

ART. XIX.—*Report of the Cumberland Excavation Committee for 1935.*

In presenting this Report, the Committee desires to place on record its sense of the loss which it has sustained through the death of its Chairman, Mrs. T. H. Hodgson. Her clear recollection of the work done by the original Cumberland Excavation Committee, in which she took so important a part, made her an invaluable member of the revived Committee, dealing as it has done largely with problems arising out of that work: and her insight into these problems, unimpaired by age and infirmity, has more than justified the unanimous wish of the revived Committee that she should preside over its meetings.

I. THE VALLUM AT HIGH HOUSE TURF-WALL
MILECASTLE, 50 TW.

By F. G. SIMPSON, M.A., Hon.F.S.A.Scot., *Director*,
I. A. RICHMOND, M.A., F.S.A. and
KENNETH ST. JOSEPH, B.A.

IT has long been observed that in the Birdoswald sector, where the Turf Wall and the Stone Wall run independently in the well-known loop, the Turf Wall and the Vallum run very close together (*Trans. N.S. xiii, 361*) and can be jointly studied in such sections as that cut by the Wall Burn at Appletree. So close do they lie, that during the excavation of the Turf-Wall milecastle, 50 TW, our gaze often wandered across the ploughed-down mounds and the ditch of the adjacent Vallum, while our minds kept wondering what their relation could be. One work seemed to impinge upon the other, and familiarity with the site gradually produced the impression that the Vallum had at some time been diverted to avoid the milecastle. A hasty attempt in 1934 to learn something of the true relation between the two works showed that

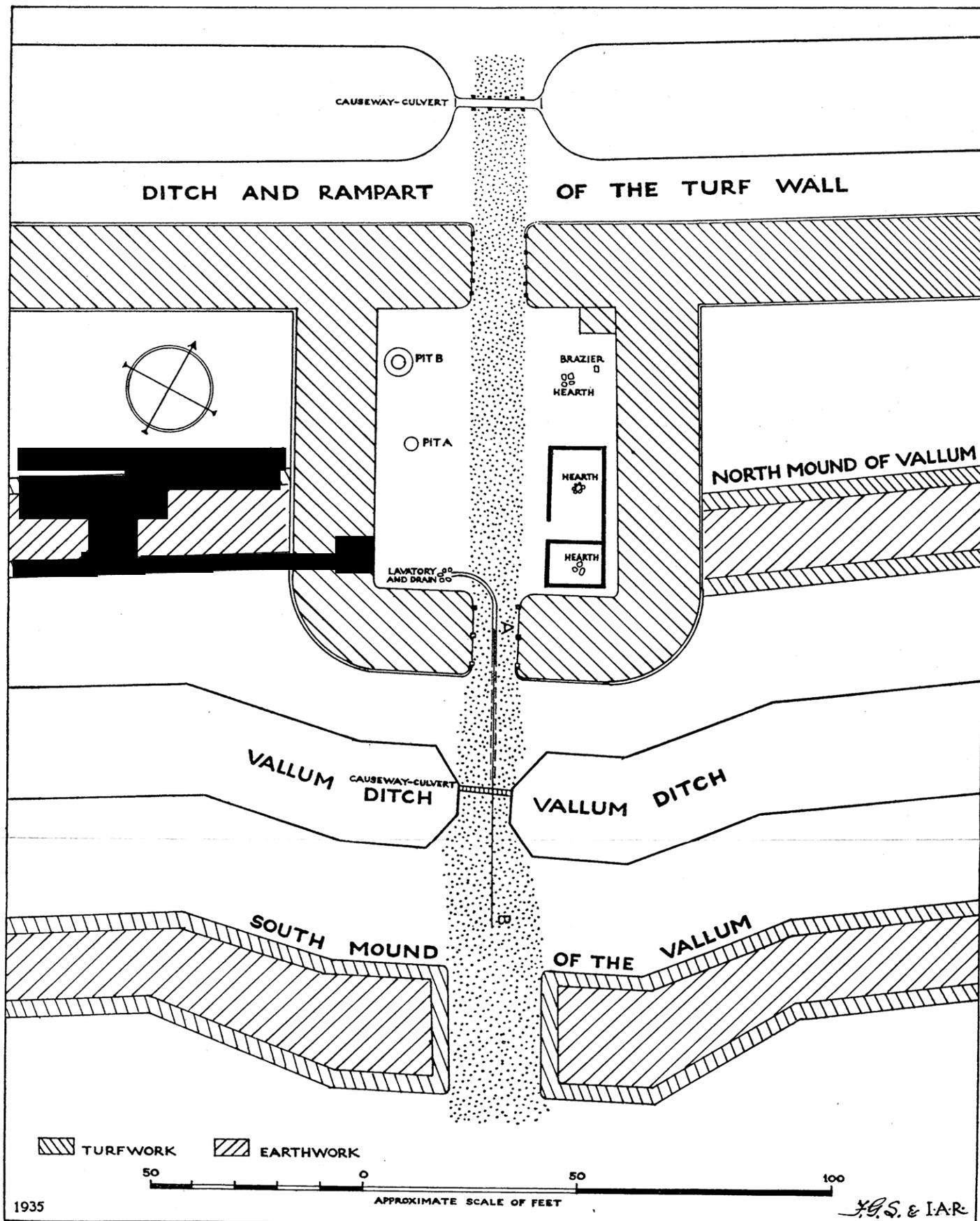


FIG. 1.—THE VALLUM AT HIGH HOUSE TURF-WALL MILECASTLE 50 TW.

an extensive excavation would be necessary to establish the sequence. Ultimately, indeed, a whole season's work has not enabled us to reach the widest limits of the problem. Nevertheless, the results now obtained are so important in relation to current views upon the relative dates of Wall and Vallum, that they must be recorded without delay.

A careful study of the surface indications suggested that not only the Vallum ditch, but also the south mound, had been diverted from their straight course at the milecastle. The hope of tracing the actual course of the south mound was very soon realized (fig. 1) owing to the fortunate circumstance that, as for example we found near Kirkland milecastle, 78, in 1934, it had been laid out with well-defined kerbs of turf.* These kerbs were traced in a number of sections, their white upper surface being carefully bared at the critical points, but not removed, so that the maximum amount of evidence still remains in position. They proved to be planned as a regular re-entrant, a minor example of the type which occurs at such forts as Benwell, Halton Chesters, and Birdoswald.† It was not therefore altogether surprising, though of the greatest interest, that they returned on either side of a made road, passing southwards through an original 21-foot gap in the mound. It may be remarked that this was the first occasion upon which a made road had ever been found passing through a Vallum-mound at a milecastle.

The relation of the north mound to the milecastle walls (see fig. 1), which extend right across its line, was equally interesting. On the west, the mound was found to continue in an undiverted straight line, until it reached the west wall of the milecastle. The two structures then made contact, but, because of ploughing, neither was

* For a detailed reference to these kerbs, see *Trans. N.S.* xxxv, 215.

† Benwell, *Arch. Ael. ser. 4*, xi, pl. xxv; Halton Chesters, *N.C.H.* x, 468; Birdoswald, *Trans. N.S.* xxxiv, 126, plan.

preserved sufficiently high to show whether the orange-coloured clay upcast in the core of the Vallum mound had ever covered the turf-built offset on the outer face of the milecastle wall. A decisive answer as to priority was therefore impossible. The two structures join without revealing which came first, though it must be remarked that a careful examination directed to this end revealed no sign that the Vallum mound had continued across the interior of the milecastle. On the east side, the mound had been totally removed, in the course of a remodelling of the Vallum now to be described.

In the Vallum ditch, the first trench showed that the spade had a complicated story to reveal. It was soon clear that the ditch had been planned so as to form a re-entrant parallel with the south mound; and it will presently be shown that this was the original arrangement. There were, however, three successive modifications (figs. 2—6). In the first, the whole area of the ditch within the diversion at least was filled up with cut blocks of peat, exactly as at Birdoswald (*Trans.* N.S. xxix, 307). This filling (figs. 4, 5) was surfaced with river-cobbles, which formed the foundation of a roadway, metalled with gravel, crossing the ditch in the line between the milecastle-gateway and the gap in the mound. An important link between this stage and the history of the milecastle is provided by the observation that the whole operation is associated with the lowering of the surface at the milecastle's south gate (*Trans.* N.S. xxxv, 224), which destroyed its outermost post-holes, also removing in the process the cover-slabs, side-walls and outfall of the drain passing through it. Again, this same cobbling extends over the area from which the north mound of the Vallum is removed on the east side of the milecastle. The modification is thus to be placed no earlier than the demolition of the milecastle. It was soon clear that the lowering of the surface had extended very widely. It affected the entire

