

7 Excavations at the Hadrian's Wall fort of Bowness-on-Solway (Maia), Cumbria: 1988

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Introduction

Two housing developments took place in 1988 in the village of Bowness-on-Solway within the supposed area of the Roman fort attached to Hadrian's Wall. In response to these the author carried out excavation of one site and a watching brief at the other for the then Central Excavation Unit. This paper is the report of the results of this work.

Previous survey and excavation

The village of Bowness sits on a clay knoll approximately 15.2m above sea level and is one of the few conspicuous such high points formed geologically on the south shore of the Solway Firth above the surrounding salt marshes. As such, it formed an obvious location for the westernmost fort on Hadrian's Wall, with the next two forts to the east being similarly

sited on higher ground above the tidal flood plain of the Solway marshes at Drumburgh and Burgh-by-Sands.

The position of the fort was recorded by antiquarians, from William Camden onwards, with accounts of the slight traces of the south defences close to the church of St Michael and of the position of the west defences common to all reports. The survey carried out by Henry MacLaughlan for the Duke of Newcastle in 1858 provided a confident calculation of the size of the fort as "about 240 yards [219.46m] by 110 [100.58m], giving an area of 5.5 acres [2.23ha]", although by then much of the east side had been built upon. MacLaughlan's calculation forms the basis of the delineation of the outline of the fort on the Ordnance Survey maps of Bowness (Fig 427).

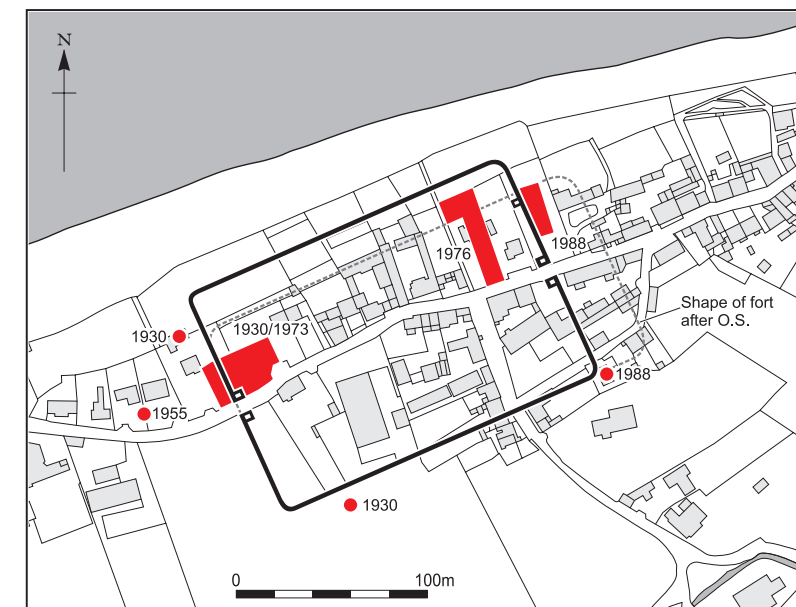
Most excavation hitherto, with the exception of T Potter's work in 1976, has been concentrated at the western end of the fort. These interventions are shown by date

in Fig 427. In 1930 Eric Birley carried out excavations on the west and south defences. He established the position of the north guard chamber of the west gate, and discovered that the width of the fort was greater than MacLaughlan's estimation (Birley 1931). The south wall lay a little to the south of where MacLaughlan had calculated its position, and he also disproved MacLaughlan's supposed line of the north defences. The west wall continued north towards the Solway and disappeared at the top of the present scarp, indicating that the Solway had eroded the north side of the fort's defences. By locating the south wall and the west gate in the centre of the west side, Birley was able to calculate accurately the width of the fort as 410ft (124.97m).

In 1955 Charles Daniels carried out trial trenching to the west of the fort in advance of the building of two bungalows, but found no evidence associated with an associated civil settlement or *vicus* on that side of the fort (Daniels 1960). Twelve years later further excavations were undertaken by J D Mohamed in Mill Field, associated with the building of 'Maia' west of the fort. These excavations encountered the footings of the west wall, as cobbles set in red clay separated from the inner ditch by a berm of 3m. The ditch was 6m wide and 2m deep and contained fallen facing stones, and Roman and medieval pottery. Beyond this was a further ditch 15.2m wide, which appeared to be wholly medieval in date. Mohamed also found the *intervallum* road 4.74m wide 4.5m from the fort wall, together with traces of buildings bounded by it (Mohamed 1968).

The building of another house, 'The Fort', at the west end of Bowness led to excavations by Tim Potter in 1973. Potter re-examined the north guard chamber of the west gate discovered by Birley, as well as the *intervallum* road and a succession of buildings bounded by it (Potter 1979). These excavations established that the west gate was initially a timber structure and that the primary fort defences consisted of a turf rampart. The stone gateway and stone fort wall were secondary features, probably contemporary with the rebuilding of the western half of Hadrian's Wall in stone.

Potter conducted further excavations in 1976 within the interior of the fort in the field on the west side of the Post Office, again in advance of building development. This revealed a sequence of buildings constructed in timber, with evidence of quarrying for clay.



