

Some excavation along the line of the Antonine Wall, 1981–85

L J F Keppie* and J J Walker

with contributions by G B Bailey, D F Devereux, J Frances Murray and J S Wood

ABSTRACT

The results of 19 excavations and watching briefs are presented, in geographical sequence from east to west, and the various improvements to our knowledge are discussed.

OBSERVATIONS

1 INVERAVON (NGR NS 958 797)

In August 1983 two gas pipelines were laid across the line of the Antonine Wall frontier and the defences of an adjacent temporary camp c 300 m east of Inveravon Farm. The trench dug to receive the two pipes cut across the Wall and camp on a north-west/south-east alignment, and was set parallel to (and 11 m west of) an existing pipeline laid in 1976 (report by Mrs Lorna Main in Keppie 1976, 61).

Excavation in advance of the laying of the new pipes and a watching-brief during pipelaying operations failed to detect any stonework belonging to the rampart base itself, except that a thin skin of slipped turfwork was detected at one point. However, both lips of the ditch were located in the sides of the pipe-trench, showing a width of c 7.5 m. This corresponds to the width obtained in the nearby pipe-trench in 1976¹. The line now plotted is c 6 m south of that shown on current Ordnance Survey maps.

To the south of the Wall the opportunity was taken, after the removal of topsoil by the contractors, to search for the ditch-system of the temporary camp known as Inveravon 1, first detected by aerial reconnaissance in the mid 1950s (St Joseph 1958, 89; 1965, 80). Excavation along the strip cleared by the contractors revealed the east ditch of the camp, which was shallow and flat-bottomed with sloping sides, c 1 m wide and 0.55 m deep. The fill was a brown sandy clay, topped by a layer of cobbling which may represent deliberate filling of the residual hollow in modern times. The alignment was confirmed when the pipe-trench itself was being dug; in fact the line was continued as a cropmark seen at ground level in the field, east of the pipe-trench. Trowelling in the presumed interior of the camp revealed one stone-packed posthole and possible traces of a second, but the ditch forming the north side of the camp's defences could not be found. The accompanying rampart had been entirely removed, either by ploughing or by scraping in preparation for the digging of the pipe-trench itself. A search for the Military Way on a likely alignment proved unsuccessful, but just to the south of the presumed position of the Antonine Wall rampart some traces of occupation were noted, including shallow channels and patches of burnt clay, of uncertain date.

* Hunterian Museum, University of Glasgow

2 LAURIESTON (NS 916 794)

J Frances Murray

In August 1982 a watching brief was carried out during the construction of a house in the back garden of 34 Polmont Road, Laurieston (fronting on to Sandyloan Crescent), in an area known to lie within the annexe west of Mumrills fort. Construction work included the excavation of a deep sub-basement. Several areas of burning, and a pit, were noted at depths ranging from 6 mm to 200 mm.

The site lies immediately south-west of the central area of the annexe where previous work has demonstrated the existence of pits and areas of cobbling (Macdonald & Curle 1929, 500; Steer 1961, 93). In 1941 an oven was excavated on the west boundary of the present site (Robertson 1942), confirming the industrial nature of occupation hereabouts.

Unstratified finds made during the watching brief comprised the following abraded sherds: seven of samian ware, two of colour-coated wares, three of black-burnished II ware (confirming the Antonine date of the deposit), 13 of greywares; there were also five flagon fragments and one mortarium fragment. Over 30 fragments of amphora were found, including a handle stamped ..ASR. (All small finds are now in Falkirk Museum.)

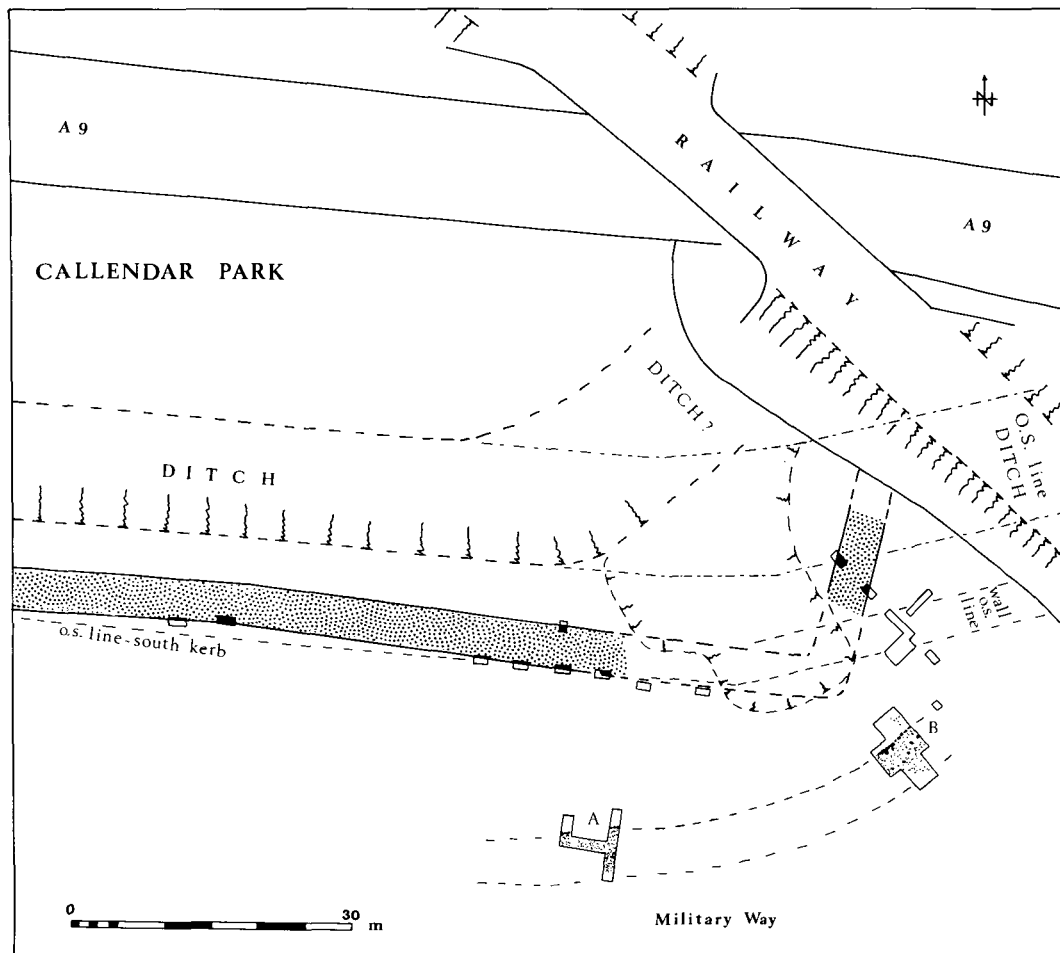
3 CALLENDAR PARK (NS 904 795–906 795)

Excavation over three weekends in June and November 1981 established the line of the Antonine Wall and Military Way in the former policies of Callendar Park College of Education, on the eastern outskirts of Falkirk (illus 1–3). The excavation was initially organized in search of the ‘fort’ mentioned by Timothy Pont under the name *Langtoun* (Blau 1654, 4), which might reasonably be interpreted now as one of the series of fortlets placed at intervals of approximately one mile along the Wall’s line. (But see Hanson & Maxwell 1983, 120.) Two possible locations for this site were at Gallowhill (now within the village of Laurieston) and on parkland at the east end of the Callendar estate. Attention was focused in 1981 on the latter site, firstly because Gallowhill is now entirely built over, and secondly because Ordnance Survey maps show the Wall making a slight turn as it enters the policies of Callendar Park from the east.

