ART V.—*Roman sites on the Cumberland coast, 1954.*
By R. L. BELLHOUSE, B.Sc.

Partly read at Penrith, September 14th, 1954.

IN June 1954 I was spending a day with my family at Beckfoot, and my interest in geology focussed my attention on the raised beach deposits which were well displayed by recent erosion of the low cliffs thereabouts. Some 500 yards to the south of the hamlet, for a distance of about 300 yards, the spring tides had washed away the talus and brought down some of the cliff, leaving a nearly vertical section. This section was particularly interesting to me, because I had just read R. G. Collingwood's paper, "Roman signal-stations on the Cumberland coast" (CW2 xxix 138-65). I found that the upper limit of the raised beach gravels formed an almost level surface, on which rested a variable thickness of blown sand; I also noticed and recorded a patch of charcoal, without realising its significance (see appendix I, p. 51 f. below). It occurred to me that nowhere among the dunes would a steel probe reach the gravel, and that if I systematically prodded all hillocks, the finding of a stony one might indicate the site of a signal-tower; furthermore, the known Roman fort at Beckfoot[1] seemed to be a convenient starting-point for field-work. A few days later, therefore, armed with a hastily-made probe, I set off southwards from the fort and probed all likely-looking hillocks. All were soft until, approximately 1,000 yards from the fort, I detected a hard, stony layer in a rather prominent, dome-shaped dune; two small pits subsequently dug near the summit of it revealed many frag-

[1] Cf. R. G. Collingwood, "The Roman fort at Beckfoot" (CW2 xxxvi 76-84), citing R. S. Ferguson in CW1 iv 318 f. and Joseph Robinson in CW1 v 136-148.

ments of red sandstone. Such was the beginning of a fresh investigation of the Roman coastal defences in the Beckfoot sector.

I. PREVIOUS DISCOVERIES.

Collingwood's paper, mentioned above, provides the most convenient bird's-eye view of the Cumberland coast, from the western end of Hadrian's Wall to St Bees Head. He summarizes the field-work of Joseph Robinson, who had in 1880 found four signal-tower sites, and describes his own field-work of 1928. Some surprising points emerge from his account. Although Collingwood had conceived the Wall as essentially a chain of signal-stations (CW2 xxix 148), and had realised the logical consequence of this assumption, his survey of the ground was based on the assumption that the coastal system was a sparse chain of irregularly-spaced towers, sited on hill-tops, rather than a rigidly set-out extension of the Wall system, with the links in the chain often unrelated to the best ground.

The work of Mr F. G. Simpson and Miss K. S. Hodgson at Cardurnock in 1944[2] gives the first clear picture of what we might expect to find: as they put it,

> "The result of the excavation . . . was to make clear that we were in fact dealing with a system of coastal fortlets and turrets corresponding to the milecastle-and-turret system of the Wall."

Their figures 1 and 2 (pp. 79 and 83) show the essentials of the system. The familiar interval of 540 yards is there, and Collingwood's casual numbering of the sites has given place to the Wall system, with a new numerical series starting at Bowness on Solway; thus the last certain mile-fortlet, the one excavated at Cardurnock in 1944, becomes *mile-fortlet 5*.

In the *Handbook to the Roman Wall* (10th ed., 1947) Professor Richmond gives a convenient summary (p. 212 f.) of the evidence for all the certain Roman sites

[2] CW2 xlvii 78-127, especially p. 82.

between Bowness on Solway and St Bees Head, and at p. 214 he expresses our knowledge of the coastal defences as follows:

"While it is not yet known whether the Cardurnock sequence applies elsewhere along the coast, the fortlets and towers are sufficient in number and sufficiently clear in character to make it certain that the Romans treated the Cumberland coast as they treated the banks of great rivers, such as the Danube, when using them as frontiers: providing it, not with a continuous barrier, which would have been unnecessary, but with regular look-out posts and a sufficiency of permanent patrols, to watch the water for any attempt at a landing, and of fighting garrisons to repel any landing made."

The first sentence of the above quotation gives the key to the present investigation, undertaken to show that the Cardurnock sequence does in fact apply to other parts of the Cumberland coast, certainly extending as far south as Dubmill Point.

II. FIELD-SURVEY.

The section of coast surveyed lies between Dubmill Point and the tip of the Grune (fig. 1). In this stretch, apart from the fort at Beckfoot only two certain sites were known, namely Wolsty tower (identified by Joseph Robinson in 1880) and Cote How tower (destroyed in 1937). A note in the *Journal of Roman Studies,* xxviii 177, adds something to the picture, after recording the discovery of the latter tower:

"It should be remarked that the tower resembles the Wall-turrets in being unrelated to the best ground, as if the Cumberland coast series had also been regularly spaced. Chancellor Ferguson's plan of those between Bowness and Cardurnock, recently discovered in the archives of Tullie House Museum, reveals these to be spaced at the familiar interval of approximately 540 yards. Further work, however, is needed to establish the existence of a completely regular system."[3]

Furthermore, Collingwood's site at the base of the Grune

[3] Mr Harold Duff may have seen part of this tower before Cote How was dug away: cf. CW2 xxxviii 157.

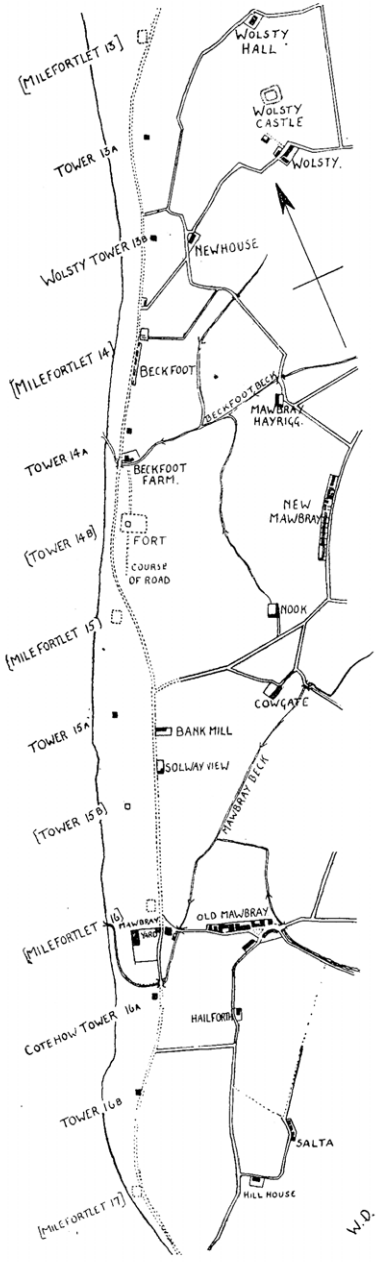


FIG. 1.—The coastal sites between Dubmill Point and Wolsty. Based, by permission, on the 6 in. O.S. map.

(CW2 xxix 153 f.) can now be accepted with confidence, on the evidence of Dr K. St. Joseph's air-photograph, as that of a mile-fortlet.

My first task was to space out the coastline in units of 540 yards on the 6-in. Ordnance Survey sheets, and to see whether the known sites conformed to the Cardurnock sequence. Taking the centre-line of Beckfoot fort as zero, I adopted a temporary system of numbering, in units of 540 yards to north and to south; thus, my new site (p. 28 f. above) became S. 2 x 540, Cote How tower proved to be S. 5 x 540 and Wolsty tower N. 3 x 540. In addition, a small piece of second-century grey ware, which I found in a rabbit-scrape at S. 1 x 540, seemed to indicate a further site. At this stage it was already clear that the sites formed an incomplete pattern which could be completed in only one way, by superimposing the Cardurnock sequence upon it.