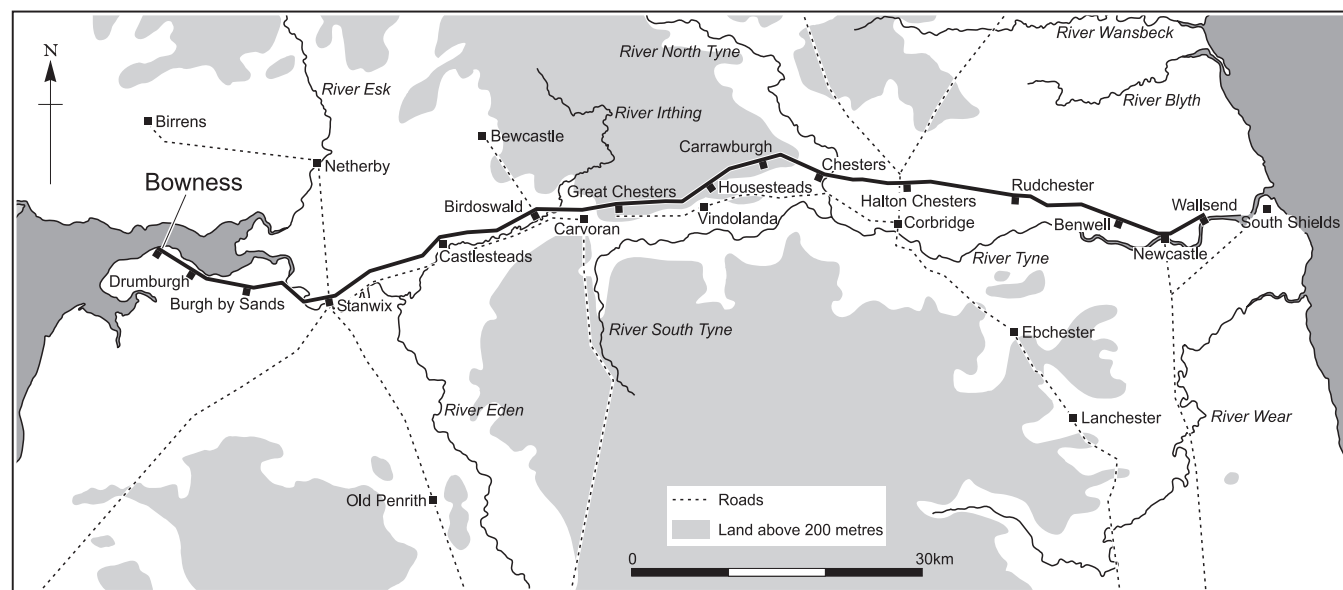
The size and orientation of the fort

The limited extent of previous excavation at Bowness had not permitted hitherto the full extent of the fort to be determined beyond doubt. It has always been known that the fort's long axis was east-west, parallel to the line of Hadrian's Wall, in common with Housesteads and Great Chesters. Birley's and Potter's excavations established the width of the fort, but the precise location of the east defences had not been confirmed by either excavation or by survey of visible indications, and MacLaughlan's estimated length of 720ft (219.46m) had not been hitherto questioned (thus Bellhouse 1988, 38). The size of the fort, based on the work of MacLaughlan, Birley and Potter, was thought to be 7 acres (2.83ha). It has also always been presumed that the fort faced west (Daniels 1978, 55).

Even before the present excavations there were a number of indicators that suggested that these two assumptions were incorrect and that the actual dimensions of the fort could be more accurately calculated. The first indicator is the usual ratio of the length to width of most auxiliary forts of 3:2. In relation to the established width of 124.97m, a length of *c* 187.45m might have been expected rather than 220m (720ft). If there was any consistency in planning when the Wall forts were constructed, the fort might be expected to face east, as did the two other forts – Great Chesters and Housesteads – which were turned parallel to the Wall for topographical

Fig 427
Bowness-on-Solway: plan of the site of the fort, showing locations and dates of previous excavations, and of the 1988 work.

Fig 426
Bowness-on-Solway: location of Bowness on Hadrian's Wall.



reasons. Although little is known of its internal layout, it is probable that the fort at Stanwix also faced east.

At Bowness the position of the south gate is indicated by the surviving *agger* of a road in the field opposite the parish church. If the fort faced east rather than west, the south gate would have been the *porta principalis dextra*, and its distance from the west defences would be approximately two thirds of the total length of the fort. The distance between the position of this gate and the west defences is approximately 122m, which again would suggest the overall length of the fort as closer to 183m than 220m.

An eastward-facing orientation is also suggested by the successive buildings discovered in Potter's 1976 excavations. If the fort had faced west, these buildings, situated east of the supposed line of the *via principalis* leading to the south gate, would have been within the area of the central range of buildings. However, their minimum length of 57m (the north end lay beyond the eroded sea cliff), nearly half the width of the fort, is difficult to reconcile with their interpretation as buildings of the central range. Their length and form was more indicative of buildings within the *praetentura*, such as barrack blocks, stretching between the *intervallum* road and the *via praetoria*.

A further pointer to an eastward-facing orientation follows from Birley's location of the west gate and the south defences, from which the centre line of the long axis of the fort was known. The north guard chamber was found immediately north of the road, but the implication that the line of the modern road coincides exactly with the Roman entrance into the fort through the west gate has not previously been noted. This suggests that the Roman defences, including the gateway, must have stood to a significant height for a considerable time after the Roman period, and thus influenced the course of the modern road.

