

Excavations on Hadrian's Wall at Melbourne Street, Newcastle upon Tyne

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SUMMARY

An excavation at Melbourne Street, Newcastle, identified a well-preserved section of the foundation to Hadrian's Wall, 13 m long, which had survived because it was built within a former stream channel. Outside this an intermittent robber trench marked the line of the Wall. The Wall ditch survived across the full width of the site. The stream channel had been partly filled with clay to the north of the Wall, and with stone to the south. No culvert was present through the Wall foundations or through these deposits, implying that the stream had already been diverted into the Wall ditch. Three rows of defensive pits had been dug on the berm, parallel to the Wall, with the middle row being offset so that these pits covered the gaps within the other two rows. A couple of pits contained possible post settings, although the evidence for this was unclear.

INTRODUCTION

THIS ARTICLE PRESENTS THE RESULTS of an archaeological investigation conducted in advance of a redevelopment at Melbourne Street, Newcastle upon Tyne. The site is 300 m east of Manors Metro Station, at NGR NZ 256 643, and occupies a plot of land bounded by Stepney Lane to the north, Gibson Street to the east, Melbourne/Buxton Street to the south, and office buildings to the west (fig. 1). In total, the site covers 1.7 ha; an area of 45 m by 20 m in the south-east corner was fully excavated with the remainder subject to a watching brief. The ground slopes from c. 35 m OD in the north to c. 28 m OD in the south, with steeper slopes down to the River Tyne further south. The geology is Westphalian Coal Measures, overlain by glacial till. At the start of archaeological works the site consisted of a disused car showroom and car parking. The showroom was demolished and the site cleared between the evaluation and the full excavation. Apartments and a hotel have since been constructed on the site; the sympathetic design of the foundations has enabled the significant archaeological remains to be preserved *in situ*.

ARCHAEOLOGICAL BACKGROUND

The course of Hadrian's Wall crosses the south-east corner of the site following a line from the southern end of St Dominic's Church to the Sallyport Tower. Foundations have been identified on the west side of Crawhall Road, to the south of St Dominic's Church and in Gibson Street (Spain and Simpson 1930, 496), and at Grenville Terrace, Jubilee Road and Garth Heads Industrial Dwellings (Bidwell 2003, 20). Measuring west from the presumed site of Milecastle 3 at the Ouse Burn, a putative Turret 3a would have stood near the site. However, the exact position of this turret has never been determined and there is some doubt about the locations

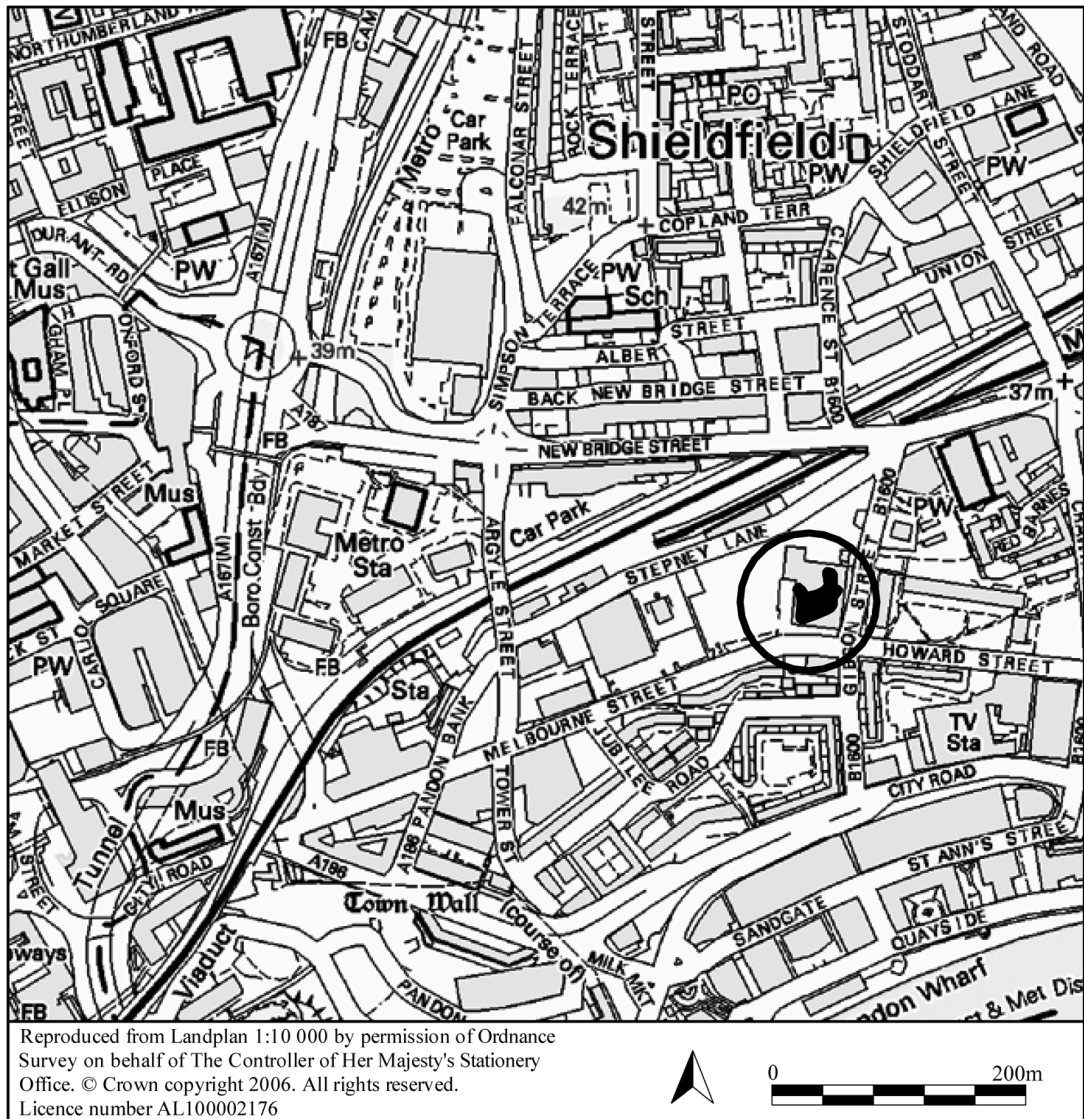


Fig. 1 Location plan.

of the milecastles on either side (Bidwell 2003, 18–19), increasing uncertainty about the location of the turret.

The site was outside the medieval town walls; cartographic evidence shows the area to be open farmland until terraced housing was built between 1830 and 1838 (WSP 2003). The nineteenth-century houses all contained cellars. They were demolished in the 1960s, when the eastern end of Melbourn Street was closed, the Melbourn Street/Buxton Street junction realigned and the car showroom was constructed. Before archaeological works began, no