Mr Eric Birley, to whom I sent my progress-reports, suggested to me that I might be able to give an answer to the question,

"whether on the Cumberland coast, as on the Wall itself, there may not have been two successive stages of thought: (a) mile-fortlets and towers only, with pre-existing forts continuing, and (b) extra forts inserted to stiffen the military investment in the scheme . . . Now Beckfoot is not occupying a 'natural' fort-site, and I should be most interested to learn whether this fort occupies a fortlet- or a tower-position."

The answer proved to be that Beckfoot fort occupies a tower-site. Only one arrangement of the broken pattern satisfies all the observed facts, thus incidentally showing the system to be predictable.

Search was then made for other tower-sites, in the positions which they should occupy in the system, with immediate success. First I went to the southern end of the sandpit which had destroyed the Cote How tower, prepared to search the whole of the workings; but my eye was caught almost at once by a heap of spoil close to the roadside, near where about three feet of top

sand had been removed, in which there were many pieces of red sandstone. It was apparent that almost all the remains of a tower had been dug away, but a thin skin of yellowish clay, resting on clean sand, seemed to represent the last traces of foundation-trenches for two of its sides. Not being satisfied that I had got everything out of this site, I returned some days later and, digging through the clean sand below the clay, I found a lower level; the section now revealed consisted of 3 in. greenish-yellow clay, below that 4 in. clean sand, then 3 in. very tough, black, gritty clay, mixed with small shore gravel and red sandstone debris; below this black occupation-layer, in which I had the good fortune to find several pieces of Roman pottery (including part of a second-century grey latticed cooking-pot), there was nothing but clean sand as far down as I dug. This site, being 540 yards south of Cote How tower, was initially numbered S. 6 x 540.

The third tower-site to be identified by me was 540 yards north of the presumed position of Robinson's Wolsty tower, and was therefore numbered N. 4 x 540. At each of the three sites I found, in my small trial-pits, a characteristic black layer, very tough and containing shore gravel and crumbled sandstone.

It is significant that no tower of the five thus known, in a stretch of three miles along the coast, stands in the predicted position of a mile-fortlet; and that four of the towers form two separate pairs. The gaps in the sequence must represent mile-fortlets; and this view was confirmed when I scaled off the intervals of 540 yards northwards to the Grune, and found that the site of the mile-fortlet identified by Dr St. Joseph's air-photograph fitted into the scheme to a yard.

With so many sites certain, I decided to abandon my unit-system of numbering and adopt the Cardurnock scheme, numbering on from mile-fortlet 5. The mile-fortlet at Skinburness is given as no. 7 by Professor

Richmond,[4] no doubt on the assumption that one fortlet has been lost since Roman times in the estuary of the Waver and Wampool; but the distance, as the crow flies, from no. 5 to no. 7 (on that numbering) is 300 yards more than three Roman miles, so that at least three fortlets must be reckoned as missing. Furthermore, there is some slight evidence to suggest that the line of the system, if it did indeed continue uninterrupted, curved inland between Cardurnock and Skinburness. The long axis of no. 5 lies on the line of the system, and points nearly due south. If the orientation of the fortlets was consistent in this sector, it may be noted that the long axis of the Skinburness fortlet lies east to west (judging by the air-photograph), as though it was aligned on an eastward arm of the system. If it was in fact constructed at a turning-point, I reckon that it will have been no. 9 in the sequence from Bowness on Solway.[5]

On this basis, if we continue southwards, the tower at N. 4 x 540 becomes 13*a*, and Wolsty tower 13*b*; Beckfoot fort occupies the site of 14*b*; my first tower is 15*a*, Cote How is 16*a* and the tower lately destroyed, at S. 6 x 540, is 16*b*.

While it is not unlikely that further sites will be found, so much of the coast from the Grune to West Silloth is now covered by houses and gardens, that I have not ventured to make myself conspicuous, probe in hand, in that area. South of Silloth, recent dunes now cover the line of the raised beach on which the towers and fortlets would have been erected, and any remains in that stretch would now be beyond the reach of the probe. It remains for trial trenching, therefore, to complete the picture by identifying fortlets in the gaps between the known towers, and by revealing on the tower-sites (if the story of 16*b* is any indication) a little of the history of the Roman coastal defences.

[4] *Handbook to the Roman Wall*, 10th ed., 213.

[5] The discovery of one tower-site on the Grune north of this fortlet would disprove the above argument; as yet, however, search of the ground has revealed no traces of such a site.

III. EXCAVATIONS.

The foregoing account was communicated to the Society in September 1954. In view of the interest aroused by the new discoveries, the Society made a grant of £15 towards the cost of trial excavations at selected coastal sites, and accordingly a programme of digging was arranged for the week beginning 18 October; the first two days were to be spent in reconnaissance of the coast, helped by Dr St. Joseph's air-photographs, at mile-fortlet 1 (Biglands House) and mile-fortlet 9 (Skinburness); the next three days were to be devoted to examining the sites of possible towers in the Beckfoot area, between towers 13*a* and 16*b*. Widespread floods on 18 October, however, forced an alteration in plans, and all that we achieved on the first two days was an examination of the rampart of mile-fortlet 1, and a brief look at the site of mile-fortlet 9.

Dr St. Joseph's air-photograph of mile-fortlet 1 (Biglands House) shows a dark feature within the rampart area, which seemed to suggest a stone wall about 5 ft. thick; but five trial-pits, dug at 10 ft. intervals across the east rampart, produced no signs of masonry, nor any explanation of the feature which had been noted on the photograph. The rampart consists of marsh silt, rather mixed, and resting without trace of turf on the underlying sandy gravel of the raised beach ridge, on which the mile-fortlet stands; it contains small pockets of shore gravel, reminiscent of the structure of the artificial platform of milecastle 79 (CW2 lii 26-7). The last of our pits found the inner edge of the rampart, which proved to be 30 ft. wide (as against 29 ft. maximum and 21 ft. minimum at Cardurnock, CW2 xlvii 85). The levels found in this pit, measuring downwards from the present surface, were:

1. Modern turf, 6 in.
2. Red clay, 2 in.

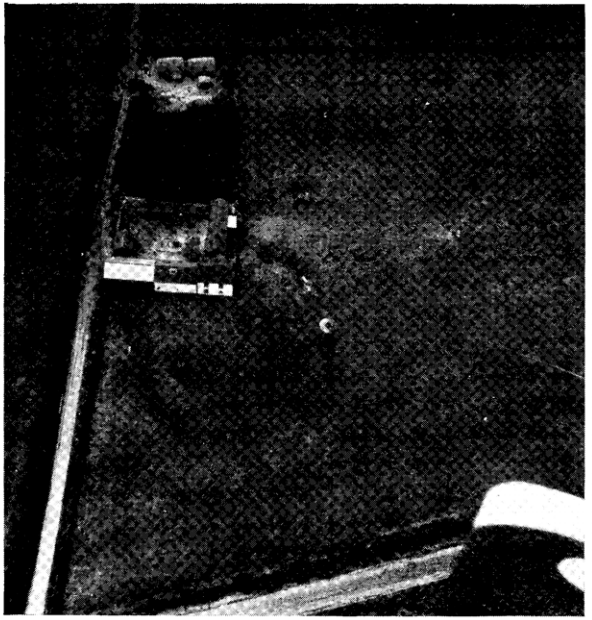
3. Thin gravel spread with humus, containing three sherds of coarse pottery, black outside and latticed, of second-century type.
4. Rampart material, 3 in.
5. Clean sandy gravel.

