ART. IX.—*Roman Signal-Stations on the Cumberland Coast.* By R. G. COLLINGWOOD.

Read at Kendal, April 25th and Herd Hill, July 6th, 1928.

I.—ROMAN SIGNAL-STATIONS ON AND OFF HADRIAN'S WALL.

IT has often been observed that Hadrian's Wall, stopping at Bowness-on-Solway, leaves the coast of Cumberland dangerously exposed for a distance of some forty miles—from Bowness to St. Bees Head—to raids from the opposite shore.* True, this coast was not left defenceless. There were forts of standard pattern at Beckfoot near Mawbray, at Maryport, and at Moresby; and inland was a second line with forts at Old Carlisle and Papcastle. Beside these five certain forts—I omit Ravenglass because it seems to fall outside the scheme we are now discussing and to subserve another end (*Trans.* N.S., xxviii, 360-5)—others have been claimed to exist at Kirkbride and Egremont; but the evidence for these is not satisfactory, and at present we are not justified in supposing that they existed at all. In any case, Egremont is outside the danger zone.

As long as the attention of archaeologists was concentrated on the military aspect of the Wall, they were able to content themselves with this picture of the Roman occupation of North-West Cumberland (so *e.g.* Haverfield in 1919, as quoted above). But the view has since then been put forward that the essential function of the Wall was to act, not so much as a fortification, but rather as an "elevated sentry-walk," connecting a system of signal-stations by which news of hostile raids would be

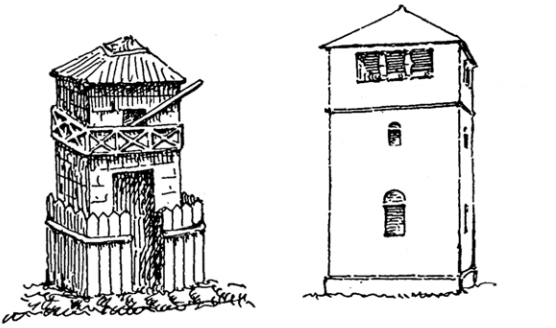
* See Haverfield's discussion in these *Trans.* N.S. XX, pp. 143-145.

collected and transmitted with the greatest possible speed. On this view the " turrets " of the Wall are its primary structural units. The Wall renders the work of these observation posts easier and more secure; the milecastles exist to house the groups of men who are to take their turn on sentry-go in the turrets; and the forts contain the bodies of troops from which these groups are drawn. The fact that the milecastles are spaced with great uniformity at a Roman mile apart, with two turrets beween each pair, shows that sentry-groups were originally intended to be stationed at regular distances of about 540 yards all along the 80 Roman miles of the wall, which implies—since a sentry-group had four men in it—that at any given moment one-tenth of the entire paper strength of the Wall's garrison was occupied in sentry-go on the Wall. Considering the large number of men whose special duties excused them from such employment as this; the number required for sentry-go elsewhere, *e.g.* at the gates of forts; the fact that no man can " stand-to " for twenty-four hours a day; and the probability that few regiments were ever up to their paper strength—considering all these facts, the inference that sentry-go was the primary duty of the Wall's garrison is overwhelming.

This view of the Wall as essentially a chain of signal-stations* necessarily re-opens the question of the Cumberland coast; especially when taken in conjunction with the work that has been done in recent years on the coastal signal-stations of Yorkshire. Here the rise of Saxon sea-raiding in the third century created a situation which, at first dealt with by the building of the Saxon

* See the *Vasculum*, vol. viii, 1921: " The Purpose of the Roman Wall." In these *Trans.* N.S. xxvii, 236-7, Mr. T. H. Clarke has well emphasized the value of a work such as the Wall for checking raiders on their return, tired and laden with loot. While fully accepting that contention, one may nevertheless still maintain the fundamental importance of conceiving the Wall as a chain of signal-stations. The two ideas are perfectly compatible, and indeed logically connected. Before you can catch your hare, you must see him.

Shore forts, led later to the construction of great towers crowning the headlands of the Yorkshire coast, and watching the sea to catch sight of an enemy sail, and to give the alarm by a system of signals. These fourth-century signal-stations are descended by a perfectly regular genealogy from the turrets of the Wall and similar works; and it may be well here to sketch this genealogy.



a. Trajan. (Trajan's Column)

b. Antoninus Pius. (after Fabricius: Odenwald Limes, Germany)

FIG. 1.—SECOND-CENTURY SIGNAL STATIONS.

About the beginning of the second century we find contemporary pictures of signal-stations on Trajan's Column. They are small towers—there is no precise indication of scale—two stories high, surmounted by a low-pitched pyramidal roof. A balcony running round at the level of the upper floor gives a platform for observation, and a projecting object like a barber's pole shows how signals could be sent by flags or fire. The whole is surrounded by a palisade.

Actual remains of towers like these are common on the German frontier. They fall into two main classes: wooden towers and stone towers. The original (early second century) towers are of wood; a post-hole at each corner shows their size and how they were built, and they are surrounded by a circular palisade and ditch. Later,

these wooden towers were replaced by stone towers, so that it is usual to find the relics of a wooden tower and a stone tower close together. These stone towers were not, as a rule, surrounded by palisades and ditches; but this rule is not absolute; there are cases in which ditches are found (O.R.L. *Lieferung* xliii, plates 5, 6, 7). The towers vary a little in size, but in a general way they tend to run about 20 feet square externally. German archaeologists have reconstructed them, on paper, on the basis of the representations on Trajan's Column and on that of Marcus Aurelius, which shows late second-century signal-stations of a somewhat more massive type. The latest of these reconstructions (cf. *Germania Romana*, ed. 2, part I, plate xi) is based on architectural fragments found by excavation, and shows a mid-second-century stone tower as a three-storey structure about 40 feet high to the eaves, with a belfry-like top storey open all round to give the best possible view, and a pyramidal tiled roof.