By contrast within the fort, the modern road clearly runs at varying angles to the orientation of the fort rather than following the line of the Roman streets within the fort. This raised the question as to whether the modern road would similarly coincide with the Roman gateway and road into the fort at the east end. The point where the modern road crossed the MacLaughlan position of the eastern

defences was some 15m south of the centre point of the east defences (Bellhouse 1988, fig 2). However, the modern road and the central axial line of the fort intersect approximately 30m west of the MacLaughlan position of the east defences. This is also approximately 183m from the west gate.

Two inscriptions at Bowness (RIB 2057 and RIB 2058), dedicated by Sulpicius Secundianus, who is titled as *trib(unus) coh(ortis)*, are both dated by internal reference to AD 251–3. This demonstrates that the unit here was a milliary cohort, assuming that the distinction between the rank of a commanding officer as *tribunus* or *praefectus* was still valid in the 3rd century. The other known milliary forts on Hadrian's Wall (excluding Stanwix) – namely, Birdoswald and Housesteads – provide interesting comparisons. Housesteads is particularly narrow owing to the sloping topography, but is 186m long, while Birdoswald is 122m wide and 177m long. The size of the fort at Bowness might be expected to be roughly comparable.

A remarkable revelation appeared when the plan of Housesteads fort was superimposed over the modern village of Bowness, using the known position of the west gate and the axis of the fort as fixed points. Ignoring the difference in width, the east gate of Housesteads occurs almost exactly at the same point where the modern road through Bowness crosses the central axis of the fort. The same occurs when the plan of Birdoswald, turned through 90°, is similarly overlaid. What also became apparent from this exercise is that the irregular course of the modern road between the east and west gateways was determined by an obstacle near the centre. In relation to the overlaid plan of Housesteads fort, it runs exactly between the headquarters building and the granaries (Austen 1991).

The combined evidence of the line of the road and the position of the south gate strongly suggest that the *principia* at Bowness, which was likely to have been a stone structure, was located to the south west of the modern T-junction in the centre of the village. In the absence of locally available building stone, only the most significant structures, such as the defences and the headquarters building, and possibly also the granaries and Commanding Officer's House, would have been constructed in stone on

account of the requirement to import stone either from across the Solway or from the Eden valley. The humbler structures, on the other hand, including the barrack blocks, would have been timber structures. It is therefore significant that the successive buildings found in Potter's 1976 excavations west of the Post Office were constructed in timber throughout the history of the fort and were never replaced in stone.

On the other hand Potter found that the west gate, initially a rampart and timber gate structure, was replaced by a stone wall and gateway. The stone buildings within the fort would have lent themselves to being adapted for secondary occupation for some considerable time after the Roman period until they became unstable, as was found at Birdoswald, where the west gate and granaries were adapted for continued use after Roman abandonment of the fort. Birdoswald's west fort gate continued to be used until the 14th century, when its final dereliction and collapse necessitated breaching the fort wall to the north (Wilmott 1997, 396).

These combined arguments suggested that the Roman fort at Bowness had faced east and that it was smaller in size than traditionally determined before the 1988 excavations. Circumstances presented two opportunities to test this hypothesis through excavation in advance of development in 1988.

The excavations

Church Lane

This site comprised the location of former outbuildings of a small farm sold for private housing development on the south side of Church Lane, bounded on the south by the churchyard wall. A watching brief was arranged with the developer during the excavation of the foundation trenches in April 1988. The design of the house entailed four foundation trenches running north–south as well as two trenches along the north and south sides, respectively. Each of the north–south trenches revealed a substantial ditch 5.3m wide, showing as a dark brown soil fill cut into the red clay subsoil, exactly on the line of the south ditch of the fort established by Birley in 1930. It was excavated mechanically in all four trenches in order to satisfy the requirements

of the building inspector, although, owing to health and safety restrictions, it was not possible to gain close access to record the sections in detail.

The profile of this ditch was V-shaped in all four sections, 1.7m deep at the centre, confirming its identification as the fort ditch. The line of the ditch in plan was curving towards the north-east, suggesting this was the south-east corner of the fort. This site was, however, approximately 30m from the conventional location of the south-east corner of the fort and was a further indicator that the fort was indeed smaller than hitherto supposed.

Post Office field

Two months later another housing development provided an opportunity for the author to excavate in the field immediately east of the Post Office. This site was bounded by the main road through Bowness on the south side and the eroded sea cliff to the north. Again, according to the traditional interpretation of the position of the eastern defences, this area would have been within the interior of the fort and buildings similar to those discovered by Potter in 1973 in the field west of the Post Office would be expected. However, this site lay immediately north of the point where the central axis of the fort crossed the modern road, where the arguments above indicate that the line of the eastern defences might actually be.

Earlier, in February, field evaluation under the author's supervision – five mechanically excavated trenches east–west across the site at 10m intervals – had demonstrated the archaeological potential of the area, indicating that the area might contain the eastern defences of the Roman fort.