We visited the site of mile-fortlet 9, on the Grune just north of Skinburness. The field in which the greater part of the fortlet lies was in its first year as seeds, and the tenant was understandably reluctant to let us dig to sample its rampart; but several fragments of Roman pottery were picked up on the surface, and a deposit of mussel shells was noted in the edge of the dike, near to the north-east limit of the fortlet. Study of Dr St. Joseph's air-photograph suggests that the shells come from a midden, close to the ditch surrounding the fortlet.

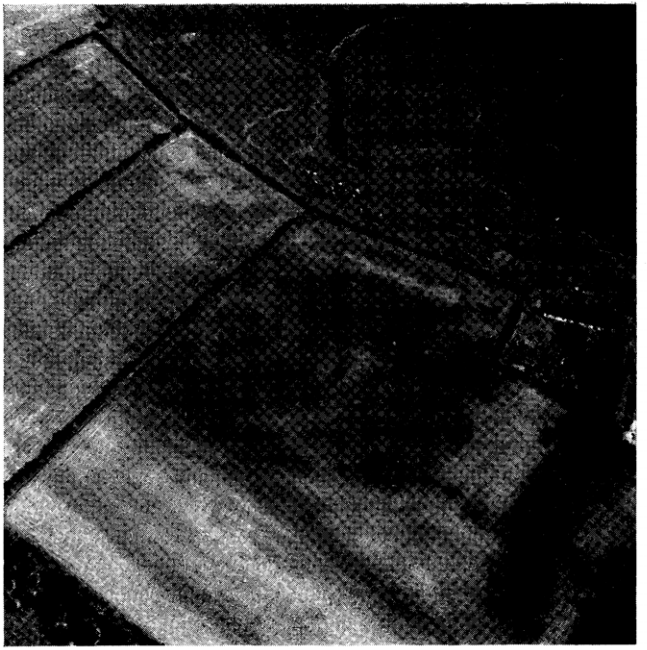
Up to this point the reconnaissance had been conducted by myself with the assistance of Mr Michael Jarrett, of Hatfield College, Durham. At Skinburness we were joined by Mr Brian Blake, assistant secretary of the Carlisle Regional Group, and final arrangements were made for the paid labour to be employed during the remainder of our short campaign. We intended to trench the sites of towers 13*a* and 15*a* and, if time allowed, to search for traces of mile-fortlets in their measured positions. In the event, however, the tower sites were so rewarding that insufficient time was left for work on the mile-fortlets, and indeed an extra day was required for the filling-in of our trenches at the tower-sites.

Tower 15a (fig. 2).

Digging at this site began on the morning of 20 October. The site is a dome-shaped hillock, nearly due west from Bank Mill and within 80 yards of the shore: map reference 084479. Trench I was laid out roughly east and west, on the west side of the N.-S. axis of the hillock; Trench II on the N.-S. axis. Three trial pits were sunk elsewhere, but proved to be well outside the tower's limits.

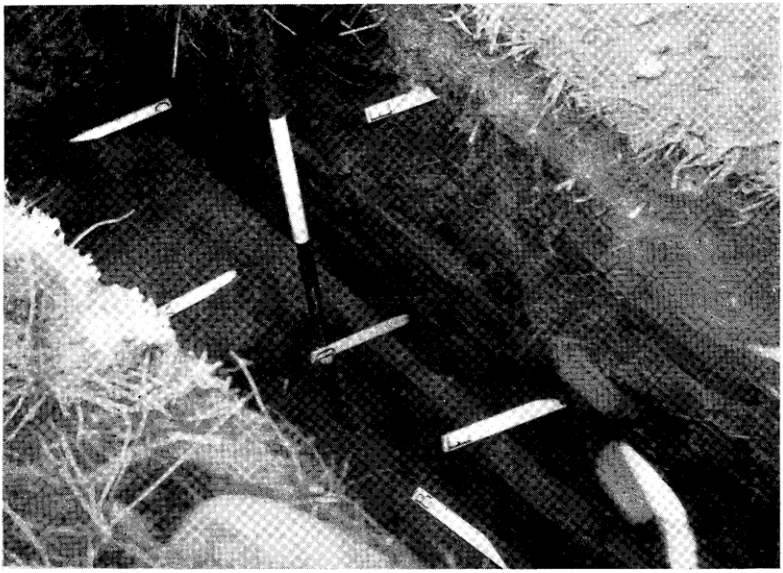


Pl. I, 1.—Mile-fortlet 1 (Biglands House).

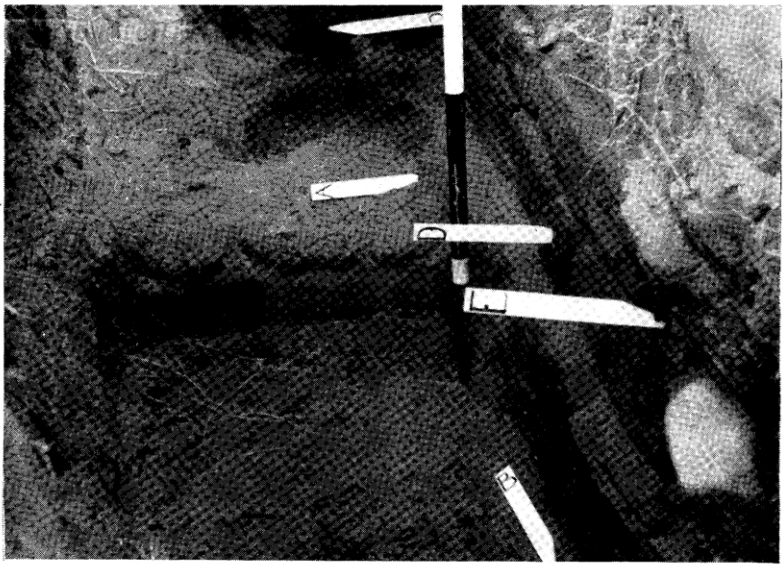


Pl. I, 2.—Mile-fortlet 9 (on the Grune, Skinburness).

Photos.: J. K. St. Joseph. Crown copyright reserved.



PL. II, 1.—Tower 15*a*, inner face of E. wall in side of Trench II.



PL. II, 2.—Tower 15*a*, Trench II, showing levels in relation to E. wall.

Photos: Brian Blake. *facing p.* 37

Trench III was sited at an angle, in the N.E. quadrant, and finally Trench IV was cut to expose the full width of the east wall of the tower when it had been revealed in the east side of Trench II.

At first all trenches showed a variable thickness of blown sand, resting on a dark layer of humus and gravel, containing broken freestone and occasional cobbles; the gravel was small and gave a strong impression of having been riddled. This layer, which we call Layer E, covers the whole site, and tapers off towards the periphery of the hillock. At the west end of Trench I and both ends of Trench II this layer was found to rest on clean sand, below which was a layer (Layer A) of finely broken red sandstone.