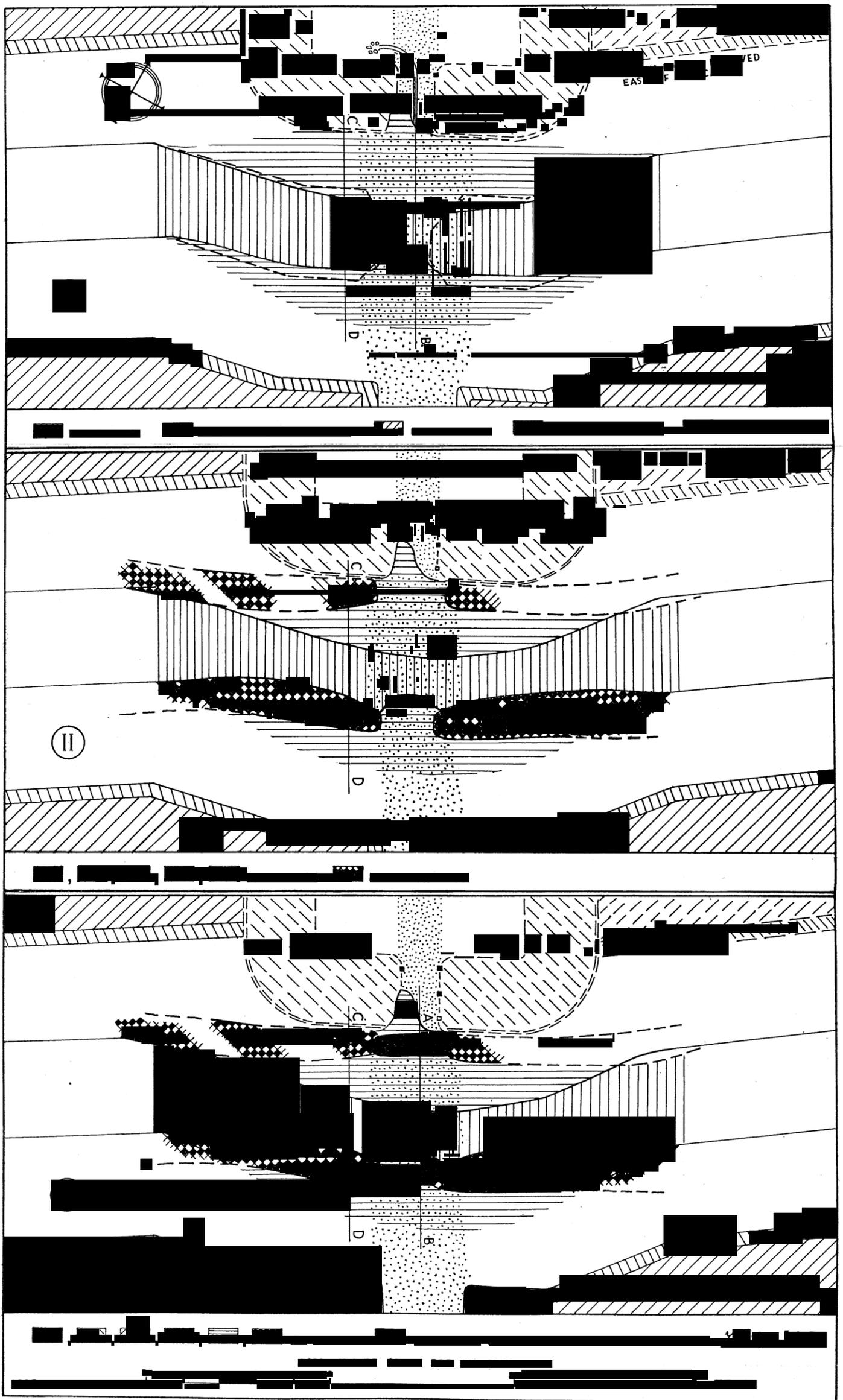


FIG. 2.—THE VALLUM AT TURF-WALL MILECASTLE 50 TW: DIAGRAM-PLANS OF MODIFICATIONS.

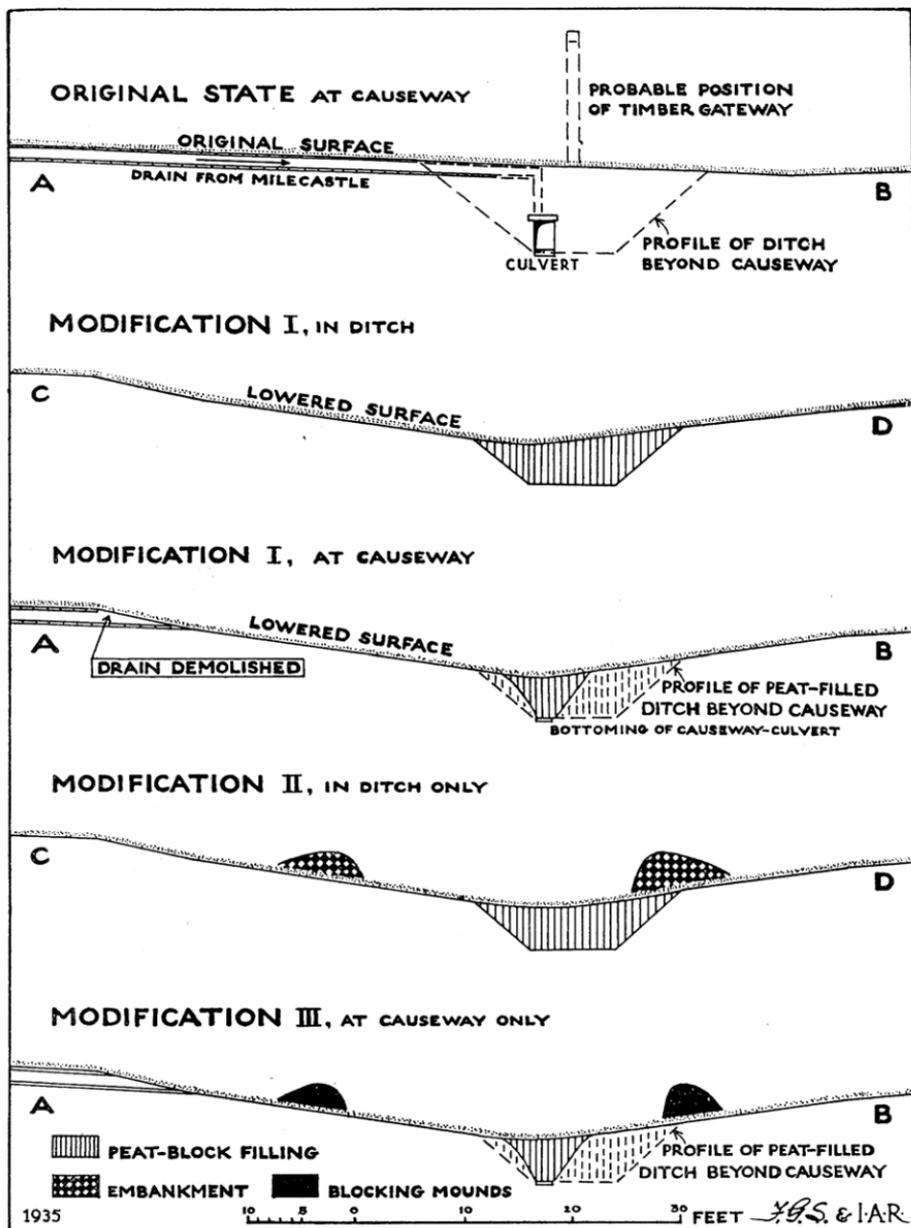


FIG. 3.—THE VALLUM AT HIGH HOUSE TURF-WALL MILECASTLE 50 TW: DIAGRAM-SECTIONS OF MODIFICATIONS.

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area of the north and south lips of the ditch within the diversion, from which the sharply defined edge had been, as it were, bevelled off, to be replaced by a gentle slope, upon which the cobbling had then been laid. The second modification is to be understood as an attempt to restore the definition of the ditch so carefully obliterated by the first. On the south side of the ditch this was done by raising an embankment of yellow clay, which cut off the re-entrant angles of the diversion and, at these points, considerably overlapped the peat-block filling. The resultant plan takes the form of a very shallow V. The effect was to restrict the passage across the ditch to a gap from ten to twelve feet wide, in line with the gap through the south mound. On the north side of the diversion, the corresponding embankment was a much lower mound, largely of stones, with a similar gap just south of the demolished milecastle gate. Thus, a ditch-like obstacle had been created by building up an embankment rather than by clearing out the obliterated ditch that lay below. There was reason in this action; to clear out the old ditch would have entailed the building of a causeway across it, a task avoided by the method now adopted. The third modification was the blocking of the two gaps in the embankments with earth-compacted rubble, so that no passage whatever remained. Significantly enough, the road which reached the later field-system from the north did not cross the Vallum here, but further to the east; while one of the boundary ditches of the fields cut right through the Roman metalling, just south of the forgotten passage through the Vallum. Returning to Roman times, there is no phase in the history of the milecastle with which the second and third changes can be equated, since the milecastle was obsolete when the first modification took place. But the attempt to define the ditch afresh will remind all students of the Vallum of the operation which created the marginal mound; for that

N edge of S. embankment (modification ii)

S. edge of diversion *



Centre-line of causeway-culvert.

Peat-block filling (modification i).

FIG. 4.—Vallum-diversion at Turf-Wall milecastle 50 TW, looking east.

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also represents (*Trans.* N.S. xxii, 366) a clearing of the ditch so as to restore its efficacy as a boundary.

To understand the state of the Vallum contemporary with the milecastle, some features removed by the modifications described above must be restored. By heightening the lips, in conformity with the original ground-level, some $3\frac{1}{2}$ to 4 feet have to be added to the depth of the ditch, as may be gauged from the accompanying section (fig. 3). Again, it may be presumed that the north mound of the Vallum was in contact with the milecastle wall on the east, just as on the west. At first, however, it seemed quite uncertain whether the diversion of the ditch was an original feature. Doubt was only removed by the discovery that, near the bottom, the ditch had been cut through a layer of glacial boulders, and that within the southward projection of the north side a large slab of limestone (fig. 5) lay, undisturbed in its bed, right across the course the ditch would have taken had it been originally cut straight; thus proving the whole diversion to be a mass of undisturbed subsoil. The important point is thereby established that the diversion of the Vallum had existed when that work was first planned.