The main excavation (June and July 1988) consisted of a rectangular area 11.5m x 37m occupying the western side of the available field. The initial removal of topsoil and cleaning revealed the east fort wall and part of the ditch defences, and although the depth of stratigraphy was relatively shallow, the excavations revealed a sequence of phases including those that pre-dated the establishment of the Roman fort. It also became clear that modern disturbance resulting from farming had destroyed all but the deepest archaeological features in the southernmost 10m of the area. The excavations were therefore concentrated in the northern two-thirds of the available area.



Fig 428
Bowness-on-Solway:
features of Phases 1-5.

Phase 1: pre-Roman features (Fig 428)

The two earliest features on the site were cut into the natural boulder clay and sealed by a clay loam soil layer, on average between

70mm and 100mm deep, varying from greyish to yellow-brown clay loam. This occurred across most of the site except where later features had been cut through it, and appeared to be an old ground surface pre-dating the establishment of the Roman fort.

A short length of a square-cut trench (Fig 428, 55) (north-south, 400mm wide and 260mm deep) was exposed in the area behind the fort wall, approximately midway in the excavation area. It was filled with hard red clay (56), the compacted nature of which suggested that it was deliberate backfill and rammed down as a structural foundation. No traces were found to the north where it was obscured by later structures – in particular the clay and cobble base of the fort wall – which were not removed in the excavations.

A second feature was a shallow sub-circular scoop (101), at least 2m across and 210mm deep, 7m north of the trench above, and filled by a mixed reddish-yellow sandy clay soil, flecked with charcoal (100). The eastern edge lay just east of the later fort wall, but its full extent could not be defined within the excavated area. Its purpose is uncertain. The fill yielded a worked flint (p 406, No. 1). A second flint (p 406, No. 2) was recovered from the overlying old ground surface covering the berm between the fort wall and fort ditch.

The desire to leave later structures intact where possible meant that areas where the features were sealed by the old ground surface were extremely confined. Therefore no coherent plan could be determined or drawn. Interpretation of the individual features was impossible, but their significance is that they demonstrated pre-Roman occupation of the site, possibly Neolithic or Bronze Age in date, based on the characteristics of the two flints.

Phase 2: establishment of the Roman fort (Fig 428)

The earliest features that could be associated with the fort were two isolated patches of turf. The first (62), seen within the later interval tower (64), was a thin layer of smooth greyish turf-like soil, which included a rectangular patch of silver-grey clayey turf-like material approximately 300mm square, most likely a complete turf. The second trace (63: 280mm thick; light silvery grey with horizontal streaks of darker grey) occurred in the confined area between the edge of the excavations and the fort wall

south of the interval tower. It directly overlay the old ground surface (57), and the foundations for the interval tower cut both layers. These turf patches are interpreted as surviving traces of the primary turf rampart. Excavations at the west gate in 1973 also noted traces of the primary turf rampart, consisting of turfs and clay, around four substantial timber post settings (Potter 1975, 34).

A berm 3.5m wide separated the rampart from the innermost and largest (30) of the two fort ditches found in the excavation. It was first noted as a relatively stone-free band running down the centre of the site. This V-shaped ditch, between 4.2m and 4.6m wide, and 1.5m deep in the centre, ran north-south through the excavated area. Two sections were excavated across it, separated by a 0.5m baulk. This ditch was traced for 32m within the excavated area. It was slightly narrower than on the west side of the fort, where it was 6.1m wide (Mohamed 1967; Potter 1975). There appeared to be a small step in the profile of the ditch on its inner side, which appeared from the fills to represent widening of the ditch after a small amount of silting had occurred.

Immediately east of this main ditch ran a much smaller V-shaped ditch (33; 2m wide and 600mm deep). Its line was marked initially by a compact deposit of large, mostly rounded, cobble stones (6). It was difficult to assess whether this ditch was contemporary with or earlier than the larger ditch (30), but considering the spacing it seems likely, on balance that they were contemporary.

This outer ditch (33) contained a homogenous clay-loam fill (32) without tip lines, suggesting

deliberate filling, at a time when the inner ditch was still open. There was no dating evidence to place this filling in sequence, but a cobble layer (9) stopped at the outer edge of the larger ditch (30), suggesting that the smaller ditch was filled while the larger ditch was left open, and probably before the accumulation of stone debris over both ditches (see below: Phase 9).

Phase 3: construction of stone fort wall (Fig 428)

The foundations of the fort wall (27) between 1.45m and 1.60m across were exposed over a distance of 23m from the north-west corner of the excavations to where the archaeological deposits had been



Fig 429
Bowness-on-Solway: fort
wall and footings of interval
tower from the north.

destroyed by more recent horticultural activity at the south end of the excavations (Fig 429). Its sandstone faces had been almost entirely robbed, but the elaborate foundations, constructed in a shallow construction trench (58) cut into the old ground surface, were well preserved to a height of 450mm. Its construction tallied exactly with the descriptions of its construction on the west side of the fort (Birley 1930; Mohamed 1967; Potter 1975).