Trenches I and II, when deepened, produced quantities of broken stone and cobbles, mixed with earthy gravel, and in Trench II we came upon two hearths, one above the other, recognisable as black layers resting on smoke-blackened flat stones; the sherds from these hearths are noted as groups C and D respectively. Occupation-levels were revealed in Trenches I and III also, yielding plain samian and coarse ware; and in Trenches II and III, at points later revealed to be outside the tower, sherds were found in an occupation-layer immediately below a thin spread of buff-coloured clay (groups A and B). So far, the occupation-levels had claimed our full attention, and the day closed without our having found anything resembling masonry or foundations; but the hearths provided a clue, for by analogy with Wall turrets they should come close to the inside face of the walls.

On the following day, 21 October, two courses of good masonry were exposed in the east side of Trench II, close by the hearths. Trench IV was then laid off and opened, to expose both sides of this wall. Layer E, here about 4 in. thick, rested on the top course of the wall, which was exactly 3 ft. wide.

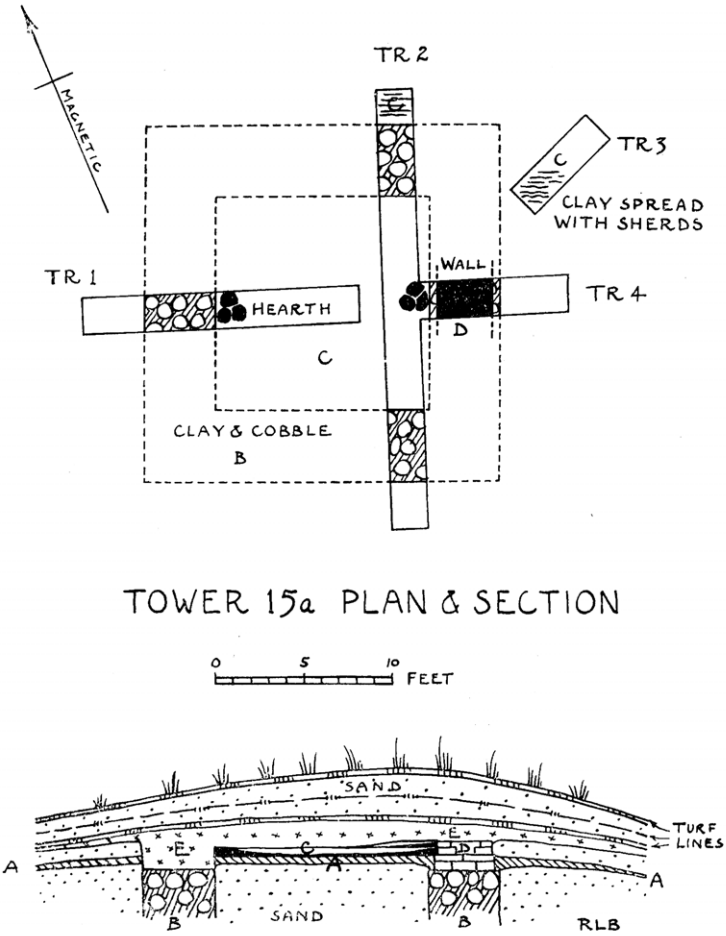


FIG. 2.

Trenches II and IV were next deepened, to expose the full depth of wall down to its clay and cobble foundations, here 4 ft. wide; the first two courses of wall were set back 3 in. on each side, and the next two courses had a further offset of 2 in. on each side, forming an inner and

an outer plinth: and Layer A, forming the original floor of the tower, was at the level of this plinth.

Next the outlines of the tower were quickly traced. The west wall, measuring from inside edge to inside edge of the foundations, was proved at 13 ft.; all good stonework had been removed, but the position of the wall was indicated by a jumble of cobbles and earthy gravel on the foundations, and a clear vertical line in the side of Trench I where the occupation layer (C) with hearth, and the lowest level (A), ceased abruptly. Level E here dipped into the cobble-filled space where the wall had been. North and south walls were next determined by clearing the rubbish from Trench II, to expose the clay and cobble foundations. Measurement showed the clay edges on this axis to be 13 ft. apart also; thus, allowing for the setting back of the wall on the foundations, and one plinth at floor level, the tower measured approximately 13 ft. 10 in. both ways internally; adding the width of two walls, we get an external measurement of 19 ft. 10 in. or, in round figures, 20 ft.

Layer A was proved to be the lowest level; it is readily explained as the builders' debris, lying directly on clean sand. As there was no sign of turf below, it is reasonable to assume that the site was at one time a low dune, only lightly bound with maram. Layer E was very puzzling, as its presence suggested a deliberate dismantling of the site and its tidying up with a spread of gravel; see further, below. At Mr Blake's suggestion we next examined the structure of the surviving wall; no mortar had been used in its construction, and its core consisted of broken stone and cobbles bedded in earthy, sandy gravel. The tower had been robbed of its dressed stone, in fact, but the core had been discarded, the heavier stones and cobbles remaining near the positions of the vanished walls, while the sand and gravel had no doubt levelled itself over the site, under the influence of wind and weather (just as builders' dumps tend to level themselves today).

I have used letters and lettered pegs as below in all plans and photographs:

A = red sandstone dust and small pieces (building layer).
B = foundations of clay with cobbles.
C = black occupation level, with hearths.
D = stumps of walls.
E = mixed earthy gravel and masonry debris with cobbles (demolition layer).

These letters, and the features they refer to, apply equally well to the three towers examined, 13*a*, 15*a* and 16*b*.

*Tower 13*a (fig. 3). Map reference 098507.

This tower was examined on 22 October. The remains of a modern enclosure-dike cross the site from E. to W., and the first trench (I) was laid out just to the north and parallel to it. Layer E was readily identified just below the modern turf, and in a small trench, cut at right angles on the north side, Layer A was found below Layer E and resting on clean sand. This latter trench, later found to be just beyond the north wall of the tower, showed a thin clay spread, burnt bright red in patches; a comparable spread had been noticed north of tower 15*a*, in the north end of Trench II and in Trench III.

Trench I produced a great deal of debris (from the dismantling of the tower) before an occupation layer was revealed; at the west end of the trench, Mr Blake found the coin of Hadrian, which Mr Jarrett describes below, at the base of that layer, lying on clean sand and apparently wrapped in moss or chaff. This trench also produced a number of pieces of plain samian and of coarse pottery.

Work proceeded slowly, because of the quantity of rubble to be disposed of, but in due course the position of the east wall was revealed in the sides of the trench, as Layers A and C were interrupted by a vertical line, beyond which Layer E appeared. It was soon confirmed that only clay and cobble foundations remained, projecting some 3 or 4 in. under Layers A and C, as might be

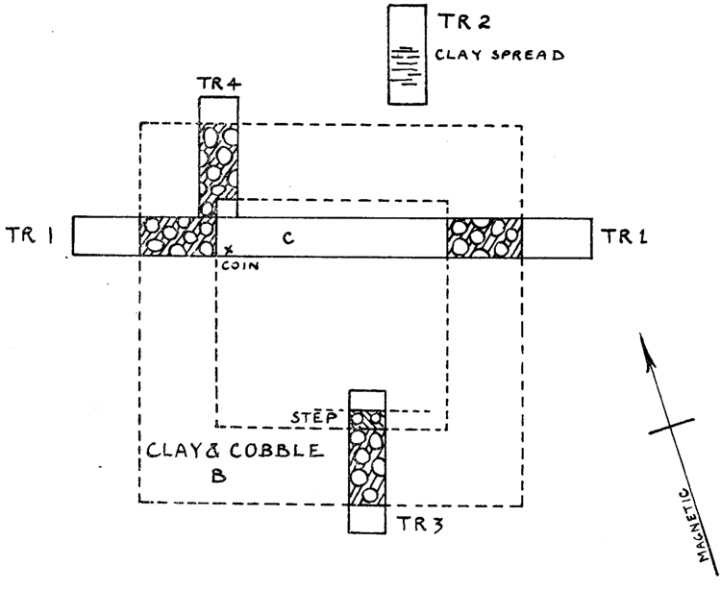


FIG. 3.

expected (on the analogy of what had been observed at tower 15*a*). Measurement to the west end of the trench soon gave us the clay edge of the west wall's foundations, the internal dimension being 13 ft. 5 in.