In 1952 the late Miss Doreen M Hunter, then curator of the Dollar Park Museum, Falkirk, excavated hereabouts (Hunter 1953, 17), but no detailed records of her work appeared to survive. However, in 1987 Mr G B Bailey (Falkirk Museum) located in a notebook some measurements relating to her work, and some photographs of the stonework were found, which make it clear that she investigated the same general area; to her therefore is owed some of the credit for the discoveries reported on here.

In 1981, no trace of the anticipated fortlet could be detected, but the Antonine Wall and Military Way were located. The wall base was traced by probing, supplemented by limited trenching, for a distance of 150 m from the embankment of the Edinburgh–Falkirk Grahamston railway line to the College lodge-house (formerly East Lodge). The Wall base itself, lying at a depth of 0.45–0.5 m from the modern surface, proved to have a width of 4.5 m and to have been constructed of the usual squared-off kerbs with a core of cut sandstone and natural cobbles. The superstructure was of earth, revetted by narrow turf cheeks, usually 0.3 m wide, though occasionally somewhat broader. Laid turf survived to a maximum height of 0.2 m above the base. Individual turves measured 0.15–0.2 m long, and were 0.1 m deep. The ditch itself was not explored.

Close to the railway embankment the alignment of the Wall proved to be markedly different from that printed on current Ordnance Survey maps (illus 1). After descending Gallowhill from the east and crossing the intervening Gallow-sike burn, the Wall climbed the opposite slope on a north-east/south-west alignment, before turning sharply to the west. The actual point of the turn had been dug away, perhaps during the construction of the adjacent railway line, but the angle of turn seems to have been not much less than 90°. The Wall then continued west to the lodge-house, making a very slight turn to the south about half-way along its course. Close to the access road into the College, the base proved to have been badly



ILLUS 1 Callendar Park: general plan showing presumed and actual alignments of Antonine Wall, ditch and Military Way

damaged, with only scattered remnants of the core surviving. Probing behind the lodge-house itself failed to detect any traces of stonework, so that the Ordnance Survey line there could not be confirmed.

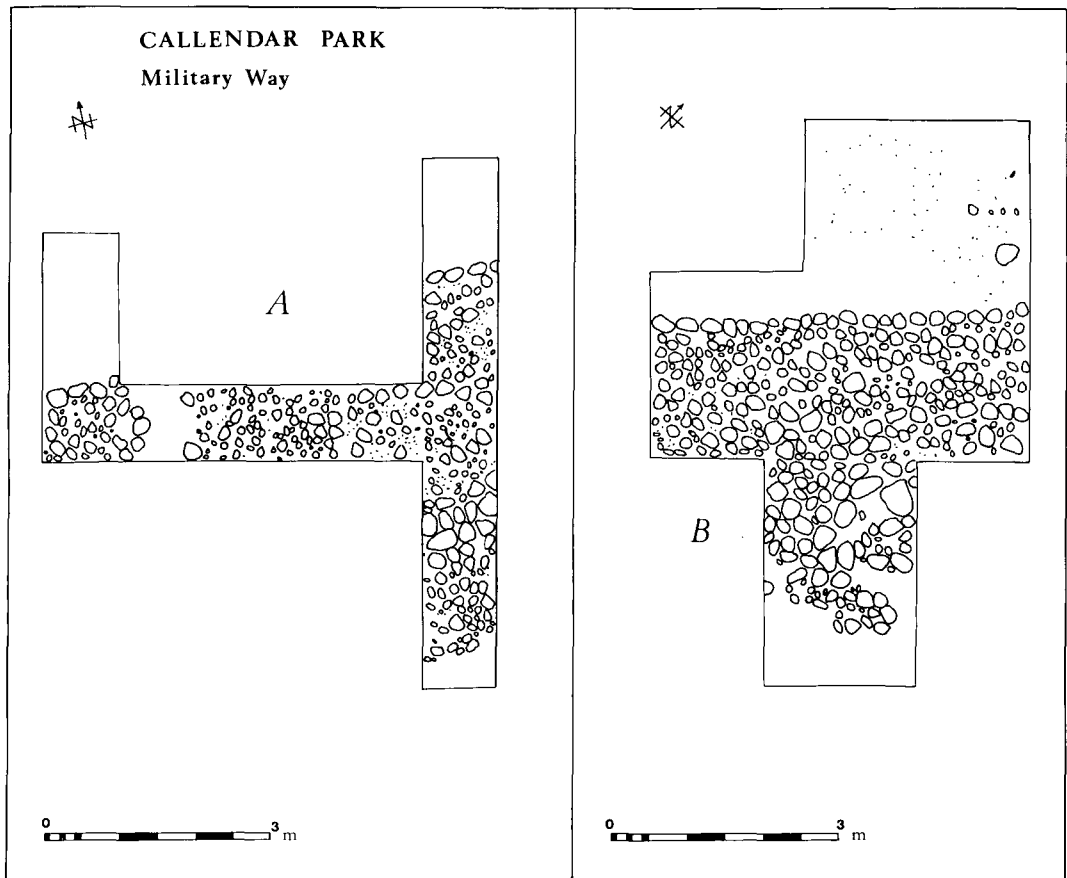
The sharp turn in the Wall's course hereabouts is commented on by Dr Christopher Irvine (as reported by Sibbald 1707, 30) and by William Maitland (1757, 172-3), whose description runs as follows:

(The ditch), descending the Gallow-hill, crosseth the Gallow-sike or rill, and, mounting the opposite eminence, deflects twenty-four feet southwards; then entering the eastern end of Callender-park, recovers its western course (cf Macdonald 1934, 120).

This divergence to the south, as revealed by excavation in 1981, was in fact much greater – at least 20 m and probably more. Probing confirmed the alignment of the Wall base here within 4.6 m of the railway embankment, where its stonework had been lost. A corresponding change of course in the accompanying ditch is already hinted at by hatching on Ordnance Survey maps and is confirmed by a dip in the embankment wall.

Probing to the south of the Antonine Wall established the line of the Military Way (illus 2-3), which was confirmed by excavation at two points (A and B). At A the road-cobbling was found to lie at a depth of 0.15-0.25 m below the modern surface. It was made up of small- to medium-sized cobbles bordered to the north by a line of carefully laid cobbles of similar size; there was no flanking drainage channel. The road did

not survive for its full width, having been robbed away, perhaps by ploughing, to the south, but the presence of a ridge or spine of larger cobbles may mark its central line and suggests an overall width of about 6.6 m.