How, then, did the occupants of the milecastle cross the ditch? An answer to this question was provided by removing the peat-filling opposite the milecastle gate. This revealed the remains of an original causeway of undisturbed subsoil, once revetted with stonework, but even more thoroughly demolished than the causeway at Birdoswald. The removal of the stones had taken place immediately before the filling of cut peat-blocks had been packed into place, and the peat had squeezed tightly into the sharp unweathered cavities (fig. 6) whence the stones had just been torn. While, however, the Birdoswald causeway (*Trans.* N.S. xxxiii, 249) had still retained after demolition a continuous strip of undisturbed subsoil right

across the ditch, this causeway exhibited a wide gap, whence a stone-lined culvert had been removed. As in the corresponding causeway at the north gate, the provision of a culvert is demanded by the steep westward slope; while the presence of a diversion upon this slope dictated that it was wisest to place the culvert as far north as possible, so that the eroding storm-waters should be but little diverted from a straight course. From east to west, across the causeway, the culvert had been 12 feet 6 inches long, and the bottoming, which is all that now remains, is 1 ft. 6 ins. wide. The stone revetments of the causeway had been so thoroughly removed, leaving only a scattering of stones from the core, that an exact plan of the structure is difficult to reconstruct. But the shape of the remaining masses of undisturbed subsoil shows that the sides had been splayed, as at Birdoswald (*Trans. N.S. xxxiii, 248*). Thus, whatever the exact plan of the superstructure, the culvert-bottoming shows that the causeway at its narrowest was 12 feet 6 inches wide, affording room for a gateway of timber matching the milecastle gate in scale and aperture. It may be observed, also, that the postulate of such a gateway, crowning a causeway with perpendicular sides, as at all other permanent Vallum crossings, is required to account for the striking difference in design between this causeway and that which takes the same road across the Turf-Wall ditch (*Trans. N.S. xxxv, 225*). If only a road were to have been carried, similar treatment might have been expected at both. The remains of the causeway thus prove that the diversion, already proved original, itself contained an original causeway.

The general planning of all the works, Turf Wall, milecastle and Vallum, may now be considered. As the Turf Wall approaches the milecastle from the east (see fig. 1) it makes a turn of two degrees, not at the gateway, but at the east junction. There are well-known examples of this arrangement at milecastles on the Broad Wall, the

S. gate of milecastle.

Later blocking (mod. iii) of gap in embankment (mod. ii).



FIG. 5.—Demolished Vallum-causeway at Turf-Wall milecastle 50 TW, looking north.

Later blocking (modification iii) of gap in embankment (mod. ii).



FIG. 6.—Demolished Vallum-causeway at Turf-Wall milecastle 50 TW, looking south.

chronological counterpart of the Turf Wall (*Trans.* N.S. xxxv, 229). That the milecastles on the Broad Wall came first in order of erection is proved by the presence of the points of reduction from Broad to Narrow Wall. As might be expected, the north walls of these milecastles are designed to be straight, and changes of direction in the running work occur at the junctions. For example, at the east junction of Poltross Burn, 48, a turn of $16\frac{1}{2}^{\circ}$ takes place (*Trans.* N.S. xi, 395). If an angle occurs at a milecastle junction on the Turf Wall, the same argument as to order of erection must surely apply. It may therefore be safely concluded that milecastle 50 TW was planned first, and the Wall sighted upon it: in fact, that the milecastle was here the governing feature in the planning of the Turf Wall.

Turning now from the Turf Wall to the Vallum, it is evident from the plan (fig. 1) that the diversion of the Vallum fits the south end of the milecastle. What is then the order of their construction? Only two solutions are possible. According to the hypothesis current since 1922 (*Trans.* N.S. xxii, 376) the Vallum was made first, and would in this case be diverted to enclose an earlier structure of some kind. It can be said with confidence that in excavating the milecastle itself, in 1934, no remains whatever were noted of an earlier occupation. The floor and hearths of the barrack were set immediately upon the undisturbed subsoil, in which the post-holes of the barrack-building had been dug, and the completely clean original surface, coming immediately below these remains, showed that the buildings of the milecastle were planted upon hitherto unoccupied ground. Again, search was made in 1935 for a possible occupation-level below both the north-to-south roadway and the south wall of the milecastle, and exactly the same clean bleached surface was found. The contrast between this clean surface and the thin layer of trodden ashes and mud everywhere

associated with the occupation of the milecastle, and terminating in a regular line against its walls, is very striking; for the trodden layer shows the kind of remains which even a short occupation (as that of the milecastle is known to have been) might be expected to leave. It might, however, be suggested that in connexion with making the milecastle, an earlier stratum had been totally removed, in order to gain a level platform upon which to set the new structure. Two points seem emphatically to exclude this possibility. In the first place, anyone standing upon the site itself can see that the natural contours of the hill-side, sloping sharply from east to west and less sharply, yet noticeably, from north to south, remain unchanged. No platform has been either excavated or built. The second observation is perhaps even more cogent. In digging sections on all parts of the site, it was noted that the natural boulder-clay, with which it is covered, exhibited a regular colour-sequence from the top-soil downwards. This begins with the white bleached soil, produced by vegetable decay, and passes successively from yellow to pink, red and dark red. Had the top layers been removed at any point, the upper colours should have been absent; but they were everywhere present, showing that no removal of soil had taken place. Contrariwise, on the north side of the Vallum ditch, where three feet of earth at least had afterwards been removed, only a little yellow clay remained, and the pink layer began almost at once. Thus, it is reasonable to conclude that no early level has been removed, and it is certain that none now exists below the remains of the milecastle. The presumption is therefore very strong that none has ever done so.

The remaining solution is that the Vallum was diverted to enclose the existing milecastle. The actual relation of the two structures may now be considered in detail (fig. 1). In the first place, the diversion of the Vallum, though

symmetrical within its own limits, is out of symmetry in the line of the running work. The Vallum makes at this point a turn of four degrees, in a slight re-entrant angle. The diversion, however, is not set squarely within this turn, but is made to correspond to the irregular planning of the south end of the milecastle, due to the unequal length of the east and west walls, detected in 1934 (*Trans.* N.S. xxxv, 221). Secondly, when the original north lip of the diversion is restored, in conformity with the original ground-level, the straight sector of the diversion coincides in length with the straight portion of the milecastle wall. Again, the west sector of the north mound is planned to hit the milecastle wall just north of the curved external angle; and, despite the turn in the Vallum, the eastern sector of this mound, when produced, aims for the corresponding point, thus exemplifying yet another accommodation to an irregularity of planning. Allusion has already been made to two further facts, the correspondence between the causeway and milecastle gate in scale and aperture, and the absence of the north mound within the milecastle area. In the latter connexion, it must be noted that the marked extra thickening of the south mound at the corresponding point would account for the disposal of the upcast that would otherwise lack a place in the scheme. When it is recalled that this is the first occasion upon which an excavation has brought Wall and Vallum into definable relation, the impression made by these facts in favour of a common design of the two works is very strong.

The assumption that the Vallum was diverted to enclose the existing milecastle has thus proved equal to explaining all the peculiarities of the complex. A point in the argument has been reached for the first time in the history of the question where it can be demonstrated that it is unnecessary to interject any period of time between the erection of a structure forming part of the Wall and

the construction of the Vallum. The importance of this conclusion for the relationship of Wall to Vallum is undeniable, for it reverses the whole trend of recent opinion as to their relative priority. Yet it must be repeated that excavation has never before provided results upon which an opinion might be formed, apart from the forts, where the evidence is complicated, and, as shown below (p. 169), still far from clear in its significance.

There is, however, one discovery, made long ago by this Committee, which takes a new meaning in the light of this evidence, and does much to support the interpretation here adopted. When the Vallum was traced in 1898 at Harrow's Scar milecastle, 49 (*Trans. o.s.*, xv, 353), its ditch was found to turn sharply southwards just before it reached the wall of the stone milecastle, which succeeded an earlier milecastle in turf. At the time, it was supposed that this turn took place because the Vallum was about to descend the steep cliff. But there is no reason why the Vallum, any more than the Wall, should diverge from its normal path in order to make the descent; while, on the other hand, it is evident that there could be no room for the turf milecastle unless such a diversion took place. Finally, it may be noted that the diversion here was much deeper than at High House, even though its exact plan is not yet known, and can indeed only be recovered in part, owing to cliff-falls.

Turning now from milecastle 49 to milecastle 51, the Vallum there runs in a straight course 45 yards behind the milecastle. Thus, three different relationships occur at three successive milecastle sites. At milecastle 51 the Vallum has no diversion; at milecastle 50, there is a small diversion; at milecastle 49, there is a large diversion. If, then, these diversions are original features in the Vallum, what factor was it that compelled them to vary, when the variations are themselves only comprehensible in relation to the milecastles of the Wall? Is not the occurrence of

such variations in itself sufficient proof of the need to pre-suppose the Wall when thinking of the Vallum?

It is not intended, however, to do more than outline the views suggested by the evidence obtained. But, lest it should be thought that the evidence available from the forts is of more definite character, some salient points may be added in demonstration of the state of affairs.

At Birdoswald, the Vallum was not the first Roman structure on the site. It cut through a little signal-station, which was itself planted in an irregular enclosure (*Trans.* N.S. xxxiv, 126, plan). It has been assumed that the fort which the Vallum avoids is either contemporary with the Vallum or earlier than it. But no archaeological proof has ever been obtained that this fort was not contemporary with the Turf Wall. All the early pottery from the site could come either from the signal-station or from the irregular enclosure in which it stands, where native pottery was also found in association with pre-Hadrianic pieces (*Trans.* N.S. xxxiv, 123).

At Chesters (*Trans.* N.S. i, 85-88) Haverfield long ago obtained some striking evidence for this Committee. There is no doubt that he found there the Wall-ditch running below the existing fort, just as it runs below the fort at Birdoswald.

At Halton Chesters,* the newly-obtained fact that the west gate is founded very deeply in the line of the Wall-ditch strongly suggests that similar evidence exists at all the Wall-forts of this type.

Thus, on both the Broad Wall and the Turf Wall an early arrangement awaits discovery, and no proof has yet been obtained whether that arrangement is contemporary with the first planning of the Wall and avoided by the Vallum, or whether it is contemporary with the Vallum and later associated with the Wall. The only points where archaeological evidence bearing upon the matter is yet to

* *PSAN* ser. 4, vii, p. 132.

hand are the milecastles, as detailed above; and that evidence strongly favours the former interpretation.

