

ART. XIX.—*Hardknot Castle*. By R. G. COLLINGWOOD.

*Read at the Site, September 15th, 1927.*

## I. INTRODUCTION.

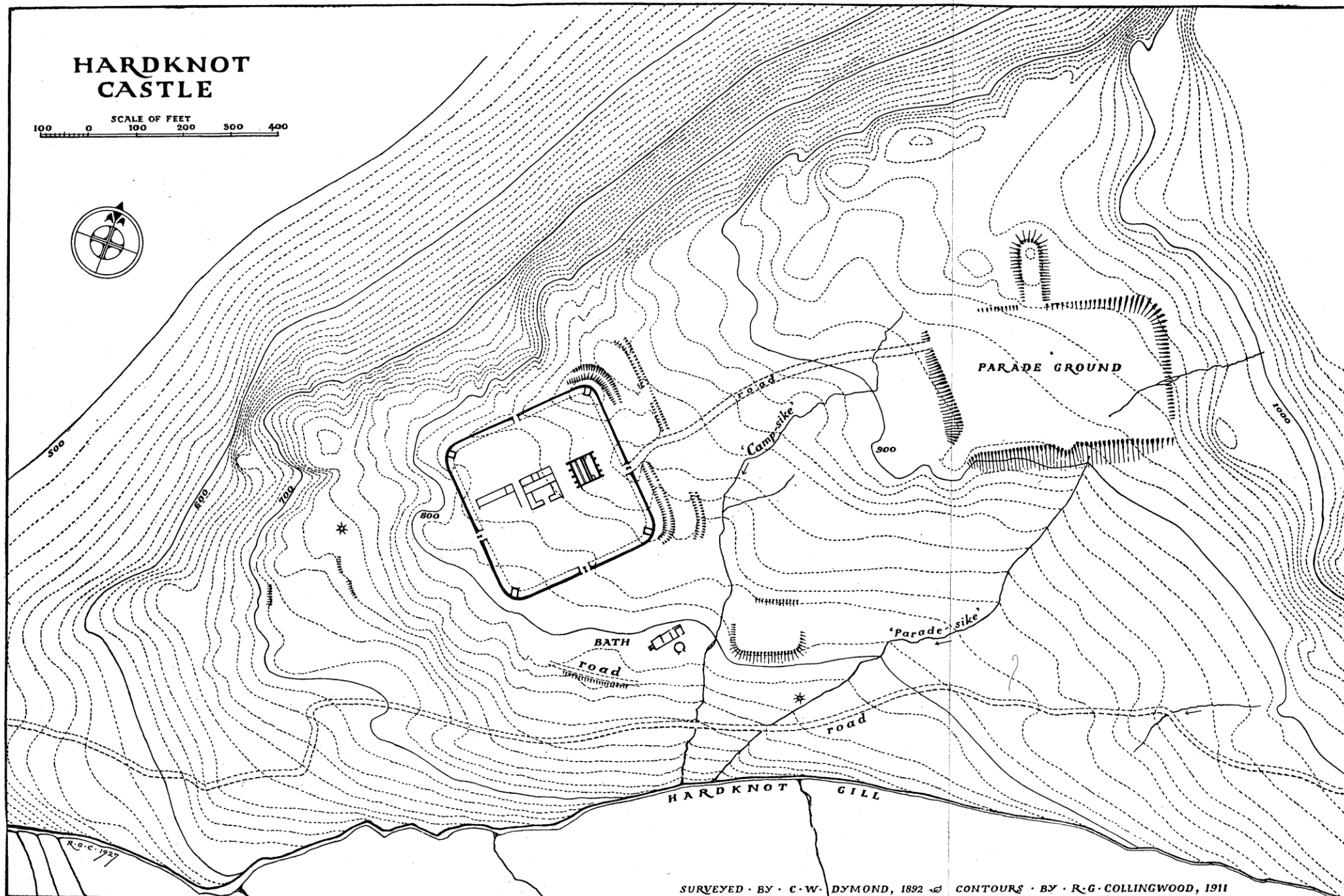
THE Roman fort known as Hardknot Castle lies about 800 feet above sea-level, on a spur projecting south-westward from the mountain-mass of Hardknot, which forms an intermediate summit between Crinkle Crag and Harter Fell. The ridge connecting these three summits is crossed, at a height of 1290 feet, by a disused carriage-road, not impassable under favourable conditions to an intrepid motorist, leading from Eskdale to Cockley Beck and so over Wrynose to Little Langdale. Roughly, this road follows the line of the Roman road from Ravenglass to Ambleside. How, exactly, this Roman road made its way up Eskdale we do not know;\* but it certainly mounted the pass from near Butterilket much as the modern road does, and, like the modern road, made straight from the summit to Cockley Beck and thence as at present to Wrynose.†

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\* Various answers to this question have been propounded. The late Mr. C. R. B. McGilchrist (these *Trans.* N.S., xix) put forward a view which further and more detailed investigation by Miss M. C. Fair has in the main disproved. The problem, as a result of her inquiries, has become exceedingly complex; a number of old roads have emerged, between which it would be rash at present to choose; and it may well turn out that more than one of these was Roman. In any case, Miss Fair's researches will in due course, we may hope, lead to conclusions which can be laid before the Society in full.

† McGilchrist's route in the Duddon Valley (*Trans.*, N.S., xix 26-28) seems certainly wrong. This view was held by Haverfield (*ibid.*, pp. 28-29), and is confirmed by an independent examination of the ground made in 1927 by our member, Mrs. R. G. Collingwood. It seems certain that the Roman road and the modern road substantially coincide from the neighbourhood of Hardknot Castle to Wrynose summit. Thence to Ambleside the course of the Roman road is discussed in these *Trans.* N.S., xxi, 24-29.

A horizontal scale bar labeled "SCALE OF FEET". The bar has markings at 100, 0, 100, 200, 300, and 400. The markings are evenly spaced along the bar.



SURVEYED · BY · C · W · DYMOND, 1892 & CONTOURS · BY · R · G · COLLINGWOOD, 1911

FIG. 1.

By this road, it was about 19 or 20 English miles from Ravenglass to Ambleside ; and Hardknot lay nearly half-way, probably 9 miles, or less, from Ravenglass, and between 10 and 11 miles from Ambleside. The whole distance may safely be put in round numbers at 20 Roman miles. The road was steep in parts, but not unusually so ; it was as easy in its gradients as many important Roman roads in the north of England, and easier than many main roads in Italy. Roman transport officers would no more hesitate to use it for main road traffic than railway engineers would hesitate to send express trains over Shap fell. This point is of importance as throwing light on the military value of the fort.

The remains, apart from the road, consist of the fort itself, its bath-house, and its parade ground. After a brief account of the history of our knowledge concerning the site, we shall describe these, and then attempt to explain them historically.

#### EARLY DESCRIPTIONS.

Camden heard of the site, though he did not visit it. At the head of the Esk, he says, is " Hard-knot, an high steepe mountain, in the top whereof were discovered of late huge stones and foundations of a castle not without great wonder, considering it is so steepe and upright that one can hardly ascend up to it " (Philemon Holland's translation, p. 765). Bishop Gibson, a hundred years later, had nothing to add except the guess that these stones were " possibly the ruins of some church or chapel " (Gibson's Camden, ed. 4, ii, 166). Another hundred years elapsed before anyone examined the site with any sort of care and put the results on record. On August 14, 1792, Edward Lamplugh Irton, of Irton Hall, and Henry Sergeant, land agent and surveyor, of Whitehaven, visited the fort and made a plan, which was bound up in

Mr. Irton's copy of the part of Cox's *Magna Britannia*, relating to Cumberland.\*

It was evidently not very accurate; the general shape of the fort had been correctly observed, the gates located, the corner-towers seen, and the three central buildings laid down with very tolerable accuracy; but the authors (or author, for presumably Mr. Sergeant was responsible for the surveying) had failed to see the true shape of the rounded corners, and had fancied themselves to detect guard-chambers, which in fact do not exist, at all the gates. The whole is, in fact, a sketch-plan, and not very carefully drawn to scale; but if we possessed plans of all Roman forts, as they existed in the late eighteenth century, as good as this, we should know much more about Roman forts than we do.

This plan was reproduced in Hutchinson's *History of Cumberland*, together with a description of the site communicated by Mr. Sergeant. The most useful passages in this description are as follows:—

"It is built of the common fell stone, except the corners,† which, according to the report of the country people, among whom it is well known by the name of Hardknott Castle, were of freestone, but has all been taken away for buildings in the neighbourhood, there being no freestone nearer than Gosforth.‡ . . . . In

\* These *Trans.* o.s., xii (hereinafter referred to as H. C.), 378. The plan is reproduced *ibid.*, at p. 229.

† "Corners" can hardly refer to the angles of the fort, for here, as elsewhere, the walls are of common stone, though here, as elsewhere, there was doubtless a freestone string at the base of the parapet. I suppose Mr. Sergeant means the quoins at the gateways.

‡ Mr. Calverley found three "great squared blocks" of freestone at Butterilket, and saw one and was told of another at Dalegarth Hall; at the Woolpack he saw one grooved for use as a cheese-press. Measurements: 22 by 22 by 25 ins., 22 by 16 by 10 ins., 22 by ? by ? ins. (Butterilket), 22 by 22 by 25 ins., (Dalegarth), 22 by 22 ins. (Woolpack) (H.C., 420). Chancellor Ferguson says that freestone from Hardknot "was, and still is" highly valued, on account of its dryness, for making sand to put on "strickles" (wooden whetstones, if the expression is permissible) for sharpening scythes. "One Sunday in the present year (1892) three men came over with a light cart from Ulverston and took away a sackful of pieces of freestone from the [bath-house]" (H.C., 384).



digging to clear the foundations of the inner buildings, Mr. Sergeant says they met with a great many fragments of brick, which must necessarily have been brought from a considerable distance; also several pieces of slate, and near the entrances some small arching stones, or penstones, of freestone with remains of mortar on them, showing that in all probability these entrances or gateways were arched. The gateway to the east leads to a piece of ground of about two acres, at a distance of 150 yards, which by great labour has been cleared of the stones that encumbered it, and used perhaps for a parade and military exercise. On the north side of that plot is a forced or artificial bank of stones, now slightly covered with turf, having a regular slope from the summit, near which, on the highest ground, are the remains of a round tower." (Hutchinson, *op. cit.*, i, 569).

