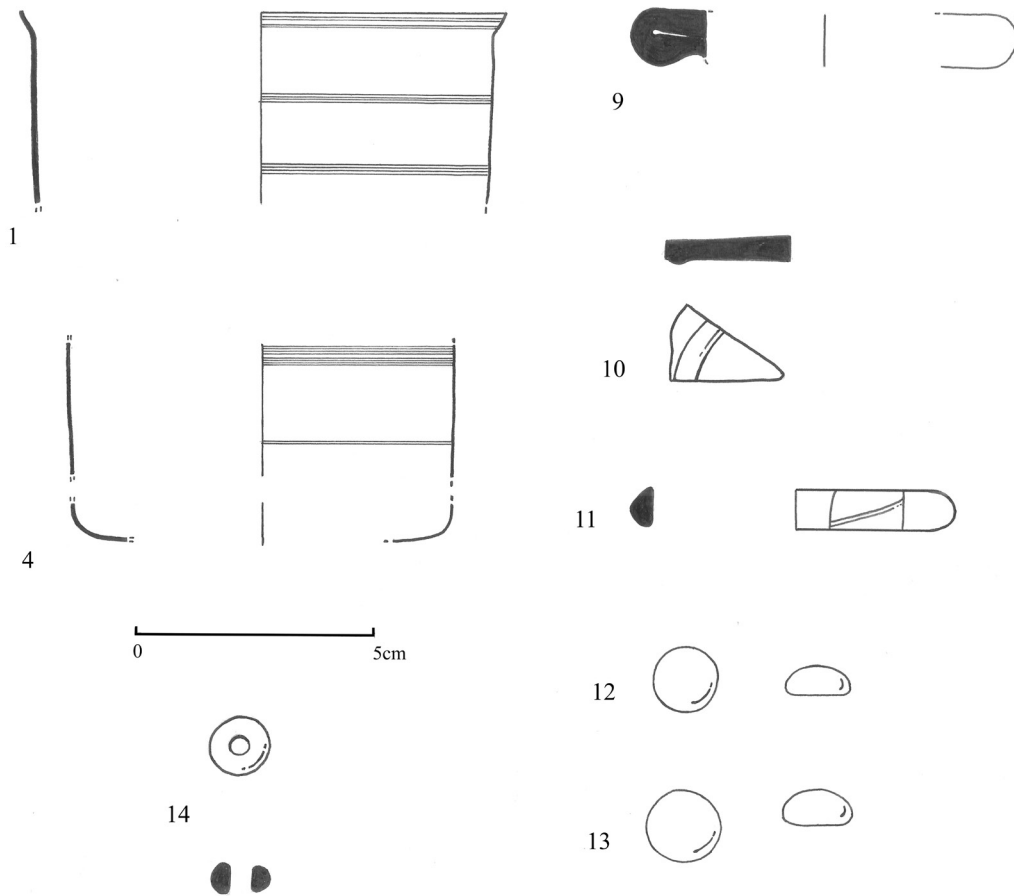
15.5 General comments

This collection shows that glass was being used for a variety of functions at Croy Hill, including drinking, serving, storage and recreation. Most of the items are small body fragments and there are no large pieces from the more substantial parts of the vessels, such as rims, handles and bases, suggesting perhaps that broken glass was collected for recycling. The surviving parts of the colourless cups are shattered into tiny pieces, a condition that sometimes affects good-quality colourless glasses post deposition (Huisman et al 2008).

With its small number of vessels and limited range of forms, the Croy Hill assemblage is close in character to that of other Antonine Wall sites. There are particularly striking similarities with the assemblage from Bearsden, which also had two colourless cups, three blue/green serving vessels

and several blue/green bottles. The lack of variety in the glass from the Antonine Wall contrasts markedly with assemblages from Flavian sites in Scotland, such as Newstead and Elginhaugh, where a much wider range of tableware occurs. Possible explanations, including difficulties of supply and changing preferences in drinking vessels, were suggested in connection with the Bearsden glass (Price 2016: 185–6).

In his description of the glass recovered during the 1931 excavation season in the north-east corner of the fort, Sir George Macdonald noted the occurrence of a melted bottle rim and concluded that glassmakers may have worked at Croy Hill (1932: 267). This interpretation of the fragment was disputed by Charlesworth (1959: 34), who believed the piece had simply been subjected to heat. This current assemblage provides no evidence for glassmaking at Croy Hill.



Illus 15.1 Glass. Drawn by Sally Cottam

15.6 Catalogue

Abbreviations

Dims: Dimensions; PH: Present height; RD: Rim diameter

15.6.1 Tablewares

15.6.1.1 Colourless

► 1. LBD 6: LBL 1: drainage ditches on both sides of trackway, *vicus* (Illus 15.1)

17 small fragments + 7 chips, 12 joining in two groups, rim and body, cylindrical cup/beaker. Rim edge cracked off and ground. Straight side. Two close-set horizontal wheel-cut lines at rim. Two pairs of horizontal wheel-cut lines on upper body. Further pair of horizontal wheel-cut lines on lower body fragment (not illustrated).

PH: 40mm, RD: *c* 100mm, Th: 1mm

► 2. LCQ 4: recut drainage ditch, west side of trackway, *vicus*

10 fragments, 9 joining in two groups, body, ?cup/beaker. Straight side. Two close-set horizontal wheel-cut lines, at least one further horizontal wheel-cut line.

Dims: 29 × 16mm, Th: 1mm, Diam: *c* 100mm

► 3. LCQ 3: recut drainage ditch, west side of trackway, *vicus*

Body fragment, ?cup/beaker. Straight side. At least two close-set horizontal wheel-cut lines.

Dims: 20.5mm × 10.5mm, Th: 1mm, Diam: 100mm

► 4. LBB 1: drainage ditch, east side of trackway, *vicus* (Illus 15.1)

10 fragments, body, cup/beaker, straight-sided, thin-walled body, rounded change of angle to horizontal lower body/base. Narrow horizontal wheel-cut line on lower body, four close-set wheel-cut lines above.

PH: 27mm, Diam: *c* 80mm, Th: 0.5mm

► 5. LBF 1: drainage ditch, east side of trackway, *vicus*

30+ small fragments and chips, 4 joining in two groups, body and base, ?cylindrical vessel. Straight side. Flat base.

Dims (largest base fragments): 17mm × 12.5mm, Th: 1.5mm (body), 2.5mm (base)

15.6.1.2 Blue/green

► 6. LBK 1: recut drainage ditch, west side of trackway, *vicus*

Cylindrical neck fragment, jug/flask. Trace of change of angle to upper body.

PH: 9mm, Diam: 30mm, Th: 3mm

► 7. LBL 3: drainage ditch, east side of trackway, *vicus*

Upper body fragment, jug/flask/unguent bottle. Trace of neck, conical body expanding out.

PH: *c* 10mm, Th: 1.5mm

► 8. QAT 1: fortlet rampart

Upper body fragment, thin-walled jug/flask/unguent bottle. Trace of neck, slightly convex expanding out. Bubbly.

Dims: 30mm × 18mm, Th: 0.5mm

Colourless and blue/green chips are listed in Table 15.1

15.6.1.3 Blue/green bottles

► 9. LDB 1: drainage ditch, west side of trackway, *vicus* (Illus 15.1)

Rim fragment, bottle. Rim edge bent out, up, in and flattened. Trace of neck.

PH: 11mm, RD: 80mm

► 10. LAK 1: drainage ditch, east side of trackway, *vicus* (Illus 15.1)

Base fragment, prismatic bottle. Flat base. Part of raised base design of circle. Outer edge of moulded circle slightly irregular.

Dims: 27mm × 15mm, Diam of circle: *c* 70mm, Th: 3.5–5.5mm

Other body and base fragments are listed in Table 15.2. There were a minimum of 5 bottles represented in the assemblage.

15.6.2 Glass objects

► 11. RAC: gully/fence line, *vicus* (Illus 15.1)

Fragment, pale blue/green bangle. Plano-convex section. Narrow opaque white trail flush with upper surface, crossing apex diagonally. Narrow elongated bubbles. Inside surface scratched and worn.

Internal diam: *c* 60mm, Height: 4mm, W: 8mm

Table 15.1 Colourless and blue/green chips by context

Context	Context descriptor	Colour	No. of chips	Comment
LAK 4	drainage ditch, east side of trackway, <i>vicus</i>	colourless	1	
LBB 1	drainage ditch, east side of trackway, <i>vicus</i>	colourless	1	tiny body fragment, change of angle
LBD 1	drainage ditch, west side of trackway, <i>vicus</i>	colourless	many	including fragment with change of angle
LBK 1	recut drainage ditch, west side of trackway, <i>vicus</i>	colourless	4	
LBK 4	recut drainage ditch, west side of trackway, <i>vicus</i>	colourless	1	
LBL 1	drainage ditch, east side of trackway, <i>vicus</i>	colourless	1	
LCT 1	drainage ditch, west side of trackway, <i>vicus</i>	colourless	many	
LAK 1	drainage ditch, east side of trackway, <i>vicus</i>	blue/green	1	

Table 15.2 Body and base fragments of blue/green bottles

Context	Context descriptor	No. of fragments	Colour	Comment
DBL	spread of occupation/midden material north of land divisions, Area D	1	blue/green	square bottle, trace of corner
CCT 1	bypass road ditch east of pre-fort enclosure	2	pale blue/green	shoulder and edge of upper body
LCQ 6	recut drainage ditch, west side of trackway, <i>vicus</i>	1	blue/green	flat
HAR 12	lower fill of large pit within land divisions, Area H	1	blue/green	flat
LBD 1	drainage ditch, west side of trackway, <i>vicus</i>	1+ chip	blue/green	flat
LAK 1	drainage ditch, east side of trackway, <i>vicus</i>	1	blue/green	flat, thin-walled
LAK 3	drainage ditch, east side of trackway, <i>vicus</i>	1	blue/green	flat, thin-walled
LBB 1	drainage ditch, east side of trackway, <i>vicus</i>	2	blue/green	flat, thin-walled
RBT	northern bypass road drainage ditch	4	blue/green	flat, thin-walled
LBL 1	drainage ditch, east side of trackway, <i>vicus</i>	1	blue/green	base, prismatic bottle, trace of edge of raised design

► **12. DBL: spread of occupation/midden material north of land divisions, Area D (Illus 15.1)**

Complete almost circular plano-convex counter. Opaque white. Smooth upper surface. Flat, uneven lower surface.