2. THE ROMAN TEMPORARY CAMP AT WATCHCROSS.

By I. A. RICHMOND and Miss K. S. HODGSON.

The site at Watchcross has long been known. Horsley* (before 1732) found the "ramparts and ditches very fair and visible." It is marked on the *Vallum Romanum* map† (about 1751). Brand‡ describes the remains as follows; "Oct. 5th, 1783, I walked round the ramparts of this fort, which is about four and a half chains square, and discovered in some parts the hollow of the fosse." Hodgson§ expresses the following opinion; "I do not question that it was a Roman work, but certainly think it was never more than a summer camp, occasionally occupied." The source of this statement is shown by notes in his journal, made at Carlisle, 30 August, 1833; "the old farmer, who is bedridden, says he has lived all his lifetime at the place, attended ploughings and improvements in it; but there never was anything found upon it but mere earthworks—a dyke and a ditch. No hewn stones, no coins or artificial works in metal or otherwise of any kind, nothing but earthfast stones." When MacLauchlan|| saw the site with Robert Bell, before 1854, the plough had done its work of obliteration; the work was "scarcely discernible"; so far from visible, indeed, that he marks it in the wrong position and orientation.

After the excavation of Throp fort, a new interest (*Trans.* N.S. xiii, 389) centred in Watchcross, which so closely resembled it in size; and, about three years ago,

* *Britannia Romana*, 154.

† Reproduced, *Trans.* N.S. xiii, 387, fig. 41.

‡ *History of Newcastle*, i, 615.

§ *Hist. Northumberland*, part ii, vol. iii, 219; MSS. vol. z, 518.

|| *Memoir*, 72.

ROMAN TEMPORARY CAMP WATCHCROSS

1935

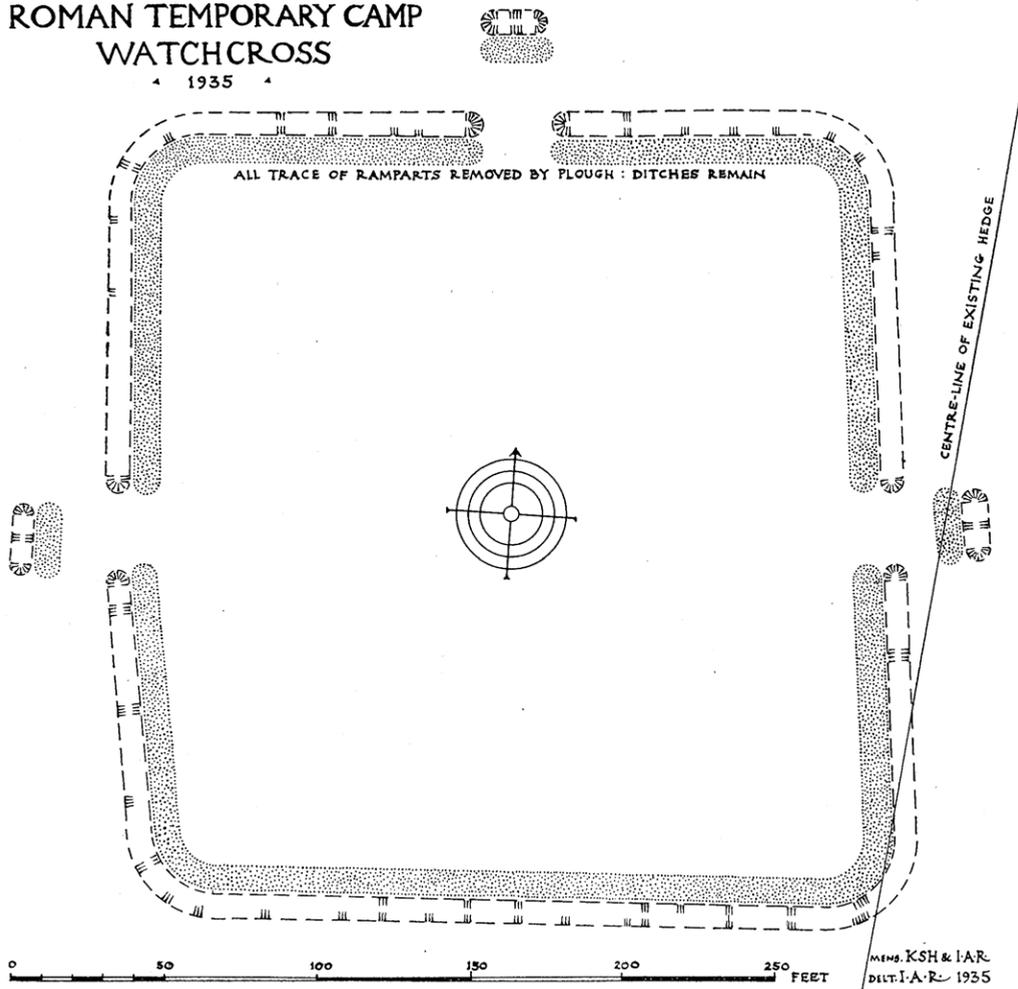


FIG. 7.

To face p. 170.

the first-named writer, passing the site in a motor-car, saw the outline of the ditch in the growing corn, coinciding with a well-marked platform in the hedge which crossed it. By this time, the spade had been at work proving Stanegate sites as far west as Boothby (*Trans.* N.S. xxxiv, 155); and a request made this spring, for permission to dig trial-trenches at Watchcross, was readily granted by Miss Little, of Watchcross, the owner, and her tenant Mr. Modlin, who generously lent us a portable tool-house.

The first trench, parallel with, and to the west of, the hedge, struck awkwardly into the south-east angle. Exploring westwards, no trace of the rampart was left, and a diagonal trench across the interior revealed no trace whatever of structures. Accordingly, trenching was then confined to recovering the circuit of the ditch and the gateway-positions (fig. 7). The single ditch, as now remaining, was of small proportions, about eight feet wide and three feet deep. The gateways turned out to be three in number, with wide openings covered by straight traverses, and evidently unprovided with doors. Thus, the character of the work entirely confirms the estimate of Hodgson quoted above. The size, over the ramparts, will have been about 240 feet square, which compares* with the small temporary works at Tower Tye (240 by 240) and Grinsdale 1 (240 by 240), the latter being a very close parallel, since it lacks the *porta decumana*, as does also Grindon. While the purpose of these works is obscure, it is clear that they do not belong to any permanent system.

The result of our exploration is therefore to confirm Hodgson's estimate, and to remove Watchcross from the list of possible forts on the Stanegate. As so often, it turned out that the negative result was to have a stimulating effect, setting the mind free to consider the claims of other positions. The pottery previously recovered at High Crosby (see below, p. 184) assumed a new significance,

* *Arch. Ael. ser.* 3, v, 262.

as seeming to point to a post there; while, later in the season, the site at Old Church, Brampton, was to yield a cohort-fort, as described in the next section.

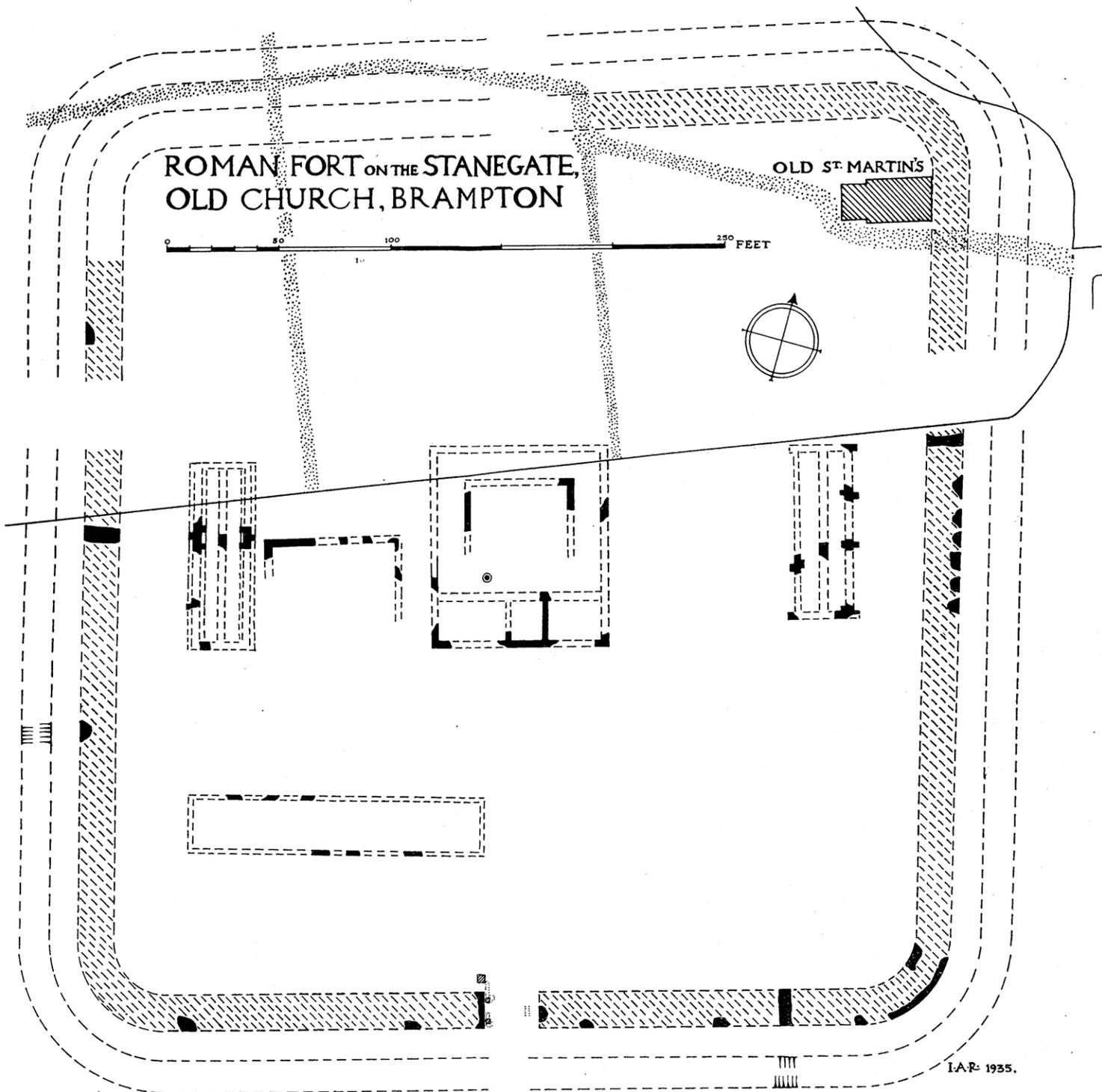
3. THE ROMAN FORT ON THE STANEGATE, AND OTHER REMAINS, AT OLD CHURCH, BRAMPTON.