In Britain, the remains of several wooden towers have been found along the road running east from Strageath down the left bank of the river Earn to Dupplin Loch (*Proc. Soc. Ant. Scot.* xxxv). Here we find the same circular entrenchment enclosing a square tower defined by four post-holes, but the whole thing is on a very small scale, and the tower is only about 10 feet square. Comparing these with the much larger Antonine towers in Germany, one might be tempted to assign them to the period, not of Antoninus Pius, but of Agricola, these being the only probable alternatives.

To the early years of Hadrian belongs the stone tower, 21 feet square, with a ditch round it, dug at Over Denton in 1928. It exactly resembles in plan and measurements the turrets of the Turf Wall, found in 1927 at Piper Sike, Lea Hill and Pike Hill; and it is clear that the turrets of the Wall are nothing but twenty-foot towers of this

type incorporated into the structure of the Wall. If this were doubtful it would be proved by the existence of a wall turret (on Walltown Crags; *Archaeologia Aeliana*, ser. 3, ix, p. 68) which has been originally built as an isolated tower about 20 feet square externally, and against which the Wall has been subsequently built.

The tendency of these signal-towers to grow in size and solidity is already clear from the above facts. It chimes with the general development of architecture and fortification during the Imperial period that by the fourth century they should have got still larger and more massive. The tower itself is now between 40 and 50 feet square, and must have been about 100 ft. high; and the surrounding palisade has developed into a massive curtain-wall with bastions at the corners, enclosing a space nearly 100 feet square (*The Roman Signal Station on Castle Hill, Scarborough*, pamphlet published by the Scarborough Corporation).

Thus we find the Roman signal-station developing, *pari passu* with the development of architecture in general, and military architecture in particular, from a small wooden tower, perhaps 20 feet high and encircled by a slight palisade, in the first century, to a larger wooden tower, then to a stone tower 20 feet square and perhaps 40 feet high, and finally to a tower of at least twice these dimensions, surrounded by a wall strong enough to make it into a regular castle. And we have abundant evidence that, in Britain, this development had in Hadrian's reign reached the phase of stone towers 20 feet square externally.

Concerning the functions and importance attached by the Romans to signal-stations of this kind, we have a good deal of information. The way in which they appear in the reliefs of the two great columns, is in itself eloquent; but it can be reinforced from other sources. For instance, there exists a group of inscriptions set up by

the Emperor Commodus, about the years 181-185, to record the fortification of the Danube a little below Buda-Pest. These state that he *ripam omnem burgis a solo extructis item praesidis per loca opportuna ad clandestinos latrunculorum transitus oppositis munivit*—" fortified the whole river-bank with *burgi* built from the ground (*i.e.* wholly new ones, not old ones re-built) and with *praesidia* placed at suitable spots for repelling the secret crossings of petty raiders " (examples in Dessau, nos. 395 and 8913). Here the *burgi* are signal-stations, which come first in the inscription because they are the essential and primary feature of the scheme; the *praesidia* are forts. It is a striking fact that Commodus, who was not a modest man, publicly explained that the object of this elaborate scheme was the frustration, not of massed hostile attacks or the incursions of barbarian hosts,* but of the clandestine transits of small thieves. Frontier raiding, which thus explicitly accounts for Commodus's works on the Danube, is the true explanation of Hadrian's Wall; and the situation on the Solway is like enough to that on the Danube to suggest that in Cumberland, as in Pannonia, petty raiders might be provided with boats.

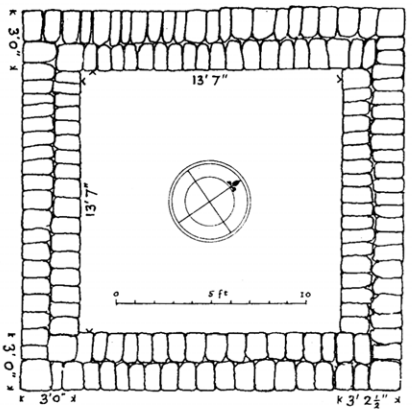
II.—Previous Discoveries on the Cumberland Coast.

When these facts are borne in mind, it seems very unlikely that the Hadrianic system of signal-stations from Wallsend to Bowness-on-Solway should stop at Bowness. True, beyond Bowness, raiders could no longer enter Roman territory on foot; but they could come very easily in boats, for the Scottish coast is only $7\frac{1}{2}$ miles distant from Beckfoot, and 11 from Maryport. Therefore, although a continuous barrier was not needed along the Cumberland coast, it is obvious that signal-stations were.

* A phrase actually used in an inscription of this very period, found at Carlisle (now in Tullie House) and referring to the invasion of the Caledonians and Maeatae about the year 181.

In fact, their existence has long been known; but their original discovery was largely accidental; further accidents prevented it from being followed up; and for nearly fifty years it lay neglected and forgotten.

In 1880, foundations were being dug for coke-ovens at Risehow,* south of Maryport, when the foundations of a square building were discovered. It was about 20 feet square externally, and had walls about three feet thick. Inside was a floor of cobbles covered with clay, and on this was found pottery, including several urns containing



ROMAN SIGNAL STATION: RISEHOW.
(after Lloyd Wilson, *Trans.* O.S. V, 1880)

FIG. 2.

burnt burials. The late Mr. Joseph Robinson of Maryport, who watched the work and thus gave us information about a relic which would otherwise have been destroyed unrecorded, trenched the neighbourhood, but found nothing else. From the site, he observes, the Maryport fort is visible, though the building stood not on the summit of the little hill known as Risehow, but 150 yards south of that point. "The foundations," says he, "may probably be the remains of a tower. The place has

* *Trans.* O.S. V, 124-125, with a plan here reproduced.

evidently been used for burials, probably after the withdrawal of the Romans, as it has not apparently been built for such a purpose." He is evidently right in his main inferences. The Risehow building is a typical second-century signal-station, communicating with the fort, a mile and a half away; and the burials suggest that its original purpose fell into abeyance before the time when burnt burials gave way to inhumation: that is to say, probably before the middle of the third century.