ILLUS 2 Callendar Park: Military Way

At point B, the road was again found to be well preserved (illus 3). There was no obvious spine, unless some larger cobbles at a distance of 3.5 m from the north kerb may be its remnants. Of particular interest was the presence in the stone cobbling of what seemed at first sight to be a number of post-settings, having diameters between 0.15 m and 0.25 m. Arguably some of these 'settings' were holes left by the robbing away of single cobbles from the road over the centuries, but others seemed quite deliberately edged. However, the rusty-brown sandy natural below the road had not been cut into. The excavated area was later extended north in search of postholes or other features, but none was observed.

At first there seemed some possibility that the cobbles located at point B represented a rampart base, perhaps of the fortlet-site being sought, but probing established beyond doubt that the cobbling was part of the same feature as A, and must represent the Military Way accompanying the Wall on its south side. The gap between road and wall was about 15 m, but lessened as the road itself 'cut' the corner. The discovery of the Military Way in this position excludes the presence of a fortlet-site, as there would be insufficient space for it between Wall and road.



ILLUS 3 Callendar Park: Military Way (Area B), seen from north-east

4 CALLENDAR PARK ESTATE (NS 892 795)

G B Bailey

During the laying of a gas pipeline in 1984 near the west limits of the Callendar Park estate, c 25 m south of the presumed line of the Antonine Wall, a thin spread of burnt sandstone chippings was seen overlying natural gravel. The spread was localized; it could have been a remnant of the Military Way.

5 FALKIRK, KEMPER AVENUE (NS 892 795)

D F Devereux

Trial excavations were carried-out in May 1984 in an attempt to establish the extent of the Roman hypocausted structure discovered in 1980 beside the former course of the East Burn (Keppie & Murray 1981). Trenches were opened up c 20 m south of the 1980 investigation, and also c 20 m to the south-west. In the south area, the east bank of the now canalized Burn was located. Both trenches were excavated to the natural subsoil, but no Roman finds or structures were located. It now seems very likely, given an improved knowledge of the ancient course of the East Burn, that the Kemper Avenue site was more or less contained within the limits of the 1980 excavation.

6 FALKIRK, WILLIAMSON STREET (NS 890 797)

G B Bailey

In 1985, observations of a deep sewer-trench running north–south at the corner of Williamson Street and Arnot Street failed to reveal any trace of the Antonine Ditch, sometimes thought to pass through this area. Almost certainly it should be looked for some distance to the south. (For the line hereabouts see Keppie & Murray 1981, 248, 262.)

7 BONNYBRIDGE (NS 822 797)

G B Bailey and D F Devereux

The Antonine Wall and Ditch, running west from Seabegs Motte towards Seabegs Wood, pass through an area of Bonnybridge where old industrial buildings have been cleared for redevelopment. In 1977, when redevelopment was first proposed, the line of the Roman frontier was established close

to the west edge of the site (Keppie & Breeze 1981, 227). In February 1982, the Roman ditch was cut through by a pipe-trench beside Murnin Road, and the partial section thus obtained was examined by Mrs J Frances Murray. The ditch had a width of 8 m across the surviving lips, and its V-section was followed to a depth of 3.5 m. The lower part of the fill contained waterlogged organic material including small branches (cf Smith 1934, 64). It is suggested that this represents deliberate infilling, but in a post-Roman context.

In February 1984, pipelaying 50 m west of Murnin Road again revealed the ditch, sealed by modern industrial waste. It had a surviving width of c 9 m, but may originally have been a little broader; the angle of slope of the north and south sides was about 30° from the horizontal. The ditch fill was uniformly a grey-brown loam, with occasional ash lenses. Infilling was already complete prior to industrial development of the site c 1900. There were no finds. The pipe-trench extended a further 12 m south of the south lip of the ditch, but no evidence of the Antonine Wall rampart was seen.

The line of the ditch hereabouts was hitherto conjectural. To the east, it had been located by excavation south of Seabegs Motte (Smith 1934). To the west of this point, Macdonald noted that

'for fully 600 yards there is little, sometimes, indeed, nothing at all, to inspire confidence, largely because of the intervention first of a factory and then of tenements with their gardens' (1934, 132).

The recent observations now allow us to fill the gap between Seabegs Motte and the farm of Seabegs Place, showing that the ditch takes a more southerly line than has been indicated on OS sheets. In the 1977 trench, at the west edge of the redevelopment site, the divergence is as much as 10 m.

8 SEABEGS WOOD (NS 816 794)

In 1981 a low mound attached to the rear of the visible turf rampart of the Antonine Wall, towards the east end of the guardianship stretch in Seabegs Wood, was sectioned in case it should prove to conceal, or be the remnant of, one of the turf-built 'expansions' known west and east of Rough Castle and on the west flank of Croy Hill (Steer 1957). Excavation revealed turf slip from the adjacent rampart which overlay an 8–9 mm thick layer of dense burning and a skin of old topsoil. There was, however, no evidence of any structure set against the rampart at this point. How the low mound achieved its present shape was not established.

9 UNDERWOOD LOCK (NS 805 789)

G B Bailey

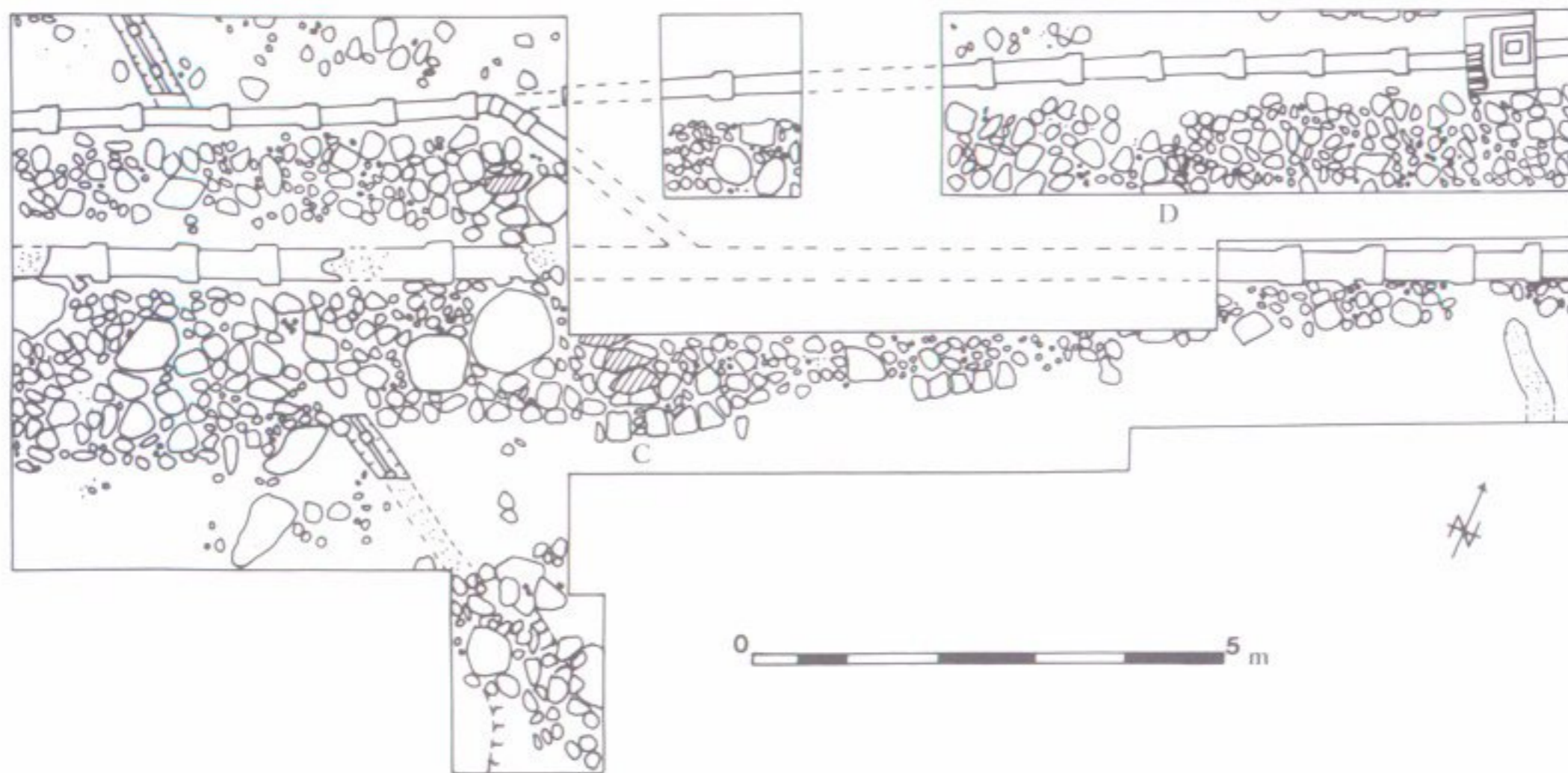
In 1985 the laying out of a car park on the line of the Antonine ditch at Underwood Lock, Allandale, on the Forth and Clyde Canal, involved the removal of c 30 cm of topsoil. No trace of the Ditch was observed, though it survives as a pronounced hollow west and east of the site. This may be attributed to earlier disturbance associated with the construction of the lock.

