

Excavations at the Roman civil settlement at Inveresk, 1976–77

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SUMMARY

Excavations outside the Roman fort at Inveresk revealed an extensive and well-established civilian settlement extending along the ridge to the east of the fort and beneath the present village. Four main phases of activity were identified, the middle two (phase 2 and phases 3/4) corresponding to the two periods of the Antonine occupation of Scotland. An earlier phase of activity (phase 1) was represented by a characteristic V-profiled ditch for which no direct dating evidence existed but which may indicate the presence of a pre-settlement Roman enclosure in the vicinity. A buried turf-line directly overlying the phase 1 deposits suggested a period of abandonment over part of the site at least.

The foundation trenches of a timber building surrounding a stone-built furnace and a second timber structure, which had been burnt to the ground, comprised the structural elements of phase 2.

The subsequent phase of activity, phase 3/4, saw the rebuilding of the site on a much grander scale with massive timbered buildings and one stone building, all set in a regular grid separated by cobbled lanes and roads.

Post-Roman deposits were confined to late medieval and modern activity and were characterized by pits, a few stretches of stone walling and general disturbance over the northern part of the site. These deposits were too shallow and disturbed to permit any stratigraphic separation.

The majority of the finds suggest the largely domestic nature of the site, although the furnace and various pieces of industrial debris clearly indicate some form of industrial activity. In particular, the analysis of a type of pottery characteristic of the site demonstrated its origin in the area and probably on the site of Inveresk itself. The suggestion is put forward that the excavations have uncovered part of the potter's workshop. Further information was also gathered concerning the subsistence economy and exchange networks.

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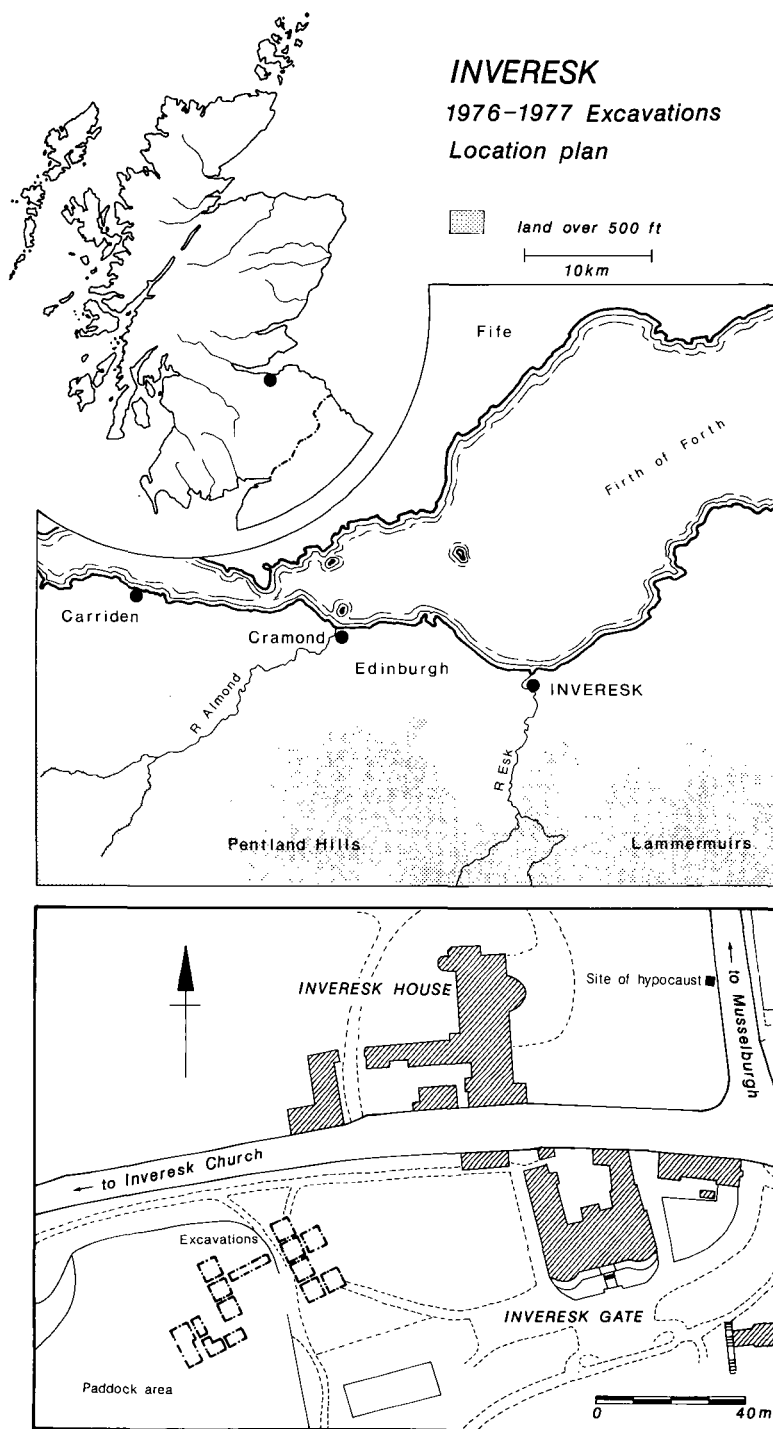
INTRODUCTION

DESCRIPTION OF THE SITE

The site of Inveresk stands on a bluff formed by the River Esk, where it cuts the raised beaches on the final leg of its journey to the sea (illus 1). The fort has the natural defences of steep slope and river on three sides and from its elevated position occupies an ideal strategic site, commanding excellent views east along the fertile rolling countryside of East Lothian, south across the gently rising Esk valley to the higher ground behind Dalkieth and to the Pentland Hills and west to the distinctive mass of Arthur's Seat in the city of Edinburgh. In antiquity the area to the north, where the present town of Musselburgh stands, and the Haugh to the south would have presented the additional barriers of a tidal estuary and poorly drained marshland. It was to the east of the fort, along a gravel ridge formed by the erosion of the late glacial raised beach by the River Esk, that the greatest potential for settlement lay. Here was a site with an easily defensible position, good drainage, fertile soils and access to the coast. The site has revealed evidence of Neolithic occupation (fiche 2: A9), but it is not until the founding of the Roman fort on the ridge that a clear picture of human activity can be obtained.

St Michael's churchyard now covers most of the fort, the church itself being one of the earliest Christian foundations in Scotland (Moir 1860, 27). In 1946–7 excavations in the present cemetery investigated the site of the fort (Richmond 1980), but it is mainly the associated settlement, which stretches east under the present village of Inveresk that has provided the richest source of finds and information about the site.

The earliest recorded discovery of Roman remains on the site was in 1565 when an altar and a 'cave' were uncovered in the grounds of Eskgrove House and brought to the attention of Queen Mary (Chalmers 1831, 294). The altar was dedicated by Quintus Lucius Sabinianus, imperial procurator in



ILLUS 1 Site location

the province of Britain (*RIB* 2132). Despite the entreaties of the Queen's Treasurer to the baillies of Musselburgh that the monuments 'be nocht demolishit nor broken doun' we read in Napier (1593, 210) that the altar was 'utterlie demolished' (illus 2.2). The discovery, in 1978, of a second altar dedicated by the same Sabinianus suggests that Inveresk may have been an important centre, especially as only four other instances of procuratorial inscriptions have been found in Britain (Maxwell 1983, 385–9).

In 1765–7 the foundations of stone walls and tarras floors were uncovered during the construction of a bowling green in the grounds of Inveresk House. More foundations were noted 15 years later, but neither preserved nor adequately recorded (illus 2.4). In 1783 the owner of the same house filled in the east ditch of the fort, until then used as a public road from Inveresk to Musselburgh, and the road was moved to its present position. During the 1783 operations a suite of hypocausted rooms measuring approximately 30 m by 7 m (de Cardonnel 1822) was uncovered; part of this structure (Richmond 1980, 297) still remains open to view (illus 2.5). In that same year the construction of new steps to the church (illus 2.6) revealed quantities of Roman bricks, fragments of 'red clay earthenware', great numbers of soot-stained flues and other pottery fragments (Moir 1860, 12).

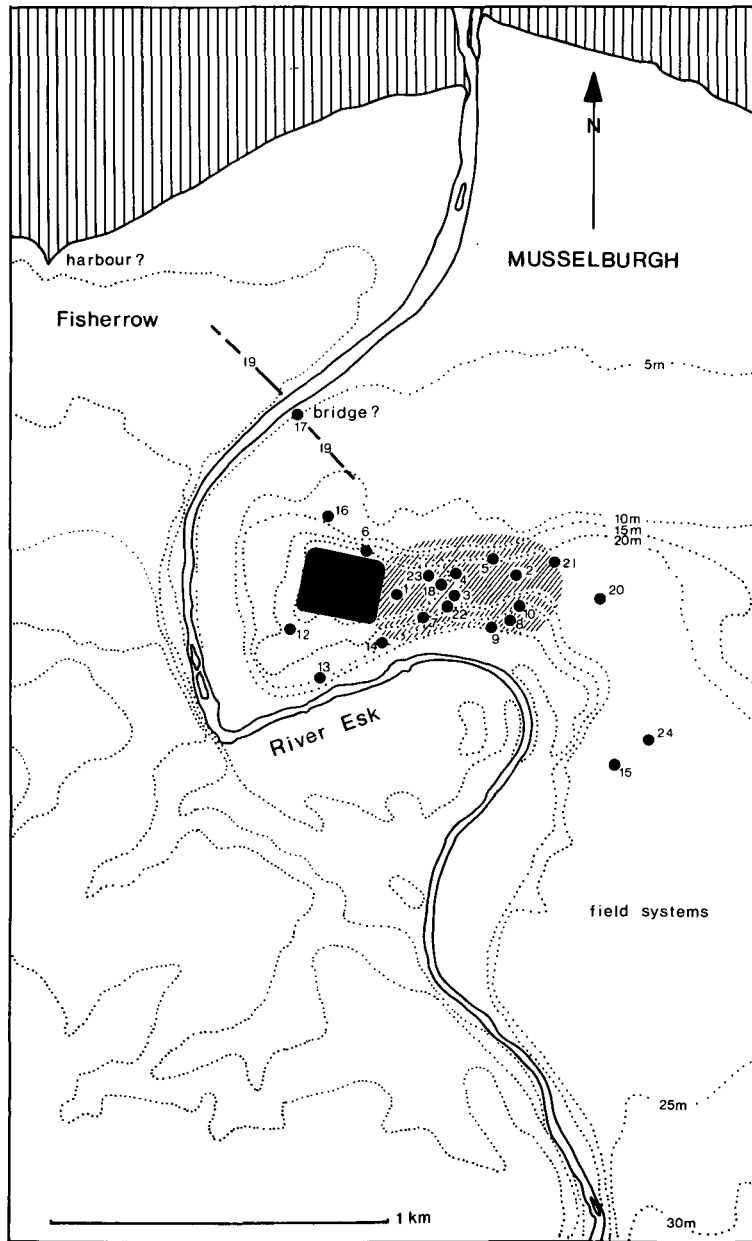
In 1827 a 'circle of curiously shaped stones' was unearthed about 30 m to 35 m south of the church (illus 2.7). Marks of burning, the bones and tusks of wild boar and the antler of deer caused this to be interpreted as a sacrificial altar. Also within the circle were two urns, which bore initial letters on their bases and contained a small quantity of ashes, beside a coin of Vespasian (Moir 1860, 12). The urns were broken during excavation and the 'altar' was subsequently destroyed.

The discovery in 1878 of a stone pine cone, of the type associated with Roman funerary monuments, approximately 1 km south-east of the fort suggests the presence of a cemetery in that area. Excavations at the time failed to locate any associated structures, although several nearly complete pots were recovered from beside the sculptured stone in an ancient drainage ditch (Stevenson 1879, 272). The same author records the discovery, in the grounds of Inveresk Poor House, of structural remains associated with a possible well (*ibid*, 276).

Field systems have been revealed by aerial photography in the fields immediately to the east of the present village (St Joseph 1951, 61); these are similar to those excavated at Croy Hill (Hanson 1979, 20). These rectilinear ditched plots, which also occur at Carriden, Rough Castle and possibly Camelon (Halliday *et al* 1981, 60), are of a 'different character' from those of other areas and may represent a distinct Romano-British type associated with Roman forts and settlements in Scotland.

Moir (1860, 23) suggested the existence of a harbour and associated works at Fisherrow, to the north-west of the fort. It is likely that a site such as Inveresk would have direct access to the sea and Fisherrow provides the nearest and indeed the only suitable location in the area. Although Moir quotes eye-witness accounts of the discovery in the early 19th century of 'ruins similar to those of Inveresk', as well as a road connecting the harbour to the fort, it is impossible to accept the existence of such remains without the corroborative evidence of excavation. Moir (1860, 24) also discusses the evidence for roads from Fisherrow to the west, in the direction of Cramond, and to the south, across the Shire Haugh to the Dalkeith area. All the evidence that he cites has now disappeared and again it is a situation which only modern excavation can verify (illus 1).

