

Survey of the Roman outpost fort at Risingham (*Habitancum*), Northumberland

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SUMMARY

An integrated research survey of the Roman outpost fort and its environs at Risingham (Habitancum) is described and analysed. The fort is unusual as it was built to face south but was subsequently re-planned to face west. The military later increased the density of the buildings within the fort to accommodate a larger garrison. Much of the interior seems to be well preserved with as many as 18 barrack blocks, stables or other buildings visible. Later, possibly sub-Roman, civilian occupation is evident, which may have continued into the medieval period. A small annex (or enclosure), positioned to the south of the fort, contains several buildings. Extramural buildings include a possible bath-house and civilian buildings, together with probable medieval features.

INTRODUCTION

THE STRATEGIC ROMAN MAIN SUPPLY ROUTE, DERE STREET, which leads to Scotland, passes through Hadrian's Wall at the Portgate, just north of Corbridge. Shortly thereafter the road branches, with the easterly route, known as the Devil's Causeway, leading to the fort at Low Learchild. The western branch, Dere Street, for a large part of its route, follows the A68 trunk road. The road passes close to Risingham on the River Rede, on to Blakehope and High Rochester, also in Redesdale, Chew Green at Coquethead, to Cappuck on Oxnam Water, and continues to Newstead on the Tweed (figs. 1 and 3). The fort of Risingham (*Habitancum*, NY 891 862) is located 15.5 miles (24.2 km) north of Corbridge. The geo-physical survey was designed to investigate the fort's interior and the immediate extramural defences. This initial survey was conducted in 2009 and a second programme was undertaken in late 2012, specifically to examine some extramural areas for evidence of civil settlement, fields and roadways.

The survey was complemented by an earthwork survey of the fort and its defences, with data derived primarily from rectified oblique aerial photographs. It became evident that a number of misconceptions have been promulgated over the years, particularly the evidence relating to the 1840 earthwork survey by the surveyor John Bell (Swinburne 1844; the survey was reproduced by Eric Birley: 1961, pl. XV, opp. p. 240).

The fort is on private land and is not accessible to the public.

EARLIER RESEARCH

Much of what is known about the dating and garrisons is derived from the dedicatory inscriptions and altars, 56 in all (Richmond 1940, 130–44). It is primarily from these

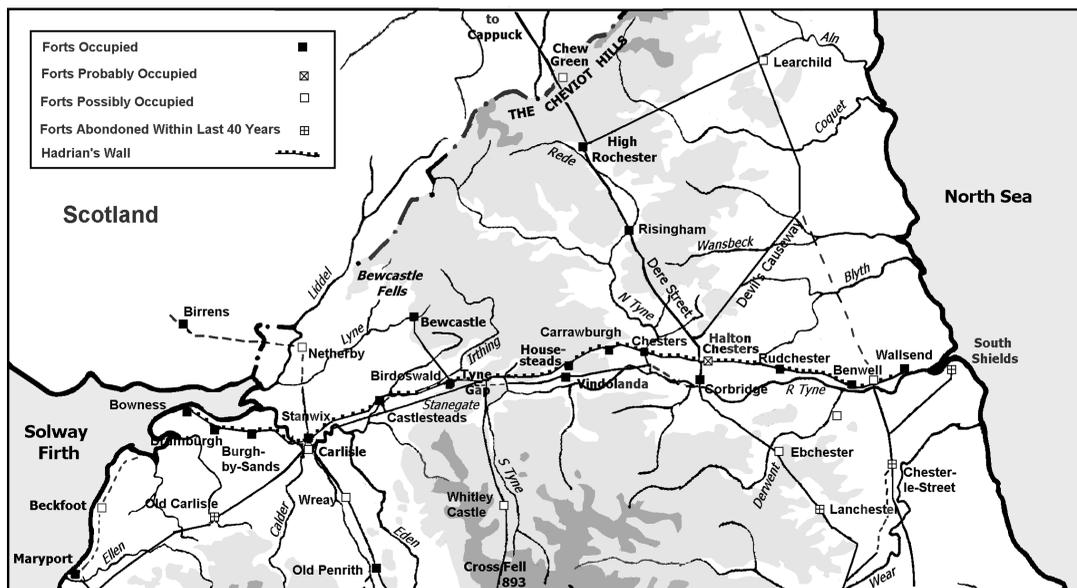


Fig. 1 Map showing the disposition and occupation of forts, and the major road systems, about AD 280 (after Breeze and Dobson 2000, 221, fig. 32).

inscriptions that a sequence of occupation can be ascertained. A fort was established under Antoninus Pius (c. AD 138–61), and at the time of Marcus Aurelius (AD 161–80) it housed *cohors IV Gallorum equitata* (RIB 1227; Breeze and Dobson 2000, 263). This garrison was increased in size with the deployment of *cohors I Vangionum milliaria equitata* in the third century (RIB 1215, 1277, 1241, 1249). Some time later, the garrison was attested to contain the *vexillation Raetorum gaesatorum* and the *exploratores Habitancenses* (RIB 1235, 1243). The presence of a *beneficiarius consularius* suggests that at one time the fort was an important supply station (RIB 1225). That there was a civilian population is indicated by a number of dedicatory tombstones to children (e.g. RIB 1251, 1246, 1248, 1254). Several women are also recorded (e.g. RIB 1211, 1228, 1250). This may imply, if not a civilian settlement, certainly a dependence on co-habitation with the serving garrisons.

The first description of the fort was provided by John Hodgson who in 1810 noted that ‘... on the east and south it is defended by ditches, on the west by a natural slope of the land and the bed of the Chesterhope-burn ...’ (Hodgson 1827, 175–86). A series of letters relating to *Habitancum* was published in *Archaeologia Aeliana* in 1844 by Sir J. E. Swinburne, President of the Society (Swinburne 1844). This correspondence was stimulated by the son of the owner, Mr. Richard Shanks, who had decided to investigate the fort’s interior. Most of Shanks’ investigation was centred upon the south-east angle, an area 18 yards square. It revealed the internal bath-house and associated ancillary structures, including a cartload of coal, which was removed.

John Bell was tasked by the Society of Antiquities of Newcastle upon Tyne with drawing an earthwork plan of the fort (Swinburne 1844, pl. III, opp. 158). He also produced an overview location plan using, in part, the tithe map of the parish to do so (fig. 2). This map, which bears much similarity to the O.S. First Series 1866 edition, indicates two major

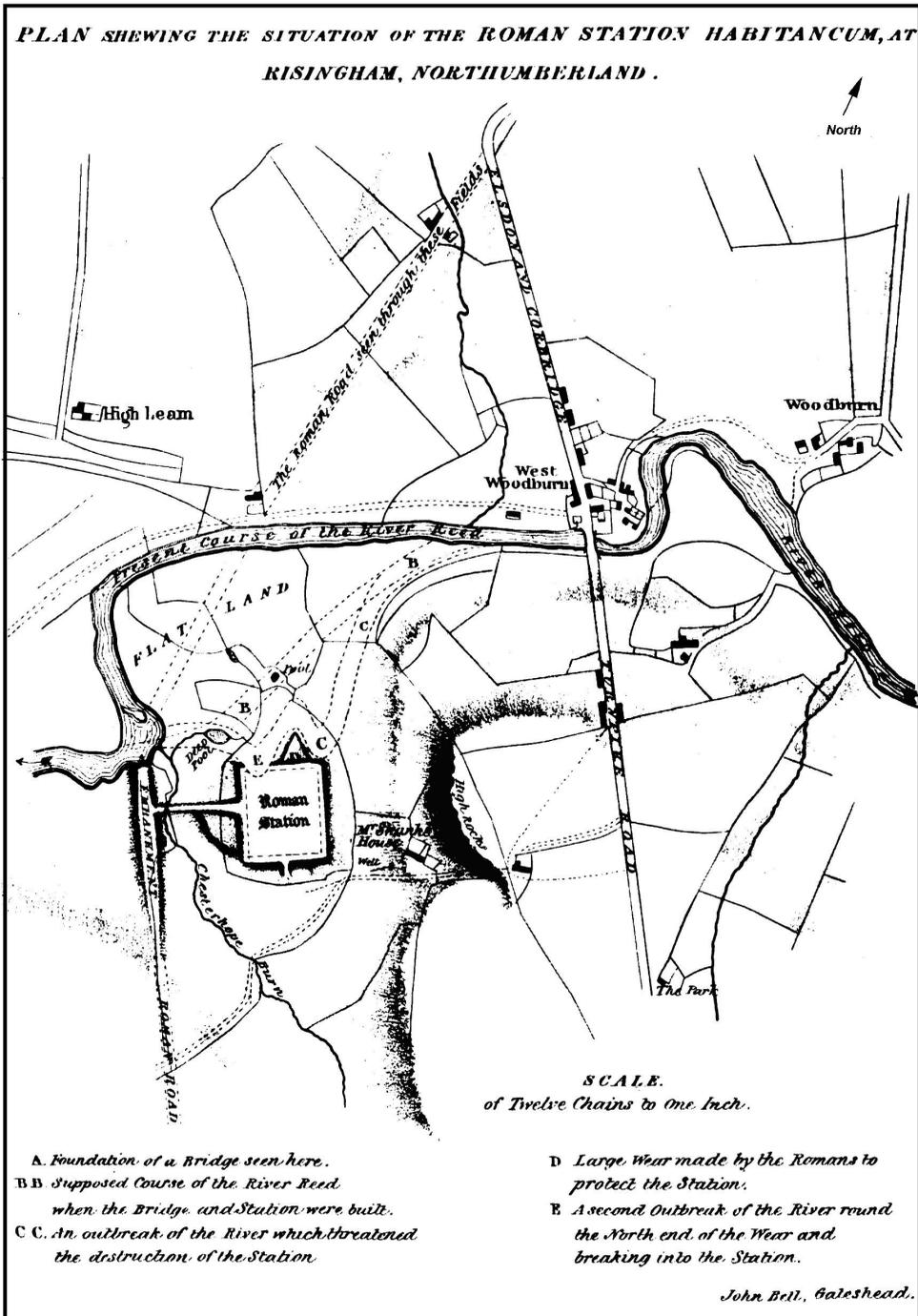


Fig. 2 Map by John Bell of the environs of Risingham showing the possible palaeochannels to the north of the fort. (Swinburne 1844, plate II, opp. 156).