Diam: 13.5–14mm, Height: 6mm

► **13. LBN 1: recut drainage ditch, west side of trackway, vicus (Illus 15.1)**

Complete almost circular plano-convex counter. Dark (?yellow/brown), appearing black. Pitted

upper surface. Flat, uneven lower surface, slightly worn.

Diam: 15–16mm, Height: 7.5mm

► **14: LAA topsoil, vicus (Illus 15.1)**

Small, globular bead of translucent yellow glass. This is not a type which appears in Guido’s catalogue (1978) and may be of later date.

Diam: 12mm, Th: 7mm, Diam of hole: 3mm

15.6.3 Window glass

See Table 15.3.

Table 15.3 Window glass by colour and context

Context	Context descriptor	No. of fragments	Colour	Comments
CAC 1	drainage ditch, north side of bypass road	1	blue/green	
DDM	post hole W of the main land division	1	blue/green	
LAA	topsoil, Area L, <i>vicus</i>	2	blue/green	
LBD 1	drainage ditch, west side of trackway, <i>vicus</i>	1	blue/green	
LBD 6	drainage ditch, west side of trackway, <i>vicus</i>	1	blue/green	
LBK 1	recut drainage ditch, west side of trackway, <i>vicus</i>	1	blue/green	
LBO 1	drainage ditch, west side of trackway, <i>vicus</i>	1	blue/green	
LBT	drainage ditch, east side of trackway, <i>vicus</i>	1	blue/green	
LCQ 1	drainage ditch, west side of trackway, <i>vicus</i>	1	blue/green	
LCQ 3	drainage ditch, west side of trackway, <i>vicus</i>	1	blue/green	
QAO	topsoil, fortlet	1	blue/green	
LBS 1	drainage ditch, west side of trackway, <i>vicus</i>	1	pale blue/green	edge
LBS 1	drainage ditch, west side of trackway, <i>vicus</i>	3	pale green	including edge
LBN 1	recut drainage ditch, west side of trackway, <i>vicus</i>	1	pale green	

16. THE PREHISTORIC POTTERY

Ann MacSween

16.1 Beakers

Within the Croy assemblage are four²² sherds which are probably from beakers (see 16.3, below). All are decorated with horizontal lines of twisted cord impressions or cord impressions (Illus 16.1).

The accepted date for most British beakers, established through the British Museum's radiocarbon dating project in the 1980s, is *c* 2500 to 1700 BC (Kinnes et al 1991). It seems that after a short phase when beakers were introduced into Britain, there was considerable overlap in the use of the various types of beakers (Case 1995; Boast 1995). Needham's review of beaker typology concluded that early beakers from around 2500 BC to 2250 BC are the product of a degree of interaction

between a western Maritime Bell Beaker tradition and an eastern Corded Ware tradition that resulted in low-carinated vessels with horizontal decoration either in impressed cord or comb-stamp (2005: 182–3). While the sherds from Croy are small, their decoration indicates that they date to this early phase.

16.2 Cordoned urn

One of the sherds from Croy (LDL 1) is possibly from a cordoned urn (Illus 16.2). Cordoned urns are often found accompanying cremated remains. They date from between 1900 BC and 1400/1300 BC (Sheridan 2003: 213). Collared urns and cordoned urns overlap in date range and at some sites, for example Skilmafilly in Aberdeenshire (Johnson & Cameron 2012), seem to have been made and used at the same time, and were probably made from



Illus 16.1 Beaker sherds



Illus 16.2 Sherd of cordoned urn

the same clay deposits. It has been suggested that cordoned urns may have been a regional response to the spread of collared urns (Sheridan 2003).

16.3 Later prehistoric pottery

Two sherds of probable late prehistoric domestic pottery (RAC) were recovered. They are undecorated and include a rim with an exterior bevel, probably from a straight-sided vessel (Illus 16.3). The context (RAC), a shallow Roman drainage gully cutting across/partly following the line of the palisade

trench of an oval palisaded enclosure, is consistent with this interpretation.

16.4 Catalogue

► **LDL 1 Narrow linear gully/fence line – vicus**
Body sherd with a cordon and traces of a possible further cordon below (Illus 16.2). The exterior surface is smoothed and textured/decorated above the cordon with shallow oblique incised lines. The fabric is fine clay with *c* 80% of angular rock fragments that has fired hard and is grey with red margins.

Th 14mm, Wt 35g

► **BBB Unstratified – west side of pre-fort enclosure**

Sherd from the neck of a beaker (Illus 16.1, 4). The exterior surface is smoothed and burnished and decorated with parallel lines of twisted cord impressions with *c* 2mm between each. The fabric is fine sandy clay with *c* 10% of small rock fragments that has fired hard and is black with red margins.

Th 4mm, Wt 5g

► **EAA Unstratified – southernmost area of land divisions**

Sherd from a probable beaker (now broken in two) (Illus 16.1, 3). The exterior surface is smoothed and decorated with two lines of impressed comb



Illus 16.3 Rim sherd of later prehistoric pottery from RAC: left: exterior surface; right: interior surface

decoration 2mm apart, below which there is an undecorated zone. The fabric is fine sandy clay with *c* 10% of small rock fragments that has fired hard and is red.

Th 6mm, Wt 5g

► **RAA Unstratified – vicus area**

Sherd from a probable beaker (Illus 16.1, 2). Both sides are abraded but there are traces of impressed comb decoration. The fabric is fine clay with finely crushed rock fragments that has fired hard and is red with a grey core.

Th 9m, Wt 3g

► **RBO Shallow pit or stone hole adjacent to palisade trench**

Sherd from a beaker (Illus 16.1, 1). The exterior

surface is slipped and decorated with fine comb impressions – from bottom to top – horizontal lines, oblique lines, horizontal lines, oblique lines in the opposite direction to previous.

Th 7mm, Wt 4g

► **RAC gully/fence line cutting through palisade trench RAB**

One rim and one body sherd, probably from the same vessel. The rim has a slight exterior bevel (Illus 16.3). The profile of the sherd suggests a straight-sided vessel. The exterior surface is smoothed. The fabric is fine clay with *c* 60% black shiny and light grey rock fragments which has fired hard and is red/brown with brown surfaces. Sooting on both surfaces.

Th 10–12mm, Wt 43g

17. THE LITHIC ASSEMBLAGE

Dene Wright

The lithic assemblage from the excavations at Croy Hill comprises 19 pieces of chipped stone.

17.1 Methodology

The methodology, type and attribute terminologies employed for the analysis of the lithics from Croy Hill follows the format devised and adopted for the *Southern Hebrides Mesolithic Project* (Finlayson et al 1996; 2000). References to specific artefacts below refer to the catalogue numbers in Table 17.1.

17.2 Raw materials

Flint dominates the assemblage: 15 lithics representing 78.95%. The other raw materials present are chert (15.79%) and tuff (5.26%).

There are no known flint sources at Croy. The nearest sources of drift flint are recorded at Kilwinning in Ayrshire, Wormit in Fife and Lammerlaw in Berwickshire. Blue-grey flint is noted at Wormit and grey and black flint at Lammerlaw (Wickham-Jones & Collins 1977: 11). There are nine fresh flint artefacts, of which eight are grey and one is blackish grey. As flint nodules eroding out of the offshore cretaceous sediments are generally of grey hues (Hall 1991: fig 3) this may indicate the use of beach pebble resources. However, caution needs to be taken when assigning the source of flint on the basis of colour alone. Five flint artefacts present with a cortex. One has a pitted cortex which may indicate the use of beach pebbles (cf Wright 2012). The remainder have a smooth and chalky cortex that has been rolled smooth and hard, suggesting that these pieces may have derived from local fluvio-glacial sources, although the movement of raw materials from elsewhere cannot be entirely discounted.

17.3 Condition and character

Thirteen (68.42%) of the lithics are fresh; 31.58% are burnt. The frequency of burnt pieces is probably understated (Finlayson 1990: 53).

The character of the assemblage and the percentage frequencies of artefact types are shown in Table 17.2.

17.4 Primary technology

The unmodified artefacts comprise one flint core fragment, six flakes, one flint blade and one chert-tested split pebble.

The only products of a bipolar reduction strategy are the chert-tested split pebble (7) (Illus 17.1), and a secondary, irregular flint flake (11). Generally, bipolar blanks will be under-represented because not all debitage products will present with attributes associated with a bipolar reduction strategy (Kuijt et al 1995: 117).

The blanks produced by platform reduction comprise two flint flakes (12 and 14), one flint flake fragment (15), one chert flake fragment (1) (Illus 17.1), one tuff flake fragment (6) (Illus 17.1), and one flint blade (16). The blade is regular and all of the flakes are irregular. Blanks with a straight edge of less than 10mm are classified as irregular (Wickham-Jones 2004: 71).