Richmond, in the late 1940s, located and investigated the Antonine fort. Excavations in the central area of the southern defences revealed two Antonine phases (Richmond 1980, 292). Trial trenching located the north and south ramparts and ditches but failed to do so in the east and west, where later damage to Roman levels was extensive. More recent excavations have shown that Richmond was perhaps overly pessimistic in his claims of complete destruction in the latter areas (Hanson 1984, 258–9). Inside the fort a stone stable block and a double barrack block were found, separated by a street made up of reused materials. Part of the stable block overlay the south-east



ILLUS 2 The environs of the site of Inveresk showing recorded findspots of Roman material. 1, St Michael's Church, Roman bricks found in old church building, 2, Eskgrove House, altar and hypocaust found 1565, 3, Inveresk gate, site of 1977 excavations, 4-6, Inveresk House, tarras floors found 1765-70; hypocaust found 1783, 7, Inveresk Gate, 1827 discovery of circle of stones, bones and coins, 8, 1827-60 drain of Roman brick and tile found, 9, well and conduit, 10, urn of unglazed clay, 11, Churchyard: pottery, stones etc uncovered during gravedigging, 12, metallic object discovered c 1850, 13, brass object found c 1847, 14, Roman tiles found c 1860, 15, Roman pot found 1878, 16, factory site; cinerary urns found 1893, 17, Musselburgh bridge: ?Roman masonry found 1809, during repairs, 18, 1547 description of fort ditches and rampart, 19, 1705 description of road from location of fort to Fisherrow, 20, triple ditches found in 1960, 21, Defensive ditches to west of 20, identified in 1966, 22, Inveresk Gate, 1971 excavations, 23, Inveresk House, 1971 excavations, 24, stone pine cone finial discovered in 1878

corner of a granary, the latter structure being associated with early Antonine pottery (Richmond 1980, 291). Hanson (1984, 259) confirmed the existence of two periods of Antonine occupation.

In the early 1960s St Joseph located a ditch system which he later investigated by trial trenching (St Joseph 1967, 176). Triple ditches extended in a line north–south for 260 m. A second series of two military-type ditch systems was located to the west of these; one ditch, 1.8 m wide, was traced across the whole north side of a rectangular enclosure for 84 m and for 42 m on the east side, with a 3.6 m wide causeway lying centrally on the north side. A second ditch, 5 m wide, ran obliquely across this enclosure for 120 m (illus 2.21).

The existence of civil settlement to the east of the fort was confirmed by Maxwell who opened trial trenches in the grounds of Inveresk Gate (illus 2.22) and Inveresk House (illus 2.23). Excavation in the latter area failed to provide much information, due to large scale disturbances of Roman levels in the post-medieval period, but the former site provided ample evidence of Antonine occupation. A trial trench, 11.5 m in length, uncovered the remains of three superimposed road surfaces aligned on the east gate of the fort and flanked by structures which were constructed of wattle and daub in the first two phases and stone in the final phase. A quantity of Antonine pottery was recovered, a large percentage of which was samian (Maxwell 1971, 29–30).

THE EXCAVATION

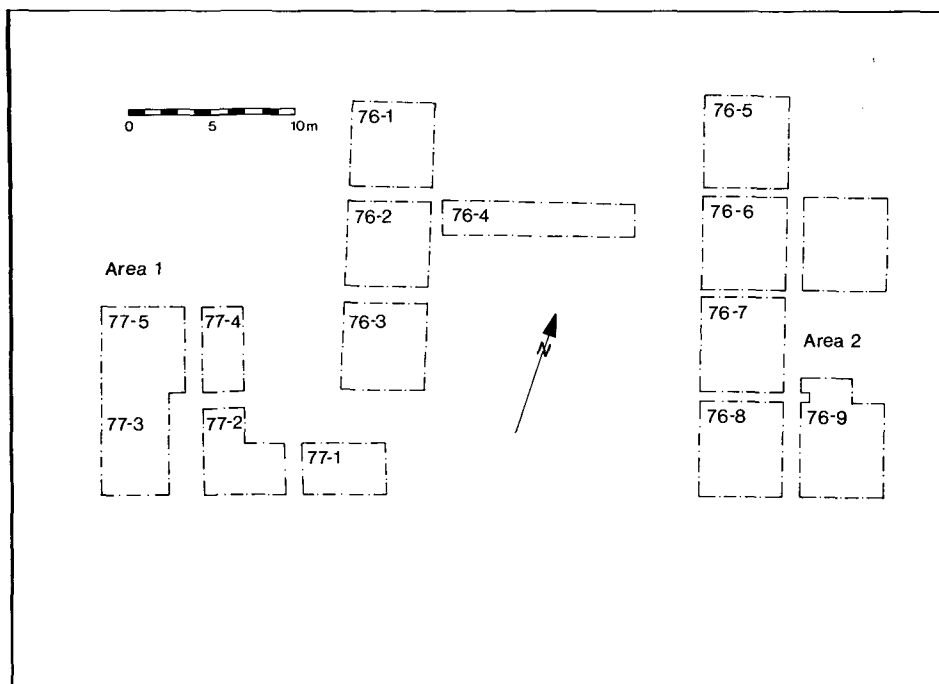
THE CIRCUMSTANCES OF EXCAVATION

Early in 1976 the owners of Inveresk Gate (Inveresk Research International) approved a plan to initiate excavations within their grounds in advance of new laboratories and service facilities. In order to permit immediate excavation the company advanced funds to pay for the excavation and some of the post-excavation work. As a result of this the author was asked to undertake the direction of a rescue excavation over two seasons in advance of construction work.

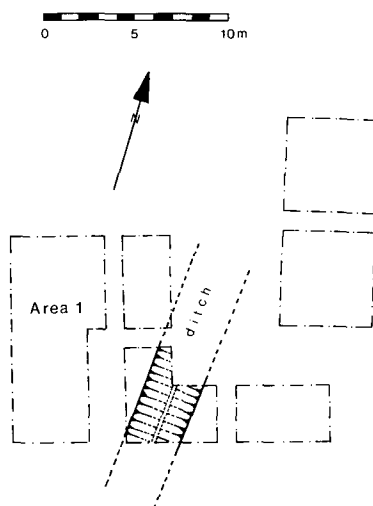
The site of the excavation lies in the grounds of Inveresk Gate (NGR NT 345 720), about 200 m east of the fort (illus 2.3). This lies on the very edge of the gravel ridge, not far from the trial trenches undertaken by Maxwell. The present house of Inveresk Gate is of 18th-century date, but it stands on the site of a much earlier mansion (Moir 1860). Considerable landscaping had been carried out in the grounds causing the destruction of some of the Roman levels. The area of the 1976 season (illus 22; fiche 1: A4) proved to have suffered greatly through tree planting and, in 1877, the digging of an enclosure ditch. Modern electricity cables, a telephone pole and a gas main had effectively destroyed many of the archaeological links in an area where the depth of stratigraphy was at its shallowest. The western trenches lay, however, within an area of the paddock which had remained undisturbed since the medieval period and which presented the best preserved and deepest Roman levels. This partial preservation of the Roman deposits, and an excavation brief which restricted excavation to the area under direct threat from construction, dictated the layout of the trenches. A total of 350 m² was opened. The trenches are grouped, for the purpose of description, into two general areas; area 1 consists of trenches 76/1–4 and 77/1–5, area 2 is made up of the six trenches 76/5–10 (illus 3). Five trenches (76/1, 76/4, 76/5, 76/6 and 76/10) were in an area where disturbance had been so great that all the Roman levels had been almost totally removed, thus destroying the stratigraphic links between areas 1 and 2. Limitations of time prevented the opening of single large areas, while the unexpected depth of stratigraphy and the indeterminate nature of some of the archaeological deposits meant that trenches of 5 metres square were the most appropriate.

PHASE 1

The earliest evidence of Roman activity on the site is also the most enigmatic. During the final days of excavation, just before the contractors were due to begin the construction of an access road, a V-shaped ditch was discovered in trench 77/2 (illus 4). This had a width of 4 m, a depth of 1–1.5 m and a basal slot which was well-formed, with straight sides and a depth of 0.7 m. The cleanness of the cut argues a short period of use before silt was allowed to accumulate. Some light-coloured sand and sandy soil had formed a shallow depth of silt accumulation in the bottom of the ditch before the whole feature had been obliterated by a general spread of brown sandy soil which extended to a depth of 0.4 m through 77/3 and parts of 77/1,



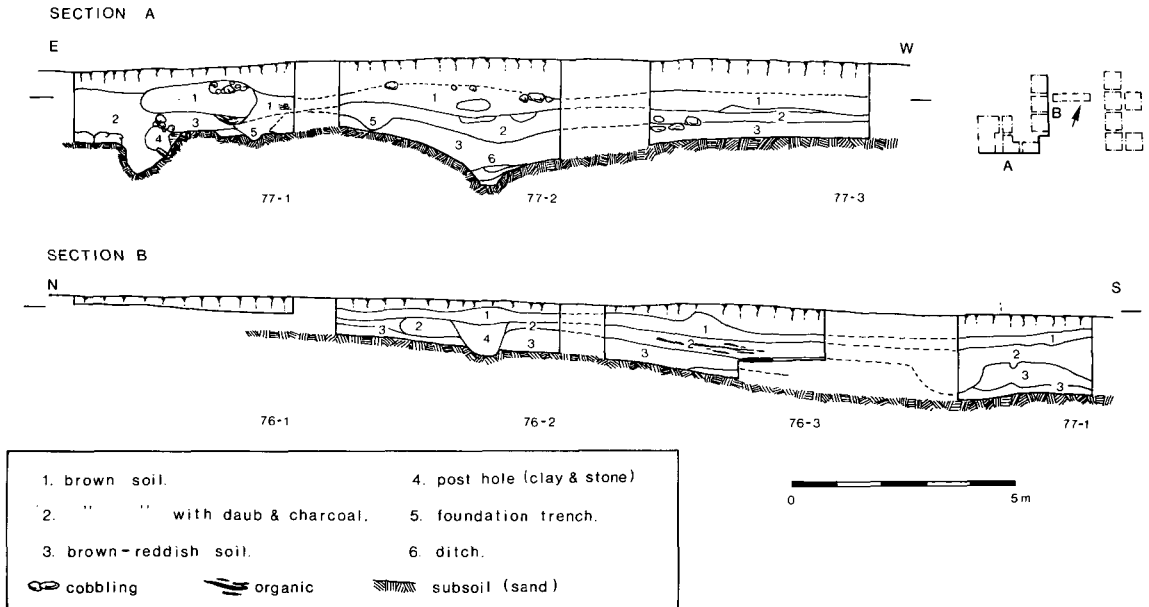
ILLUS 3 Trench and area numbering sequence



ILLUS 4 Plan of Phase 1 ditch

tapering off northwards through 76/3. No artefactual remains came from the primary silt of the ditch, although the main fill did produce a quantity of material (eg samian 2.17-20, 2.52).

Although no trace of upcast was located, a slight rise in the surface of the natural subsoil to the east of the ditch (illus 5) may indicate deposition on this side to form a slight mound. Rebuilding in later phases would have removed any trace of a rampart. The ditch was orientated north-south and it was traced for 5 m. No trace of this ditch was found in trenches 77/4 or 76/1, both of which had suffered greatly through



ILLUS 5 Main sections across the site

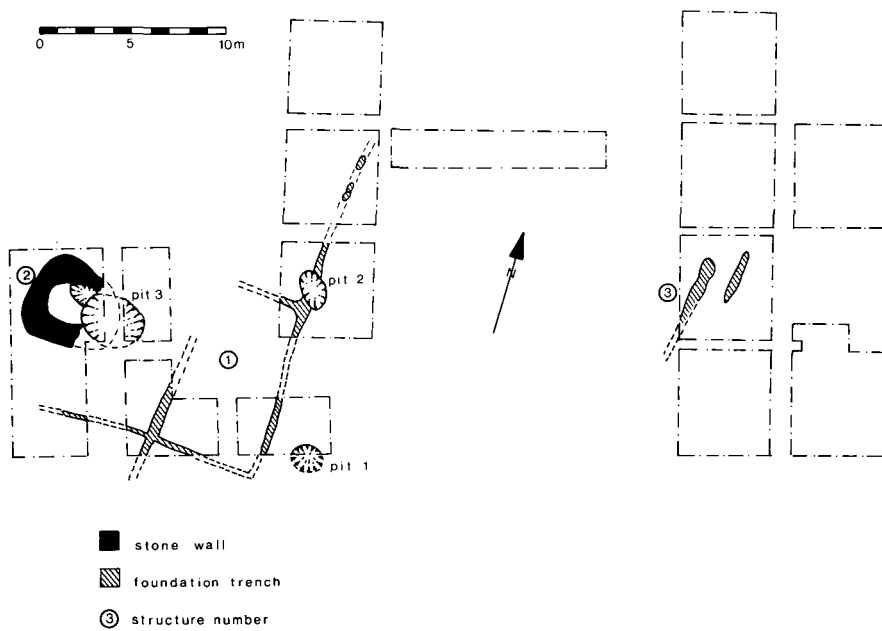
modern horticulture and construction activity; trench 76/2 was also devoid of any trace of the ditch and, as this was a largely undisturbed area, it suggests either a change in its alignment or a break to allow for the passage of a causeway.

Over the deposits associated with the ditch in 77/2 a line of buried turf could be traced, indicating a possible break in occupation over part of the site.

PHASE 2

The earliest buildings on the site proved also to be the most poorly preserved, owing largely to later rebuilding. Structures were located in both areas 1 and 2, although in the latter area they were restricted to trench 76/7 (illus 6).