Fig. 3 Aerial photograph of the site, looking north. By permission of Prof. N. McCord.

palaeochannels, B, and C, together with a lesser one, E. These are contiguous and appear to have eroded land to the north of the fort, creating a spur. The eastern channel, running immediately north-east of the fort, corresponds to Bell's river course CC (fig. 2, CC), and has a surface elevation 4.5 m above the modern river bed. Radio-carbon dates from this feature of between AD 600 \pm 70, and AD 650 \pm 70 prove Bell's assessment was correct and that this was the earliest palaeochannel (Anderson 1992, 45). It also provides a *terminus post quem* some 200 years after the military abandonment of the fort. This is a very important observation as it indicates that in the Roman period the River Rede probably followed a course more closely linked to its present one, at least some 50 m distant from the curtain walls. These sinuous palaeochannels, of which there are at least four, can be readily observed in fig. 3 and also in some of the excellent aerial photographs taken by Tim Gates (e.g. NY8986Q, neg. no. 3927/31; not shown here).

Richmond undertook an excavation of the fort in 1935 (Richmond 1936, 184–98). A full appraisal of this work is set out in the *Northumberland County History* (Richmond 1940). The intervention included the partial excavation of the *principia* and the south and west gates. It should be noted that buildings such as the *principia* were excavated in 1840 and again in 1849 by Robson, although records are fragmentary (Richmond 1940, 85).

Richmond's methodology was reliant on the four Wall periods, which underpinned his chronological framework. Whilst it is not unreasonable to accept his interpretation of the Antonine and Severan phases, there must be some doubt as to the proposed dates of the two later phases, which he designated as Constantian and post-Constantian.

Richmond's excavations give a foundation upon which to base the analysis of at least some of the geophysical survey data and he has provided a working sequence of occupation. There was no evidence seen of a first-century Flavian fort, although it is possible that a smaller wooden fort could exist below later levels. As at High Rochester, no Hadrianic pottery was found, but Samian ware of Antonine date was present.

Some comparison can be made with the adjacent fort at High Rochester to the north (Hancke *et al.* 2004; Hodgson 2009, 168–9). There a substantial, multi-phased annex measuring 80m by 60m was attached to the west of the fort with a sub-annex, enclosing a bath-house, attached to the south west of this. The layout of the fort itself shows that many of the barrack blocks have been re-planned to provide separate accommodation units (Crow 1999, 193, fig. 4, 192).

SURVEY RESULTS AND ANALYSIS

METHODOLOGY

The survey areas were subdivided into 30m survey grids using a Leica 403L Total Station EDM which also provided cartographic information and the earthwork survey (fig. 4). The digital mapping of the site is geo-referenced to an Ordnance Survey digital base map. Using the EDM the relative heights across the fort and defences within the walled enclosure were established.

Two single Geoscan FM256 fluxgate gradiometers (magnetometers) were used to carry out the magnetometry survey, employing 1 m parallel traverses with 0.25 m sample intervals. The total area surveyed was approximately 9.5 hectares (23.8 acres). A Geoscan Research RM15 Resistance Meter in twin-electrode probe formation was used for the resistivity survey with 1 m probe intervals, 1 m traverses and 1.0 m sample intervals. In total, 3.7 hectares (9.25 acres) were surveyed. The two sub-surface survey methods used are complementary. These two methodologies cannot distinguish between the different phases of archaeological deposits and can only provide a composite image of all the features within the instrument's operating depth.

The magnetic survey results are presented as an overview of grey scale plots (fig. 5), and it is from this that an anomaly plan has been produced (figs. 6 and 7). Anomaly plans are an assessment of the data, which are to some degree subjective but they do not claim to be expository plans. A speculative interpretative plan of the fort has been derived from that data (fig. 8).

The earth resistance survey results are presented as an overview of grey scale plots (fig. 9), and from this an anomaly plan has been drawn up (fig. 10), with the anomalies indicated numerically. This plan has been superimposed upon the hachures of the earthwork survey. The slower rate of application meant that resistance survey was limited and only specific areas were targeted.

AERIAL PHOTOGRAPHIC RECTIFICATION AND EARTHWORK SURVEY (fig. 4)

During the course of the geophysical survey of the fort interior in 2009, it was established that the plan of the earthworks as depicted by Bell did not correspond fully to our own observation. Using EDM survey data, plus oblique aerial photographs, an earthwork plan of the fort interior and immediate environs was produced.

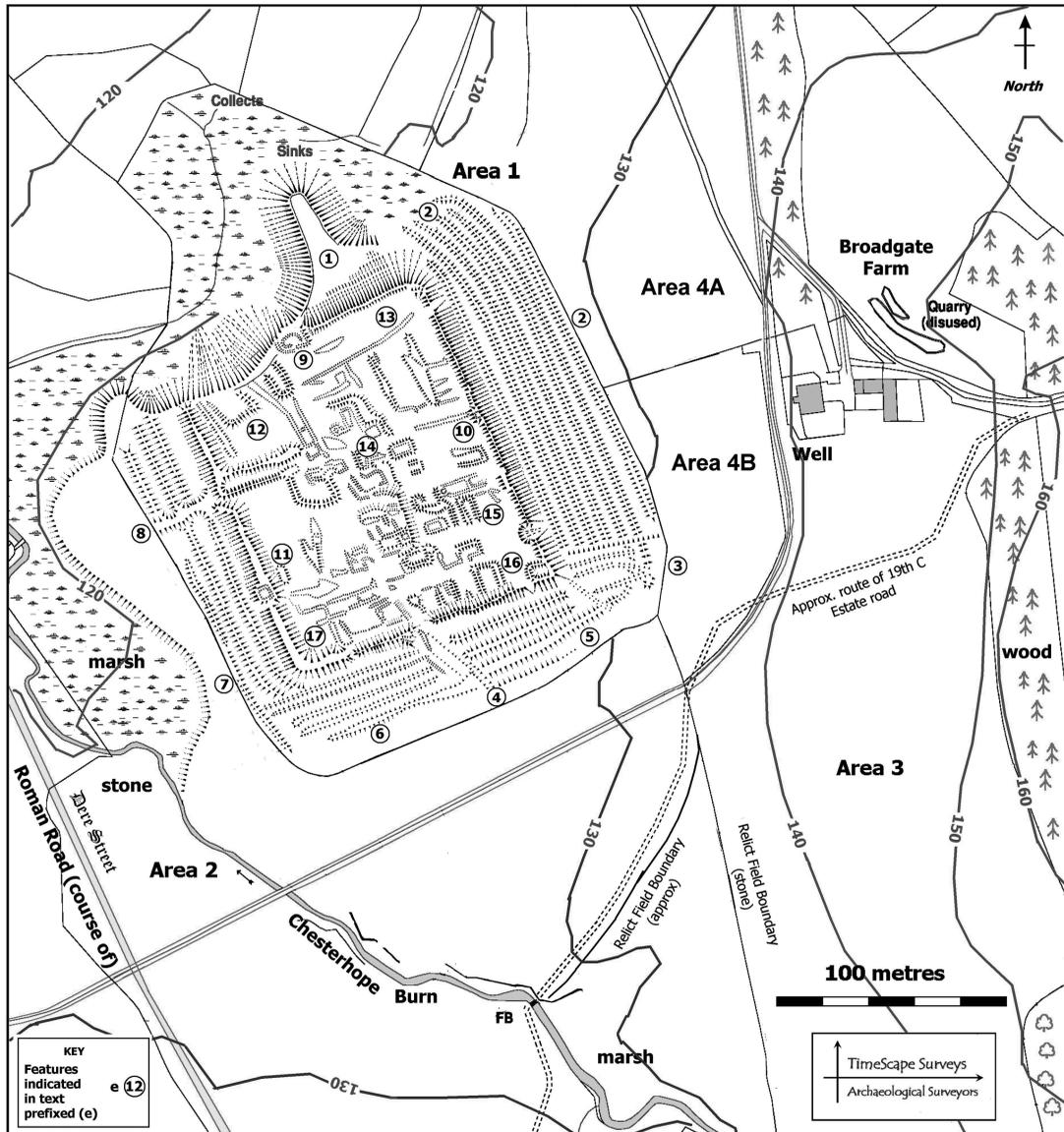


Fig. 4 Earthwork survey of the fort and its immediate surroundings. The numbered features are described in the text. Note that the significantly higher ground to the east, in the area of the wood and quarry, overlooks the fort.

The fort is situated on low lying ground in a bend of the River Rede, which is to the north and west, and at its nearest point is some 150m from the west gate (figs. 2 and 3). Towards the north, the river is 350m distant, but in between lies an extensive flood plain. The entire valley is subject to flooding to the west of the village of West Woodburn and did so during the 2012 survey. The reason water backs up near the fort is due to a natural gorge some 3 km downstream at Rede Bridge just north of Redesmouth.

It is now accepted that the River Rede has changed course several times in the last two millennia. This action has at some period eroded the curtain wall at the north-west corner of the fort; some extramural defensive structures may also have been affected (see fig. 3, where a palaeochannel is clearly visible on the aerial photograph; McCord, neg. no. NY-8986L). This erosion did not take place during military or even sub-Roman occupation, but was likely to have occurred around AD 600–650 (Anderson 1992, 45). Some erosion of the western embankment outside the west gate of the fort has also occurred due to the action of the Chesterhope Burn. This burn has also eroded Dere Street and its causeway, which are only 120 m to the west. Lateral movement of the burn eastwards has also caused some destruction near the western edge of the fort platform.

Dere Street formerly continued across the River Rede, presumably on an embankment and bridge, which have since been destroyed. The route of the road, apparent on modern maps, shows a change in direction of 33° to align it with the relict road on the opposite bank.