There are five blanks where it is possible to determine the classification of the bulb of percussion. The use of a soft hammer is suggested for four of them based on the attributes of the bulb: one diffuse, one flat and two with lips. The tuff flake fragment (6) has a pronounced bulb of percussion with a rippled ventral surface indicating the use of a hard hammer. It has been struck from a Group VI Great Langdale polished stone axe. All five of the blanks, where it is possible to determine the striking platform, have a simple or plain platform.

17.5 Secondary technology

All of the modified artefacts are flint and may be summarised as two composite tool forms (5 and 9), two denticulates (3 and 8), two scrapers (4 and 10), a bifacial 'knife' (2) and a barbed and tanged arrowhead (13).

► 2. Bifacial 'knife' (Illus 17.1)

The artefact has been modified from a secondary, irregular, bipolar flake. There is bifacial (ie direct and inverse), semi-invasive retouch to the left-hand side from the lower proximal to the medial. Below this, from the medial to the distal end, is inverse, short, scalar retouch. The quality of retouch is poor and may be described as perfunctory to create a cutting edge.

Table 17.1 Catalogue of the lithic assemblage

Catalogue	Context	Material	Reduction	Condition	Type
1	AAA topsoil over pre-fort enclosure	chert	platform	fresh	flake
2	BBB topsoil over pre-fort enclosure	flint	bipolar	fresh	bifacial 'knife'
3	CCC topsoil over pre-fort enclosure	flint	bipolar	fresh	denticulate
4	CCC topsoil over pre-fort enclosure	flint	platform	fresh	scraper
5	LAL early linear gully, <i>vicus</i>	flint	bipolar	fresh	composite – 'knife' and scraper
6	CCH pre-fort enclosure ditch	tuff	platform	fresh	flake fragment
7	CCC topsoil over pre-fort enclosure	chert	bipolar	fresh	tested split pebble
8	LAA topsoil over <i>vicus</i>	flint	platform	fresh	denticulate
9	LBD trackway drainage ditch, <i>vicus</i>	flint	bipolar	fresh	composite – scraper
10	LBD trackway drainage ditch, <i>vicus</i>	flint	platform	burnt	scraper
11	LAA topsoil over <i>vicus</i>	flint	bipolar	burnt	flake
12	LBT trackway drainage ditch, <i>vicus</i>	flint	platform	burnt	flake
13	LAA topsoil over <i>vicus</i>	flint	platform	fresh	barbed and tanged arrowhead
14	LBW junction of bypass road/trackway drainage ditch, <i>vicus</i>	flint	platform	burnt	flake
15	LCR early linear gully, <i>vicus</i>	flint	platform	burnt	flake fragment
16	RAA/RAE topsoil, <i>vicus</i> , Area R	flint	platform	burnt	blade fragment
17	QAT upper level of fortlet rampart	flint	platform	fresh	flake with edge damage
18	LBT trackway drainage ditch, <i>vicus</i>	flint	platform	fresh	core fragment
19	QAO topsoil over fortlet	chert	platform	fresh	blade fragment with edge damage

Table 17.2 Character of the lithic assemblage

	Total	Flint	Chert	Tuff
Tested split pebbles	1		1	
Core fragment	1	1		
Flakes	7	5	1	1
<i>Secondary</i>	2	2		
<i>Tertiary</i>	5	3	1	1
Blades	2	1	1	
<i>Tertiary</i>	2	1	1	
Modified	8	8		
Total	19	15	3	1

► 3. Denticulate (Illus 17.1)

A medial fragment of a bipolar flake has fine, short, abrupt trimming/blunting retouch to the right-hand side to create a denticulated edge. There is no evidence of edge damage.

► 4. Scraper (Illus 17.1)

A short convex scraper with direct, semi-invasive, stepped scalar retouch across the greater part of the dorsal surface.

► 5. Composite (Illus 17.1)

An irregular cutting edge has been crafted on the left-hand side of a bipolar flake. This was achieved with bifacial, semi-abrupt retouch, which may be said to be expedient and of poor quality.

Abrupt, scalar retouch to the right side of the flake has created two separate concave scraping edges. One is from the proximal to the lower proximal and the other from the lower proximal to the upper distal. There is a relatively straight scraping edge from the upper distal to the distal end, which is the result of semi-abrupt, scalar retouch.

► 8. Denticulate (Illus 17.1)

The denticulate has been modified from a tertiary, irregular flake fragment. The proximal end is missing. At the left-hand side from the break to the distal end is a denticulated edge, which has been created by bifacial, abrupt, scalar retouch.

► 9. Composite

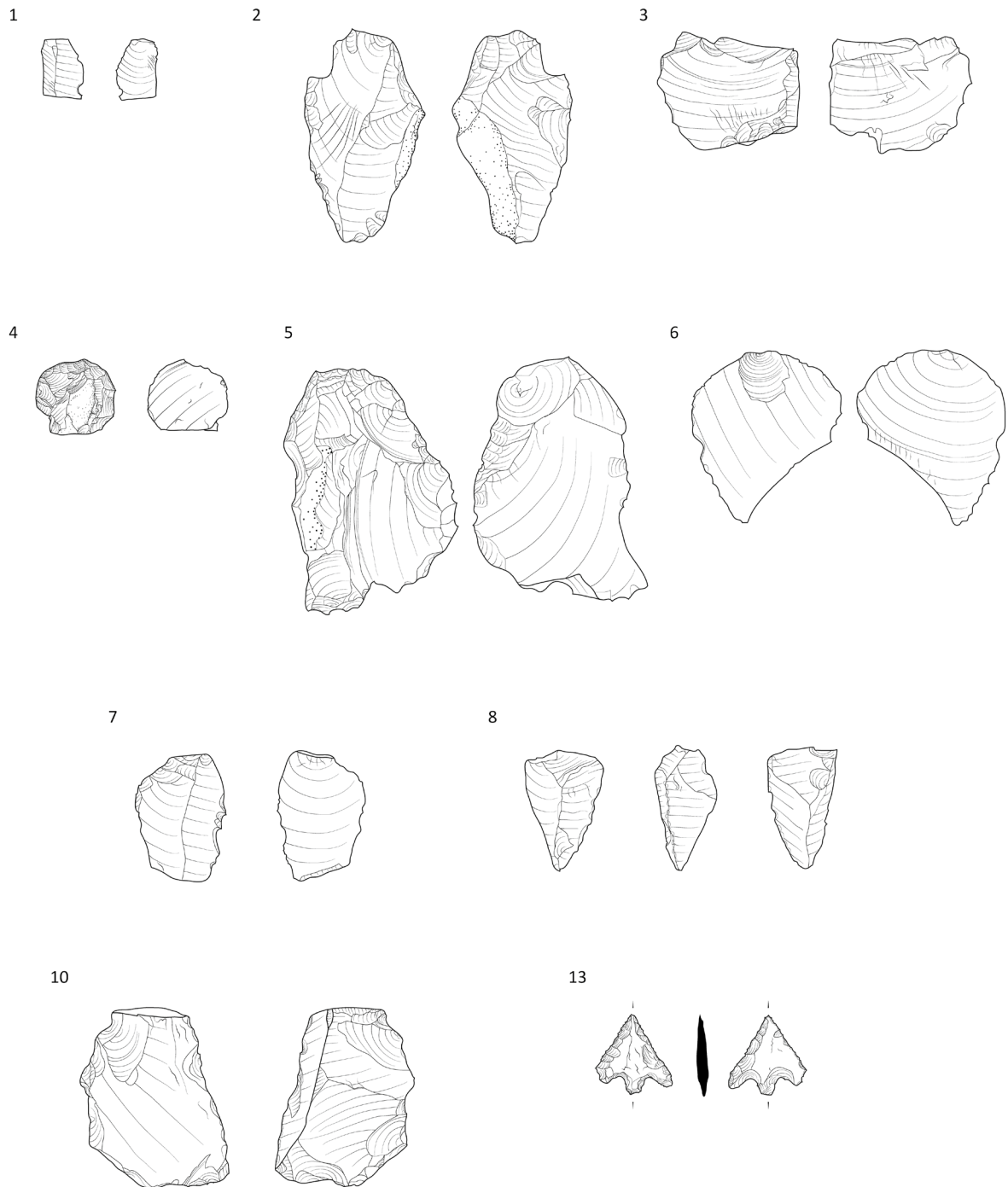
The left-hand side of a secondary, irregular, bipolar flake has a direct, semi-invasive, scalar retouch to create a cutting edge from the lower proximal to the distal end. There is direct, semi-invasive, scalar retouch which has produced a scraping edge from the proximal to the lower proximal.

There are two shallow concave scraping edges on the left-hand side of the artefact. There were two flake-shaping removals from the ventral surface prior to the application of direct, semi-invasive, scalar retouch to create the scraping edges which are located from the lower proximal to the upper distal.

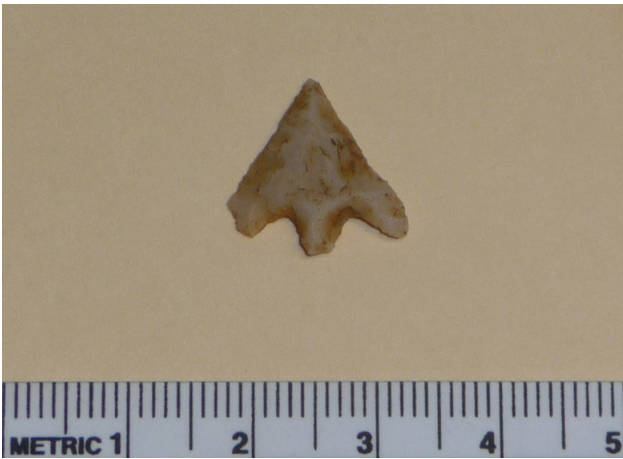
► 10. Scraper (Illus 17.1)

This artefact is a modified tertiary, burnt flake. On the right side is alternate, bifacial, semi-invasive, scalar retouch at the medial. The edge has been trimmed/blunted from the medial to the distal end. There is inverse, semi-invasive, scalar retouch creating an irregular scraping edge from the lower proximal to the upper distal of the left-hand side. The retouch to sides of the artefacts is generally of poor quality and may be described as expedient.