The largest phase 2 structure (structure 1) lay in area 1 where slot foundation trenches were dug into the sandy subsoil and phase 1 ditch fill. These had no consistent shape or depth, although on one north-south length of over 12 m there was an overall drop in absolute level of the base of the slot of only 0.24 m, a gradient of 1:48. The slot trenches were irregular in shape with widths ranging from 0.2 m to 0.5 m and an overall depth range of between 0.2 m and 0.3 m. Very little of the structure was recovered but the dimensions of at least one room can be determined. This was orientated north-south and was 10 m by 6 m, built of timber framing with wattle and daub walls. A short length of foundation trench, in 76/3, with clay- and stone-packing may indicate repair or rebuilding along that part of the wall. The total absence of any trace of tiling suggests that the roof was either thatch or timber shingles. The slot trenches of the foundations were not traced west across 77/3 due to truncation by phase 3 structures, nor were they traced north into 76/2. However, in the latter area three stone-packed postholes, dug into the subsoil and sealed by a phase 3 road surface, were found on the alignment of the foundation trench. A line of daub c 0.3 m thick, which lay in the eastern part of 76/2 and 76/3, ran parallel to the east wall alignment of structure 1 and may indicate the collapse of the wall at this part. The lack of a continuous foundation trench in 76/2 may indicate a break in the wall for an entrance. The continuation of the structure to the south is indicated by the slot trench in 77/2 disappearing into the south section. If these indications of the extent of the building are accepted the structure has measurements in excess of 22 m north-south and 12 m east-west. There were no indications of the destruction of this building that were not consistent with natural processes of decay, although the total absence of evidence for timbers *in situ* suggests that the building probably was deliberately dismantled.



ILLUS 6 Plan of Phase 2 remains



ILLUS 7 Foundation trenches and burnt timbers of structure 3

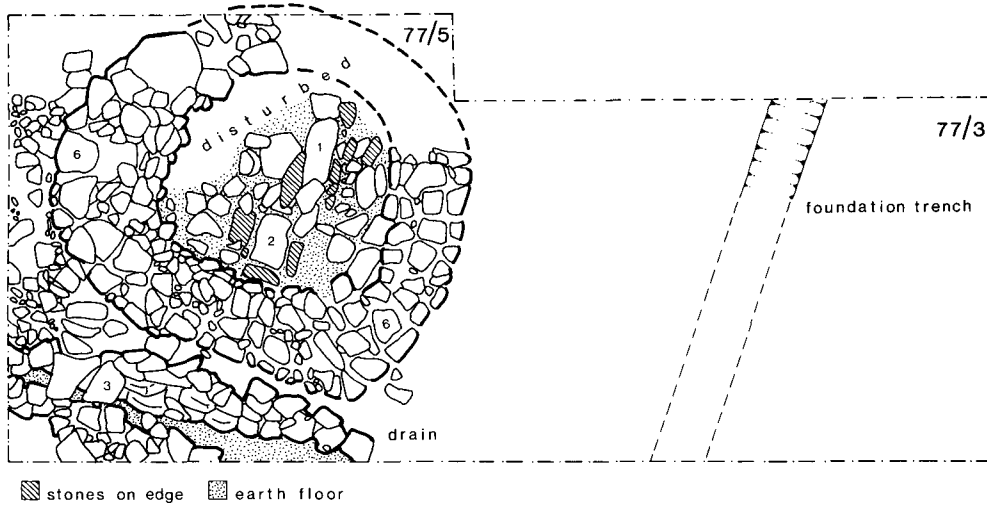
To the east of this, in area 2, were the remains of a second timber building, structure 3 (illus 7). These consisted of two construction trenches dug into the natural subsoil, giving little indication as to the nature of the building (illus 6). The western one was irregular in shape and measured 5 m in length, with a width of 0.4–0.6 m and an average depth of 0.2 m. Four postholes were found inside this construction trench (illus 8). A second shallower trench, 3 m in length, lay to the east of this and contained quantities of charred and burnt wood, representing the remains of a timber foundation beam which had been burned *in situ* (see charcoal summary). Lying at right angles to this were smaller lengths of burned wood, the remains of timber planks of a floor that rested on the foundation beams. The west construction trench may represent the outer wall of a structure whose timber uprights were embedded in the postholes. The presence of tiles in the destruction deposit of structure 3 suggests that these were the principal form of roofing. A shallow depression to the east of both these features contained burned material and was also associated with structure 3. A fairly dense scatter of daub, charcoal and nails over the area further attests to destruction by fire.

Structure 2 was a stone-built furnace which lay within, and was part of, the timber building, structure 1. The furnace was sub-rectangular with a north–south measurement of 4.6 m and an estimated east–west measurement of 3.6 m (illus 9). The east wall, which was the probable location of the flue or access point, had been totally destroyed by Roman and modern pits. The entire north wall had collapsed outwards in antiquity, causing the central portion to buckle upwards in a manner consistent with subsidence into an earlier pit or ditch. The presence of a tree immediately to the north of the furnace prevented any further

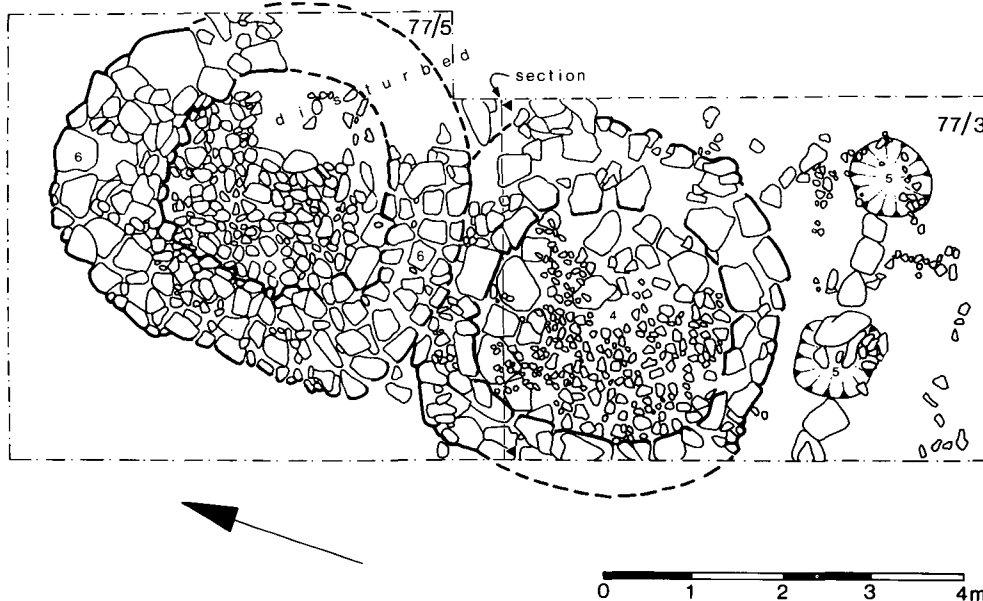


ILLUS 8 Foundation trench and postholes of structure 3 beneath wall of structure 7

PHASE 2 furnace



PHASE 3/4 structures



ILLUS 9 Plan of the furnace and later circular structure showing flue (1), chamber (2), covered drain (3), circular stone structure (4), postholes of structure 5 (5) and stone wall of furnace (6)

investigation in this area which might have determined the cause of collapse. A pit dug through the floor of the northern half of the furnace contained fragments of an amphora which lay smashed against the north wall and was sealed by a layer of cobbles laid down in phase 3.

The entire furnace was at least partially subterranean, being sunk to a depth of about 1 m below the contemporary ground surface, with seven to eight courses visible in places. The original height of the wall is unknown; where intact it was composed of rough medium-sized stones with up to three courses surviving



ILLUS 10 Interior of the furnace from the north, showing internal paving and chamber

above ground level, without the use of mortar. The floor of the furnace stood 0.8 m above the basal courses of the wall, the area below being packed with a jumble of stones and loose brown earth. It is possible that the high level of the floor represents a phase of refurbishing of the interior and that the original floor was at the same level as the base of the walls. However, no evidence either in the form of extant earlier flooring or as a build-up of furnace debris below the existing floor was detected to support this proposition. The interior part of the furnace that was still intact was confined to the southern two thirds of the structure (illus 10). Here was a solid, well-constructed interior consisting of large paving slabs, irregular in plan (2 on illus 9). These were surrounded on the north by a low, well-built stone wall which roughly bisected the interior of the furnace (6 on illus 9) and on the east by a series of stone uprights set on edge. The arrangement of paving, wall and uprights served to create a channel facing east (1 on illus 9) with an internal chamber (2 on illus 9). Towards the end of its life as a furnace the interior had been filled with well-packed clay or daub, suggesting the possible nature of the dome superstructure. A pit, possibly for the disposal of rubbish, was dug through the north part of the furnace.

Although all stratigraphic links had been severed between the furnace and contemporary structures by later disturbances, it is possible to assign it to a phase 2 context for two reasons. An earlier context would have placed the stoke-hole of the furnace within 2 m of the phase 2 ditch; an examination of the fill of the latter failed to reveal any slag or burned material associated with the furnace. A phase 3 context is ruled out because during that phase a circular stone structure was built butting on to the south wall of an already existing furnace.

A 4 m stretch of stone-lined drain was uncovered, running north-south, immediately west of the furnace (3 on illus 9). This drain cut through the shallow phase 1 deposits to the underlying gravel which acted as its bottoming. A lining of small stone slabs two courses high had been placed along either edge of the drain, but the absence of any firm base had caused the sides to subside inwards (illus 11). Only two cover stones remained *in situ*.

Three large pits were dug at the end of the phase 2 occupation (pits 1-3 on illus 6). The larger pit was 1.3 m across, 1.1 m deep and surrounded on its lip by a ring of large flat stones. The fill was uniform and was identical to surrounding phase 2 deposits. These deposits in the area of the pit had been heaped in such a way as to suggest dumping. The other two pits were irregular in shape and ill-defined, their upper portion having been truncated by later construction.

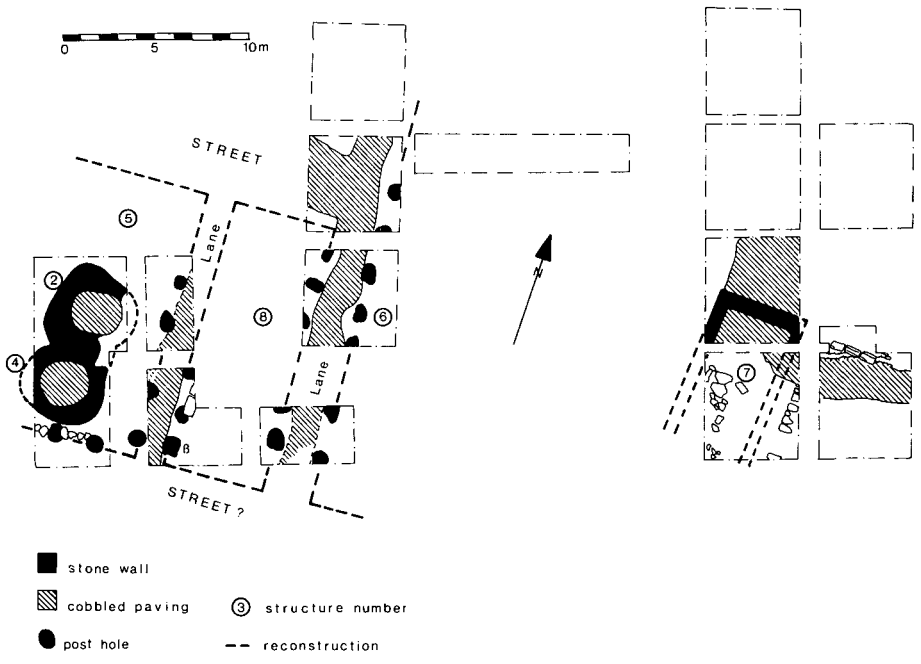


ILLUS 11 Stone drain running north-south to the west of structure 2

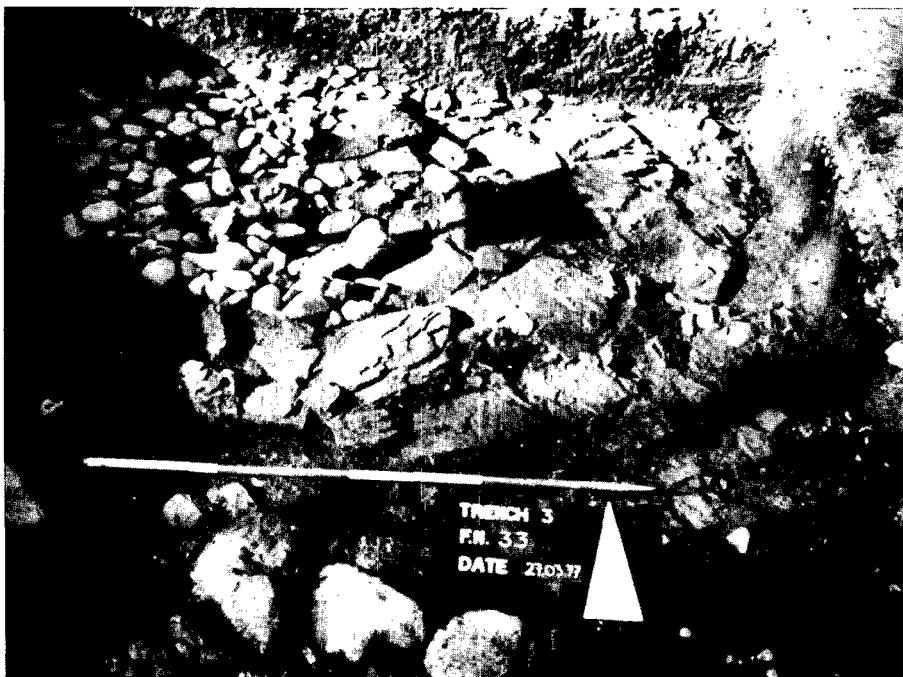
PHASES 3 AND 4

The final phase of Roman occupation at Inveresk was by far the most substantial, speaking plainly of a well-established, prosperous community. Three massively constructed timber buildings and several stone structures, were uncovered, all consistently aligned on a north-south axis and separated by a grid of cobbled streets and alleyways (illus 12). Both an industrial or commercial and residential nature are indicated. Of particular interest to the question of planning and property boundaries is structure 8, which was constructed on a gap site at a later date than the two adjacent buildings (structures 5 & 6). This structure can be identified as belonging to a separate phase of construction but owing to its demonstrable contemporaneity with other phase 3 structures it will be incorporated within any discussion of phase 3.