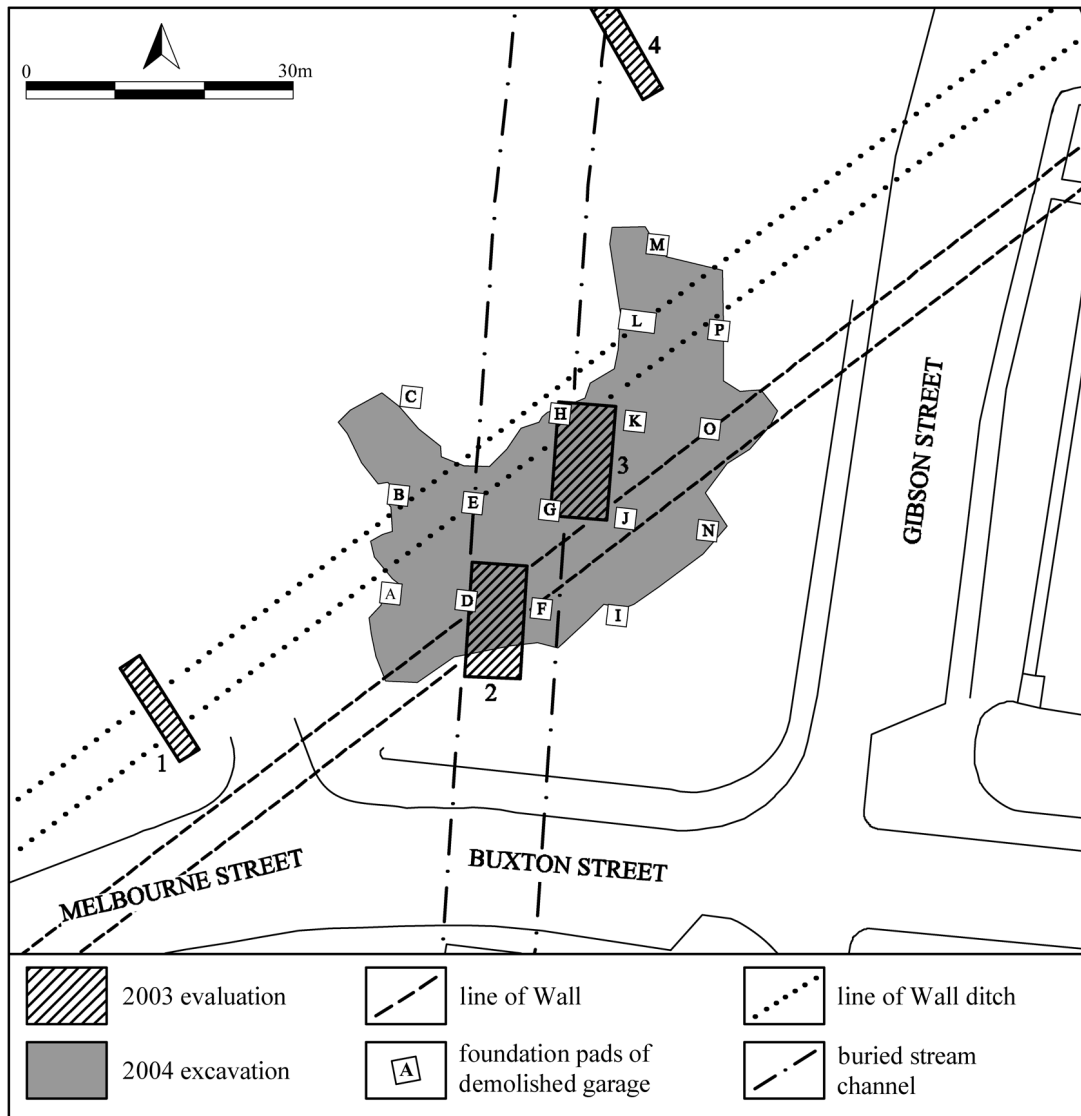


Fig. 2 Excavated area.

Roman remains were known to exist within the site boundary and much of the area was known to have been cellared. Therefore this area had not been scheduled.

METHODOLOGY

An evaluation was carried out by Archaeological Services Durham University in April 2003 (Archaeological Services 2003). Four trenches were excavated, two (nos. 2 and 3) within the building then standing (fig. 2). Trench 2 identified a well-preserved section of Hadrian's

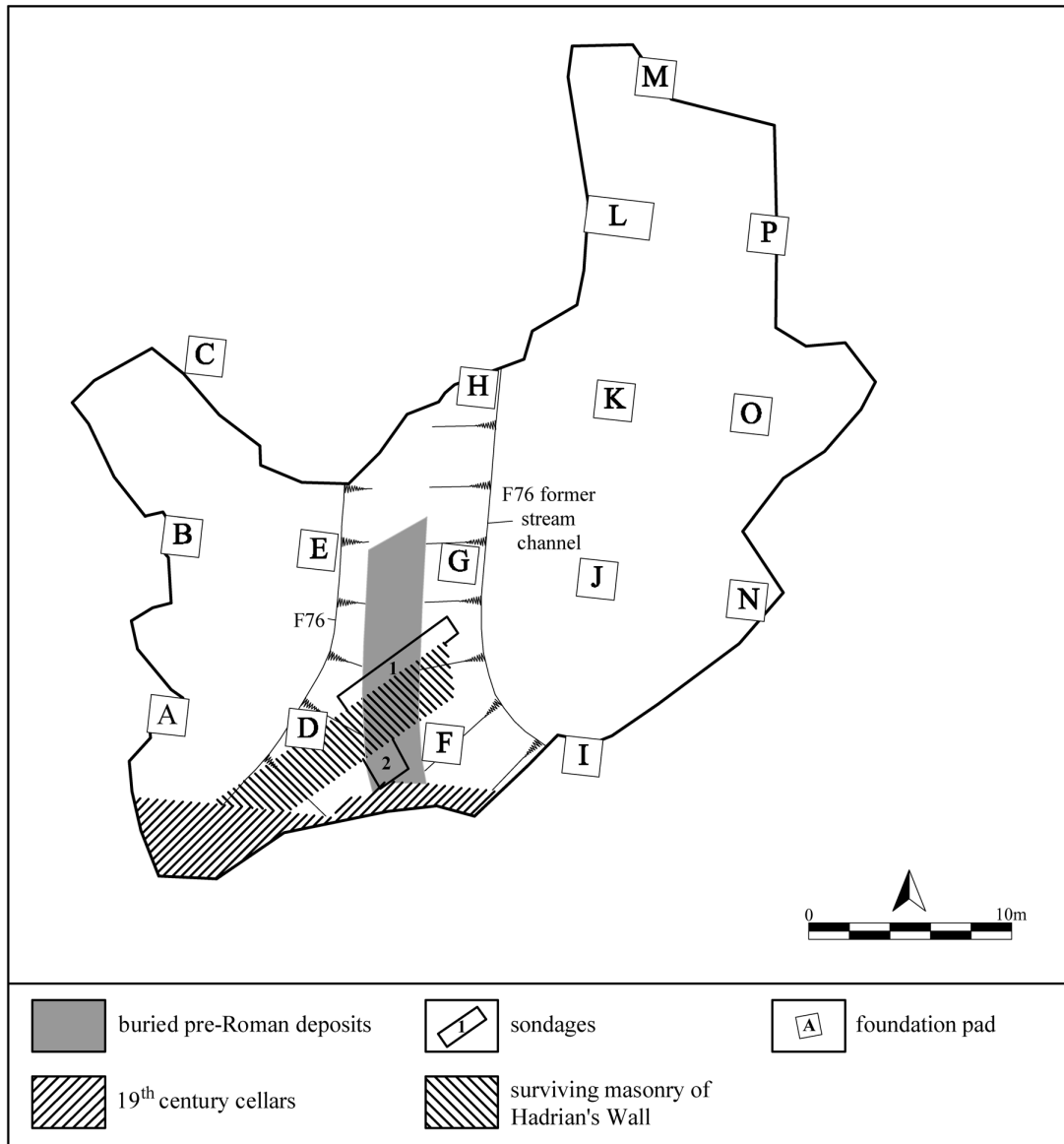


Fig. 3 The pre-Roman stream channel.

Wall at a depth of 2.3 m below floor level. Trench 4 to the north identified a large build-up of nineteenth-century deposits; the other two trenches encountered nineteenth-century cellars. Because of the Roman remains, an archaeological planning condition was placed on the development. This specified full excavation of the line of the Wall to identify any surviving Roman remains. The remainder of the site was subjected to a watching brief. Significant remains were to be preserved *in situ*. Archaeological Services carried out the area excavation

between January and March 2004, examining the area over the Wall and berm, with two extensions towards the north to sample any surviving remains of the ditch and counterscarp.

Deposits relating to the twentieth-century garage and nineteenth-century terraced housing were removed by machine. An underlying deposit of former plough soil was partly sampled by hand and the remainder also removed by machine. A grid of square concrete blocks, thought to be pile caps, were initially left *in situ* to avoid damaging archaeological deposits through their removal. For convenience, they have been labelled from A to P and features have been located in relation to them in the text. At a later stage in the excavation, and following extensive hand-sampling, the remaining medieval and post-medieval silt deposits were removed by machine and further hand-excavation continued.

THE EXCAVATION

Phase 1 (Pre-Hadrianic)

The natural subsoil, a yellow boulder clay, was exposed in places towards both the east and west ends of the site at a level of between 27 m and 28 m OD. An infilled former stream channel [F76] ran from north to south across the centre of the site, with foundation pads D and E along its west side and pads F, G and H cut slightly into its east side. The channel contained surviving Roman deposits that were to be preserved *in situ*, so it could not be fully investigated except in small sondages along each face of the Wall. In these, the base of the channel proved to be at a level of 26.3 m OD. On either side the ground rose fairly steeply for c. 1.2 m before levelling out over the remainder of the site. The channel's course is depicted in figs. 2 and 3, although given the limited area of excavation and the later modifications to ground level across the site, these illustrations should be regarded as schematic only.