An angled scraping edge has been created at the distal end by direct, semi-abrupt, scalar retouch.



Illus 17.1 Lithics



Illus 17.2 Barbed and tanged arrowhead (013)

► **13. Barbed and tanged arrowhead (Illus 17.1 and 17.2)**

One of the barbs is broken. According to Green's (1980) typology the barbed and tanged arrowhead is classified as small and Kilmarnock by type.

17.6 Edge damage

► **17. Flint flake fragment**

The flake is tertiary, irregular and fresh. It was struck from a platform core with a simple platform and using a soft hammer. There is an irregular denticulated edge to the right-hand side. A macroscopic examination cannot ascertain if this has been caused by use or as a result of its detachment from the core.

► **19. Chert blade**

The blade is tertiary, regular and fresh, and removed from a platform core using a soft hammer. The striking platform was simple. There is edge damage to the left-hand side that may be as a result of irregular proximal spalling when detached from the core.

17.7 Discussion and summary

The stratigraphic context of the artefacts recovered from Croy Hill may be said to derive from unknown taphonomic processes and events.

The Kilmarnock-type barbed and tanged arrowhead (13) (Illus 17.1 and 17.2) can be ascribed

to the Bronze Age period (Edmonds 1995; Green 1980). Six sherds of beaker pottery were also recovered during the excavations at Croy Hill (see 16.1, above) and it is possible that, together with the arrowhead, these may have come from a disturbed beaker burial. Typology may also assign the rounded convex scraper (4) to the Bronze Age (Edmonds 1995: 159).

The tuff flake fragment (6) (Illus 17.1) was struck from a Neolithic Group VI Great Langdale polished stone axe. The structured disposal of fragments of a Group VI polished stone axe in a pit has been noted at Carzield, Dumfriesshire (Maynard 1993: 27). Single Group VI fragments have been recovered from a number of Early Neolithic pits at Maybole, Ayrshire (3780–3650 BC [SUERC-18866]) (Becket & MacGregor 2012: 54–6); Snabe Quarry, Drumclog, South Lanarkshire (3766–3632 BC [SUERC-50160]) (Kilpatrick 2015: 11); and the Strathearn and Environs Royal Forteviot excavations at Wellhill in 2015, where carbonised residue was dated to 3766–3652 BC [SUERC-66247] (Wright & Brophy in prep). A flake from a Graig Lwyd, Penmaenmawr Group VII polished stone axe and a scraper made from a flake from a Group VI axe were recovered from the surface at Cairnpapple, West Lothian (Piggott 1948: 102–3).

The tuff flake raises a number of interesting questions whose answers are elusive. For example, was the flake struck from the axe as part of its ritual decommissioning prior to a structured disposal and, if so, why was the flake not part of the fragments for that disposal? Conversely, is the flake residual from a disturbed pit feature? Secondly, was there a utilitarian transformation of the axe into a core to produce blanks either for modification or use without modification? Thirdly, when was the flake struck from the axe? The evidence from Maybole and elsewhere would indicate a Neolithic event.

The larger artefacts, such as the composite tools (5 and 9), scraper (10) and bifacial 'knife' (2), generally display poor-quality retouch and can be described as perfunctory. Apart from the bifacial, they could be classified as irregular, which tentatively may suggest a Late Neolithic provenance (Edmonds 1995).

18. BOTANICAL ANALYSES

David E Robinson

18.1 Samples

Five samples were submitted for botanical analysis.²³

► 1. QAT

A block sample comprising fragments of turf of variable size, from the east side of the fortlet immediately south of the Antonine Wall. The sample had dried out during storage and had largely disintegrated in the absence of a supporting metal box. However, it was possible to discern the following layers, which appear to be repeated in each of the turf fragments remaining intact:

1. A thin (*c* 10mm) dark brown organic layer corresponding to the soil/turf surface.
2. A wider (*c* 20mm) dark grey layer of less organic silty material containing a small quantity of fine gravel and sand.
3. A layer of variable width (usually more than 30mm) of light grey leached silty material with sand and fine gravel.
4. An orange subsoil layer of indeterminate width containing small fragments of charcoal and mineralised plant material.

None of the turf fragments in the sample displayed all of the four layers in this order. Generally Layers 1, 2 and 3 were intact, with Layer 4 of another fragment being in sharp contact with Layer 1. The boundaries between the other layers were not sharp and there were signs of soil mixing which had apparently taken place prior to the turves being cut (see 18.3.3 and 18.4, below). Modern roots pervaded the sample.

► 2. QAW

A block sample comprised turf fragments, again of variable size, from the south side of the Antonine Wall *c* 1m east of the east wall of the fortlet. This sample had also dried out and disintegrated in storage. In the fragments of turf which remained intact the following sequence of layers was observed:

1. A thin (*c* 10mm) dark brown organic layer corresponding to the soil/turf surface.
2. A wider (*c* 20mm) light grey leached silty layer with some clay, sand and fine gravel.

3. An indeterminate darker grey silty layer with some clay, sand and fine gravel.
4. An orange subsoil layer of variable width containing small charcoal fragments and mineralised plant remains.

The layers were preserved in similar circumstances to those described for QAT. However, the boundaries between layers were much sharper than seen in the latter and there was little evidence for soil mixing. Modern roots again pervaded the sample.

► 3. QAR

A sample collected by the excavator from a layer within the infilled east ditch of the fortlet recognised as a fossil turf line. The sample appeared to be largely made up of material similar to that seen in Layer 1 of QAW and QAT. However other, less organic, material was present and this cannot be regarded as a pure sample from a turf line.

► 4. QAX

A sample from a soil and charcoal spread behind the Antonine Wall. It contained abundant charcoal ranging in size from twigs *c* 20mm in length down to dust-sized particles.

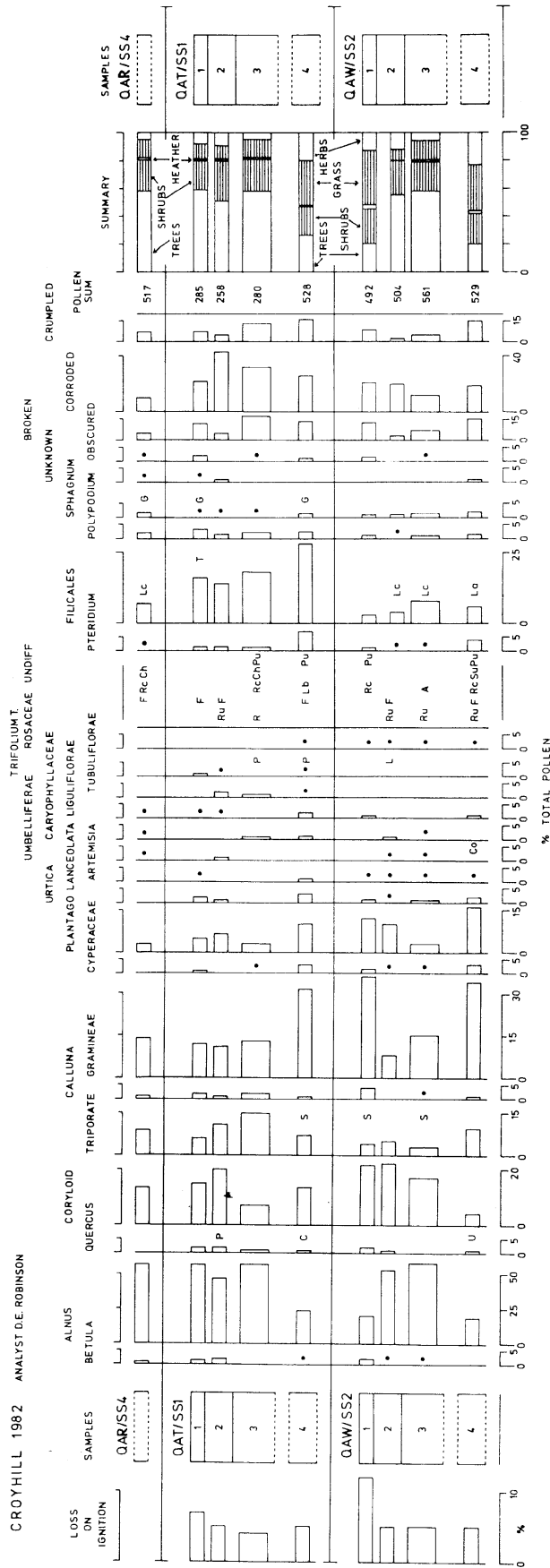
► 5. QAS

A sample from the duckboarding immediately behind the Antonine Wall. It contained abundant pieces of charcoal of varying size.

18.2 Methods

18.2.1 Pollen analysis

Pollen analysis was carried out on samples QAT, QAW and QAR. The desiccated nature of samples QAT and QAW made sampling in situ impossible. The successive layers were shaved from a representative fragment using a scalpel. Pollen slides were prepared from 1g sub-samples using standard techniques (Birks & Birks 1980: 157). The high mineral content of the samples required the use of hydrofluoric acid in the preparation. The pollen was stained in safranin and mounted in silicone oil. A pollen sum of 500 total land pollen (TLP) was adopted, although 250 TLP was used when poor pollen preservation made counting excessively difficult and laborious. The results of the analysis are expressed as percentages of TLP and are presented in Illus 18.1.