The most westerly structures on the site form the centre of some sort of industrial activity. A series of postholes in 77/2, 77/3 and 77/4 trace the outline of two sides of a massive timber construction which seems to have surrounded two circular stone platforms. Although the north wall of this timber structure was not located, its northern limit may be indicated by the projection of a well-constructed roadway west from 76/2 into the unexcavated area. This would give a north-south measurement of 15 m and a minimum east-west measurement of 8 m. Structure 5 was founded on a series of large timber uprights set in postholes packed with stone and clay, dug through underlying levels to the sandy subsoil below. There were variations in the size and depth of postholes, especially in 77/4 where only the bottoms survived, but an average width of c 0.8m and an average depth of c 0.5 m may be suggested. The postholes were packed with small round river stones. An additional wall footing of large rounded boulders was constructed between the postholes



ILLUS 12 Plan of Phase 3/4 remains



ILLUS 13 Phase 3: structure 4, built to the south of the furnace

of the south wall (77/3 and possibly 77/2), although no evidence for stonework any higher than foundation level was found.

Within the area bounded by the walls of structure 5 stood two circular stone platforms (illus 13). Structure 2, the more northerly, is the disused furnace of phase 2, which in phase 3 was demolished to leave a low upstanding wall; its interior was packed solidly with small rounded pebbles producing a firm stone platform. No evidence for any form of superstructure was found. Structure 4 abutted on to the south wall of structure 2, the two being almost identical in appearance. An area slightly larger than the structure itself had been excavated to a depth of c 0.5 m, and packed with a layer of earth, followed by one of sand and one of clay, providing a firm foundation (illus 23; fiche 1: A5). A wall, 0.25 m in height, between 0.5 m and 0.8 m in width and built of flat slabs, surrounded a circular area, 2.7 m in diameter, paved with similar stone slabs. This central area had been solidly packed with rounded cobbles similar to those utilized in structure 2. The overall diameter was between 4 m and 4.5 m. No evidence was found which would suggest a superstructure of any kind; any roofing could have been supported on the timber uprights of structure 5. Quantities of daub, as well as tile, indicate that the whole building was solidly walled and roofed and was not an open enclosure or courtyard.

A lane about 1 m wide separated this building from the adjacent building, structure 8. The lane was paved with rough cobbling set into a scooped depression and bounded on either side by flat stones set on edge to form a kerb. This lane was intact for 5 m in 77/2, but had been badly disturbed further north, in 77/4, although enough debris remained to trace its course between the two buildings (illus 14).

Structure 8 was a rectangular building measuring 5 m by 15 m and aligned on a north-south axis (illus 12). The position of the north wall could be established in relationship to an east-west road in 76/2; the south wall by an extension of the line of the south wall of structure 5. The latter boundary is only conjectural, although the consistency of alignment of east-west walls on the site suggests that the same is probably true of other walls. Again large postholes, filled with clay and stone, provided support for the uprights of a substantial timber building. The stone packing of these postholes included fragments of several quernstones of a grey volcanic rock (Andernach?), several other fragments being found embedded

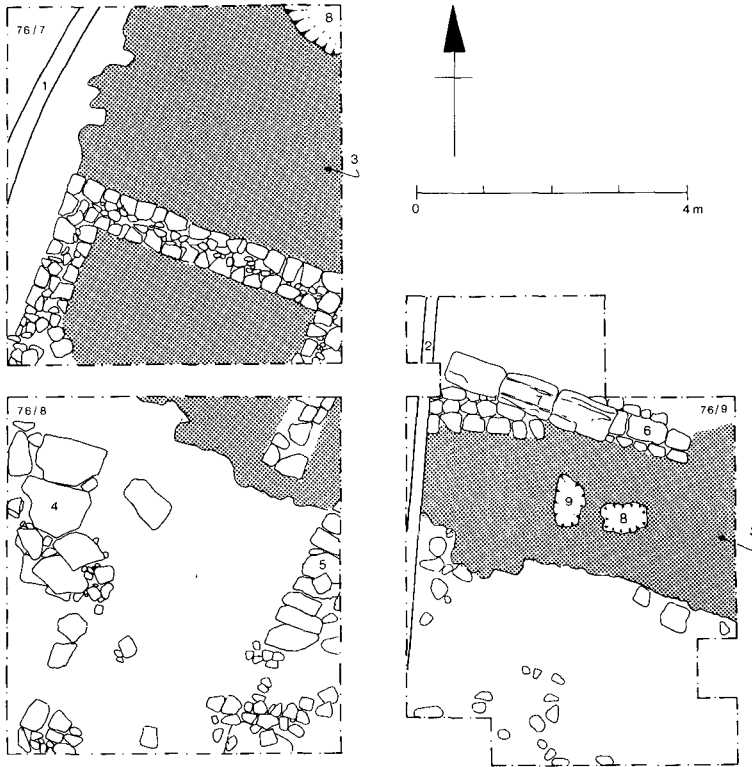


ILLUS 14 Phase 3: the paved lane between structures 5 and 8

in the soil between the buildings. One posthole, which had a diameter of 0.7 m to 0.9 m, retained the impression of the timber it had contained (illus 24; fiche 1: A6). This was about 0.2 m in diameter and may have been roughly squared. The bottom 0.4 m to 0.5 m had been buried in the packing of the posthole. The other postholes had similar dimensions, although the more northerly ones achieved greater depths, of up to 0.7 m, due to a rise in the ground. A single well-made slab in 77/2 was associated with this phase, indicating that part of the floor at least was paved, possibly the area around an entrance.

A second cobbled lane, east of structure 8, separated it from structure 6. This lane was largely intact in 76/2 and 76/3 where it measured 2 m across, but this narrowed to 1 m further south, in 77/1, where it had a more denuded appearance. The surface consisted of stones packed to a depth of 0.5 m and covered with small pebbles. There was no definite kerb or edge. On either side of the lane large concentrations of daub and iron nails further attested the nature of the surrounding buildings. The surface of the lane gave an indication of its 'back street' nature in the scatter of debris which included several flagons, mortaria, amphora fragments and a samian bowl, as well as charcoal, bone and shell. There was evidence of patchwork repairs, with pottery and debris being sealed beneath stone rubble. In several instances lumps of lead were found to have fallen on to the lane in a molten state.

In 76/2 a third cobbled street, 3.4 m wide, met the north-south lane at right angles and branched west in the direction of the fort. A soft yellow sandstone, which had been crushed or had decayed through use and erosion, was used in the construction of this road, in contrast to other paved areas where a harder, darker stone was used. As a result, the juncture of the two streets was well defined, both by the difference in materials used and by the flat stones set on edge around the 'yellow road'. The method of construction of this street was similar to that of the lanes.



ILLUS 15 Plan of Phase 3/4 structures in area 2 showing stone building, electricity cable (1), modern pipe (2), cobbling (3), paving (4), foundation course (5), small stone drain (6), large stone drain (7) and postholes (8-9)



ILLUS 16 The foundation courses of structure 7 lying over the Phase 3 cobbled surface

Structure 6 lay to the east of structure 8 and consisted of a line of postholes running north–south through 76/2, 76/3 and 77/1 (illus 12). This was by far the largest structure encountered on the site, both in its overall length, which exceeded 20 m, and in the size of its postholes. The latter were spaced at a regular distance of 2 m and were packed solidly with clay and stone. In 76/3 the survival of a roughly paved lane indicated an original posthole depth of c 1 m. A short spread of daub lay between two of the postholes and stretched east from the lane, probably representing material slumped from the wall during its decay or destruction. Also, like the other two timber buildings, deposits associated with this structure suggest wattle and daub walls on a timber frame with a tiled roof.

In area 2 rough cobbling consisting of irregular broken stones, 0.3 m to 0.4 m deep, was overlain by the remains of a surface of pebbles and gravel; this cobbling sealed the burned building of phase 2 (structure 3). A number of features were constructed through this cobbling as an integral part of the original construction. The stone wall of a small building, structure 7, measuring 5 m east–west and at least 6 m north–south was found (illus 15 and 16). The south wall was not located, but a large patch of stone paving in 76/8 gives a minimum length. The wall, which was 0.6 m thick and standing three courses to a height of between 0.4 m and 0.6 m, was well constructed of squared stones on the two outer faces with a rough rubble core. The bottom two courses were incorporated in the level of the cobbling though distinct from it in the squareness and alignment of the stones. No continuation of the walls was found in either 76/8 or 76/9. In the latter case a line of stones, set deeply on edge, defined the southern limit of the cobbling, while the north edge was defined by a stone-built drain. This drain was 0.4 m wide and c 0.1 m deep, with roughly squared stones forming its sides and bottom. No cover slabs were located (illus 11). A second



ILLUS 17 The lower stone drain of Phase 3 and the upper drain of large channelled stones, from the east

drain, constructed of massive channelled stones, lay over the first drain and was on a slightly different alignment. Three stones were recovered, each measuring 0.6 m by 0.9 m, with a central channel 0.25 m wide. Trenching for gas and water mains had destroyed all stratification which could have linked these drains with structure 7.

DISCUSSION

The importance of the evidence from Inveresk lies primarily in the lack of any other excavation of a civilian settlement in Scotland. Other sites have produced evidence of occupation outwith the walls and defences of forts, the recent excavations at Cramond, Croy Hill and Bearsden being noted examples, but so far the evidence has either been open to alternative explanation (Holmes 1979, 13) or has been too meagre to be conclusive (Hanson 1979, 20). The only other site which has produced unequivocal evidence of civilian settlement has been Carriden, which has produced a rare inscription dedicated by the *vikani* (Richmond & Steer 1957). The *vicus* at Carriden, however, has not been

excavated. It is highly probable that civilian settlements existed outside a number of forts in Scotland. The study of civilians in Scotland is an aspect of Roman occupation which has been long neglected. The main thrust of both practical and academic research has been to elucidate the military aspect of the occupation, usually to the detriment of an understanding of any political, economic or cultural consideration. Inveresk goes some way towards rectifying this situation. It is now possible to demonstrate to some extent the nature of civilian occupation in Scotland and it is significant that for size, complexity and quality Inveresk compares favourably with contemporary sites in the more settled areas behind Hadrian's Wall. Further research on sites may well reveal other *vici* of a similar nature.

DATING

There is very little from the excavations that would suggest a date for the site outside the mid second century AD. A coin of Vespasian and one of Mark Antony were both found in a much worn condition and may be interpreted as heirlooms (fiche 2:B1). Several pieces of decorated samian (nos 2.3, 2.10, 2.18, 2.43, 2.59 and 2.61) fall within a date range earlier than the accepted period of the Antonine occupation; this, however, probably reflects the method of supply to the northern frontier and not an earlier occupation. The mortaria also suggest a similar pattern (fiche 1:F12).

Twelve Roman coins were found on the site; eight of these were identifiable and from secure contexts. The coins are what would be expected on an early Antonine site; both main phases, 2 and 3, produced coins of Antoninus as well as those of earlier emperors. Indeed the two earliest coins on the site, those of Mark Antony (no 3.82) and Vespasian (no 3.88), come from later deposits. Only two of the coins were minted after AD 138 (nos 3.77 and 3.83), but this may reflect the distribution of new coinage rather than an early date for all phases of the site. It is perhaps significant that new coins were not reaching the site even in its later phases (fiche 2:A12-B1). The samian pottery appears to support the coin evidence, with the bulk of the assemblage being manufactured either before or during the Antonine I occupation (fiche 1:A7). However, a study of the decorated and stamped samian shows that a greater proportion of the potters who were active within a time-span covering the dates 140-70 AD are represented in phase 3/4 deposits than in phases 1 and 2 (illus 13). Other stamped vessels, including a southern Spanish amphora (fiche 1:G4) and the mortaria stamps (fiche 1:F1-6), support a date in the early to mid second century. The rest of the coarse ware was not amenable to finer dating; however, there is nothing on the site which would suggest a date outside the Antonine period. Both BB1 (Black burnished) and BB2 occurred in substantial amounts; although it is known that both wares do not cover the same time ranges, their use as a chronological indicator is fraught with difficulty and they are probably more significant as an indication of methods of supply (Gillam & Greene 1981). All material finds from the site, on the whole, support an Antonine date and it is thought that the greater proportion of earlier Antonine material reflects differences in the nature of phase 2 and phase 3 deposits. The latter, although structurally more substantial, produced slightly less material and this has given a bias towards an early Antonine date.