Our then President, Chancellor Ferguson, recognised the value of Mr. Robinson's work, and suggested that he should explore the shore of the Solway " west of what is usually deemed the end of Hadrian's great rampart " (*Trans.* O.S., v. 126). Attention had been directed to this region by an article in the *Carlisle Patriot* in 1877, remarking on the name Campfield, and " an ancient mound in the large field past Pasture House." At Campfield, Chancellor Ferguson and others, after repeated visits, at which surface inspection was reinforced by digging, satisfied themselves that the so-called Roman camp was a myth,* and that what had been taken for a camp was a number of shingle ridges. The Chancellor suggested that the name might have been derived from a medieval fortification, and thought he could see traces of a motte and bailey (*ibid.* 127).

At two places, however, Roman remains were found close at hand. In the field to the west of Pasture House, the next farm to the west of Campfield, digging in the mound already mentioned revealed " quantities of dressed freestone and of the Roman pottery known as Upchurch ware, [and] a little Samian ware." Of its shape, nothing could be made out, but the excavators were satisfied that it must have resembled the building next explored (*ibid.* 128).

* However, it has not yet been struck out of the Ordnance maps; see Cumberland, sheet xiv, N.E., of the six-inch map, 1926 edition.

This was a quarter of a mile farther to the west. It was a square building about 19 feet externally and 13 feet internally, "exactly similar to the one discovered by Mr. Robinson at Risehow." The north wall was destroyed, but the others remained and sufficed to determine the plan. The walls had collapsed outwards and parts of their facing were found lying face downwards for a distance of about nine feet from the foundation. The material was partly freestone, partly split cobbles; and inside was a flagged floor with quantities of mussel-shells on it, and much pottery—coarse ware, mortaria, amphorae, Samian plain and figured, and bones, among which was part of a human skull. An amphora-handle bore the stamp ROMANI. RR. The fallen stones from these two sites were taken to Pasture House, where they were built into the gable of a new outhouse then under construction; a photograph of this gable as it appears today is given in fig. 3.

Commenting on these finds, Mr. Robinson remarks:—"taking into account the striking resemblance to the remains at Risehow, I think we must look for others along the coast, as they are no doubt part of a system" (*ibid.* 128-130).

In the closing days of the same year, Mr. Robinson excavated a fourth signal-station, and reported on it in a clear and business-like way.

"The remains in question [he says] are situated a little under a mile to the north-east of Beckfoot Camp and a little over half-a-mile to the west of Wolsty Castle. They are in a field owned by Mr. Saul, of New House, and on land which was part of Wolsty Bank, and unenclosed till about 1730. The adjoining unenclosed land, extending towards Silloth, is a series of sand hills, and the elevation on which these remains exist is also of sand. The farmer . . . noticed that upon this hill he had the best crops, and he also observed some freestone . . . . The remains were the foundations of a square building, from which the whole of the freestone courses had been removed. The foundations left are of

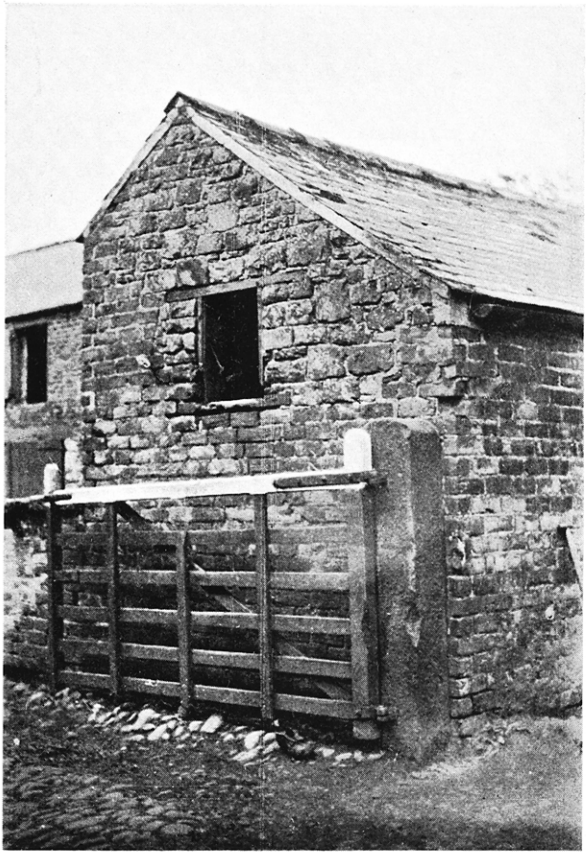


FIG. 3.—PASTURE HOUSE :
Gable built of Roman Stones.

Photo. R.G.C. FACING P. 146.

cobbles and clay. The corners of the building face the cardinal points exactly, and the wall facing north-east is perfect, measuring 20 ft. 6 ins. outside by four feet in width." [N.B. this is the width of the foundations, not the superstructure.] " The wall facing south-east was followed fifteen feet, when it abruptly disappeared " [but the foundation-trench was followed, and it was proved] " that this wall originally had measured twenty feet six inches also . . . The foundations were no less than three feet three inches in depth, consisting of 8 courses of cobbles mixed with clay . . . The entrance has apparently been from the south-east, as a rough pavement, six feet by four, exists opposite the centre of that wall.

The interior has measured 12 ft. 6 ins. each way . . . it has not been flagged or paved . . . The old surface is identified by rubble freestone and a streak of clay . . . There was not much pottery, but specimens of Samian, Upchurch and Salopian ware were found . . . . In only two places did I find traces of anything resembling burials. The most distinct one was opposite to where I have assumed the doorway to have been. The sand for 8 or 9 inches was black, mixed with charcoal, and contained a few fragments of bone, covered by part of a dish of Upchurch ware " [this, from his description, does not seem likely to have been a burial at all] . . . " The distance from this site to high water mark is only 250 yards, and a good view is obtained from the place."