By F. G. SIMPSON and I. A. RICHMOND.

(a) *The cohort-fort.*

The site at Old Church was known as ancient to our late President and to others of his generation (*Trans.* o.s. x, 166). The possibility that it might be a Roman military site was not, however, considered by Haverfield when this Committee was working at Hawkthirst, near by, in 1898 (*Trans.* o.s. xv, 359): only the rejection of Watchcross as a permanent site led us to examine it, solely on the grounds of its position, as an alternative site for a permanent Stanegate fort. When the second-named writer went to view the place, accompanied by Mr. R. P. Wright, we learnt from the sexton, Mr. Neve, about the foundation in the churchyard, observed turfwork cut by his terracing, and saw without difficulty the well-marked platform of the fort, with especially bold rampart and ditch at the south-west angle. Only then were records searched, and we were guided by our late President's *Inventory* (*Trans.* n.s. xxiii, 214) both to the discovery of a Roman *amphora* in the churchyard extension and to the fallen concrete (see below, p. 179) at the cliff-edge (*Trans.* o.s. x, 166). This was enough to justify an examination, for which permission was readily granted by the Lady Henley and her tenant, Mr. H. I. Mason. Then, while digging was actually in progress, we read* that the rampart-foundation had already been examined at several points by the Rev. H. Whitehead, Vicar of Brampton, 1874-84; and also that, on the wholly inadequate evidence of the *amphora*

* *Brampton in the olden times*, Selkirk, 1907, 118.



and the concrete, the site had been described in print as a Roman station in Kelly's *Cumberland Directory*. Finally, when digging had ceased, the Rev. E. T. Shepherd, Vicar of Brampton, produced a Republican *denarius* of 88 B.C., found in the churchyard; a useful discovery, setting a seal upon our labours.

A complete section of the fort-rampart (figs. 8, 9) was made on the south front. It was sixteen feet wide, built of mixed turf and clay, laid upon an excellent bottoming of river-cobbles and occasional sandstone, with even edges (hardly kerbs) of larger stones. The front of this foundation was traced (fig. 8) in trenches on the south side, on the west side up to the churchyard fence, and more than halfway round the south-east angle (fig. 11). A gap occurred at the last point, due to ploughing, but the central portion of the east side was presently traced northwards to the limit of the churchyard. In the churchyard itself, the eye could detect the bold sweep of the north-east angle and the approximate line of the north side; but no attempt was made to dig there, and the only feature to be exactly recorded (see fig. 8) is the outer edge of the west rampart foundation exposed by the sexton in recent gardening operations. It is evident, however, that the fort must have been nearly square. The east-to-west dimension is 396 feet over the ramparts, the north-to-south approximately 410 feet, giving an area of about 3.7 acres.

The ditch is a single one, about 13 feet wide by 5 feet deep, dug in sandy soil, and tested by us in two sections only. It can never have been a very prominent defence; in being single, it compares with the ditches of Haltwhistle Burn and Throp (*Trans.* N.S. xiii, 378), and Boothby (*Trans.* N.S. xxxiv, 155).

The south gate was partly excavated, and will some day repay a complete examination. Its site is marked by a gap in the foundation 24 feet wide, occupied by a 14-foot

roadway. At the west side, between the road and the rampart-foundation, lay a series of three large postholes (figs. 10, 12), whence the timbers had been dug out in Roman times, leaving irregular excavations surrounding the holes, the two foremost still partly filled with stone packing. Sloping run-ways had also been dug at the back of the two foremost holes; and these, in contrast with the excavations—obviously the work of a demolition-party—had been carefully sealed (figs. 10, 13) with dark-red clay as soon as the posts had been originally set in position. Thus, the post-holes gave evidence concerning both the erection and demolition of the gateway timbers, the latter operation the more important to history, since it attests a systematic demolition of the fort.

The design of the gateway is, however, not yet fully recovered. No search was made for postholes at the east side, but the sealed run-way of one of the holes was exposed while determining the width of the gateway. The sites of both the *spina* and possible towers remain entirely unexplored, but the wide opening suggests that the gate was a double one with twin towers. This is also the only gate available for study on the site, since the *portae principales* and *praetoria* must lie within the churchyard. If the south gate, the least important, had a double portal and towers, it may be surmised that all were probably of this plan, conforming to a standard as at Gellygaer.*

Internal buildings were first sought at the west side of the fort, outside the churchyard fence. The first trench hit the west wall (fig. 14) of a long building, furnished with internal responds and external buttresses, separated by ventilators (fig. 15). The building was 26 feet wide and was divided by a broad axial division from north to south, and the main walls and buttresses were carried upon a broad flagged foundation. The southern limit was established: the northern lies within the churchyard, and therefore remains uncertain; but the position of the

* Cf. R. G. Collingwood, *Archaeology of Roman Britain*, 29, fig. 6.



FIG. 9.—Section of south rampart and ditch at Old Church, looking south.



FIG. 10.—Post-holes and run-ways at west side of S. gate, Old Church, looking north. Clay filling of run-way to S. post-hole not yet removed.



FIG. 11.—Outer edge of rampart-bottoming at S.E. angle,
Old Church, looking S.W.

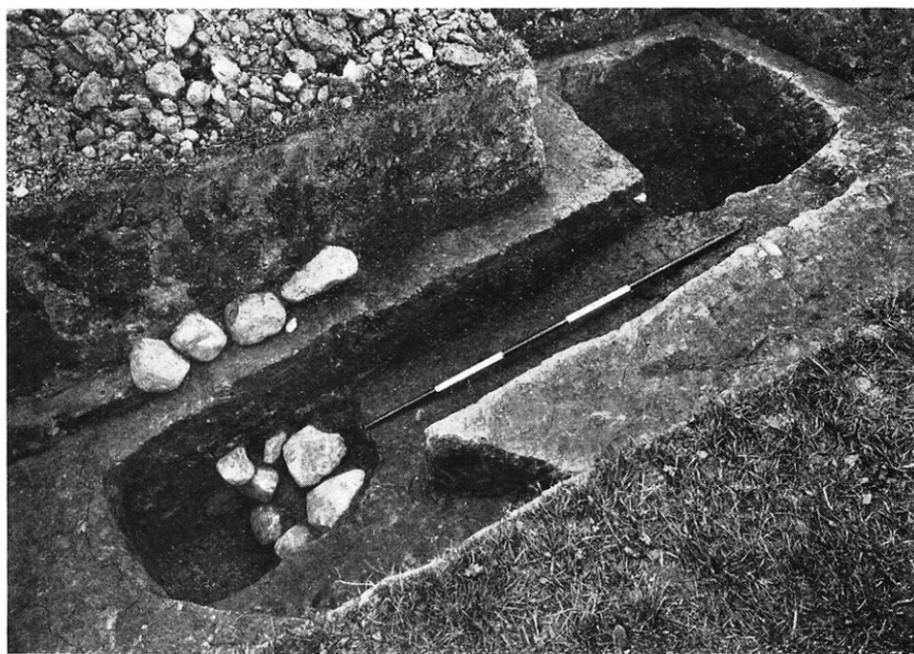


FIG. 12.—Middle and north post-holes at west side of S. gate, Old Church.
To face p. 175.

principia shows that it cannot have extended far northwards, probably no further than one additional bay, as shown conjecturally on the plan. The walls of this building were the best preserved on the site, and stand three courses high: as at Haltwhistle Burn,* they are clay-built, without any mortar. Nor is the purpose of the building in doubt. It is a typical Roman granary, of the type already studied in detail in these *Transactions* (N.S. xx, 135). The buttresses served to strengthen the walls, against which corn was stacked in bins, and compensated for the structural weakness caused by piercing the base of the wall with ventilators. The latter kept the floor cool, thus preventing the corn from heating.

These granaries often lay in pairs; but the space between this one and the *principia* was occupied (see fig. 8) by another building of uncertain purpose. It was 62 feet wide, and must represent either part of the commandant's house, or a workshop, as at Gellygaer.† Presently, the second granary was discovered at the east end of the row of central buildings. It was 76 feet long by 26 feet wide, over the main 3-foot walls, and had seven buttresses on each side. The foundations were different from those of the first granary, for the main walls and buttresses were not carried upon one broad flagged foundation; the flags were fitted to the plan exactly, following all its projections and recesses.

The main walls of the *principia* (80 feet by about 89 feet) were identified, together with the side-walls and front of the *sacellum* (see fig. 8), showing certainly that the fort faced north, and that the whole of the *via principalis* and *praetentura* lay within the churchyard. The limits of the cross-hall remain undetermined, though one round pillar-foundation was discovered within its area. The ambulatory of the forecourt was identified, together with its

* *Arch. Ael. ser.* 3, v, 250. An analysis made by Dr. A. Raistrick, of Armstrong College, Newcastle-upon-Tyne, confirms the point for Old Church.