It consisted of three layers of cobbles separated and bonded by alternate layers of red clay. The lowest course of large flattish cobble stones (97; averaging 200-250mm across) was covered by a layer of red clay (96) approximately 80-100mm thick. On top of this was laid the middle course of cobbles (24), mostly smaller in size and more rounded than the base layer. This was covered with a further bonding layer of clay (95; between 150mm and 200mm thick), on which was laid the uppermost layer of cobbles (94), significantly larger than either the bottom or middle course with an average size of 340-500mm. A final bed of red clay (10), by which the fort wall was initially recognised during the course of excavation, supported the first course of yellow and red sandstone facing stones (36) and core, although only six facing stones of the west face survived *in situ* in the whole

length of the fort wall exposed. The surviving facing stones all sloped outwards, indicating settlement and the ultimate collapse of the wall. Subsequent repair of the fort wall was evident at a point immediately south of the interval tower where the foundation consisted entirely of a raft of red clay with no cobble courses. The use of clay rather than mortar as the bonding agent is significant and reflects the absence of suitable lime sources at the western end of Hadrian's Wall.

There was no direct stratigraphic relationship between the stone fort wall and the remains of the turf rampart described above, but it is likely that the stone fort wall was constructed by cutting into the front of the earlier turf rampart as a secondary modification of the fort's defences. There are numerous parallels for this sequence in other Roman forts initially built with turf and timber defences. More significant in this particular fort, the sequence of the replacement of the turf and timber defences by stone walls, and of the gates and towers, was firmly established by the discovery of post holes for the timber west gateway, sealed below the stone structure found in Potter's 1973 excavations (Potter 1975).

Phase 4: modification of defences (Fig 428)

The excavations showed that the area of the defences underwent considerable modification after the building of the perimeter wall in stone.

Immediately behind the fort wall a number of features indicated possible buildings. These overlay the remains of the rampart and were in turn covered by a later

layer of what appeared to be a wind-blown sandy accumulation. These remains were difficult to characterise and date within the restricted area available to examine them. A linear, very dark grey-brown feature (65; 260mm across) with sharply defined edges running parallel to and 500mm from the west face of the fort wall may have been the traces of a timber beam. There was also a fine cobble surface (66) extending 700mm from the fort wall and a post hole (67), indicated by four large cobble packing stones around the post void, which appeared to be associated with this cobbling. These features suggested the removal of the rampart backing here to construct new timber buildings, leaving the fort wall freestanding.

Part of an interval tower (64) built onto the rear of the fort wall was found by extending the excavations 2m west to the adjacent property boundary. The tower was c 30m north of the supposed position of the east gate. Significantly, this close to a quarter of the previously demonstrated width (124.97m) of the fort ascertained by Birley in 1930. As an interval tower might be expected halfway between the east gate and north-east angle, it is further confirmation of the overall width of the fort, with the northern part eroded by the Solway.

The tower was 5m wide overall. The side walls were traced for up to 1.3m, although the rear wall lay beyond the available area (Figs 429, 430). A patchy floor (42) of sandstone chippings and small cobbles was found inside the tower, although this appeared to have been substantially disturbed in more recent times and may even be a more modern feature. The primary foundations of the side walls butted against the straight face of the fort wall (27). This could reflect that the foundations of the tower were laid out after those of the fort wall within the same overall construction phase. Alternatively it may indicate that the interval tower was added later, after the stone fort wall had been completed.

The foundations for the north wall of the tower (43; 1.50m across) comprised a single course of large rounded cobble boulders, bonded with red clay (Fig 430), with a course of smaller cobbles and broken sandstone chips on top. The primary foundation of the south wall was identical to the north wall (37). However an upper layer of clay and sandstone chippings (103) did not butt against the fort wall but

merged imperceptible with the clay foundations of the fort wall at this point (99). This indicates later rebuilding of the south wall of the tower and the adjacent length of fort wall. Both walls were constructed within in a foundation trench cut into the underlying earlier rampart material (63). In plan, the tower was not square on to the rear of the fort wall, but was slightly askew.

The berm between the fort wall and the main ditch contained five post holes, all cut into the pre-fort ground surface. The spacing of the three most northern post holes (70, 72, 74) indicates that they were related to the interval tower. The central post hole (70) was directly opposite the centre of the tower, while the other two post holes were respectively 3m to the north (72) and 4m to the south (74). All three were 1.3m away from the outer face of the fort wall (Fig 431).

Each post hole was circular in plan, packed with cobble stones protruding above the surface, between 250mm and 450mm deep, and filled with dark brown clay loam. The central post hole, void was 60mm 70mm between the packing stones. The most likely interpretation is that they supported external scaffolding during the construction of the interval tower.

A isolated post hole (91), 14m south of post hole 74 and of similar dimensions, was found 1.5m from the fort wall. However, disturbance from horticulture south of here had destroyed all archaeological deposits. It is possible that this feature was associated with construction of the east gate, but in the absence of evidence this association must remain supposition. The association of a further post hole (77), nearer the main fort ditch to the south of the tower, is uncertain.

Phase 5: ironworking and pit (Fig 428)

A number of features on the berm post-dated the construction of the stone fort wall and interval tower but pre-dated the later surfacing of the berm with cobbling between the fort wall and the main ditch. The most



Fig 431
Bowness-on-Solway: berm to the east of the east wall of the fort. Positions of postholes are indicated by ranging rods.

northerly of these features was a pit (47) 3.40m long and 700mm deep with straight sloping sides, which stretched across almost the entire width of the berm. It was 2.0m wide at the end nearest the fort wall, narrowing to 1.2m at the other end. It was directly opposite the interval tower described above, and was clearly dug after the construction in stone of the interval tower and the fort wall, as it cut the southern half of one of the scaffolding post holes (70).

