ART. III.—*The Roman fort at Burrow Walls, near Workington.* By R. L. BELLHOUSE, B.Sc., with contributions by J. P. GILLAM, M.A., F.S.A., and BRIAN BLAKE, M.A.

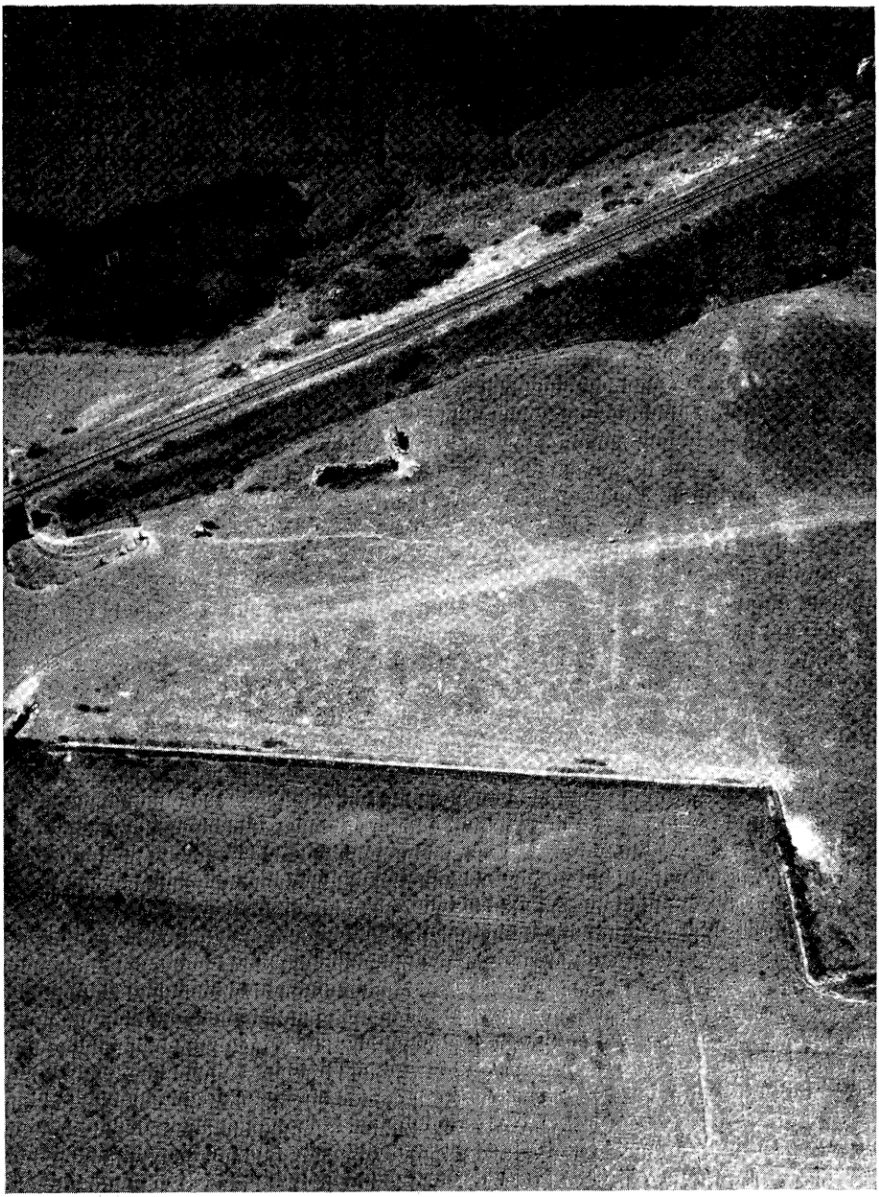
*Read at Penrith, July 12th,* 1955.

## I. INTRODUCTION.

THE decision to organise an excavation at Burrow Walls was made early in 1955. After the success of the previous season's investigations into the Roman coastal signal-system in the Beckfoot sector (CW2 liv 28-55), I felt that the time was ripe for a further search for Roman sites, and I started to collect what relevant facts I could; Collingwood's paper of 1928 provided, as before, a convenient starting-point.[1] Of Burrow Walls he came to the conclusion that the lower parts of the upstanding walls represent the remains of a Roman fortlet, to accommodate men for one or more signal-towers in that coastal sector. The two massive fragments of masonry still standing are certainly medieval,[2] but some of the facing-stones still remaining remind one forcibly of the stone dikes and farm-buildings near Hadrian's Wall; this observation alone would have made an early investigation of the site imperative, to settle the questions whether the "Walls" were in fact on Roman foundations and, if so, whether this was the site of a mile-fortlet or of a tower. Measurement from Burrow Walls to the known tower-site at Risehow, a little south of Maryport, gave ten units of 540 yards and 50 yards over; this immediately

[1] CW2 xxix 138-165; Burrow Walls is dealt with at 157 ff., with two half-tones of the visible masonry. There is no need to repeat here the references to earlier writers which Collingwood gave in footnotes; but he missed the important account in Whellan, which is therefore quoted in the present paper.

[2] See Mr Blake's discussion in a later section of this report.



PL. I.—Roman fort, Burrow Walls, from the air.