The fort itself appears to have been built upon a natural spur of land, which at its lowest point is only 5 m above the current level of the River Rede. The highest point in the fort is in the south-east corner (129 m OD) and there is a natural fall towards the north of the fort which is some 3 m lower (126 m OD). There is a less pronounced fall towards the south-west sector of the fort of 1.2 m. However, it should be borne in mind that these figures represent the present surface level of the fort; the base of the walls is at only 125 m OD. The level of the River Rede is 120 m OD, so the potential for flooding around the fort must have always been significant, but clearly there was, nevertheless, an overriding reason for building the fort in that location.

THE FORT DEFENCES

Earthwork survey (fig. 4)

Towards the north of the fort and the eroded spur of land (fig. 4, 1), there appear to be no well-defined defensive ditches. The area remaining is small, (essentially a triangle 50 m by 50 m) but at the outset the original garrison may have relied upon natural defences. To the east of the fort lie a series of seven linear earthworks (fig. 4, 2), which are 0.3–0.4 m in height; towards their northern termini they begin to curve towards the west. The sixth ridge appears to be slightly wider, whilst the seventh lies hard against the drystone enclosure wall. If these features represent defensive ditches they are not very wide, with all seven being enclosed in a strip 42 m across, which gives a periodicity of only 6 m between ridges. Towards the south, near the south-east angle tower, these ridges, apart from the outer one, appear to terminate squarely at a number of narrow linear earthworks which are of no great height (fig. 4, 3). These ridges point towards the south-east corner of the fort, the location of the internal bath-house, and when extrapolated east lead towards a spring and a well located on higher ground near Broadgate Farm. It appears likely, at least from Richmond's assessment, that these seven ridges (fig. 4, 2) are the result of ploughing (Richmond 1936, 192). It should be noted that the ditch next to the fort defences is atypical, having elements which are both deep and narrow in places, suggesting that it is a robber trench or a drainage channel.

Near the south gate, where there is an oblique causeway (fig. 4, 4), a complex picture emerges. The causeway looks like a later feature which has crossed ridge and furrow (or defensive ditches), and was perhaps constructed to improve access to the fort's interior

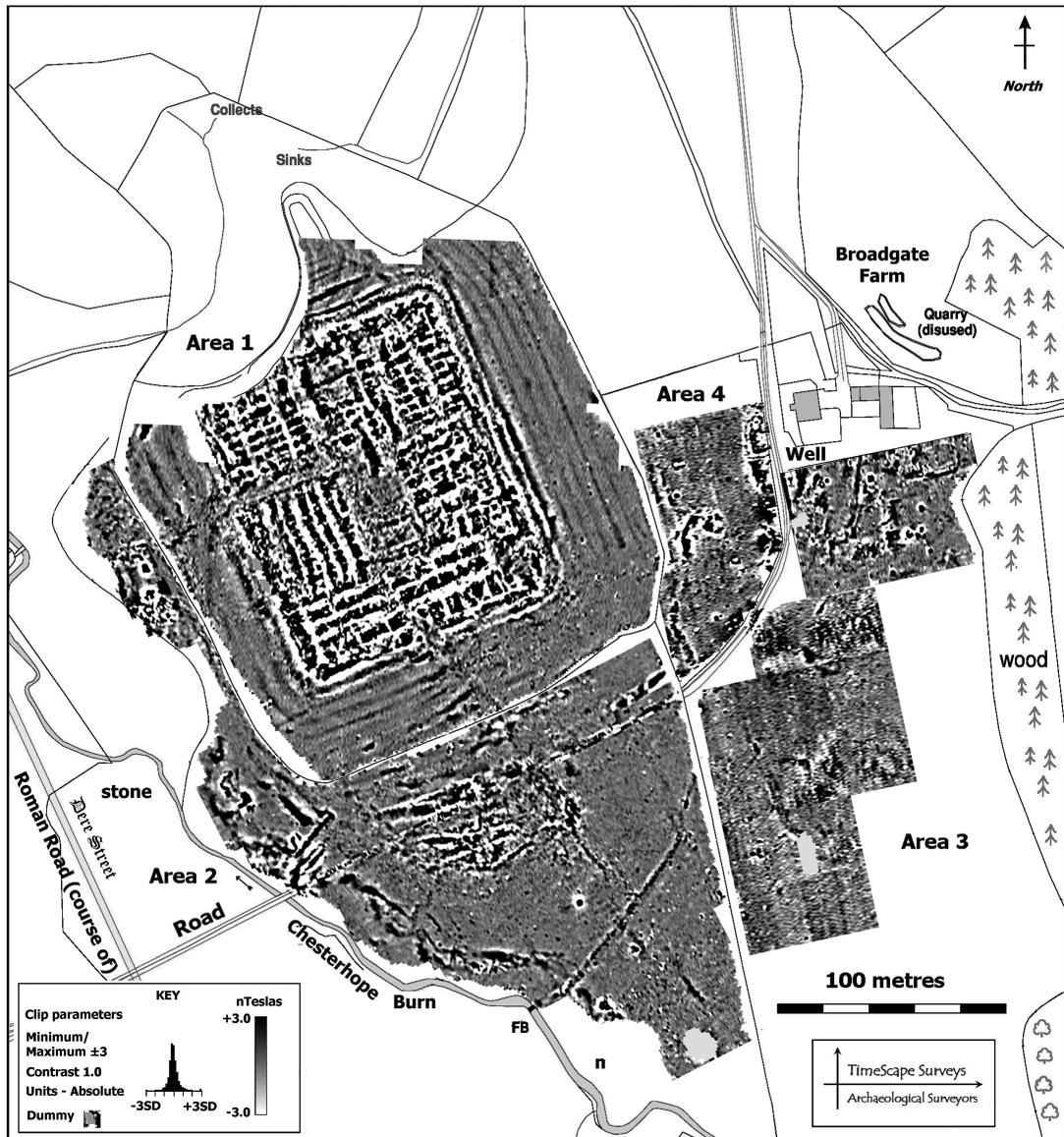


Fig. 5 Magnetic survey grey-scale plot. The eastern sector of Area 3 was both marshy and overgrown with rushes and it did not prove amenable to survey. The terrain here also rises steeply; earthworks were detected which may indicate the presence of small cultivated plots.

during wet weather. East of this causeway are four ridges (fig. 4, 5), 9m apart on average, which begin to curve around the axis of the south-east angle tower. These have every appearance of being defensive in origin. On the western side of the causeway there are five ditches (fig. 4, 6), which are somewhat narrower. These ditches and banks do not curve around the axis of the western angle tower but remain straight, terminating at the western wall of the

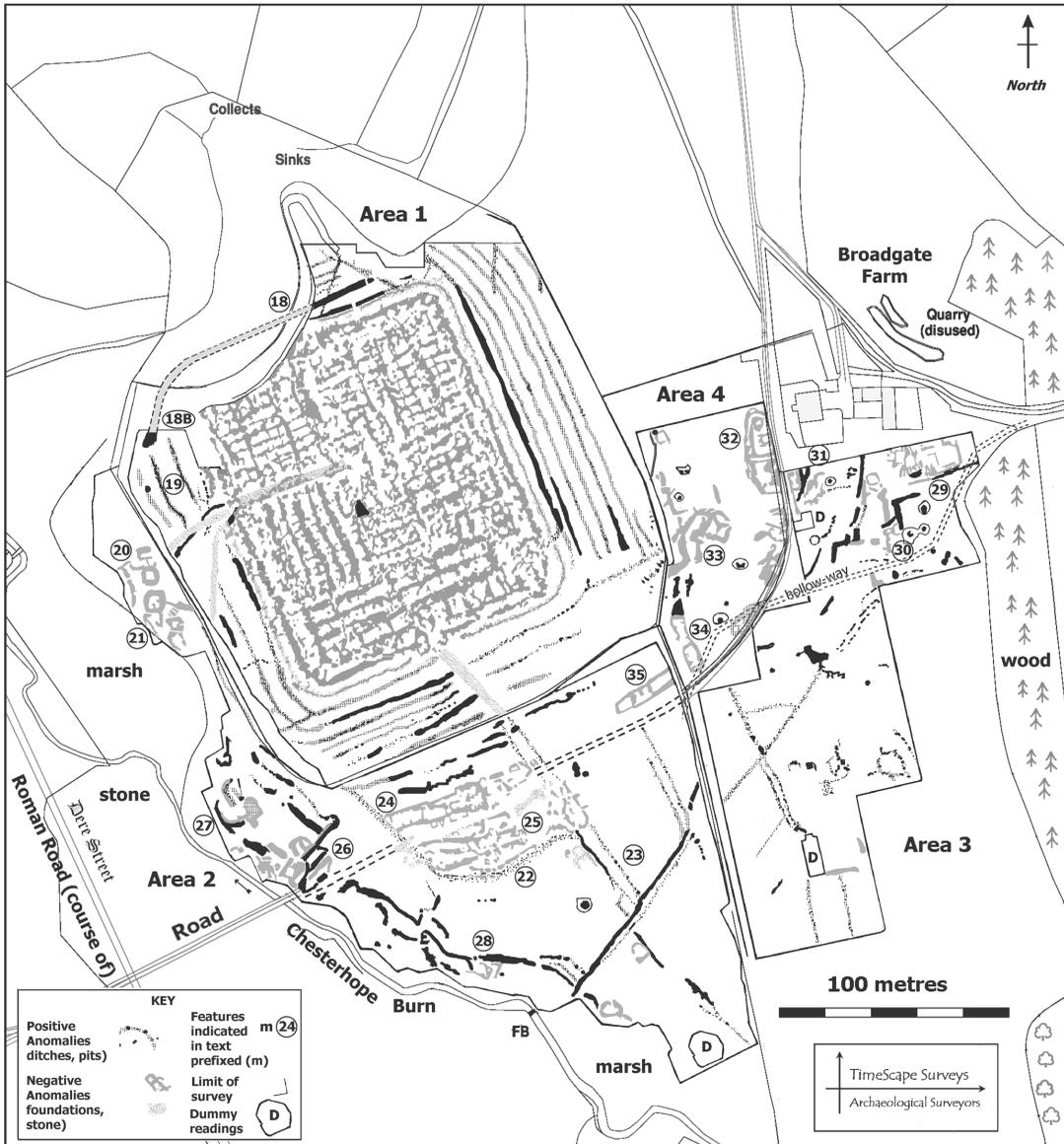


Fig. 6 Magnetic survey anomaly plan. The numbered features are described in the text. Within the northern half of the fort two areas of diffuse response, possibly the result of stone robbing, have been highlighted with a grey background.

enclosure; in doing so they appear to cut the western ditches which do indeed begin to curve at their southern aspect. It is difficult to escape the conclusion that these five ditches were used primarily for agricultural purposes, and are probably not contemporary with the fort. This is not to say that the Roman defences were not modified at a later date.