Several pre-Hadrianic deposits were exposed in the sondage to the south of the Wall (fig. 4). The earliest, a reddish-brown sandy silt [164], was possibly natural, although this could not be proven as it was not fully investigated. Above were various clays and then a mid-grey sand [161] (and then a light grey silty clay in part of the sondage). Hadrian's Wall was built directly on top of this latter deposit. In the northern sondage the Wall was built directly on top of a grey sand [80] that was thought to be a continuation of context 161 to the south. Clay beneath this, sloping steeply towards the centre of the stream channel, was thought to be its sides.

Phase 2 (Roman)

A short section of the foundation to Hadrian's Wall survived within the former stream channel (figs. 5, 6 and 7). It measured 13.3 m in length and 2.44 m (8 ft) in width; since the foundation is typically slightly wider than the curtain, the masonry above is likely to have been around 2.33–2.35 m wide. The foundation consisted of two courses of stonework in the centre of the stream channel, reducing to one course at either end. This two-course foundation is unusual for the Narrow Wall between Wallsend and Newcastle; it presumably relates to the depression of the stream channel. The western end of the surviving fabric was terminated by a twentieth-century drain and then by nineteenth-century cellars. Towards the east it ended fairly abruptly at the top of the slope of the former channel. From here, a shallow robber trench was intermittently present, with a single stone from the northern edge of the foundation remaining *in situ*.

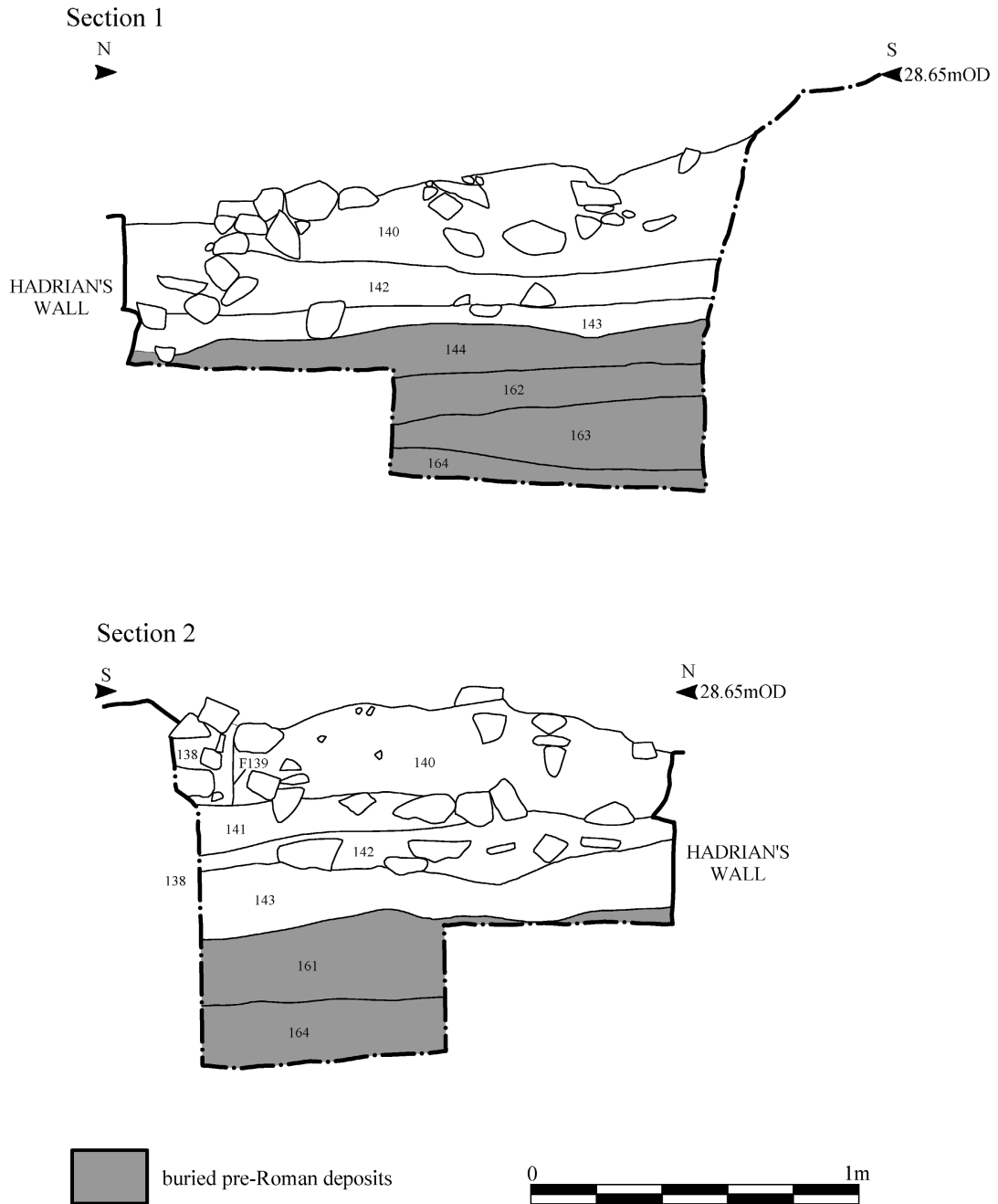


Fig. 4 Sections through the sondage to the south of the Wall. The positions of the sections are shown on figs. 5 and 6.