EVIDENCE FROM THE ARTEFACTS

While the Phase 2 furnace and its later adaptations were direct evidence of industrial activity on site, the study of artefacts revealed little of this nature. A group of pottery has been identified as being unique to the site and possibly to this part of Scotland (see 'Comments on Inveresk ware' *infra*). Analysis of the mineral inclusions in this Inveresk ware suggests that it originated in the vicinity (see petrology, fiche 1: G5-9) while a study of the shapes and style suggests a connection with the Severn valley, probably a potter from that area moving north in search of a new livelihood. The range of shapes is reminiscent of Severn Valley ware (illus 19-21) and is also suggestive of a local production centre as such a variety of types, each represented by one or two examples only, would not be found

far from its origin. Several groups of mortaria found on site have been given a Scottish origin. Of particular interest is the almost complete example stamped F E C (fiche 1: F2). Several others have been assigned a possible Scottish origin, while a further group represented by two examples may come from Carlisle or Scotland. Hartley (fiche 1: F12–13) has suggested Newstead as the possible centre of production of these mortaria but, although there is evidence of considerable activity on that site it is not the only contender. Camelon in particular was a major centre of industrial activity and pottery is known to have been produced at Bar Hill (Anderson 1985). The distribution of mortaria, although tending to be to the north of the production site, may be distorted in Antonine Scotland where the Forth/Clyde was a recognizable frontier. Any production centre along this line would serve a market area to the south and in this light, Inveresk must surely stand as a possible candidate for mortaria production. The presence of an almost complete waster (no 1.30, fiche 1: F6) lends further credibility to this suggestion. Several other wasters from the site provide further evidence of pottery manufacture and to these can be added several small triangular clay objects (fiche 2: B2, nos 3.1–4). These latter do not appear to fit into the normal repertoire of kiln furniture although some connection is suggested.

The presence of slag, coal, and lead which had been dropped in a molten state is further possible evidence for industrial activity. Coal was present in small amounts throughout the Inveresk sequence but was not concentrated in any one area or structure. It could have been used in domestic heating, although there is no evidence to suggest that it was widely used for such purposes in the Roman world. The source of the coal is unknown, although it could have been obtained locally. Several lumps of lead were recovered from the debris lying on the lane surface between Phase 2 structures 6 and 8. Several other pieces came from the cobbled lane in area 2 (phase 3/4) and from the south part of trenches 77/2 and 77/3 in area 1, apart from those in the lane, which had been dropped where found, it was not possible to determine if any of these pieces were *in situ*. It is unlikely that these lead lumps were the result of conflagration, the only evidence for destruction by fire on the site came from Phase 2 in area 2. It is possible that this spilled lead represents some form of lead-working in the vicinity. A quantity of slag and vitrified material was recovered, mostly from within the Phase 2 furnace, structure 2. Of particular interest is a piece of slag still bearing the shape of the receptacle into which it had been poured (fiche 2: B8, 3.90), as well as several pieces of a possible crucible (fiche 1: C11, nos 1.253 and 1.254). A full analysis of this material is awaited; it is hoped that this will help to determine the function of the Phase 2 furnace. Preliminary analysis has revealed a wide range in the type of slag materials present, possibly representing more than one process.

The majority of finds from the site, however, speak plainly of its domestic nature. The greater bulk of the iron was associated with timber constructions. Nails and spikes were common from all phases and it is significant that, of those that were sufficiently well preserved to be identified, the majority were unbent. During the demolition of a timber building a certain percentage of nails would remain undamaged; however, at Inveresk this percentage appears to be considerably higher than would be expected, suggesting therefore that parts, at least, of the buildings were allowed to decay *in situ*. The majority of the nails and spikes came from the perimeters of the timber buildings, especially structures 6 and 8 of Phase 3/4. Other iron objects associated with building construction included T-shaped staples (fiche 2: B2, no 3.9), split-pins (2: B3, nos 3.13 and 3.14), rings (fiche 2: B3, nos 3.15–16 and 3.20) and strapping (fiche 2: B3, no 3.18) which were probably all used in building, the first possibly for attaching tiles to walls. A key (fiche 2: B3, no 3.21) and window glass further attest the quality of the buildings erected in both phases of occupation. One square of blue stone, possibly a tessera (fiche 2: B7, no 3.65), hints at greater things that may await discovery on the site.

The range of pottery covers most of the domestic types found on Antonine sites. Even the furnace of phase 2 and the industrial structures of phase 3 produced a quantity of domestic wares such

as mortaria, amphorae and black-burnished ware. Special mention has already been made of Inveresk ware and Scottish mortaria. The former is represented by a wide range of high quality vessels which would most likely be found on a site where the preparation and consumption of food was taking place, either in households or in 'tavernas'. Particular note should be made of the bowls (fiche 1: D2, no *I.235* and fiche 1: C10, nos *I.231–2*) whose shape, often imitating samian forms, was meant for display. The high proportion of good decorated samian is another indication of a quality of life not normally associated with *vicus* living. Several fine pieces of glassware were found; these included a delicate bowl (fiche 2: B7, no *3.59*), bottles (fiche 2: B7, *3.58*) and some fragments bearing incised decoration. Some of the coarse ware also attests to the storage and preparation of food on site. Amphorae were found in considerable quantities, although not in a reconstructable state. The most common type was the southern Spanish globular amphora (see note on the amphora stamp, *infra*). Mortaria were found in abundance, as was a wide range of cooking jars, bowls and platters, both in black-burnished and grey wares. Types of BB1 and BB2 occur in roughly equal quantities although the small size of the identifiable sample meant that several types were represented by one sherd only. Several fragmentary querns had been used in the post-packing of timber buildings in Phase 3/4 (fiche 2: B8, no *3.71*). It is apparent from the artefactual remains that a predominantly domestic nature is indicated in both Phases 2 and 3/4, except in structures 2 and 4 which are obviously industrial. The site rarely preserved any occupation surfaces *in situ*, with the exception of some cobbles and paving. As a result, a study of the density of certain find types has not proved to be profitable. The impression was gained that the depths of stratigraphy at Inveresk were formed by general rubbish accumulation and levelling activities, which resulted in a fairly general and uniform distribution of finds with no special significance as far as context is concerned.

A more personal note is sounded with some of the smaller artefactual remains. Several pieces of jewellery were recovered including bronze rings (fiche 2: B4, nos *3.27–8*), one of which would have held an intaglio or gemstone (*3.25*), a bronze armlet (*3.26*), a brooch (*3.25*), several beads (*3.53–6*), two buttons (*3.29–30*) and bronze pins (*3.33* and possibly *3.32*). The buttons are of particular interest, one (*3.30*) being intact and set with a delicate pattern of glass decoration. A melon bead (*3.53*) in blue faience is a common find on second-century sites. Several pieces of bronze are probably to be interpreted as decorative fastenings to clothing, belts or purses (*3.34–40*). A number of bone pins (fiche 2: B6, *3.46–52*) and two bone pendants (*3.44* and *3.67*) were also found. Three of the pins (*3.46*, *3.48* and *3.49*) have a pointed butt-end below which are one or two grooves, a type which has been dated to the mid second century (Crummy 1979, 160). A piece of worked wood with a dowel at one end could have been the decorative inlay for a knife handle (*3.45*). Considerable numbers of hobnails from sandals and boots were found scattered throughout the deposits although in most cases the leather had completely perished and only rarely was the shape preserved.

ENVIRONMENT AND ECONOMY

The charcoal remains, some of which were quite substantial, suggest a cool and damp climate, much like the present day, which would support a climax vegetation of mixed deciduous woodland with a hazel understorey (see charcoal report *infra*). The mixture of timber types used in the burned building (structure 3) of Phase 2 suggests that more suitable timber was not available, thus raising problems concerning the supply and availability of timber to the *vicus* builders. Alternatively, it may simply indicate that a wide variety of timber was readily available and that no great effort was expended on obtaining the hardier species, like oak. Certainly the main floor of structure 3 in Phase 2 was poplar while the overlying floor boards comprised hazel, birch and alder as well as oak. Hanson (1978) has suggested that local timber was probably used more readily than previously thought and that the durability of such buildings could be considerable.

Cattle, sheep and pig appear to have been the main source of meat in all phases (see animal bone *infra*), although the numbers for Phase 1 are distorted because of the small sample recovered. The diet was also supplemented by domestic fowl and goose, as well as mussels and oysters (see molluscan report *infra*). It is evident that molluscs did not form a major part of the diet, although if they came from artificial beds, as suggested, then a considerable effort may have been expended on obtaining a regular supply. The pattern emerging from animal bone is one of only a few animals being killed on site within the prime meat range, with the best being kept beyond four years. It is possible that some of the stock was exported and slaughtered elsewhere; a suggestion which could well be supported by a readily available market in the nearby fort. Alternatively, it could reflect a greater emphasis on the rearing of animals for products other than meat, such as milk, wool, hides, etc or for traction. The analysis of organic deposits at Bearsden (Dickson *et al* 1979) has led to the suggestion that meat did not form the main source of food in the Roman military diet. If this were the case, the pattern of animal bones from Inveresk would appear to represent livestock husbandry primarily for animal by-products with the production of meat being a secondary, though important, aim. Similarly, the pattern of fields outside the village of Inveresk which were recently detected from the air (Halliday *et al* 1981) do not represent an economy based on livestock; these have more the appearance of garden plots and fields for the growing of cereal crops. It is also possible that areas of pasture would have been further from the site, on more marginal land, leaving the fertile lands around the settlement for growing of vegetables and cereals. However, at present any assessment of the nature of the agricultural economy is based on supposition supported by a few facts. Further excavation could investigate the nature and date of the field systems, possibly obtaining further environmental and exploitative or subsistence data. Such information is surprisingly lacking from Scottish Roman sites, leaving open the whole question of agriculture, the supply of basic foodstuffs and materials to both civilian and military populations and the relationship of Roman settlement to the surrounding area.

CONCLUSIONS

It is not possible to give a comprehensive assessment of a site the size of Inveresk from such a limited excavation. However, a valuable insight into the nature of the site has been achieved and a preliminary step can be made. The deposits associated with Phase 1, the ditch, are the most difficult to understand. The military nature of the ditch is apparent from its V-profile and basal slot; a drainage ditch would not be as regular and would have suffered erosion. As mentioned above, aerial photography has revealed the existence of other ditch systems elsewhere on the ridge so that the discovery of yet another ditched enclosure should come as no surprise. It is unlikely that any of the ditches identified by St Joseph (Wilson 1964, 155) join up with this stretch, the distances are too great unless a substantial temporary camp is envisaged. There is growing evidence for the existence of pre-fort enclosures on some Antonine sites. Recent excavations at Croy Hill (Hanson 1979) and Bar Hill (Keppie 1985) have redefined the 'Agricolan' forts underlying these Antonine forts as earlier Antonine enclosures probably associated with work parties, in the case of Croy Hill, for the construction of the fort. It is possible that such a work camp preceded the *vicus* at Inveresk. Excavations at Castledykes (Robertson 1964, 129) and Camelon (McCord & Tait 1978) have shown how extra-mural establishments can spread beyond the confines of an enclosure associated with the fort. It is not possible to say what sort of development is represented at Inveresk; a pre-fort enclosure or the spread of settlement over an earlier fort annexe. The upper ditch fill does indicate an Antonine date for the levelling of this part of the site prior to construction, while the clear outline of the ditch and the small amount of silting would point to a short time between the digging of the ditch and its infilling.

The apparent slightness of the structures of Phase 2 is illusive as this phase produced slightly more material and of an equally high quality when compared to Phase 3/4. The types of building uncovered do not appear to be representative of the usual type of strip house which is characteristic of so many of the English sites and it would be tempting to suggest an industrial function were it not for the domestic nature of much of the finds. Very little can be added to the description of structure 3, except to emphasize that it provides the only certain evidence for destruction on the site. Structure 1 is difficult to classify although most of the artefactual material recovered was of a domestic nature. Its size and the presence of a furnace argue for a non-residential function. A possible solution to this apparent contradiction may be provided by the manner in which this part of the site appears to have come to an end. At least three large pits were dug in or around structure 1, two of which (pits 2 and 3) actually destroyed part of the wall and furnace, indicating that they were dug after the structures had been abandoned. The suggestion has also been made that structure 1 was possibly deliberately demolished. Structure 3 was burned and the site levelled. This would explain the presence of considerable amounts of domestic materials in the area and foundation trenches of structure 1, as well as inside the furnace. It does not explain the lack of materials and equipment associated with industrial processes unless it is to be assumed that the proximity of a fairly steep slope down to the River Esk provided a useful method for the disposal of such debris. However, it has been shown by excavation (Maxwell 1971, 29-30) that a considerable built-up area had still to be traversed before a suitable dumping ground could be reached.

