

# The marking-out of Hadrian's Wall

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## SUMMARY

*A small bank is visible along the northern edge of the ditch of Hadrian's Wall in various locations. The purpose of this bank is discussed together with similar features elsewhere on this frontier and on the Antonine Wall.*

## INTRODUCTION

THE USE OF FLAGS BY ROMAN MILITARY SURVEYORS to mark the salient points of temporary camps, and thereby aid their construction and occupation by the army on the march, is recorded by Polybius (VI, 27). On Hadrian's Wall, Welfare has recently discussed the marking out of the Vallum at Shield-on-the-Wall and suggested that a single line was created and other elements of the frontier marked out by a series of offsets (Welfare 2013, 87–9). The etching of shallow grooves on stones to mark the position of the next course of a wall is well known and still visible at some forts and milecastles on Hadrian's Wall (Hill 1995, 13). In their report on the excavation of the Wall at Sewingshields, David Haigh and Mark Savage noted that 'on either side of the Cat Gate, a series of small stake-holes was found running immediately alongside the northern edge of the foundations. These could only have been sunk easily before the foundation was laid and it is therefore possible that they represent the marking out of the course of the curtain in difficult terrain' (Haigh and Savage 1984, 74).<sup>1</sup> To the best of my knowledge, this particular observation is unique on Hadrian's Wall, though there are other possible examples of the line of the Wall's features being marked out preparatory to construction.<sup>2</sup>

## THE DITCH

In various places along the line of the Wall a small bank or mound is visible on the northern edge of the Wall ditch. It can be seen at the following locations:

- |                |  |
|----------------|--|
| T 23b–T 24a    | a fugitive feature in an area where the glacia is not spread smoothly;   |
| T 29a/b–MC 30  | there is a stony bank on the north lip of the ditch characterized as 'the counterscarp' (Wilmott 2009, 82, fig. 193) in a sector where the glacia, up to 17 m wide, is not spread smoothly (fig. 1); |
| MC 33–T 33b    | an intermittent low bank over a stretch about 10 m long;   |
| T 39b–MC 40    | a low bank almost triangular in profile;   |
| T 42b–MC 43    | a little to the east of Great Chesters fort, a section about 15 m long   |
| T 43b–MC 44    | just to the west of T 43b, a length of about 5 m;  |
| T 45b–MC 46    | just to the west of the modern road, a length of bank survives about 1 m long, but it is slightly higher than normal and may be a modern feature;  |
| MC 50–T 50b SW | there are several stretches where the bank survives in a field of rough pasture (fig. 2).  |



Fig. 1 Black Carts, looking east: the ditch, to the right, the bank and, to the left, the low mounds running north-south.

Characteristically, the bank is about 2 m wide and 300–400 mm high. It sits on the very edge of the ditch. It is difficult to photograph, but can be seen on Humphrey Welfare's photograph of the ditch and glacis to the east of MC 40 (Winshields) at the point where the main ditch ends, and also on Wilmott's photograph of Black Carts (Welfare 2004, 14, fig. 4; Wilmott 2009, 82, fig. 193). In some areas, there are rushes to the north of the mound emphasising its visibility (fig. 2).

In part of the sector from Hen Gap (T 29a/29b) to Limestone Corner the bank is different in scale and composition being larger, about 4.5 m wide and 700 mm high, and 'constructed of sub-angular, split, dolerite boulders and blocks up to 0.8 m long. These appeared to have been carefully laid rather than dumped, and the bank retained a cohesive structure' (Wilmott 2009, 88). This section needs to be placed to one side in this discussion in view of its different size and nature, which is unfortunate as this is the only recorded section across the bank.

Welfare (2004) has identified several forms of the ditch each of which affects the presence and dimensions of the upcast mound to the north:

1. the glacis, a smooth, low bank 'that emphasises the northern lip of the Ditch but which itself tapers gradually to the north over a distance of 10 to 15 m' (Welfare 2004, 10);
2. the counterscarp bank, a narrow bank where the ditch in the gaps is narrower than normal or where the ground falls to the north;
3. the one-sided ditch, where there is only a southern scarp;
4. the minimal ditch, where the bedrock is close to the surface;



Fig. 2 T 50a SW; the bank, looking east.