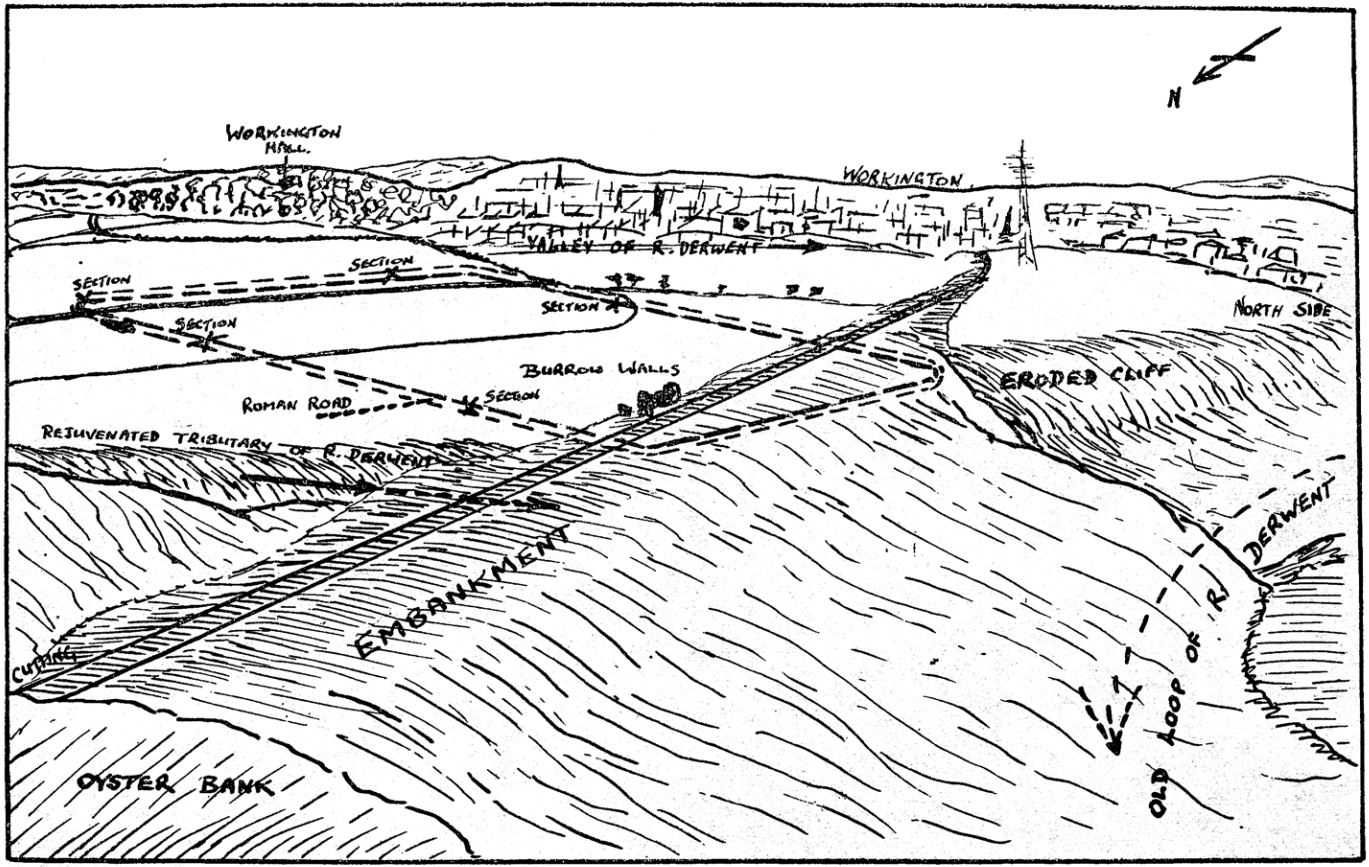
*Photo: K. St. Joseph.* *Crown Copyright reserved.*

*facing p.* 30.

PL. II. General view of Barrow Walls.

*facing p.* 31.

*Photo: Brian Blake.*




*Over Pl. II.*

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suggested that we were dealing with a unit in the coastal sequence,[3] and that Burrow Walls represented a tower-site—and even at this early stage I began to wonder if there might not be something, after all, in the tradition of a Roman fort here. The following extract from Whellan, sent to me by Mr Eric Birley, F.S.A., seemed particularly suggestive, since it is clearly derived from a well-informed local source:[4]

On the north side of Workington is a Roman camp or station, called Borough or Burrow Walls, which appears to have been overlooked by all historians. That it has been a station of some importance, is proved by the foundations met with recently, and which have been traced over an area of at least twenty acres of ground. It would seem that no remains were found previous to 1852. In that year the workpeople employed by Mr. Jackson, of Seaton Mill, near Workington, whilst engaged in digging about the foundations of the present walls, for the purpose of draining the land around, met with several Roman altars, in a very dilapidated state. One of the most prefect of them Mr. Jackson has kept, and it may be seen in his garden at Seaton Mill.[5] . . . This altar was discovered close to the foundation of what appears to have been the main entrance to the station. Besides the Roman altars found, there were several pieces of earthenware, or Roman pottery, discovered; as also quantities of hand mill-stones, for grinding corn, and some tablets, one of which (in the possession of Mr. Jackson, of Seaton Mill), has the following letters inscribed on it, S L A N. Some human skeletons were also dug up, which, on being exposed to the air, crumbled to dust. The skeletons were found on the breast of the hill, close to the foundation of the west wall, where there was also found a quantity of very large rams' horns, broken, and teeth and bones of various animals, as if they had been thrown in a heap and buried.[6]

[3] Cf. CW2 liv 30-34.

[4] Whellan, *Cumberland & Westmorland* (1860), 464; no indication of the source is given.

[5] This altar is C. 361 (illustrated, *Lap. Sep.* 905); it is now in the collection at Lowther Castle.

[6] William Dickinson of Maryport, describing the site to this Society on 17 June 1880 (CW1 v 22 ff.), mentions that the finds made in 1852 included "bones and horns of large deer" and "oyster shells and ashes;" but neither he nor Whellan's informant has any reference to the discovery of coins, noted in W. G. Collingwood's inventory (CW2 xxiii 249), no doubt on the basis of Chancellor Ferguson's clearly impromptu address of 24 August 1899, reported in CW1 xvi 51. E. B.