Another description of the remains, communicated by the Rev. Aaron Marshall, curate of Eskdale, is given in the same work, vol. i, p. 578. The only important detail here added to the former account is the statement that "not many years ago, several pieces of a leaden pipe were found in a direction to the fort, leading from a well called Maddock How Well, which indisputably supplied the fort with water." The Rev. W. S. Sykes tells me that the name is not now in use; but that having regard to the conditions of the ground he thinks the place referred to may be a spring under a crag, about 800 feet S.E. of the centre of the parade-ground, whence some slight trace of a wet hollow in the ground seems to run towards the fort. But Chancellor Ferguson (*Hist. of Cumb.*, p. 64), says that Maddock How Well is a mile and a half away, which implies a different identification.

In Lysons' *Magna Britannia* there is a short account of Hardknot by Bishop Bennet of Cloyne; it contains little of interest beyond the statement that the gateways "appear to have been arched with freestone." The

author's footnote to this passage adds that the walls are much ruined and show no trace of mortar (Lysons, *Cumberland*, p. cxlviii).

The observations of Irton and Sergeant seem to have proved beyond further dispute that the remains were Roman, a fact not known to Camden or Gibson; and Wordsworth's reference to

. . . that lone camp on Hardknot's height

Whose guardians bent the knee to Jove and Mars in the Duddon Sonnets (1820), shows that this fact was generally recognised in the early nineteenth century. But it was only in 1855 that a discovery was reported which, had sceptics existed, might have silenced them. In that year the Society of Antiquaries received a letter from Benjamin Williams, F.S.A., on some ancient monuments in the county of Cumberland and its borders, accompanied by drawings; and this letter "mentioned the discovery of a mutilated red sand-stone slab near the western [i.e. presumably the south-western] gateway of Hard-Knot Castle, on which was the following inscription:—GRIC LA CO II."\*

At the time, this inscription was taken for a relic of Julius Agricola. But Hübner (C.I.L. vii, 334) and W. Thompson Watkin (letter to Chancellor Ferguson, H.C. 382) referred it to Calpurnius Agricola, governor of Britain about A.D. 162-168 (see D. Atkinson in *J.R.S.* xii, 61). One would expect a governor of Britain to be referred to as *Julius* (or *Calpurnius*) *Agricola legatus Augusti pro praetore*; though the latter, it is true is called *Calpurnius Agricola cos.* on an inscription from Carvoran (C.I.L. vii, 773); and this, no doubt, was what led Hübner and Watkin to refer the Hardknot fragment to Calpurnius; but they were not justified in doing so, for in this fragment, if Williams is to be trusted, we have something like [A]gric[o]la co[s]. ii, which looks like a

\* Proc. Soc. Ant., iii, 225. Unfortunately the letter cannot now be found.

date and that in case could not refer to either governor.\* We must therefore reckon with the possibility that the inscription may date from the year 103, when M'. Laberius Maximus and Q. Glitius Atilius Agricola were consuls, both for the second time. But the normal order of words would be *Maximo ii Agricola ii cos.*, and as this does not tally with the letters as given, the interpretation must remain doubtful.

Various other descriptions of the site as it appeared before excavation are to be found; but they add nothing to our knowledge of it and need not here be quoted.

#### EXCAVATION.

The project of excavating this site appears to have been first conceived by the President of this Society, in 1876; but it was not until 1889 that he made an elaborate survey of the visible remains in their topographical setting, and together with our senior Vice-President, Mr. H. S. Cowper, F.S.A., dug the north corner-tower. In 1890 our Honorary Member Sir Herbert Maxwell did some more work at the north tower and in the headquarters buildings, as well as digging a pit in the *retentura*.† In 1891 he explored the north-eastern gate; after which this Society suggested to the late Lord Muncaster that a more extended and continuous campaign was desirable. Lord Muncaster generously agreed to find the necessary labour if the Society would find a competent supervisor; and in May, 1892, our member, the late C. W. Dymond, F.S.A., who had already conducted and published important excavations at the Early Iron Age hill-top town of Worlebury on the Bristol Channel, began work with four men. During the summer the number of men was increased, and an additional gang was

\* The end of the inscription cannot be read *coh[ors]* because it is spaced *co ii*, not *corr.*

† Mr. Cowper's and Sir Herbert Maxwell's results are reported in *Trans.* o.s., xii, 229-232.

employed, directed by our member the late Rev. W. S. Calverley, F.S.A. Neither of these directors was an expert in Roman archaeology, and at times they did not see eye to eye; but both were careful observers, and indefatigable in the conscientious discharge of their duties; with the result that their joint report\* contains a great deal of detailed information, and is embellished with incomparable plans by Mr. Dymond, but contains also a great many contradictions, and led to the publication by Mr. Dymond, in 1901 (these *Trans.*, N.S. i, pp. 303-305), of a number of *Supplementary Notes* contradicting assertions which had been made in the report by his fellow-authors. It is this that has led the present writer to review all the available evidence afresh in this paper, in the hope of putting together what has never been put together before—a single and complete account of all that is known about this site.†

## II. THE REMAINS.

### SITUATION.

The spur on which the fort is situated projects from the steep S.W. face of Hardknot at an elevation of about 1,000 feet, and is here about 300 yards broad, from its precipitous north-western edge, falling abruptly into Eskdale, to where it begins to descend rapidly towards Hardknot Gill. Longitudinally it runs for about 600

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\* *The Roman Fort on Hardknott, known as Hardknott Castle.* These *Trans.*, O.S., xii, pp. 375-438. Part I, Prolegomena [editorial]; Part II, by Chancellor Ferguson [history of opinion, and general description]; Part III, by C. W. Dymond [general description and detailed account of his excavations]; Part IV, by W. S. Calverley [account of excavations done under his own supervision]; Appendix, list of finds. I refer to this report as H.C. In the same volume, pp. 449-452, is another article reporting further explorations by Mr. Calverley.

† Beside the published material, which will be referred to as occasion arises, use has been made of an interleaved copy of "H.C." with M.S. notes by Mr. Calverley and others, given by Mrs. Calverley to the President and by him to the writer; also of the President's MS. material dating from 1889; and to Mr. W. L. Fletcher the writer is deeply indebted for the photographs here published for the first time, which were taken in 1892.

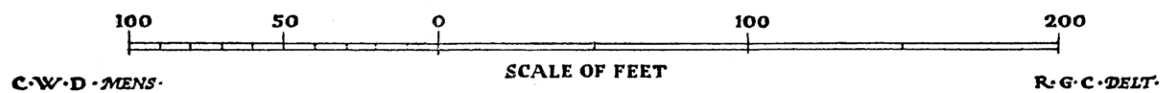
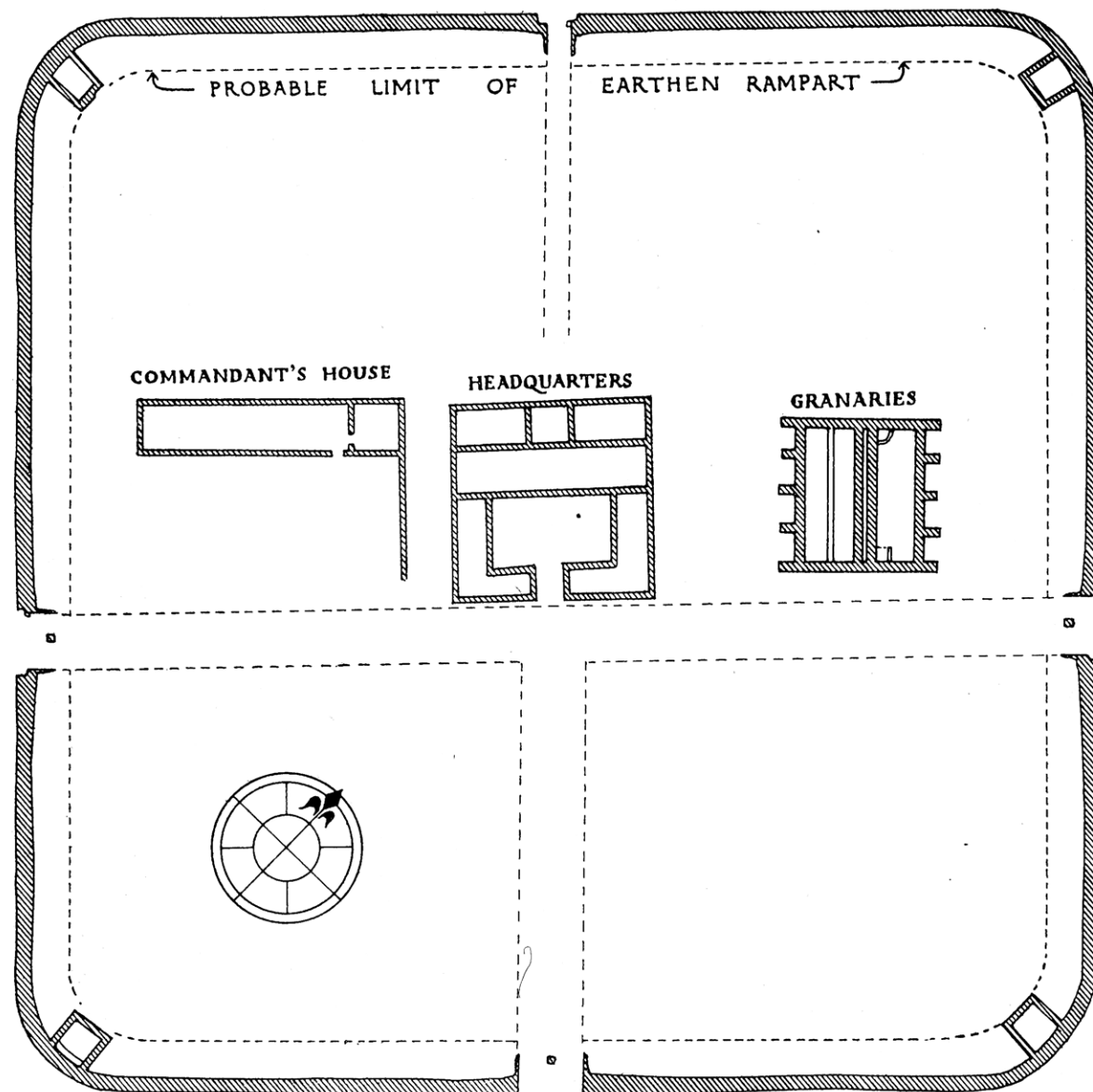


FIG. 2.

yards without falling more than 300 feet; then it begins to fall rapidly, and in another 200 yards—barely half a mile from its starting-point—it has become a mere bluff projecting into the valley. Its summit thus consists of a piece of ground 600 yards long, tapering from 300 yards wide at the upper end to 200 yards at its lower.