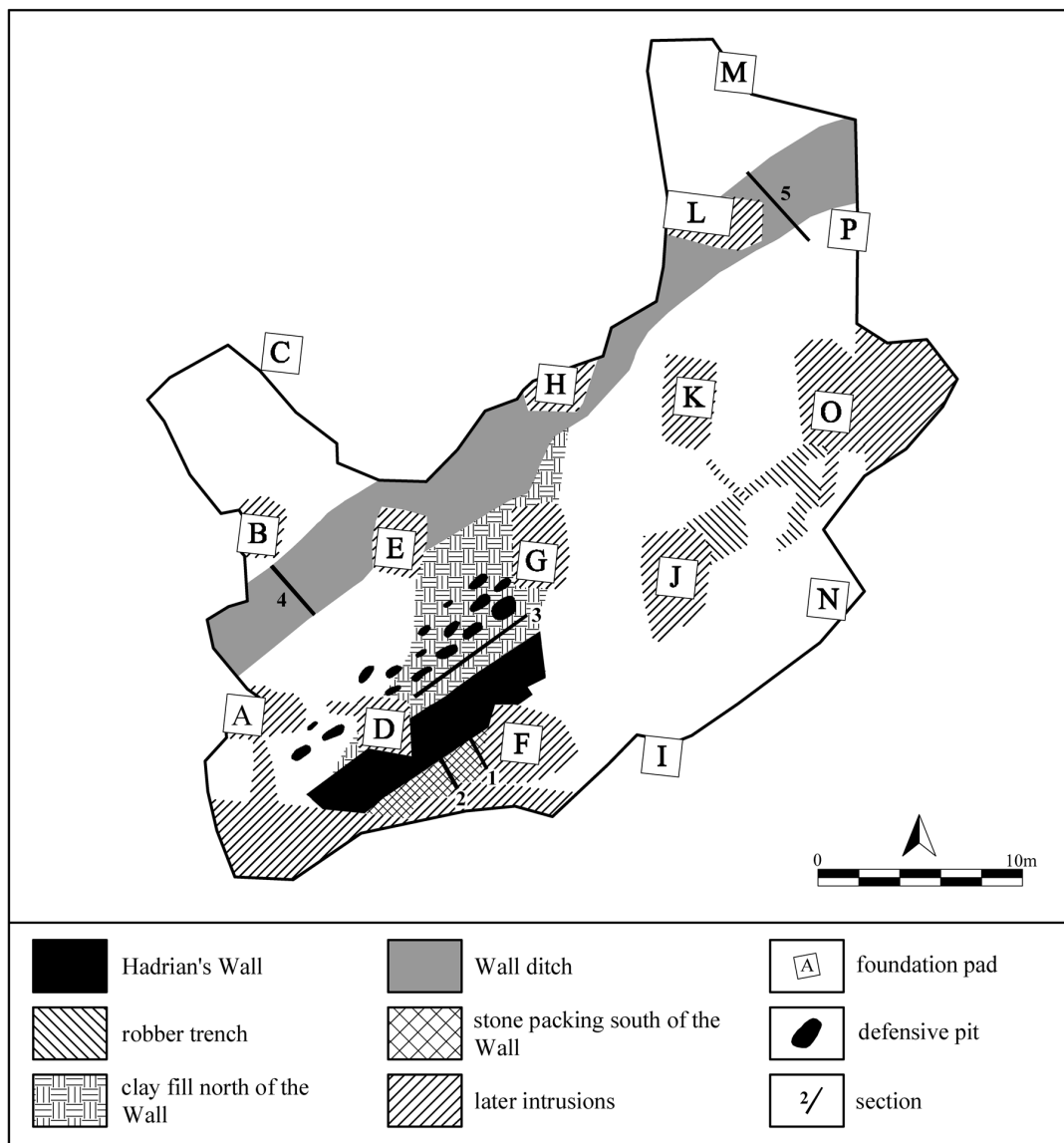


Fig. 5 Surviving Roman remains.

The foundation of the Wall consisted of roughly coursed sandstone blocks (less regular than those typically present on surviving sections of the curtain), bonded with stiff grey clay and laid so as to produce a face towards both the north and the south. Smaller stones, less regular in shape, formed the core of the Wall. The courses were laid to conform with the natural slope of the ground, except where this was at its steepest; here the stone was stepped into the ground surface (fig. 6, section 3). Outside the line of the stream channel, the foundations had been cut into the natural ground surface; however, within it the lowest course was

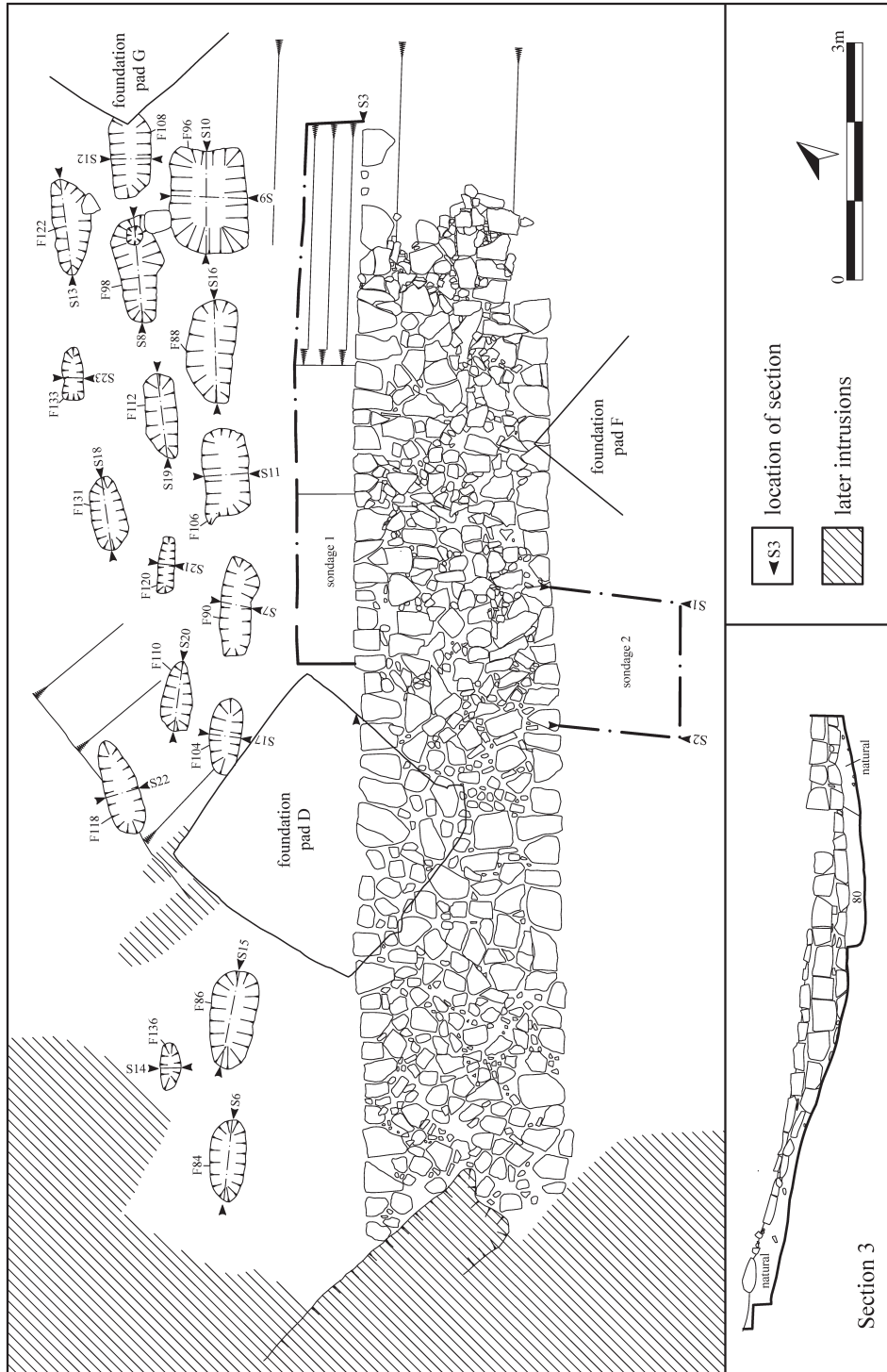


Fig. 6 Plan of the Wall and the defensive pits.



Fig. 7 The Wall and the defensive pits, as excavated. Wall ditch section at top left.

laid directly upon the contemporary ground surface. No evidence was found for the presumed Turret 3a.

The Wall ditch ran parallel to the Wall, 6 m to the north, and survived across the full width of the excavated area (see figs. 5, 14, 15). Two sections were excavated, proving it to be 3.1 m wide by 1.8 m deep in the western section, and 4.0 m wide by 2.4 m deep in the eastern one, with V-shaped sides dipping at an angle of about 40°. These dimensions are unusually narrow, even assuming slight truncation. Typically the Wall ditch is around 8.2 to 8.5 m wide by 2.74 m deep, with a V-shaped profile — therefore sloping less steeply than seen here. However, the ditch varies considerably and it is thought that it was cut as steep as local subsoil conditions would allow (Bruce 2006, 62). A shallow but distinct slot, measuring just 30 mm in depth, was present at the base of the eastern ditch section (see fig. 14, section 5). This very shallow depth indicates that it was a product of construction with a shovel, rather than a deliberately created defensive feature. It is not known if such a feature was present in the western section since the ditch here was too waterlogged to record such a subtle variation.

After the Wall had been constructed, the ground surface to both the north and south was deliberately built-up within the stream channel. (The buttressing of the foundations inherent in such a procedure may account for the fact that they were laid on the ground rather than dug into it here.) To the south of the Wall, these deposits consisted of a mid yellowish-brown clay [143] overlain by stone packing consisting of two layers of rounded sandstone pebbles [140]



Fig. 8 Stone packing to the south of the Wall.

and [142], separated by a thin band of black to dark grey silty sand [141] (see figs. 4 and 8). This latter deposit was only present in a localised area in the south-west corner of the sondage.

The stone packing was at least 2.1m wide. (It was cut by nineteenth-century cellars towards the south so its original width could not be determined.) It was only present within the former stream channel and appears to have been placed there as a reinforcing buttress to the southern side of the Wall foundations. These had slumped downwards immediately to the west of the stone deposit, indicating the necessity for such reinforcement.

To the north of the Wall, the stream channel had been filled by a number of rather mixed clay deposits containing frequent pebbles. These deposits are thought to have been put in place in one event, with variations representing different tipping horizons. The deposits extended across the whole width of the berm within the stream channel; however they did not entirely fill its depth. A shallow dip still survived in the ground surface until post-Roman times.