5. the combination of forms to be seen between T43a and MC 44, that is over Cockmount Hill and Allolee Rigg;
6. the artificial defences along the banks of the River Eden and on the shores of the Solway.

I have not identified the low bank on the north lip of the ditch in any area of Welfare's categories 2, 3, 4 and 6. It is only visible in category 1, and where the glacis occurs in category 5. Nor is it visible on the Turf Wall other than to east and west of T 50a SW.

A small bank or mound has been recorded on the south lip of the ditch of Hadrian's Wall at its eastern end, in a stretch where a series of pits lay on the berm (McKelvey and Bidwell 2005, 13–18). It lay on the southern edge of the ditch between the pits and the ditch. It was 1.70m wide and survived to a height of 270mm. It was formed of a layer of grey loam clay covered by yellow clay subsoil. It is noteworthy that the bank did not survive throughout the length of the excavation trench. Nor has a similar bank been recorded elsewhere along the Wall in this position.

### THE VALLUM

The existence of revetment banks or kerbs on both the north and south mounds of the Vallum is well known (Heywood and Breeze 2008; and as represented in Richmond's famous drawing reproduced in Breeze 2006, 85). These were usually of turf, though a secondary stone revetment was recorded at the north mound at MC 23 (Stanley Plantation) and a primary stone revetment at the south mound (Heywood and Breeze 2008, 98–102). Brenda Heywood also recorded a small bank of gravelly clay at the northern edge of the south mound at MC 42 (Cawfields) (Heywood and Breeze 2008, 115; feature 19). At Appletree, Tony Wilmott recorded two dumps of boulder clay, each 1.20 m wide and 200 mm high and formed of the upper levels of soil in the ditch, delineating each side of the north mound of the Vallum (Wilmott 2009, 109, 111–2, 119). It may be noted that the material subsequently dumped on the site to form the upcast mound spread a little beyond these small banks. At Limestone Corner, Wilmott also found small piles of earth at the north and south edge of the south mound, though he did not interpret them as marking-out banks (Wilmott 2009, 92, 97–98: features 224 and 300 or 299 on the section). This may be because they were not so clearly defined as those at Appletree and were also subsumed in the mound.

### THE ANTONINE WALL

Broadly similar features have been noted on the Antonine Wall. In some places, for example, a line of boulders lay along the edges of the ditch (Robertson 2001, 11): these can still be seen at Rough Castle. At Garnhall, Keppie recorded a line of cobbles along the southern edge of the ditch at intervals of between 0.8 m and 1 m, while on the north lip boulders were placed at intervals of 5 m, though in one area the boulder was flanked by smaller stones (Keppie and Breeze 1981, 238).

At Peel Glen, Keppie found a layer of boulders along the north edge of the upcast mound (Keppie and Walker 1989, 156), while at Tentfield Plantation Anne Robertson recorded a small mound which she interpreted as marking the northern boundary of the upcast mound (Robertson 1964, 194). The bank stood up to 0.6 m high and had spread to a width of about 4.5 m with the material forming the upcast mound running over the top of it. The mound was formed of yellow sandy material with a little clay and could have been derived from the top layer of subsoil in the ditch.

The existence of marking-out lines on the Antonine Wall may also be inferred from a particular aspect of the measurements on the frontier. The Wall ditch was 12 m wide from Seabegs to Bar Hill, with a berm of 6 m. To east and west, the ditch was narrower, often only half the width, but here the berm was widened so that the distance between the centre of the ditch and the north kerb of the rampart remained the same (Keppie 1974, 162). We may also note that the line of the elements of the frontier yet to be built must have been marked out. At Old Kilpatrick, for example, a gap was left through the fort ditches for the Antonine Wall rampart, the construction of which was to follow (Robertson 2001, 118).