10 DUNDAS COTTAGES, CASTLECARY (NS 793 785)

In April 1985 the stone base of the Antonine Wall was examined at Dundas Cottages, 400 m east of Castlecary fort, in advance of the construction of a bungalow. A stretch of 17 m of the stone base was cleared, except where the presence of active but broken sewers, which had long ago disturbed the base itself, made too close an inspection undesirable (illus 4). The base proved to have been considerably disturbed in past years: both kerbs had been almost totally robbed away, though 'robber trenches' allowed the original location of the kerbs to be determined with some certainty, suggesting an overall width for the base of 4.3 m.

The base itself was constructed of large, sometimes enormous, natural boulders, interspersed with small cobbles (illus 5); about 4.5 m from the east end of the main area examined, a line of cobbles aligned north-south could indicate a change-over between two work-squads. The base was crossed by a culvert, 0.25 m wide, of which four capstones remained *in situ*. The superstructure was of laid turf, of which up to five courses were visible in section, to a height of 0.3 m above the base.

DUNDAS COTTAGES



ILLUS 4 Dundas Cottages: general plan of stone base. Note C=culvert, with surviving capstones indicated by shading; D=possible demarcation line between work-squads



ILLUS 5 Dundas Cottages: stone base of Antonine Wall, seen from east

Some 50 fragments of Roman pottery were recovered from turfwork overlying a surviving length of the south kerb; the fragments came from at least three vessels, all in Black-burnished I fabric (of Antonine date). Trial trenching some 12 m to the west indicated that most of the stonework thereabouts had already been removed. Further work 2 m to the east produced evidence of terracing to create a level surface for the stone base; turf slip here extended back from the line of the base for a distance of 3 m, and over it a thin layer of small cobbles had been laid down. A small fragment of Black-burnished ware was recovered from the turf slip. The south lip of the Antonine ditch was located at a distance of 7 m from the presumed position of the north kerb of the stone base. Both Wall and ditch lay c 2 m north of the position shown on OS maps. (Small finds are in Falkirk Museum.)

11 CASTRA COTTAGE, CASTLECARRY (NS 791 783)

J S Wood

Excavations to underpin the foundation of a house that had cracked at both east and west gables and was settling along its entire frontage revealed the forward slope of the Antonine ditch at a depth of 1.2 m below the present surface under the gable cracks and sloping to a depth of 3 m below the front wall. In a section to the north of the gable cracks, an old (Roman?) turf-line was observed at an average depth of 1.2 m, with upcast over this to a maximum height of 0.35 m. A fragment of antler (12.5 cm long) with two well-eroded points was recovered from the ditch surface under the south-east corner of the house. The find is now in the Hunterian Museum.

12 TOLLPARK (NS 772 778)

The search for a mile-fortlet at Tollpark, begun in 1979 (Keppie & Breeze 1981, 239), was resumed in 1982–3. Attention was directed towards the field lying immediately to the east of that explored in 1979, at a point where scrutiny of an aerial photograph suggested markings reminiscent of a Roman ditch, and where a raised plateau was visible on the ground. In 1982 this was investigated, but without positive result.

At one point the south kerb of the Antonine Wall was located, on the line shown on OS maps, at a depth of 0.3 m below the modern surface. Set against the south kerb at one point was a 0.75 m wide band of stonework, evidently further evidence for the repair of the stone base, similar to that noted frequently along the Wall, for example on nearby Hag Knowe and at Garnhall (Keppie & Breeze 1981, 230, 232, 239–40). The stone cobbles forming the repair were neatly edged to the south, and itself overlaid 0.15 m of turf, perhaps slip from the rampart. It was not possible to detect if the secondary turf had formed a revetment against the existing stack. But some stones of the repair overlapped the original stone base suggesting comprehensive reconstruction hereabouts. A second trench 13 m to the east revealed only scattered remnants of the base; running away to the south was a stone-filled hollow which seemed unlikely to date from the Roman period. In a third trench 26 m further east, the stone base of the Wall was again plotted. The base lay at a depth of 0.4 m, with up to 0.2 m of turfwork surviving, and although the kerbstones had been robbed, iron staining on the natural clay indicated the approximate position of the south kerb.

In 1983, probing south of the Wall hereabouts located a band of stonework at a distance of c 25 m from it. This proved on excavation to be a remnant of the Military Way, which had a width of at least 6.3 m. The Military Way had been laid on a raft of turf, 0.25 m thick at its south limit, evidently to counteract the natural southwards slope of the ground.