Illus 18.1 Pollen diagram and loss on ignition for samples QAT, QAW and QAR from Croy Hill; pollen values are expressed as a percentage of the total land pollen. The closed circle represents values of less than 1% (drawn by Myra Lees). **Abbreviations:** P = Pinus, C = Carpinus, U = Ulmus, S = Salix, Co = Conopodium type, P = Papilionaceae, L = Lotus, R = Rubiaceae, Ru = Rumex, F = Filipendula, Rc = Ranunculus, Lb = Labiatae, A = Allium type, Su = Succisa, Pu = Plantago undifferentiated, Ch = Chenopodiaceae, Lc = Lycopodium clavatum, La = Lycopodium annotinum, G = Gelasinospora, T = Tilletia

18.2.2 Plant macrofossil analysis

Plant macrofossil analysis was carried out on the sieve washings produced during the preparation of pollen slides from samples QAT, QAW and QAR and also on a sieved subsample of QAX. The material was examined using a low-power (to ×250 for charcoal) binocular microscope. The results are presented in Table 18.1.

18.2.3 Loss on ignition analysis

Loss on ignition analysis was performed on samples QAT and QAW. The results are presented alongside the pollen diagram (Illus 18.1).

18.3 Results

18.3.1 Pollen analysis

► QAT

Layers 1–3: Values of *Alnus* (alder) and Coryloid (hazel or bog myrtle) are high, other tree species are poorly represented. Gramineae (grass) and Filicales (fern) values are modest, but levels of *Plantago lanceolata* (ribwort plantain) pollen are substantial and other indicators of pastoral agriculture, such as *Trifolium* (clover) type are in evidence. *Calluna* (heather) pollen is virtually absent and no other heath species are represented. The incidence of degraded pollen is high.

Layer 4: Values of *Alnus* and Coryloid are lower than those seen in the above. Pollen of Gramineae and *Plantago lanceolata* and spores of Filicales are more abundant and pastoral agriculture indicator species are more common. *Calluna* values are again low.

► QAW

Layer 1: Values of *Alnus* and Coryloid are modest.

The spectrum is dominated by Gramineae, Filicales and *Plantago lanceolata*. There are minor presences of the pollen of agricultural indicator species. *Calluna* is less than 5% of total pollen.

Layers 2 and 3: The pollen spectra from these layers are almost identical to those described from Layers 1, 2 and 3 of QAT. The main differences which do occur are in the levels of Filicales spores and open-habitat herb pollen, which are lower and higher respectively in this sample. This may be a function of differential pollen preservation as the values of degraded pollen in all the layers from this sample are substantially lower than those seen in QAT. Filicales values tend to be higher in samples where differential preservation has occurred.

Layer 4: The pollen spectrum from this layer is similar in most respects to that from the corresponding layer in QAT.

► QAR

This sample, corresponding to the upper layer(s) of an individual turf, has a pollen spectrum which bears a striking resemblance to those of Layers 1, 2 and 3 of QAT and Layers 2 and 3 of QAW. However, the incidence of degraded pollen is lower in this case.

18.3.2 Plant macrofossil analysis

► QAT, QAW, QAR

The plant macrofossils recovered from these samples were neither abundant nor varied. They were confined to charcoal fragments of variable size, small fragments of mineralised plant remains

Table 18.1 Plant macrofossil analysis. **Abundance key:** + present; rare (1) – very abundant (5)

	QAT	QAW	QAR	QAX
Macrofossils	1 1 3 4	1 2 3 4		
Charcoal (unidentified)	2 1 2 3	2 + 1 1	3–4	
<i>Salix</i>				5
<i>Corylus</i>			+	5
<i>Calluna/Vaccinium myrtillus</i>				+
Mineralised plant remains	2 3 1 1	2 2 1 2	2	
<i>Potentilla</i> sp. (achene)	+		+	

and an occasional achene of *Potentilla* sp. (probably *Potentilla erecta*, tormentil). The latter may indicate the presence of grassy heath.

18.3.3 Loss on ignition analysis

► QAT, QAW

In both cases this analysis confirmed that Layer 1 was the most highly organic and therefore most likely to represent the upper layer of the turves.

In Sample QAW, Layer 1 contained 12% organic material, whereas in QAT the organic content of Layer 1 was only 7%, only marginally more than the lower layers. This adds weight to the suggestion that there had been more soil mixing in the upper layers of QAT than in QAW.

18.3.4 Analysis of charcoal

► QAX

Charcoal was abundant in this sample, the majority of it resulting from the burning of twigs and slender branches. The immature nature of the material made identification difficult. Of those fragments identified, the majority were of *Corylus* (hazel) and *Salix* (willow). Two fragments were referable to *Calluna* (heather) or *Vaccinium myrtillus* (blaeberry). Difficulties in finding examples of medullary rays in tangential longitudinal section prevented identification to species levels.

These findings are consistent with the sample representing the remains of a *Corylus/Salix* wattle hurdle or the like which may also have been intertwined with *Calluna* or *Vaccinium myrtillus*.

► QAS

Charcoal was abundant in this sample. The larger pieces were almost exclusively *Quercus* (oak). The smaller pieces of twigs and branches were not identified.

18.4 Interpretation

► QAT

As already stated, it appears from the stratigraphy of this sample as if there had been soil mixing in the upper layers prior to the turves being cut. This idea is supported by the high levels of degraded pollen in the samples. Soil mixing by an agency such as earthworms would increase soil aeration

and accordingly promote pollen degradation (particularly corrosion) by micro-organisms. There are also relatively minor differences in loss on ignition between the layers (see 18.3.3, above).

As might be expected, the result of the mixing has been to give the upper layers more or less similar pollen spectra. These pollen spectra suggest that the landscape in a period prior to the turves being cut was one of fairly open *Alnus* woodland with hazel or bog myrtle in abundance. The separation of *Corylus* (hazel) and *Myrica* (bog myrtle) pollen is difficult (Edwards 1981). For this reason the category Coryloid, covering both *Corylus* and *Myrica*, has been used. It seems likely that at least some of the pollen in the Coryloid category represents hazel, as *Corylus* charcoal was present in QAR and QAX. There would also have been substantial areas of grazed grassland. Woodland trees such as oak and elm appear to have been rare, having been cleared away in the course of earlier human activity. Layer 4, the orange subsoil with flecks of charcoal, may have a pollen spectrum representing one of these earlier clearance phases when the tree cover was markedly less.

► QAW

Soil mixing does not appear to have been as prevalent in the upper layers of this sample. The layers appear to be more sharply defined, the incidence of degraded pollen is lower and the difference in organic content between Layer 1 and the other layers is greater. There are also more obvious differences between the pollen spectra of the layers. It may be that this set of turves was cut from a slightly wetter area than those of QAT, and the waterlogged conditions reduced the amount of mixing by soil invertebrates. Layers 2, 3 and 4 of this sample have similar pollen spectra to the corresponding layers of QAT and almost certainly represent similar landscapes; Layers 2 and 3 suggesting open alder/hazel woodland with areas of grazed grassland and Layer 4 an earlier clearance phase where alder and hazel were less abundant.

The major difference is seen in Layer 1, where *Alnus* and Coryloid levels are reduced to the levels of Layer 4 and Gramineae and *Plantago lanceolata* rise accordingly. This probably represents renewed clearance of the woodland immediately prior to the turves being cut.

► QAR

The similarities between the pollen spectrum from this sample or layers within samples QAT and QAW have already been commented upon. A similar landscape of alder/hazel woodland and grazed grassland is inferred.

► QAS

Large pieces of charcoal characterise this sample and oak is consistently recorded as the preferred timber for structural features in Roman military construction (Hanson 1978).

18.5 Summary

The interpretation of pollen spectra from soils is fraught with difficulties such as pollen deterioration, differential preservation, downwash and vertical mixing by soil invertebrates (Birks & Birks 1980: 188). Accordingly any interpretation is, of necessity, tentative. It is still possible, however, to make some interesting observations about the environment at the time the turves were cut and to speculate about events preceding this action.

Two main vegetation types are represented in the pollen spectra from the Croy Hill samples:

1. Alder woodland with hazel (and/or bog myrtle).
2. Grazed grassland.

The major difference between turves and layers within the turves is in the relative proportions of these two vegetation types as influenced by successive clearance episodes and land use. It is obvious that the vegetation had been seriously interfered with prior to the episodes recorded in these samples. *Betula* (birch) and *Quercus* (oak), which might be expected to dominate the natural vegetation of the Croy Hill area (Birks 1977), are poorly represented and must have been almost totally cleared from the surrounding landscape. Human populations must, therefore, have been present in the vicinity for a

considerable period prior to the construction of the Wall and the fortlet.

With regard to the turves themselves, those from the Wall (QAW) appear to have been cut from a different, perhaps wetter, location than those from the fortlet (QAT). This is inferred from the differences seen in the pollen preservation; the degree of vertical mixing; and the distribution of organic material within the soil layers of the two turf samples. This could easily be explained in terms of local differences in soil type, topography and drainage within the areas stripped of turf. Similarly, the evidence for clearance of alder and hazel, which is seen in Layer 1 of QAW but which is absent from Layer 1 of QAT, may be explained by very local activity and need not imply any time difference in the cutting of the turves.

18.6 Comparison with nearby Antonine Wall sites

Pollen analysis of fossil turves from Antonine Wall sites at Bearsden (Dickson & Dickson 2016), Wilderness West (Newell 1983) and Bar Hill (Boyd 1985) all revealed a more or less similar picture of secondary alder/hazel woodland with areas of pastoral grassland. As at Croy Hill, there are isolated presences of possible arable indicators, but not in sufficient numbers to indicate that farming in proximity to the Antonine Wall was other than pastoral.