This pit's precise purpose was not ascertained, although the primary silt fill (59) at the ditch end contained sand, ash and slag, suggesting an industrial process (Fig 432).

A roughly circular deposit of charcoal and burnt clay (54; 61) was found 1.5m north of this pit. It was up to 120mm thick and contained small quantities of slag, and its proximity and identical stratigraphic relationship indicate that it must have originated from the pit. Both the pit and the slag deposit were sealed by a cobbled surface (9) subsequently laid across the berm. The slag indicates ironworking, with fragments of vitrified hearth lining and a small quantity of hammer scale present (p 406). The pit therefore appears to have been associated with iron working, possibly to house a

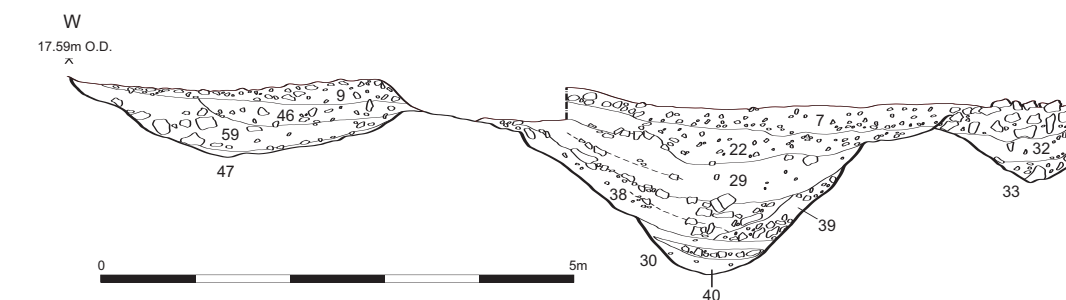


Fig 432
Bowness-on-Solway: section through fill of inner fort ditch (30) and Phase 5 pit (47).

Fig 430
Bowness-on-Solway: foundation for south wall of interval tower.





Fig 433
Bowness-on-Solway:
features of Phases 6-7.

furnace (although no structural remains survived), possibly for the repair of weapons and equipment. This would presumably have been carried out on the berm to avoid

the risk of accidental fire among the predominantly timber fort buildings, in the same way that ovens were usually built into fort ramparts away from buildings.

The pit was subsequently filled with red clay mixed with loam (46) containing cobbles, suggesting that this action was deliberate, before cobbling of the berm, as the outline of the pit was only revealed after removing the cobbles.

Phase 6: cobbling of berm (Fig 433)

The entire area of the berm between the fort wall and the main ditch (30) was covered with a cobbled surface after filling the metalworking pit (47). Several context numbers (9, 11, 21, 23) were used to record slight variations in its nature, but it later became obvious that these represented a single event. An isolated patch of this same cobbling (85) survived farther south in the trench, where the state of preservation was generally less rewarding.

The surface of small- to medium-sized rounded cobblestones and gravel was laid directly onto the redeposited clay of the berm. It covered the infilled post holes (70, 72, 74) associated with the building of the interval tower, and the metalworking pit (47), and was therefore laid after some considerable activity had taken place. The probable reason for cobbling the berm was suggested during the course of excavation: when the ground surface became wet it was slippery, and cobbling might have afforded better footing to the Roman soldiers, as it did to the excavators.

Phase 7: gully (Fig 433)

Just under 2m south of the metalworking pit, a shallow gully (52) emerged from under the fort wall and ran across the berm, feeding into the fort ditch (30). It was 850mm wide and 270mm deep with a rounded profile and fairly straight sides. It was cut from above the old ground surface on the berm. It was presumably originally culverted under the fort wall.

The relationship between this gully and the cobbled surface (9) is unclear. The line of the gully was initially indicated by an area of coarser cobbles (22) laid over its fill, which were distinctly different in character from the cobbling to either side of it. The berm cobbling might have been laid around the open gully or, alternatively, the gully might have been dug later, cutting through the cobbling. The differential cobbling, however, clearly demonstrates that the

gully was open and in use after the berm was cobbled, unlike the metalworking pit described above.

The primary gully fill (53) was a dark, reddish-brown sandy silt, with small cobbles. The sandy silt filling the gully suggests gradual filling by erosion. The presence of small cobbles in the gully fill also suggests gradual filling by erosion along the edges of an open gully. In contrast, the upper gully fill (51) was a dark brown sandy loam containing sandstone fragments, suggesting that it was deposited deliberately to fill the gully simultaneous to the repair of the fort wall opposite (*see below*).

Phase 8: collapse and rebuilding (Fig 434)

The gully described above is presumed to have been culverted under the fort wall immediately south of the interval tower. This coincided with the position of the pre-Roman shallow pit (101) described above. However, while the foundations of the fort wall comprised carefully placed alternate layers of cobbles and red clay, their character was different in this 2m section. Here the foundations consisted entirely of a solid raft of reddish-brown clay (99) 200mm thick, containing patches of soil, charcoal and sandstone fragments. This blocked off the course of the gully beneath the fort wall, and there were no evident structural remains of a culvert.