13 EAST DULLATUR HOUSE (NS 746 772–747 772)

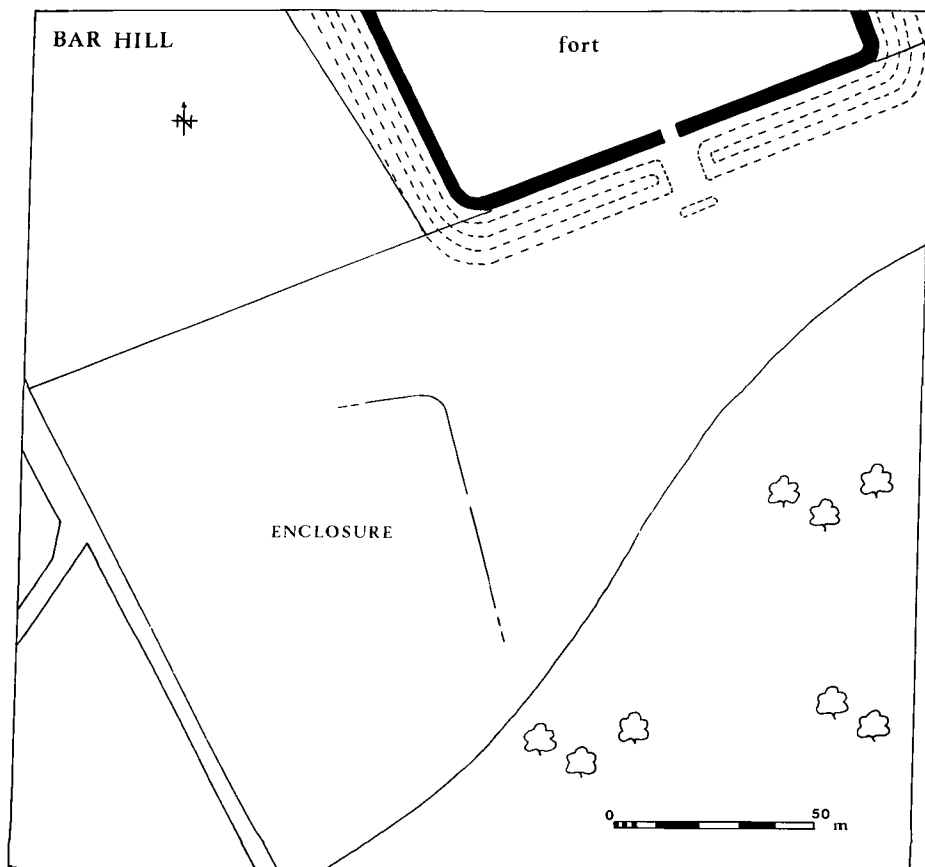
In February 1984 probing took place in the grounds of East Dullatur House to determine the precise position and state of preservation of the Antonine Wall as it passed westwards from Westwood towards Croy Hill. Some stonework probably belonging to the Wall was located by probing on a plateau west of the driveway into the house, close to the modern surface; it seemed to lie slightly north of the line shown on OS maps. Some part of the stone base of the Wall appears likely to have been lost through erosion into the adjacent burn. Further east, immediately south of the house, probing on a

second hillock revealed only scattered stones, and no definite alignment for the Wall's foundation could be established. Yet in 1931 trenching within the grounds of the House revealed the stone base well preserved (Macdonald 1934, 139-40).

East Dullatur House lies exactly one Roman mile east of Croy Hill, and it was hoped that probing might give some indication of the presence of a mile-fortlet thereabouts, either on the hillock west of the driveway, or on that immediately south of the House. However, no positive evidence for such a site was forthcoming.

14 BAR HILL, TWECHAR (NS 707 757)

Excavation took place, over a number of weekends between October 1982 and February 1984, in a field immediately south of the Roman fort of Bar Hill (illus 6), in an effort to locate on the ground the linear cropmark running south from the south-west corner of the fort seen on photographs taken in 1979 by the Royal Commission on the Ancient & Historical Monuments of Scotland. (RCAMS 1979, 18; illus 7). It had been suspected that the ditch which the linear cropmark implied might link up with the fort's defences at the south-west corner, and so form part of an annexe. Alternatively there was some possibility that it might run below these defences and be associated with the fortlet known to pre-date the fort itself.



ILLUS 6 Field south of fort, showing enclosure



ILLUS 7 Bar Hill: aerial view (1979) from west, showing fort ditches and enclosure ditch as cropmarks (RCAMS)

The ditch was located without difficulty. In fact towards the south end of the field it can be detected on the ground as a shallow dip. From aerial photographs, a gap may be indentifiable in its course, but no attempt was made to pinpoint it by excavation. The ditch was then followed towards the north-west (that is towards the fort), but it did not join up with the latter's defences. Instead it turned at right angles towards the west. It was then followed for a distance of 25 m; thereafter its course could not be established, though a number of trenches were dug along the presumed line. The ditch may have been disturbed by mine workings; the now-capped mouth of one pit shaft is visible close by in the field, and a spread of cinders and coal was found overlying the natural clay in trenches close to this disturbance.

It seemed reasonable to conclude that the ditch formed part of the defences of a temporary camp lying immediately south-west of the fort. However, attempts to locate the presumed south and west sides on likely alignments within the same field proved abortive. Though the south side appeared to show clearly on aerial photographs (illus 7), excavation revealed that the 'natural' hereabouts was rock which came very close to the surface. On the likely line for the ditch this rock was interrupted by a hollow, but there was nothing to show that the latter had been man-made. The west side was sought close to the west boundary fence of the field, and in line with a natural dip in the ground, but again without success. Natural rock came to within 30 cm of modern ground surface; extensive probing hereabouts also failed to indicate any interruption in the natural rock formation.

The ditch, where it *was* located (ie on the north and east sides of the enclosure) proved to have a width of about 2 m and to have been cut into the natural clay to a depth of between 0.5 and 0.7 m. In one section close to the north-east corner-angle several fragments of worked wood were recovered from the lowest layers of fill.

Despite the failure to locate the south and west sides, it must be likely that the ditch defined a temporary camp, perhaps to be associated with the building of the fort. If the camp lies wholly within the field south of Bar Hill, as considerations of local topography could suggest, it may have had an area of about 0.6 hectares (1.48 acres). Sir George Macdonald reported that a ditch was observed south of Bar Hill fort in 1908, a ditch which he reasonably supposed was part of an annexe (Macdonald 1911, 199; 1934, 281). Very probably this was part of the same ditch system as examined in 1982–4. He also mentions a ditch west of the fort. Neither appears on any published plan.

On a piece of rough ground which marks the site of the pit-shaft already referred to, two large stone blocks were noted, which must have been dragged there by the farmer after ploughing of the field in recent years; the two blocks (which have since disappeared) joined to form a slab 1.2 m by 70 cm by 25 cm deep, in local buff sandstone. Set into the top of the slab was an oblong recess, apparently to support an upright stone or timber beam; the blocks were drawn and photographed.

15 BAR FARM, TWECHAR (NS 702 759)

In February 1982 estate workers made an unauthorised north–south cut across the line of the Antonine Wall on the west slope of Bar Hill, c 40 m east of the now-demolished outbuildings of Bar Farm, to draw off water from the access road to the fort, into the Antonine ditch. A width of c 0.9 m was destroyed by their operations.