There is one major difference between the pollen spectra from the above sites and those from Croy Hill. This concerns the amount of *Calluna* pollen present. *Calluna* is well represented at Bearsden, Wilderness West and Bar Hill, but is almost absent from the Croy Hill turves. It may be that the heavy clay soils in the vicinity of the site proved unsuitable for the growth of *Calluna*. It is hard to believe that differences in grazing regimes between Croy Hill and the other sites would be such as to prevent the colonisation by, or effect the elimination of, *Calluna*.

19. HUMAN AND ANIMAL BONE

Archie Young

19.1 Human**► EAN cremation in grey-ware jar within land divisions**

Mainly tiny, fine cremated bone fragments too small to identify. Several larger fragments seem to be mostly from long bones. Fragments of vertebrae and pelvis are also recognisable. Probably all human.

► LDX 1 drainage ditch, west side of trackway, vicus

Bone fragments include what seems to be part of the head of a human radius.

19.2 Animal

Identified fragments of animal bone are listed below by context. Unidentifiable fragments, presumably predominantly of animal bone, are listed in Table 19.1.

► BBP 1 pre-fort enclosure ditch

Bone fragments of a long bone – very thoroughly calcined.

► LAB 1 drainage ditch, east side of trackway, vicus

Bone fragments, but four pieces make up a talus – ?sheep or roe deer.

► LAH drainage ditch, east side of trackway, vicus

LAH 1: bone fragments include a piece of ?rabbit rib and part of calcaneum – ?of small pig rather than sheep.

LAH 3: bone fragments include a piece that looks slightly burnt and a piece of a major long bone ?cracked for marrow.

► LAK drainage ditch, east side of trackway, vicus

Includes a piece of rib ?bovine, and another smaller piece with marks of ?knife.

LAK 4: ?posterior part of a calcaneum of ?sheep or pig; bone fragments (some partly burnt) include a piece of rib and a piece ?of scapula – size of large deer or small bovine; and 2 pieces of a

proximal phalanx of small ?sheep (or small deer).
LAK 5: Bone fragments include the terminal phalanx of roe, or small sheep, or small pig.

► LBB drainage ditch, east side of trackway, vicus

Piece of rib.

► LBD drainage ditch, west side of trackway, vicus

Tooth fragments (see 20, below) and bone fragments that have been burnt.

LBD 1: bone fragments include 2 pieces of rib – ?roe or small sheep.

► LBH 1 drainage ditch, east side of trackway, vicus

?Piece of bovine occipital condyle.

► LBK recut drainage ditch, west side of trackway, vicus

LBK 2: bone fragments include 28 small fragments that may have been burnt – ?pig.

LBK 3: piece of a phalanx – ?small sheep.

LBK 4: bone – ?terminal phalangeal bone of sheep/pig.

LBK 7: bone fragments include a piece of immature long bone.

► LBL 1 drainage ditch, east side of trackway, vicus

Bone fragments include a condyles of a metapodial – ?ovine metacarpal.

► LCK 1 drainage ditch, west side of trackway, vicus

Bone fragments – some apparently skull – a piece of alveolar bone and tooth root in situ and another root free, and what may be part of animal (?sheep) calcaneum.

► LCQ drainage ditch, west side of trackway, vicus

LCQ 1: bone fragments – include a piece of rib – others not identified but from young animal and piece of distal end of ?sheep metapodial.

LCQ 3: bone fragments – 2 may be ungulate and 2 are from a smaller animal ?hare – not identified.

LCQ 4: bone fragment – part of condyles of ?metapodial ?small femur (?sheep).

► **LCS 3 drainage ditch, west side of trackway, vicus**

Bone fragments – include pieces of animal rib bones.

► **LDH 2 drainage ditch, east side of trackway, vicus**

?Part of sacrum of rabbit or hare.

Table 19.1 Unidentifiable bone fragments listed by context

Context code	Context description	Bone	Burnt bone
CCN	pre-fort enclosure ditch	x	
DBL	occupation/midden material north of land divisions, Area D	x	x
DDM	post hole within area of land divisions	x	
LAB 1/3	drainage ditch, east side of trackway, <i>vicus</i>	x	x
LAB 4	drainage ditch, east side of trackway, <i>vicus</i>	x	
LAH 3/4	drainage ditch, east side of trackway, <i>vicus</i>	x	
LAK 1/2/3	drainage ditch, east side of trackway, <i>vicus</i>	x	
LAK 4	drainage ditch, east side of trackway, <i>vicus</i>		x
LAL 1	early linear gully, <i>vicus</i>	x	
LBB 1/2	drainage ditch, east side of trackway, <i>vicus</i>		x
LBD 2/3/6	drainage ditch, west side of trackway, <i>vicus</i>	x	
LBD 5	drainage ditch, west side of trackway, <i>vicus</i>		x
LBF 1	drainage ditch, east side of trackway, <i>vicus</i>	x	
LBK 1	recut drainage ditch, west side of trackway, <i>vicus</i>	x	x
LBK 3/5/6	recut drainage ditch, west side of trackway, <i>vicus</i>	x	
LBL 1/2	drainage ditch, east side of trackway, <i>vicus</i>	x	
LBM 1/2	drainage ditch, west side of trackway, <i>vicus</i>	x	
LBO 1/2	drainage ditch, west side of trackway, <i>vicus</i>	x	
LBQ	natural depression, <i>vicus</i>	x	
LBR 1/3	drainage ditch, east side of trackway, <i>vicus</i>	x	x
LBR 2	drainage ditch, east side of trackway, <i>vicus</i>	x	
LBS 1	drainage ditch, west side of trackway, <i>vicus</i>		x
LBT 1/2	drainage ditch, east side of trackway, <i>vicus</i>	x	
LBW	junction of bypass road/trackway drainage ditch		x
LCG	bypass road drainage ditch, <i>vicus</i>	x	
LCH 1	drainage ditch, east side of trackway, <i>vicus</i>	x	
LCK 1	drainage ditch, west side of trackway, <i>vicus</i>	x	
LCQ 2/5	drainage ditch, west side of trackway, <i>vicus</i>	x	
LCT 1	secondary phase of drainage ditch, west side of trackway, <i>vicus</i>		x
LCT 2	secondary phase of drainage ditch, west side of trackway, <i>vicus</i>	x	
LDC	primary phase of drainage ditch, west side of trackway, <i>vicus</i>		x
LDE 1	drainage ditch, west side of trackway, <i>vicus</i>	x	
LDH 1	drainage ditch, east side of trackway, <i>vicus</i>	x	
LDK 1	natural depression, <i>vicus</i>	x	

Context code	Context description	Bone	Burnt bone
LDX 1	drainage ditch, west side of trackway, <i>vicus</i>	x	
LDX 2	drainage ditch, west side of trackway, <i>vicus</i>	x	x
LDY 1	drainage ditch, west side of trackway, <i>vicus</i>	x	
QAF	south ditch of fortlet	x	
QAR	east ditch of fortlet		x
RAF	shallow construction slot, <i>vicus</i>		x
RAQ	possible prehistoric burial adjacent to northern bypass road drainage ditch	x	
RAR	northern bypass road drainage ditch	x	

20. ANIMAL DENTITIONS

Dorothy A. Lunt

► **LAB 4 drainage ditch, east side of trackway, vicus**

There are fragments of bone and tooth, all showing evidence of burning. The tooth fragments all appear to be from ungulates, but are so small that precise identification is difficult.

► **LBD drainage ditch, west side of trackway, vicus**

The tooth fragments all appear to be from ungulates. Some are definitely from bovine cheek teeth, but others are too small for precise identification to be possible.

► **LBK 2 drainage ditch, west side of trackway, vicus**

Among the bone fragments there is one specimen which appears to be a burnt fragment of a tooth, with a blunt rounded caniniform crown and

an incompletely formed root. This may be an incompletely formed example of the vestigial upper canine of a red deer.

► **LCQ 1 drainage ditch, west side of trackway, vicus**

This package contains many fragments of partially incinerated and disintegrating ungulate cheek teeth, which all appear to be bovine. No tooth survives whole and the fragments are too small to allow a precise identification. The two largest fragments appear to be of fairly well-worn permanent molars.

► **LDY 1 drainage ditch, west side of trackway, vicus**

Again the specimens appear to be partially burnt bovine permanent molars in various stages of disintegration. The specimens which are more complete all seem to be quite well worn. The teeth seem to be slightly smaller than those of a modern bullock.

21. CONCLUSIONS

21.1 Prehistoric occupation

The attractiveness of this hillside for settlement was indicated not only by the 18th–19th-century farmstead that overlies the site of the fort, but by the discovery of approximately one third of an early Iron Age palisaded enclosure with an entrance facing east (Illus 6.2 and 7.1). A limited scatter of artefacts from the Neolithic and Bronze Age (Illus 16.1, 16.2, 17.1 and 17.2) provided further confirmation of long-standing prehistoric activity in the immediate vicinity.

21.2 The sequence of military occupation

The sequence of Roman military occupation on the site now seems clear and is of considerable importance for our understanding of the planning and construction of the Antonine Wall. The existence of a fortlet to the west of the known fort was confirmed, its rampart structurally contemporary with the Wall (Illus 3.4). Within the constraints of the very limited examination of its interior, a central road was identified with probable traces of a subdivided, rectangular timber building on its east side (Illus 3.7). The provision of an extensive area of timber duckboarding immediately outside the north-east corner of the fortlet in the lee of the Antonine Wall was probably intended to provide a base for a brazier that would have been largely sheltered from the elements. The apparent outward collapse of the turf rampart and the presence of turf within the east ditch suggests that the fortlet had been deliberately demolished. Hints of secondary cobbling in the interior may be associated with that abandonment.