In 1880, therefore, Mr. Robinson found four signal-stations: two a quarter of a mile apart, about three miles from Bowness; a third about ten miles farther along the coast, and a fourth a dozen miles farther on again. All these were of a pattern. They were all about 20 feet square and provided with walls about 3 feet thick. In the one case in which the foundations were properly studied, they were found to be remarkably deep, showing that the superstructure had been correspondingly high—in fact, a tower. In one case the site was betrayed by the rank growth of corn, which—as corn does not grow rankly over masonry debris—seems to show that the tower was surrounded by a ditch, like the Hadrianic tower at Over Denton. In one case the tower had been disused and converted into a wayside tomb; but there is no

evidence of this in any of the other cases. One thinks of the parallel fact that some Wall turrets were disused and pulled down, while others were in use down to the fourth century.*

It was clear enough from these finds that there was, as Mr. Robinson said, "a system" of these towers. But no one except himself seems to have recognised this at the time; Chancellor Ferguson certainly did not; and on Mr. Robinson's death the search that he had so brilliantly initiated was not pursued. It was nearly half a century later that the subject cropped up again from another quarter. The present writer, trying to think out the conception of the Wall as a chain of signal-stations, realised that it has a logical consequence; namely the existence of other signal-stations along the Cumberland coast.† This led to an examination of published materials and so to the discovery of the fine field work already done by Mr. Robinson. It remained to visit the coast and look for the sites of other signal-stations; for one thing was clear, that considerable numbers of them must await discovery.

One other fact ought to be quoted here. From Bowness-on-Solway, says Camden (tr. Philemon Holland, 775) "there led a paved high way from hence along the sea-shore, as farre as to *Elen Borrough* [Maryport], if we may relie upon report of the by-dwellers." "A paved causey can still be seen," adds Chancellor Ferguson (*Trans.* O.S. v, 130) "between Bowness and Campfield.

* Cf. *Trans.* N.S. xiii 301; High House turret was not occupied after "period IB," which ends *c.* 180; Birdoswald turret was occupied throughout the periods recognised at Poltross Burn milecastle, *i.e.* into the fourth century. High House turret does not stand alone in this respect.

†Similar stations along the coast south of the Tyne are not logically required, because of the very different conditions of coastwise navigation. None the less, there is evidence that some may have existed along that coast, notably at Seaton Carew, where the finds suggest a signal-station by their position but are quite incompatible with Haverfield's ascription of the site to the fourth-century Yorkshire series (*J.R.S.* ii, 206).

There it is lost, but its direction would take it by [the two signal-stations to Cardurnock] pointing direct to the Grune Point on the opposite shore where the paved causey re-appears between Skinburness and Silloth." The coastal road thence to Allonby and Maryport is doubtless Camden's Roman road; and Mr. J. B. Bailey (*Trans.* N.S. xxiii, 147) shows that it went on in a southerly direction from Maryport. After that, we have no certain trace of it.

III. A Survey of the Ground.

In July 1928 the writer examined the coast between Bowness-on-Solway and St. Bees Head, in order to find whether any remains of signal-stations were visible, and also to determine the points at which further search might most profitably be carried out. In summer conditions, with high crops and hay as yet uncut, the first of these inquiries was not likely to meet with much success, and therefore special stress was laid on the second. Four days were devoted to this survey, during two of which the writer enjoyed the company and help of our members Mr. E. B. Birley and Mr. C. E. Stevens. The survey began at St. Bees Head, but its results are here given in the reverse order, so as to present the coastal defences as a continuation of the Wall.

Even east of Bowness-on-Solway, there is a suspicion of coastal watch-towers. Fisher Cross, a mound situated exactly at the corner where the road bends westward at the north end of Port Carlisle, and Knock's Cross, a somewhat similar mound by the roadside half a mile east of Bowness, are possible sites for such buildings. At Fisher Cross, Roman coins have been found,* and the little altar inscribed MATRIBVS SVIS, built in over the door of the adjacent house (formerly the Steam Packet Hotel, now called Hesket House) may have been found on the

* Bruce, *Roman Wall*, ed. 3, p. 303.

spot. The lettering is a good example of " rustic " style such as was common in Hadrian's reign. The fact that Fisher Cross lies several yards in front of the Wall forbids us to explain it as a milecastle or turret, and the same is true *a fortiori* of Knock's Cross which is some 250 yards north of the Wall. If these were Roman buildings, therefore, it is tempting to suggest that they were watch-towers belonging to the Vallum system and superseded when the Wall was built. Knock's Cross does not appear to have yielded Roman objects; we were told locally that certain monks were buried beneath the mound, and that it was erected by " John Knox's men." These traditions, however wanting in literal accuracy, at least suggest some archaeological significance for the site.

For two miles west of Bowness no watch-towers were identified in 1880, and our search in this region revealed nothing. In the field south-west of Campfield farm, however, about a quarter of a mile from the house, Mr. R. E. Porter has been told that there are the remains of an old building from which several cart-loads of stone have been taken. This would appear to be very possibly one of the Roman signal-stations not found in 1880; and it is marked on the accompanying map (fig. 3) as no. 1.

Near this point the road turns southward and then south-westward again, and then passes Pasture House, half a mile S.W. of Campfield. In an outhouse here is a gable-end almost wholly built of smallish squarish stones (fig. 3) resembling the stones in forts along the Wall. These, as has been said, were brought from sites 2 and 3, which are the two dug in 1880 (see above). No. 2 is about a quarter of a mile west of Pasture House, no. 3 about a quarter of a mile farther to the south-west. From the turn in the road mentioned above, a large field extends to Pasture House on the north side of the road; at Pasture House a second begins; then comes a third, and a fourth reaches almost to Herd Hill, where the road turns south to