This piece of ground is broken by numerous rounded and glaciated hummocks of living rock,\* but is otherwise little encumbered; except at its upper end, it harbours no deposits of loose broken stone, and its slope provides it with very fair natural drainage. The soil, between the outcrops of rock, is for the most part hard and gravelly rather than peaty, and most of the surface-water collects in two streamlets, which have been conveniently christened the “Campsike” and “Paradesike” respectively, and discharge into Hardknot Gill, S.E. of the fort.

Strategically, the site is nothing but a link in a chain of roadside forts. Had its occupants wished to command the mountain district of south Cumberland, they would have selected a nodal point from which access could be had in various directions to various inhabited areas; but it appears from Mr. W. G. Collingwood's survey of the evidence† that the high central fells were practically uninhabited, for all we know, in the Early Iron Age; and that, of what we call British Settlements, some may not be pre-Roman. Notable “settlements” exist at Barnscar 5 miles S.W. of Hardknot and at other places not much farther away; but the site of the fort has obviously not been chosen with a view to controlling these native communities. Hardknot is only explicable as a logical consequence of the Ravenglass-Ambleside road.

Tactically, the position is good. Its outlook is magnificent. From the fort one sees the summit of Hardknot

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\* Most of these show signs of having been quarried to some extent by the Romans.

† *Lake District History*, ch. ii; map pp. 12-13.

pass and looks uninterruptedly down Eskdale to the sea. Ravensglass harbour is not in sight, but a single intermediate post could maintain a visual signal-system connecting the two places, if that were desired. Against direct assault the fort is protected by a precipice, scaleable only with difficulty, to north-west, and by the not less precipitous ravine of Hardknot Gill to south-east; in practice an assault would have to be made along the line of the road, and could hardly hope to surprise the garrison.

Exposed though the fort is to south-westerly gales and their heavy rain, it is not a cold place; the warm sea winds prevent snow from ever lying long even on the summit of the pass, 500 feet above.

#### THE FORT: RAMPART, GATES, TOWERS.

The fort "is nearly an exact square, with corners rounded and facing the cardinal points."\* It measures almost exactly 375 feet each way from outer face to outer face of the rampart, clear of the rounded corners. Its area, within the stone rampart-walls, is 3 acres 0 r. 3 p.; but when allowance is made for the necessary bank inside the stone wall, the effective area of the fort is reduced to between 2.50 and 2.75 acres.

Both in size and in shape, and also in many points of detail, Hardknot closely resembles Melandra Castle near Glossop; and it would not be unreasonable to argue historically from the one to the other. Unfortunately, the history of Melandra is obscure. The excavations of 1905, reported upon in a handsome volume (*Melandra Castle*, Manchester University Press, 1906), yielded coins from Galba to Magnus Maximus, and pottery which appears to have included a few first-century sherds; but beyond the fact that it must have been founded before Hadrian's reign, and continued in some kind of occupation

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\* H.C., p. 391.

until a late date, little can be said of its history. Another fairly close parallel is Slack, near Huddersfield (carefully dug in 1913-1915, and well described in *Yorks. Arch. Jour.*, xxvi; see also Richmond, *Huddersfield in Roman Times*, pp. 28 *seq.*), which however is smaller, about  $1\frac{2}{3}$  acre inside the rampart; and another is Gellygaer in Glamorgan (Ward, *The Roman Fort at Gellygaer*). Slack appears to be a Flavian site, dating perhaps from Agricola; Gellygaer is Trajanic, and was apparently founded A.D. 105-112 (Wheeler, *Prehistoric and Roman Wales*, p. 230). Its size and shape thus connect Hardknot with a series of Flavian-Trajanic forts designed (as appears at Slack and Gellygaer) to accommodate a *cohors quingenaria*.

The *rampart* is of native stone, in general 5 ft. 6 in. thick (H.C. p. 393), irregularly coursed on the outer face and very rough on the inner ("the inner face . . . is as poor as possible," *ibid.* 393; "the wretched inner face," *ibid.* 415, etc.). The explanation certainly is that the inner face was not designed to stand free,\* but was supported by the earth bank which, until a far later period than any to which this work can be assigned, formed the real *vallum* of every ordinary Roman fort. Essentially, such forts were earthworks; their *vallum* consisted of upcast from the ditch that surrounded it, this upcast being reinforced by palisades or, in permanent works, by a vertical timber revetment in the early Empire, which gave way by degrees to a stone revetment. The stone revetment becomes usual in the second century, though even then it is not universal; what is universal, throughout this period, is the earthen bank. Until recently, these banks did not attract attention; the excavators of Melandra indeed actually said that its rampart, which conformed to this type, was "unique"; but since then, they have been looked for regularly and regularly found.

\* "The face [of the stone rampart-wall] was straight, vertical, and well built . . . the back was extremely irregular, and . . . had been built *against* the earthwork" (Ward, *Gellygaer*, p. 35).



At Hardknot, the bank must have consisted of the gravelly subsoil general on the site. If concrete evidence of its presence is required, it may be found in the planning of the gateways, which in every case are provided with returning cheeks such as are found at Melandra, Ambleside (these *Trans.* N.S., xv, pp. 13, 16) and elsewhere, retaining the ends of the bank where it is interrupted by a gateway.\* The top of this bank provided a parapet-walk, and one may safely imagine an embattled parapet carried up on the outer edge of the stone revetment, from which it may have been separated by a chamfered freestone string-course. A slab, 18 by 14 inches by  $3\frac{1}{2}$  in. thick, is still visible at the western corner; others are reported by the excavators as having been found at the north and east towers. Similar slabs have been observed on Hadrian's Wall (*Arch. Aeliana*, ser. iv, vol. iv, pp. 116-117) and elsewhere.

The *ditch*, owing to the nature of the site, is rock-cut wherever it exists, and occurs only intermittently. It runs boldly round the northern angle, and reappears by the north-east gate and at the eastern angle; its maximum width is about 30 feet. Farther away, its centre 80-100 ft. from the rampart, are traces of a second ditch. Thus there is a double rock-cut ditch on the uphill side of the fort.

The *gates* were carefully excavated and elaborately described in the report. The S.E. gate is 22 ft. 4 in. wide; the S.W. and N.E. gates a little smaller, 20 ft and 19 ft. 7 in. respectively; and the N.W. gate 10 ft. These were respectively the *porta praetoria*, the *portae principales dextra* and *sinistra*, and the *porta decumana*. From Sergeant's description in Hutchinson (see above), we should infer that the quoins at all gates were of freestone

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\* "Diligent search has failed in discovering any backing" [*i.e.* any face on the side away from the gate] "to these projections; and it can only be conjectured how thick they were, or what was the original form and finish of the recesses behind them, which also are now filled with fallen material" [*viz.* the remains of the gravel bank, doubtless containing loose stones]. H.C. p. 395.

and supported freestone arches, which, from the measurements, must have been single in the case of the *porta decumana*, double in the others. These inferences are borne out by the details of the report. The quoins of the

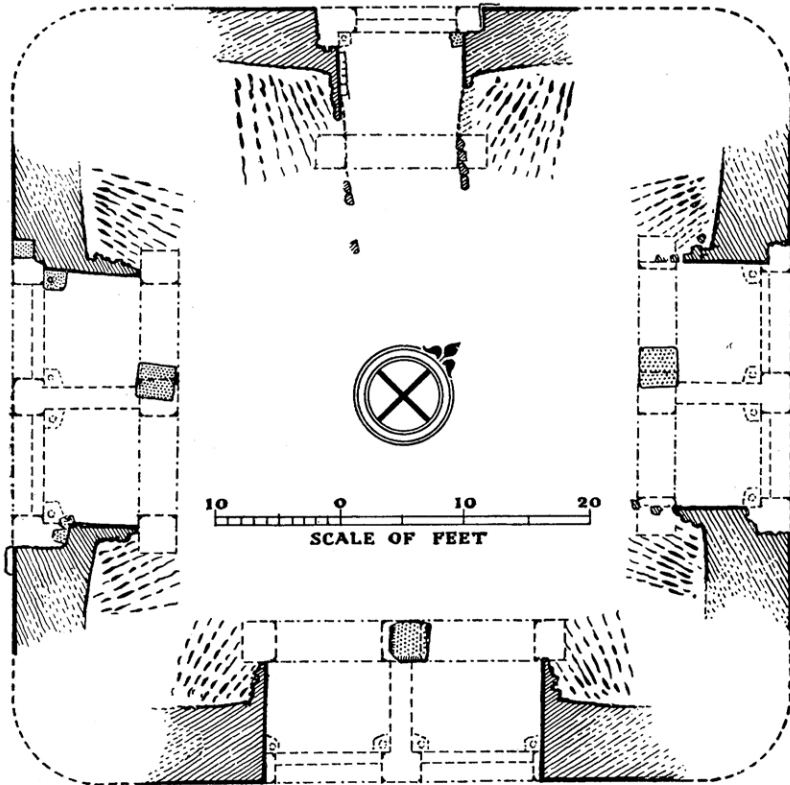


Fig. 3. Hardknot Castle : Gateways.  
From C. W. Dymond's Survey, with reconstructions  
in broken lines.

gates were found to show ragged rebates such as would have contained freestone work vanished owing to stone-robbing; at the *porta praetoria* a foundation at the foot of the rebate still remained. Voussoirs are recorded by various writers, and in 1927 two were still lying at the

S.W. gate (13 by  $9\frac{1}{2}$  by  $7\frac{1}{4}$  to  $5\frac{1}{4}$ , and 11 by 10 by  $7\frac{1}{4}$  to  $5\frac{1}{4}$ ), one at the N.W. gate (18 by 9 by 6 to  $3\frac{1}{4}$ ), one, which was a springer of the arch (13 by  $8\frac{1}{2}$  by 8 to  $4\frac{1}{4}$ ) at the N.E. gate, and several at the S.E. gate,\* which from its present ruins was evidently, as became the *porta praetoria*, the most elaborate; for, being the most accessible, it cannot have been the least robbed.