The western ditches (fig. 4, 7) are almost certainly defensive features. Three of them continue to the northern edge of the fort platform where, due to erosion, they end peremptorily, this being in contrast to the orderly configuration of the eastern ditches. The western ditches are cut by a causeway (fig. 4, 8) which leads directly west from the fourth-century west gate (now the *porta praetoria*), which has been cut through the earlier Severan wall. It is reasonable to assume that from here a road crossed the Chesterhope Burn to join Dere Street, although some 30–40 m of ground have been eroded and this is now marshland; there is no trace of any bridging structures. There was no evidence remaining of a superseded causeway leading from the original west gate.

Magnetic survey (figs. 5 and 6)

One group of features (not evident as earthworks) is a pair of ditches running across the spur to the north of the fort, 6–7 m apart. The inner ditch is 7.2 m from the curtain wall and 1.6 m wide; there is a possible small causeway offset to the east from the gate. The second ditch is 17.5 m from the wall and 2.5 m in width, and gave a much more substantial magnetic response (fig. 6, 18); it had a causeway towards its eastern end. It is likely that this ditch traversed a more substantial spur, since lost, and joined the small section of ditch (fig. 6, 18B) to the west. Beyond the northern ditches, and running parallel with them, are three much less substantial ditches, possibly the remains of agricultural furrows. Two ditches emerge from the fort walls, possibly from latrines or drains, and cross the largest ditch (fig. 6, 18).

The western ditches (fig. 6, 19) gave much less intense magnetic responses than their northern counterparts. This seems to suggest that they are of no great depth, even though the earthworks themselves (the banks between them) are well formed. Similar responses were recorded from the southern and eastern ditches. However, the lack of responsiveness may be due to the absence of anaerobic conditions with enhanced magnetic susceptibility due in part to the well drained sandy soil. One of the eastern ditches, nearest the curtain wall, is significantly different in character, as determined by the earthwork survey. The magnetic response was much greater (comparable to the northern ditch). It is possible that this indicates the route of a drain; certainly a drainage gully seems to emanate from the location of the bath-house.

THE CURTAIN WALLS AND THE INTERIOR OF THE FORT

Earthwork survey (fig. 4)

The fort walls have been largely robbed of facing stones, except at the north-east corner; round the majority of the circuit they are represented by an earth and rubble bank standing 0.5–1.2 m internally and 2.5–5.2 m externally. From these earthworks it can be determined that the fort has dimensions of 148 m north-south and 122 m east-west: an area of 1.81 hectares (4.53 acres). This was relatively small compared with the garrison it later had to house. The west and south gates are indicated by gaps in the bank, which on the north side is partially eroded; there is no evidence of an east gate. The eastern guardchamber to the north gate appears to protrude (fig. 4, 9), and seems to be in better condition than the excavated southern and western gates. It is possible that the north gate was of the same style as the southern gate, but whether it was ever used is questionable. Judging from one of the postulated former routes of the River Rede, the channel that was occupied during the Roman period (fig. 2) may

have been no more than 50–60m away from the gate. If so, only one bridging point for the road across the Rede would have been required and this northern gate might have been of little use.

Some interval towers are visible, but only as very low earthworks. Although there does not appear to be an eastern gateway an interval tower may be present (fig. 4, 10); Bell's survey shows three towers equally spaced along the eastern curtain wall. Two possible towers, almost superimposed (fig. 4, 11), appear to be present on the western wall. If the assumption is made that the original earlier fort faced south, these could relate to the original *porta principalis dextra*.

A perfunctory glance at the arrangement of the internal earthworks suggests that the general alignment is not that expected of military buildings. This is particularly evident within the northern sector of the fort where buildings are offset, by several degrees, from the cardinal axes of the fort. At Vindolanda this form of construction has been indicative of civilian occupation after the military had abandoned the fort (Biggins *et al.* 2008); this could represent sub-Roman or later medieval activity. These earthworks were detected more readily by the earth resistance survey.

Birley discussed the early antiquarian history of the fort and stated that a smallholding existed within the curtain walls until 1822 (Birley 1961, 235–40). The extent of the buildings (described as a cottage) is not known. Certainly on Bell's plan a small cow shed is marked adjacent to the *principia*. (Swinburne 1844, pl. III, opp. 158; Birley 1961, pl. XV, opp. 240). Within the north-west corner of the fort foundations were detected, which were offset some 25 degrees from the expected Roman alignment (fig. 4, 12). This building is located within an area referred to by Bell as a 'level part of the station', and appears to be contained within a small enclosure 39m by 36m in size.

Within the north-east corner of the fort, a curvilinear wall (fig. 4, 13), some 53m in length seems to straddle half the width of the fort, perhaps enclosing a cottage garden or small stockade. Directly south of that feature, next to the eastern curtain wall, are the remains of buildings aligned *per strigas* and redolent of barrack block construction. The central spine of the fort contains perhaps the most complex set of earthworks (fig. 4, 14) which stretches for about 90m along the longer axis of the fort. This is likely to include the later *principia*, *praetorium* and perhaps some granaries; the probable site of the original *principia* is located towards the south of this complex. An area, which appears to have been levelled, lies between the centre of this bank of earthworks (fig. 4, 14) and the western interval towers (fig. 4, 11).

Towards the south-east of the fort, within that area which would have formed part of the original *praetentura*, a block of earthworks (fig. 4, 15), 30m by 20m, represents the site of a large building. Farther south, the site of the bath-house excavations (fig. 4, 16) has, not surprisingly, been levelled, but adjacent to it are a number of prominent earthworks hard against the southern curtain wall. These features were noted on Bell's survey. Within the south-west corner of the fort the earthworks (fig. 4, 17) and resemble barrack blocks.

Magnetic survey (figs. 5 and 7)

The immediate overall impression is of a fort with a very high density of buildings, which are built very close to what is taken to be the Severan curtain wall (fig. 7, 1). It is assumed that most of the high-quality facing-stone has been robbed from the wall. There is some ambiguity about the significance of the magnetic responses. Superficially it would seem that the major

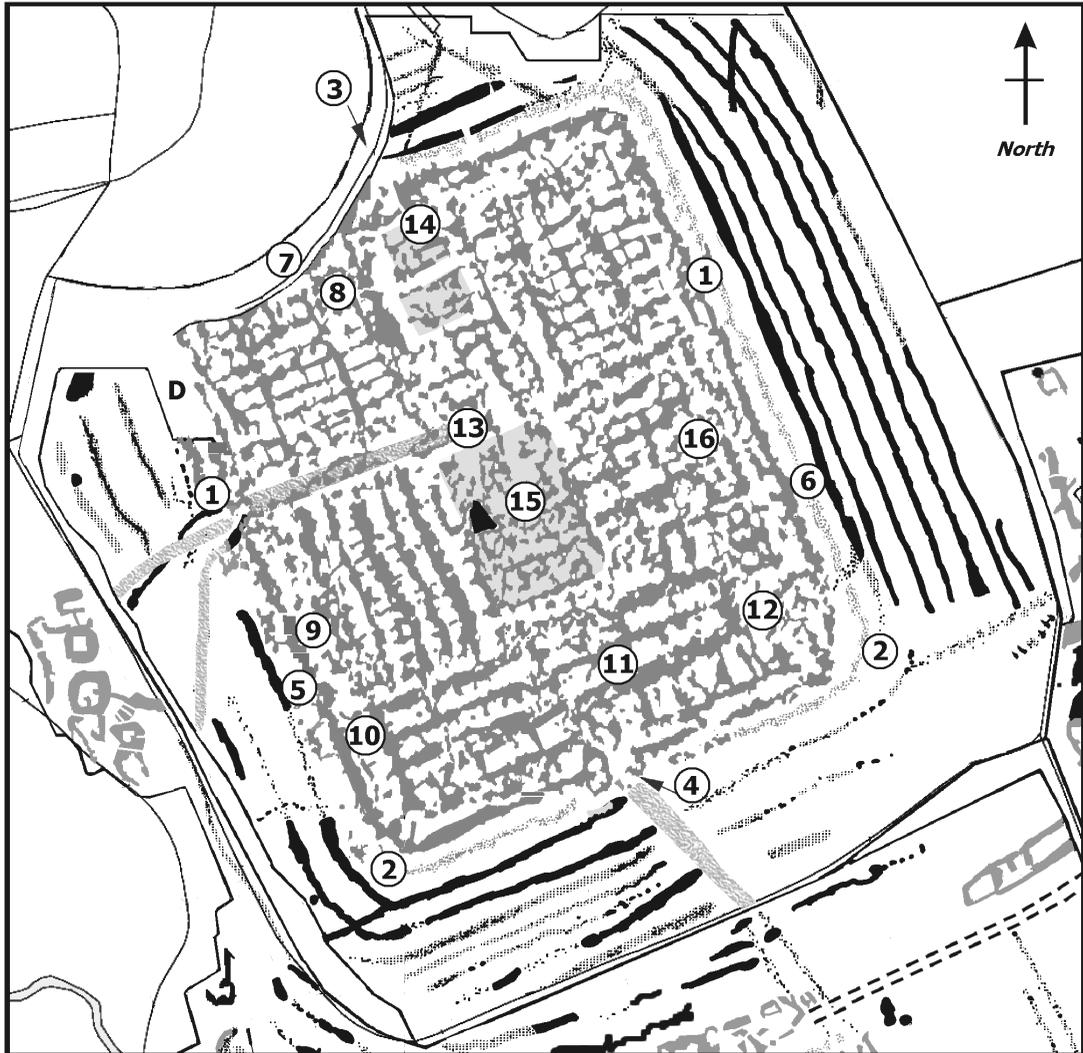


Fig. 7 The Magnetic survey, grey-scale plot, of the fort. The numbered features are described in the text.