† *Archaeology of Roman Britain, loc. cit.*

north-east internal corner, so that an approximate position for the front of the building, coinciding with the front of the east granary, was obtained.

Having thus determined both the orientation and the character of the main buildings in the fort, we had yet to learn whether the barracks had been of wood or stone. The north and south walls of a long stone building were identified in the west half of the *retentura*, covering a distance of 88 feet (see fig. 8), without reaching either the east or west limits. There can be no doubt that this is a barrack, and it may be assumed that it filled the whole of the space between the west *intravallum* and the *via decumana*. This would give a building 26 feet broad, by about 133 feet long.

Finds were very few, as might be expected in a fort where there is evidence of systematic demolition. The *amphora* from the churchyard has already been mentioned, though its whereabouts are now unknown. The Republican coin is a *denarius* of L. Calpurnius Piso Frugi, dated to about 88 B.C. (*Babelon*, 11; *B.M. Cat.* 1919), and kindly identified for us by Mr. W. Percy Hedley. In addition, there is a handful of pottery, coarse ware strikingly like that obtained at Haltwhistle Burn and Throp, in both fabric and type. There is an entire absence of later wares. It may therefore be supposed that this fort belongs to the same series as Haltwhistle Burn and Throp; and that, just as the former was systematically demolished (*Arch. Ael.* ser. 3, v, 275) when the Wall came and the fort of Aesica was built further north, so the fort at Old Church ceased to exist when the first fort at Castlesteads was built to guard the point where the Wall crossed the Cambeck. The type of the fort would lead to a further deduction. While Haltwhistle Burn, Throp and, probably, Boothby form a class of $\frac{3}{4}$ -acre fort, Old Church belongs to the well-known type of quingenary fort, first introduced into the north on a large



FIG. 13.—South post-hole, with stone packing, at west side of S. gate, Old Church.
Clay-filling of run-way removed.

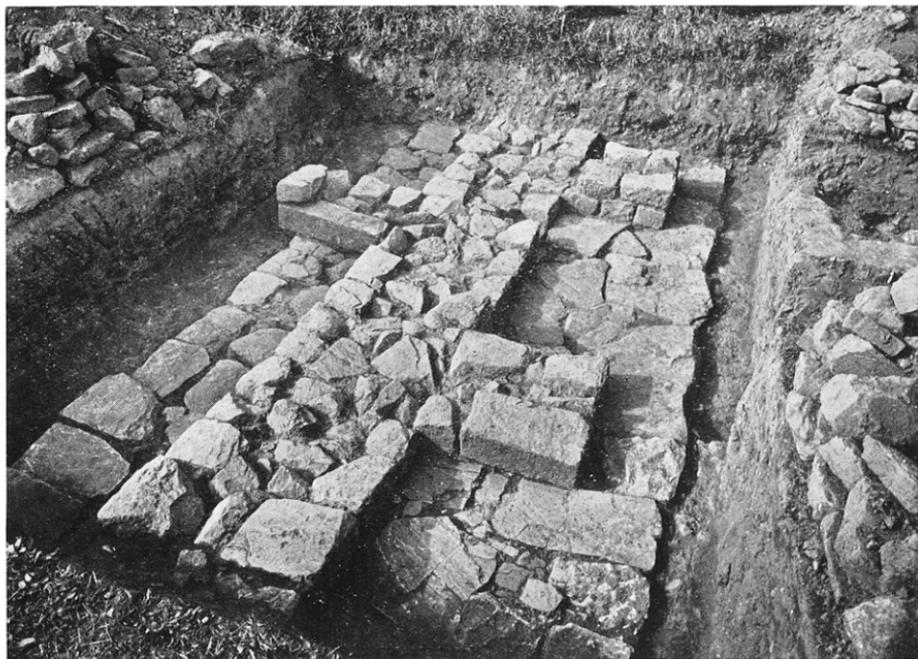


FIG. 14.—West wall of west granary at Old Church, looking north:
showing two responds and buttress.

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To face p. 176.

scale by Agricola; but it is now equally well known* that Flavian forts were not provided with buildings of stone until Trajan's reign or thereabouts. Thus, while this fort belongs to the Stanegate series, it does not fall into place as one of the early forts along the line. This is, moreover, the first time that a large fort of the series has been planned; such others as are known, or appear, to be large, lie deep below later remains, and it is unlikely that their plans will ever be known in detail. Further, the recovery of the plan gives the first definite hint that the Trajanic arrangement of the Stanegate was a series of alternate large and small forts, so far as these are known from Chesterholm westwards. At both Chesterholm† and Nether Denton (*Trans.* N.S. xxxiv, 152-4) the area producing early relics is extensive. Carvoran is unexplored, but its position at the junction of the Stanegate and the Maiden Way justifies the assumption of a cohort garrison. The intermediate posts, Haltwhistle Burn, Throp and Boothby, are known to be small. This would suggest that the Stanegate *limes*, in its final form, was as systematically ordered in its own way as the Wall which replaced it; and the discovery of a system in this part of its course cannot but be of service in the investigation of those parts, notably in the east, where a sound knowledge of the course and arrangement is yet to seek.

(b) *The connexion with the Stanegate.*

The course of the Stanegate is only conjectural at Irthington (see p. 187), though the approach from the west by High Crosby to Redhills is not in doubt, and has been examined by this Committee both recently (see below, p. 186) and many years ago (*Trans.* O.S. xiv, 424). At Irthington, however, the river Irthing has cut many channels in the holms, and it is very evident, from the course of the parish boundary, which once followed it,

* *Op. cit.*, 36.

† *Arch. Ael.* ser. 4, xiii, in the press.

that there has been change since Roman times. It is, however, clear that the general course of the road (see p. 187) must have passed to the north of Old Church, and that a connexion is therefore demanded between the hill-top and the holms which it overlooks.

Nowadays, there are several ways of getting down the hill, all near the Old Church farmhouse, which replaces and in part embodies the old vicarage peel-house. West of the farm a steep narrow track has been worn down the bluff, and now takes part of the byre drainage. To north-east, a terraced track, now the regular cart-track and altogether more gentle, leads from the farmyard, towards Crooked Holme. But both these tracks are eclipsed in utility and in magnitude of engineering by a road to the south-east of the farm. This has been carried first eastwards and then sharply northwards in a large and well-graded cutting (fig. 16), whose contents have been used to make a great embanked causeway as high as the cutting is deep, crossing an old bed of the Irthing. The cutting is about 120 yards long and at its largest seventy feet across the top and some twenty feet deep: the causeway, which would carry a roadway about twenty feet wide, is about 60 yards long and nearly 140 feet wide at the base. The old river-bed is early in geological sequence, since it antecedes a well-marked terrace, itself higher than the present river-bed; and there can thus be no doubt that it was cut long before Roman times. On the other hand, there is no reason to doubt that the cutting and causeway are Roman. Not only do they strikingly resemble other cuttings on the Stanegate line, described below (p. 188ff.), but the work, as it approaches the top of the hill, avoids both the peel-tower and the church: it aims directly for the east gate of the fort, serving its main street, on which the granaries and principal buildings lay. A section across the widest part of the cutting disclosed a well-compacted road-foundation of river cobbles, 17 feet 6 inches wide.



FIG. 15.—East wall of west granary at Old Church, showing ventilators and buttress.



FIG. 16.—Roadway-cutting at Old Church, looking south-west.

To face p. 178.

In the holms, the course taken by the continuation of the causeway is doubtful. The line would seem to be planned as aiming for Crooked Holme. If the Stanegate crossed at the old Irthing bridge (see below, p. 187), this would be a comprehensible course to take. But it looks as if ploughing and floods have removed all chance of verification of this suggestion by the spade. Its general truth may, however, be safely accepted.

(c) *The fallen concrete.*

North-west of the fort, in the churchyard, there is a little knoll at the cliff-edge, where a benefactor has placed a seat for contemplation. The cliff drops very steeply to the north, into the Irthing's pre-Roman channel. At its foot lies a large tilted mass of very hard concrete, river-boulders set in strong mortar and regularly laid in once horizontal layers. There can be little doubt that this is Roman work, as Chancellor Ferguson considered (*Trans.* o.s. x, 176) long ago; and it has evidently fallen from the hill-top, taking up the present awkward angle as it fell. No certain explanation of its purpose can be offered, but some opinions may be eliminated. It is not a bridge-abutment, as the Chancellor thought, for the river was not running here in Roman times (see above, p. 178). Nor is it connected with the cohort-fort, for that work came nowhere near the cliff. It seems in fact to have underpinned a building set at the very edge of the cliff, as would suit either a watch-tower or a shrine. Only the spade can decide whether any fragment of the postulated structure remains to offer a clue to either purpose or date.

(d) *The so-called "Village-site," east of Hawkhirst.*

Having defined the remains at Old Church, it is well to recall a second distinctly separated site, which lies on the broad ridge to the south, variously known as Hawkhirst, Hawkrist and Hawksnest. This is marked* as *Village*

* The site is quite distinct from the Hawkhirst enclosures examined by Haverfield, as is explained presently. The distinction between the two sites, well understood by the older generation, has been removed from the revised edition of the Ordnance Map, 1926.

on the Ordnance Map of 1901, and straddles the eastern shoulder of the ridge, in field no. 649.

There is a romantic story that the place was an older Brampton, razed to make room for the medieval hunting-ground of Brampton Park; but our best authority on these matters, Mr. T. H. B. Graham, long ago dismissed (*Trans.* n.s. xi, 46) the idea as fanciful. No such transplantation is arguable from the evidence, of a fair-grant in 1252, and it is likely enough that Brampton always occupied its present position; for it is a typical Anglian stock-raiser's village, lying in a pleasant watered glade. The ecclesiastical site of Old Church is connected with St. Ninian by his well, called Ninewells, near the fallen concrete (*Trans.* o.s. x, 166), and is dedicated to St. Martin of Tours, Ninian's teacher. Thus, it represents a pre-Anglian tradition,* like St. Mungo's at Irthington or St. Ninian's at Ninekirk, Brougham. The soldier-saint, having an eye for a good position, put his church in a Roman fort. The ridge-site, to which we may now return, is the choice of neither churchman nor cattle-farmer: it is a typically British site, on conspicuous open slopes, where crops well-drained could ripen in the sunshine.