Traces of freestone *spinae* were (and still are) visible in all three broad gates. These consist of single blocks only, all the rest having been removed; and even the surviving block has in each case been shifted from its proper place. As at Melandra, there were no guard-rooms; and we may suppose their place taken by chambers above the gates, as shown in several examples on the reliefs of Trajan's column. Two of the gates—*porta praetoria* and *porta principalis dextra*—seem at some period of the occupation to have been half walled up (H.C. p. 404: "we met with a number of large quarry-stones, ranging loosely in line across a portion of the right-hand half of the openings, looking inward, and nearly abreast of the freestone blocks"). These stones by the vague description of them, suggest the inner wall of a guard-chamber inserted in one portal of the gateway,† rather than a blocking of the portal merely intended to reduce its width; for this would have been built in line with the face of the rampart, not some 10 feet farther back. This is borne out by the note of "five kinds of pottery" and

\* Writer's observations; contrast H.C. p. 403: "of the forty pieces of freestone found and measured there were but two with the form of a true voussoir"; perhaps because Mr. Dymond had no previous experience of the technical characteristics of Roman frontier forts, and expected a degree of accuracy that was in fact seldom attained. In any case, his remark is misleading.

† Exactly as at Caerhun, south gate: where "the eastern opening was converted into a small guardroom . . . thus a single gate with a guardroom on one side only was the final plan . . . This arrangement was due to a change of plan during the building of the gate." (*Arch. Cambrensis*, 1927, p. 318). The stone buildings at Caerhun are contemporary with Hardknot on my view of the latter's date.

"a lump of iron slag" found in the south-west gateway (*ibid.* p. 437), which strongly suggests a chamber rather than a roadway. The excavators make no observations concerning road-levels, etc., in the gateways.

The *corner towers* consisted in each case of a chamber averaging about 12 by 10 feet internally, whose walls were found to stand on average some 5 feet high without any visible doorway. In Mr. Dymond's *Supplementary Notes* it is stated that in the west tower something was found which might have been the bottom of a flight of steps leading up to a doorway at a higher level; and it looks as if the towers were entered from the rampart-walk and had only a basement below this level. Mr. Calverley gives a description of the stratification inside the east tower (H.C. pp. 421-422), from which it appears that he found three superimposed strata of puddled clay, separated by deposits containing pottery. These, however, were not the occupation-levels of three distinct periods. It is clear that they were not, properly speaking, floors, but something in the nature of an oven-deposit like that found outside the N.E. tower at Ambleside (*Trans. N.S.*, xiv, p. 445). This appears from Mr. Dymond's description of them (H.C. p. 434). Most of the pottery, etc., found at Hardknot came from these towers,\* and this fact together with the presence of window-glass, charcoal, nails and fragments of tile shows that they were more in the nature of dwellings than mere sentry-boxes, and gives some idea of their construction. If there are indications of a bakery in the east tower, there are traces of a smithy in the south; "a quarter of a hundredweight" of scrap iron was found here (*ibid.* 436). In the north tower no such indications were found; the objects found here

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\* This fact might puzzle the reader, unless he realised that no attempt was made to explore the barrack buildings, and that the commandant's house was only dug in part. *Ex pede Herculem*; the amount of pottery found, taken together with the fact that the chief dwellings were only sampled, shows that the occupation, though not long, was intense.

consisted of pottery, charcoal, nails, glass, tiles, a scrap of lead, a key and other pieces of iron, a ring, a spear-head, and some pieces of freestone, including a chamfered slab (*Trans.* O.S. xii, 228-232).

#### THE FORT: INTERNAL BUILDINGS.

In the centre of the fort is the *headquarters building*. Its plan, in its plainness and simplicity, resembles those of Melandra and Ambleside. It is about 70 ft. square. In front an opening 10 ft. wide leads into a courtyard, 43 by 25 feet, from whose S.W. side, S. of the entrance, "several bold quarry-stones projected, like a pier, about a yard from the wall," doubtless to support an altar or statue (*cf.* Ambleside; these *Trans.* N.S., xv, p. 19); fragments of moulded freestone were found near by. In this courtyard was found the *denarius* of Domitian (below, no. 4). Round the courtyard, on three sides, are the usual corridors, serving as armouries; they were found to contain numerous "flooring and roofing tiles and bricks," as well as a spearhead and part of a millstone (*Trans.*, O.S. xii, 232); on the fourth side is the cross-court, here 66 by 15 feet; and beyond that, a *sacellum* 14 by 12 feet, flanked on either side by one long room instead of the usual two. They may have been subdivided by wooden partitions. In the *sacellum* were found nails and scraps of iron, a piece of Samian, molten glass, and a strip of lead. In the room N.E. of it were found some pottery and tiles, pebbles suitable for slinging, a good deal of lead, iron and slag, and more than 20 lbs of molten glass. In the other back room was more lead and glass.

These finds suggest that the headquarters was a wooden building on a stone foundation (the walls are only 2 ft. thick, have no doorways, and seem better adapted to carry a timber building than to stand full height in stone, especially as no architectural fragments in freestone were

found), roofed with tiles\* and having glazed windows; and that here, as at Housesteads, there may have been a forge where arms were made and repaired. The building would seem to have been burnt down. The chamber often found at the right-hand end of the cross-court is not recorded, but it evidently existed; a deposit containing Samian, window-glass, and a piece of a millstone is reported from the place where it ought to have stood ("east end of long passage at back of court of Forum," *ibid.* 438); it may have been a mere wooden structure without stone foundation.

The *granaries*, of which there are two, separated by a mere eavesdrip, together form a block 54 feet long by 44 ft. 3 in. wide exclusive of the buttresses, of which there are five on each side. Their walls are  $3\frac{1}{2}$  feet thick, nearly twice as thick as those of the other internal buildings; this is due to the fact that the granaries alone were stone-built for their full height. The excavators observe that the interior was "choked with a ponderous mass of fallen stones" (H.C., p. 407); but they dug deep enough to discover a sleeper-wall bisecting the western granary longitudinally, and stone structures built into two corners of the other. These facts suggest that the western granary alone had a raised damp-proof floor, while the eastern may possibly have contained kilns. Together, they have a floor-area of 158 square yards, of which the western alone accounts for 86; this implies that the western granary alone might contain the wheat necessary to keep a *cohors quingenaria* in bread for a year, according to the principle laid down by Agricola;† and the smaller

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\* The *sacellum* perhaps, as at Ambleside, roofed with lead.

† See Haverfield's discussion of the whole question in these *Trans.*, N.S., xx. My floor space figures in the appendix to his paper are in some cases wrong, but the general considerations hold good. Therefore, if a ton of wheat feeds 3 men for a year, and occupies 1.4 cubic yard, a *cohors quingenaria* requires 166 tons, or 233 cubic yards, for its year's rations. This could be obtained by storing the grain 8 feet deep in the western granary, without using the eastern.

eastern granary may thus have been set free for other uses. A door was found at the south end of the western granary, and the walls of this building had been plastered over. The eastern granary had a door at its northern end, and a paved causeway outside (*Trans.* O.S. xii, p. 451). A loading platform would be expected, south of the granaries; this has not been found, but there is room for it, the granaries being set back 10 feet from the edge of the *via principalis*.

The *commandant's house*, or what from its position might be thought the commandant's house, lies S.W. of the headquarters, and shows stone foundations only on its N.E. and N.W. sides: on the N.E., a single wall limiting its area, on the N.W. a single long narrow chamber, with a smaller square room at the N. corner of the house. Obviously, the long room (70 ft. 9 in. by, on average, 15 ft. 6 in.), must have been subdivided by partitions; whether the rest of the house was built altogether of wood is not known, but presumably it was. Objects found here include a biconical leaden weight, an iron spike, part of a glass bowl, and some pottery, including Samian; not much altogether, but digging was done only where stone walling was visible. Here were also found many flue-tiles, lying apparently on a concrete floor which "had been disturbed at some early period," and also paving-tiles, as well as red sandstone slabs which may have been roofing-material. On the N.W. side of the building a thick deposit of charcoal showed that the whole had suffered a conflagration and had fallen in that direction (H.C. pp. 423-424).

The only thing that calls for mention here is the presence of flue-tiles in a building not found to contain a hypocaust. It is possible that here, alone in the internal buildings of the fort, we have traces of reconstruction; that the commandant's house was at first fitted with a hypocaust which was

later dismantled. But the evidence is too slight to allow this inference to be drawn confidently.

In the rest of the fort no systematic exploration has been done, but the recorded facts deserve a brief summary.

The *praetentura*, where we should expect four barrack-buildings housing the bulk of the garrison, is practically untouched. Mr. Calverley found it terraced on a bank of boulders close to the south corner tower, leaving a lower passage-way, between the bank and the rampart, in which he found pottery and fragments of iron; but his description (*Trans. O.S.*, xii, 451) is too obscure to be intelligible.

In the *retentura*, a trench dug behind the headquarters building found the soil "full of charcoal and debris of pottery" to a depth of 4 or 5 feet; moulded freestone was found 3 feet down, and pieces of oak with the marks of cutting upon them (*ibid.* 232). The excavator thought that this deep place was "a well or pit or both." On another occasion, digging was done behind the granaries. North-west of the eastern granary "foundations terribly ruined of some sort of heating apparatus were discovered. There were flues running parallel to one another, with a larger cross flue like the bars of a gridiron, and at a higher level something like a ruined hearth" (*ibid.* p. 452). Clearly this indicates the remains of a channel hypocaust; the hearth at a higher level may have been an oven. These remains must have been quite close to the granary, because the excavator wonders whether the flues communicated with the latter building.

Farther to the north-west, a trench was dug right across the *retentura*, apparently from N.E. to S.W. "In this trench we cut through several foundations, some patches of concrete, the red ashes of a furnace and the lower parts of its foundations." Flues "built of small stones levelled over" were found, which crossed each other at right angles; obviously another channel hypocaust; pottery etc., was found here (*ibid.* p. 452).