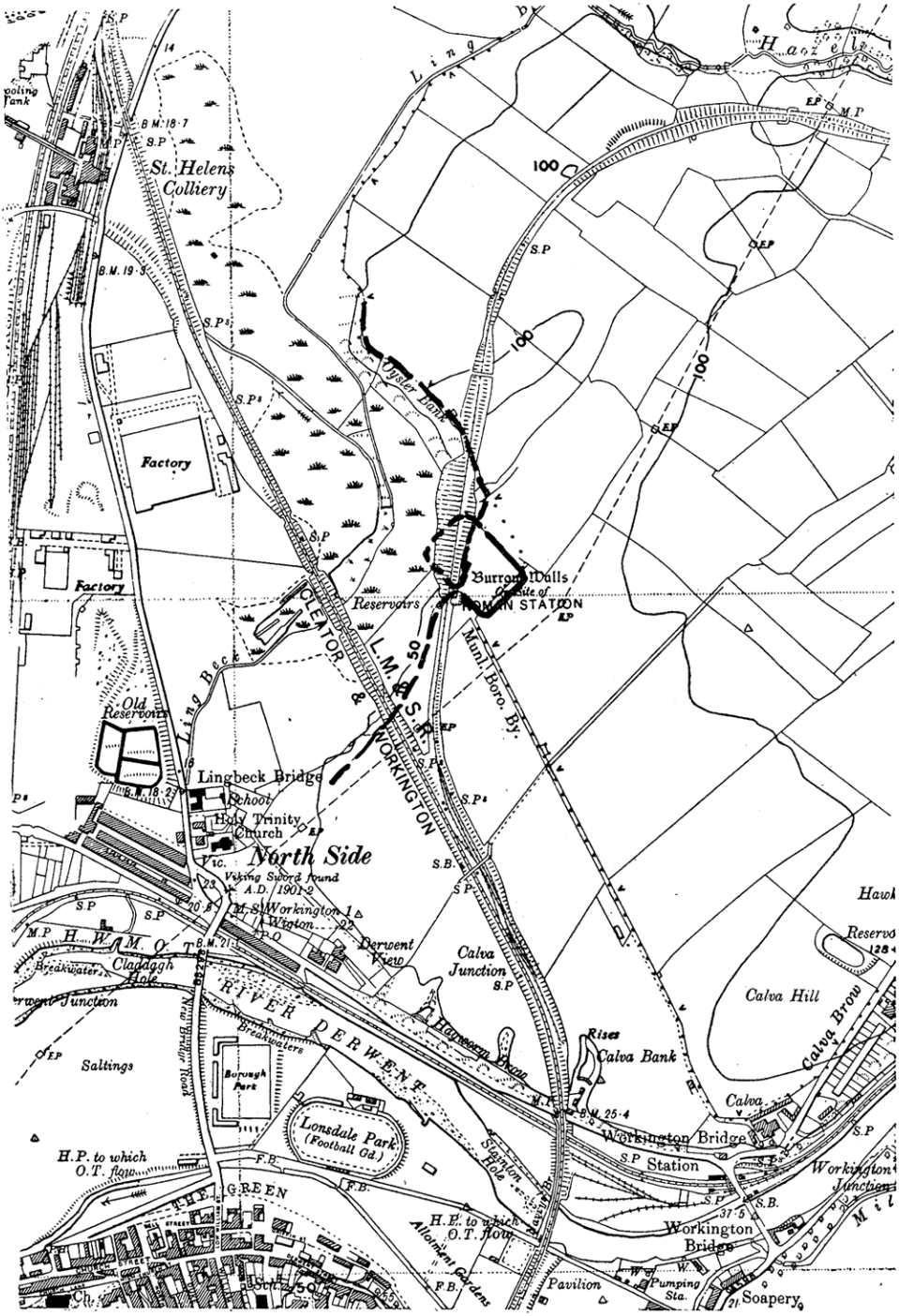


FIG. 1.

(Reproduced, by permission, from the Ordnance Survey map; Crown copyright reserved).

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This report clearly strengthened the case for a large fort rather than a fortlet or a tower, but the final evidence came in the form of two of Dr St. Joseph's air photographs: these showed some most interesting marks, the medieval walls seeming to stand near the centre of a faint oblong, with two rounded corners clearly visible at its east end, and giving in partial outline something strictly comparable with the outlines of the known forts at Beckfoot and Moresby. It has long been realised that another Roman fort must await discovery, somewhere on the Cumberland coast, to complete the chain attested by the geographical sources; on the case now established, excavation at Burrow Walls was obviously desirable, and the Society accordingly made a grant from its Research Fund towards the cost of a preliminary investigation. In addition, the Durham University Excavation Committee made a grant towards the expenses of students sharing in the work, which took place in the five days, 11-15 April 1955.

## II. THE SITE (map reference 003301), fig. 1.

Burrow Walls, now almost a mile from the sea, lies in a field on the farm of Mr T. Mitchell, Calva, close to the edge of an ancient cliff above the Siddick marshes; it is certain that erosion, probably by a loop of the river Derwent, has taken some of the cliff away in historical times, as Mr Blake points out in his analysis, later in this report. The edge of the cliff is now concealed by the embankment of the branch railway line to Seaton and Camerton, and the surviving fragments of walling are perilously close to this edge.[7] The site slopes gently towards the south-west, with rising ground to the north; the ruins stand in an appreciable hollow, quite close to the railway on the west side of the site. On the north

[7] The bluff called Oyster Bank (which Collingwood, CW2 xxix 159, takes to have been the site of a signal-tower) probably owes its name to a shell-midden revealed thereabouts by erosion.

side, where the air photographs show a number of faint parallel lines, there are several parallel ridges on the ground, strongly suggesting remains of a rampart and ditches. The outlook to the south-west and south-east is extensive, but to north-east and north-west very limited. A well-built mortared field-wall bounds the area on the east side and beyond this wall, in newly ploughed arable, it was possible to trace a line of ploughed-up cobbles and reddish earth, approximately where the air photograph showed scorch-marks in a field of ripening corn.

## III. THE EXCAVATIONS.

It was decided to explore parts of the site by the "square method". I therefore prepared, by enlargement from the 25 in. Ordnance sheet, an approximate plan of the site on a scale of 1 in. to 25 ft.; on this I ruled a grid of 100 ft. squares, and lettered and numbered the co-ordinates. This key grid, transferred to the ground, provided the main frame for our proposed 10 ft. squares, and will also allow the results of future excavations to be plotted in accurately, in relation to the results already obtained. It should be added that in each square the actual excavation would be 8 ft. by 8 ft., leaving 2 ft. balks all round.