Contrary to the view of Macdonald, who originally identified it (1932: 262–6), the enclosure beneath the fort on the plateau to the east of the fortlet was not an earlier Flavian fort, but an Antonine camp that seems to have been occupied for some time. This may have served either as the construction camp for the fortlet or to house the surveyors laying out the line of the Wall (Jones 2011: 330). The latter is, perhaps, slightly more likely given its location adjacent to one of the highest points along the length of the Wall.

Croy Hill is currently one of three sites that provide unequivocal support for the hypothesis, first proposed by John Gillam (1975), that the original plan of the Antonine Wall was broadly based on the developed plan of Hadrian's Wall. Gillam suggested that the Antonine Wall was originally intended to have forts positioned approximately every 8 miles (12.8km), with fortlets at intervals averaging approximately 1 mile (1.6km) in between, but that it then went through major changes during the course of its construction that resulted in the addition of a series of generally smaller forts, some of which replaced fortlets. This fits neatly with the evidence from Croy Hill, where both the base and the superstructure of the fortlet rampart were clearly built as one with the Antonine Wall, indicating they were part of the original plan. By contrast, the small (1.5 acres: 0.6ha) fort was built as a later addition. Its location, only 80m east of the fortlet, makes little sense as part of the original planned layout for the frontier, as the presence of the fort would have made the fortlet superfluous. Moreover, there is unequivocal structural evidence of the secondary character of the fort (Macdonald 1932: 247 and pl X). Not only is its rampart on the west side not bonded with the base of the Wall, abutting it at a higher level and actually overlapping the Wall base, but the fort overlies the site of a construction camp that seems likely to have been occupied for some months and has now been shown to be of Antonine date. That said, the otherwise clear structural relationship between the Antonine Wall and the fort at Croy Hill is muddied slightly by the presence of a stone-lined cistern in its north-east corner, from which an outlet runs under the Wall base (Macdonald 1932: 251–61), indicating that its construction preceded or was contemporary with the building of the Wall. Macdonald records that the cistern was provided with steps down almost to its base and rapidly filled with water during its excavation. However, he goes on to note quite specifically that the north-eastern side of this cistern had been demolished and filled with boulders to serve as the basis for the eastern rampart of the fort, thus further confirming the fort's secondary character. The cistern may well have been intended to supply water for the fortlet or even for the construction camp, capitalising on a natural spring at this point.

By way of a challenge to the overall structural sequence proposed here, it has been suggested recently that the known fort was not in its originally intended position (Graafstal 2020: 167–71). Some 60m to the east of its north gate there is a well-known original break in the ditch where over a distance of *c* 25m the underlying quartz-dolerite rock comes to the surface. Graafstal has suggested that the primary cistern, perhaps linked to the nearby bathhouse, is all that remains of an earlier fort centred on this causeway. There is, however, nothing to commend this hypothesis. Firstly, there is absolutely no archaeological evidence of an earlier defence system in the relevant location to define such a fort, either in Macdonald's excavations or in those reported on here. Secondly, the hypothetical site of this earlier fort is in a highly unsuitable topographic location, incorporating an area of steeply sloping and lower-lying, potentially damp ground. This is clearly apparent in the contour survey (Illus 1.2), in several aerial photographs (eg Illus 1.4. See also HES DP249551) and, indeed, to anyone visiting the site today. The dampness of the area is further confirmed by the identification of a probable midden at the northern limit of excavations to the east of the known fort (5.3, above). Given the suitability for settlement of the flat, sheltered plateau only a few metres to the west, where both the known fort and the early modern farmstead were located, it makes absolutely no sense to suggest that it was originally intended to place the fort in such an inferior topographic position.

The break in the ditch would appear to have a much more prosaic explanation. As Macdonald appreciated, the removal by hand of an impenetrable quartz-dolerite surface outcrop at this point is likely to have been sufficiently daunting to have deterred the legionary builders tasked with digging the ditch (1934: 262–3). Indeed, he also noted that the southward continuation of the same outcrop just below the contemporary ground surface had prevented the digging of ditches outside the south-east corner of the fort (1932: 250–51). Nor is this the only location along the line of the Wall where problems with the underlying subsoil seem to have defeated the Roman builders. A similar example is evident on the northern shoulder of Castle Hill to the east of the fort at Bar Hill (Macdonald 1934: 148), with possibly another near the western end

of the Wall at Carleith (Keppie & Breeze 1981: 242–3).

The evidence from two other sites on the Antonine Wall clearly also supports the Gillam hypothesis, and provides structural sequences comparable to Croy Hill. At Duntocher a fortlet was replaced by a small fort with an annexe (Robertson 1957), though in this case both were constructed before the Antonine Wall arrived on site, indicating that the change of plan thus represented occurred before the construction of the Wall rampart had been completed. There is a possibility that what Robertson identified as the fort was in fact the annexe and vice versa (Swan 1999: 432–3), but this does not affect the interpretation of the sequence of building. In attempting to explain away the evidence from Duntocher, Symonds suggests that the small 'fort' was actually an annexe attached to the fortlet (2018: 140), but this suggestion lacks parallels on either linear barrier in Britain. Nor does it explain the character of the larger enclosure attached to it, which incorporates the fortlet, or the sequence of construction involved.

The second site with a comparable structural sequence is Castlehill, where antiquarian accounts refer to a small, rectangular raised plateau on the summit of the hill, situated within a larger enclosure (Keppie 1980: 80–2). The latter was confirmed as a fort by aerial photography in 1947 (St Joseph 1951: 61) and more recently resistivity survey has identified a rectangular, single-ditched enclosure at the back of the Wall at the top of the hill in the north-west corner of the fort (Hanson & Jones 2020: 223–4). Its shape and dimensions are quite closely paralleled by those of the ditch surrounding the fortlet at Kinneil (Bailey & Cannell 1996: 308, illus 3 and 28). Magnetometer and LiDAR survey reveals a clear disjuncture at the point of intersection between the Wall ditch and the ditches of the fort in that corner, indicating that they were not of contemporary construction and suggesting a sequence similar to that at Duntocher (Hanson & Jones 2020: 225–31).

In light of the evidence that a fortlet was superseded by a fort at Croy Hill and at two other sites along the Wall, it remains difficult to accept the recent assertion that the Antonine Wall was entirely unitary in both concept and planning (*contra* Graafstal et al 2015; Graafstal 2020). Thus,

the Gillam hypothesis still best explains the totality of the structural evidence, even if the sequence of primary forts and fortlets proves to be less regular than he envisaged. The occurrence of relatively minor structural ambiguities noted at a very small number of sites (Hanson & Maxwell 1986: 107–8; Graafstal et al 2015: 56–7) can still most reasonably be explained by the differential phasing of the various elements of the building programme (Hanson 2020a).

When during the construction of the Wall the decision was made to place more forts on its line, there proved to be insufficient room on the small plateau to build over the fortlet at Croy Hill, as was done at Duntocher and Castlehill, so the fort was moved to the nearest suitable spot on the adjacent larger plateau some 80m to the east, the site of the earlier construction camp. Exactly when this took place is difficult to estimate. The identification of an internal roadway by Macdonald suggests that the camp was intended to be occupied for some time (1932: 265 and pl X). Indeed, it remained in use long enough for up to 0.4m of silt to accumulate in its ditches before they were deliberately backfilled to facilitate the construction of the rampart of the fort, so the timescale of occupation of the camp should probably be measured in months rather than weeks. On the east side of the camp's annexe, however, the ditch continued to be utilised, at least for a time, to drain the road linking the south gate of the fort to the southern bypass road. This sequence of construction fits well with the evidence from the west end of the Wall that the decision to place additional forts on the line came some time before building work on the linear barrier was complete (Hanson & Maxwell 1986: 106–9).

The character of the garrison of the fort is not known, though the possibility of a small legionary presence has been postulated (Keppie 2009: 1137; Breeze 2020: 291–2), primarily on the basis of the epigraphic and sculptural evidence from the site (1.2, above). Two artefacts recovered from the excavations on the fringe of the *vicus* lend some further, if slight, support for this conjecture. Among the wealth of finds from the drainage ditches that flanked the trackway leading down the slope to the bypass road was a tie-ring from a *lorica segmentata*. Though there have been suggestions that this distinctive form of body armour was also used by auxiliaries,

the evidence makes clear that the *lorica segmentata* was primarily worn by legionaries (9.1.2, no. B2, above; Bishop 2002: 91). Secondly, an arm-purse was recovered from the same ditches (9.1.2, no. B21, above). These bronze purses are rare finds, this being the only example known from the Antonine Wall, and also tend to be associated with legionary troops (Birley 1963: 7–8).

21.3 The military *vicus*

One of the original primary aims of the excavation was to try to reveal any trace of contemporary civil settlement around the fort. Only part of one probable open-ended, rectangular timber building of somewhat idiosyncratic construction was identified during the excavation, lying within a fenced enclosure to the north of the bypass road. Nonetheless, the main focus of the *vicus* can confidently be located immediately to the north of this structure within the guardianship area on the well-sheltered, flat plateau just to the west of the fort and south of the fortlet. This assertion is based on the recovery of substantial quantities of pottery and a broad range of other finds from the complex of gullies and recut drainage ditches which wound their way down the hillside to the south-west of the fort. Both the range and volume of the material from these ditches far exceeded that from any other area of the excavation. This material also hinted at the quality of the *vicus* buildings, some with plastered walls, window glass and highly romanised forms of decoration, as well as indicating the intensity and range of activities that were taking place within them. Unfortunately, later attempts to confirm the location of the *vicus* by geophysical survey within the guardianship area were unsuccessful (Hanson et al forthcoming). This failure should not be taken to indicate that the hypothesis is incorrect, but rather it demonstrates the limitations of this survey methodology under some conditions. Because of the naturally magnetic character of the subsoil, only resistivity survey could be undertaken and this failed even to identify the northward continuation of the large drainage ditches that had been recorded in the excavations to the south-west of the fort.