These two channel hypocausts were never plotted, and one can only guess at their whereabouts and extent. A rough plan among Mr. Calverley's MSS. may refer to one of them, but I can make nothing of it; all that emerges with certainty is the existence of one heated building, if not two, in the north-eastern part of the *retentura*. Had this building been a late insertion, the associated pottery would have been late; but there is no late pottery in the Muncaster collection; therefore I suppose these hypocausts to be an integral part of the fort. They cannot have been barracks, for even at 800 feet above the sea barracks were not provided with hypocausts. That they were an internal bath-building is hardly probable. Were they the hospital, or do they represent the commandant's house out of its usual position?

#### THE BATHS.

The bath-house consists of two separate buildings: a block of three rooms in series—*frigidarium* with a plunge-bath, *tepidarium*, and *caldarium* with furnace beyond—and a separate circular *laconicum*.

The main block is 66 feet long, excluding the projection of the furnace, and 20 ft. 6 in. wide. It is entered by a door 3 ft. 11 in. wide in the *frigidarium*, looking towards the main gate of the fort, which is 80 yards away up the hillside. The *frigidarium* is unheated; its floor seems to have been paved with cobbles; and of its total extent—23 ft. by 15 ft 9 in.—nearly half was taken up by the usual plunge-bath. This occupied the north-eastern end of the room, but was separated from the north-western wall by a narrow passage 1 ft. 10 in. wide, ending blind against the north-east wall. The plunge bath, which measures 11 ft. by 7 ft. 10 in. internally, was lined with cement containing pounded brick; at its west corner a couple of steps led up out of it; at its south corner there appears to have been an outflow; and the junctions of

sides and bottom were finished off with the usual fillet. A doorway leads directly from the plunge-bath south-eastwards into the open.

Signs of reconstruction were observed here. One excavator claims that the plunge-bath was only 6 ft. 3 in. long from north-west to south-east, and that these dimensions were proved by discovering the return of the fillet

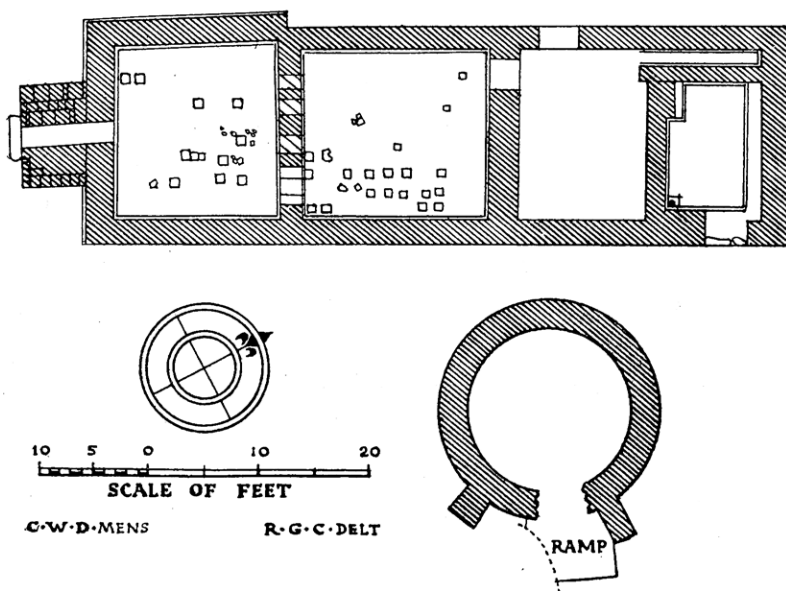


Fig. 4. The Bath-house.

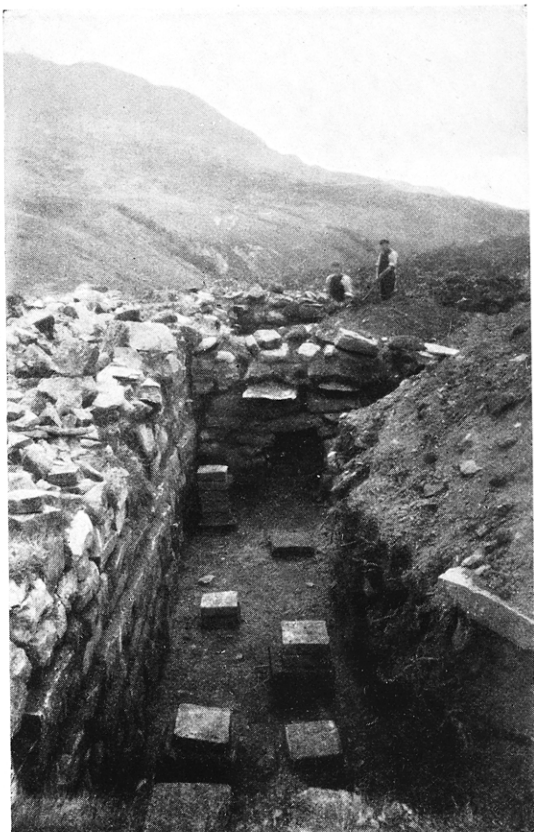
all round the bottom, and a thin cement partition terminating the plunge-bath south eastwards (H.C. p. 431); the other denies these observations (*ibid.* 411-412 and *Trans. N.S.*, i, pp. 303-305). But the most probable explanation of the controversy is that at some time the plunge-bath was reduced to about half its former size by filling up its south-eastern half; and it may have been at this time that the south-eastern door, whose sill was found much worn, was made.

A clay stratum was found below the gravel floor of the *frigidarium*. This stratum was 3 ft. 6 in. below the level of the footings of the adjacent wall (H.C. p. 429), and therefore cannot be an earlier floor of the same building. Nor can it easily be explained as the basement-level of a removed hypocaust, because the filling above it consisted of large boulders and black soil, and contained no remains of *pilae*. Probably it represents the bottom of an excavation made in constructing a drain for the plunge-bath. How it was related to the rock-cut drainage-channel mentioned below (p. 337), does not appear.

On the floor of the *frigidarium* various relics were found, including four coins (nos. 1, 5, 6, 9, below): one republican, two of Trajan, and one illegible. In the south corner was a foundation made of cobbles and clay, "on which to erect something" (H.C. p. 428)—perhaps an altar to Fortune such as generally stood in the bath-house of a fort. A "gravel concrete floor" observed at a higher level near the south-eastern wall (*ibid.*), seems to indicate a later occupation-level. Fragments of window-glass and roofing-slates were common.

The *tepidarium*, 17 ft. 5 in. by 15 ft. 9 in., is entered by a door in the western corner of the *frigidarium*. Its walls were rendered in red cement; the hypocaust consisted of an *opus signinum* floor resting on large slates, supported by an offset in the walls, and by *pilae*, these being of freestone in the portion nearer the *frigidarium* and of tile nearer the *caldarium*. The *pilae* rested upon a concrete floor and had well-worked clay joints. As the whole hypocaust seems to have been more or less intact, the *denarius* of Mark Antony found between one of the *pilae* and the south-eastern wall (H.C. p. 427) was perhaps dropped during construction; but no argument can be based on it.

The *caldarium*, entered from the southern corner of this room, is 16 ft. by 15 ft. 7 in. The partition dividing it



### HARDKNOT CASTLE.

Plate I, A.—Baths: Tepidarium, looking south-west.

*Photo. by W. L. Fletcher.*

TO FACE P. 334.



# HARDKNOT CASTLE.

Plate I, B.—Baths: Laconicum, looking east.



# HARDKNOT CASTLE.

Plate II, B.—Baths: Praefurnium, looking north.

*Photo. by W. L. Fletcher.*

TO FACE P. 335.

from the *tepidarium* is pierced below floor level by four flues from 1 ft. 4 in. to 1 ft. 8 in. wide; one of these is seen in Plate I, A. The hypocaust resembled that of the *tepidarium*, but seems to have been found in a ruined condition. It showed a mixture of tile and freestone *pilae*, probably due to repairs. The usual explanation in such cases is that the tiles are original and the stone a later makeshift repair; but unless the Muncaster tile-works were shut down at a comparatively early date, one would imagine it easier to get tiles thence than to lead freestone from the neighbourhood of Gosforth.

Another indication of repairs is to be found in the fact that the north-west wall of the *caldarium* is out of line with the rest of the building. The excavators do not report any evidence that this wall had once stood on a different line; but they do report that this wall was built of unusual materials: "the only examples of freestone and tile quoins now remaining are those of the west wall of the first hypocaust room in the outbuilding" (H.C. p. 413), which seems clear proof of reconstruction. It is also noted that of the flues leading into the *tepidarium* the one nearest to this wall has collapsed and been rebuilt (H.C., p. 426).

The *praefurnium*, now completely destroyed by the vandalism of idle passers-by, was a fine structure of *tegulae sesquipediales* (17 inches square), measuring 9 ft. 2 in. across and projecting 6 ft. 6 in. from the main building. The flue was 2 ft. 2 in. in width; and the solid brick structure served doubtless to support a tank for heating water. Melted lead and sheet-lead were found close by. The photographs reproduced in plate II show it at the time of discovery.

The round building, 15 feet across internally (Plate I, B) is easily identified as the *laconicum* or *sudatorium* of the baths; a chamber which, according to Vitruvius, ought to be a circular domed building, with an adjustable bronze

shutter in the dome to regulate the temperature by opening and closing a central aperture. Its function was to serve as an extra room, hotter than the ordinary *caldarium*, and heated by a separate furnace. A detached *laconicum* reappears for example in the early fort at Templeborough near Rotherham (May, *Templebrough*, p. 49 and general plan); elsewhere, the *laconicum* is attached to the main building, as at Castlecary (plan in Roy's *Military Antiquities*) or Gellygaer (Ward, *Gellygaer*) or Newstead (Curle, *Roman Frontier post*), in which case, for constructional convenience, it may lose its circular shape, as at Inchtuthil (*Proc. Soc. Ant. Scot.*, 1901-2, p. 215). The detached *laconicum* seems to be an early feature; the whole subject is discussed in a valuable paper by Miss Fair in *Journ. Rom. St.*, xvii.

At Hardknot, this building was distinguished by the quality of its masonry, which was the best on the entire site (H.C. p. 413), doubtless owing to the fact that it had to carry a dome. Its doorway,  $4\frac{1}{2}$  ft. wide, owing to the loss of the jambs, faces downhill in an E.S.E. direction and was found to be approached by a paved ramp; two buttresses supported the wall on this downhill side.