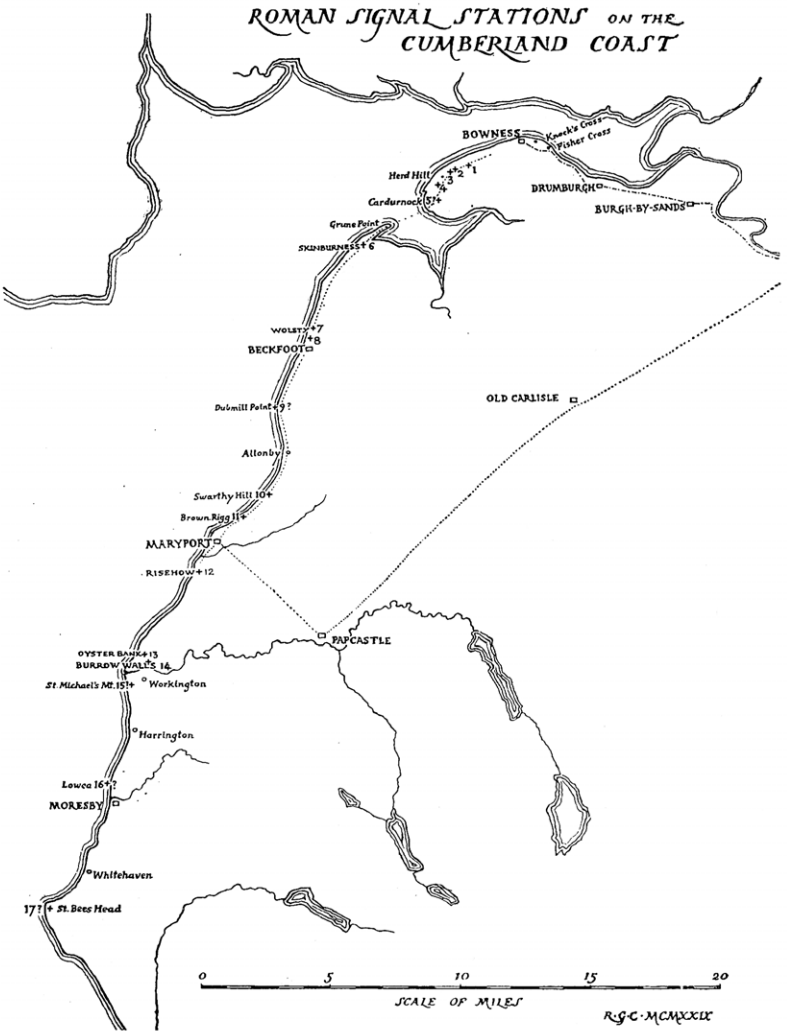


FIG. 4.

Cardurnock. These four fields together stretch for nearly a mile. No. 2 is in the third field, no 3 in the fourth. In 1880 they appeared as well-marked mounds, but since then they have been obliterated by cultivation and the removal of stone, and it is only thanks to information given to Mr. Porter by the farmer at Pasture House that we know where they were.

Herd Hill is a sand-dune, 40 feet above sea-level; hence a sandy ridge runs parallel to the road, and west of it, to Cardurnock. On the summit of this ridge, about half-way between Herd Hill and Cardurnock, is no. 4. A series of narrow strip fields, divided by parallel hedges, lie here at right angles to the road; the watch-tower (again by information given locally to Mr. Porter) is in the seventh of these counting from Herd Hill, close to a large ash tree. Three fields beyond it, a drain crosses the road and runs out to seaward.

It is highly probable that another tower stood at Cardurnock. Here a little hill stands up above the flats, crowned by the hamlet. The hill is highest at its southern end, and all over it we looked for Roman pottery or other objects. We found nothing, but it must be remembered that a single cottage would suffice to seal up the entire remains of a Roman building 20 feet square. The place-name lends some support to our conjecture. The President points out to me that it must be Brythonic, and that the element *caer* suggests a fortification of some kind in the Romano-British period. There are no earthworks; the "caer" must have been something quite small, and might easily have been a watch-tower. It might conceivably have been a small fort; for we are now over four miles from Bowness, and that is a long way to send men every time a sentry-group is relieved. The element *durnock*, the President continues, suggests Dornock near Annan, explained by Professor W. J. Watson as "the place of hand-stones" (cobbles), O. Welsh *durnawc*

British **durnacon*. Such an etymology seems not irreconcilable with the earliest known form Cardrunnocke (F.F. 1386); and "the fort of the cobblestones" is a reasonable name for a Roman signal-station planted on this shingle ridge. This is therefore entered on the map as no. 5 with a query.

Looking back hence to Bowness, we see that, in about four miles, at least four sites have been identified. Two of these are about a quarter of a mile apart. This suggests that hereabouts they were planted very close together, and that between Bowness and Cardurnock there might be as many as 15. But allowing four men to a sentry-group this implies 60 men on duty at once, or a minimum of 120 men employed in twelve-hour shifts; and this would seem to imply at least one more fortlet, and perhaps several more. On the Wall, we find one fortlet (there called a milecastle) to every two towers, the three together occupying a Roman mile; and, though fortlets may have been less frequent on this line of coast, it would be natural to expect that, if there are about 15 sites altogether, 3 or 4 of them may be fortlets. Therefore future study of these sites, when the crops are off and the ground is under plough, should be devoted not only to identifying fresh sites but also to discriminating between small buildings resembling the turrets of the Wall and larger buildings resembling its milecastles, which I here call fortlets.

Moricambe Bay now interrupts the coast-line. The bank of shingle and sand which forms Grune Point, its southern horn, closely resembles that which runs north from Cardurnock; we inspected it without finding any trace of towers, but longer search in winter conditions might be more successful. At the base of this horn is Skinburness, and here we place site no. 6, as revealed by the finding of Roman remains (*Trans.* o.s., i, 40) and the little altar (C.I.L. vii, 418) in the British Museum. As one would hardly expect an altar in a watch-tower, this

may have been another fortlet; the more so as it is between four and five miles from the nearest fort at Beckfoot.

For about 8½ miles, from Grune Point to Dubmill Point, the coast is very flat and there are no positions which suggest themselves, on cursory examination, as likely sites for towers. In the absence of such aids from topography, we were unable to do anything with this piece of coast. That it was not neglected by the Romans, however, is certain from the Skinburness finds, the Wolsty site mentioned above (no. 7 on map) and the Beckfoot fort, which from pottery found there seems to have had a long life. A site in the dunes north of this fort (*Trans.* N.S., xxi, 270) may be another signal-station, and is here given tentatively as no. 8.