North of this clay foundation raft the uppermost of the three foundation courses of large cobbles (24) was replaced for a distance of 3.5m, as far as the centre of the interval tower, by a dense layer of much smaller stones and sandstone chippings set in clay. This layer also extended over the south wall of the interval tower, merging imperceptibly into a similar layer of clay and sandstone chippings (103) above the primary south wall foundation of large cobbles (37). In contrast, the north wall of the interval tower was not altered and its foundations abutted the rear of the fort wall.

These alterations to the fort wall and to the south wall of the interval tower suggest simultaneous rebuilding. The position of the gully and the underlying pre-Roman pit might have caused instability, and possibly collapse, in the fort wall and interval tower. The foundations of the north wall of the tower were unaltered.

Phase 9: final collapse

The uppermost archaeological deposit consisted of an extensive spread of broken sandstone tumble (31) approximately



500mm deep covering the berm between the fort wall and the ditch, and sealing the cobbled surface (9, 11, 23). There were five distinct clusters of sandstone at approximate

Fig 434
Bowness-on-Solway:
features of Phase 8.



Fig 435
Bowness-on-Solway: fill of
fort ditches (30) and (32).

intervals of 1m, among which were facing stones with their broken off (12, 13, 14, 15). When excavated, their distinctiveness was not meaningful. They might reflect episodes of stone collecting from the fort for building in the village. Forty-six facing stones were found in these clusters and in the excavated sections of the fort ditch.

The main fort ditch (30) was also filled mostly with masonry tumble (Figs 432, 435). The primary clayey, silty fill (40) was between 20mm and 45mm deep, probably gradual soil accumulation and minor erosion of the ditch edge. A step in the profile on the inner side of the ditch suggests a re-cutting to widen it after the accumulation of the primary silt. The stony fills (28, 29, 38) were nearly 1m deep and their tip direction lines indicate that they come from the west side of the ditch; also that they form a continuous layer with the tumble on the berm.

This dumping suggests the final outward collapse of the fort wall. Above this rubble there was a layer of stone-free loam (7) running down the centre of the ditch, from which the line of the ditch was first recognised at the start of the excavations. This excavator found no dating evidence to indicate when the dumping had occurred, but Mohamed and Potter both found evidence in their excavations that the inner, larger fort ditch had been re-cut, and that its fill contained masonry tumble and substantial quantities of medieval green-glazed pottery, suggesting that the dumping was medieval. The evidence showing that the smaller, outer ditch was filled while the larger ditch was left open, during Roman occupation, has been discussed above in Phase 2.

The area west of the fort wall was covered by a layer of pale yellow sand (35) with dark, thin horizontal bands approximately 10mm apart. The shallow nature of these horizontal sandy bands and the continuous nature of the dark bands

indicate that they represent a gradual accumulation of wind-blown sand against the still upstanding fort wall, interspersed by growing vegetation.

The finds

Flint

by Jon Humble

Two struck flints (not illustrated) of likely Neolithic or Bronze Age date were recovered during the excavation. The nearest chalk outcrops are in eastern Yorkshire, Mull and Northern Ireland, so the raw material was probably from a locally available secondary source of flint, most likely pebbles collected from the Solway Firth. They are of fine-grained, medium brown flint with frequent small cherty inclusions, in uncorticated condition.

1. From fill of Pit 101. A plunging flake (42mm length; 13mm width; 13mm thick) struck from the keel of a keeled core, with the edge of the keel showing signs of preparation prior to striking. Micro-flaking on the dorsal surface at the proximal end of the left hand side is consistent with use-wear.

2. From old ground surface (57) across the berm between the fort wall and inner ditch. A broad flake (42mm length; 32mm width; 5mm thick) struck from a fine-grained medium-grey-brown flint, with occasional cherty inclusions; in fresh, uncorticated condition. The distal end is hinge fractured, and the nicking of the edges appears to be the result of post-depositional damage.

Attribution of the two flints to a particular lithic industry is impossible, but both pieces display characteristics generally consistent with Neolithic or Bronze Age technology of reduction, and attest to earlier prehistoric activity at this location.

Metalworking debris

by David Starley

A small amount of material, totalling about 2kg, derived from the fill of Pit 47 on the berm and an associated deposit 1.5m north of the pit. The material was examined visually and not quantified by type. Most of the material was undiagnostic ironworking slag of a cindery nature, together with a couple of fragments of vitrified hearth lining. An unidentified iron object and a piece of coal were also included in the assemblage. A small quantity of diagnostic material, in the form of hammer scale was found in the soil attached to the debris.

The quantity of the Bowness metalworking slag assemblage is small, and the significance of any metalworking at the site must be regarded as limited. The only truly diagnostic form of slag on the site derived from iron-smithing, and it seems likely that the rest of the assemblage also originated

from iron-smithing. The presence of the piece of coal is of interest as there is some limited evidence for the use of coal for iron-smithing in the late Roman period.

Coins

by John A Davies

Five coins were recovered from the excavations, four Roman and one from the reign of George II. None were from stratified deposits.

Two of the Roman coins were issues of Trajan (AD 98–117): one an illegible *sestertius*, the other an illegible *dupondius* (although the reverse image was an emperor in military dress, striding right).