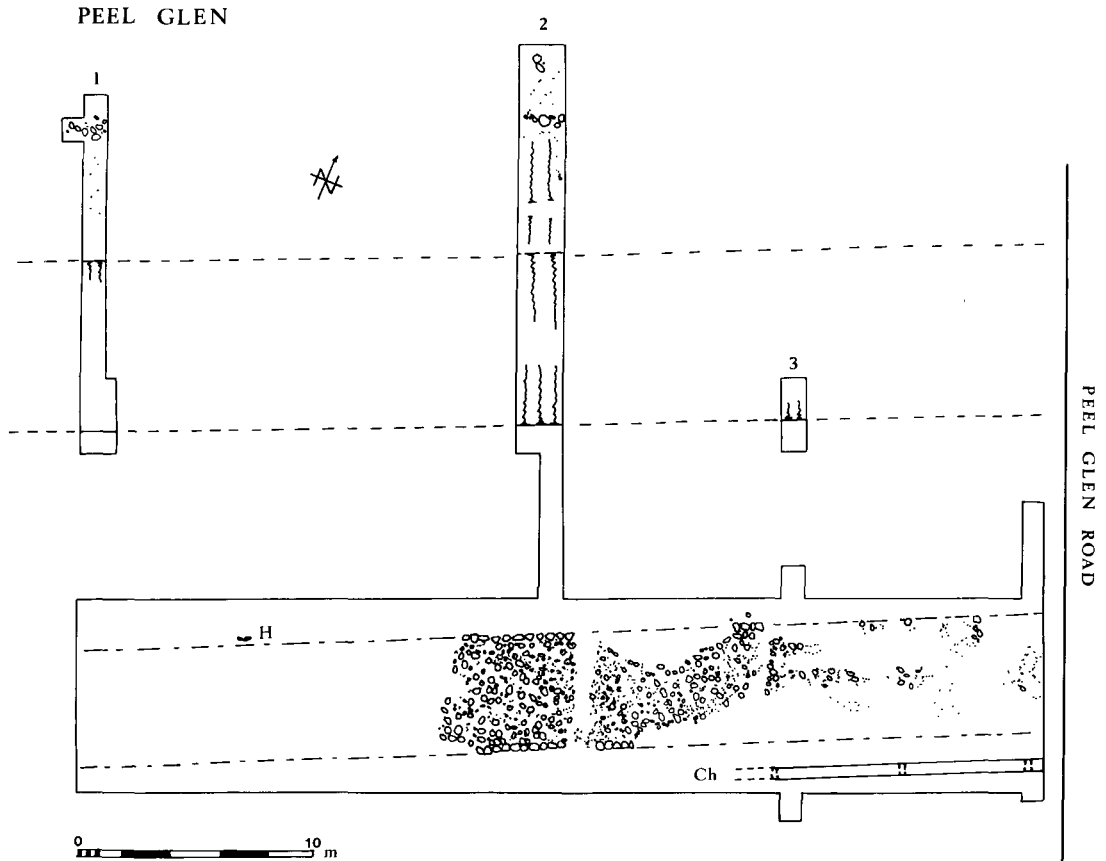
During a chance visit to the site, one side of the trench was cleaned to reveal the stone base, which proved to be well preserved at a depth of 0.36–0.55 m below the modern surface. It consisted of sandstone cobbles edged by large kerbs, with a width of 4.25 m. Above the stonework up to 0.3 m of laid turfwork survived, its horizontal markings clearly visible in section. The berm between the stone base and the ditch had a width of about 10 m. The ditch itself, which was unaffected by the trench, seemed to have a width of c 7.8 m, but its south edge could not be precisely identified.

16 WESTER SHIRVA (NS 684 752)

The stone base of the Wall was disturbed in 1982 during the laying of field-drains east of Auchendavy farm. Some stonework was observed in section in one of the trenches, on the alignment shown on current OS maps.

17 SUMMERSTON (NS 581 719)

In May 1982 dredging of the River Kelvin north of Balmuildy fort pulled up a number of worked stone blocks, which were then deposited on the river's north bank. The blocks, some with dove-tailed crampholes, presumably derived from the stone piers of the Roman bridge, originally discovered during similar operations in 1941 (Miller 1952, 88). The newly dredged blocks lie on the embankment at between 15 m and 72 m east of the modern bridge carrying the A879, with a concentration towards the east end. It is hoped to transfer some of these blocks to the Hunterian Museum, as circumstances



ILLUS 8 Peel Glen: general plan showing stone base and ditch sections. Note: Ch=channel; H=possible hearth

allow. At the same time heavy cobbles were observed in section in the north bank c 14–30 m and 54–58 m east of the modern bridge, ie west of (behind) the presumed position of the Roman bridge. These did not seem to be a natural layer.

18 BEARSDEN, ROMAN ROAD (NS 544 721)

The provision of additional premises at St Andrew's Roman Catholic Church, 29 Roman Road, Bearsden, involved a deep cut into the natural clay on the presumed line of the Antonine Wall and ditch 100 m west of the north-west corner of Bearsden Roman fort. No trace of the stone base of the Wall was observed. Very probably it had already been removed during landscaping work in the 19th century. However, the south lip of the Antonine ditch was pinpointed in two north-south drainage trenches cut by the builders: (a) close to the existing church and (b) beside the west boundary wall of the site, where in fact the alignment of the ditch is confirmed by cracking in the wall itself. These observations confirmed the line of the Antonine ditch as shown on current OS large-scale sheets.

19 PEEL GLEN (NS 521 725)

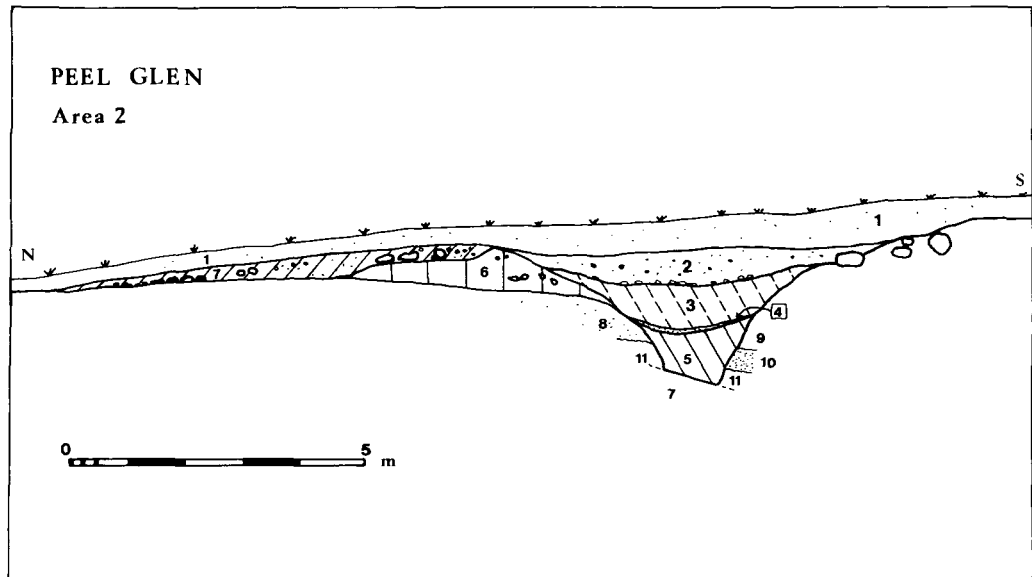
A two-week excavation on farmland west of Bearsden in June 1982 investigated the remains of the Antonine Wall and ditch at Peel Glen Road in advance of a proposed road realignment which will destroy c 40 m of the frontier as it descends from the fort at Castlehill towards the Peel Glen Burn.