A great deal of the preliminary organisation was undertaken by Mr Brian Blake, who also undertook the photography; Mr. Iain MacIvor joined us on the first day and thereafter took over the supervision of the detailed work on the various features soon revealed by the efforts of our paid workmen. We also had the help of Mr Wilfred Dodds, Mr Birley's departmental assistant, and three Durham students (R. G. Dottie, Keith Foreman and Miss Joyce Jones); Mr Dodds was responsible for the care and recording of small finds. I myself was thus left free to observe progress as a whole, and to keep a detailed record of the work, bearing in mind that the writing of a report would be my most important responsibility.

The first three days were spent laying off and opening up squares; on the fourth day all hands were detailed for the essential cleaning up of revealed features that required photographing, and the last day was reserved for the final planning, drawing of sections, and the beginning of filling in our trenches. A final check on the ground, by a long diagonal across our 100 ft. squares, satisfactorily confirmed that they were indeed square, and our base-line was tied in, by measurement from the field-wall, so that the squares could be quickly laid out afresh if need be.

The ordinary reader of *Transactions* will probably be just as interested in the way excavations progressed as in the final results; I therefore propose to describe the sequence of events and the features revealed, as recorded in the log-book, and to show how the gradual building up of the evidence gave us the final (if rather limited) picture. Reference should be made to the plan, facing p. 44, which shows the 100 ft. grid and outlines the squares opened; the 10 ft. squares are numbered 1-100 in sequence from the top left-hand corner of each 100 ft. square.

*11 April.* Digging began at 9-15 a.m. on squares D4/100, E4/91 and D3/89. Features soon appeared at no great depth: D4/100 showed a level of uniform yellowish sandy clay, with small gravel; E4/91 showed grey, gritty silt and isolated blocks of stone, obviously ditch-filling, and the north lip of a ditch was soon identified in E4/92, its other lip being no doubt concealed beneath the balk between D4/100 and E4/91. D4/99 showed a cobbled area 6 in. thick, set in red clay; a small pit sunk through this showed that the cobbling rested on normal undisturbed subsoil. D4/97 and 98 revealed another rather indeterminate ditch, filled with grey pasty silt; a modern rubble drain crossed the square and, when exposed, water from it quickly filled the diggings and made further investigation here impossible. Squares D4/98-100 produced our first pottery finds, all quite close to the surface, some of them readily identified as Huntcliff ware. Squares D3/89 and 68 showed ditch-filling and tumbled blocks and cobbled spread respectively, as in E4/91 and D4/99. In D3/68 the edge of the cobble and clay showed a distinct curve, and in the right-hand lower corner a distinct change of colour, indicating the lip of a ditch.

At this stage we had proof of Roman occupation, and the obvious interpretation of the clay and cobble feature was as a rampart foundation, no doubt the cause of the pale line on the air photograph; but, while a ditch outside the rampart had been revealed, another immediately inside, producing 4th century sherds, posed a real problem. Work ceased at 5 p.m.

*12 April.* Squares E4/93 and 94 revealed the second outer ditch filled, like the first, with grey pasty silt and with tumbled blocks, in the silt, at approximate ditch-centre. Squares D5/8 and 29 were opened, the first showing an indeterminate mass of earthy rubble, the second producing the cobbled rampart-base. Squares B4/91 and 92 revealed the rampart-base of the south wall of the fort, and also the inner ditch close beside the cobbling, exactly as on the north side. D3/87 was next opened, to determine the continuation of the lip of the ditch previously found in D3/89. Further pottery finds were mostly Huntcliff ware, all of them associated with the ditch *within* the rampart.

*13 April.* D4/95 and 96 were opened, but revealed no features. E4/95 and 96 proved an outer ditch, its inner lip clear but the exact position of the outer lip obscured by the foundations of a modern field-wall, the line of which can be clearly seen on the air photograph as a continuation of the short length of dike, approximately at right-angles to the existing stone wall crossing the east end of the site. The recent demolition of this wall is proved by a spread of mortar debris immediately below the turf. E4/96 showed undisturbed boulder clay under the turf, thus proving the steeply rising bank, beyond the outer ditch, to be a natural feature.

At this stage it was clear that we had outlined the rampart and ditches of a Roman fort. Further squares were next opened, to enable us to plot the curves of the north-east corners of the rampart and the first ditch; squares C3/71, 81 and 91 were opened to give us the line of the east rampart and first ditch, and square D5/28 revealed the mysterious internal ditch close against the inner edge of the clay and cobble rampart-base in D5/29. The feature in D5/8 was obviously this ditch, filled with earth and cobbles.

The evening of this third day saw the end of exploratory digging, and the rest of our time was spent in displaying the features revealed in the significant squares, for planning and photographing. It is a pity that the high water-level in all the ditches prevented us from digging even one of them completely out, but measurement of the angle of slope, in a number of places, showed them all to have a batter of between 35 and 40 degrees. No certain 2nd century pottery was found. Some

small pits on the line of the east wall showed a break in the clay and cobbles, half way between the corners, which should indicate a gateway, and we can infer that the long axis of the fort lay approximately NW. to SE.

## IV. SUMMARY OF RESULTS.

A Roman fort of Hadrianic type, strictly comparable in shape and situation with Beckfoot and Moresby, has thus been revealed. No trace of masonry survives above its normal clay and cobble foundations, which are 8 to 10 ft. wide and so allow for a fort-wall some 7 to 8 ft. thick. The width of the fort, across the ramparts along ordinate no. 3, is 292 ft. The average width of the berm is 8 ft.; the first ditch is 16 ft. wide between the lips, the second about 18 ft., and the two are separated by a strip 12 ft. wide. Immediately within the rampart-base, on both north and south sides of the fort, lies a later ditch, about 15 ft. wide, which has produced 4th century pottery; this ditch was not found near the east rampart, but it is visible as a surface feature on the north side of the site. Assuming the fort to have been about 400 ft. long (as at Beckfoot), approximately a third of it has been lost by erosion. Although a gateway can safely be inferred at the centre of the east end, it is doubtful if either of the side gates, north or south, remains. It is hoped that there may be an opportunity for further work on the site, at some future date, to uncover the east gateway and to dig out the ends of the ditches in front of it; 2nd century sherds, which are badly needed, might well be found there.