The site owes its survival to its inclusion in the hunting-park. At the west end of the ridge, in fields nos. 658 and 659, this Committee examined in 1898, with inconclusive result, two roughly rectangular enclosures (*Trans.* o.s. xv, 359, pl. iv), from which much undressed stone had earlier been removed, as Robert Bell† remembered. They were not Roman defence-works, but compare well with the little native enclosures at Edlington, near Doncaster, recently surveyed by our member, Mr. Philip Corder. Coarse pottery found in 1898 is lost, except one fragment kept by Mrs. Hodgson. It proves to be fourth-century Huntcliff ware. The site noted for relics,

* The tradition is discussed in *Trans.* n.s. xxv, 9, where it is doubted. The increasing evidence for continuity of life brings it back with new force.

† MS. notes, quoted by MacLauchlan, *Memoir*, 64, footnote.

however, lies at the east end of the ridge. The earliest objects recorded, in 1789, when agriculture was there beginning, were bronzes.* There was a lamp, a naked male statuette, perhaps of Mercury, which went † to Lazony Hall, as did also an inscribed ‡ ornament bearing the word IOVIS in openwork lettering, very like that of certain military badges. With these also occurred a fine late fourth-century cross-bow brooch, § and another object, described as "the face of a *lar*." Presently, in 1826, the site was to yield || a great hoard of third-century bronze coins, of which seven went to Newcastle. ¶ Roman pottery and querns are recorded ** to have been abundant over the whole area. Finally, structures have also been noted, if vaguely. Hodgson †† mentions "not only ashlars, flagging and paving-stones, but many single Roman coins." A particularly suggestive item is the "series of small brick arches," almost certainly a hypocaust, found by Robert Bell and recorded ††† by Chancellor Ferguson. Robert Bell also told MacLauchlan §§ of a drain made of tiles, leading down to the brook south of the ridge.

These records call attention to the site, but can give little clue to its true meaning. The most remarkable fact

* *Archaeologia*, ix, 222; cf. Hutchinson, *History of Cumberland*, i, 125 n. 2.

† *Lapidarium Septentrionale*, 453.

‡ *CIL*, vii, 1289, *Lap. Sept.* 454; cf. Haverfield, *Arch. Ael.* ser. 3, vii, 178, fig. 10a.

§ *Archaeologia*, ix, 222, where the brooch is figured.

|| Robert Bell, in MacLauchlan, *Memoir*, 64 note; Hodgson, *Hist. Northumberland*, part ii, vol. iii, 233-4, records six given to him. *Arch. Ael.* ser. 1, ii, 210.

¶ *Proc. Soc. Ant. Newcastle*, ser. 1, i, 95. Mr. Gilbert Askew, Hon. Keeper of Coins, Blackgate Museum, draws our attention to a particularly interesting coin, labelled "this *noumia* found with between 3 and 4,000 small R. brass coins near Brampton in April, 1826." It is a barbarous radiate coin, 8 mm. in diameter, ob. a radiate head right, rev. radiate standing figure with whip, right. Whether associated with the hoard or not, this is just the kind of coin to be expected on a non-military fourth-century site.

** Robert Bell, in MacLauchlan, *Memoir*, loc. cit.

†† *Hist. Northumberland*, part ii, vol. iii, 233-4; for a single coin of Trajan, *Proc. Soc. Ant. Newcastle*, ser. 3, i, 54.

††† *Proc. Soc. Ant. London*, ser. 2, xvi, 422.

§§ *Memoir*, 64.

about it still remains its complete separation from both the Roman military site and Saxon Brampton. The separation from the Roman military site is not only in space but in time, for the pottery and the cross-bow brooch show that life here went on into the late fourth century, two centuries after the adjacent fort had been abandoned. This fact gives an altogether new significance to St. Ninian's presence, attested by his well, and by the dedication to St. Martin, matched only at St. Ninian's personal church at Whithorn in all Cumbria or Strathclyde. It is evident not merely that the soldier-saint pitched his mission-post in a deserted Roman fort, but that he put it there because there existed an adjacent inhabited site, important enough to be the centre for a mission. St. Ninian was no hermit, aloof from men, but an apostle in search of souls. Manifestly too, the place continued important, since its church became the mother-church to the Saxons at Brampton. So remarkable a record of continuous life, supported partly by archaeology and partly by tradition, is not uncommon in Cumbria. Carlisle and Cartmel come to mind at once: Bewcastle has been shown by our President (*Trans.* N.S. xxxv, 13-14) to be another example in this very district. But the Brampton site is unique in its freedom from later encroachment. When it decayed, there were other centres of life to take its place; and on this account it deserves recognition, as an unexplored yet accessible Dark-Age site.

4. THE STANEGATE.

By F. G. SIMPSON, I. A. RICHMOND,
Miss K. S. HODGSON and K. St. JOSEPH.

(a) CROSBY-ON-EDEN TO IRTHINGTON.

(1) *High Crosby.* Since 1896, when this Committee examined (*Trans.* o.s. xiv, 424) the supposed cutting on the line of the Stanegate at Buckjumping, which was then

rejected upon the mistaken supposition (*Trans.* N.S. xiii, 387) that it lay on the line of the medieval road, no further work had been done upon the Stanegate west of Nether Denton. The discovery of the fort at Boothby, in 1934, again drew attention to the problem. There were few points from which to start, but one of the most promising was the so-called "old road" at High Crosby, on the Carlisle-Brampton road east of Crosby-on-Eden. This is now a cutting, about sixty feet wide, fifteen feet deep and 250 yards long, situated in the grounds of Crosby Lodge, south of and almost parallel with the main road.

Exploratory trenches cut by Miss Hodgson in November, 1934, revealed substantial road-metalling at the bottom of the cutting, and, further west, in line with its south edge, a well-marked ditch, three feet wide. The ditch yielded a large fragment of rim from a Hadrianic *mortarium* (cf. *Trans.* N.S. xi, 452, pl. iv, i). To the north, at an interval of twenty-one feet, ran a second ditch, of which the north side had been cut by a modern drain. Thus, although ploughing had here removed all road-metalling, the ditches may be recognized as those which commonly line the sides of a Roman road, since their Roman date was attested by the occurrence of the sherd at the bottom of the southern ditch. Further work on the south ditch revealed a slight turn towards the south, in the direction of the narrowest part of a marshy flat lying to the west.

On the basis of these discoveries further work was done by Miss Hodgson in May, 1935. Trial-holes demonstrated that the metalling continued through the whole length of the cutting, while two fuller sections showed what still remained of the road to be just over twelve feet wide. Since the cutting was in soft red sand, its sides had collapsed, spreading over the road for the greater part of its width from either side, and entirely covering shallow gutters extending for six feet on each side of the metalling.

No evidence was obtained as to whether the sides were retained in Roman times.

An attempt to trace the south ditch of the road further westwards was unsuccessful, owing to heavy ploughing on the slope. In one trench, however, a second fragment of Roman pottery was found, this time the base of a Samian dish, of Dragendorff's shape 18/31, as typical of the early second century* as the *mortarium* already described. This discovery may be taken to have another significance, apart from the fact that it dates the ditches of the road. One hardly expects to find Roman pottery in road-ditches except near an occupied site. The sherds may therefore be taken to indicate a Roman site not far from where they were found, and in considering what type of site this may have been, two other points are of weight. High Crosby lies at a very suitable distance from Stanwix ($3\frac{3}{4}$ miles west) and Old Church ($3\frac{1}{2}$ miles east) to be chosen as the site of a small intermediate fort of the kind exemplified by Haltwhistle Burn, Throp and Boothby. Here, too, the Stanegate changes direction, on high ground, as the village name reminds us, after its two-and-a-half-mile straight run from Buckjumping. Both these conditions suggest that the occupation was a military one, though structural remains are yet to seek. When it is added that, after the elimination of Watchcross as a permanent work (see above, p. 171), this is the last fort required to complete the intermediate series, now known to stretch from Haltwhistle Burn to Boothby, the presumption that a little fort lay somewhere† upon the High Crosby summit becomes so strong as to exclude other hypotheses.

(2) *Buckjumping*. The Committee's original account (*Trans.* O.S. xiv, 424) of the cutting at Buckjumping has

* *Archaeology of Roman Britain*, 210.

† It may be recorded that, by the kindness of Messrs. Potts, trial trenches were made in the field called Wraydykes, north of the main road and parallel with the cutting. No remains were found, but our trenches did not examine the summit of the hill, principally occupied by farm buildings.

already been noted, but it may be well to recall some salient points. The existing work is 170 feet long, 20 feet deep, and thirteen feet wide at the bottom. Four feet below the present surface was found "a roadway of small cobbles and river-gravel, at least 12 feet wide." Haverfield's opinion was that the road was "constructed like many local roads," and that the cutting had "obviously been made by a road which had sunk into the soft sand." He identified it with "the old road from Crosby to Irthington and Brampton, which was in use in the time of Horsley (1732) and Warburton (1753)." The mistake in identification has already been noted in these *Transactions* (N.S. xiii, 387, fig. 41), where it was shown that the *Vallum Romanum* map, of c. 1751, does not mark this line, but one running south of Watchcross, much in the position of the modern road. It was also observed that a resemblance to modern work could, in the light of work then recently done upon the Stanegate, no longer be advanced as real proof of a modern date. This caution is now fully justified by the result at High Crosby, where the continuation of this very road is constructed in exactly the same way and associated with ditches containing Roman pottery. Finally, the cutting has not been made by a sinking of the road surface. It is well known that this phenomenon only occurs when the road is worn, like a pack-horse track, in the natural soil, or when traffic at last cuts through a ruined road-surface. At Buckjumping the surface was in good order, and there can be no doubt that the cutting is an artificial work. It may be recognized as a work in the same tradition as the great cutting, already described, at Old Church. Its purpose, however, is a little different. The Old Church cutting was made both to ease the gradient and to provide material for a mighty causeway. The glacial hillock at Buckjumping was an obstacle in the direct course of the road, and the work of cutting through it compares with the huge cuttings by which such roads as

Viae Clodia and Cassia traverse the hillocks of soft volcanic mud in the Campagna,* north-west of Rome itself. The device can thus be linked with arterial roads which radiate from the Capital of the Empire.