The infill would have been sufficiently deep to dam the course of the stream downstream of its junction with the Wall ditch. Whilst the three major rivers (Tyne, Irthing and Eden) crossed the Wall via bridges (Bidwell and Holbrook 1989) and lesser, although still substantial, streams passed under the Wall via arches in the curtain — such as the one described by Camden (1588, 799) at Poltross Burn — the smallest streams flowed through culverts such as the one described by Bruce (1865). at Sugley Burn. Here there were ‘...two lines of massive stones laid parallel to each other, about two feet apart. The top was covered over by other

large blocks, giving the conduit a height equivalent to its breadth' Stukeley (1776, 59) described a similar culvert near Carvoran while Stuart (1852, 316) provided similar descriptions for culverts on the Antonine Wall. At Melbourne Street no culvert was present.

This implies that the stream had been diverted along the ditch. The pre-Hadrianic ground surface in the stream channel under the Wall was about 0.3 m higher than the base of the ditch (as revealed in the two excavated sections) so water would have drained into the ditch. Here it would have pooled up until it either overflowed the blockage in the stream channel or else overflowed the local watershed along the ditch. Since the former would defeat the purpose of not providing a culvert, it can be surmised that the latter was the case. There would be little advantage to be gained from deliberately diverting the drainage, as a culvert would still be necessary at the new crossing point. It is therefore probable that the arrangement at Melbourne Street was due to chance of local topography rather than a deliberate design, with the watershed along the ditch being lower than the clay bank in the original channel.

As the ground surface has been modified by later development, it is not clear from the topography today whether water would have flowed westwards or eastwards along the ditch. However early maps, from Hutton's plan of 1770 to Wood's plan of 1827, all show a stream (The Swirle) in this area, flowing southwards until just north of the Wall, making a right-angle turn to the west and then shortly afterwards making another right-angle turn back towards the south (fig. 9).

The ditch of the Wall is generally considered to have been excavated concurrently with construction of the curtain (Breeze and Dobson 1976, 72). At Melbourne Street the diversion of the stream into the ditch strongly suggests that, in this location, the excavation of the ditch predated construction of the Wall, since there would have been a drainage problem if the Wall had been constructed first. However, whether this construction sequence can be applied to the remainder of the Wall (or not) is debatable as it is generally accepted that the Narrow Wall to the east of central Newcastle is an addition to the original plan (Spain and Simpson 1930, 537-8) and therefore not necessarily typical of the rest of the frontier.

The defensive pits (figs. 5, 6, 7, 10, 11 and 12)

A total of 17 pits were found on the berm, all but three of which lay within the course of the former stream channel. The pits were cut into the clay infill (described above) and sealed by later (Phase 3) deposits. Many of the pits were poorly defined since they were cut into rather mixed material, making their edges difficult to trace. However, the general pattern is clear. They formed three distinct rows of oval pits, all aligned parallel to the Wall. The line closest to the Wall (offset from it by 1.5 m) was the largest, with size decreasing northwards. The second line was offset from the other two, so that these pits covered the spaces within the other rows. The pits were generally steep-sided with a flat base, and all had been dug to a similar depth to the foundations of the Wall.

Seven pits were present in the southernmost row; an eighth would have been removed by the garage foundations. This was the most regular row, with all pits measuring between 1.0 m and 1.25 m in length. The westernmost two pits contained very stony fills, leaving no room for any post pipes (see fig. 10, sections 6 and 15). Other pits contained mixed fills of grey-brown clay with occasional stones. The easternmost pit [F96] was unusually large, measuring 1.3 m by 1.0 m and 0.55 m deep. It contained a brownish-grey silt [95] containing frequent angular stones that were similar to those found within the fabric of the Wall. Two patches of

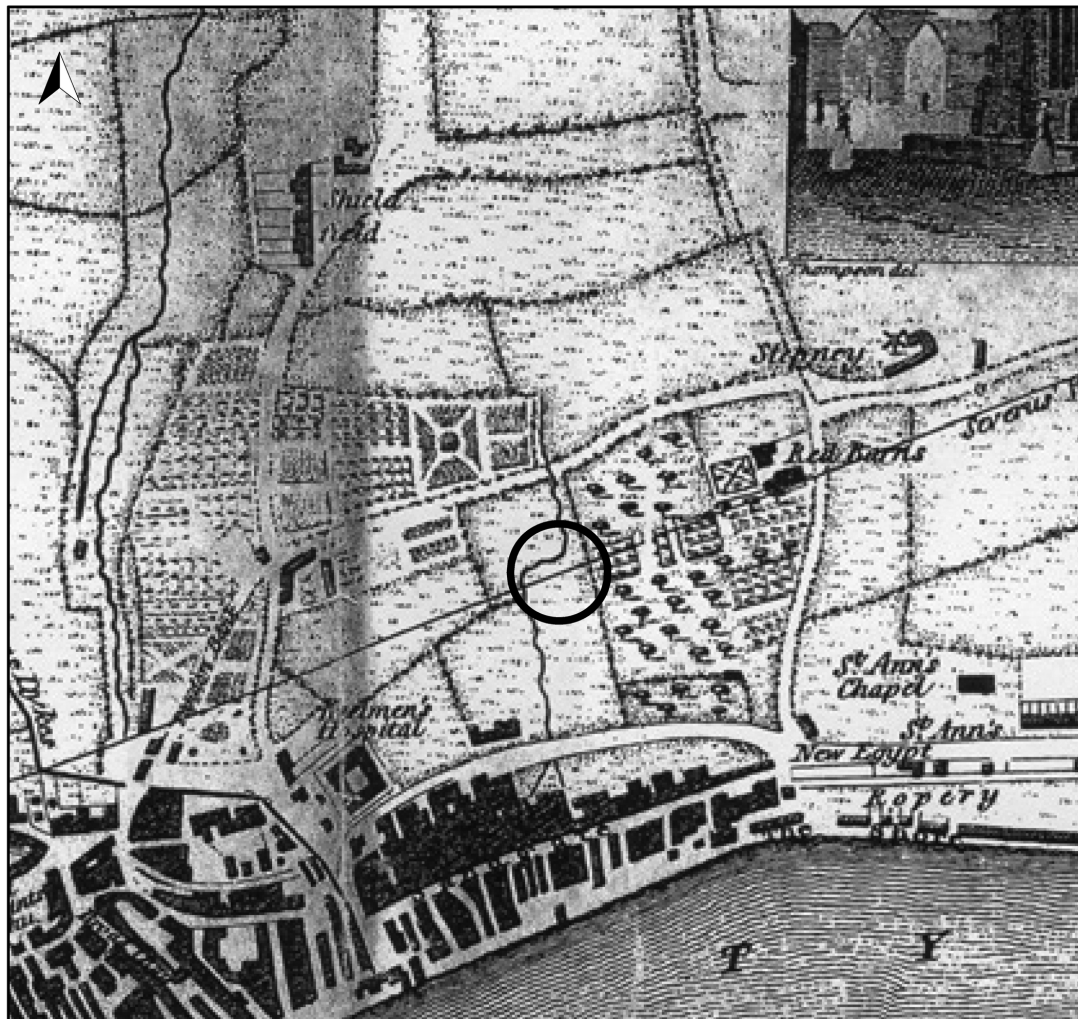


Fig. 9 Location of the site, as shown on Roper and Cole's map of 1808. The right-angle turns in the course of the stream are clearly depicted.

light brownish-grey clay within the fill were possibly the fills of two postholes. One of these lay in the north of the pit and the other in the east. The pit lay directly below a later disturbance and may have been modified by this later activity, accounting for the abnormality of this feature.

Six pits were present in the second row; two more would have been removed by nineteenth- and twentieth-century foundations. The row was offset to cover the gaps in the first row. Pits at the eastern end of the row were similar in size to those in the first one, but they declined in size westwards. This possibly indicates slight truncation of the ground level in this area. As in the inner row, these pits had clay fills containing scattered stones. An area of yellow-brown clay at the eastern end of pit F98 was possibly the fill of a posthole that sloped upwards towards the east. This was the only possible posthole identified in this row.