The furnace itself appears to be in the larger range of those recovered on Scottish sites. Many forts had small ovens, often built into the backs of ramparts, and at Bar Hill a pottery kiln had been incorporated with the bathhouse *prae-furnium* (Keppie 1985, 60). Furnaces discovered at Camelon (Maxfield 1979, 31) were much smaller than the Inveresk example and are probably functionally different. Ovens approaching the dimensions of the Inveresk furnace were found inside the fort at Duntocher (Robertson 1957, 59) and dug into the west ditch at Bar Hill (Macdonald 1906, 58-60), but neither appears to have been similar in other respects. At Inveresk it is unfortunate that the destruction of much of the interior and eastern part of the furnace had caused the loss of many of its diagnostic features. It is possible to say, however, that the floor was flagged and had been raised to ground level above that of the flue, which lay to the east. The superstructure appears to have been of clay; a through-draft could only have been created by ventilation in the roof. The pit dug to accommodate the furnace makes it certain that the flue would have been lower than ground level.

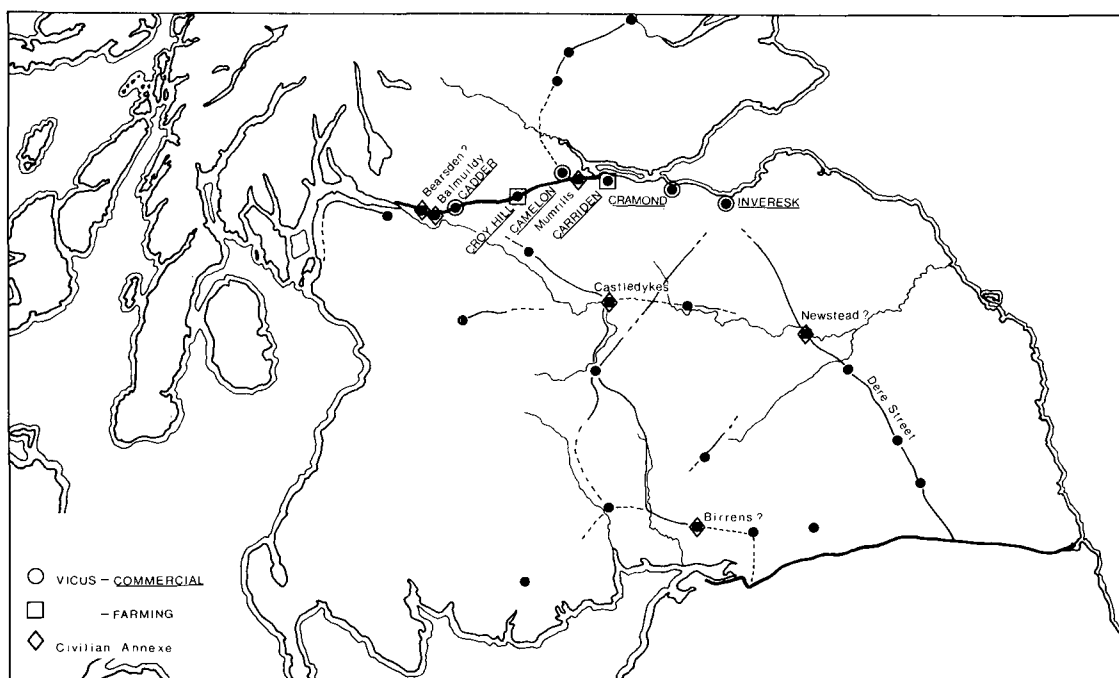
It is apparent that the furnace does not reflect any of the other examples represented in Scotland. Its size is more reminiscent of pottery kilns found in England, although it does not exhibit enough of the common morphological features of these kilns to make identification reliable. In particular, the lack of any raised oven floor or flue arch is limiting. The kiln, if indeed it is one, is of the sunken variety and it may be that the arrangement of stones set on edge on a paved floor provided support for an oven floor which is now lost. If this were the case, then the flue and combustion chamber existed at a level below that of the paved floor, a feature that has not been recognized at any of the English sites (Swan 1984).

The location of the kiln/furnace within a timbered structure (illus 6) is not an unusual feature, although there is no record from other sites of the stokehole also being situated indoors. Several examples of Roman (Swan 1984, 46) and other potteries (Peacock 1982, 30) indicate that kilns were occasionally sited indoors where the residual heat of a firing would help to dry both the pottery prior to firing and the material for combustion, a sensible arrangement in a country where drying facilities could not be guaranteed out of doors. It is therefore possible that the timber building (structure 1) and the furnace (structure 2) represent a potter's workshop. In this interpretation the short stretch of drain found west of the furnace would not be out of place, as water was a necessary commodity both in

the levigation of the clay and in the process of making the pots. It is not too great a step to suggest that this was the pottery in which Inveresk ware itself was made.

In Phase 3/4 there was a continuity of industrial activity, probably a result of the substantial nature of the earlier furnace; but otherwise there was no apparent respect for earlier property boundaries, although buildings were still orientated north-south. The lack of disturbance of the postholes, as well as the quantity of good nails along the perimeters of the buildings, suggest that they were allowed to decay *in situ* or had been cut off at ground level. There were no indications of the destruction of any structure by fire. The reused furnace, structure 2, and its addition, structure 4, were probably associated with some industrial process; they were not, however, furnaces or kilns. Several Roman potteries found in England had similar structures (Swan 1984, 45) which were used in the storage and levigation of clay in the final stage of its preparation immediately prior to the throwing of the pot. During this stage the clay was mixed and trampled underfoot, by man or animals, in order to improve its plasticity and to expel air and impurities. A solid foundation would be necessary for this process, especially in a timber building with either wood or earth floors. Very little other evidence existed to suggest that this was a potter's workshop. If this interpretation is correct then it is noteworthy for the development of the site that a potter's workshop was found on exactly the same spot during both the major periods of Antonine occupation and that the elements of the earlier establishment were reused during the later reoccupation.

It is probable that during Phase 3/4 the whole site was more residential and commercial in character; the type of structure represented, as well as the artefactual remains, speak more of a domestic than industrial nature. If this intensity of occupation continued over even part of the area which has produced remains in the past, then a considerable settlement and sizeable population is indicated. Certainly the construction of structure 8 and the spread of dense occupation down the hill slope (*Discovery Excav Scot 1971*, 18) suggest pressure on available space.



ILLUS 18 Civilian sites and forts of the second century AD in Roman Scotland

CIVILIAN SETTLEMENT IN SCOTLAND

It is probable that civilian settlement in Scotland was more widespread than was previously thought to be the case. The main problem lies in distinguishing the fine borderline between the civilian and the military site. It could be that we are wrong to expect there to be such a clear-cut distinction and that the presence of a civilian element on Roman fort sites is a common feature. The artefactual evidence becomes much more understandable in terms of a more widespread distribution of the civilian population. The annexes at Castledykes, Camelon, Balmuildy and Mumrills have all produced quantities of material of a domestic nature including mortaria, cooking vessels and samian pottery; the latter site has even produced a baby's feeding bottle from the destruction deposit. It is highly unlikely that all this material represents rubbish from the fort; it is much more likely to come from the occupation of the annexe itself, where on each site it was associated with timber structures and even hearths (Steer 1961, 93). At both Bar Hill (Macdonald 1906, 104; Robertson *et al* 1975, 78–80) and Balmuildy (Miller 1922, 99) quantities of shoes were found which were thought to belong to women and children, while at Carriden (Richmond & Steer 1956, 2), Westerwood (Wright 1967) and Birrens (Stuart 1845, 129) inscriptions give names of wives, families and other civilians. This sort of evidence tends to suggest that a civilian component may have been a more common element of fort and annexe life.

The concept of a large civilian element on Scottish sites contrasts sharply with the view proposed by Breeze and Dobson which sees no 'positive evidence' of civilian occupation in the annexes (1970, 117). Salway (1965) came to a similar conclusion, regarding annexes on the Antonine Wall as being purely for military use. This plays down the question of the undeniable presence of a romanized civilian element in southern Scotland at the time, and, as will be argued below, there is a case for considering the existence of a series of purely civilian sites. However, it is suggested that the scale of civilian involvement was much more extensive even than this and in the absence of a much more extensive pattern of civilian settlements it is proposed that annexes may have served as centres of small scale or temporary accommodation. This does not detract from the primarily military function of these sites but merely suggest that our view of them should be less rigid.

In contrast to the fort and annexe type of site, six sites in Scotland stand out as featuring a different scale of civilian involvement. The excavations at Inveresk have revealed a substantial and thriving community outside the fort which can, on comparison with other *vici*, be accorded a similar status. The existence of a *vicus* at Carriden is now beyond question. The evidence from Cramond is less satisfactory but the evidence from the site does point to the existence of an Antonine *vicus*. Excavations have revealed an industrial complex (Goodburn 1978, 418), much of which appears to be Severan in date, but a case can be made for an Antonine date for the first phase there and for earlier levels stretching 400 m along the road from the east gate of the fort. No defence works have yet been located which would suggest the existence of a massive annexe here if these remains lay within an annexe; a civilian settlement appears to be the most likely answer. At Cadder we have only the descriptions by Clarke (1933, 60–1) of multi-phase foundation trenches which stretched for about 600–700 m of the fort. If the indications are correct then here once stood a major settlement which is now totally lost. A similar sort of occupation appears to have been uncovered in the north annexe at Camelon (McCord & Tait 1978, 156–7) and at Croy Hill an enigmatic series of enclosures, streets and activity areas hints at a civilian settlement nearby (Hanson 1979, 20).

Apart from Inveresk, the sites of potential civilian settlement in Scotland bear little similarity to the accepted view of such sites. Carriden exemplifies this fact. An inscription provides us with unequivocal evidence for the existence of a *vicus*, yet aerial photographs reveal that the area where this is most likely to occur is characterized by field systems. This raises two possibilities. Firstly, that

the *vicus* or settlement need not lie directly outside the gates of the fort; and secondly, that in Scotland the type of settlement present may bear little similarity to those in northern England and may be of a fundamentally different type. There is nothing either in our understanding of the political nature of a *vicus* or in the defensibility of this type of settlement which requires it to be situated immediately outside the fort gates; certain sites may reward investigations at some distance from the fort itself.

Alternatively, the strongly nucleated commercial centre which is so typical of *vici* elsewhere may not have developed in Scotland, except at Inveresk and possibly Cadder and Cramond. A dispersed agricultural community focusing on the fort may be reflected in the evidence of field systems from Carriden, Croy Hill and possibly Rough Castle. There was possibly a two-fold division in the type of civilian settlement; the large commercial/industrial centre and the agricultural community. A settlement hierarchy can be postulated on this basis. At the lower end of the scale there were the civilian annexes which were intimately linked to the forts and which were characterized by light defences, the absence of military structures and the occurrence of a fairly dense and varied occupation with permanent structures and domestic refuse. Above this was the proposed village community, which from the Carriden inscription we know could reach *vicus* status. This was characterized by a lack of nucleation and an emphasis on fairly small scale domestic and even industrial pursuits. This category of settlement is probably the least secure and may be based on the vagaries of excavation. The sort of settlement which could be expected to appear is of fairly dispersed housing and steadings, possibly in a ribbon development along the main road, not necessarily directly associated with the fort but orientated towards the land, along with a system of small scale agricultural units. At the top of the scale stand the commercial/industrial centres such as Inveresk and possibly Cramond and Cadder. Camelon could perhaps also be considered here, though the civilian nature of the annexe is not proven (McCord & Tait 1978, 164) and it would also be exceptional in being contained within an annexe. Inveresk may not be typical of this type of settlement in Scotland; it is still too early to be certain. If, however, Inveresk does stand as an example of a group of developed civilian settlements in Scotland then it is possible to see the emergence of a very distinct settlement hierarchy with an interesting distribution. However, it must also be stressed that one of the primary reasons for our lack of knowledge of civil settlements in Scotland is lack of excavation.

The size and importance of Inveresk are probably to be explained by its location away from the physical frontier and on the junction of four main communication routes. Cadder and Camelon were both 'in the front line' and both lacked the number of external lines of contact afforded to Inveresk. However, the fact that all possible Scottish *vici* were situated along the northern frontier does require further explanation. It is possible that the system of civilian settlement in Scotland was not fully developed, but it is of interest that the same pattern was repeated during the second Antonine occupation. All known and potential *vicus* sites were situated along the Antonine Wall and east to Inveresk in a band between the Clyde and Forth. In the area between the two walls three sites stand out as being of particular interest; Castledykes, Birrens and Newstead. The communications network meant that there were two main routes which passed through the Southern Uplands to the Antonine Wall and terminated at two of the major *vicus* settlements. Dere Street linked the eastern part of Hadrian's Wall with Inveresk. A second route linked the western part of Hadrian's Wall with Cadder, another potential *vicus*, on the western third of the Antonine Wall. Three major cross routes also existed; one linked Newstead with Castledykes and Loudon Hill, a second headed south-west from Inveresk to the Castledykes area and a third headed south-west from Newstead to the Birrens area. The potential seaports of Old Kilpatrick, Camelon, Carriden, Cramond and Inveresk add another dimension to the communication network which linked Scotland with northern England and the southern province. Within this network Birrens, Castledykes, Newstead, Cadder, Camelon and Inveresk were located on major points of intersection; Inveresk and Camelon being of particular

importance as they were located on both major land and sea routes. If the primary function of much of the civilian settlement in a military zone was to utilize and serve a potential market, as well as being near to family, then it is significant that most sites in southern Scotland show no indications of civilian occupation while those sites that do were situated at points in the communication network where the potential for earning a livelihood through increased contacts with the greatest number of people was at its greatest.