This stretch of low sandy shore comes to an end at Dubmill Point, the northern horn of Allonby Bay. Here, for the first time since leaving Bowness, the coast rises above the 50-foot contour-line, in a smooth turtle-backed hill, cut away by a bluff to seaward. On the top of the hill we found young corn, whose growth and colouring would have been very sensitive to buried remains; but we satisfied ourselves that it showed no signs of anything. The bluff, however, has clearly been much eroded in recent times; the road running round its foot is defended against the sea by a great concrete embankment; and a Roman tower planted on the headland—its natural position—would certainly have perished by the encroachment of the sea. It seemed to us that without a station on this headland there could have been no communication between the posts north of Dubmill Point and those south of it; and therefore we conjecture, with some confidence, a vanished tower here and mark it as no. 9, with a query.

Allonby Bay is 5½ miles wide from horn to horn, and it is six miles round by the coast-road from Dubmill Point to Maryport Roman fort. We are now from 15 to 20 miles away from Bowness, and the Scottish coast is

rapidly receding. It seems hardly probable that towers can be needed here so close together as between Bowness and Cardurnock; and this impression is greatly strengthened by the topography of Allonby Bay itself. The coast is flat, but it is broken by isolated hills. The plateau crowned by Maryport fort ends abruptly a bare mile from the fort, at Bank End; but a mile north of this stands Brown Rigg, a hill 93 feet high, and a mile north of this again is Swarthy Hill, 101 feet above the sea. In the presence of these commanding positions, it would be hardly reasonable to build towers in the low ground between them. We therefore proceeded on the assumption that Allonby Bay was encircled by towers placed on the tops of these hills.

In pursuance of that hypothesis, the next tower south of Dubmill Point might have been at North Lodge, at the northern end of Allonby village, where there is a distinct rise in the ground. Another might have been close to Mealo House, where there are a number of suitable hillocks whose grassy tops could hardly be expected to betray any remains lying under the turf. The next would be on Swarthy Hill. This is a ridge, a third of a mile long, steeply scarped to seaward. On its top we found a crop of corn which, exactly at the summit of the hill, grew very rankly and with a dark colour. This was the sign which led Mr. Robinson to the discovery of the Wolsty site, and since then it has become a regular weapon of archaeological study. In this case it is almost as good evidence of a Roman signal-station as pottery or masonry. Here, therefore, we place no. 10.

The summit of Brown Rigg is under grass, and nothing is visible. The likeliest place for a tower is the highest point of the seaward escarpment, some distance west of the summit, because from this point Swarthy Hill and the hilltop above Bank End are conveniently visible. The

lie of the land strongly suggests a station here, and accordingly we conjecture here no. 11, with a query.

A mile beyond this is the northern summit of the Maryport plateau. The fort itself is on the southern slope of the plateau, and has no good northern outlook, though from its towers one could doubtless see Dubmill Point and even, in all probability, Swarthy Hill and Brown Rigg. But in order that Maryport should be in effective touch with the Allonby Bay stations, it seems to need an outpost on the northern end of its own plateau. The natural place for this would be on or near the cliff-edge about 500 yards S.W. of Bank End house. Hence the buildings of the fort could be easily seen, and communication with Brown Rigg would be assured. The cliff has suffered erosion and the tower, if there was one, may have been destroyed by the sea.

It will be noticed that mere study of the topography led us to fix on the above positions; that the result was a hypothetical chain of stations round the bay which fell on average a mile part; and that this hypothesis was confirmed by the appearance of the crop on the top of Swarthy Hill.

Maryport fort may be a pre-Hadrianic foundation. At any rate it has a square plan not usual in Hadrianic forts except those of an altogether smaller size, such as Great Chesters. The area inside its defences must have been about four acres,* and Hadrianic forts of that size appear to have been generally laid out on an oblong plan, which, so far as the ground is concerned, could easily have been adopted here. The objects found do not, however, suggest a first-century occupation, though that is possible. It is conceivable that Maryport was founded in the reign of Trajan; and the finds so far support this possibility as

* *Trans.* N.S. XV, 136. Haverfield there reckons 4½ acres; I prefer to allow a little more than he has done for the thickness of the ramparts.

FIG. 5.—BURROW WALLS FROM THE SOUTH.

Photo. R.G.C.

FACING P. 157.

to point, like the plan, to a date earlier than Hadrian.* But whenever the fort was built, its purpose is clear. It is not a seaport. It stands on the top of the cliffs, 170 feet above the sea, on a headland between two bays, in order to watch the horizon. It is a magnificent site for outlook, and it has no other advantages and can have had no other purpose.

If Maryport is a Trajanic foundation, it was incorporated into the Hadrianic scheme of coastal stations. Beckfoot has the normal Hadrianic oblong plan; so, probably, has Moresby, to which we shall return below. These new forts were added, presumably, to supply men for the newly-built signal-stations.

A mile and a half south of Maryport is the known station at Risehow (no. 12) described above. That this was built so as to communicate with Maryport and also with the coast farther south is obvious to anyone who visits the site. It therefore forces us to proceed farther.

Nearly three and a half miles beyond Risehow, and nearly five miles from Maryport, are Burrow Walls. This site has long been a matter of controversy. There are two solid fragments of wall standing at right angles to each other, the corner where they once joined being broken away. The longer wall (fig. 5) is 45 feet long, the shorter 15 feet long; they are 8 to 10 feet high, and average about four feet thick. They consist almost entirely of core, made of rough stones laid, for the most part, slanting somewhat as in herring-bone work and surrounded by quantities of very hard mortar. Hardly any facing-stones remain in place. At the N.E. end of the longer wall there are several showing a decided concave curve; this proves that there was a newel stair†

* *Trans.* N.S. XV, 170 (coins). The list suggests a Trajanic origin. Some of the Samian has a Trajanic, rather than Hadrianic, character.