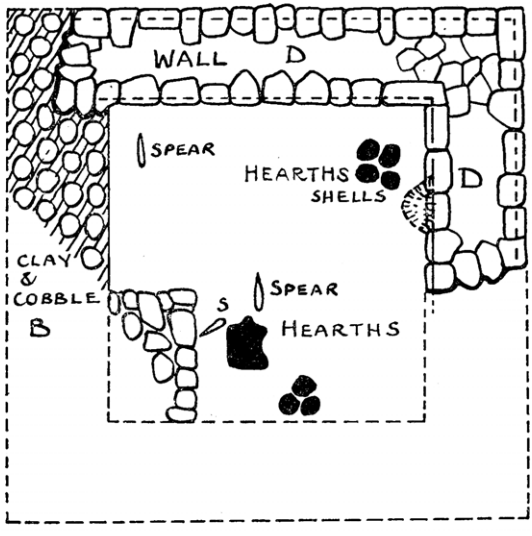
No hearths were found in Trench I, and as Trench II

appeared to be outside the limits of the tower, Trench III was opened up a little south of Trench I, in order to find the south wall of the tower, and a small offset trench (IV) was cut on the north side of Trench I, in order to follow the inner edge of the clay foundations towards the corner of the tower, which was soon located. The foundations of the two remaining walls were thus located and the distance from N. to S. was measured; but as it only came to 11 ft. 6 in., we examined the cobbles of the south foundation more closely, and found that the inner row was set in loose sand and not in clay as elsewhere. After the loose cobbles and sand had been removed, it became apparent that there was a step in the clay and cobble work, about 1 ft. wide and 1 ft. deep, as if a mistake had been made in the setting-out, and that the foundations had later been widened to take the wall in its correct position, leaving a strip of unfinished work roughly made good with cobbles and sand. The corrected internal measurement from clay to clay was thus 12 ft. 6 in.[6]

*Tower 16*b (fig. 4). Map reference 078462.

Trial trenching at various times in October and November 1954 produced more Roman sherds in the Mawbray sandpit, on the presumed site of this tower, and also showed the familiar and diagnostic Layer A, but no sign of foundations. Further, Layer E was identified, bound with grey sandy clay, and seeming to thicken towards a large dump of sandy soil under which, as time went on, it became more and more certain that the remains of the tower itself would be found. Driving past the site on 17 November, I noticed that the spoil-heap had disappeared, and on investigating I found that a bulldozer

[6] That these towers were not all mathematically precise in their dimensions is confirmed by Dr St. Joseph's air-photograph of tower *2b*, E. of Campfield, in which the dark shape of the foundations forms a definite oblong; proportionate scaling of the photograph suggests a difference of as much as 2 ft. in the length of its sides.



TOWER 16b PLAN & SECTION

0 5 10 FEET

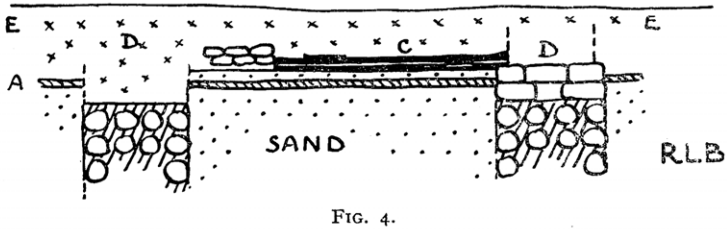


FIG. 4.

had tidied up this part of the sandpit. This was a wonderful piece of luck, and I hastened to organise a small excavation on Sunday, 21 November, when I was joined by Mr Brian Blake and Mr Richardson from the Carlisle Regional Group. We dug first where the probe showed the presence of a very hard layer just under a thin covering of sand, and soon exposed a wall 4 ft. wide and 20 ft. long, of red sandstone blocks: the west wall of tower 16*b* was thus revealed. Scraping soon showed its north-west corner, and then the full extent of our good fortune became apparent: a complete occupation floor, covered only by a comparatively thin sealing-layer, was ready for detailed examination.

This sealing-layer requires comment, since it consisted of a very tough, grey sandy clay, containing so much broken up sandstone and shingle that it was extremely difficult to dig through. It was exactly comparable with the gravelly Layer E which had been found in the previous excavations, and covered the whole site of the tower as at 15*a* and 13*a*. It must represent the debris of demolition, in which the clay and rubble core of the walls has been spread over the site.

A small trench taken E.-W. across the floor of the tower showed a single occupation-level, with traces of a hearth against the W. wall and of several hearths, one above another, against the E. wall—or rather, against the mass of Layer E occupying the space where the wall had once stood. We were not able to do much that day, but we returned to the site with reinforcements on 25 November, Mr and Mrs Harold Duff now joining us, to examine the floor of the tower thoroughly.

The black occupation-layer showed stratification, in part due to patching of the gravel floor of the tower with fresh gravel, but a single period of occupation is certain here as at the other towers examined. Pottery finds were of types already familiar to us from the other sites, but there was interesting additional evidence for the habits of

the tower's occupants: for the bones of pigs and sheep, and the shells of oysters, mussels, whelks, winkles and cockles, were identified among the rubbish round the hearths. We also found three iron spearheads, all pointless and socketless; the best preserved of the three, 13 in. long, was found near the east hearth, and had obviously been used as a poker and chopper: adhering to the underside of it, and no doubt preserved by impregnation with iron salts, was some fibrous material closely resembling rushes.[7] Other iron objects included nails and spikes and pieces of what may have been part of a shield-boss. Near the centre of the floor we found a very small piece of bronze wire, and two pieces of thin, greeny-grey glass, no doubt part of the rim of a vessel about 3 in. in diameter.

As clearance of the floor proceeded, a rough stone platform, 5 ft. by 3 ft. 6 in., was revealed in the S.E. corner; its stones were set on a thin spread of grey clay, resting on clean sand, and must therefore have served some purpose in the original design of the tower; one is reminded of the platforms in several Wall turrets, such as 52*a* (Banks East),[8] and with the plan of the latter turret in mind, we dug outside the N.W. corner to search for evidence of a doorway in that position. There was no trace of paving or pathway to be found, but a thickness of puddled, sandy clay, sloping away from the wall and resting on clean sand, was exposed; this strongly suggested that the builders had protected the foundations from wind erosion with an apron of clay.[9] This clay apron is certain on three sides of the tower.

Two groups of hearths were examined. The main cooking hearth (judging by the debris round it and the pile of mussel shells close by) was against the north wall, in the N.W. corner, and the other hearths were close to

[7] This recalls the fibrous material round the coin from the foundation-level of tower 13*a*, in that case preserved by copper carbonate.

[8] CW2 xxxiv 148 f.