The excavators found no hypocaust and no furnace; but the floor had been "levelled up with all kinds of broken flue tiles and flat bricks" (H.C. p. 432), obviously the remains of a hypocaust, and the inference is that at some time the hypocaust had been dismantled, the furnace removed, and the *laconicum* converted to other purposes. The interior had been rendered with cement containing pounded brick, and opposite the door a base or foundation was discovered as if for an altar or statue (H.C. pp. 412, 432).

The water supply for these baths was doubtless derived from the "Campside," which flows within 30 feet of them. "There is a little pond 5 feet long on this stream, just opposite to, and 30 feet from, the door of the round



HARDKNOT CASTLE.

Plate II, A.—Baths: Praefurnium, looking north-east.

*Photo. by W. L. Fletcher.*

TO FACE P. 336.



building, which facilitates the drawing of water" (H.C. p. 417); that water was laid on to the baths in pipes, there is nothing to prove.

The waste water escaped through a rock-cut channel some 3 ft. deep, cemented on the sides and bottom, and containing a lead pipe of which a piece about a foot long was found *in situ*. Unfortunately, the position of this channel is not clear; it was found after the completion of the published plans, and neither in them nor in the finder's description of it (*Trans.* o.s., xii, 450), is there any hint of its whereabouts.

#### THE PARADE GROUND.

North-east of the fort, and connected with it by a road, as stated in the next section, is an artificially levelled and cleared piece of ground measuring 100 by 150 yards, or a trifle over 3 acres. It is roughly rectangular, and has been levelled by cutting on the north and embanking on the south, so as to fall about 30 feet from its highest to its lowest point. The resulting slope (1 in 15) gives adequate drainage, and even to-day the whole area is firm and dry, even in the neighbourhood of the "Paradesike" crossing its eastern corner.

Opposite the centre of this area, on its N.W. side, is a mound rising 20 ft. above it, and largely made of loose piled stone. It is approached by a ramp from the level.

It is not difficult to identify here the parade-ground and *tribunal* of the fort. Paved areas lying immediately outside forts have often been recognised as parade-grounds, as for instance at Slack (*Yorks. Arch. Jour.* xxvi, p. 36) and Ambleside (*Trans.*, N.S. xiv, p. 448); elsewhere, a parade-ground lying at a small distance from a fort, and sometimes commanded by a *tribunal*, is plainly visible, e.g., at Maryport (*Trans.*, N.S., xv, p. 136). The *tribunal*, or mound from which the commanding officer might review and address his troops, was placed internally in the case

of temporary camps (Hyginus, ed. Domaszewski, p. 55), and has been found there, for instance at Cawthorn (F. G. Simpson, *Cawthorn Preliminary Report*, 1923, p. 3); but in the case of permanent forts it was apparently placed outside.

#### OTHER STRUCTURAL REMAINS.

The Roman road past the fort has already been mentioned above as probably coinciding in the main with the present road. Apart from this the most considerable piece of Roman road connected with the site is that which leads from the *porta principalis sinistra* to the parade-ground, a distance of 210 yards. It is about 20 feet wide and is plainly visible on the surface; its construction does not seem to have been examined. Mr. Dymond also describes a branch leading from the main road to the *porta praetoria* of the fort, mounting the slope below the bath and reaching the fort by a zig-zag; but of this only a portion 50 yards long is visible.

Other visible buildings there are none. The elaborate surveys of the site made by Mr. W. G. Collingwood in 1889 and by Mr. Dymond in 1892 only serve to emphasize the absence of any other certainly Roman structures. There are various terraces more or less levelled up to the west of the fort; there is a terrace, measuring about 125 by 100 feet, just across the " Campsike " from the bath; and there is a large piece of ground which has been cleared of stones in the angle between the " Paradesike " and the road; but the buildings that stood upon these, if they existed, were merely of wood, roofed (to judge from a trench cut in the former site, H.C. p. 417) with tiles. There are a few rough pieces of old walling which probably represent later sheepfolds, and the remains of a later stone fence run north-eastward from the fort, parallel to the road.

No tombs have been identified; but a couple of cairns,

one west of the fort, the other close to the road on the "Paradesike," may reasonably excite suspicion.

### III. THE FINDS.\*

#### COINS.

Several coins are mentioned in the report, but no attempt was made to identify them where the identification was not immediately obvious. Fortunately, Mr. Calverley made sketches of four and inserted them in the MSS. mentioned above; with much kind help from Dr. J. G. Milne, I have identified these, and am now able to give the following list.

#### *Republic.*

1. AR. *Denarius*. *Obv*: Head of Vesta, left, veiled, wearing diadem; *kylix* behind; letter A before.  
*Rev*: Male figure in toga dropping a tablet marked V (for VTI ROGAS) into a *cista*; vertically at side, LONGIN. IIIV.

Consular coin of Longinus, c. 52 B.C. Found in the *frigidarium* of the bath, near the doorway into the *tepidarium*, along the S.W. side of the room "amongst the black deposit below the level of the footings" (H.C. p. 428). A sketch by Calverley in plate *ibid.* facing p. 433. *British Museum Catalogue, Coins of the Roman Republic*, vol. I, p. 494.

2. AR. *Denarius*. *Obv*: Elephant trampling on dragon: CAESAR in exergue.

*Rev*: Cup, axe, water-sprinkler and ladle.

Coin of Julius Caesar, worn. Seen by myself. Exact *provenance* unknown; now at Butterilket, with letter describing it from Dr. G. F. Hill, dated Sept. 24, 1913.

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\* A complete account of the objects discovered at Hardknot would be out of place in such a paper as this, where all that is desired is to collect, summarise and discuss the evidence bearing on the history of the site. Accordingly, those finds alone will here be mentioned which have a definite chronological significance. Much information, not here repeated, is contained in the excavation report, especially pp. 433-438; but the finds were never properly studied or described.

3. AR. *Denarius*. *Obv*: Galley rowing to right, with, apparently, traces of legend ANT . AVG . III . VIR .  
R . P . C .

*Rev*: Not described; apparently illegible, but doubtless legionary standards.

Coin of Mark Antony, of a common type. Found "between one of the *pilae* and the south-eastern wall" of the *tepidarium*. H.C. p. 427, and sketch in plate facing 433.

*Domitian.*

4. AR. *Denarius*. *Obv*: IMP CAES DOMIT AVG [GER]M [P M]TR  
[P XV]. Head, laureate, right.

*Rev*: IMP XXII COS XVII CENS P P P. Minerva, right, brandishing javelin and holding spear.

Courtyard of headquarters building (H.C. p. 438). "Lying on wheelbarrow, nearly last load of debris" (Calverley MSS.) Calverley's MS. sketch and Dymond's description identify it with fair certainty as Cohen<sup>2</sup> 292=Mattingly and Sydenham 190. A.D. 95-96. It was evidently not much worn.

*Trajan.*

5. Æ. *Sestertius*. *Obv*: [IMP CAES NERVAE TRAIANO AVG] GER  
DAC [PM TR P COS V P P]. Head, laureate, right.

*Rev*: [S P Q R OPTIMO PRIN]CIPI—[S] C. Aequitas standing left, with scales and cornucopiae.

Found with no. 1 in the *frigidarium*. H.C. p. 428. Calverley's MS. sketch shows that it was in fresh condition, though corroded, and identifies it with fair certainty, as above, with Cohen<sup>2</sup> 463 or 464 =Mattingly and Sydenham 497. A.D. 103-111.

6. Æ. *As*. *Obv*: [IMP CAES NERVAE TRAIANO AVG GER DAC P M  
TR P COS V P P]. Head, laureate, right.

*Rev*: [S P Q R OPTIMO PRINCIPI—S C]. Pax seated left, with branch and sceptre; at her feet a kneeling Dacian.

Found near the N.W. wall of the *frigidarium*, H.C. p. 429, and tentatively ascribed to Hadrian. Calverley's sketch proves it Trajan and identifies it either with Cohen<sup>2</sup> 420=Mattingly and Sydenham, 510 as above, or with Cohen<sup>2</sup> 422=M and S. 512, which is a *dupondius* and has a radiate head. In either case, A.D. 103-111. Apparently little worn.

*Maximianus Herculus.*

7. Æ, *Obv*: IMP MAXIMIANVS P F AVG. Bust, laureate, in cuirass, right.

*Rev*: GENIO POPVLI ROMANI. Genius, left, with patera and cornucopia.

Found in the bath-house; formerly in Mr. Calverley's collection; now in Tullie House, where Miss Fair has photographed it (*Trans. N.S.* xxiv, p. 370). A.D. 285-305.

*Illegible.*

8. Æ. "A much corroded second brass" in the south tower. H.C. p. 437.  
 9. Æ. "A bronze coin which crumbled away almost entirely," found with no. 6. H.C. p. 429.  
 10. "A small coin, which split and flaked away" found near no. 3. H.C. p. 427.

Numbers 1 to 3 belong to classes which remained long in circulation, and cannot be relied upon to determine an early date for the fort. Thus, of the seven coins found at Gellygaer (a Trajanic fort) two were republican *denarii*; and none was later than Nerva (Ward, *Gellygaer*, p. 91). The absence of early Imperial coins tells against an Agri-colan occupation; *cf.* the somewhat numerous Flavian coins at Slack; and nos. 3-6, taken with the absence of Hadrianic and Antonine coins, tend to suggest a mainly Trajanic occupation. Number 7 is obviously a stray, due not to a garrison but to a caretaker or passer-by.

## SAMIAN POTTERY.

By T. Davies Pryce, F.S.A.\*

1. Form 37. Foot-stand of second-century type. Panel decoration, demarcated by a bead-row, rising from ? a rosette.

(a) Base of (?) a caryatid (*cf.* Déch. 655, Lezoux).

(b) Lower extremities of human figure which approximate rather closely in pose and size to Déch. 381, ALBVCIVS. Period Hadrian-Antonine.

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\* Mr. Pryce very kindly wrote the accompanying notes on a number of fragments, mostly of figured Samian, of which I submitted photographs by Miss Fair. The drawing illustrating this section was made by myself from the same photographs.

2, 3. Form 37. Comparatively shallow plain band above the ovolo. The tongue apparently has a corded stem and a terminal rosette. Panel decoration, demarcated by bead-rows. The vertical bead-rows rise from crown-like objects, have rosettes at the central junctures and terminate in astragali.