The two main drainage ditches excavated here followed a sinuous course down the slope, probably flanking a trackway from the *vicus* to the road which

bypassed the fort. The trackway aligns well with the curvature of the *via principalis* as it exits the fort to the west (Illus 1.2). The existence of a bypass road leaving the line of the Military Way some 300m west of the fort had originally been established by Glasgow Archaeological Society's Antonine Wall Committee (1899: 67) and its line confirmed by Macdonald (1934: 144–5). This excavation traced it intermittently over a distance of some 275m, looping round to the south of the fort before heading back up the slope towards the Military Way on its east side. The bypass road was both important and well used. This was indicated by wheel ruts, resurfacing and realignment, as well as a relocation to follow a slightly more northerly route around the south of the fort when the earlier line was partially washed away.

Finally, examination of a substantial area extending for over 150m to the east of the fort found a combination of fence lines and ditches on both sides of the bypass road. They followed

a consistent north/south or east/west alignment, dividing up the area into small parcels presumably for industrial purposes or to house livestock. Within one of the rectilinear enclosures so formed was a probable pottery kiln that had gone out of use in the Roman period. Local manufacture of pottery was further indicated by examination of the mortaria, the coarse ware and their fabrics. Broken or incomplete stone architectural fragments from the backfill of the kiln and from an adjacent large pit hinted at the presence nearby of a mason's yard. Further fragments of incomplete worked sandstone were found in the drainage ditches south of the *vicus*. Finally, at the southern limit of the excavation, still within this system of land division, was a single cremation in a grey-ware jar, hinting at the presence of a cemetery, though a second large trench opened to the east of it failed to identify any further burials. Thus, occupation contemporary with the fort can be shown to have extended over a wide area all around it.

22. ACKNOWLEDGEMENTS

I must start by expressing my thanks to what is now Historic Environment Scotland, and especially to Dr (now Prof.) David Breeze, for the invitation to direct the excavations at Croy Hill. This is what first brought me to work in Scotland as a young PhD student and helped to establish the first stage of my career here.

I am most grateful to the steadfast band of supervisory staff (site supervisors Pete James, Dave Pollock, Derek Sloan and John Triscott, and finds supervisor Penny Roberts) and to the numerous volunteers, many drawn from the universities of Manchester and Glasgow, for their unfailing humour and hard work throughout the excavation. Particular thanks should go to Dominic Powlesland, who acted as assistant director and was responsible for generating the original draft, non-digital, versions of most of the site plans and a number of the section drawings which grace this report. The final digital publication versions of these drawings were prepared by Lorraine McEwan. Unless otherwise stated, finds drawings were prepared by Ruth Leary and Dr Alice Watterson. The latter also produced the final version

of the mortaria drawings and the scans of decorated samian. The primary author took all aerial and site photographs, and any photographs of finds not otherwise attributed.

The contour survey was for the most part undertaken by volunteers during the course of the excavation, but the final stages were completed by students of Topographic Science from the University of Glasgow. I am grateful to David Tait, John Shearer and Prof. Gordon Petrie of the then Department of Geography for facilitating this.

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23. NOTES

1. The alignment of the Antonine Wall across Croy Hill is approximately north-east by south-west. However, for ease of reference and visualisation of relative locations, given that all structures attached to the rear of the Wall are rectangular, it was assumed to run east/west during the excavation, and this principle has been maintained in the text throughout this report.
2. The scale on Macdonald's reconstructed plan (1932: fig 13) is incorrect by a factor of 100% compared to the overall site plan (1932: pl X), but when corrected would convert to dimensions of at least 69m by 46m (0.32ha). The maximum dimensions of the annexe/extension are 61m by 59m, which also gives an area of 0.32 ha, when allowance is made for the irregular north-east angle.
3. It was noted that the fragile charcoal remains degraded with each cleaning, so that by the time they were drawn (Illus 3.4) the planks appeared slightly narrower and less regular than when first seen (Illus 3.5).
4. Specific page numbers for subsequent references to structural details at these sites will not be provided to avoid cluttering the text with undue repetition of references to the same reports.
5. I am grateful to Dr Matt Symonds for this observation.
6. Dr Swan later expressed doubts about the identification because of the absence of associated pottery, though re-emphasised the clear evidence of local manufacture apparent in the character of some of the pottery from the site (1999: 455–6).
7. Unfortunately, during the first stage of excavation the bottom of the pit was incorrectly identified. This was subsequently rectified when the remainder of the pit was emptied, but as a result the bottom 0.4m was omitted from the section drawing. The profile line in Illus 5.17 does not replicate the line of the section.
8. I owe the latter suggestion to the late Dr Vivien Swan.
9. I am grateful to Prof. Lawrence Keppie for making available a copy of an original site plan in order to correct the dimensions of the kiln recorded incorrectly in the published report (Keppie 1985: 60).
10. The early 18th-century antiquarian records of the discovery of several inscriptions, funerary sculpture and other Roman architectural stonework at Shirva, some 1.5km east of Auchendavy, clearly indicate that they had been re-used in another structure which is now generally identified as a late Iron Age souterrain (Keppie 1998: 15–18, 67–8, 93–4 and 113–18). The presence among the finds of a building inscription by a detachment of legio II Augusta makes clear that they must have come from a nearby fort and its cemetery. Auchendavy is here preferred, as a second tombstone of legio II Augusta is recorded from the fort itself (RIB I: 2179) and Shirva is slightly closer to it than it is to Bar Hill. Moreover, the type of sandstone used in the gravestones from Shirva most closely resembles that of a group of altars from Auchendavy (RIB I: 2174–8), while the column base recovered is different in style from those found in the well at Bar Hill (Keppie 1998: 68).
11. These are specifically recorded in the site supervisor's notes but, unfortunately cannot now be located.
12. It is possible to make about 30 sharp impressions from a plaster mould before its surface becomes increasingly blurred. After about 100 applications the mould is no longer usable.
13. For considerations of the intended purpose and interpretation of masks, see Bieber 1930: 2070–2120; Brein & Sauer 2001: 4f and 7–15; Cain 1988: 107–190; Rose 2012: 55; Summerer 1999: 79–81.
14. The miniature masks from this region remain unconsidered because they constitute a separate group both in terms of function and chronology (see Rose 2003).

15. The mask was completely reconstructed on the basis of several fragments and is on display in the museum of the Archaeological Park Xanten (APX). The inventory numbers are C 07190; C 7389; and C 7484.
16. The early reference to the Wilderspool mask refers to an analogous example from Colchester (Kendrick 1874: 13), but there is no other record of its existence and the brief description refers to the eyes being closed, so that it may have been part of a head pot rather than a mask.
17. Several fragments are preserved which allow us to gain quite a good impression of its appearance. For this reason the whole series is named after the find from Baldock. The remains of several different masks of this series are preserved, however none of them is complete. The series is usually considered to have been produced in Nijmegen, but might also have been produced at Cologne (Rose 2006: 38–9). The place of production cannot be determined for certain even for the mask from Baldock. The material used with its light pink fabric fits well visually with local production at Nijmegen. On the other hand, three nose fragments are known that are products from the Cologne workshops, most probably from the same mould (Rose 2006: cat 59–61, pl 4 f; arachne.dainst.org/entity/1091760; arachne.dainst.org/entity/1091761; arachne.dainst.org/entity/1091762).
18. Hartley and Fitts (1988: 59) even propose that the horned mask from Catterick may have represented one of the Brigantian gods. I was not able to investigate the mask from Wilderspool comprehensively because it is in the display of the Warrington Museum and Art Gallery.
19. D = Figure-type in Déchelette 1904.
20. All cross-references to specific mortaria refer to the archive number in Table 12.2.
21. PB is grateful to David Breeze for drawing this reference to his attention.
22. Two further sherds, recorded in the supervisor's notes as having been recovered from a shallow scoop (RAQ) adjacent to a road drainage ditch, have since been lost.
23. Thanks are due to Dr Bill Boyd for the advice on the stratigraphy of the curves.

24. REFERENCES

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- CSIR Keppie, L J F & Arnold, B 1984 *Corpus Signorum Imperii Romani (Corpus of Sculpture of the Roman World). Great Britain. Volume 1 Fascicule 4, Scotland*. Oxford: British Academy.
- Dressel Dressel, H (ed.) 1899 *Corpus Inscriptionum Latinarum* 15.1, Berlin
- LRBC Carson, R A G, Hill P V & Kent, J P C 1960 *Late Roman bronze coinage*. London: Spink.
- BMC *Coins of the Roman Empire in the British Museum*. Vols 1–6 (1923–1976). London: British Museum.
- HCC *Roman Imperial Coins in the Hunter Coin Cabinet*. Vols 1–5 (1962–82). Glasgow and Oxford: Oxford University Press.
- RIB I Collingwood R G & Wright R P 1965. *The Roman inscriptions of Britain. I Inscriptions on stone*. Oxford: Clarendon Press.
- RIB III Tomlin, R S O, Wright, R P & Hassall, M W C 2009. *The Roman inscriptions of Britain. III Inscriptions on stone found or notified between 1 January 1955 and 31 December 2006*. Oxford: Oxbow.
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