[9] Cf. also Collingwood's extract from Robinson's account of Wolsty tower (CW2 xxix 146 f.): "The entrance has apparently been from the south-east as a rough pavement, 6 feet by 4 feet, exists opposite the centre of that wall.

the stone platform. The most interesting hearth comprised a flat sandstone slab roughly squared, blackened by smoke and cracked by heat.

As to the structure of the tower, only two foundation (footing?) courses of the west wall and half of the north wall remained. These rested on the usual foundations, consisting of courses of cobbles set in grey clay; three such courses were proved, but the exact depth of the foundation was not determined. The first two courses of masonry were not set back on the foundations, as at tower 15*a*, but were built straight up to the same width as the foundation itself, namely 4 ft.; the first offset, 3-4 in., came at the top of these first two courses. This was most convincingly demonstrated as we traced the inside edge of the north wall, where the occupation levels overlay the footing courses but ceased abruptly in a vertical line, 3-4 in. within the width of the wall. Assuming a further inset higher up, we may reasonably expect the wall proper to have been the normal 3 ft. thick.

Against the north wall were found large pieces of amphora; four pieces, which could be joined together, carried a graffito in cursive lettering, deeply cut, for which reference may be made to Mr R. P. Wright's report, p. 50 f. below.

The masonry courses of the remaining walls appear to have been robbed clean away, down to the clay and cobbles; whether this was done in Roman times or later is difficult to say, because the overlying sand (which might have shown "fossil" soils) had all been removed by the bulldozer.

At foundation level the tower measured 12 ft. 6 in. square inside and 20 ft. 6 in. outside, thus agreeing with Robinson's measurements for Wolsty tower. If we compare the plan and dimensions of Risehow tower (CW2 xxix 144), it is clear, from the width of its walls being given as 3 ft., that the wall above the insets is there

depicted; the internal measurement of 13 ft. 7 in., taking off two 3 in. insets for each side, becomes 12 ft. 7 in. and thus accords with our findings; likewise, the overall width may be adjusted, allowing for 3 in. insets, to give an overall width of 20 ft. 7 in.

Mile-fortlets 13 and 15.

Some time was spent, in October 1954, in sinking a pattern of pits where measurement suggested that these two fortlets should occur, but nothing conclusive was found; it is clear that longer time, and more elaborate trial-trenching, must be provided before fortlets of the Cardurnock type can be identified satisfactorily, and until that has been done, we cannot claim that the "Cardurnock sequence" has been fully proved in the Beckfoot sector.

Conclusion.

In concluding this report there is no need to remind readers of the exact parallel between the towers here considered and the turrets on the Wall, particularly those of the Turf Wall series. The towers explored in 1954 are substantially the same in all features as those examined by Robinson in 1880, but we could wish for a little more information about them than is available at present. It does not necessarily follow that all of them had the same history. But two significant points emerge from the examination of towers 13*a*, 15*a* and 16*b*. First, there was one single occupation layer, of seemingly short duration, sandwiched between the debris of builders and of demolishers; second, the dismantling of the towers must have taken place a very long time ago. In the case of tower 15*a*, the earthy gravel and debris from the walls appears to have been levelled or tidied up and left undisturbed long enough for a distinct, humus-rich soil to develop before the accretion of more than 2 ft. of blown sand and the formation of two further soil levels. The formation of humus-rich soil in blown sand is a very

slow process; and it may be noted that the later soil levels are quite undisturbed, showing no signs of recent digging.

At tower 13*a* there has been no accumulation of blown sand, and the soil forms a dry, peaty heath, supporting a very restricted flora (mainly heather). Here too Layer E seems to have been tidied up, and soil has formed directly on it; there is no sign of disturbance, and the soil profile is exactly the same in other places away from the tower-site. The obvious conclusion is that dismantling took place in Roman times.

The pottery. By J. P. GILLAM, M.A., F.S.A.

The only closely datable piece of pottery from tower 13*a* is a large fragment from a samian dish of form 18/31, rouletted, similar to *Birdoswald,* fig. 12, nos. 1-3 (found in the Hadrianic alley-deposit). The other fragments are not inconsistent with a Hadrianic dating.

Two pieces deserving illustration were found at the site of tower 15*a*:

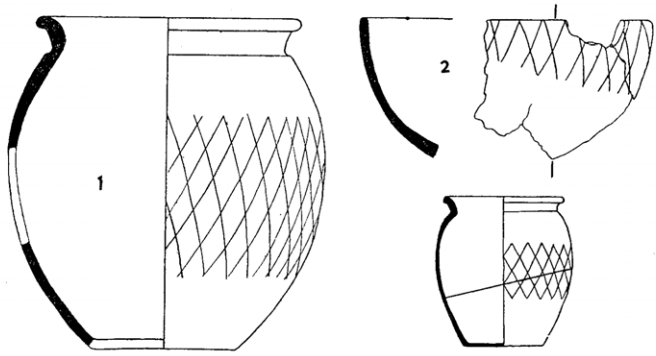


FIG. 5.—(¼, except unnumbered sketch).

1. Two fragments, which do not join but are evidently from the same vessel, found outside the north wall: one from the rim and shoulder, and the other from near the base, of a cooking-pot in dense black, slightly gritty fumed fabric, with acute-angled cross-hatching. Cf. *Birdoswald,* no. 18b (from the Hadrianic alley deposit) and *Mile-fortlet 5,* no. 2 (within the

secondary east rampart — that is, derived from the primary = Hadrianic occupation).

2. Two conjoined fragments, found in the hearth, from a bowl with a diameter of about 6 in.; it has been made by cutting down a broken cooking-pot of much the same type and in the same fabric as no. 1; it is caked with soot in places. Although the rim has been smoothly ground to a neat edge, and the surviving portions of the edge are in one plane, the cut has been made at an angle to the plane of the rim of the original vessel, and the resulting bowl cannot have stood upright on its base. Examples are known of cut-down jars having been used as covers for cinerary urns; the present vessel probably served as a lid for a cooking-pot. The section drawn to the left of the sketch of the sherd is taken at right-angles to the plane of the present rim, at the point marked on the sketch, and therefore displays a greater curvature than would a vertical section of the original cooking-pot.

Among the other pieces from tower 15*a* are two conjoined fragments from the body and shoulder of a cooking-pot in black, highly polished fabric, with 20° cross-hatching; a lead rivet survives in an old break at the neck, as in *Mile-fortlet 5*, no. 11; fragments from several other typically Hadrianic or Hadrianic-Antonine black cooking-pots, and the rim of a large but fairly fine samian cup of form 33, were also found. The remaining pieces are less distinctive, but there is nothing about them inconsistent with a Hadrianic dating.

Taken as a whole, and in the light of other clearly dated groups of this period, the pottery submitted to me from towers 13*a* and 15*a* suggests a single brief occupation, falling between the years A.D. 125 and 140. Although cooking-pots of the same type as no. 1 above continued in use for a time after A.D. 140, this does not mean that the towers necessarily continued in occupation, and there is a complete absence of pottery of the types characteristic of the deposits of period I B in the turrets and milecastles, or of fourth-century pottery such as that found at mile-fortlet 5.

(References: *Birdoswald* = CW2 xxx 175 f.; *Mile-fortlet 5* = CW2 xlvii 108 f.).

The coin. By M. G. JARRETT, B.A.