ILLUS 9 Peel Glen: stone base of the Antonine Wall, from east

The stone base of the Wall, which lay in places barely 0.15 m below the modern ground surface, proved to be badly disturbed, by field drains and especially by ploughing, with a length of only 12 m surviving more or less intact out of the 40 m examined; elsewhere only scattered cobbles were located (illus 8, 9). Towards the east end of the excavated area bedrock was encountered at a depth of 0.2 m. A concentration of iron-panning in line with the surviving base probably resulted from the presence of the now vanished stone base with its turf stack on top. The field has not, it seems, been ploughed for upwards of 60 years, so that the damage is of long-standing. The stone base, which consisted of shaped kerbs enclosing a core of smallish sandstone cobbles, was set back from (ie to the south of) the crest of a narrow east–west ridge, with the berm occupying the true crest and with the ditch set into the forward slope. The base had a width of 5 m. It was devoid of any conspicuous features: there was no evidence of repair work, and no culverts survived, though over a length of 40 m, two or more culverts would be expected. However, a narrow U-shaped channel, on average 0.4 m wide and 0.25 m deep, was found running parallel to the base at a distance of 1 m south from its south kerb (illus 8). The channel, which has a fill of gritty greyish silt and small stones overlain by wind-blown sandy soil, presumably served to keep water away from the stone base itself, as it descended the narrow ridge. In general, little trace of the superstructure had survived the plough, except that on occasion flecks were visible in the interstices of the stone base. To either side of the Wall, slip from the rampart survived to a height of 0.1 m, and in places allowed the alignment of the base to be known, even where the stonework itself had been totally removed. A thin strip of turf slip also survived on the line of the U-shaped channel, because of subsidence into its soft fill over the years. A charcoal-filled hollow lying somewhat in advance of the missing north kerb towards the west end of the excavated area may represent a hearth of the type noted in this position at Bantaskin (Keppie 1976, 72).

The ditch was separated from the stone base by a berm of 8.6 m. One complete section was cut across the ditch and upcast mound, with the aid of a machine, and its edges established at two other points. The ditch had a width of 7 m and it seemed to have been cut into the Roman ground surface to a depth of no more than 2.5 m. The ditch here had been cut through layers of differently coloured natural, firstly of orange-brown gravelly clay, then of darker clay and outcrops of soft coaly deposits. It was not the standard



ILLUS 10 Peel Glen: section of east side of ditch (Area 2) from north to south. Note: 1=topsoil; 2=mixed clayey earth; 3=grey silty soil; 4=light orange gravel; 5=dark grey silty soil; 6=pink clay; 7=orange sandy soil; 8=greyish-buff clay; 9=orange-brown gravelly clay; 10=soft coal deposit; 11=dark grey clay

V-shape, but shelved rapidly when a new layer of orange sandy natural was reached (illus 10). The lowest level of fill consisted of a dark grey silt; a sample removed for botanical analysis did not, however, yield any useful results, as the pollen and spores had not survived well. The upper layers contained numerous sherds of green-glazed medieval wares.

The upcast consisted of two distinct bankings: the first, of reddish clay, continued the slope of the north face of the ditch, bringing it to a level similar to the south lip. Laid over and beyond this was a dump of different material: orange sand in which numerous large stones were noted, some of them resembling in shape the kerbs from the Wall base itself. As the layers of upcast do not correspond to the natural which the diggers must have encountered directly in front, a degree of 'angled' dumping by the ditch diggers may be suggested. The upcast, with a width of about 9.5 m, seemed to have been revetted at its north end by boulders. Soil profiles below and to either side of the frontier line were examined by Ian Maté, in the hope of obtaining evidence for the extent of turf-stripping during its construction, but without conclusive results.

Current OS maps show a double change in alignment for the Wall as it descends the slope of Castlehill to the Peel Burn. The position of the base and ditch as found in 1981 confirmed that there had been such a change, but that its angles were not as pronounced as shown on current maps. Given the presence of rock close to the surface of the field, the Ditch here must have been partially or wholly rock-cut at several points. Roman small finds, all unstratified, comprised a body fragment of mortarium, a polished stone gaming piece and (rather unexpectedly) a fragment of window glass with moulded edge. (All finds now in the Hunterian Museum, Glasgow.)

DISCUSSION

The half decade from 1981 saw a large number of minor excavations and watching briefs along the line of Scotland's Roman frontier. Much of the work was undertaken in response to sudden threats, often at short notice, or resulted from chance visits to sites. A few excavations represented efforts to investigate possible defensive sites attached to the Wall curtain or (in the case of no 14) to clarify features observed on aerial photographs. The present report stands as the latest in a long series

published mostly in these *Proceedings*, firstly by Sir George Macdonald (1915; 1925; 1933), then by Professor Anne Robertson (1964; 1969) and latterly by Dr L J F Keppie and Dr D J Breeze (Keppie 1976; Keppie & Breeze 1981). Doubtless other work will be reported in due course, as the nibbling away of Scotland's premier Roman monument continues.

The particular value of such small-scale work has always been the additions to our knowledge of the constructional details; for example, the width of the stone base, the make-up of the superstructure, the width of the berm, ditch and upcast, and of the Military Way (Keppie 1974). Among the work undertaken in 1981–5, particular mention can be made of Peel Glen Road (no 19), which lies within a work-sector running west from Castlehill to Hutcheson Hill (sector no 10; see Keppie 1974; 1979), where no previous sections seem to have been cut; or at least no measurements of wall-width or ditch-width are recorded. The width of the stone base, 5 m (16 feet), is unusually broad, but matches that found by Professor Anne Robertson in 1947 on the west and east slopes of Golden Hill, Duntocher, 4 km to the west (Robertson 1957, 7). The exceptional width of the stone base at Peel Glen Road may have been occasioned by the slope from the summit of Castlehill. On the other hand, we may wish to see it as the hallmark of a particular work-squad. But this causes problems: the sector from Castlehill to Hutcheson Hill was completed by men of the Twentieth Legion, and that from Hutcheson Hill to Duntocher Burn by the Second Legion (Keppie 1974). Some rethinking of standard conclusions on responsibility for Wall-building work may be in order.

At Callendar Park (no 3) a drastic change in alignment, noted by early antiquaries, was confirmed. The width of the Wall base here was 4.5 m (14 ft 9 in), and the superstructure was of earth revetted by turf cheeks, as normal for the nine miles east of Watling Lodge. At Dundas Cottages (no 10) the width was 4.3 m (14 ft), and a possible change-over point between work-squads was noted. At Bar Farm (no 15) a width of 4.25 m was noted; the berm here seemed to be 10 m wide, and the ditch (less certainly) was c 7.8 m wide. It has been recognized that the full or 'broad' ditch of 12 m (40 ft), which used to be regarded as the norm, obtains only over the central lengths of the Antonine Wall, with a 'narrow' ditch of c 9 m (30 ft) or less, the regular width west of Auchendavy and east of Falkirk (Keppie 1974, 162). The measurements obtained at Bar Farm may give a closer indication of the change-over point from broad to narrow ditch: a broad ditch was noted by Sir George Macdonald on Bar Hill (Macdonald & Park 1906, 18), but 500 m to the west it seems likely to have narrowed considerably. Further work will be necessary to establish the demarcation point more precisely.