No trenching was done at Buckjumping, but three trenches were cut in Watchclose plantation in order to verify the earlier work (*Trans.* o.s. xiv, 425). The former workers had found that "the *agger* visible on the surface was about 27 feet wide, and the thicker part of the road (cobble and river-gravel) 24 feet wide, but the stones had spread out to a width of 45 feet." Our experience was exactly similar, and it is unnecessary to do more than repeat their words, while dissenting from the conclusion, for reasons already expressed, that this was a modern road. The spreading of the road-metalling would appear to be largely due to weathering and disintegration. Watchclose, until the Enclosure Act, was common pasture, and this explains the preservation of the actual mound of the road wherever planting, as opposed to tillage, subsequently took place. Fortunately for the archaeologist, plantation happened to be frequent in this particular sector.

(3) *The Irthing crossing.* It is evident that the Stanegate, from Buckjumping westwards, has been sighted upon or from Redhills, the prominent hillock south-west of Irthington. Between that point and the Irthing all traces are missing, and it is uncertain whether the road continued in line with the long straight course to the west, or whether, in common with so many Roman roads, which change direction at a high point, it changed its course at Redhills. It may be observed, however, in disfavour of the straight course, that this would involve the erection of a very long causeway across the wide holms, which are liable to flood and seamed with a bewildering

* Ashby, *The Roman Campagna in classical times*, 233 (Via Clodia), 240 (Via Cassia).

number of old river-channels. A change of direction to the north-east would evade this difficulty by carrying the line along the terrace upon which Irthington village stands, raised safely above flood-level.

The course through Irthington also leads, upon the same line of terrace, to the oldest known bridge across the Irthing. The remains of this bridge consist of a mass of mortared masonry in position (perhaps a pier) and scattered ashlar, and were discovered in the river-bed by Mr. St. Joseph in September, 1935. They lie at the north end of the bend in the river about 400 yards below Irthington Mill. Subsequent inquiry showed that they appear to be unknown to local historians, but the bridge itself is marked as "Irdington bridge," in Lord William Howard's Survey of 1603 (*Extra Series*, xvi, 39). It is not suggested that the rediscovered bridge is Roman work, but that it is significant as marking almost the first point where the river can be conveniently bridged above the lower and wider holms. Terraces upon both banks of the river here reduce the bed to narrow proportions, and such a point would attract the attention of road-builders in all ages.

Another reason, however, may now be adduced for thinking that this crossing was selected by the Romans. The approach to it from the east is by the straight occupation-road to Crooked Holme, branching from the main Brampton-Longtown road. This road also is marked upon Lord William Howard's Survey of 1603. It is no mere farm-track. On its course westwards it has to cross two old river-channels, running from north to south across each pair of fields bordering the road east of Crooked Holme. The crossing is made upon two wide causeways, quite out of proportion, as at Old Church (see p. 178), to the needs of any farm-road. There is therefore good reason for thinking that this road is upon the Roman line. Its direction is of especial interest. It aims for a point about eighty yards south of the rediscovered

Irthington bridge, and is in direct line with the eastern portion of the main street through Irthington village, which skirts, in point-to-point straight sectors, the lands liable to flood. Thus, it would not be surprising to find that the rediscovered Irthington bridge was the medieval successor, built further upstream, of a Roman structure.

(b) FROM BOOTHBY TOWARDS NETHER DENTON.

Eastwards of Boothby it is evident that the course of the Stanegate towards Nether Denton can never have been easy to engineer. The valley bottom is flat and wide, but liable to inundation each winter and therefore unsuitable for a trunk road. Even modern communications avoid it as much as possible. The steep valley sides, now heavily planted with woods, are liable to landslips of the soft soil, and are scarred with deep and wide ravines. We cannot therefore expect to find here a road along the valley side such as that which runs up the east side of the Lune Gorge. The only possibility left is that the road ran along the top, where Boothby fort is situated. Its course would be difficult to find in land which, unlike Crosby Common, has been tilled for centuries, but it would be governed by the points where the ravines could be crossed. With this factor in mind, the ravines of Quarry Beck and Pottscleugh were examined.

(1) *Quarry Beck West.* The west side of Quarry Beck is occupied by a notable cutting, about 100 yards long, which occurs at the first point where the ravine is easily negotiable, at the spot now occupied by the Naworth Estate saw-mill. The modern lane is a steep sunk track. The ancient cutting, by slicing right through a prominent southern shoulder, descends the hillside in an S-curve which gives a steady gradient; and the material from the cutting was used, somewhat as at Old Church (p. 178), to build up an embankment, now largely eroded, which sloped down to the crossing of the stream. On examining the cutting, a bottoming of river-gravel and cobbles was found,

together with some trace of revetment of the south side of the cutting, where the hill is steep. The remains of the roadway thus formed are now about nine feet wide, but subsequent washing away of material from the upper levels may well account for the apparent reduction in width. The presence of metalling further up the cutting towards the west was ascertained by trial-holes. One of these showed that the edge of the road was marked by the stumps of small wooden stakes; and, while these had no function in binding the road, they probably represent the remains of bratticing which retained the sides of the cutting.

(2) *Quarry Beck East.* The road already described crossed the stream by means not now visible, and made its way eastwards in a long cutting, stretching for at least 150 yards, which represents the artificial enlargement of a natural gully. The natural curves have been converted to a series of straight lines, much as the secondary ditch of the great Wall is cut straight in the natural gully at Garthside (*Trans.* N.S. xxxiv, 140). Trial-holes also revealed a well-laid bottoming of river-gravel and cobbles here. This bottoming was found to extend very widely at a point where the natural gully branches into three arms, and it is still uncertain which of the branches was taken by the road. All doubt, however, as to whether the material was artificially placed, was set at rest by finding at its edge small stakes of the same kind as had first been discovered in the west cutting.

(3) *Pottscleugh.* The natural course for the road would then be through Naworth Park, crossing the Castle Beck somewhere near the artificial lake, and aiming for Nether Denton. The next great obstacle is the deep Pottscleugh, which is crossed by the most remarkable work of the series. This was first noted by Mr. St. Joseph, and later examined by all interested in the problem, including Mr. R. P. Wright. The west side of the cleugh is approached by a

great cutting, about 100 yards long, which has provided material for a gently graded embankment, also about 100 yards long, leading down to the stream. An equally bold cutting, about 150 yards long and at least twenty feet deep, leads out of the cleugh towards the east, taking the road on in a sweeping curve which follows the contours towards Carling Gill, crossing it at the modern ford, below which point the ravine must have been impassable. The very magnitude of these works demonstrates that they belong to an ambitious scheme of road-making, long preceding the creation of Naworth Park in the fourteenth century and therefore attributable to no engineers but the Romans. In order to establish the presence of metalling in this sector also, trial-holes were made in the west cutting. Towards the top of the cutting, all remains appeared to have been washed out. At the point where the cutting emerges into the true valley its floor is formed of rock, of which the crevices were still packed with road-metal, while the surface had been deeply worn with ruts.

It was also noted that close to the rock-cut sector an alternative and more southerly course had been made by cutting a broad terrace in the side of the ravine, thus achieving a gentle gradient. No examination of this feature was made, but it is itself no small work, and seems to represent an improvement made when storms or traffic had rendered the great cutting impassable. Its date may be left to future inquiry, but it is obviously not impossible that it might prove to be a later Roman modification.

From this point to Nether Denton, the ground remains unexplored, and it will be sufficiently obvious that in the sector so far described our work represents a preliminary survey, in which gaps still exist. The inquiry itself is not unlike tracing a railway of which the lines have been removed and the course ploughed. Only the cuttings and embankments would then be recognizable, and the inquirer would seek them at natural obstacles upon the course.

This analogy is worth pushing a little further, because it reveals a useful distinction between the work of the Roman road-makers and the railway-engineers. The railwayman is dominated in his choice by the problems of gradient and curve; the need to avoid too great a degree of either leads him to cut, embank and tunnel in almost any kind of material. The Roman road-maker cared less about avoiding curve and gradient, yet delighted in a straight course and embanked where he must. Cuttings, however, were rarely made by him except for the express purpose of providing material for embankments and of negotiating awkward hummocks; and even then the absence of explosives much restricted the field of action. But in eastern Cumberland, as in the northern Campagna, the soft soil and the need for embanking at the ravines combined to offer ideal conditions for such engineering, and it is one more testimony to the Roman appreciation of local conditions that full advantage was taken of the possibilities. This explains both the rarity and the rationality of the cuttings, which are now described for the first time, and form a notable clue to the course of a road considered lost beyond recall.

The warmest thanks of the Committee are offered to the landowners: The Earl of Carlisle at Quarry Beck East and Pottscleugh, the Lady Cecilia Roberts and Mr. Charles Roberts at High House and Quarry Beck West, the Lady Henley at Old Church, Mrs. Hays at High Crosby, Miss Little at Watchcross, Colonel Standish at Watchclose, and Messrs. Potts at High Crosby, and to the tenants, for permission to excavate; also to Mr. W. James, Agent for the Naworth Estate and Mr. S. Walton, Agent for the Boothby Estate.