## V. CONCLUSIONS.

We seem to have here a typical 2nd century fort; like those at Beckfoot and Moresby, it is not on a "natural" site, and its distance from Risehow tower is near enough to a multiple of 540 yards for direct comparison with Beckfoot to be justified: it suggests that this fort, too,

may have been added later, to strengthen an existing system of towers and mile-fortlets, and that it occupies a site originally selected for a tower.

The later ditch, giving us evidence for a smaller fort within the ramparts of its predecessor, brings to mind the reoccupation of the mile-fortlet at Cardurnock, with a corresponding reduction in size, in the 4th century.[8] Stone-robbing, of whatever period or periods, has been very thorough; it is not beyond the bounds of possibility that the original fort-wall was demolished in Roman times, just as the coastal towers appear to have been.[9] Certainly, with the fort at Maryport only 5 miles to the north, and Moresby 5½ to the south, a case could well have been made out for abandoning this fort as redundant — unless, of course, it was placed here to serve some special purpose. For example, there may have been a good anchorage here in Roman times, as Mr Blake points out below.

* * * *

I am grateful to Mr T. Mitchell, the owner of Calva farm, and his manager Mr Peter Cullum, for allowing us to dig in their fields; to Mr Handley Kay for the loan of a dumpy level and to the Cumberland Prehistoric Society for the loan of tools. Members of the Carlisle Regional Group gave us valuable assistance, and Miss M. Roberts, of Peterborough, also helped in the digging, in addition to those mentioned above. Mr John Gillam has kindly provided the report on the Roman pottery, and Mr Brian Blake those on the medieval occupation and on the physical geography of the site.

## VI. THE ROMAN POTTERY.

By John Gillam, M.A., F.S.A.

Of the illustrations on fig. 2 and the descriptions which follow, nos. 1 and 2 are of actual fragments found at

[8] Cf. CW2 xlvii 78-127.
[9] CW2 liv 47 f.

Burrow Walls, while nos. 3-5 are of complete vessels, found elsewhere, which show the late 4th-century types represented at Burrow Walls by small but securely identifiable fragments.

1. Fragment from a carinated vessel in a grey fabric: an East Yorkshire product of the 3rd or early 4th century. From A4/70.

2. Fragment from a cooking-pot of the Huntcliff type, in calcite-gritted fabric: second half of the 4th century. From B4/98-99. Further fragments from the rims of vessels of the same type came from B4/92, B4/98 and D3/97, and wall-fragments in the same fabric from A4/70, B4/92, D4/98 and D5/98.

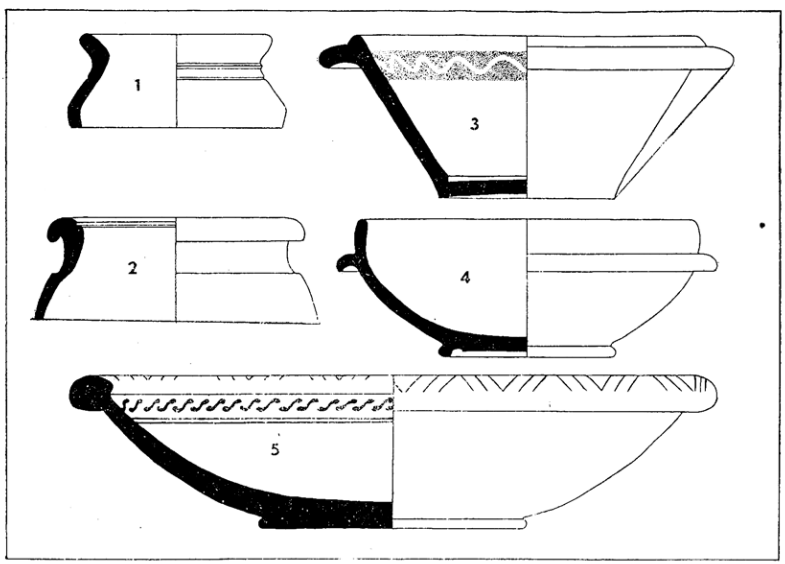



FIG. 2. (¼).

3. Vessel of Corder's Crambeck type[10] 1b, in grey fabric. Fragments from more than one vessel of this type came from A4/74 and B4/92.

4. Vessel of Corder's type 5, in smooth orange fabric. A fragment of this type came from D4/98.

5. Vessel of Corder's type 10, in smooth yellowish-white fabric and, when complete, with red-painted decoration. A base-fragment of this type came from D5/28.

[10] *Antiquaries Journal* xvii (1937) 392-413.

Only two vessels were recognisably earlier than the 4th century in date: these were the rim of a Hadrianic-Antonine cooking-pot, in black-fumed fabric (from A4/70), and no. 1 above. All the other recognisable Roman fragments are of late 4th-century date and can he matched from deposits of the last period on Hadrian's Wall. The high proportion of such late pieces, many of them from the inner ditch, is very striking.

## VII. THE MEDIEVAL OCCUPATION.

By Brian Blake, M.A.

Mr Bellhouse's discovery of the Roman fort at Burrow Walls may have settled one controversy, but the name Burrows Walls still indicates the existence of doubt when applied (as it has been for centuries) to the two pieces of masonry which stand within the ramparts of the fort. This subject, too, will eventually need much research and a skilled spade for its elucidation; meanwhile, the following notes may serve to pose the problem.

The remains consist of two fragments of wall, one roughly 40 ft. long and the other 15 ft., standing at right-angles to each other. The walls are about 10 ft. high and 4 ft. thick, and consist largely of core material, rough stones set in hard mortar; many of the stones are slanting, as in herringbone work, and there appear to be at least two kinds of mortar, some of it fairly recent. At several places on the walls there are a few horizontal courses of facing-stones. It is generally agreed that the work is Norman, and that there is a faint indication (stronger in the past) of a newel staircase in the north-east corner.