### DISCUSSION

It is surprising that these low banks survive as visible features because it might be expected that, whatever their purpose, they would have been covered with spoil from the ditch as the glacia was created. So the question must be asked: are they post-Roman in date? The

appearance of such fugitive features at various places along nearly 50 km of the Wall suggests that this is highly unlikely. No post-Roman body would have been interested in cleaning out the ditch or redefining its edge, never mind over such a long distance in so similar a manner. Nor is there any evidence that the Romans cleaned out silt from the ditch, though few sections have been cut across the ditch and glacis, and even fewer published. At Burgh-by-Sands 'there were no indications that the ditch was recut' (Austen 1994, 38). To the west of MC 64 (Drawdykes), the ditch 'was filled uniformly with dark silty material'; at Heddon and at Black Carts only silt was recorded, whilst the Turf Wall ditch at Appletree appears to have been left to fill naturally (Richardson 1972, 331; Jobey 1958, 55; Wilmott 2009, 106; 89). At Walby 'there seemed to have been deliberate in-filling' (*Britannia* 7 (1976) 310).<sup>3</sup> In the face of this paucity of evidence, it is unlikely that the mound in each location resulted from later recutting of the ditch either by the Romans or subsequently.

Various reasons may be offered as the purpose of the banks and other features described above: markers; revetments; defensive, in that they heightened the sides of the ditch; protective, in that they prevented damage to the edge of the ditch; or, in the case of the boulders, the result of lazy actions on behalf of the builders.

#### *Markers*

As markers, the banks on the north lip of the ditch were strictly larger than necessary. As Humphrey Welfare has emphasised to me, a simple turning of the turf would have sufficed. Nevertheless, in constructing a large mound such as the glacis on both Walls — up to 18 m wide on the Antonine Wall — it may have been thought useful to create a clearly visible marking-out bank first. The banks recorded by Wilmott at Appletree, 1.2 m wide and 200 mm high, may have been such banks. On the other hand, the bank at Tentfield Plantation, 4.5 m wide, is substantial for a marking-out bank.

#### *Revetments*

The Vallum mounds were certainly constructed within revetments. The 'counterscarp' bank to the north of the Wall ditch recorded by Wilmott at Black Carts was largely composed of stones, still visible today, and the likely origin of these stones is the ditch so the bank could hardly have been created as a marking-out bank as the stone lay below the earth which normally appears to have been used for such a purpose. Its carefully-laid nature would suggest that it served as a revetment, and the smaller banks could have served the same purpose. In his report on his section across the ditch and glacis at Heddon-on-the-Wall, Jobey recorded that the upcast had slipped forward over the lip, which indicates that a carefully constructed revetment would have served the useful purpose of preventing more substantial slippage (Jobey 1958, 58).

#### *Defensive*

The effect of the bank was certainly to heighten the outer slope of the ditch (Wilmott 2009, 131), which was presumably part of the purpose of the glacis. This can be better observed on both Walls where the ground falls steeply to the north, for here the material from the ditch is heaped up to form a triangular-shaped glacis. It is possible that the bank on the southern lip of the ditch at Byker served a similar purpose. Geoff Bailey has suggested to me (pers. comm.) that the purpose of the boulders on the edge of the Antonine Wall ditch was to form an additional obstacle.

*Protective*

Millar suggested that the intention of the boulders on the north edge of the ditch of the Antonine Wall may have been to prevent the upcast material slipping back into the ditch (quoted in Keppie 1981, 239).

*Making life easy*

It is possible that the boulders removed from the Antonine Wall ditch and placed on its edge were dumped there because this was the nearest possible position for them to be placed. It is, of course, possible that the banks served several purposes. They certainly did heighten the outer lip of the ditch, but they could also have served as a revetment for the glacis. And, if the bank was created before the glacis was formed, they could also have served as a marking-out bank. We may surmise that they were regarded as a significant element of the building operation because the effect of creating the bank would have made the soldiers' task of removing the contents of the ditch onto the north side more difficult.

As noted above, it might be expected that the construction of the glacis to the north of the ditch would have covered the bank and that it is only where the glacis was not completed that the bank would be visible. Excavations across the glacis have been few. The poor survival of the mound on the south lip of the ditch at Byker suggests that ploughing and other post-Roman activity may have destroyed similar mounds. On the other hand, in view of the involvement of three legions in building the Wall, and of auxiliary troops in the construction of the Vallum, as well as the length of time it took to complete the frontier works, it would not be surprising if different methods were used to mark out the line of the various features, as Welfare (2004) has suggested, nor that some regiments did not indulge in such activities. Unfortunately, as all but one of the examples of the bank occur in the central sector of the Wall, where the original programme of work was disrupted, it is not possible to allocate stretches containing the bank to different legions.