Crown-like objects as integral parts of demarcating lines occur on Lezoux ware, but are particularly common on East Gaulish ware of the first half of the second century (*Brecon*, fig. 86, 2; Knorr, *Die westpfälzischen Sigillata-Töpfereien von Blickweiler und Eschweiler Hof*, pl. viii, 5, and pls. xxxi, xxxii).

In divided panel (a) dog to l. (Déch. 935, AVSTRVS of Lezoux). This dog also occurs in the work of the potter of Blickweiler whose activity is dated to the Trajan-Hadrian period, c. 105-130 (cf. Knorr, *op. cit.* pl. xx, 4; Knorr, *Cannstatt*, xv, 1). AVSTRVS of Lezoux probably migrated to Blickweiler and was contemporary with the Blickweiler Q D, with whom he probably worked (see bowls on which the Q D monogram and the stamp AVSTRI of both occur; *Brecon*, fig. 86, 8, and a 37 at Rouen).

(b) Acanthus and annular ornaments. Detached acanthus leaves occur on early and mid-second-century Lezoux fabric (Musée Saint-Germain) but this particular type is frequent in the work of the Blickweiler Q D (Knorr, *Blickweiler*, *op. cit.*, pl. viii, 1; *Brecon*, 86, 6).

In the large panel, a Hercules (Déch. 448, AVSTRVS, LIBERTVS). The blob on the bead-row is the end of his club. This Hercules is particularly characteristic of the Blickweiler Q D. (Knorr, *Blickweiler*, pl. xxi, 4; xxiii, 4; *Cannstatt*, 1921, vi, 6).

Typologically, the bowl can be dated to the period Trajan-Hadrian, say circa A.D. 120.

4. Form 37. Panel decoration, demarcated by sharp wavy lines quite different from the coarse wavy line of late South Gaulish ware. The stem of the ovolo-tongue appears to be corded and to have a terminal rosette.

(a) Hare to l., closely similar to Déchelette's Lezoux types 950 and 950A, BANVVS, SERVVS, CINNAMVS, DOECVS, etc. A closely similar type occurs on a mould of the Q D potter of Blickweiler (Knorr *Blickweiler*, *op. cit.*, II, 4).

(b) Medallion with indeterminate figure.

The type of ovolo and the sharp wavy line place this piece in the Trajan-Hadrian period.

5-9. Assuming that all these fragments belong to the same bowl, I am inclined to place it in the Trajan-Hadrian period. I do not think it is South Gaulish; more probably East Gaulish.

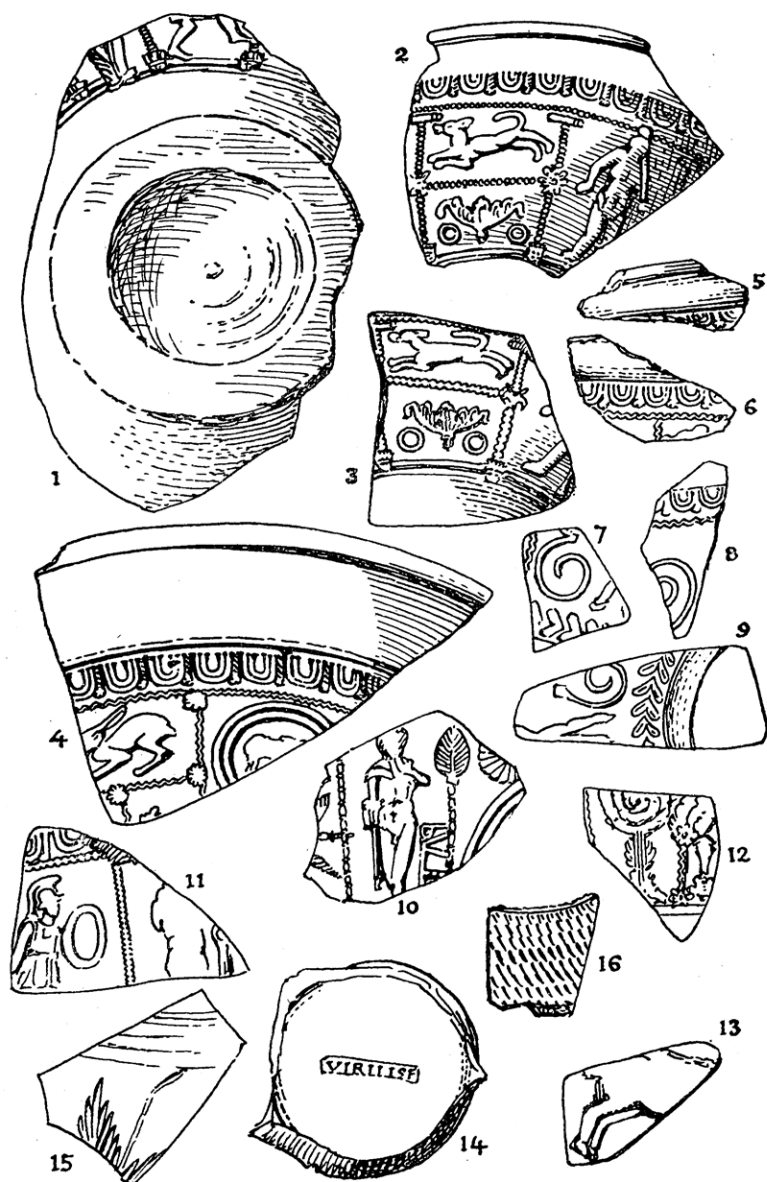


Fig. 5. Samian Pottery.

5. Narrow plain band above remains of ovolo.
6. Ovolo with double border, rosette tongue-terminal, demarcated below by a sharply defined wavy line. The ovolo does not appear to be South Gaulish, and the thin wavy line differs markedly from the coarse wavy line of the later period of La Graufesenque.
7. Sharp wavy line and what appears to be a detached spiral rather than the spiral of a scroll of South Gaulish type.

8. Part of a Spiral as in no. 7.

9. (a) Small figure to front, indeterminate.

(b) Apparently a detached spiral.

(c) A lower border composed of repeated bifid leaves. This particular type of straight wreath appears to be extremely uncommon in South Gaulish ware. In Lezoux and East Gaulish ware of the first half of the second century it is quite frequent (*Brecon*, S. 204, *Trajan-Hadrian*; Knorr, *Cannstatt*, I, 1, 2, SATTO; Knorr, *Blickweiler*, 90b, IANVS; Fölzer, *Trier*, III, 3, 16, 27). Detached spirals are frequently found in East Gaulish ware (Fölzer, *op. cit.*, I, 24, 23; *Brecon*, S 197).

10. Form 37. Decorative scheme: panels and medallions. In panel, a figure partially draped, not in Déch., left elbow similar to Déch. 181. The remains of the characteristic stamp of PATERNVS *retro*. Period: Hadrian-Antonine.

11. Form 37. Panel decoration. Ovolo with coarse tongue bent to left, as on the CINNAMVS bowl at Newstead (Curle, XLIV). Demarcation by bead-rows.

(a) Minerva (Déch. 77, ADVOCISVS, ANTISTIORVM, PVTRIV, CINNAMVS.

(b) Figure, indeterminate.

Period = Hadrian-Antonine.

12. This fragment is particularly difficult. The main elements from left to right are: an upright wavy line, an upright ornament, a wavy line rising from a beaded rosette and terminating in a concentric circle, and lastly a siren (*cf.* Déch. 500). I think I can make out the right wing of the siren (*cf.* *Brecon* S 204, *Trajan-Hadrian*). I think this is Lezoux fabric of the early second century.

13. This boar may be Déch. 828, Lezoux.

14. Base of cup, form 33, stamped VIRILIS F. This is the stamp of the East Gaulish potter and not that of the earlier VIRILIS of South Gaul.

VIRILIS F form 37, Rheinzabern.

VIRILI on a mould of COMMITIALIS . F.

VIRILIS form 37, Rheinzabern.



VIRILIS FE form 40; also at Rheinzabern and Speier (CIL. xiii 10010, 2055).

VIRILIS F Rheinzabern and Heddernheim, (CIL, *loc. cit.*).

Period: Hadrian-*Antonine*.

15. "Cut-glass" sigillata. Incised technique lasted from the second into the fourth century. That it was already practised in the Antonine period is shown by its presence in Scotland (O. & P, 224). Recently, a fragment has been found at Old Kilpatrick.

Period: 2nd-3rd century.

16. Rouletted sigillata. Probably arose in the early 2nd century (O. & P. 222). Period: 2nd-3rd century.

17.\* Rim of form 36. This plate is characteristic of both first and second centuries. I do not think it can be more particularly dated, but as the glaze and paste are good *perhaps* it is first century.

18\*, 19\*, 20\*. Fragments of form 27. It is extremely difficult to date these pieces. They might belong either to the first or second century. They are apparently on the small side but this does not *necessarily* put them in the first. If the footstand in either of the examples has an external circular groove, this might be evidence of a first century date (*cf.* O. & P., XLIX 1-10), but this is not an invariable first century feature. Further, it is sometimes seen on second-century examples. Perhaps we should not be far away from the truth in ascribing them to the turn of the first and second centuries.

None of these Hardknot pieces can be *definitely* dated to the first century. Perhaps 17-20 may be of Flavian date. Nos. 2, 3, 5-9, are Trajan-Hadrian; nos. 1, 10, and perhaps 13, are Hadrian-Antonine, and nos. 11, 14, are Hadrian-Antonine inclining rather to Antonine than Hadrian.

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[Mr. Pryce, after coming to the above conclusions on the individual fragments, gave it as his opinion that (on this evidence taken alone), the evacuation of Hardknot may have taken place about the middle of Hadrian's reign; without claiming, of course, that twenty fragments could give a very close dating].

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\* These fragments are not figured.

## COARSE POTTERY.

The coarse pottery from Hardknot was studied by the present writer in 1920, and published in these *Trans.*, N.S., xxi, pp. 32-41, with 83 drawings, which it would be waste of space to repeat. It may, however, be here stated that the main results of that inquiry were as follows. The figures refer to the drawings above mentioned.