(strongest) negative magnetic anomaly should relate to the curtain wall and it is this which corresponds to the visible masonry in the north-east corner. This strongest response is located at the top of the slope of the fort platform. There is however another, less intense response, which is found on the sloping ground below the curtain wall surrounding the fort (fig. 7, 2). Jumping ahead to the resistance survey, if this is superimposed upon the magnetic survey it indicates a broad band of high resistance material, probably rubble, associated with the eastern wall spread, from the top to the bottom of the slope. The western wall is different. There are three distinct high resistance linear features, which together measure some 10–12 m wide. The western linear feature appears to be at the bottom of the slope and is associated

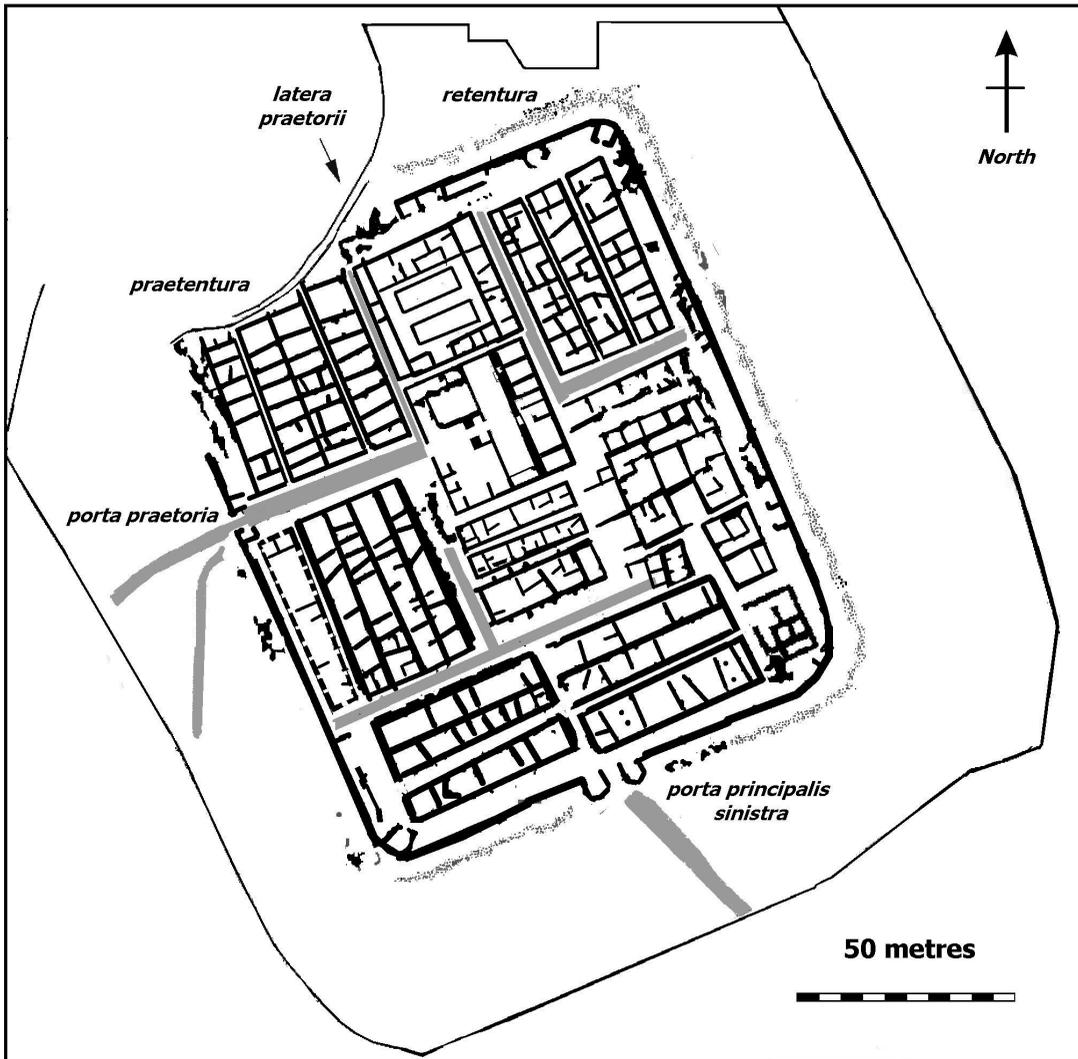


Fig. 8 Interpretive plan of the fort.

with the strong negative magnetic response. The towers and guardchambers reflect the strong magnetic response (i.e. the top of the slope).

It is perhaps perfectly possible that another robbed-out earlier wall is located at the base of the slope, and this may have implications regarding the sequence of fort construction — suggesting the presence of an earlier fort. Richmond's section through the western rampart seems to be abridged, and it does not descend to the base of the slope (Richmond 1936, pl. XVII, opp. 198). Here the westward Severan level is cut off, just beyond the good quality masonry. It is possible that Richmond did not extend his trench far enough and that there is another wall, which would imply a larger, earlier fort. The survey evidence supports a wall or some

linear masonry structure, approximately 2.5 m wide and quite discrete with well-defined margins. In places the response is in the region of -12 nTeslas; however, in many others it is clear that the wall has been thoroughly robbed. The feature could be a ditch filled with masonry, but it does not appear to be tumble from the extant curtain wall and, as it has maintained its integrity, it appears to have been formed deliberately. It is quite possible that this forms the foundation to a curtain wall some 1.5 m wide with offset foundations similar to that evidenced elsewhere (e.g. at Birdoswald: Wilmott 1997, 55, 70–1). The standard Roman methodology when building a new fort on an existing site was to cover the former site with a thick bed of clay or similar material to act as a base for the new foundations. It is possible that the assumed 'natural' ground surface seen by Richmond was this deposit.

Three gates are plainly evident; the north (fig. 7, 3) and south gates (fig. 7, 4), according to Hodgson were described as '... very distinct ...', and on his plan both northern gate-towers appear to have been intact, as was the north-west corner (Hodgson 1827, 180). Bell's (slightly later) plan shows a similar state of preservation. Since then the eastern tower of the north gate and the corner tower have gone. The west gate has two towers and the south gate two polygonal towers (Richmond 1936). The magnetic response from these excavated areas is muted. This is often the case following excavation when the spoil is replaced in a random manner. The possible site of an earlier west gate and tower can be seen midway between the south-west corner and the extant west gate (fig. 7, 5). Either this tower stood proud of the wall, as at the south gate, or it was aligned on the earlier curtain wall. The difference in orientation of the internal buildings south of the projected line of this postulated gate may indicate the location of the *praetentura* of the earlier, south-facing fort.

A road leading from the west gate, directly towards Dere Street, also branches towards the south, although this may be a post-Roman track. The road leading to the south gate within the fort appears to be blocked in the final phase of the fort. Strangely there is no evidence of an east gate and there was no evidence of a road leading east out of the fort. The tightly packed buildings and the absence of an east gate and the road leading to it would leave more space for the construction of buildings. Richmond's excavation shows that the curtain wall had been rebuilt at least once, but the eventual picture may be more complex than was envisaged. The north-west corner (fig. 7, 7) has been destroyed by post-Roman erosion.

As Richmond envisaged, the original fort evidently faced south and had a conventional layout (figs. 7 and 8). Following the final phase of reconstruction, the *praetentura* may have extended the whole length of the north-south axis of the fort. Only one obvious internal road is visible (fig. 7), the *via praetoria*, which enters through the rebuilt fourth-century west gate, and is some 5–6 m in width with a length of 50 m. Alongside its southern edge runs a drain, which emptied outside the west gate, possibly into a drain which ran parallel to the western wall and then into the low lying ground near the River Rede. Conventionally this road should terminate at the *principia* (fig. 7, 13).

It is probable that more than one period of reconstruction is visible. The assumption has been made that the *principia* was located centrally at the end of the *via praetoria* (fig. 7, 13). If this is the case, the northern part of the building appears to be in a better state of preservation than that to the south. That side, and the area to the south, gives a diffuse response which sometimes indicates that significant stone robbing has taken place. The two northern rooms of the *aedes* appear to be well-preserved, as does the cross-hall. A strong response from a room (or walls) adjacent to this hall was detected suggesting a *portico* or forehall. The original plans revised by Richmond (1936) gave a theoretical depth of 31 m for the building.

A highlighted magnetically 'neutral' area on the magnetic anomaly plan (fig. 6), suggests that the site adjacent to the later *principia* (including the *praetorium* and granaries) has been partially cleared of stone. A peristyle courtyard building appears to block access to the north gate; this is possibly the *praetorium* (fig. 7, 14) with dimensions of 31 m east-west and 30 m north-south. Unusually, the central courtyard appears to be sub-divided east-west. Alternately, the central linear positive anomaly could indicate the path of a drain, which might have run under the courtyard.

Directly south of the *principia* are three buildings, the most southerly of which appears to be a granary with dimensions of 30 m by 12 m. The intermediate buildings (or single wide building) are more difficult to define (fig. 7, 15). They are of the same length as the 'granary', but may represent more robbed-out foundations. Taking into account the anticipated size of the garrison it is likely that at least one of these was also a granary. The southernmost of these buildings is on the site of the earlier *principia* sited on the axis of the south gate. Fronting these buildings towards the west, it is possible there may be a narrow road. There are indications of building foundations in association, but these may belong to an earlier constructional phase.