In addition, a 'narrow' ditch of 7.5 m (24 ft) was confirmed near the east end of the Wall at Inveravon, and towards the west end a width of 7 m (23 ft) was observed at Peel Glen Road where the berm was c 8.6 m (29 ft). The width of the ditch at High Bonnybridge was at least 9 m; here without doubt a full width of 12–13 m would be expected.

More evidence was obtained for repairs to the turl rampart (Tollpark, no 12). The Military Way was examined at several points (nos 3, 4, 12). Something was learned about the make-up of the upcast (no 19). Stonework from the bridge carrying the Military Way across the River Kelvin was observed after renewed dredging of the river (no 17). An enclosure, most probably a temporary camp, was pinpointed on the ground at Bar Hill, to add to the 18 already known (Hanson & Maxwell 1983, 117–19)².

NOTES

- 1 The width of 9.7 m in the published report (Main in Keppie 1976, 61) represented a simple measurement along the trench edge, without allowances for the angle at which the pipe-trench crossed the ditch.
- 2 For results of investigation close to the presumed east terminus of the Wall at Bridgeness Tower in 1985 (not part of the present report), see Bailey & Devereux 1987.

ACKNOWLEDGEMENTS

Of the works reported on above, most were supervised jointly by the two authors of this report; nos 1, 10, 18, 19 were carried out at the request of, and with financial backing from, the Historic Buildings and Monuments Directorate of the Scottish Development Department; nos 2 and 7 were undertaken by staff of Falkirk Museums, on behalf of Falkirk District Council and the Scottish Development Department, nos 4–6 and 9 by Falkirk Museums alone. Some reports (nos 15–17) resulted from chance visits, others by arrangement with the landowners: for no 3 (Callendar Park) we have to thank the Principal and Secretary of Callendar Park College of Education; for no 12 (Tollpark), the Cumbernauld Development Corporation; for no 15 (Bar Hill), Mr W Stark, Twechar Farm; for no 13 (East Dullatur), Mr L Smith, East Dullatur House. Finance to support nos 3, 8, 12–14 was made available by the Hunterian Museum, University of Glasgow. Mr G B Bailey shared the results of his researches on Callendar Park Estate.

For his help and encouragement throughout thanks are due to Dr D J Breeze. The line drawings for this report were prepared by Dr L J F Keppie, who also took the photographs, apart from illus 7 which is reproduced, by permission, from a print taken in 1979 by RCAMS, *Crown Copyright* reserved.

REFERENCES

- Bailey, G B & Devereux, D F 1987 'The eastern terminus of the Antonine Wall: a review', *Proc Soc Antiq Scot*, 117 (1987), 47–57.
- Blaeu, J 1654 *Theatrum Orbis Terrarum*. Amsterdam.
- Hanson, W S & Maxwell, G S 1983 *Rome's North West Frontier, The Antonine Wall*. Edinburgh.
- Hunter, Doreen M 1953 'Callendar Park', *Counc Brit Archaeol, Scot Reg Group Rep*, 8 (1953), 17.
- Keppie, L J F 1974 'The building of the Antonine Wall: archaeological and epigraphic evidence', *Proc Soc Antiq Scot*, 105 (1972–4), 151–65.
- Keppie, L J F 1976 'Some rescue excavation on the line of the Antonine Wall, 1973–6', *Proc Soc Antiq Scot*, 107 (1975–6), 61–80.
- Keppie, L J F 1979 *Roman Distance Slabs from the Antonine Wall*. Glasgow.
- Keppie, L J F & Breeze, D J 1981 'Some excavation on the line of the Antonine Wall, 1957–80', *Proc Soc Antiq Scot*, 111 (1981), 229–47.
- Keppie, L J F & Murray, J F 1981 'A Roman hypocausted building at Falkirk', *Proc Soc Antiq Scot*, 111 (1981), 248–62.
- Macdonald, G 1911 *The Roman Wall in Scotland*. Glasgow.
- Macdonald, G 1915 'Some recent discoveries on the line of the Antonine Wall', *Proc Soc Antiq Scot*, 48 (1914–15), 93–138.
- Macdonald, G 1925 'Further discoveries on the line of the Antonine Wall', *Proc Soc Antiq Scot*, 59 (1924–5), 270–95.
- Macdonald, G 1933 'Notes on the Roman forts at Rough Castle and Westerwood, with a Postscript', *Proc Soc Antiq Scot*, 67 (1932–3), 243–96.
- Macdonald, G 1934 *The Roman Wall in Scotland*, 2 ed. Oxford.
- Macdonald, G & Park, A 1906 *The Roman Forts on the Bar Hill*. Glasgow.
- Macdonald, G & Curle, A O 1929 'The Roman fort at Mumrills, near Falkirk', *Proc Soc Antiq Scot*, 63 (1928–9), 396–575.
- Maitland, W 1757 *History and Antiquities of Scotland*. London.
- Miller, S N (ed) 1952 *The Roman Occupation of South Western Scotland*. Glasgow.
- RCAMS 1979 Royal Commission on the Ancient and Historical Monuments of Scotland, *Catalogue of Aerial Photographs*. Edinburgh.
- Robertson, Anne S 1942 'A Roman Oven at Mumrills, Falkirk', *Proc Soc Antiq Scot*, 76 (1941–2), 119–27.
- Robertson, Anne S 1957 *An Antonine Fort, Golden Hill, Duntocher*. Edinburgh and London.

- Robertson, Anne S 1964 'Miscellanea Romano-Caledonica', *Proc Soc Antiq Scot*, 97 (1963–4), 180–201.
- Robertson, Anne S 1969 'Recent work on the Antonine Wall', *Glasgow Arch J*, 1 (1969), 37–42.
- St Joseph, J K S 1958 'Air reconnaissance in Britain, 1955–57', *J Rom Stud*, 48 (1958), 86–101.
- St Joseph, J K S 1965 'Air reconnaissance in Britain, 1961–64', *J Rom Stud*, 55 (1965), 74–89.
- Sibbald, R 1707 *Historical Inquiries*. London.
- Smith, S 1934 'Notes on an artificial mound at Bonnybridge', *Proc Soc Antiq Scot*, 68 (1933–4), 59–67.
- Steer, K A 1957 'The nature and purpose of the expansions on the Antonine Wall', *Proc Soc Antiq Scot*, 90 (1956–7), 161–9.
- Steer, K A 1961 'Excavation at Mumrills Roman fort, 1958–60', *Proc Soc Antiq Scot*, 94 (1960–1), 86–132.

This paper is published with the aid of a grant from the Historic Buildings and Monuments Directorate (SDD)