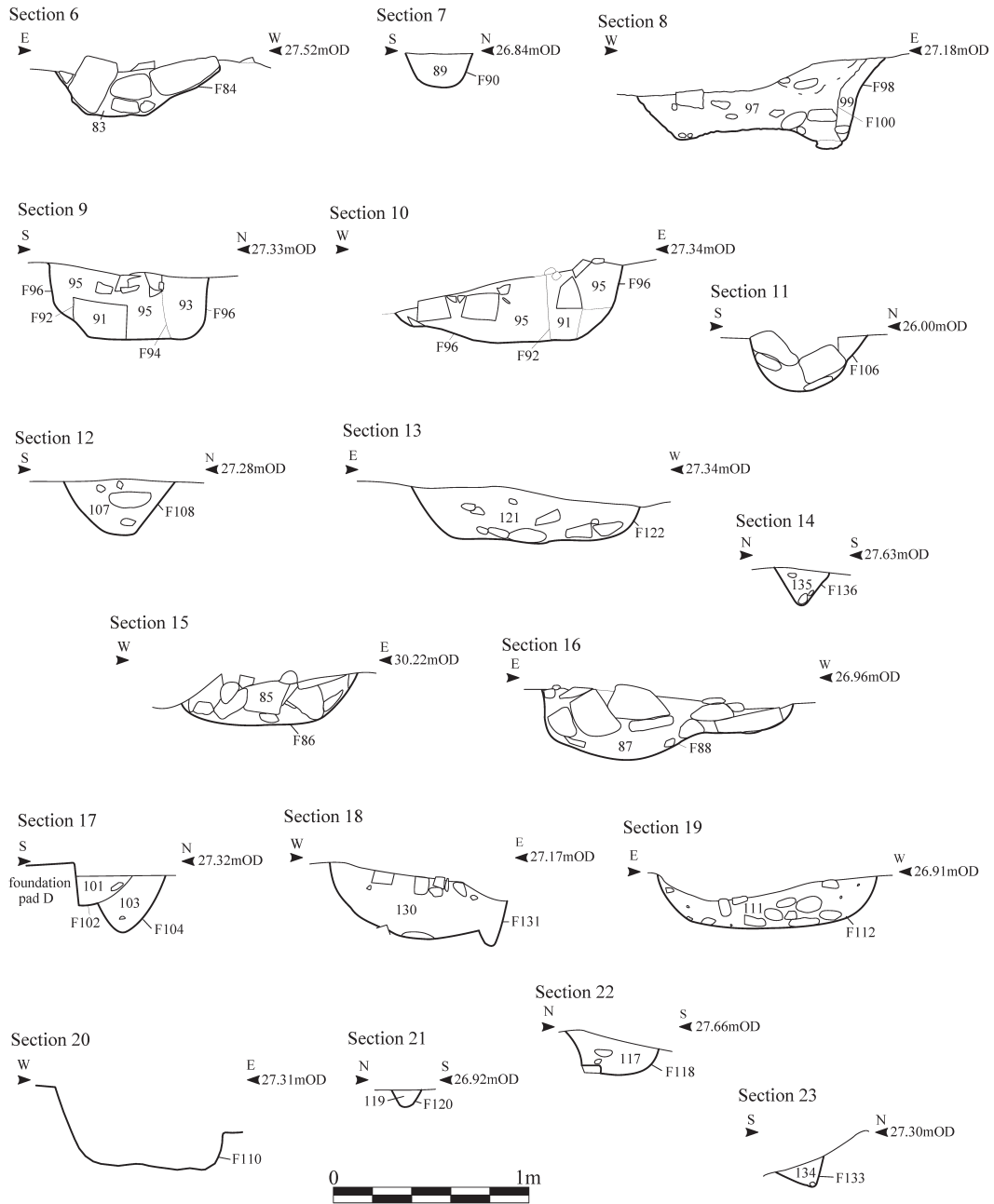


Fig. 10 Sections through the defensive pits (cf. fig. 6).



Fig. 11 Section through pit F86.

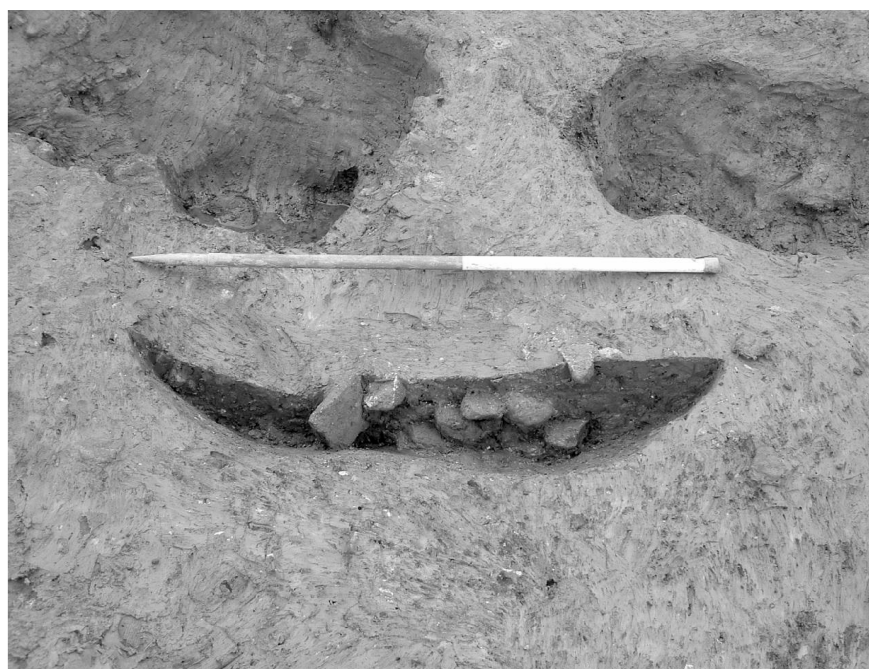


Fig. 12 Section through pit F112.

The outer row was the most poorly defined of the three. Only four pits were identified; several more should have been present. The two eastern pits contained mixed stone and clay fills, similar to other pits in the series. However, the two western pits contained stone-free fills of clay, making them very poorly defined against the clay fill of the former stream channel. This poor definition is a possible explanation for the missing pits and also for the apparent slight convergence of the western pit with the central row.

Excluding the (atypical) pit F96 (which may have been modified at a later date), the pits from all three rows ranged in length from 0.6 m to 1.35 m (with an average of just over 1 m); they ranged in width from 0.2 m to 0.7 m (with an average of 0.45 m), and ranged in depth from 0.15 m to 0.45 m (with an average of 0.3 m).

Defensive pits have only recently been found along Hadrian's Wall, but they have also been recorded at Wallsend (Bidwell 1999), Byker (McKelvey and Bidwell 2005; McKelvey 2010) and Throckley (Frain *et al.* 2005). These other examples all vary slightly from the form seen at Melbourne Street. At Shields Road, Byker, three rows of pits were present with the inner and outer ones parallel to the Wall and the central row perpendicular to it. Two phases of use were identified, with the pits being rectangular in the first and oval in the second. At Wallsend, three rows of sub-square pits were present, aligned in a quincunx pattern (Bidwell 1999, 95–6). At Throckley, pits were found along an extensive stretch of a narrow pipe trench running parallel to the Wall. Some were aligned east-west and some were aligned north-south, so the reconstructed pattern was probably similar to that seen at Byker. Post settings have been identified in a number of pits at all three locations.

Although the arrangement at Melbourne Street differs slightly from that seen elsewhere on Hadrian's Wall, it is paralleled by examples along the Antonine Wall. A series of pits have long been known outside the fort at Rough Castle (Buchanan *et al.* 1905, 456–9). Ten rows are orientated parallel to the line of the Wall, with each row being off-set from its neighbours in similar fashion to those at Melbourne Street. However, these pits are located to the north of the Wall ditch, rather than on the berm; they appear to be a special measure to protect a passage through the Wall and ditch at this point. More recently, defensive pits have been found on the berm at a number of sites along the eastern half of the Wall. At Callendar Park, Falkirk, excavations in 1989 and 1990 exposed four rows of pits (Bailey 1995, 580–3). These were all aligned parallel to the Wall with the second and fourth rows off-set to cover the gaps in the first and third rows. Similar patterns of four rows of pits have also been identified at Mumrills (*Britannia*, 35, 267) and at Laurieston (Dunwell *et al.* 2002, 264), while three rows of pits have been found at Garnhill (Woolliscroft 2008, 142–4). The size, shape and layout of these latter pits almost exactly parallel those found at Melbourne Street. At Inveravon, a narrow pipe-trench partly exposed two features that could have been either the butt ends to two gullies or else elongated pits similar to those described above (Dunwell and Ralston 1995, 532–3). Away from the Wall, pits have also been identified at the Antonine forts of Glenlochar (Richmond and St Joseph 1953, 6) and Crawford (Maxwell 1972, 153). In both of these cases a single line of pits was present between the multiple ditches of the forts.