The *praetentura* is effectively subdivided into three sections, with the north-western sector having the appearance of very closely positioned barrack blocks (fig. 7, 8), arranged *per strigas*. Their dimensions are 46 m long and an average of 11 m wide, although the fact that the buildings are closely spaced makes it difficult to differentiate between parallel walls. At their northern limit, traditionally where the centurion's quarters were located, three of these blocks have been partially eroded. Internal sub-divisions can be observed and it is likely that eight *contubernia* are present.

Within the central part of the *praetentura* are at least four, possibly five, barrack blocks, 46 m in length with a combined width of 35 m (fig. 7, 9). This gives an average width of about 6.5 m (assuming five blocks); additionally, near to the curtain wall, there is a more diffuse area of stonework, which might be a barrack block, although the sub-divisions of the *contubernia* are not apparent. Richmond stated that buildings near the west wall left very little of the rampart remaining, so technically a building could be inserted here. These blocks are also arranged *per strigas*.

At the southern end of the *praetentura*, a block of three buildings — possibly barracks, one of which seems to be a double construction — are aligned *per scamna*. These have a total width of 17 m and 10 m for the double and single buildings, respectively, with a length of 44 m (fig. 7, 10). This group of buildings seems to conform to the original (south facing) orientation of the fort. Evidence of the remains of the former *via principalis* is limited and has probably been built over, leaving a narrow (2–3 m) access route. None of the division walls to the barrack blocks suggests separate units or chalets.

East of the three buildings in the southern part of the *praetentura*, the configuration of the earlier (east-west) *praetentura* seems to have been maintained, with three large buildings (fig. 7, 11) extending beyond as far as the internal bath-house (fig. 7, 12). These buildings are 43 m long, which seems to be a more or less a standard length, but one is 12 m wide and the other double-block of 16 m; a span of 8 m. A 12 m span is an unusual width, which would imply some internal supports, such as an aisled structure.

The location of the bath-house has been attested by excavation (fig. 7, 12), and from the plan appears to measure some 12 m by 16 m. There are some indications that foundations still remain and the entire extent of the building may not have been excavated.

The north eastern sector of the *retentura* contains three buildings, 43 m in length and either 8 or 9 m wide. These have the appearance of barrack blocks containing eight *contubernia* with the officer's quarters at the northern end, which are traditionally located next to the *via sagularis* (Taylor 2000, 33–4). It is possible that a fourth block, rather than the road shown in the interpretative plan (fig. 8) may be present next to the *praetorium*. The evidence of a building located there is not so compelling and what may have been detected is an earlier phase of construction. These buildings are arranged *per strigas*.

The central sector of the *retentura* is difficult to decipher and may represent several phases of construction, but in the main the buildings appear to be of block design rather than of linear configuration. One building is aligned east-west, possibly parallel to a narrow road, across the width of the *retentura* (c. 33 m). South of that is a building with dimensions of 25 m by 27 m, possibly with a central courtyard (fig. 7, 16). Such a building in that location may indicate a *valetudinarium* or a possible courtyard house, as seen at South Shields (Bidwell and Speak 1994, 35–9).

A much smaller building (12 m by 18 m) is located south of this larger complex. This too could be a workshop, whilst immediately west of that is a smaller building (13 m by 8 m) of unknown function, which for convenience will be called a workshop or storeroom, although there is no real supporting evidence for this. Some additional features such as the latrines and ovens may have been identified near to the curtain walls. Often these structures are of no great size and are difficult to recognise for what they are.

Resistance survey (figs. 9 and 10)

It is evident that the resistance survey has recorded the earthworks well. Comparison with the earthwork survey (fig. 4) shows that both surveys recognised similar features. This implies that the prominent earthworks generally, but not always, tend to be later features, whereas by contrast the magnetic survey tends to recognise deeper structures. It is possible that the near-surface features have very shallow foundations.

The north-west sector of the fort shows that the post-Roman, possibly medieval (or later) features such as the enclosure (fig. 10, 1), conform almost exactly to the earthwork survey features (fig. 4, 12). To the north-east the *praetorium* (fig. 10, 2) and barrack blocks (fig. 10, 3) were detected. Within the central area of the fort where the *principia* is to be expected, only some of the features were apparent. These include the walls to either side of the road leading from the gate to an enclosure. (fig. 10, 4). This was seen as a sub-circular feature which could be a later, possibly medieval, stock pen, accessed from the west gate.

Behind the *principia* in the *retentura* a sub-rectangular low-resistance feature (ditch or robbed out stonework) was detected (fig. 10, 5) and this corresponds to elements of the large, courtyard building detected by the magnetic survey (fig. 7, 16). In the *praetentura* the 'cleared area' seen on the earthwork survey (east of fig. 4, 11), shows little in the way of sub-surface features (fig. 10, 6), apart from a few trace linear elements arranged *per strigas*. This appears to confirm that the well-preserved barrack blocks, detected by the magnetic survey possibly extend some depth below the surface but, importantly, may not have been disturbed by stone robbing.

The southern part of the fort shows some elements of the long buildings (fig. 10, 7), possibly barrack blocks, which were identified by the magnetic survey, but nowhere in as much detail. One of the most important findings of the resistance survey was within the small

sector taken across the western curtain wall (fig. 10, 8). This showed three parallel high-resistance linear anomalies, with the most easterly one corresponding to the *intervallum* road (*via sagularis*), or possibly to the post-Constantian wall excavated by Richmond (Richmond 1936, pl. XVII, opp. 198). The middle anomaly coincides with the curtain wall, which is thought to have a Severan date. The outer anomaly, which appears to be located at the base of the slope, was not, according to Richmond's plan and elevation, excavated. The high-resistance values confirm the data from the magnetic survey and suggest another wall runs along the base of the slope. This cannot be proven, as geophysical survey is not a dating tool, but an earlier date has been proposed suggesting a fort of pre-Antonine origin.

The existence of this possible earlier fort is also supported by evidence from a transect across the eastern wall, which by contrast, shows a single, but broad high-resistance anomaly (fig. 10, 9), with a width of 7.5 m. This probably indicates a conflation of several linear anomalies, but the magnetic survey evidence (fig. 7, 1) suggests that two linear stone features are present; the later Severan wall and another wall at the base of the slope, separated by a gap of 4.5 m. The modest slice across the southern wall near to the south gate shows a relatively narrow feature (fig. 7, 10), much narrower in width (4.5 m) than the other examples.

EXTRAMURAL SETTLEMENT

Magnetic survey (figs. 5 and 6)

The land outside the west gate and the possible defensive ditches forms a narrow strip which has evidently been eroded to some extent by the Chesterhope Burn. This area extends 77 m to the burn and 91 m to Dere Street from the ditches (respectively 107 m and 123 m from the west gate). It is apparent that a road leaves the west gate and leads towards a group of structures (fig. 6, 20), one of which is highly responsive (+150 nTeslas), probably indicating a kiln, stoke-hole or furnace, about 6.5 m square. (To put this value in context, the average response from the building interiors within this fort is in the region of 25–30 nTeslas.) This is associated with a less responsive structure towards the north, whilst to the west a larger building, some 18 m north-south, has been eroded on its western side. It is not certain if this group of anomalies represents one building complex. A second complex, 8 m square, has a very highly responsive interior (+200 nTeslas), again indicating some element of burning or heating (fig. 6, 21). Associated with this anomaly are other foundations, set upon the same alignment, but which have been eroded by the burn. Together this complex measures 18 m by 20 m.

Leading obliquely from the south gate of the fort is the road discussed earlier (fig. 3, 4), which, once beyond the defensive ditches, passes what appears to be an enclosure on its western side. This enclosure (fig. 6, 22) is located on slightly higher ground and is surrounded by a ditch, which is very evident on the south and west. The size of this enclosure is 70 m east-west and 62 m north-south (a total area of 0.43 ha), although there is no remaining evidence of any related earthwork. The road appears in much degraded form to continue towards the south-east, through the relict field boundary, and towards the edge of the survey (fig. 6, 23).

Contained within the ditched enclosure are two long buildings, which may be of more than one phase, but which are built upon almost the same alignment. The northerly complex (fig. 6, 24) is 47 m in length and 12.5 m in width with some internal sub-divisions visible. Additional, less well-defined foundations are present towards the east (20 m by 12 m) fronting