In conclusion, it is possible to see the emergence in Antonine Scotland of a pattern of civilian settlement which may have been governed as much by market and political forces as by strictly military demands. The existence of two major centres in the forward frontier zone could be explained solely in terms of the densest concentration of the military. Breeze (1984) had demonstrated the pulling power of a large military market and its ability to sustain the continued growth and development of civilian populations. There can be no doubt that this was also the case in Antonine Scotland; the very fact that *vicus* life did not survive the withdrawal of the army is ample proof of this. However, even within these limits it is possible to postulate the emergence of a distinctive type of settlement pattern, with major sites developing across the Scottish midlands but with a concentration in the Lothians. How significant it is that this would also have driven a powerful wedge of settled romanized life between the Britons to the south and the Caledonians, later Pictish tribes, to the north is a matter of speculation; but it would certainly have had important implications for the control of those groups that were within Roman jurisdiction and for the general process of romanization in southern Scotland.

Inveresk was part of a large and well organized production and trading network and has produced artefacts which demonstrate links with areas as distant as central Europe. However, as far as the neighbouring Votadinian settlements are concerned the site of Inveresk is uncompromisingly silent. The definition of this relationship is one of the most important questions which faces the archaeology of this period.

THE FINDS

Full reports are on fiche 1: A7–2:D6

STAMPED AND DECORATED SAMIAN (fiche 1:A7–B9)

Brenda M Dickinson

The decorated samian and potters' stamps examined did not form a large enough assemblage for detailed statistical analysis to be useful. It was noticeable, however, that approximately 75% of the decorated ware was by potters who were at work before c AD 150, including many who started their careers under Hadrian. Also, though the later style of Cinnamus ii predominates in Scotland as a whole, at Inveresk the proportion of decorated bowls in the Cerialis ii–Cinnamus style is notably high.

Most of the decorated ware is by potters already attested in Scotland, but Aunus, Paterculus II and Paternus iv have not been previously recorded. Of the pottery represented by stamped plain ware, only Carantinus and Q. V- C- have appeared in Scotland before, both at Newstead. The six additional second-century bowls from Montans now give one of the largest groups of such ware in Scotland, and there is no lack of late-Montans potters' stamps.

In theory, all decorated ware discussed here (which is the bulk of that which is known from Inveresk) could belong to the Antonine I occupation, although several bowls by Albucius ii, Aunus, Illixo, Secundus v and Cinnamus ii (in his later style) are more likely to be from a later occupation. Similarly, all the potters' stamps previously recorded (Hartley 1972, 20) could be from Antonine I

and this also applies to the six from the recent excavations, though the stamp of Carantinus is more likely to come from an Antonine II occupation.

It is evident that the bulk of the Inveresk assemblage was manufactured before or during the Antonine I occupation of Scotland. What the significance of this may be is another matter.

PLAIN SAMIAN (fiche 1: B10–13)

Gordon D Thomas

The plain samian pottery from Inveresk displays many features which are typical of potters working in the early to mid second century. The fabrics and glazes are comparable to the decorated pieces from central Gaul (see stamped and decorated samian). Although there were minor differences, the fabrics are mainly fine, hard pale orange, flecked with white or yellow inclusions and, occasionally, visible mica platelets. The slip was an orange red colour, usually fairly glossy and bright. Several examples appear to be in a dull orange brown fabric with a matt dull orange slip, but all these examples also showed evidence of having been burned. Variations also occurred between different sherds in the same vessel suggesting that localized conditions can slightly affect the appearance of the pottery. The bulk of the plain samian was represented by forms Dr 27, 33 and 18/31, with only a few other forms being present. These common types are represented in all phases of occupation.

COARSE WARE/OTHER WARES (fiche 1: C1–E11)

Gordon D Thomas

The range and type of pottery found at Inveresk represent a good Antonine assemblage. By far the greatest number of vessels, on the basis of sherdage alone, comprise amphora, of which southern Spanish imports are the most common, and black burnished ware bowls, dishes, jars and cooking pots. Both BB1 and BB2 appear to be represented in roughly equal amounts. Grey-ware jars and bowls imitating black burnished ware are also quite common. No information is available which would indicate the source of this particular ware. Some finer wares are also represented, including beakers from the middle Rhineland and France.

The above represents the specialized pottery wares found on Roman sites and which were mass produced at large centres of production, most of which have now been located if only by region. The less specialist range of domestic vessels is filled by Inveresk ware, which appears to have been produced in the Inveresk area and has strong affinities to Severn Valley ware as far as fabric and finish are concerned. The repertoire includes copies of black burnished and samian forms as well as the fairly typical range of Antonine bowl, jar, flagon, storage jar, cooking pot and lid shapes.

THE MORTARIA (fiche 1: E12–G3)

Katherine Hartley

A minimum of 48 mortaria were found, all likely to be Antonine in date. These were obtained from at least nine different sources, the majority being from potteries in the south-east, mainly Colchester, but including others manufactured in northern England and Scotland. The evidence indicates that some potters moved from southern England to set up workshops in northern England and Scotland.

A NOTE ON THE AMPHORA STAMP (fiche 1: G4)

Chris Going

A *Tria nomina* stamp, reading L A L, impressed on the handle of a Dressel 20 amphora in southern Spanish fabric is discussed. A date during the first half of the second century AD is suggested.

THE PETROLOGY OF SELECTED SHERDS (fiche 1: G5-9)

Roberta S Tomber

The analysis of samples of 'Inveresk ware' indicated the presence of three fabric types, Two, and possibly all three, of the fabric types are interpreted as local to the Inveresk area.

COMMENTS ON INVERESK WARE

Vivien G Swan

Among the more common pottery present at Inveresk was a range of oxidized vessels which, on the basis of fabric, form, surface treatment and other potting idiosyncrasies, appear to form a distinct group. The fabric is light-mid orange or brown-orange, with a deeper orange to brown-orange on the surfaces where it has been burnished. It contains inclusions of muscovite, biotite, feldspar, andesite and pyroxene. The burnishing usually takes the form of horizontal or near horizontal strokes, mostly not contiguous, but set slightly apart from one another. It is mostly confined to the exterior of the vessel, and even in the case of open vessels such as S-shaped bowls, it terminates abruptly a very short distance inside the rim. Rarely does continuous area-burnishing occur.

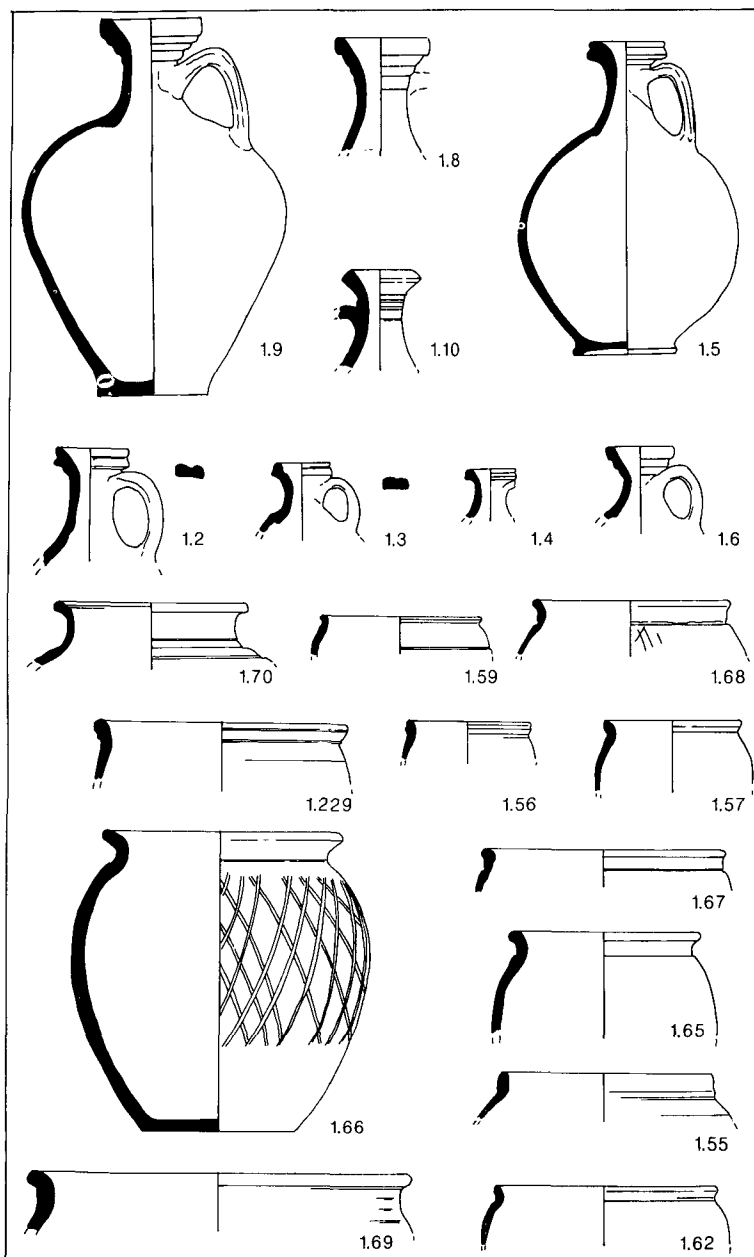
Without the discovery of an actual kiln the source of this pottery will remain a matter of surmise. However, it is suggested here that it should be called *Inveresk ware* since it may well have been manufactured in the *vicus* or very near Inveresk fort. The reasons for this assumption are as follows.

The range of vessels involved (illus 19-21) is remarkably wide and covers almost the complete spectrum of vessel types which would have been in use in the fort in the Antonine period. It comprises: flagons (nos *I.2, I.4, I.5, I.6, I.8, I.9, I.10*), hemispherical bowls (nos *I.25-7*), reed-rim bowls (*I.27*), 'Belgic' derived S-shaped bowls (no *I.230*), everted rim jars (nos *I.75-9, I.266-7*), lid-seated jars (no *I.83*), lids (nos *I.236-7, I.240-1, I.243*), and also includes versions of many of the vessels which were being shipped in quantity to the site from elsewhere in Britain and the continent, eg copies of black burnished ware cooking pots and dishes (nos *I.65-8*), copies of the rough-cast cornice rim beakers imported from the Rhineland and northern France (nos *I.57, I.59, I.62*) and crude copies of samian ware forms (nos *I.231-5*), some of them decorated in barbotine with running dots, trilobed leaves, animals and fish in the style of contemporary vessels produced in the Rhineland, Colchester and the Nene Valley (no *I.235*). Incredibly coarse versions such as the last seem unlikely to have travelled far from their source. Indeed the only vessel type which would have been in use in the fort and which does not appear to have been included in this range of Inveresk ware products is the mortarium, itself a specialist vessel only occasionally manufactured by non-specialist pottery producers.

Such a remarkably complete spectrum of vessels, from a single source on such a site, exhibits a wider and much greater diversity than one would expect of an imported group from a single factory. Vessels exported long distances normally comprise only a selection of particular forms from a wider range of vessels produced at source. For example, BB2 kilns in north Kent usually made flasks and narrow-mouth jars of equal quality to, and as well as the limited, but almost ubiquitous range of cooking-pots, dishes and bowls, but the former were rarely selected for export to the northern garrisons.

One of the Inveresk ware flagons (no *I.9*) has a dent in its side where it was distorted during its firing in the kiln. Its second-rate quality might well have precluded it from having travelled very far from its source.