Whilst these pits are clearly a defensive feature, three possible forms have been suggested; entanglements, entrapments and open pits (Bidwell 2005). Entanglement pits would have supported an intertwined array of sharpened branches, the intention being to entangle attackers in the manner of modern barbed wire. Entrapment pits would have contained sharpened stakes, set vertically in the ground and covered with brushwood and leaves to act as an anti-personnel trap. Open pits would simply be designed to slow down and break up

any mass assault. In the best-known contemporary description of such defences, Caesar describes the defences constructed by his troops at Alesia in Gaul in 52 BC. He states that a continuous ditch was dug, supporting five rows of entangled branches; he names these as *cippi*. In front of these were eight rows of entrapment pits 'three feet deep ... which gradually diminished in depth to the bottom. These contained '... tapering stakes, of the thickness of a man's thigh; sharpened at the top and hardened in the fire'. He names these as *lilia* from their resemblance to lilies. Stakes tipped with iron hooks (referred to as *stimulata*) were buried in the ground in front of these (Caesar 1869, 73–80). However, Caesar's account reflects a situation 175 years before Hadrian's Wall was constructed, and military practice could have changed during the ensuing time. Also, as Bidwell (2005, 54) points out, Caesar's names for these features may have been military slang rather than official terms. Earlier writers, such as Polybius, describe features similar to *cippi*, but use terms such as *cervi* or *cervoli* (presumably from *cervulus* — little deer, a description of the antler-like form of the entwined branches).

Bidwell (2005, 59–63) discusses the function of the pits so far discovered at other locations along Hadrian's Wall. He points out that all are too shallow and have the wrong profiles to be entrapment pits and interprets them as entanglements. At Melbourne Street there was little evidence for any post settings at all (whether these were entangled branches as in *cippi* or sharpened stakes as in *lilia*) in most of the pits (and pit F96, containing the best such evidence, was not typical and had possibly been modified at a later date). The fills of at least some pits were so full of randomly scattered stones that there would be little room for any sort of post



Fig. 13 Deposits overlying the Wall, looking east.

(see, for example, fig. 11). The mixed nature of both the fills and of the material that the pits were cut into would make the identification of any postholes very difficult, so it is perhaps wise to leave undetermined the exact nature of the defensive pits at Melbourne Street.

Phase 3 (Post-Roman to eighteenth century)

Several layers of clay had built up against the northern edge of the Wall, one of which contained large angular stones that were likely to be tumble from it. Above was another clay that contained many concentrations of stone. These did not form distinct features and were interpreted as stony patches within one generally mixed fill. However, following excavation, it was found that one such concentration directly overlay pit F96. Given its location and the fact that underlying pit F96 was atypical in form (see above), it is possible that this had been the fill of a later pit. A small area of (possibly related) fill, separated from the main deposit by a later intrusion, produced a single sherd of medieval pottery. Otherwise these deposits were notable for their lack of finds. Above was a distinctive reddish-brown clay containing frequent small sandstone pebbles. This overlapped the Wall and increased in thickness towards the south (fig. 13). A robber trench was visible to the east of the stream channel and was filled with a very similar deposit. This robber trench was deeper and more clearly defined along its northern than its southern edge, and was cut by a shallow gully.

Two sections were excavated across the fills of the Wall ditch; one towards the western end of the site and one towards the east (figs. 14 and 15). In addition, a partial section was excavated to the north of foundation pad G to investigate a possible entrapment pit against the edge of the ditch. Excavation of this latter section was discontinued when it became clear that it was not a discrete feature and had been formed by slumping of the ditch sides. The lowest deposit in all sections was a light grey fine sand [59/172]. Since this was remarkably free from silt or other impurities, and geologically very different from the clay that formed the ditch sides, it may have been a deliberate deposit, possibly to reduce the depth and steepness of the ditch following abandonment of its defensive use. The difference in composition between this deposit and the natural clay allowed a shallow but distinct slot to be identified in the eastern ditch section (see above). Above this sand in the easternmost section was a thin band of black sand [171], interpreted as a former turf layer then, in all sections, a grey silty clay [58/147] that thickened eastwards from 0.2 m to 0.5 m and may have been deposited over some time. In the eastern section, a number of pieces of wood and a piece of worked leather were collected from the top of this deposit. Since it is not permanently waterlogged, this indicates that the upper part, at least, is of fairly recent date.

Deposits above this differed from section to section. In the western section, the remainder of the ditch was almost filled by a dark grey to black clay 41 containing a number of large boulders, then some lighter clay horizons. In the partial section in the centre of the site, the remainder of the ditch was filled with a mix of clays and sands. In the eastern section, deposits consisted of a rubble spread [146] then a dark grey clay. Apart from the piece of leather from context 147, this was the only deposit within the whole ditch that contained any finds. These included an eighteenth-century brick and a post-medieval horseshoe as well as residual medieval pottery. Environmental samples from the deposit confirmed the late date of this fill.

A later ditch, running parallel to and immediately south of the Wall ditch, cut its upper fills at the eastern end of the site. It did not extend westwards beyond the deepest part of the

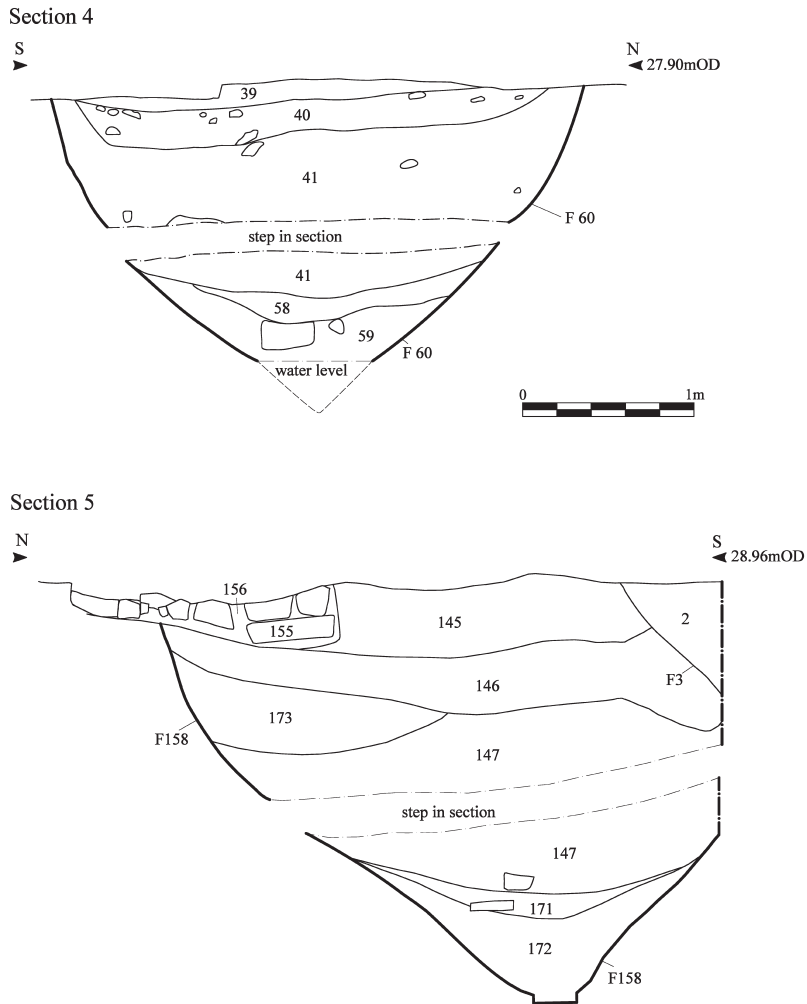


Fig. 14 Sections through the ditch of the Wall. The positions of these sections are shown on fig. 5.

former stream channel and may have been intended to drain this area. A small area of cobbling overlay its fill but too little survived to suggest a possible function. Above this, and across most of the site, was a general layer of mid-grey silt containing frequent sherds of weathered medieval pottery. This was thought to be a former plough soil. Above was a black silt interpreted as the topsoil before construction of the nineteenth-century housing.