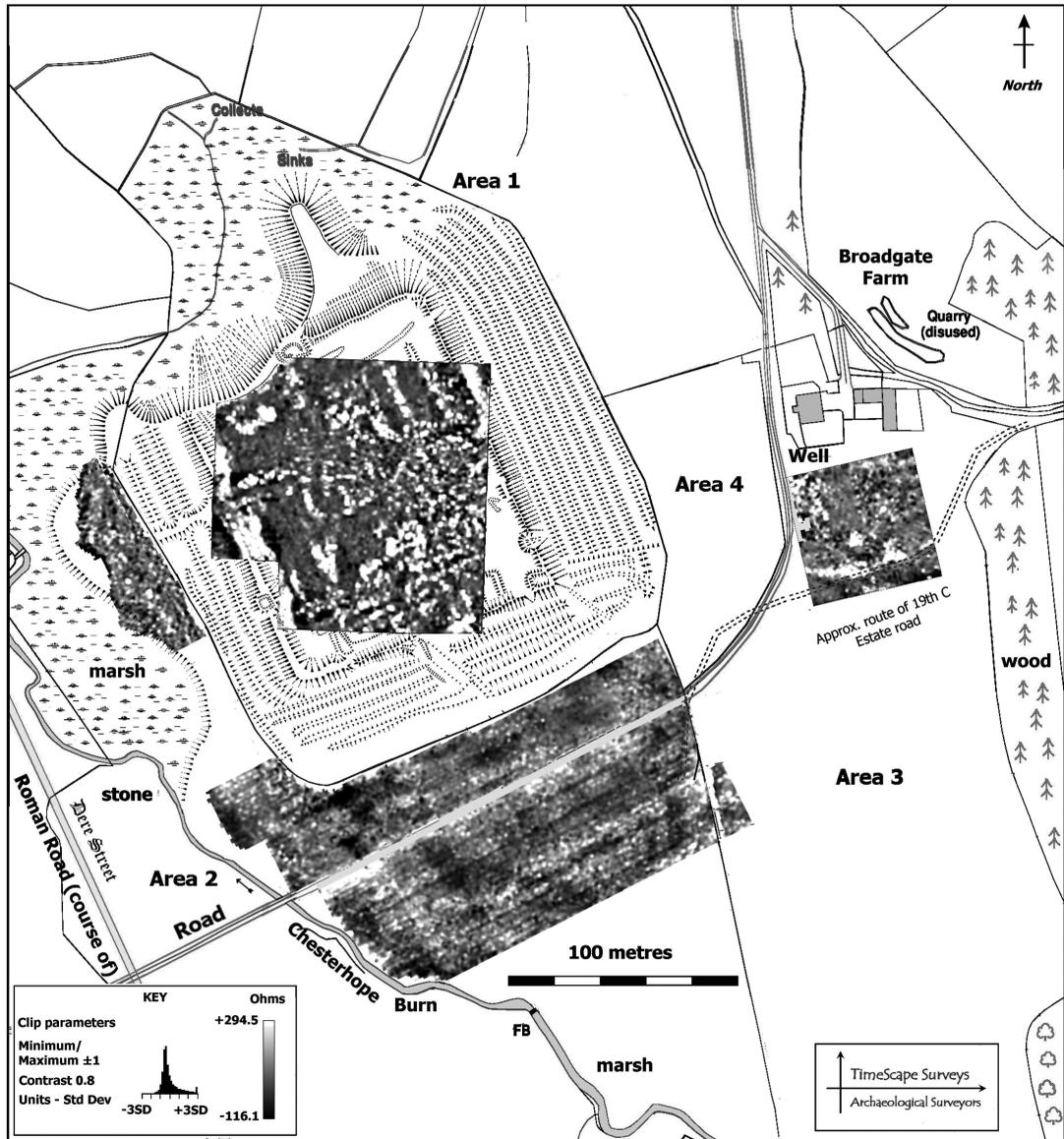


Fig. 9 Earth resistance survey grey-scale plot, superimposed upon the earthwork survey of the fort. This type of survey, because of its slower application rate, was necessarily targeted upon perceived areas of interest.

onto the road. About 8m south of that complex is another irregular complex, measuring up to 44 m by 23 m in size (fig. 6, 25), although more than one phase may be represented. In view of their locations, these buildings may be associated with storage compounds. It is unlikely that they represent a *mansio*, with an associated bath-house, as the responses suggest no evidence of fires or furnaces.

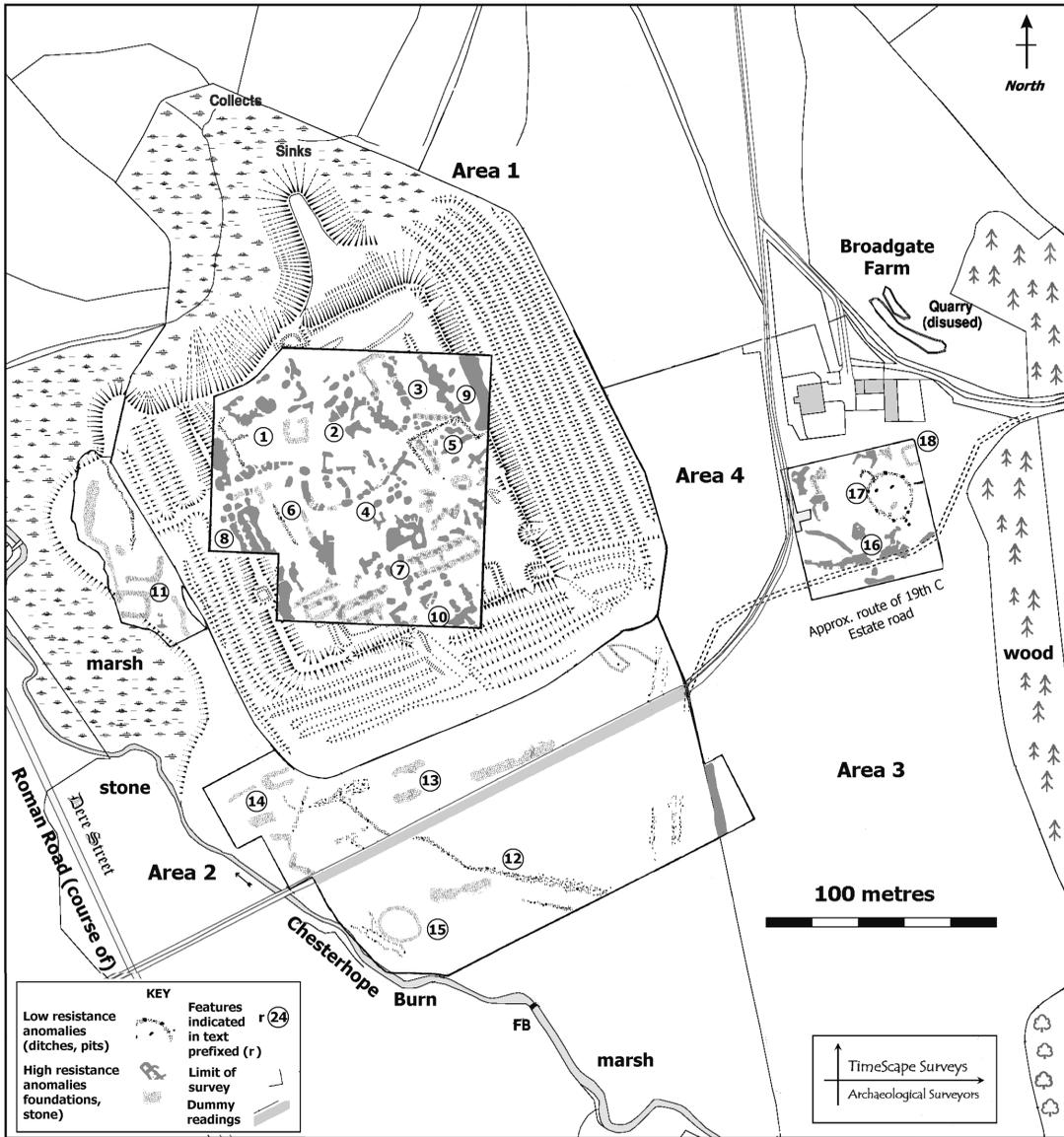


Fig. 10 Earth resistance survey anomaly plan. The numbered features are described in the text.

Towards the point where the modern road crosses the Chesterhope Burn there are a number of strongly positive linear features (fig. 6, 26), which are between 16 and 18m long, possibly associated with stonework towards the west. This complex may have been dug into an embankment; the total size is 35 m by 28 m. To the north-west is another building of irregular, but essentially rectangular, shape with dimensions of 25 m by 18 m (fig. 6, 27). Either or both of these two features may be representative of a bath-house. Some of the responses from

feature 26 were as high as 200 nTeslas but are fairly narrow in width. Feature 27 has broader responses but does not have the massive magnetic spikes of feature 26. These readings could be indicative of a furnace or other source of burning. An additional clue to their function may be provided by the sinuous linear positive anomaly that follows the path of the contours, 2–3 m above the Chesterhope Burn (fig. 6, 28). It is likely that this feature marks the route of an aqueduct serving a putative bath-house; it is improbable that the Romans would use the burn as their water source: aqueducts from springs are attested at other forts including High Rochester, Bewcastle, Halton Chesters, Great Chesters, Vindolanda and Castlesteads

Just south of Broadgate Farm, in Areas 3 and 4 (fig. 6) is a group of very prominent earthworks. At present some of this area is overgrown with rushes so it is difficult to understand why the original estate road (indicated by dotted lines) — an appreciable hollow-way — took this route to the south of these earthworks (fig. 6). This road, which is readily seen on aerial photographs, flanks a group of possible enclosures and small buildings, which were detected by the magnetic survey. On the western side of the Chesterhope Burn this earlier road is again represented by a hollow-way which leads up to Dere Street. It is not known whether these structures are Roman in origin.

It seems probable that the modern buildings of Broadgate Farm overlie some of these earlier foundations. An indeterminate building is surrounded by a ditch (fig. 6, 29), perhaps constructed in the style of the small fields seen to the west of the fort at Housesteads (Biggins and Taylor 2004). To the south of that feature, a small pair of kilns were recognised by their strong magnetic response (fig. 6, 30). This may be next to the partial foundations of a building, although interpretation is hampered because more than one phase of construction may be visible. Further south, linear features were observed which could indicate the boundaries of small fields; many such enclosures were seen within the extramural settlement at Castlesteads (Biggins and Taylor 2007; Biggins 2011, 452).

Near to the modern estate road, and also to the well, are a group of indeterminate but magnetically responsive anomalies (fig. 6, 31). Within Area 4, a large feature is located which may have been cut by the road (fig. 6, 32). It measures 37 m by 14 m, with the long western side appearing to be curvilinear. The building, if that is what it is, appears to be sub-divided laterally, with the northern walls, some 3.8 m thick, containing a central core, possibly of puddled earth, giving a positive response. Features such as this are reminiscent of Scottish black houses, although it is known that similar styled long houses are found in Northumberland, for example at West Whelpington (Evans and Jarrett 1987; Evans *et al.* 1988).

An L-shaped anomaly (fig. 6, 33), 28 m by 30 m, exhibits very strong internal responses, but is structurally non-diagnostic. A simpler structure, 27 m by 8 m in size, is located just to the south (fig. 6, 34). Across the western side of the field boundary, a feature of similar dimensions, set at right angles, was observed (fig. 6, 35). Both of these could indicate building foundations, but a Roman origin is not assured. A series of cultivation terraces is sited on the west-facing slope to the south of Area 3. It is almost certain that these are post-Roman and possibly associated with many of the features discussed in Areas 3 and 4.