† "Sixty years ago [1820] a winding staircase existed in the thickness of the wall. Wall slits, very narrow outside and wide within, and circular bolt holes were in good number . . . The outside skin was ornamented with rows of

here, in the corner where the two walls joined. The only other piece of face remaining above ground is at the opposite end of this wall (fig. 6). Here five courses of facing-stones are visible. The courses are not horizontal. They slope down strongly towards the S.E. side of the wall, in a way suggesting a subsidence. Above them, however, the core rises straight up and the rough courses in it lie horizontally. It is hardly possible to resist the inference that we have here masonry of two periods. The first-period work has subsided and tilted sideways; after it has come completely to rest (that is to say, at a considerable interval after its original construction), the second-period work has been added on the top of it. This account of the facts is confirmed by observing that the upper part of the core contains many re-used facing-stones.

The second period is obviously medieval, as is shown by the newel stair. The work as a whole has been called Norman (*Trans.* N.S., xxiii, 249, with references), with what correctness I cannot judge; but if any is Norman, I should imagine it to be the work of the second period. On the other hand, there is a long tradition of a Roman site here. In 1852 Roman coins and pottery were found; five altars are ascribed to the site, including one (C.I.L. vii, 361) with part of a very rude and unintelligible inscription (*Trans. loc. cit.*). Yet it has often been pointed out*

feathered or herring-bone work, in the same way as the walls of Egremont Castle . . . On hearing that the . . . remains . . . were being removed, I petitioned the Earl [of Lonsdale]'s steward to allow the remnant to remain, and he kindly acceded to my request." W. Dickinson, *Trans.* O.S. v, 22-24. On Mr. Curwen's theory of herring-bone work (*Trans.* N.S. xxviii, 148) its existence confirms my belief that there were visible grounds to doubt the security of the foundation on which the medieval walls were erected.

* *E.g.* by so excellent a field archaeologist as Horsley: *Brit. Rom.* p. 483 "I met with the like disappointment at *Workington*, where some have said, that there must have been a *Roman* station: for I could discover no appearance of it; nor hear of any *Roman* coins, inscriptions, or other antiquities found thereabout. The *Borough Walls*, where the station is supposed to have been, is about a mile from the town . . . A good part of the walls are yet standing . . . I saw no appearance of a ditch, no remains of other buildings about it, or near it; and in short, nothing that looked like a *Roman* station or town. If it has

FIG. 6.—BURROW WALLS:
Showing earlier facing-stones with later cove above.

Photo. R.G.C. FACING P. 158.

that there are no visible remains of a full-sized Roman fort; and therefore we are driven to seek some other explanation of the relics found there. The simplest explanation surely is that the first-period masonry represents a fortlet to accommodate men working the adjacent signal-stations. For this purpose the position is admirably chosen, sheltered in a nook of land, yet commanding a view of the sea and, as we shall find, of signal-stations to north and south.

That there were visible remains of such towers between Burrow Walls and Maryport in Camden's time, seems not impossible; that is the natural explanation of the passage quoted in the last footnote. But where were they? If Burrow Walls are an element in the system, the next station must be visible thence. At present a railway-embankment cuts off the view; but when one climbs to the top of the walls and looks over the embankment one sees to north-north-westward a bluff called Oyster Bank, a quarter of a mile away, standing steeply above the marshes of Siddick; and it is clear that this is the natural position for the next station. It is half a mile from the coast, but the coast is low and flat here, and the escarpment a little way inland is the right place for signal-stations; and this bluff is the point where the escarpment turns round so as to enclose the nook or hollow in which Burrow Walls stand.

It was, therefore, with some satisfaction that we found masonry a few inches below the surface on the summit of this bluff. The edge of a wall running W.S.W.—E.N.E. was traced for five feet, one stone being four feet long and 11 inches deep, and we saw charcoal and burnt earth,

ever been a Roman fort of any kind, I think it must only have been one of those small exploratory *castella*, which some observe to have been placed along the coast." This is not the first time that an observation of Horsley's has had to wait some two centuries for confirmation. His reference may be to Camden's " ruins and broken walls " alleged of Roman date, visible between Workington and Maryport (*Britannia*, tr. Ph. Holland, p. 769).

indicating occupation. The remains were only two or three yards from the edge of the bluff, on whose face and at whose foot we searched for traces of walls, pottery, etc., but found nothing, and inferred that the building was intact and undisturbed by the erosion of the cliff. This is marked on the map as no. 13.

Between no. 13 and Risehow we marked down two possible sites. The first is half a mile north of 13, east of the north end of Siddick village; the second another half-mile farther, on the south side of a little ravine in which runs a stream, half-way between Siddick village and St. Helens. These sites are under grass and showed no signs except a certain rankness in the turf, but they seem topographically suitable. Hence to Risehow the buildings of St. Helens and Flimby make further search difficult, and we saw nothing. There must, however, have been at least one intermediate station in the three-and-a-half mile interval between Risehow and no. 13; for they are not in sight of one another, though it is conceivable that the summits of the towers may have been mutually visible.

From Burrow Walls, which we mark as no. 14, a road runs S.S.E. in a straight line for half a mile, aiming for the bridge over the Derwent and Workington Hall beyond. This is now a mere accommodation-road for agricultural work, and it can never have led anywhere except to the Walls themselves. When to this is added the fact that a parish boundary runs along it, a suspicion of its Roman origin becomes almost a certainty. Its direction is explained if we assume that it intends to cross the Derwent at a point where the banks are high enough to be clear of flood-water and close enough together to permit of a bridge being easily built. The river is so large and so liable to heavy spates that a bridge is absolutely necessary for regular communication.

There is therefore a presumption that other watch-

towers exist south of the Derwent. The first and most obvious position is St. Michael's Mount, Workington. This is a long, narrow, hog-backed hill, 129 feet high, standing boldly out to seaward west of the town and south of the river-mouth, and isolated from all other high ground by a mile of low-lying flats. It is an admirable place of outlook, and one which would inevitably be used in any scheme of coastal watch-towers. At present its summit is crowned by a medieval pele-tower, and I have not been able to find any Roman relics; but the tower may well stand on the foundations of a Roman predecessor, and the natural advantages of the site persuade me to mark it as no. 15 with a query.