R. G. Collingwood considered that the remains showed masonry of two distinct periods, the first representing a Roman fortlet and the second a medieval building. It is true that some of the facing-stones have a distinctly Roman look, but it must be remembered that Collingwood's guess (and that is all that he claimed) was made when the existence of a Roman fort here was not suspected; now the discovery of such a fort removes the possibility of giving the ruins a direct Roman context, though there is no doubt that re-used Roman stones are incorporated in them.

The Rev. C. M. L. Bouch, F.S.A., kindly provides the following note on the medieval occupation of the site:

There is no reason to question Denton's statement that Orme son of Ketel (the ancestor of the Curwen family) was lord of the manor of Seaton, and the builder of a castle there; he adds, writing in 1610, that "the walls and ruins of his mansion house are to be seen there at Seaton to this day" (*Accompt, &c.* = this Society's Tract Series ii, 1887, p. 34). Denton also states (*ibid.*, p. 36) that Orme's great-grandson Patric, who took the name of de Culwen (later spelt Curwen), "pulled down the mannor house at Seaton, and dwelt thenceforth at Workington."

William Jackson, in his paper on the Curwens of Workington Hall (*Papers & Pedigrees* i = this Society's Extra Series v, 1892, p. 291), clearly identified Burrow Walls as the site of Orme's residence. After describing how Orme obtained Seaton and other manors, he added: "whereupon he built himself a fortified dwelling, most probably of the usual peel tower type, on the edge of an acclivity sloping rapidly seawards, well suited both from its position and the abundance of stone offered by the neighbouring Roman Camp (which it is evident must have been at no great distance), for the erection of such a fortalice. The very name of "Burrow Walls" seems to bear traces of this composite structure." Again, Jackson notes (*ibid.*, p. 296) that Orme's descendant Patric "abandoned the Tower at Burrow Walls, and took up his residence at Workington, on a promontory of the eminence, or cliff, overhanging the carse, or haugh, immediately beneath, and known as the Cloffock, undoubtedly a corruption of cliff-haugh."

This change of residence seems to raise almost as many questions as it answers.

Why did Patric leave a large, stone-built fortified hall, of 12th century date, for a much less imposing building (probably of timber), which was only replaced by a pele in the 14th century? Two explanations suggest themselves. Burrow Walls might have been large and strong because of its convenient supply of Roman stone; the new building at Workington Hall was on a site of greater defensive strength, and might well have been more comfortable. Or it may be that Burrow Walls was treated as an adulterine (i.e., unlicensed) castle, and evacuated by command of the king, in a period when there was at least internal stability in the country. But in any case, we cannot exclude the possibility that the erosion referred to in the following note may have led to the move.

Whatever be the true history of Burrow Walls, however, they offer us a unique subject for further study. The fragments remaining above ground imply a building much more imposing than the peles which were to follow a century or more later; and the traces of medieval stonework noted in our excavation, but not yet planned in detail, indicate extensive additional buildings.

## VIII. THE PHYSICAL GEOGRAPHY OF THE SITE. By Brian Blake, M.A.

The fort occupies a gentle slope on the north of the Derwent. Inland, the ground rises at first gently and then more steeply until it reaches 200 ft. at High Seaton. On the seaward side there is an abrupt drop in a cliff (now largely disguised by a railway embankment), to marshes only about 20 ft. above sea-level; these marshes are separated from the sea by a low-lying mixture of warp, raised-beach material, sand and shingle, that is almost obscured by the artificial coastal formations created by industry.

Most of the coastal road between Workington and Silloth runs along a raised beach, and inland from this road is a bluff which represents its associated cliff and wave-cut platform; this feature exists in the Burrow Walls sector, especially at the foot of Oyster Bank, but its formation was of course far too early to have caused the erosion which has removed part of the Roman fort: we must therefore seek an alternative source of erosion. It seems simplest to suppose that the Derwent has been responsible:

It is necessary to postulate a now disappeared meander of the Derwent around the spur of North Side; such a meander might easily have existed in Roman times and increased its curve century by century.[11] Alternatively, a meander might

[11] The discovery of a canoe (insufficiently recorded, unfortunately) at the foot of Oyster Bank, during the 19th century, might possibly indicate a pre-Roman loop at that point.

have been forced on the Derwent by the action of waves forming a spit of sand and shingle northwards from the high ground at Chapel Bank; traces of such a spit may be observed there at the present day — and the northward drift along this stretch of the Cumberland coast is a feature often noted by scientists and swimmers alike (by the latter especially when it carries tar and coal!), and the Grune is a good analogy to quote.

Whatever the cause, it is obvious to-day that at one time a loop of the Derwent swept under Burrow Walls, eroding much of the land and leaving evidence of its channel in the form of river silt, sand and marsh; the mouth of the river, during that period, would be in the region of St Helen's colliery. Higher upstream there would have been even greater cutting on the opposite bank at the North Side curve, where the faster (because more confined) river is released from a straighter channel; in time this cutting would breach the obstacle (which could never have been very large) and give the Derwent a direct exit to the sea.[12]

It is possible that this cutting action might have had human assistance: the fishing rights in this district were for long held by Holm Cultram, and 12th and 13th century charters often mention the right to divert the Derwent. But natural causes were operating as well, for the lessees of the fishery were complaining, early in the 13th century, that a diversion of the river was prejudicial to their fishing, and in the last years of the century they were given a new grant, "as the place they had formerly held had been carried away".