A few mortaria (nos. 1-4) gave the impression of a very early date; they might easily be as old as Agricola or indeed older; but they stand alone among the dateable types, and are represented by a very small number of specimens. Set these aside as chance survivals, and the mortaria give the impression of being, in the main, Trajanic; they include a few types which look rather earlier, and a few which look rather later, but nothing that need be inconsistent with an occupation falling altogether between 100 and 120. In 1920, I permitted myself to be, as I now think, unduly impressed by the early types, and Mr. Bushe-Fox (to whose knowledge of coarse pottery I have always owed the greater part of my own) told me so at the time (*Trans.* N.S. xxi, p. 34, note); I now agree with what he then said and accept his inference from the coarse types, viz., that Hardknot was built probably within a few years of A.D. 100. At the end of the series are a few characteristic Antonine types (23, 24); but analogy suggests that these shapes were coming in at the beginning of Hadrian's reign (*cf.* Throp fort, no. 1, in *Arch. Aeliana*. ser. iii, vol. v).

The bowls (nos. 27-47) are on the whole constant in type. There are a great many of them, and they are almost all of the Flavian-Trajanic carinated pattern with a flattish outward-bent rim. Early in the history of this type the profile is sharp and finely-modelled; grooves on the upper surface of the rim and the outer surface of the bowl are common; but later these features disappear and the vessels become heavier, clumsier and simpler in design. Almost all the Hardknot bowls answer to the latter description. They tally with types found at Gellygaer and are more like the examples found—a belated consignment—in the Hadrianic stratum of the Poltross Burn milecastle (*Trans.* N.S. xi, plate iii, esp. 4-6) than those found at Corbridge in a pit of A.D. 90-100 (Report for 1911, *Arch. Ael.*, ser. iii, vol. viii, fig. 5, nos. 4-7). This enables one to place the great bulk of them with confidence in the reign of Trajan. Moreover, the common Hadrian-Antonine

types of bowl are altogether absent. Thus the evidence of the bowls is in favour of an occupation confined to the years 100-120.

The beakers tell the same story. Here the distinctively Hadrian-Antonine types are absent, and the commonest types—represented by a great number of specimens—are closely paralleled in the forts of Haltwhistle Burn\* and Gellygaer.

It remains to be added that among the cooking-pots are a very few specimens of the common Hadrian-Antonine shape; but the origin of this shape about the beginning of Hadrian's reign is vouched for by Throp fort, and its rarity at Hardknot tells conclusively against the survival of that site far into the reign of Hadrian.

All the classes of coarse pottery, so far as coarse pottery can at present be dated, thus yield the same general conclusion: Hardknot was occupied during the reign of Trajan; it was probably built within a few years of his accession and abandoned within a few years of his death.

#### IV. HISTORICAL CONCLUSIONS.

We have seen that, apart from a very few objects of later date, the finds belong to the early second century, and are consistent with an occupation falling mainly in the reign of Trajan. The Samian pottery is almost all Trajanic and Hadrianic; the coarse pottery, judged by the mass, is the same; the coins do not demand anything inconsistent with this; the inscribed fragment yields no certain result. Typologically, the fort suggests Flavian-Trajanic parallels; and, though this is an argument on which little weight can be laid, it bears out the other evidence.

Hardknot, then, was founded in the late first or early second century, and abandoned, except for a caretaker and a wayside rest-house, at some date probably not late in Hadrian's reign. Can we arrive at a closer date for its foundation?

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\* Haltwhistle Burn and Throp, I now think (1928), may date a little later than they have hitherto been placed, but not later than A.D. 120-125. If this is right, the Hardknot coarse pottery agrees with Mr. Pryce's reading of the Samian more closely than I had supposed when I wrote the text: *i.e.* it points to an evacuation more like A.D. 130 than A.D. 120.

Two facts must here be borne in mind. First, the scarcity of first-century types in the pottery. Those which occur, as we have seen, are such as might well survive to the early years of Trajan's reign. Had they been more numerous, they would have pointed to an earlier date; as it is, they tell against a first-century foundation.

Secondly,\* the absence of reconstructions within the fort. We have seen that, apart from the doubtful case of the commandant's house, there is no evidence of more than one period of occupation. Such evidence, unmistakeable in the bath-buildings, would doubtless have been decipherable elsewhere in the pages of the report, had it existed. Now Sir George Macdonald has shown that the Agricola forts in Scotland underwent several reconstructions before their final abandonment, which he places in the reign of Trajan (*Journ. Rom. Stud.*, ix, p. 132).

No doubt Hardknot may have led a more peaceful life than Inchtuthil and Ardoch; but there is no reason to think it did; and the absence of reconstruction, though it does not prove anything, points to a short life, and connects Hardknot with Gellygaer, where the same fact was observed.

The evidence thus points to a Trajanic, rather than a Flavian, foundation; and it tempts one to fancy that the inscribed fragment may, after all, refer to the consuls of A.D. 103, and date the erection of the fort to that year. At that time Neratius Marcellus was governor of Britain, and our member, Mr. I. A. Richmond, has argued† that he carried out a considerable reorganisation of the frontier-defences, and especially that a number of stone forts—previous forts having been mostly of earth—can be

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\* It might be permissible to find a third significant point in the absence of leaden sling-bullets, generally recognised as a first-century weapon, and numerous at Ambleside. At Hardknot their place is taken by pebbles, as mentioned above.

† *Proc. Soc. Ant. Scot.*, 1923-4, p. 321.

ascribed to him. If that is so, then Hardknot may be added to the list of sites at which Marcellus's handiwork is found; indeed, it would seem to be most readily explicable as a site fortified by him for the first time. On the other hand, nothing found at Hardknot forbids our putting the date of its foundation a few years later. Gellygaer was built between 105 and 112, and Hardknot, for all we know, may be as late as that. The question is only to be settled by digging its unexplored barrack-buildings.

Its end must certainly be placed at some time during the reign of Hadrian. The coarse pottery seems to me, on the whole, Trajanic rather than Hadrianic, being (in the mass) definitely earlier than that found in the earliest strata (c. 125-155) on Hadrian's Wall; but the later types may well bring us down to the middle of Hadrian's reign, and this is confirmed by the Samian ware; for Mr. Pryce, after making allowance for a few fragments dating from the "caretaker" or "rest-house" period of the fort's history, tells me that he would wish to place the evacuation definitely later than the building of the Wall, though not much later. Putting the various threads of evidence together, it is reasonable to date the evacuation at some time between the building of the Wall and the end of Hadrian's reign—say, during the decade 125-135.

The life of the fort, then, extends from about A.D. 100-110 to about A.D. 125-135. During this period it must have been in full occupation, that is, it must have housed a *cohors quingenaria*. The identity of this cohort and the ancient name of the fort are matters at which it would be waste of trouble to guess. After its evacuation as a fort, it was never again garrisoned; but the bath-house was reconstructed and converted into a dwelling for a caretaker or perhaps a mere rest-house for parties travelling along the road. Whether the commandant's house was also adapted for these purposes must remain at present doubtful.

Reference has already been made to the question of Hardknot's military function. It has been pointed out that the fort depends, strategically speaking, on the road. It was not planted here in order to patrol the mountains of Eskdale and Dunnerdale, or to keep the peace among the inhabitants of the " British settlements " of Furness and South Cumberland; it was planted here in order to be on the road.

This road is probably of Flavian date. The early fort at Ambleside can never have been a terminus; any road built as far as Ambleside must have been built farther, and the only known road that ever ran past Ambleside was that which ran to Ravenglass. But the early fort at Ambleside, to judge from its character and associated relics, was probably Flavian and indeed Agricolan in origin. Therefore the Ravenglass road, and therefore Ravenglass itself, must be assigned to the same date. Elsewhere in this volume, the purpose of this road and of its terminal station is discussed; here we need only note that Hardknot is an afterthought, an addition to a scheme which originally did not require it. And since the early fort at Ambleside, judging by its pottery, was not very long occupied, it is natural to infer that Hardknot was built to replace Ambleside.

The effect of this alteration would be to take troops from the centre of the mountain district and concentrate them on its seaward edge. This would be a disadvantage in so far as it affected the spacing of forts along the road; for the 33 miles between Kendal and Ravenglass would now be divided into 24 and 9, instead of 13 and 20 (approximate measurements; the actual line of road is not exactly known). And we may conjecture that it would not have been done, had the mountain tribes been a possible source of danger. But we have already seen that the central mountains were uninhabited; the danger, if danger there was, came from elsewhere.

If it is assumed that Agricola's projected invasion of Ireland betrays the fear of Irish raids on the western coast of England, all becomes clear. Ravenglass was responsible for the entire defence of South Cumberland; if the fells were safe, and the coast in danger, it was wise to move the garrison of Ambleside along the road to the first point at which it could command a view of the sea and act as an effective support to Ravenglass. That point is Hardknot.

But when the Wall was built, the Cumberland coast was reorganised as, in effect, a coastwise prolongation of the Wall itself. Ravenglass was henceforth, not the terminus of a road pointing towards Ireland, but a western outlier of Hadrian's frontier, and on that frontier it must lean for support. Hardknot now becomes unnecessary; and in order to re-establish a better spacing of the stages along the road, Ambleside is rebuilt.

#### ADDENDUM.

The proofs of this article have been read by Miss Fair, who has most kindly added the following observations out of her store of local knowledge.

(a) The "pond," with masonry round it, between the bath building and the *porta praetoria*, was examined some years ago by Mr. J. Harrison, who dug a hole in it and found it to be about 8 feet deep and full of peat, hazel brush, and hazel-nut shells. No pottery, etc., was found.

(b) There are definite traces (verified some years ago by digging) of a dam across the Campsike which would give a head of water sufficient for a pipe to the baths.

(c) There is a spring, coming right into the fort from the other side of the Parade Ground, which an old dalesman, who dug for Mr. Calverley, said was Maddock How Well. He said it had been thought to feed a well [tank ?] in the *retentura*.

(d) Another block of freestone, used as a cheese-press, is at Field Head Farm; and a socket stone (freestone) has been found at Sword House.

(e) There are traces of a building close to the *porta praetoria*; an elaborate drain (?) of freestone slabs, and burnt debris, are visible.

(f) I think the ruined wall going E. from the *porta praetoria* may mark the line of the Roman road. It avoids the worst pitch of the modern road, and a branch seems to go to the parade-ground, by a sort of hollow way up the south embankment of the parade-ground.

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