A mile south of St. Michael's Mount the coast begins to rise gradually until, just north of Harrington, it reaches a height of 100 feet. Search on this line revealed nothing, but somewhere near Harrington there ought to have been a signal-station, preferably on the high cliff south of the town. An inscribed stone now at Netherhall (no. 53 in the catalogue in these *Trans.*, N.S., XV) was found in 1885 at Harrington church; but it may easily have been brought thither from Moresby, three miles away, as building-material, and cannot be used as evidence of a Roman site at Harrington itself.

For a mile and a half south of Harrington the coast-line consists of rock and clay bluffs about 100 feet high; then, at Cunning Point, it rises to 200 feet and more, attaining its greatest height between Micklam and High Lowca. Here, close to Lowca Colliery, the cliffs are of clay and are being subjected to rapid erosion, their seaward face being seamed by runnels of soft mud. We are now only half a mile from Moresby fort; and the situation of that fort is very strange. It lies in the valley of the Lowca Beck, on a flat hill-top 100 feet above the sea, dominated at short range by the cliffs of Lowca, twice as high, to the north, and by rising ground to the south and east. Before the

building of the railway there was a little harbour at the mouth of the Lowca Beck; but the presence of this harbour is a quite insufficient reason for the fort, since there are others, at least as good, at Harrington and Whitehaven. The strangeness of the situation consists in the fort's being tucked away in a hole among the cliffs, whence it cannot even see the surrounding country.

This choice of ground for a Roman fort had perplexed me for many years; but the theory of coastal signal-stations explains everything. The fort at Moresby can see three things very well: the horizon straight out to sea, the top of Lowca cliffs to the right, and St. Bees Head to the left. In relation to Lowca cliffs it stands precisely as Burrow Walls stand to the bluff above Siddick. In each case a fort placed in a sheltered nook has its northward view completely blocked by a hill-top close at hand. In the case of Burrow Walls, we assumed that the Roman building was a fortlet in connexion with a tower on the hill, and we found the tower. In the case of Moresby, the obvious hypothesis is that the fort served a tower on the top of Lowca cliffs, which, if it ever existed, has long perished through erosion. This would seem to justify our entering no. 16, with a query, on Lowca cliffs. Probably it would be in sight of St. Michael's mount, four miles away; but there might also be an intermediate station near Harrington.

Southward along the coast, Moresby looks at St. Bees Head, five miles away. Between these two points there are several places suitable for signal-stations, but careful study of the ground has not convinced me that any such actually existed. Between Moresby and Whitehaven there are ruins on the cliff-edge, a quarter of a mile south of Redness Point, but they are modern. And, though St. Michael's Mount comes into view from the cliff about three-quarters of a mile south of Moresby, Moresby itself cannot be seen from this point. The hill immediately

south-west of Whitehaven, 222 feet high, gives an excellent outlook, and so does the summit 437 feet high, overlooking Saltom Bay, half-way from Whitehaven to St. Bees Head; but from neither hill is Moresby visible, and on neither hill can I see traces of ancient building. If there were watch-towers on these points, they must have communicated with Moresby by way of the Lowca cliff station, no. 16.

On St. Bees Head itself there surely must have been a station; and probably the last. Moresby and St. Michael's Mount are in view and visible even in rainy weather. When it is at all clear, the coast of Scotland is seen thirty to fifty miles away. If the Solway must be watched, the watch can hardly stop short of this. But from St. Bees Head the coast falls away south-eastward and no longer faces Scotland. St Bees Head is the real western end of Hadrian's Wall.

The natural site for a station here is the summit of North Head, 323 feet above sea-level, one field to the north of the lighthouse. This is the height that is so plainly visible from Moresby and every point of vantage as far as Maryport. A fence—a bank of stone and earth—crosses the summit; it seems to contain more than its fair share of large heavy stones, and one of these, on the south side close to the top of the hill, shows marks not unlike the Roman cross-broach tooling. The land here was under corn when I examined it and I found no certain traces of Roman occupation; it ought to be re-examined under the plough. In the meantime, I place here no. 17 with a query. It is at least 5½ miles from Moresby by the nearest road, and therefore one would expect a fortlet rather than a mere signal-station.

Summarising the whole system, so far as these slender threads of evidence permit, we find it falling into two sections.

First, a series of close-set towers, probably from

Bowness to Cardurnock and ending at Moricambe Bay. Here it looks as if the towers were set at the same interval as those on Hadrian's Wall itself.

This section seems to be hardly more than 4 miles long.

Secondly, a series of widely-spaced towers, extending about 32 miles from Moricambe Bay to St. Bees Head. This section is based on three *castella* and probably at least three fortlets, to which one may be tempted to add a purely conjectural fourth near Allonby. The scheme of distances would then run as follows:—

	Beckfoot (*castellum*)	Skinburness (fortlet)	5 miles.
9½ miles		? fortlet near Allonby	4¾? ,,
	Maryport (*castellum*)		4¾? ,,
11 miles		Burrow Walls (fortlet)	5 ,,
	Moresby (*castellum*)		6 ,,
		St. Bees Head (fortlet)	5½ ,,

If this is right, a permanent station of some sort, affording proper quarters for troops, as opposed to a mere watch-tower, would occur about every five miles, so that the men in a signal-station would never be more than 2½ or at most 3 miles from cook-house and bed.

In conclusion, emphasis must be laid on the fact that this paper consists largely of guesswork. Of my seventeen sites, remains known to be Roman have been found at only seven. In four other cases, stones have been found which are suspected of being Roman. But in nearly half the cases, nothing has been found at all. To confirm or controvert the conjectures here put forward, therefore, much field-work is required; in the first instance, repeated examination of suspected sites under winter conditions, and then excavation. Fortunately, the excavation would

be of the very simplest and easiest kind: its only immediate purpose would be the discovery of Roman objects—a potsherd or two would be enough—on suspected sites; and this purpose might be achieved in half an hour at any given place.