Phase 4 (nineteenth century)

A nineteenth-century brick culvert crossed the site and was cut by the foundations of terraced housing erected between 1830 and 1838. Two groups of foundations were present, one running parallel to Buxton Street and one running parallel to Gibson Street. Remains were

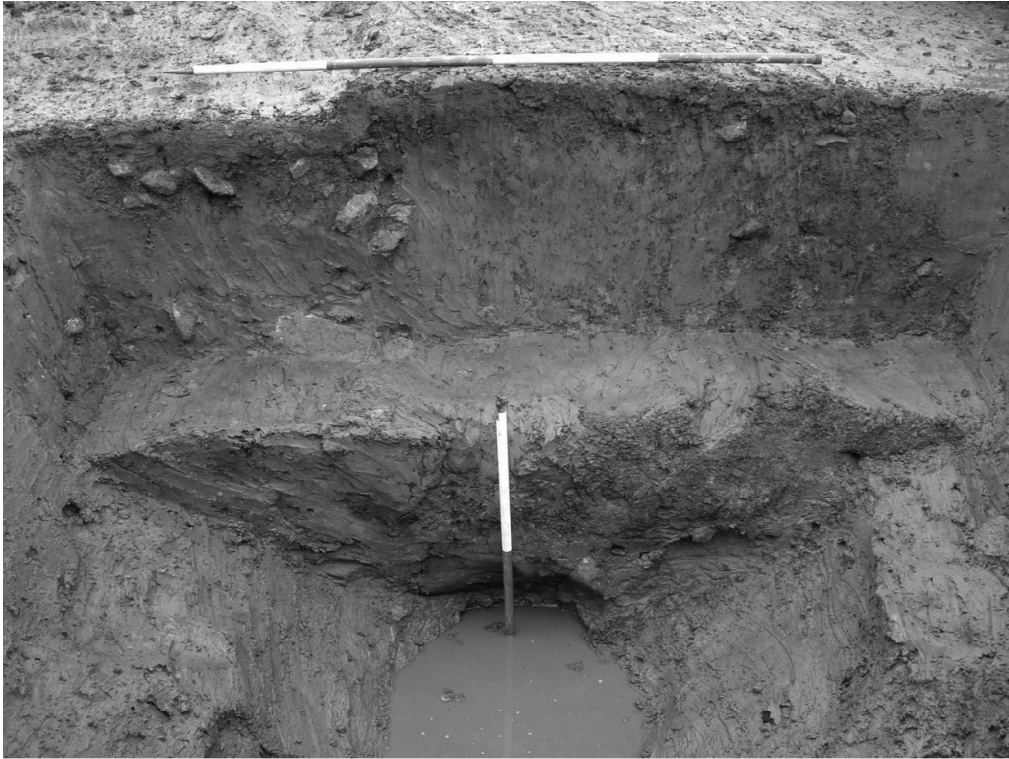


Fig. 15 South-western section through the ditch of the Wall, fully excavated.

broadly similar in each group and consisted of a line of cellars along the street frontage and three parallel Wall foundations behind them. Further cellars were found during a watching brief on the remainder of the development site, indicating that they had been present along all the original street frontages.

During the evaluation, a large quantity of nineteenth-century kiln waste was found at depths up to 3.3 m below ground level in one trench to the north of the Wall ditch (Archaeological Services 2003). With hindsight it can be seen that this trench had been placed within the former stream channel, accounting for the great thickness of deposits here. The infill to the north of the Wall ditch was of nineteenth-century material, including kiln waste (probably imported to the site as no other evidence was found for pottery-making) rather than the medieval/post-medieval silts present to the south.

Phase 5 (twentieth century)

From documentary and cartographic evidence, it is known that the nineteenth-century houses were demolished and the site levelled around 1960. Cellars along both street frontages contained rubble fills dating from this demolition. Melbourne Street was realigned towards the south and its original eastern end was blocked off; a car showroom was constructed on the site shortly afterwards. This building was still standing at the time of the evaluation and was demolished immediately before the main excavation began.

THE FINDS

C. G. Cumberpatch and Louisa Gidney

No finds of Roman date were identified during the excavation. All recovered material was of late medieval date or later, and was obtained from the former ploughsoil, from the fills of the Wall ditch or from the fills of modern intrusions. Because of the limited size and poor preservation of the assemblage, it provides little additional information about the site and only a summary is provided below. Full details are available in the archive report.

The pottery assemblage was small in size and showed signs of having been abraded prior to excavation. In all probability it had spent some time in an environment affected by mechanical abrasion, most probably plough soil, garden soil or similar. Although it was diverse in its appearance and typology, it was relatively homogeneous in terms of its chronological range. No Roman or early medieval material was identified and post-medieval material was extremely rare and limited to the later medieval/early post-medieval period. Later post-medieval and early modern wares were absent. The assemblage was predominantly local in character with very few sherds of regional imported wares and no material of obviously European origin.

Most of the small collection of animal bone was recovered from the upper fill of the Wall ditch. From the dark brown patination and presence of vivianite, these bones had clearly once been waterlogged although drying out (the deposit was not waterlogged at the time of excavation) had caused warping and fragmentation. Half of an eighteenth-century hand-made brick and a post-medieval horseshoe were recovered from the same context. A piece of embossed leather was recovered from deeper in the ditch fill. The good state of preservation suggests that this was also of post-medieval date.

THE ENVIRONMENTAL EVIDENCE

Charlotte O'Brien

Environmental samples were collected from 39 contexts. The majority of these produced low volumes of flot. Plant macrofossil preservation was poor and charred seeds were absent, meaning that the samples provided no chronological or economical information about the site. Full details of the environmental sampling programme are available in the archive report.

All of the flots contained small amounts of coal, and charcoal was also present in some. Their low volumes make it unlikely that these resulted from industrial activities. Uncharred seeds were only abundant in contexts 58 and 145, both of which were fills of the Wall ditch, and were dominated by buttercups, docks, sedges, nettles and the fruit stones of bramble. The preservation of waterlogged seeds in these contexts may indicate that these are relatively modern fills.

In general, low numbers of seeds were preserved in samples from fills of the defensive pits. This reflects the well-drained nature of the sediment from these contexts. It is possible that the partially waterlogged clay within the infilled stream channel would allow the preservation of some uncharred seeds from deposits underlying Hadrian's Wall. The seed assemblage from these contexts is dominated by fruit stones of bramble, with fumitory, woundwort, cinquefoil, violet, bugle and sedges also present. These herbaceous plants, in addition to the occurrence of sclerotia of the soil fungus *Cenococcum geophilum*, which has mutualistic



Fig. 16 The Wall after removal of the foundation pads.

associations with some tree roots (Hudson 1986), point to the occurrence of nearby woodland. The presence of sedges and bugle also suggest areas of damp ground.

BACKFILL AND CONSOLIDATION OF THE SITE

During excavation the concrete foundation blocks from the former car showroom were left *in situ* because they were thought to be pile caps and their removal would be likely to cause unacceptable damage to archaeological remains. However, at the end of archaeological works, one block was removed from a non-sensitive part of the site and proved to be a square pad (approximately 1.2m thick) rather than a pile cap, and it was lifted cleanly. Subsequently the remainder of the pads were removed by machine under archaeological supervision. This fully exposed the Wall without causing any damage to it (fig. 16). The surviving remains of the Wall together with the defensive pits and surrounding berm, the ditch adjacent to this and the stone bank south of the Wall were covered with geotextile and backfilled with fine material. This area is preserved *in situ* within the development. Full details about the extent of this preserved area and the nature of the backfill are provided in the archive report.

ACKNOWLEDGEMENTS

The illustrations were prepared by Linda Bosveld and Janine Watson. The project manager was Richard Annis. Archaeological Services is grateful for the assistance of Paul Bidwell and Jonathon MacKelvey of Tyne and Wear Museums Service for discussions on previous findings of pits on the berm along the line of Hadrian's Wall.

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*This paper is published with financial assistance from
Archaeological Services Durham University*