The coin from the foundation-layer of tower 13*a* proved on examination to be a *sestertius* of Hadrian, dated by Mattingly (*British Museum Catalogue*, Hadrian no. 1192) to the period 119-120 or 121; it was in very good, almost mint condition when

dropped. The obverse shows the head of Hadrian, laureate, facing right, and bears the legend IMP CAESAR TRAIANVS HADRIANVS AVG P. M. TR. P. COS III; the reverse bears the figure of *Libertas,* draped and seated, with a sceptre in her left hand and a branch in her right, with the legend LIBERTAS PVBLICA S C. The coin weighs 26.532 gms. (as against 24.79 gms. in the case of the worn specimen used by Mattingly).

Usually single coins tell us little about the history of a site. But this coin of A.D. 119-121, in almost mint condition, coming from the foundations of one of the coastal towers, indicates that the tower was being built within a relatively short time after its minting, and probably well before A.D. 130; and taken together with the pottery from the site, it provides conclusive evidence for Hadrianic occupation.

The graffito. By R. P. WRIGHT, M.A., F.S.A.

A fragment, composed of four pieces which join together, from the base of a bulbous amphora probably of Spanish type carries, next to the projecting boss of the base, a graffito cut before the vessel was fired. The first line was added rather casually after the present second line had been scratched, for the furrow of the first digit in l.1 cuts through the stem of K in l.2 and the S impinges on the top of the digit following Y.

The graffito, in cursive script, reads:

IIS VRI[.
CIIIKYIIPT[
INSVLSAI[I

esuri[*o* . . . | *c*(*ongii*) *iii ky*(*athi*) *ii p*(*lena*) *t*(*esta*) [. . . | *insulsae*[. . . "I am hungry; 3 *congii,* 2 *kyathi* (when) vessel (is) full; unsalted. . . " The two damaged letters at the end of lines 2 and 3 are here printed with a subscript dot to show that either letter might be differently interpreted. A close parallel for this indication of capacity comes on a storage-jar found at Birrens;[10] it reads: *c*(*ongii*) *iii q*(*uartarii*) *v l*(*igulae*) ii, a capacity of 18½ pints or 10.58 litres. The *congius* (of 3.28 litres) contained 72 *cyathi,* for which KY is a standard abbreviation, retaining the Greek spelling. The capacity on the present graffito amounts to nearly 17½ pints, or 9.94 litres. These figures suggest that the potters were trying to make vessels which would hold approximately three *congii*.. Although P frequently represents *p*(*ondo*), it also represents *p*(*lena*) and T stands for *t*(*esta*) (the vessel), to show that the capacity applies to the amphora

[10] Wright, JRS xlii (1952) 108, no. 33.

when full. It is strange to find the indication of capacity scratched on the vessel before it was fired, but in this instance the potter seems to have hazarded his estimate.

The first line, *esuri[o*, seems a quaint, secondary comment, as if the potter, after marking the capacity, felt hungry and empty. This verb might be restored to the third person singular, *esurit*, or first person plural, *esurimus*, or third person plural, *esuriunt*, but it seems more reasonable to confine the comment to the person who cut the text.

The third line *insulsae* labels the contents as "unsalted". A noun may have preceded this adjective in the lost portion of line 2, or the adjective may have been sufficient by itself. At present I can cite no parallel on storage-jars for *insulsus*. The two units of capacity apply to "dry measure" as well as "liquid". It seems that some delicacy, stored dry in this amphora, was shipped from Spain to a Roman site in Cumberland. The contents may have been consumed at some neighbouring fort, and the amphora may have been transferred for re-use at this signal-tower.

APPENDIX I: *Further finds in the Beckfoot cemetery area* (Figs. 6 and 7).

While searching our *Transactions* for references to Roman finds on the Cumberland coast, I came across Mr Robert Hogg's paper on "A Roman cemetery site at Beckfoot" (CW2 xlix 32-7). It reminded me instantly of the patch of charcoal which I had noted in the cliff south of the fort (fig. 6), and as soon as I was able I returned to the patch and examined it carefully. It was at once apparent that here was displayed, in vertical section, an undisturbed funeral pyre. Most of the centre had fallen away on to the beach below, but it was not difficult to make out the outlines of it. The old surface level, described by Mr Hogg (*ibid.* 34), is here about 10 in. thick, and into this layer had been dug a pit 6 ft. by 2 ft. 6 in., aligned roughly north to south. This pit was filled with a mass of charcoal 5 in. thick, identifiable fragments of which were all of pine; and, forming a thin contrasting layer on the top of this mass, there were many fragments of calcined human bones. At the south end of the deposit I found six pieces of a grey-ware cooking-pot, and some nails (fig. 7).

The discovery of nails with charred oak wood still attached prompted me to examine more closely the outside limits of the pyre, still concealed in the cliff, and I was able to trace three sides of an oak bed-frame, almost burnt away but with more

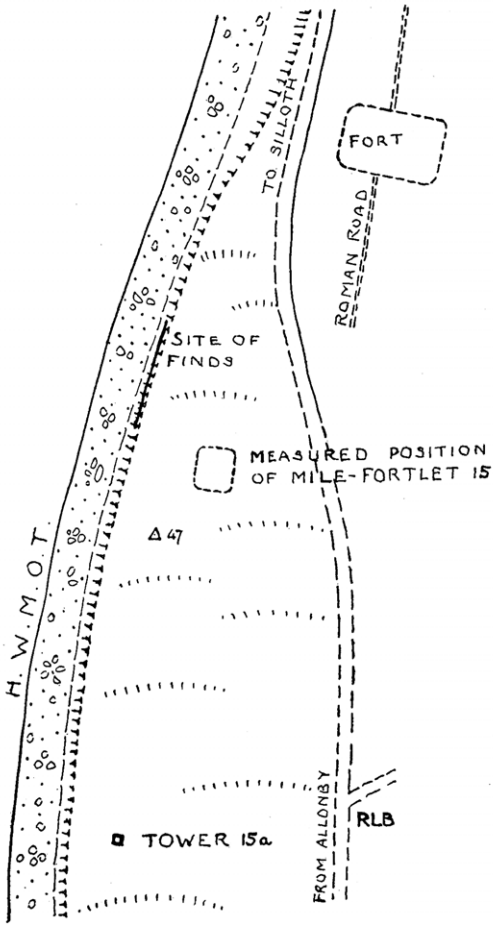


FIG. 6.—Sketch-plan (not to scale) of the cemetery site.

nails *in situ*, long ones (about 2 in.) at the corners and short ones, with large flat heads, along the frame. Incredible though it may sound, I have also identified to my satisfaction masses of charred feathers, and other rather puzzling stuff which can only be wool, lying close to the bed-frame.