A clue to the survival of these low banks, however, may be given by observation of the section of Wall to the west of T23b (fig. 3). Here, as John Hodgson noted, 'the earth taken out of it [the ditch] lies spread to the north, in lines, just as the workmen *wheeled* it out and left it. The tracks of their barrows, with a slight mound on each side, remain unaltered in form' (Hodgson 1840, 276). An accurate description, with the exception that the earth would presumably have been carried not in barrows but in baskets as depicted on Trajan's Column. Richmond described this phenomenon in the following way: 'the materials that have been dug out of it [the ditch] are lying on the outer margin, rough and unlevelled, as if the labourers had but left the work to obtain some refreshment, and were about to return to it' (Bruce 1947, 72). This unfinished work consists of low, wide mounds lying at right angles to the ditch, the north lip of which is sharp, except where disturbed by later quarrying. The mounds of spoil do not run out from the edge of the ditch but start about 3 m or so to the north, and therefore beyond the edge of the visible bank where it exists in this sector, and decline in height to the north, as does the glacis where it is completed. A similar feature may be observed at Black Carts (Wilmott 2009, 82, fig. 193). It would appear that in both areas the ditch diggers dumped their spoil a little north of the edge of the ditch before spreading it out. This approach would help account for the survival of the marking-out bank. In the sections where it is still visible, the labourers presumably had not pulled the dumped spoil back to level with the top of the bank, or had failed to fill in the space immediately to the north of the



Fig. 3 The mounds at right-angles to the ditch of the Wall (right) to the west of T23b, looking east.

bank with new material just as they had not filled in the spaces between the north-south mounds. Where no such bank survives we may presume that it had been incorporated into the glacia.<sup>4</sup> These unfinished sectors are important because they allow us to observe the process of constructing the glacia.

We should not be surprised that the full task of completing the glacia was not undertaken. The incomplete ditch at Limestone Corner is justly famous, but there are other areas where the ditch may not have been completed (e.g. Jobey 1958, 56). It is also noteworthy that in sectors adjacent to unfinished sections of the glacia, the work was of a different nature, as at Black Carts where Wilmott recorded the careful way that it was constructed (Wilmott 2009, 88).

We should also exercise caution in interpreting low mounds. In the report on her excavation of a section across the Vallum at Limestone Corner in 1952, Brenda Heywood notes that 'a bank of solid dark brown soil was added to the southern limit of the north mound' (Heywood 2009, 419). The unwary might have interpreted this as a marking-out bank, but in fact Heywood suggested that its purpose was to widen the north mound of the Vallum at this point so as to support the Military Way which was placed on top of the mound.

This paper has drawn attention to a minor aspect of the construction of Hadrian's Wall, but it is hoped that once attention has been directed to these features more will be found. It also emphasises the necessity for a proper, published survey of all elements of Hadrian's Wall.

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## NOTES

<sup>1</sup> I am grateful to Lindsay Allason-Jones for reminding me of this reference.

<sup>2</sup> Peter Hill has pointed out to me the deficiencies of this statement: no size is given for the holes, nor their distance apart; ranging poles, for example, need not be close together, indeed it is better that they are not. If 'immediately alongside the northern edge,' the stakes could have been driven in after the Wall was built.

<sup>3</sup> The excavator recorded 'a basal slot 1.4 m wide and 0.6 m deep' at the bottom of the ditch, *contra* Wilmott (2006, 33) who denies the existence of such slots.

<sup>4</sup> The situation is different at T50a SW. Here the upcast is about 17 m wide. To the west of the turret the northern edge of the mound is scalloped. To the east, there is no bank on the north lip of the ditch, but the upcast falls for 2–3 m to the north, then, after a wide depression, rises again; the northern edge is not smooth, but is not 'scalloped' as to the west.

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