## APPENDIX: LATER EXCAVATIONS.

Further digging was done at Burrow Walls at the end of July 1955, in order to display some of the features already discovered, on the occasion of a visit by the Carlisle Regional Group. I had hoped to expose the east gateway and to seek further information about the fort's ditches (information previously denied us by the

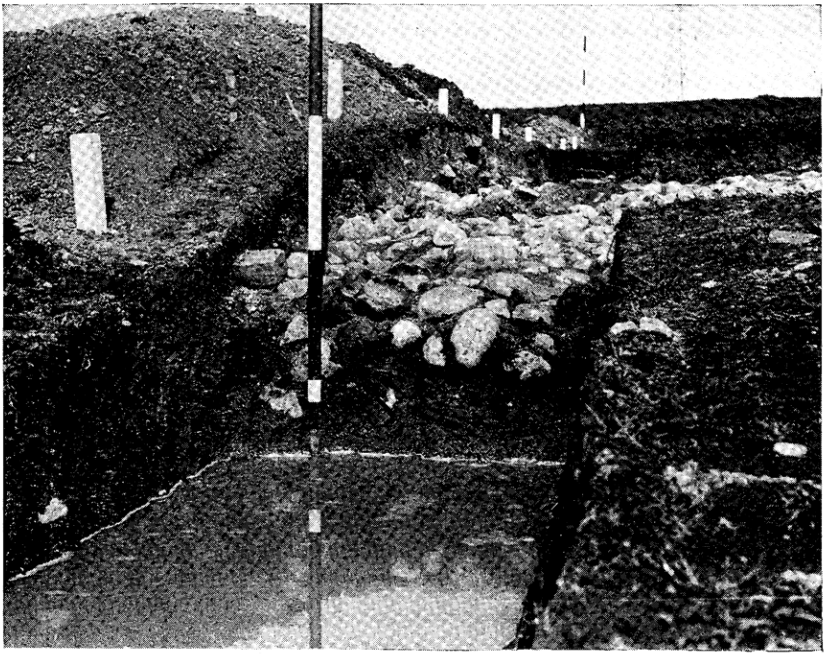
[12] There is a comparable case at Maryport, though it is not necessarily of the same period: the Ellen at one time reached the sea at Bank End, but it eventually broke through the sandhills to the south of Maryport, thus cutting its present mouth.

high water-table); work at the gateway proved impossible, however, as the crop of field-peas had not yet been harvested, and work was concentrated on other parts of the site, with useful results — including the discovery of the Roman road northwards from the fort, giving us the position of its north gate and, by analogy with Beckfoot (for example), suggesting a long axis of some 450 ft. for Burrow Walls. Details follow.

The following 10 ft. squares were laid off, and slit-trenches opened in each: D3/26, 27, 29, 30, 31, 38, 39 and 40. They revealed features of rampart-base and ditch in the correct places in relation to the master-plan; but while the water-level was very much lower than it had been in April, we were still unable to dig deep enough to be certain that we had reached ditch-bottom. The late ditch, within the rampart, contained great quantities of squared building-stones, both red and grey, and seems to have been very roughly dug: its lips and sides were difficult to determine, and its depth seems to have been no more than 5 ft. Certain 4th century sherds came from ditch-bottom.

In square D3/21 we made a half-section across the first outer ditch, and reached a depth of 8 ft. 6 in. before we were compelled to stop, owing to the difficulty of hoisting the bucketfuls of silt. The only sherds found here were at a depth of 6 ft., in grey pasty silt, and were all easily identifiable late types, comparable with those at the bottom of the late inner ditch. The sloping inner side of the ditch was exposed, but at a depth of 5 ft. it suddenly ended in a vertical line, suggesting an old bank-slip. Certainly, the material at ditch-bottom, which yielded no finds except some roots and branches of birch, puzzled us greatly: it was neither ditch-silt nor boulder-clay, but something of each, and therefore most easily explained as the loose material from a slip, partly mixed with normal silt. This fallen material, by its weight and tenacity, set the limit to our depth; but considering the slope of the sides, and the width of the ditch at top, I am satisfied that we reached a point very close to the true bottom.

The filling in the ditch seemed to show five distinct levels, with two periods of stability; but the colour change 5 ft. down may have been due to soil conditions familiar to the pedologist. The lowest level, a grey sticky clay (bank slip), contained pieces of birch wood, suggesting a fairly lengthy period of abandonment during which the ditch-sides decayed and scrub trees were able to flourish. No sherds occurred until nearly 2 ft. of silt had

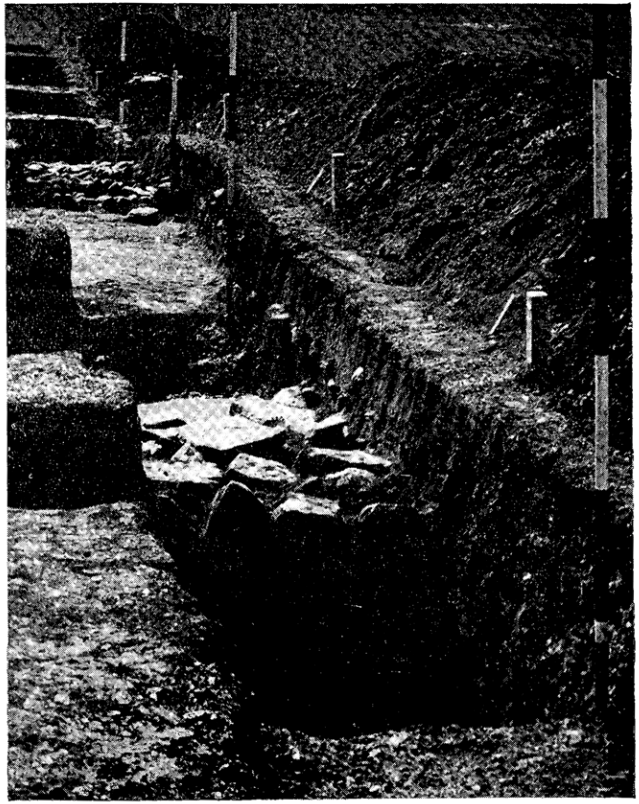


PL. III, 1.—Inner edge of rampart-base, showing inner (later) ditch.

PL. III, 2.—Clay and cobble rampart-base, revealed in square D4/99.

*facing p.* 44. tcwaas_002_1955_vol55_0006 *Photos: Brian Blake.*

PL. IV, 1.—Section across E. wall, showing rampart-base, berm and lip of first ditch.