The other two Roman coins were a Hadrianic *as* (AD 117–38) and a *sestertius* of Antoninus Pius (AD 138–161), both illegible and the latter very worn.

samian pottery

by Brenda Dickinson

The excavation produced 140 sherds of samian, representing a maximum of 129 vessels. The majority of the assemblage was from unstratified deposits.

The material comprises a standard range of vessel types for a British site occupied in the 2nd and 3rd centuries AD, with decorated ware accounting for 21% of it. Approximately 90% of the assemblage is from the Central Gaulish factory of Lezoux and the rest comes from East Gaulish kilns. Only 9 vessels could derive from the Hadrianic occupation of the site. The bulk of the Antonine material is later than AD 160. Nearly all the potters represented by the decorated ware and potters' stamps have been noted in later 2nd century contexts on Hadrian's Wall, and the presence of contemporary plain forms such as 31R, 79, 80 and gritted mortaria adds further evidence of date. The East Gaulish assemblage is consistent with the finds from other Hadrian's Wall and associated forts, both east and west of the Pennines. The bulk of it comes from Rheinzabern (min 6 vessels), with lesser amounts from Trier (3 vessels), the Argonne (2 vessels), La Madeleine (1 vessel) and one unassigned piece.

The Bowness sample, though small, strongly suggests that the fort was either abandoned, or held on a care-and-maintenance basis, during the period of use of the Antonine Wall. Theoretically, a few of the sherds could be early-Antonine, but the scarcity of decorated ware, which should have reached the site in the period c AD140–160, and particularly the absence of any bowls by the *Cerialis* ii – *Cinnamus* ii group, whose work so strongly features in Scotland (Hartley 1972, 33), suggest that the earliest pieces in this collection are Hadrianic rather than early- to mid-Antonine.

The strategic position of Bowness at one end of the Wall would seem to require continuous

occupation throughout the Hadrianic and Antonine periods, but the evidence of the samian suggests otherwise.

Coarse pottery

The excavations produced a small assemblage of coarse pottery, weighing 3.65 kg. Nearly all the material came from either topsoil or unstratified contexts, and the very small amount recovered from stratified contexts was unfortunately entirely lacking in characteristics that could be used to date these contexts. The assemblage as a whole produced no surprises in terms of fabrics and forms, with most cooking pots, dishes and bowls being BB1 vessels. Several of these were characteristically Hadrianic with flat-rimmed bowls and dishes, and bowls with deep, chamfered bases. Nene Valley colour-coated ware made up most of the finer wares. There was a single body sherd of Severn Valley ware.

Notably absent were any vessels that could be dated to the 4th century.

Conclusions

All excavations within the fort at Bowness have been small in scale, necessitated by the buildings of the modern village overlying most of the area of the fort. Four of the five excavations have been driven by development, carried out in advance of new houses infilling the remaining open spaces within the area of the fort. Taken together, the results enable a number of broad conclusions about the fort to be drawn.

In the first place the most recent excavations provide the evidence that the fort was 30m shorter than had hitherto been assumed on the basis of MacLaughlan's survey, and together with the evidence from Birley's 1930 excavations, the precise dimensions of the fort are now known. At 2.38ha Bowness is still by a small margin the second largest fort on Hadrian's Wall, but is closer in size to the forts known to have held milliary units: Housesteads and Birdoswald.

The discovery of an old ground surface beneath the fort remains, together with two distinct features that yielded two struck flint flakes, establishes that the Romans were not the first occupiers of the site. Indeed the nature of the topography would have made Bowness an attractive settlement location at all times, high enough to be safe from flooding yet ideally suited to exploit the resources of the salt marshes both for grazing and fishing. It is likely that the pre-Roman occupiers, possibly Neolithic or Bronze Age in date, were attracted by these features.

Potter's excavations at the west gate showed that the fort was first built in turf and timber, and although the 1988 excavations produced no direct evidence of this, its results do not contradict it. The probability is the fort defences were converted into stone at the same time as the Turf Wall was replaced in stone at some date in the second half of the 2nd century AD. The samian pottery assemblage strongly suggests that the fort was not occupied while the Antonine Wall was in use in the middle of the 2nd century. After the construction of the stone defences, the excavations demonstrated a sequence of events within the excavated area, including a metalworking pit that was subsequently filled, a cobbled surface laid over the berm, and a localised collapse and rebuilding of a section of the fort wall and the southern part of the adjacent interval tower. The absence of 4th century coarse pottery might be significant, although the small size of the assemblage may be misleading.

The final collapse of the fort's defences provided building material for houses of the modern village. The evidence from these

excavations and from earlier ones on the west side of the fort shows that the inner fort ditch had been re-profiled and was still substantially open as a ditch when collapse occurred. On the west side of the fort, this was associated with medieval pottery.

The revision of the understanding of the position of the eastern defences from the present excavation confirms that the course of the modern road through the village was established while the defences and both the east and west gates were still standing and passable. Through comparison with the plan of Housesteads, the main village street appears to run around the position of the *principia* of the fort, which was probably a stone building. The implication is that the defences were sufficiently maintained to provide a defensive enclosure and that the Roman stone buildings were re-used, or survived as standing ruins, probably for a considerable period after the primary use of the Roman fort had ended.

These excavations therefore add to the growing body of evidence for continuity of settlement and post-Roman adaptation of the forts and structures of Hadrian's Wall.