The preservation of this pyre must be due to its having been covered up and smothered in sand while still burning. I have no doubt that this was deliberate, because the sand immediately

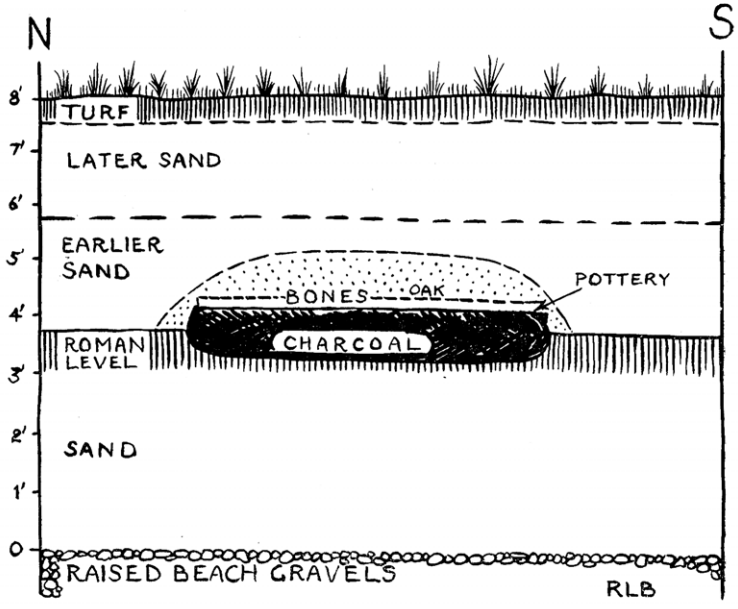


FIG. 7.—Section of the cremation pyre.

above is faintly reddened as if by heat, and the faint outline of a mound of sand can just be distinguished in the overlying blown sand. A final observation, I think, clinches the argument: the old soil-level shows evidence of podsolisation, and the leached sesqui-oxides have formed a platey iron-pan in the lower horizons; this pan is continuous for many yards north and south of the site, and any person digging up spadefuls of soil, for whatever purpose, would also dig up fragments of it—and such fragments do in fact occur above the pyre.

When I was discussing material from this site with Mr Hogg, some time later, he drew my attention to the hollow nails both from this and from the other Beckfoot cremation. The outside of the nail is usually well preserved, but the inside has almost crumbled away. My own explanation is that this happens when the nail has been driven into oak; the sap attacks the iron with the formation of a black stable organic iron-compound which protects the outside (compare the recipe for ink: oak gall and ferrous sulphate, which on oxidation forms a black insoluble compound).

APPENDIX II: *Roman cremation-sites at Herd Hill* (Fig. 8).

I believe that records of Roman pyre cremations in Britain are extremely rare; the reader will therefore understand how excited I felt when, the day after I had examined the Beckfoot pyre, idle curiosity guided my steps towards a small sandpit about 100 yards north of the proved site of mile-fortlet 4, on the Cardurnock peninsula (fig. 8) — and there, spread out before my eyes, was the debris from yet another cremation. I photographed the main concentration of bones (pl. III, fig. 2) before beginning a thorough inspection of the area. All the remains lay on clean sand, of unknown thickness; they comprised calcined human bones, most probably from one corpse, their

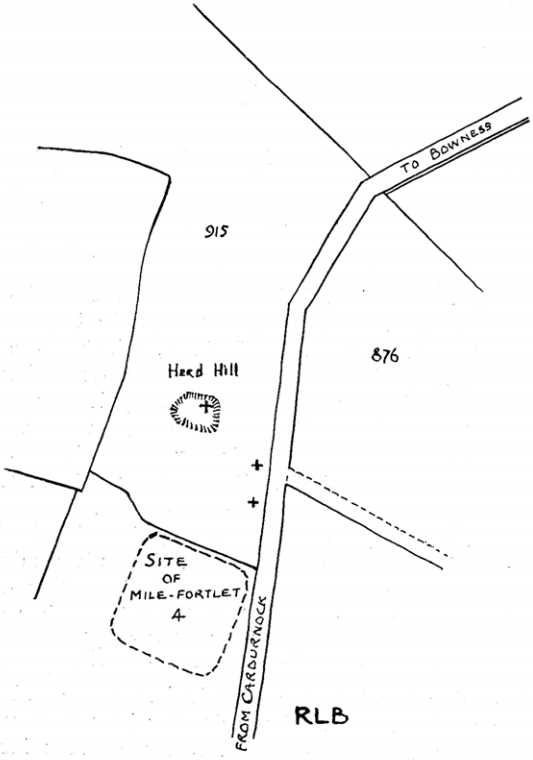
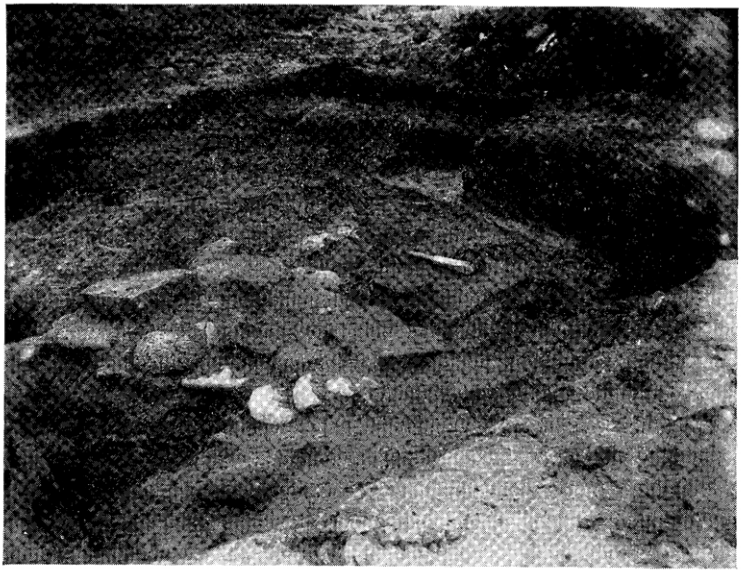


FIG. 8.—Sketch-plan (not to scale) of the cremation sites.



PL. III, 1.—Tower 16*b*, showing platform and hearths.

PL. III, 2.—Cremation debris in sand-pit at Herd Hill.

facing p. 54. *Photos: R. L. Bellhouse.*

human origin proved by the finding of the point of the jaw with three tooth-sockets and cranial bones with their diagnostic sutures. Associated with the bones were quantities of heat-shattered cobbles, the usual blue-green inside but burnt to a warm red colour on the outside; many pieces of Roman pottery, including fragments of a mortarium and an amphora; and iron objects, including nails and two flat pieces of what might have been either a sword-blade or a spearhead.

This sandpit, apparently a natural one created by wind erosion, is at Herd Hill (175599), a hillock of blown sand on the raised beach, strangely reminiscent of the Beckfoot coastal section. Here too is to be seen a dark horizon, rich in humus, which represents the old surface level, resting on clean sand and protected above by a variable thickness of blown sand. I was able to find enough pieces of pottery *in situ* in this dark horizon, to establish its Roman age with certainty. This level also contained heat-shattered cobbles and oak charcoal, but no calcined bones were seen in it. It is clear that the visible remains have come from this level as the result of the undercutting action of the prevailing south-west winds. The underlying incohesive sand is readily blown away, leaving a projecting shelf of the more cohesive humus level, which from time to time breaks off, rolls down the slope of sand and is disintegrated by weathering. All the loose dry material is soon blown away, leaving the heavy objects—bones, potsherds and cobbles—spread out on the clean sand.

Search in other small sandpits nearby revealed traces of at least two more cremations, so that one may conclude with confidence that in the Roman period this was a regular cremation-site. The most significant feature of this find is its undoubted association with the mile-fortlet, some 100 yards to the south. In this respect the Beckfoot finds form an exact parallel, for they are in exactly the same relationship to the theoretical site of mile-fortlet 15. Furthermore, in both cases we have cremations from which the bones have not been collected up for ceremonial interment elsewhere;[11] this strongly suggests the absence of relatives and, by inference, of a *vicus*. In my view, we must look elsewhere for the cemetery used by the occupants of Beckfoot fort and the village at its gates.

[11] Cf. Mr Hogg's observations, CW2 xlix 35.