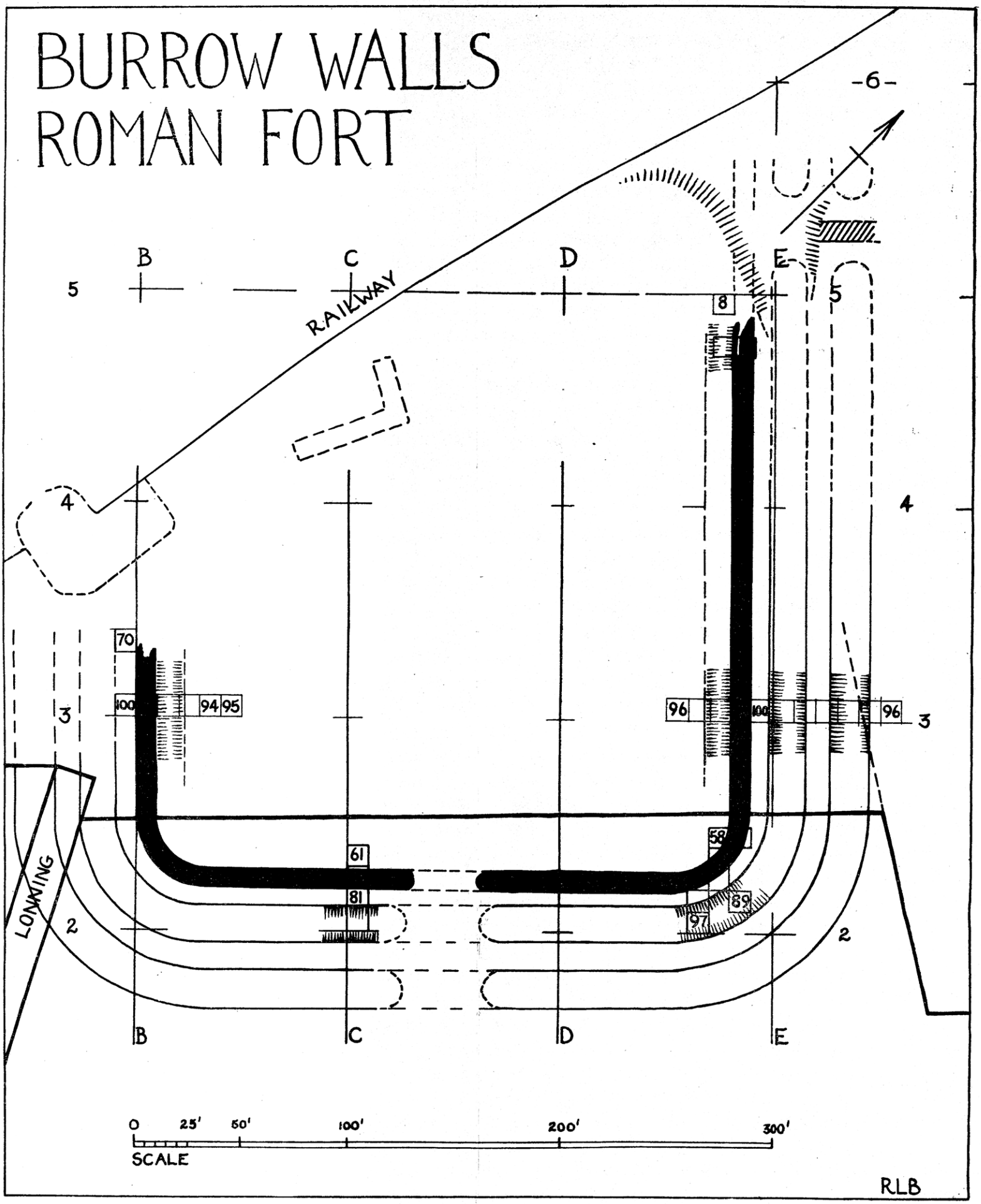


PL. IV, 2.—Squares D 4/98 - E 4/92, showing rampart-base, berm and first ditch, with tumbled blocks.

*facing p.* 45



*Photos: Brian Blake.*




*facing Pl. IV.*

collected, and all the sherds were of 4th century date, matching those at the bottom of the internal ditch. A further foot of similar silt covered the sherds; then came a distinct change, from blackish-grey silt to greyish-brown loam, with a zone of iron staining in between. I think that the colour change reflects subsoil conditions, due to waterlogging, rather than any change in the silting process.[13]

Above the stained zone came 3 ft. of loamy silt, topped by a darker zone representing an old turf line. The occurrence, towards the top of this level, of tumbled stone (noted in other pits also) may indicate a period of medieval stone-robbing, when the "Walls" were a-building; and the filling may perhaps be subdivided into earlier, natural post-Roman silting, and medieval, stone-robbers' debris. The last 2 ft. of filling is clearly modern, representing the enclosure and levelling of the site in the middle of the 19th century.

The discovery of the road northwards from the fort was a fortunate chance, entirely due to the July drought. In a discussion with Mr Blake, I had suggested that the Roman fort had been strictly comparable with that at Beckfoot, and that both its north and south gates had probably been lost by erosion. The north gate might once have been where there is now a deep gulley — and while viewing this gulley, I noticed a small patch of scorching, towards the top of its north edge. Here trenching revealed a road, 12 to 15 ft. wide and with possible kerbing at its west side, highly cambered and constructed of hard-packed gravel and fines. The road was quickly plotted on the master-plan, in squares E6/63 and 73 and, if it led directly to the north gate, on a line approximately at right-angles to the line of the rampart, the gateway will have been in squares D6/69 and 79, which lie on the south slope of the post-Roman gulley.

From the inferred position of the north gateway, we can now with some confidence estimate the original length of the fort at some 450 ft., and observe that nearly half of it has been lost by erosion, while Burrow Walls stands on the site of its *principia*.

[13] Below the iron staining, anaerobic conditions obtain which, in the presence of organic matter, reduce the iron compounds present to the ferrous state, and the iron-stained zone represents the limits between which the water-table fluctuates, causing alternate oxidation and reduction of iron compounds.