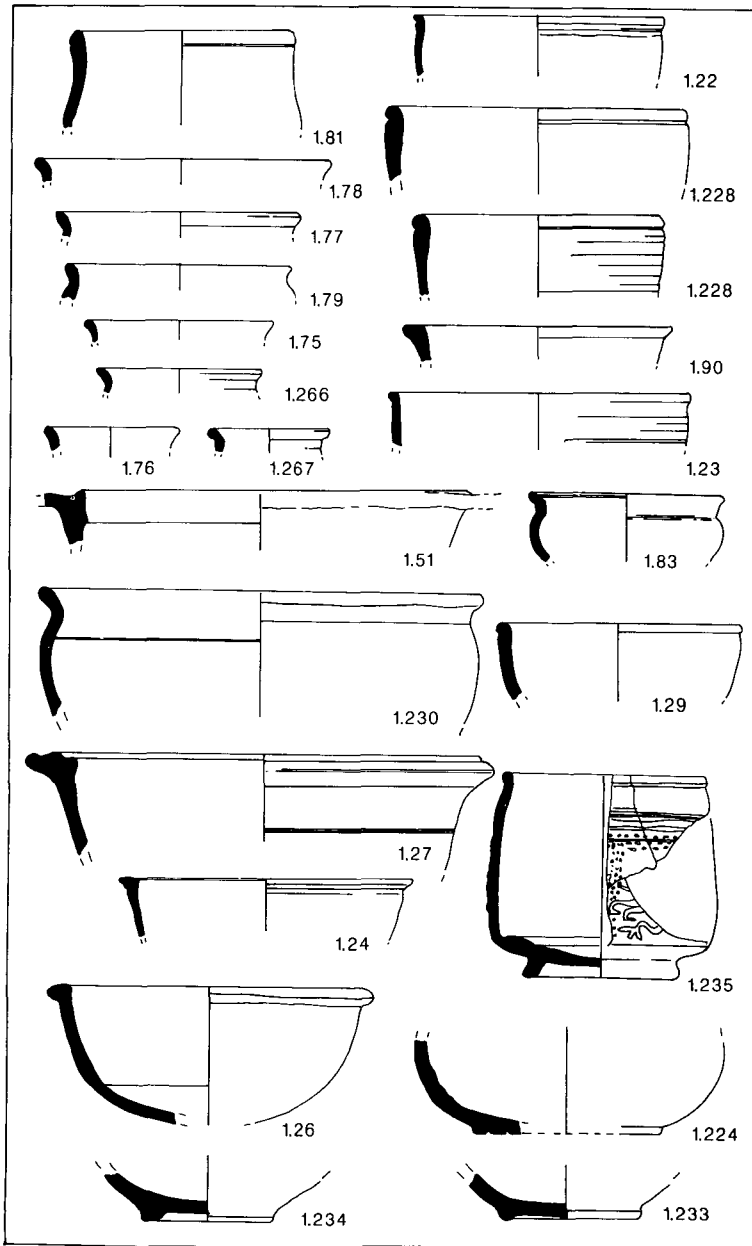
There is strong evidence accruing that some pottery production did take place in the vicinity of several Antonine forts in Scotland and that not all their supplies were imported from elsewhere in



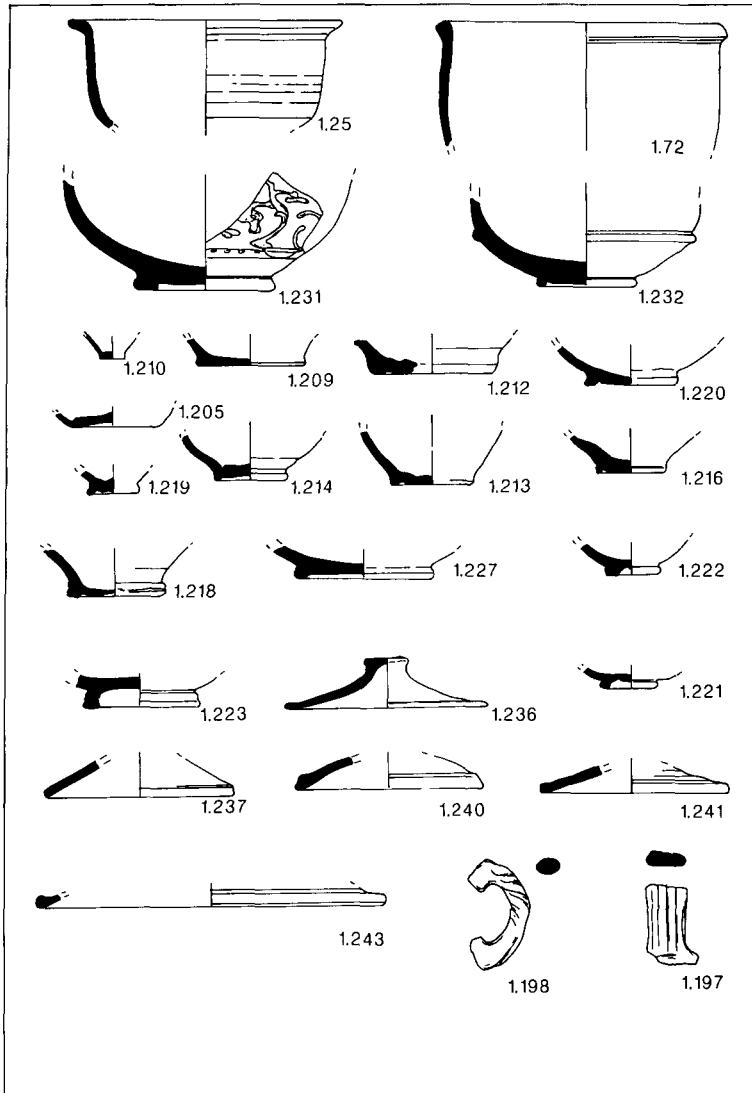
ILLUS 19 Inveresk ware shapes

Britain, as has often been assumed in the past. A kiln making 'red' (? orange) wares has been discovered adjacent to the bath-house of the fort at Bar Hill (Anderson 1985); Hartley has also argued powerfully that orange mortaria were probably manufactured in the vicinity of the Antonine forts of Mumrills, Bar Hill, Balmuildy and elsewhere in the western sector of the Antonine Wall, and that in some cases the production of coarse wares should be expected in conjunction (Hartley 1976). Inveresk would thus not be out of place in having some of its pottery manufactured nearby.

If it is accepted that these orange wares were produced in the vicinity of Inveresk, from where did their potters come? There is no indication that they were military personnel, and indeed there is strong evidence that the participation of the Northern army in pottery production ceased at the end of the Trajanic period (Gillam 1973). Although, as might be expected, most of the Inveresk ware forms are merely versions of types which are ubiquitous on Antonine military sites and elsewhere in Roman



ILLUS 20 Inveresk ware shapes



ILLUS 21 Inveresk ware shapes

Britain, a small number are very closely paralleled by vessels known to have been made in the Severn Valley (nos *1.24*, *1.26-7*, *1.36* and possibly *1.230*). Moreover, the fabric and the 'stroke burnishing' technique of Inveresk ware bear a close resemblance to Severn Valley ware. It might well be asserted from this that these Inveresk vessels are actual Severn Valley ware, since a full study (Webster 1977) has suggested one of the forms from the Antonine frontier as actual Severn Valley ware (Webster 1977, form 43). The vessel in question actually comes from Inveresk and from its character could very well be Inveresk ware itself rather than a Severn Valley import! On the other hand, none of the narrow-mouth jar forms which comprise most of the Severn Valley wares on the Antonine frontier was apparent from among a very substantial body of material excavated at Inveresk. Indeed, the Severn Valley ware bowls which coincide in form with those distinguished in Inveresk ware are

roughly assigned to a contemporary date, but are not forms known to have been traded beyond the traditional homelands of the Severn Valley wares; in particular they tend to be confined to the southern part of the Severn Valley region (Webster 1972, types 35/6, 45/6, 52 and 55). It is thus difficult to avoid the conclusion that, at a time when many potters were moving towards potential markets, at least one potter working in the vicinity of Inveresk may have migrated there from the lower Severn Valley.

TWO NEOLITHIC SHERDS (fiche 1: G10-11)

Audrey S Henshall

These are of an exceptionally hard fabric, unusual in Scotland, but found occasionally amongst Scottish 'Western Neolithic' pottery. Comparisons with examples from northern England suggests that the Inveresk sherds date from the later centuries of the third millennium BC.

POST-ROMAN POTTERY (fiche 2: A4-11)

C Brooks and G Haggarty

As most of the post-Roman pottery from the site comes from mixed levels, for the purposes of this report it is considered as two main groups, medieval and post-medieval.

Medieval pottery

This group comprises 298 sherds, of which 70 are glazed, and a further six glazed and decorated. Both cooking-pots and jug forms are represented; the former seem to outnumber the latter by about 2:1 although it is difficult to be certain as many of the sherds are so small. Nearly all the pottery is in a hard pale quartz-tempered fabric which varied in colour from off-white to pinkish buff, and is thin and well fired. Glaze varies from honey-coloured through pale yellowish-green to occasional dark copper-green. Most of the material is typical of 13th- to 14th-century south-east Scottish pottery, and was probably locally made; it has certain affinities with the Colstoun kiln material as well as with excavated pottery from the Edinburgh area. Very little late 14th- to 15th-century pottery seems to be represented in this group.

Post-medieval pottery

There are 47 post-medieval sherds, most probably belonging to the 17th and 18th centuries. The main forms represented are open cream-slipped bowls, jugs, storage jars and posset cups. Most of the pottery falls into two groups. There is a hard well-fired brick-red fabric, typically represented by the cream-slipped bowls, which dates from the late 17th-18th centuries. There is also the thick hard dark-grey reduced fabric with a dull olive-green glaze typical of the late medieval and early post-medieval pottery in the south of Scotland. This latter fabric lasts through the 16th and 17th centuries and is difficult to date with any certainty. There are good local parallels amongst material from excavations in Edinburgh and Cramond.

COINS (fiche 2: A12-B1)

N McQ Holmes

The group of 12 Roman coins was too small for any reliable statistical analysis to be applied, but its components were such as would be expected from an early Antonine military site. Half the coins were definitely of Trajan or Hadrian. Only a denarius and a dupondius of Antoninus were minted later than AD 138. The later coins included two pennies of Bishop Kennedy of St Andrews (c 1452-80).

SMALL FINDS (fiche 2: B2–C2)

Gordon D Thomas

The small finds from Inveresk appear largely to be either building materials or articles of personal use. Preservation on the site was not good although some small pieces of leather had survived, notably part of what may have been a leather purse with a bronze clasp. Iron and bronze had generally suffered in the damp salty conditions and only a few pieces are worthy of mention. Iron nails, spikes, T-clamps, rings and loops indicate some of the uses that were made of iron in building construction. A key, daggers and the corroded mass of boot hob-nails are of a more personal nature. Many small pieces of bronze had survived, most of which appear to have been decorative sheathing or mountings although there are a few enigmatic pieces. A small perched eagle, a circular brooch with pin and two buttons, one with millefiori decoration, were also recovered. Bone had been quite well preserved and as a result a range of bone pins of second-century AD type, a bone plaque and a bone mount have survived. Glass is represented by paste beads including one melon bead, fragments of jars and bottles and a rather elegant ring-footed bowl with everted rim. Fragments of window glass were also preserved.

ANIMAL BONES (fiche 2: C3–D1)

Lin P D Barnetson

The spatial distribution of different species and types of bone is consistent among the four groups at Inveresk, with carcasses being prepared and eaten on site and the bones being discarded in ditches and around structures. The pattern of animal slaughter, in as much as it can be assessed on a small site, appears to be consistent with a few animals, cattle and sheep, being killed when just fully grown, at an age when they would yield economic carcass weights, and the rest being kept beyond the age of four years. Tooth wear has to be used with caution as an indicator of age as different types of grazing take their toll on ungulate tooth enamel. However, at Inveresk, occupied for such a short time, one may assume that the grazing was uniform and as several cattle and sheep teeth showed signs of heavy wear we can say that a number of animals were kept until quite old. These older animals were probably breeding stock or draught animals.

Cattle were obviously the main source of meat as might be expected from a Roman site, with pigs and sheep kept in smaller, relatively similar, numbers. Pigs were often kept as a stand-by source of meat because they were extremely fertile, had large litters from which some could be killed when young, some fattened and some kept for breeding, and they would not require much tending. Older animals could usually scavenge a living around settlements and could be slaughtered to supplement the diet during lean seasons.

The Inveresk cattle would have been kept for by-products such as hides, horn, milk and fat. A number of horn-cores were found on the site. Dairy herds as such were not a feature of the Roman economy and cows were not kept 'in milk' but were used as work animals like oxen. The measurement of cattle horn-cores and first phalanges both formed two definite clusters and it is likely that these represent bulls (a small group) and cows or castrates.

The horses were either draught or riding animals and although no measurements could be taken, the dimensions of the bones would seem to argue for these being native ponies. Their presence on the *vicus* may represent carcass utilization only.

The Inveresk *vicus*, therefore, probably functioned as a small self-sufficient settlement keeping a variety of livestock and there was apparently little need to supplement the diet by hunting. More evidence of animals, principally cattle and sheep, killed in the prime meat age ranges might have been expected. It is possible that the animals were exported by the *vicus* for slaughter and consumption

elsewhere, the inhabitants killing only those needed to keep themselves in fresh meat. However, it is unwise to attempt to draw conclusions from such a small sample. The inhabitants of Inveresk certainly kept a number of 'old' animals but, as has been suggested, these were probably regarded as a valuable source of other products besides meat.

MOLLUSCAN REMAINS (fiche 2: D2-4)

Anne Kimble Howard

Whilst all species in the sample were edible, *Ostrea edulis* (common oyster) and *Mytilus edulis* (common mussel) predominated. It is probable that the former were collected from a high level in the intertidal zone, possibly from artificial beds. The latter lives offshore from low water to between 27 and 83 m on firm bottoms of mud, sand, rocks, silt and man-made collectors. Based on the growth lines of both *Ostrea edulis* and *Mytilus edulis*, the collection of both species in winter to early spring is indicated. The relatively slight size differentiation among the specimens involved indicates size-specific collection.

CHARCOAL (fiche 2: D5-6)

Identification by A J Hayes

A selection of charcoal samples from the excavations was examined but much of it proved to be juvenile wood so that many of the identifications can only be tentative. From Phase 2 the timber structure surrounding the furnace produced examples of hazel, alder, birch and either cherry or thorn. The furnace itself produced hazel, oak, birch and poplar. The burnt building from the same phase, structure 3, provided some *in situ* material which demonstrates a similar mixture of wood types. The foundation trench contained hazel, birch and alder while the flooring was composed of hazel, oak, birch and poplar, the latter sample being a fairly large fragment which may have been part of the plank flooring. Hazel and alder were also used in construction in Phase 3/4 where they were found in a posthole of structure 3. Oak was also found lying on the cobbled lane in 77/2.

Taken together these samples would appear to indicate a cool, wet climate rather like the present. These conditions favour the development of a lowland mixed deciduous forest with a variety of species and usually an understorey of hazel. The impression gained from the material is that the species present on the site probably reflect a lack of more suitable types of timber for building purposes.

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