Resistance survey (figs. 9 and 10)

A small area of survey was conducted outside the west gate with the specific purpose of characterising any metalled road which led towards Dere Street. No such evidence was found, despite the positive response from the magnetic survey. However, the partial outline

of two buildings was detected (fig. 10, 11), 16 m by 12 m, located within the same area as those foundations identified in the magnetic survey (fig. 6, 20 and 21).

The area outside the south gate was assessed to augment the magnetic survey data, but the resistance survey there was not very responsive. Little evidence was found of a road leading from the south gate, but a surrounding ditch (fig. 10, 12), seen to demarcate the enclosure shown by the magnetic survey (fig. 6, 22), was recognised as a broad low-resistance curvilinear feature. Within this enclosure little confirmatory evidence was found of any buildings indicated by the magnetic survey. Some vague high-resistance linear features were detected, but they could well indicate former ploughing regimes (fig. 10, 13).

Nearer the Chesterhope Burn some slight evidence of high-resistance sub-rectilinear features may indicate building foundations (fig. 10, 14), but the response was muted. Further south, an ovoid feature (fig. 10, 15) 16 m by 19 m, lies exactly on the route of the putative aqueduct (fig. 6, 28). It may indicate the location of an old sheepfold.

The final area studied (60 m by 60 m) was located near to Broadgate Farm. The earthworks here produced the strong responses discussed earlier with the magnetic survey. On the northern embankment, running parallel to the route of the estate road, was a high-resistance linear anomaly (fig. 10, 16). This probably indicates a relict wall enclosing the buildings and plots towards the north. A circular low-resistance anomaly (fig. 10, 17), of unknown aetiology, was detected; 18 m in diameter, it was, perhaps, a wooden pinfold. To the north and west were some high-resistance elements (fig. 10, 18) which correspond to foundations observed with the magnetic survey, and indeed to earthworks seen on aerial photographs.

In summary, the resistance survey, particularly within the extramural areas, proved not to be as informative as hoped. The lack of definition or contrast is probably attributable in part to the constant wet weather throughout the year.

DISCUSSION

The location of the fort, in relation to the bridge over the River Rede and to Dere Street, would seem to be a paramount consideration. Clearly, local tactical command of the ground was not a major concern — given that the ridge to the east provides commanding views over the fort. The fort may have been strategically sited as a staging post along Dere Street, with the additional limited tactical benefit of guarding the crossing of the Rede.

The original south-facing fort at Risingham was similar to that of High Rochester, the next fort to the north. The later re-arrangement of the fort to face west — thus placing the *latera praetorii* along the long axis of the fort — is difficult to explain. This would call for a radical rethink in the dispositions of the major administrative buildings, of the storage and the officers' living quarters, not to mention the realignment of the barracks. This re-arrangement of the fort to face west can have had no practical tactical advantage. There is also no overwhelming evidence that the north gate was never used as it is not known how much land has been lost by erosion. It should be noted that Hodgson shows a road leading from the north gate and turning towards the east (Hodgson 1827, fig. 8). All the evidence, however, points to there being no functional east gate, and eventually the south gate was reduced to one portal, and possibly later to a postern gate.

It is clear, particularly from Richmond's excavations, that in the final phases of the fort all available internal space was used (Richmond 1936). Structures appear to have been built within the turf rampart-backing almost up to the curtain wall, a situation similar to that at

High Rochester (Crow 1999, 192, fig. 4). The buildings within the northern portion of the fort, between the later *via praetoria* and the now absent *via decumana*, would appear to be of a different character to those of the south and the evidence could suggest that they were back-to-back barracks. In all, there could be at least 16 barrack blocks, although they may not all be contemporary. The morphology of the buildings to the south of the *via praetoria* and in the south of the *praetentura* would appear to be of a contrasting character to those mentioned above, having strongly defined walls. This could suggest well-preserved deposits of two lines of either barracks or stores, from a later building phase. This difference in character could be brought about due to the nature of the occupancy of the buildings. If, as has been suggested, any army units in transit were to be housed within the fort, it would be natural to segregate them and house them in a separate part of the fort to that occupied by the permanent garrison. The buildings in the north of the fort appear to be less well built than those to the south and this area is also directly controlled by the siting of the later *principia*. Significantly the granaries and other buildings of a specific nature are sited to the south.

The barrack blocks are highlighted in the interpretative plan (fig. 8). Some of them are built very closely together and several may have been double. These closely constructed barracks, with as little as 18 inches (460 mm) space between them, are seen elsewhere, as at Birdoswald (Richmond 1929; 1931; Biggins and Taylor 1999; Crow 1999, 193). At Risingham there are appreciable differences, not in length which is within the range 44–46 m, but in width. Those in the north-west of the *praetentura* are much wider, perhaps suggesting a different function or a change in function. The overall dimensions of barrack blocks have been discussed elsewhere in some detail, and these have been derived largely from excavated examples (e.g. Bidwell 1991; Taylor 2000, 146–8, tables 11–13).

Maxfield (1981, 59) has argued that the later garrisons were generally more diverse, comprising cohorts of *quingenaria* and *milliaria* strength, both cavalry and infantry, together with a *vexillation* and an *exploratores* unit, each with its individual requirements in terms of numbers, size and arrangement of barracks, stables and stores. In the early stages of a fort's occupation it is likely that the garrison will equate to its size. At Risingham, there is a growth over time of the garrison from a *cohors quingenaria equitata* to a *cohors milliaria equitata* supplemented by a *vexillation Raetorum gaesatorum* and the *exploratores Habitancenses*: a unit of unknown size. The survey shows the latest manifestations of barrack construction at the fort, which probably equates to the fourth century.

The *latera praetorii* is a much more complex area to discuss, and appears to be chimerical in design. The southern sector of the fort seems to have retained the physical boundaries of the former *praetentura* (when the fort faced south). Little regard, or indeed space, seems to be allocated to internal roads, and certainly buildings were constructed over any road that formerly led to the south gate. Conventionally, granaries are located next to the *principia*, and there may be two or three sandwiched between there and the barracks which stretch across the southern *latera praetorii*.

Importantly, the survey indicated possible evidence of a curtain wall at the bottom of the slope outside the extant curtain wall, which could suggest the presence of an earlier larger fort. The survey evidence supports the presence of a wall or some linear masonry feature with quite discrete with well-defined margins. The area contained by the outer curtain would have been approximately 132 m by 155 m enclosing an area of 2.05 hectares (5.13 acres), significantly larger than the extant fort. It would seem improbable that there would have been no fort on Dere Street between High Rochester to the north and Corbridge to the south, a

distance of 25.5 miles (40.75 km), at the major crossing of the River Rede before the reign of Antoninus Pius. This feature could be evidence for an earlier fort which was reduced in size following the establishment of the Antonine frontier.

Interestingly, the fort of High Rochester has a curtain wall of Antonine date measuring 148 m by 136 m, enclosing an area of 1.86 hectares (4.5 acres). This compares well with the area within the extant Antonine curtain wall at Risingham of 1.81 hectares (4.53 acres) and raises the possibility that both forts were the subject of the same imperial order.

The survey has revealed very few buildings outside the fort itself and in this respect the results are similar to those at Bewcastle (Taylor and Biggins 2012); in contrast, many more buildings were seen outside the fort of High Rochester (Hancke *et al.* 2004; Hodgson 2009, 168–70; Biggins 2011, 280, 359). This latter fort was sited in a much better defensive position and was larger than both Bewcastle and Risingham. The location of Risingham itself, lying on Dere Street between the Wall and High Rochester, would suggest that it was an important staging post for the Roman army. No evidence was seen for any temporary encampment outside the fort; in this location, at the head of a narrow valley, it may have been felt unwise to site any accommodation outside the curtain wall. This would suggest that any unit of the army in transit would be housed within the fort itself and could explain the apparent high level of occupancy.

The small enclosure outside the south gate, surrounded by its own ditch, could have been used as a waggon park or for the storage of goods in transit, and some comparison can be made with the annex at High Rochester. These military supplies, separate and distinct from those of the garrison, could have been stored within the enclosure; the buildings may have been storerooms or stables. The buildings found to the west and south-west of the fort probably have military associations. It is possible that some civil settlement has been lost through the building of Broadgate Farm. No evidence of any cemeteries was found as a result of the survey.

Without further excavation on site, little can be said about the dates of the later phases of the interior of the fort. By comparison with other forts in the Hadrian's Wall system, it is suggested that more activity took place around the second quarter of the third century, when the barracks at these forts were re-planned to form separate accommodation units or 'chalets', as at Housesteads, South Shields, and Wallsend (Hodgson 2003, 115–8, fig. 83; Rushworth 2009, 24–6). However, the survey was unable to detect such a change in planning arrangements. It is suggested that the Constantian phase proposed by Richmond could have taken place in first half of the third century and could have involved the re-planning of the barrack blocks, but not as separate units due to lack of space.

Although Risingham and High Rochester were reconstructed before AD 306, numismatic evidence appears to suggest the final abandonment, certainly of the latter, followed soon after in about AD 312 (Casey and Savage 1980, 79; Bruce 1978, 38; Breeze and Dobson 2000, 229, 241–2). The outpost fort at Bewcastle is considered to have been abandoned around the first quarter of the fourth century when Constantius withdrew troops from Britain for his field army to fight his rival Maxentius (Austen 1991, 43). There is no evidence to support any suggestion that Risingham was not abandoned at a similar date. It is worth noting that the etymology suggests an Anglo-Saxon origin for the name Risingham (Williamson 1942, 2–3).

Medieval activity, mainly in the form of small-scale pastoral use, is likely but has not been documented. There is evidence of cultivation terraces on the west-facing slope of the valley to the south of the fort which could relate to this period. The Roman road continued in use

under the name of 'Watling Street', as a major cattle-droving route into the eighteenth century (Warburton 1716). Later settlement is attested inside the fort until the early 1800s in the form of a farm cottage, or smallholding. Not all of the later features detected in the fort may be associated with this farmstead; it is perfectly possible that some are related to sub-Roman activity.

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